Carbon Management Europe

Carbon Management Europe's response to the public consultation on CO_2 markets and transportation infrastructure

Appendix to survey responses

9 January 2026

Foreword

This document was published in January 2026, under Carbon Management Europe's former name, Zero Emissions Platform/ZEP.

The Zero Emissions Platform (ZEP) welcomes the opportunity to provide feedback to the public consultation on the forthcoming EU legislative initiative on the CO_2 market and CO_2 transport and storage infrastructure.

The upcoming instrument should primarily aim to timely deploy the CO_2 transport and storage infrastructure in line with EU climate objectives, while preserving economic efficiency and effective competition over time. While equally important, these objectives will not always align and should therefore be calibrated to the evolving state of the market, ensuring that regulation remains proportionate as the CO_2 value chain develops.

Therefore, the regulatory framework should be designed as an iterative and adaptive system, capable of evolving in response to changing market maturity, infrastructure availability and competitive dynamics. When choosing the regulatory approach, we recommend prioritising learning by doing, enabling practical experience from early projects to inform subsequent regulatory intervention, rather than relying on fixed regulatory approaches based on predefined timelines, which risks being overly rigid.

Where markets remain nascent or infrastructure-constrained, regulatory design should prioritise infrastructure rollout, project bankability and investment certainty. Where and when markets become sufficiently developed, liquid, and competitive, regulatory focus should shift towards more stringent competition safeguards, ensuring fair access, preventing foreclosure and supporting long-term efficiency within a market-driven and cost-efficient European CO_2 value chain.

Against this background, ZEP recommends that the forthcoming framework be anchored in the following design principles:

1. Dual legal basis (Art. 192 and 194 TFEU)
2. Clear governance framework and designation of NRAs
3. Targeted TPA regulation by asset type:
    a. Carefully balance segment-specific economic and technical characteristics of onshore and offshore CO_2 pipelines with the need for an integrated transport system
    b. Negotiated TPA for storage
4. No unbundling requirements + NRA oversight and EU reassessment clause
5. Tariff transparency
6. Multimodal framework
7. CCS Availability Guarantee Mechanism for early movers

1. Dual legal basis

The forthcoming European legislative proposal on CO_2 markets and infrastructure should have a dual legal basis, namely energy law under Article 194 TFEU and environmental law under Article 192 TFEU.

According to settled case law of the Court of Justice of the European Union (CJEU), recourse to a dual legal basis is permissible where:

(i) no single prevailing objective can be identified;

(ii) the objectives pursued are indissolubly linked;

(iii) the relevant legislative procedures are compatible.

All three conditions are met in the present case. [1]

1.1 Absence of a prevailing objective

Unlike other energy or commodity markets, the CO_2 market does not arise naturally from the intrinsic value of the asset traded, since CO_2 has no usable energy value. Its value derives from the climate mitigation outcomes enabled by its capture, transport and permanent storage.[2]

At the same time, these environmental objectives cannot be achieved without regulating infrastructure-related elements such as transport networks and access conditions, which fall within the sphere of energy policy. The environmental and energy objectives are thus indissolubly linked: the former provides the *raison d'être* of the legislative act, while the latter structures the means through which it is operationalised.

Neither objective can be subordinated to the other without altering the nature and scope of the measure. The legislature would therefore be unable to identify a predominant objective. National practice confirms this hybrid character. For example, the Belgian CO_2 Decree, relies on a dual legal basis rooted in environmental competence (for CCS) and economic competence (for CCU), acknowledging that CO_2 regulation cannot be reduced to a single policy objective.

1.2 Existence of an indissoluble link

At EU level, industrial carbon management (ICM) is most often embedded in legislative instruments and frameworks with an environmental legal basis, such as the EU Emissions Trading System (ETS) Directive and the CCS Directive. This is not accidental: CO_2 transport and

[1] Case C-300/89 Commission of the European Communities v Council of the European Communities [1991], C-178/03 Commission v Parliament and Council [2006], C-155/07 European Parliament v Council [2008] para 66.

[2] Zero Emissions Platform (2025). *Designing Europe's CO2 market and infrastructure: A framework for action.* https://zeroemissionsplatform.eu/publication/designing-europes-co2-market-and-infrastructure/.

storage infrastructure is conceived, regulated and operationalised as a means to achieve the Union's climate and environmental objectives. A legislative proposal on CO_2 markets and infrastructure must therefore be able to interface coherently with these instruments, including as regards monitoring, reporting and verification, permitting, liability and environmental safeguards.

Ensuring policy coherence across the ICM acquis is essential, because the effectiveness and legitimacy of CO_2 infrastructure depend on its alignment with climate governance tools designed to reduce net emissions. Were the initiative to be covered by Article 194(2) TFEU only, this would significantly narrow the ability of the legislation to support ICM as a climate policy tool, by framing it primarily as an internal market or energy-infrastructure measure rather than as part of the broader climate mitigation architecture. The underlying policy rationale of CO_2 infrastructure – enabling decarbonisation through permanent storage or carbon utilisation pathways – is therefore inseparable from environmental regulation and climate accountability.

At international level, binding rules on CO_2 transport and storage are also established within international environmental treaties, such as the London Protocol, the Helsinki Convention and the Barcelona Convention. The international legal framework for transboundary CO_2 transport and offshore storage is anchored in environmental protection concerns and operates through environmental law techniques (such as prohibitions, permitting obligations and safeguards against marine pollution).

As mentioned in the European Commission's call for evidence supporting this legislative initiative, the proposed legislation aims to "remove the remaining barriers and legal uncertainty for cross-border CO_2 transportation, such as those originating from international treaties". This directly illustrates that the proposal is not only about enabling infrastructure investment, but also about addressing constraints derived from environmental treaty obligations and ensuring compliance with them. If the proposal for an EU legislative initiative on CO_2 markets and infrastructure aims to tackle legal and regulatory issues, an environmental basis would ensure consistency, both with the Union's internal climate acquis and with its external commitments. In other words, the very barriers the initiative seeks to remove arise in large part from rules adopted under environmental rationales; the legal solutions must therefore be able to operate within that same normative framework.

The indissoluble link between the various objectives this legislative initiative seeks to address is therefore reflected in the broader legal context. Developing CO_2 networks is simultaneously a condition for energy-system transformation and a mechanism for achieving environmental and climate outcomes. These objectives are not merely complementary but mutually dependent: decarbonisation infrastructure cannot be separated from the environmental governance structures that define what counts as emission reduction, how permanence and integrity are ensured, and how cross-border risks are managed. This interdependence supports recourse to a dual legal basis under Articles 194 and 192 TFEU, because neither objective can be fully realised in isolation from the other.

1.3 Procedural compatibility

Both Article 192(1) and Article 194(2) TFEU follow the ordinary legislative procedure, thereby satisfying the requirement of procedural compatibility. A different procedure would apply only if Article 192(2)(c) TFEU were triggered, namely if the measure "significantly affected" a Member State's choice between different energy sources and the general structure of its energy supply. In this case, a derogation from the ordinary legislative procedure would apply and the special legislative procedure would be triggered.

However, the CJEU has clarified that this provision should be interpreted narrowly as a broad interpretation would risk transforming the special legislative procedure into a general rule.[3] Since the examined initiative does not seek to influence Member States' energy mix, it would therefore not trigger Article 192(2)(c) TFEU.

Importantly, while dual legal bases are not commonly used, they are permissible under EU law. The Batteries Regulation, which combines internal market and environmental legal bases, provides a relevant precedent. A similar approach is legally robust and appropriate for the initiative at hand.[4]

[3] Case C-5/16 Republic of Poland v European Parliament and Council of the European Union [2018], para 43-44.

[4] Directive 2006/66/EC. *On batteries and accumulators and waste batteries and accumulator*s. European Parliament and Council. https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32006L0066.

2. Governance and institutions

The upcoming instrument should require Member States to designate National Regulatory Authority (NRA) by a defined date (e.g. 2028). Drawing inspiration from the EU telecommunications framework, Member States should empower NRAs to:

(i) conduct periodic, forward-looking market analyses (e.g. every three years);
(ii) within that market, identify undertaking(s) holding significant market power (SMP)/dominance;
(iii) if necessary, impose proportionate regulatory obligations to prevent discriminatory conduct before it materialises.

In Member States where establishing a dedicated NRA would be disproportionate – either due to limited CCS/U activity or because equivalent regulatory capacity already exists – these functions could be assigned to an existing competent public authority (e.g. an energy regulator, environment agency, or a Ministry), provided that functional and organisational independence, decision-making autonomy, and adequate resources are guaranteed. Where the designated authority is part of a Ministry, Member States should ensure separation from policy-making functions and establish transparent procedural safeguards to prevent conflicts of interest.

Member States may also opt for a shared or joint regulatory arrangement, including reliance on another Member State's NRA through a formal cooperation framework, where this improves effectiveness and avoids duplication.

2.1 Operational approach

NRA should conduct forward-looking market analyses within clearly defined relevant markets and may justify intervention where all of the following conditions are met:

(i) high and non-transitory barriers to entry exist;
(ii) the market does not tend towards effective competition within the relevant time horizon;
(iii) competition law alone is insufficient to adequately address the identified market failures.

Where intervention is justified, the NRA should identify undertakings holding significant market power (SMP), individually or jointly, and may impose a different range of proportionate and targeted regulatory obligations, including:

- non-discriminatory access conditions;
- accounting, legal, functional, or ownership unbundling between segments of the value chain (e.g. transport and storage), where necessary;
- regulated tariffs and/or tariffs methodologies where negotiated access proves insufficient.[5]

[5] Directive 2018/1972. *The European Electronic Communications Code*. The European Parliament and the Council. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02018L1972-20241018.

To reduce administrative burden and ensure regulatory certainty, Member States should require market participants to provide the NRA with relevant information to conduct such market analyses. The NRA shall ensure that commercially sensitive information is treated as confidential, subject to appropriate safeguards, aggregation, and publication of non-sensitive summaries.

This iterative, evidence-based approach is particularly suitable for CO_2 markets, which are characterised by high entry barriers and sunk costs, limited substitutability across assets, and strong first-mover advantages, but which are also expected to evolve rapidly over time.[6] It allows regulatory obligations to be calibrated, reviewed and lifted as competition develops, while providing a more timely and preventive response than exclusive reliance on *ex post* competition law, which is often slow, entails high evidentiary thresholds, and may only intervene after discriminatory behaviour or irreversible market foreclosure has occurred.[7]

Dimension	Ex ante regulatory obligations	Ex post enforcement
Actor	National Regulator Authorities	Competition law authorities
Timing of intervention	Before any infringement occurs; preventive and forward-looking	After an infringement has occurred; corrective and retrospective
Purpose	To prevent discrimination, foreclosure or excessive pricing when risks is perceived high	To sanction and remedy anti-competitive behaviour committed
Trigger	Market analysis identifying significant market power, bottlenecks or market failures	Proof of a concrete infringement (e.g. abuse of dominance, collusion)
Type of obligations	Regulatory obligations such as transparency, non-discrimination, access obligations, unbundling, regulated TPA	Prohibitions, behavioural remedies, fines, and structural remedies in exceptional cases
Speed and predictability	Relatively predictable and periodic; supports investment planning	Often lengthy and uncertain; legal clarity only after decisions
Ability to shape market design	It can steer network access, oversizing and interoperability	It can only correct unlawful conduct, not design markets

Table 1. Comparison of preventive *ex ante* obligations and corrective *ex post* enforcement. *Ex ante* obligations provide regulators with a graduated set of tools to identify risks early and to address them with proportionate, targeted intervention where market conditions justify it, without implying comprehensive regulation from the outset.

[6] Zero Emissions Platform (2025). *Designing Europe's CO2 market and infrastructure: A framework for action.* https://zeroemissionsplatform.eu/publication/designing-europes-co2-market-and-infrastructure/.

[7] Mulder, M. (2024). 'Verkenning van de marktordening voor Carbon Capture and Storage (CCS)'. *Centre for Energy Business and Economics Research Policy Paper*, no. 14. University of Groningen. https://www.rug.nl/cenber/docs/marktordening-ccs-mulder-cenber-policy-paper-14.pdf.

3. Third-party access

Access to CO_2 transport networks and storage sites is addressed under Article 21 of the CCS Directive, which obliges Member States to take all necessary measures to ensure that potential users can access these facilities in a transparent and non-discriminatory manner. The Directive establishes a high-level framework, requiring access to be fair and open.

Importantly, the CCS Directive does not specify whether Member States should implement negotiated third-party access (nTPA) or regulated third-party access (rTPA). Consequently, different Member States have adopted divergent approaches, contributing to a heterogeneous access and tariff framework across Europe, and increasing complexity for cross-border projects and integrated CO_2 networks.[8]

ZEP notes that the questionnaire's section addressing third-party access (TPA) options does not distinguish between onshore and offshore pipelines. This distinction is important, as these segments differ materially in economic characteristics, cost and risk profiles, technical design, system architecture, and the degree to which they can realistically support competitive entry. Any EU-level approach to TPA should therefore explicitly consider these differences when determining the appropriate regulatory design.

3.1. Onshore pipelines

Onshore CO_2 pipelines tend to exhibit natural monopoly characteristics, driven by high upfront capital expenditure (CAPEX), low marginal costs, and strong economies of scale, making duplication inefficient. Evidence from recent studies suggest that in the absence regulatory constraints, a profit-maximising monopolist transports 10% less CO_2 than the socially desirable quantity and 10% less CO_2 than the socially optimal volume.[9]

In many regions, onshore pipelines may also represent the only feasible large-scale transport option for industrial decarbonisation. Road transport cannot be expected to scale over long distances, while rail transport is constrained by limited infrastructure availability, capacity bottlenecks, and operational complexity. These characteristics strengthen the case for a more structured access and tariff framework for onshore pipeline infrastructure.

3.2 Offshore pipelines

Offshore CO_2 pipelines typically exhibit even higher costs and risk than onshore networks. Offshore development increases expenditure substantially across the value chain (materials,

[8] Zero Emissions Platform (2025). *Designing Europe's CO2 market and infrastructure: A framework for action.* https://zeroemissionsplatform.eu/publication/designing-europes-co2-market-and-infrastructure/.

[9] Nicolle, A., Cebreros, D., Massol, O., Schippers, E. J. (2023). CO_2 pipelines systems: An analytical lens for CCS regulation. *IFPEN Economic Papers*, no. 153. https://www.ifpenergiesnouvelles.fr/sites/ifpen.fr/files/inline-images/NEWSROOM/Regards%20%C3%A9conomiques/Cahiers%20Economie/IFPEN%20Economic%20Papers%20n%C2%B0153.pdf.

installation, inspection, maintenance, and repair), and entails greater exposure to construction and execution risk as well as long-term operational uncertainty. However, offshore CO_2 pipelines can perform distinct function depending on their system architecture, which should inform the choice of TPA regime.

3.2.1 Point-to-point pipelines

Some offshore pipelines are developed as project-specific assets, tightly integrated into a specific storage development. They typically connect a coastal hub or landing terminal directly to a dedicated offshore storage injection site, and are designed, permitted, and financed as part of a single integrated investment decision – particularly in early project phases. In such cases, imposing a fully regulated access regime may reduce investment incentives and complicate project financing, especially where the pipeline is not conceived as a shared network asset.

3.2.2 Shared infrastructure

Other offshore pipelines may serve as shared, strategically indispensable infrastructure for multiple users and potentially multiple storage sites, often representing the only viable connection to a storage basin. In such cases, offshore pipelines function as an "open-access backbone" and may become a monopolistic gatekeeper to scarce storage resources. This is illustrated by the Aramis CCS project, which is structured as an open-access CO_2 backbone: a ~200 km trunkline connecting the Port of Rotterdam to offshore storage on the Dutch Continental Shelf, with scalable capacity (7.5 Mt/y initially, rising to around 22 Mt/y), and an offshore distribution platform enabling multiple emitters and multiple storage sites rather than a dedicated point-to-point line.

3.3. TPA options for pipelines

3.3.1 Regulated TPA for all pipelines

Imposing rTPA across all pipeline types could be justified for onshore pipelines, given their natural monopoly features and the limited scope for alternative transport modes in many corridors. It may also support welfare-enhancing outcomes by incentivising efficient capacity oversizing, preventing foreclosure, supporting cost recovery, and maximising achievable utilisation.

A similar rationale may apply to offshore pipelines that function as a shared backbone infrastructure, and which may otherwise operate as monopolistic access points to scarce storage basins.

However, an undifferentiated rTPA obligation may be inappropriate for offshore point-to-point pipelines that are developed as part of integrated storage projects, particularly where there is no credible expectation that such assets will operate as shared network infrastructure during the early phases of market development.

3.3.2 Negotiated TPA for all pipelines with NRA oversight

A second option would be to establish nTPA as an EU-wide baseline, without prejudice to Member States imposing more stringent obligations where justified.

This option may be justified in the early market phase, provided that NRA have:

- clear monitoring and information-gathering powers;
- the ability to conduct periodic market reviews; and
- the ability to impose proportionate regulatory obligations where an operator acquires significant market power and the relevant predetermined conditions are met (as set out in the previous Chapter on "Governance and institutions").

This approach may support early investment and deployment while retaining regulatory safeguards against discriminatory access and excessive pricing as market concentration may emerge. However, it could be insufficient for onshore pipelines and offshore backbones where monopoly risks are structurally embedded and where reliance on negotiation may not deliver efficient or timely outcomes.

3.3.3 Hybrid approach (segment-based differentiation)

A hybrid approach could require rTPA for onshore pipelines and offshore backbone infrastructure, while applying nTPA (with NRA oversight) for offshore point-to-point pipelines. This differentiation reflects the distinct economic and technical characteristics of each segment and the greater integration and project-specific nature of certain offshore assets.

However, such an approach also raises notable challenges:

- It may hinder the development of a coherent and predictable regulatory framework across interconnected networks and complicate the transition toward integrated CO_2 transport systems.
- It may create fragmented regulatory responsibilities and "boundary issues" for NRAs, especially where onshore and offshore segments form a continuous transport service or where project-specific infrastructure gradually becomes part of a network.
- It may undermine commercial efficiency by limiting bundling opportunities: emitters could face multiple access regimes (regulated and negotiated) across a single transport route, increasing transaction costs and complexity.

These challenges suggest that differentiation should be carefully designed, with clear criteria, predictable transition mechanisms, and coordination between NRAs, rather than being purely infrastructure-based.

3.3.4 ZEP's recommendation

The choice of TPA regime should reflect the economic characteristics and system role of CO_2 pipelines, while avoiding excessive fragmentation across interconnected networks. A fully uniform EU-wide model may not capture important differences between onshore and offshore pipelines, or between offshore point-to-point assets and shared backbone infrastructure. At the same time, overly differentiated regimes risk fragmentation, increased transaction costs, and barriers to integrated CO_2 transport systems.

The European Commission should therefore assess whether the most robust approach is either:

- a general EU framework of nTPA with strong NRA oversight combined with clear triggers for escalation (SMP/market failure test); or
- a calibrated approach in which backbone-type infrastructure and onshore monopolies are subject to rTPA, while genuinely project-specific offshore pipelines adopt nTPA subject to oversight and transparent access principles.

In either case, the instrument should ensure predictability through harmonised minimum requirements on transparency, access procedures, information disclosure, tariff principles, and dispute resolution, thereby supporting a coherent EU market while allowing proportionate differentiation where justified.

3.4. Negotiated TPA for storage

CO_2 storage is characterised by high barriers to entry and a high risk profile. These barriers can take different forms and relate to specific features of the market that can confer advantages to incumbent firms.[10] Entry depends on securing scarce and highly regulated storage sites with complex permitting and long-term liability frameworks (legal/regulatory advantages). It also requires specialised geological and engineering expertise as well as injection and monitoring capabilities (technical advantage). Finally, incumbents benefit from existing licences, proven operational track records, and established relationships with authorities and customers (position-related advantage). These constraints are often more pronounced for offshore storage projects, given their higher CAPEX and operational/logistics challenges.

Nevertheless, the European CO_2 storage market is still at an early stage of development. At present, storage capacity remains scarce and geographically concentrated – most notably in the

[10] European Commission. (2004). *Guidelines on assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52004XC0205%2802%29.

For a detailed analysis of entry barriers, see Benedetti Fasil, C., Sanchez Martinez, M., Christensen, P. and Robledo Bottcher, N. (2017). *Entry barriers and their macroeconomic impact in the EU*. (JRC 108932). Publications Office of the European Union. https://publications.jrc.ec.europa.eu/repository/handle/JRC108932

North Sea.[11] This increases the risk of bottlenecks and creates scope for strategic behaviour, especially while competitive constraints are still limited. Imposing fully regulated access conditions too early would weaken investment incentives by limiting operators' ability to manage site-specific risks, recover efficiently incurred costs, and tailor contractual terms to the characteristics of individual storage complexes.[12]

A negotiated third-party access regime for storage, subject to robust NRA oversight, is therefore the most appropriate approach at this stage. It provides the flexibility needed to support market formation and capacity build-out, while NRA oversight helps prevent discriminatory conduct. This balanced approach reduces the risk that current scarcity and entry barriers translate into access foreclosure or other anticompetitive outcomes, while avoiding premature regulation that could delay deployment. This can be reassessed as the market matures and storage supply becomes more diversified.

[11] Cavanagh, A.J. and Lockwood, T. (2025). 'Carbon capture & storage 2030: As the market takes shape, can Europe's CO_2 storage projects meet growing demand?'. *International Journal of Greenhouse Gases Control.* https://www.sciencedirect.com/science/article/abs/pii/S1750583625002038.

[12] Zero Emissions Platform (2025). *Designing Europe's CO2 market and infrastructure: A framework for action.* https://zeroemissionsplatform.eu/publication/designing-europes-co2-market-and-infrastructure/.

4. Unbundling

Mandatory unbundling across the CO_2 value chain should not be imposed during the initial phases of market formation. Integrated business models can play an important role in supporting project bankability, enabling system optimisation and coordination, and accelerating infrastructure deployment, particularly where investment risks remain high and business cases depend on securing sufficient volume commitments across the chain.

The upcoming legislative instrument should therefore allow integrated arrangements, subject to robust NRA oversight and strong transparency obligations to deter discriminatory conduct. Where an NRA identifies material foreclosure risks and significant market power, it should be able to impose proportionate safeguards following a "regulatory ladder": first, the least intrusive measures, such as enhanced transparency requirements and accounting separation; then, where necessary, functional separation (e.g. separate management and staff for access-relevant functions, information firewalls, and transparent, rule-based capacity allocation and congestion management). Legal and ownership unbundling should be a last resort, considered only if lighter remedies prove ineffective or insufficient.

At the same time, the instrument should explicitly provide for a future EU-level review. The European Commission should be mandated to assess, around 2035, whether EU-wide unbundling requirements are necessary and proportionate, based on evidence relating to market structure and concentration, competitive dynamics, conflicts of interest, investment conditions, and the effectiveness of existing regulatory safeguards (including access and tariff regulation). This review should consider whether more stringent forms of separation – such as legal or ownership unbundling – are required for network segments exhibiting persistent monopoly power or gatekeeper control over access to storage basins.

This approach would be without prejudice to Member States' ability to adopt stricter national unbundling provisions where justified by domestic market conditions.

5. Tariff transparency

To support market formation, reduce contractual uncertainty, and mitigate price volatility, robust transparency requirements should apply to CO_2 transport and storage from the outset. Transport and storage operators should publish indicative tariff ranges and standard access conditions – irrespective of the TPA regime applicable – in a way that enables potential users to assess likely access costs and compare offers across providers. Tariff information should be updated at least annually and whenever significant material changes occur.

In practice, CO_2 transport and storage tariffs are typically the outcome of bilateral negotiations and vary significantly depending on customer-specific conditions (e.g. location, distance, utilisation, seasonality, service configuration) as well as the allocation of risks and liabilities between the parties. Tariff ranges presented in isolation may therefore be difficult to interpret and could provide misleading market signals.

To ensure transparency is meaningful, operators should therefore disclose how tariffs vary with objective cost drivers.[13] This can be done through structured tariff categories ("bands") linked to key parameters.[14] Another option – which is more flexible and may better reflect the multi-dimensional and non-linear nature of CO_2 tariffs – is to publish a base tariff range together with a transparent adjustment methodology (e.g. formula or parameter table), showing how certain factors affect the final charge. These tools can be combined and are essential to ensure negotiated tariffs remain fair and non-discriminatory, reducing information asymmetries while preserving appropriate commercial flexibility in a nascent market.

To achieve this without undermining confidentiality, disclosure should protect commercially sensitive information, including through aggregation, anonymisation and publication delays where justified. The European Commission should consider developing an EU template for tariff disclosure to facilitate comparability across Member States and cross-border contracting.

In parallel, NRAs should be empowered to request additional information and intervene where necessary to ensure tariffs and access conditions remain fair, transparent, and non-discriminatory. The combination of mandatory disclosure and targeted regulatory oversight can reduce price opacity and the risk of discriminatory practices, particularly during early market development. This approach draws inspiration from the Danish regulatory framework, under which transport and storage operators are required to publish standard prices and conditions for access to CO_2 pipeline infrastructure and storage sites, respectively.[15]

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[13] These may include, for instance: entry/exit location and distance, pressure/phase requirement (gaseous vs dense), reserved capacity, system utilisation, flow profile and service configuration (e.g. firm vs. interruptible, hub services), CO_2 quality specifications, service bundle (e.g. transport-only/injection-only vs. full-service), injection profile and predictability, contract duration, risk allocation arrangements.

[14] For example: Band A for short distance, high utilisation, continuous flows; Band B for medium distance, low utilisation, ad-hoc or intermittent flows; Band C for long distance, medium utilisation, seasonal flows; etc.

[15] Klima-, Energi- og Forsyningsministerie. (2024). *L 117 Forslag til lov om rørført transport af CO2*. https://www.ft.dk/samling/20231/lovforslag/l117/index.htm.

6. Multi-modal framework

The upcoming framework should establish a comprehensive, multi-modal definition of "CO_2 transport" that encompasses pipelines as well as shipping, rail, and road transport. The definition should also include all functionally linked infrastructure and services necessary for an integrated transport chain, such as CO_2 conditioning and liquefaction, intermediate storage, compression and pumping facilities, transhipment operations, and loading/unloading terminals.

This approach is necessary to ensure that transparency, third-party access and tariff principles apply consistently across the full transport chain, including multi-modal CO_2 hubs, and to avoid regulatory gaps and discriminatory practices at critical interface points.

Particular attention should be paid to multimodal interface points (e.g. liquefaction and loading terminals), which may become bottlenecks and should therefore fall clearly within the scope of the framework. The definition should be technology-neutral to remain future-proof as transport chains evolve and new modes and infrastructure emerge.

7. CCS Availability Guarantee Mechanism for early movers

Carbon capture and storage (CCS) projects are exposed to low-probability but high-impact system-level availability risks. Because the different segments of the CO_2 value chain are mutually dependent and cannot easily be substituted, a failure or temporary unavailability in one segment of the chain can prevent otherwise operational projects from delivering CO_2 to permanent storage. This risk is most acute during the early build-out of Europe's CO_2 transport and storage network, when infrastructure is first-of-a-kind, redundancy is limited, and operational experience is still being established. However, it does not disappear entirely as the market matures, and shared networks remain vulnerable to unplanned disruptions.

This creates a coordination challenge: industrial emitters may delay investment in capture unless access to reliable storage is credible, while T&S developers struggle to reach final investment decision (FID) without firm, bankable commitments from capture projects. Similar dependencies affect BioCCS and DACCS projects, where interruptions can prevent CO_2 from being permanently stored and therefore undermine the ability to generate and monetise verified carbon removals, even though these projects are not necessarily exposed to EU ETS surrender obligations in the same way as fossil emitters. The result is a risk of mutually reinforcing delays, precisely at the stage when rapid scale-up is needed.

One potential option for consideration would be an EU-level, targeted and time-limited CCS availability guarantee mechanism, potentially under the forthcoming Industrial Decarbonisation Bank or a comparable EU-level financing instrument. Such a mechanism could be narrowly scoped to the early market-development phase and apply only to permitted T&S networks, with auditable trigger conditions (e.g. verified network-level unavailability outside the emitter's control) and robust MRV requirements demonstrating that captured CO_2 would otherwise have been transported and permanently stored. To preserve incentives and avoid moral hazard, coverage could be partial (e.g. 70-80%), subject to deductibles and annual caps, and designed with an automatic sunset once storage access and system redundancy are demonstrably sufficient.

In practical terms, where transport or storage is temporarily unavailable despite compliant behaviour, the mechanism could provide a limited financial backstop – e.g. by compensating a defined share of ETS-related exposure for affected volumes for fossil CCS, and by addressing equivalent verified revenue shortfalls for BioCCS/DACCS where permanent storage cannot be demonstrated and removals cannot be credited. Importantly, this would not require changes to the EU ETS or undermine carbon price incentives; rather, it would help reduce early-phase system risk and support investment decisions in CCS and CDR projects while Europe builds the shared infrastructure required for scale-up.

Annex – Additional comments to specific questions in the questionnaire

Q4

The European CO_2 market framework should remain technologically neutral. However, since permanent storage will be the main driving force behind market development for the coming decades, the framework may want to initially prioritise transport and storage scale-up, including by establishing clear access and capacity allocation rules. CO_2 utilisation (CCU) may become more relevant over time, especially after 2040, but most CCU pathways are still at early Technology Readiness Levels (TRLs).

In addition, CCU pathways typically source CO_2 in close proximity to the conversion facility. In practice, CCU is often carried out on-site or short-distance, as long-distance transport quickly erodes economics, and many users require different purity or conditioning than that required for storage. As a result, CCS and CCU are unlikely to rely on the same transport network at scale: CCS requires large volumes shipped to a limited number of storage hubs, while CCU tends to favour local logistics and operates in different end-product markets.

Q16

The NZIA provisions on accelerated permitting and the single point of contact are an important and positive step. However, they are conditional on "net-zero strategic project" recognition under Articles 13 and 14 in the NZIA Regulation, which Member States have been slow to grant to CO_2 capture, transport, and storage projects. The only one to date is Aalborg Portland's ACCSION project and was confirmed in November 2025.

Moreover, the NZIA single point of contact does not necessarily provide a clear, consolidated overview of all required permits, nor does it eliminate overlaps between competent authorities or guarantee a materially faster overall process. As a result, the current framework is not yet sufficiently effective, coherent, or durable to ensure timely permitting and land access for CO_2 transport infrastructure.

Q22

The adoption of an EU legal framework for CO_2 market and transport infrastructure could help address legal uncertainty surrounding offshore CO_2 storage in relation to applicable international conventions, such as the Helsinki Convention.

By establishing a clear EU policy direction and a harmonised regulatory framework, this legislative initiative – and its potential transposition into national law (in case of a Directive) – could generate political and regulatory momentum and facilitate a more coordinated position

among Member States in relevant international fora. This could support more consistent interpretation and implementation across Europe and strengthen the EU's collective engagement on outstanding international-law constraints affecting offshore CO_2 storage.

In parallel, where the EU is itself a Contracting Party to a relevant convention, the European Commission could also use the convention's institutional processes to promote common approaches, including by tabling proposals for interpretative resolutions or recommendations to Contracting Parties and, where relevant, supporting targeted amendments. However, continued international efforts will remain necessary. This includes, in particular, achieving agreement within HELCOM on an interpretative resolution allowing geological storage of CO_2 beneath the Baltic seabed – or, where necessary, initiating a formal process to amend the Helsinki Convention.

Q26

Cross-border CO_2 transport requires a harmonised EU framework to ensure legal certainty, consistent enforcement, and clear allocation of responsibilities across jurisdictions. This framework should include a mandatory contractual cascade for leakage and incident-related obligations, supported by a standard EU model contract defining baseline obligations for capture, transport, and storage operators.

Commercial parties should remain free to negotiate tariffs, cost allocation, and the distribution of financial burdens, including indemnities and insurance arrangements. However, such agreements should only operate within the limits of the model contract and must not derogate from or displace the primary regulatory responsibility of each regulated entity. In other words, parties may transfer financial exposure between themselves, but may not shift, dilute or reassign their legal and compliance obligations under the regulatory framework.

For pipelines spanning two or more Member States, reporting, compliance oversight, and enforcement should be coordinated through a single competent authority – ideally the authority in the Member State where the CO_2 departs – in cooperation with the competent authorities of the other Member State(s), to minimise duplication and ensure consistent supervision.

Q28

EU legislation should clearly allocate jurisdiction, reporting and liability responsibilities per infrastructure segment, particularly for cross-border CO_2 transport and storage. To improve accounting clarity and leakage risk attribution under the EU ETS, it would be coherent to treat each distinct transport segment (e.g. pipeline–hub–pipeline, including modal transfer points) as a separate ETS-regulated entity, with clear MRV obligations for operators of each segment.

Where leakage occurs during transport prior to injection, emissions should be reported in the jurisdiction in which the leakage occurs (or, for cross-border segments, under the jurisdiction of the designated lead authority – ideally in the Member State of departure – to avoid duplication).

For cross-border geological storage, the allocation of jurisdiction and reporting responsibilities is more complex, particularly where the storage complex extends across national jurisdictional boundaries, such that injected CO_2 may migrate within the same geological formation into the subsurface territory of a neighbouring country as reservoir pressure increases. This is not merely a theoretical scenario: projects such as Greensand are expected to scale over time, potentially involving plume migration across jurisdictional boundaries while remaining safely contained.

To reduce administrative burden and provide legal certainty, the framework should enable a "one-stop" permitting and supervision model, whereby the competent authority in the country where the injection well is located acts as lead authority for permitting, monitoring and reporting, while the competent authority of the neighbouring country is subject to mandatory consultation and formal confirmation (or a structured "no-objection" procedure) to reflect its legitimate interests in the part of the storage complex located within its jurisdiction.

This approach aligns with the IPCC GHG inventory guidelines[16] for CCS, which state that "if CO_2 is injected in one country (Country A) and travels from the storage site and leaks in a different country (Country B), then Country A is responsible for reporting the emissions from the geological storage site."

Q36

Cost-effective CO_2 quality requirements should be based on a risk-based, fit-for-purpose framework. Under such an approach, harmonised baseline limits are set for critical impurities that can materially affect safety, asset integrity or operability (e.g. those driving corrosion, hydrate formation, phase instability, toxicity, or metering uncertainty). Stricter thresholds should apply only where required by the most sensitive element of the transport–storage chain (e.g. dense-phase pipelines, liquefaction/shipping interfaces, or specific storage reservoir constraints) and the relevant network design.

Where equivalent safety and integrity outcomes can be ensured through alternative measures – such as enhanced monitoring and verification, real-time sensing, corrosion-resistant materials, dehydration at specific nodes, or operational controls – controlled variances and tiered specifications should be permitted to avoid unnecessary over-purification. This approach links purification effort to downstream needs, reduces total system cost, supports interoperable CO_2 networks (including blending from multiple sources), and enables innovation in lower-cost capture technologies without compromising safety or environmental integrity.

[16] See the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, available at: https://www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/

Q38

CO_2 quality will be measured and controlled at operational handover points along the chain (e.g. capture installations, pipeline entry/exit points, terminals, compression stations, injection facilities), rather than "at the border". As a result, border-check concepts are impractical (especially for pipelines) and risk creating artificial bottlenecks and enforcement gaps.

A more workable approach is operator-led cross-border cooperation, supported by binding cooperation duties, clear and transparent cost-sharing rules, and light-touch coordination between authorities for oversight, dispute resolution and enforcement where necessary. In this context, EU-wide mandatory CO_2 quality specifications at interconnection points may not be proportionate in the near term. Instead, route-specific specifications agreed between interconnected operators – within EU-level baseline safety and integrity requirements – can provide flexibility while ensuring continuous, uninterrupted flows and supporting early network build-out.

Q40

Our additional comments relate to the statement: "The tariff each user pays should reflect the costs that the user incurs for the system (network development follows economic principles only)".

We agree that tariffs should be cost-reflective and, more specifically, that they should broadly reflect the costs that each user imposes on the system – including CAPEX, OPEX and financing costs – rather than being driven solely by short-term supply and demand dynamics. A cost-reflective approach is particularly important in the early stages of CCS market development, when capacity is scarce and competitive constraints may be limited. It can protect users from excessive pricing, enhance transparency, and increase the likelihood that public support (where applicable) is passed through to users rather than being captured by operators as additional margin. We therefore agree with the overall intention of the statement.

However, we selected the "Neutral" option in the survey because the wording *"network development follows economic principles only"* is insufficiently clear and may be open to divergent interpretations. In particular, it is unclear whether the statement is intended to endorse a strictly cost-based approach (based only on CAPEX, OPEX and financing costs), or whether it also allows tariffs to incorporate broader economic signals such as scarcity pricing, risk premia, and/or pricing outcomes influenced by market power considerations.

We support a framework in which tariffs remain fundamentally cost-reflective, with clear safeguards against discriminatory conduct and excessive pricing, while allowing limited and transparent adjustments where objectively justified (e.g. to reflect service differentiation or risk allocation), and subject to regulatory oversight.

Q41

Our additional comments relate to the statement: "Discriminatory conduct is a significant risk. We need more rules to ensure CO_2 markets will be competitive".

We agree that preventing discriminatory conduct and promoting competitive CO_2 markets should be a key objective of the upcoming legislative instrument. However, the *"need for more rules"* should primarily mean ensuring that each Member State designates a competent NRA and empowers it with appropriate monitoring and regulatory oversight functions (see Chapter 2 on "Governance and institutions"), including the mandate to conduct forward-looking market assessments and to intervene where there is evidence of a material risk of anti-competitive behaviour. This is why we "agreed" with this statement in the survey, but remained "neutral" with regards to the previous two statements that implicitly treat vertical integration as the main concern and point towards unbundling at EU level.

Given the nascent and capital-intensive nature of CO_2 transport and storage, the short-term priority must be to enable the timely development of infrastructure, improve project bankability, and reduce investment risk. In this early phase, overly rigid structural requirements – such as mandatory unbundling – could create additional complexity and uncertainty at a stage when markets are not yet sufficiently mature and when integration may be necessary to underpin investment decisions (see Chapter 4 on "Unbundling"). ZEP therefore supports a proportionate, evidence-based approach in which targeted regulatory safeguards can be applied where needed and can be strengthened over time as markets develop.