UK Government

# Evolution of Economic Regulation for CO2 Storage

## Summary of Responses

DESNZ & Ofgem (2026)

Any enquired regarding this publication should be sent to us at:
CO2storagestrategy@energysecurity.gov.uk

# Contents

# Executive Summary

The call for evidence on 'Evolution of Economic Regulation for $CO_2$ Storage' opened on 6 August 2025 and closed on 31 October 2025. The call for evidence was jointly produced by the Department for Energy Security and Net Zero (DESNZ) and the Office of Gas and Electricity Markets (Ofgem). It sought views and evidence on whether the Regulated Asset Base (RAB) model of economic regulation for $CO_2$ storage will continue to best meet the needs of users, developers, investors, and consumers as the CCS market matures; whilst also supporting the UK's Carbon Budgets and Net Zero targets.

Topics covered included:

- Economic Regulation and Natural Monopolies
- Competition and Storage Costs
- Investment: Equity and Debt Considerations

In total, we received 26 responses. The largest respondent groups included 11 transport and storage companies (T&SCos), 6 Trade Associations and 5 users of T&S infrastructure.

There were several key themes in the responses:

- **$CO_2$ storage will function as a natural monopoly in the early market,** due to high capital costs, geographical constraints, and cross-chain risks. While many respondents expect this to ease over time, a third of respondents believe monopoly conditions will persist even as the market matures
- **The RAB model is seen as essential for early $CO_2$ storage development**, but there was consensus amongst respondents that it will need to evolve as the market matures, with no agreement on how or when economic regulatory changes should occur
- **Moving away from the RAB model for $CO_2$ storage carries both risks and benefits**, with respondents noting that any transition must be evidence-based and carefully sequenced
- **Competition in the $CO_2$ storage market is possible but is a long-term prospect**, likely to emerge only as demand grows, more stores are developed, and enabling conditions such as cross-border $CO_2$ flows, stable carbon pricing and clear allocation processes are established
- **Competition creates value only in a mature market**: introducing competition too early could increase system costs by creating duplication, underutilisation of assets, and higher financing risk
- **Transitional government support and risk sharing mechanisms** are viewed as necessary to build investor confidence

- **Clear and predictable regulatory frameworks** are essential for unlocking investment and efficient financing, though stakeholders also stressed the value of incorporating targeted flexible instruments within the system to support innovation and adapt to evolving market needs.

**Next Steps**

Government and Ofgem will use the information gathered to inform policy development and decisions on economic regulation to support continued growth of offshore $CO_2$ storage. We will maintain close collaboration with industry, ensuring ongoing dialogue shapes effective and inclusive approaches.

Government and Ofgem will also consider developing and consulting on proposals to evolve the economic regulatory regime for $CO_2$ storage.

# Introduction

Carbon capture, utilisation and storage (CCUS) will be essential to meet the UK's 2050 Net Zero target. It will support economic growth, create high-quality jobs in our industrial heartlands, and enable a just transition for industries in and around the North Sea. CCUS is critical to decarbonising the power sector, reducing the impact of residual waste management, and kick-starting low carbon hydrogen production and engineered greenhouse gas removal (GGR) sectors. The Climate Change Committee (CCC) has stated that they 'cannot see a route to net zero that doesn't include CCUS'.

As the CCUS market matures, it is important that government continues to reduce costs for taxpayers and consumers while maintaining strong incentives for $CO_2$ storage investment. To inform this approach, the Department for Energy Security and Net Zero (DESNZ) and the Office of Gas and Electricity Markets (Ofgem) ran a call for evidence (CfE) from 6 August to 31 October 2025. The CfE sought views on whether the existing Regulated Asset Base (RAB) model for $CO_2$ storage will continue to best meet the needs of users, $CO_2$ storage developers, investors, and consumers as the CCS market matures; whilst also supporting the UK's Carbon Budgets and Net Zero targets. The CfE focused solely on the offshore $CO_2$ storage element of the $CO_2$ transport and storage (T&S) network.

The $CO_2$ T&S network is currently regulated through a RAB model, similar to other infrastructure sectors including electricity and gas networks, as well as major projects like the Thames Tideway tunnel. The economic regulatory regime (ERR), set out in the economic licence[1], includes regulated returns and costs, incentives to drive positive behaviours, reopeners to account for uncertainty, and defined price control periods to set the allowed revenue a transport and storage company (T&SCo) licensee can recover from its users. Previous consultation on CCUS business models[2] showed clear stakeholder support for the RAB model during the CCUS market creation due to its ability to enable the development of regional T&S networks and provide certainty to both investors and network users on revenue flows, risk allocation, and service provision.

The RAB model forms one component of the wider Transport and Storage Regulatory Investment (TRI) model, alongside the revenue model which is underpinned by the Revenue Support Agreement (RSA) and the Government Support Package (GSP). Together, these elements have strengthened the UK's investment proposition and helped ensure that charges to users of the T&S network are economic and efficient.

The current ERR has been designed to ensure compliance with the Energy Act 2023, and any future changes to the ERR must remain fully consistent with the Energy Act 2023 and with the statutory objectives, duties, powers, and functions of the Secretary of State and Ofgem.

[1] Transport and storage companies require an economic licence to transport and store $CO_2$
[2] Carbon capture, usage and storage (CCUS): Business models 2019

This document summarises the responses received. Views and evidence on three key areas, listed below, were requested.

- Economic Regulation and Natural Monopolies
- Competition and Storage Costs
- Investment: Equity and Debt Considerations

The responses to these topics have been summarised by question and will be used to inform government and Ofgem's next steps.

# Responses Received

We would like to thank all stakeholders that responded to this call for evidence, with detailed and insightful views that will inform future policy. In total, we received responses from 26 respondents. The call for evidence was available on GOV.UK and Ofgem's website from 6 August to 31 October 2025, and responses were received through email and Citizen Space. The call for evidence was also advertised through our mailing lists, and DESNZ and Ofgem also held a stakeholder engagement session in September 2025.

We received responses from a variety of stakeholders, broken down as follows:

- Transport and Storage Companies (T&SCos) – 11 respondents
- Trade Associations and Industry Bodies: including business/industry representative organisations – 6 respondents
- Capture projects and prospective network users – 5 respondents
- Transport service providers – 1 respondent
- Advisory groups including taskforces – 1 respondent
- Public Sector organisations and Arm's Length Bodies (ALB) – 1 respondent
- Independent – 1 respondent

# Summary of Responses

In this section, we summarise the responses provided for each question, highlighting key themes and points.

We received a total of 377 responses from 26 respondents across 22 questions. Whilst most responses directly noted which questions they were responding to, some did not. For these responses we have addressed them within our response summaries where we believed they most appropriately fit.

Personal respondent data has not been included in this summary.

## Economic Regulation and Natural Monopolies

This section of the call for evidence sought views on whether the $CO_2$ storage market is likely to retain natural monopoly characteristics as the sector grows, and consequently on the continued suitability of the RAB model for $CO_2$ storage. Respondents were also invited to comment on the risks and benefits of either retaining or moving away from the RAB model for $CO_2$ storage.

**1. Do you think that the $CO_2$ storage market will continue to have natural monopoly characteristics as the sector grows? Please explain your views.**

Question 1 received 25 responses.

The majority of respondents agreed that $CO_2$ T&S infrastructure does, and will continue to, exhibit natural monopoly characteristics in the early market phases. This view was attributed to factors such as geographical constraints, high capital costs, regional infrastructure limitations, and cross-chain risk management needs.

14 respondents expected that monopolistic characteristics should diminish in the longer term as the market matures and transitions towards a more competitive structure. Multiple respondents cited the award of UK Carbon Storage Licences, to a range of operators for multiple stores, as evidence of competitive dynamics emerging and therefore of a shift away from natural monopoly infrastructure. Respondents emphasised that any transition would be contingent on policy and regulatory developments, alongside the implementation of favourable market mechanisms. 1 respondent cited forecasts of UK and EU $CO_2$ storage demand to 2050 and concluded that meeting a market of that scale would require multiple operators operating alongside one another.

These respondents provided a similar set of factors viewed as important in driving any transition away from a monopoly model:

- Increased demand for $CO_2$ storage (domestic and international) – 13 respondents

- Non-pipeline transport (NPT) – 12 respondents
- Emissions Trading Scheme (ETS) price stability and linkage with the EU ETS – 9 respondents
- Unbundled T&S systems and enabling Third Party Access (TPA) – 8 respondents
- Growth in Voluntary Carbon Market (VCM) – 6 respondents
- Broader policy and regulatory process – 5 respondents
- Carbon Border Adjustment Mechanism (CBAM) – 4 respondents
- Emergence of Merchant Models – 3 respondents

9 respondents hold the view that monopolistic characteristics of $CO_2$ T&S will continue to persist for the foreseeable future, even with developments in factors listed above, due to high technical and economic barriers, constrained geographies, and the nature of long-term contracts and limited available storage options restricting competition.

2 respondents suggested that a nationalised, government-owned T&S network operator model would be more appropriate than a regulated monopoly model, irrespective of structure of the market, citing immaturity of CCS technologies and lack of an established customer base.

More generally, many respondents did not distinguish between a ‘natural monopoly’ and a ‘monopoly’. A natural monopoly refers to situations where it is economically most efficient for a single provider to deliver a service because duplicating infrastructure would be costly and inefficient, whereas a monopoly more broadly describes a position of market dominance.

**2. Do you think the current RAB model of economic regulation will remain appropriate for $CO_2$ storage during the transition towards a self-sustaining market? If yes, please explain your views and what your priorities are in terms of economic regulation. If no, what alternative modes of regulation could better accelerate storage of $CO_2$ and provide optimal value for money for users?**

Question 2 received 25 responses.

18 respondents considered the RAB model to remain essential for $CO_2$ storage during CCUS market creation, particularly for projects selected as part of the cluster sequencing process (and their expansions), and in the early transition toward a mature market. They noted that the RAB model provides investor confidence and helps manage some cross-chain risk by providing revenue certainty, attracting private investment, and mitigating the effects of the monopolistic characteristics of T&S infrastructure.

Most (16) respondents agreed that the RAB model will likely need to be adapted and/or alternative forms of regulation should be considered as the market matures. However, there was no consensus on what changes are needed or when changes to economic regulation would need to occur:

- Many (8) respondents agreed that any movement away from the RAB model must be gradual and aligned with market maturation

  - 3 respondents cautioned against moving away from the RAB too early, noting that doing so could increase revenue uncertainty, reduce bankability, destabilise the market, and delay projects
  - These respondents emphasised that the RAB model will be appropriate until the market is sufficiently mature to support a fully commercial model, highlighting that projects may struggle if cross-chain risks are not effectively managed
  - They also pointed to lessons from European countries where attempts to move too quickly, particularly into non-regulated models, have been largely unsuccessful; with 1 respondent citing difficulties in reaching financial investment decisions, which were partly attributable to insufficient management of cross-chain risks
  - 1 respondent further suggested that changes should be considered only once the market is fully functional and capable of supporting projects beyond clusters using NPT solutions
- 5 respondents noted that any shift to alternative forms of economic regulation would be shaped by investors' appetite and wider financial market conditions, particularly among debt investors and insurers. They highlighted that such a shift would likely depend on carbon prices reaching sufficiently high and stable levels to underpin investment. Respondents also emphasised that changes in investor risk appetite would be supported by operational projects providing data that enables appropriate risk pricing and strengthens confidence in $CO_2$ storage services
- 5 respondents considered that, whilst the RAB model is attractive, it can also be restrictive and may limit the flexibility needed for alternative market-based business models to emerge, for more performance-based mechanisms to develop, or for higher returns to be achieved
- 4 respondents expressed the need for RAB to remain for the 'Track' projects and their expansions, cautioning against any changes that may put the 'Track' projects at risk or at a disadvantage
- 2 respondents indicated that an alternative model is needed in the near-term as the market begins to mature, noting that this could include transitional elements that can be invoked or withheld depending on market maturity
- 2 respondents reiterated their view that a nationalised, Government-owned network operator model would be more suitable than a regulated model, citing the immaturity of the technology and the absence of an established customer base

More broadly, 6 respondents highlighted the need for wider government guarantees in the medium-term and during market transition, while noting several actions that could be taken to phase out such support, including:

- Risk management through agreements or direct negotiation between T&S operators and users though respondents recognised that this would require modifications to the CCS Network Code

- Development and availability of commercial insurance which requires operational data to be shared from projects to enable insurer confidence and accurate risk pricing
- Targeted support for network users (capture projects) to ensure secure demand for $CO_2$ T&S services, reducing underutilisation and stranded asset risks

More generally, several respondents focused on the full TRI model, rather than the RAB model alone. The RAB model of economic regulation is one component of the TRI model; providing regulated returns and costs, incentives to drive positive behaviours, reopeners to account for uncertainty, and defined price control periods that set the allowed revenue a T&SCo Licensee may recover from its users. In contrast, the TRI model consists of key interrelated components, including the economic regulatory regime (ERR), the revenue model which is underpinned by the revenue support agreement (RSA), and the government support package (GSP).

**3. What do you envisage the risks and benefits would be to moving away from the RAB model of economic regulation for $CO_2$ storage (in terms of how it may impact certain stakeholders, including consumers)? What do you envisage the risks and benefits would be to keeping the RAB model of economic regulation for $CO_2$ storage?**

Question 3 received 23 responses.

Nearly all (20) respondents identified both risks and benefits of moving away from the RAB model for $CO_2$ storage, which are grouped and listed below. Most respondents emphasised that the transition should be gradual and data-driven, with clear regulatory signals and evidence of a mature market before introducing alternative models.

*Risks of Moving away from the RAB Model*

9 respondents indicated that moving away from the RAB model could have implications for project investability. Respondents cautioned that without appropriate mitigations, empirical data and sufficient market maturity, moving away from the RAB could reduce investor confidence and raise financing costs due to perceived higher risk, ultimately undermining bankability and delaying market development. 2 respondents further warned that moving away from the RAB model prematurely could increase user costs, driven by increased risk premiums, and expose storage providers to insolvency risk.

Several (6) respondents highlighted the benefits of long-term certainty, familiar regulatory mechanisms, and predictable pricing for users and investors, noting that these features provide stability during both market creation and transitional phases.

*Benefits of Moving away from the RAB Model*

Several (5) respondents considered that moving away from the RAB model could help accelerate deployment of CCUS and drive down system costs by stimulating innovation, shortening deployment timelines, introducing new pricing structures and storage products, increasing competitive pressures, encouraging operational efficiency, and enhancing

profitability. Some noted that this shift may also attract additional investment from parties seeking higher-risk, higher-reward opportunities. These respondents further observed that moving away from the RAB model could reduce government's administrative burden.

However, 3 respondents emphasised that further consultation and evidence gathering are necessary before any economic regulatory change.

## Competition and Storage Costs

This section of the call for evidence sought views on the feasibility of competition in the $CO_2$ storage sector and on the potential approaches to, and impacts of, introducing competition. This section also sought to gather feedback on storage costs and contract duration.

**4. How feasible is it that competition will be possible in/for the $CO_2$ storage market? Please explain your view. What are the conditions that would enable in/for the $CO_2$ storage market?**

Question 4 received 20 responses.

Most (16) respondents considered that competition in the $CO_2$ storage market is feasible in the longer term but will remain limited in the near term. Overall, respondents expect a concentrated market in the short term, reliant on Government-backed frameworks, with competition expected to develop gradually as more storage sites become operational and demand for storage grows. However, respondents identified several conditions that they consider need to be achieved to enable competition, which are described below.

Most (10) respondents considered greater demand for storage and confidence in future demand as essential for the development of a competitive market. To achieve this:

- 6 respondents highlighted the importance of finalising arrangements for cross-border $CO_2$ transport, viewing this as critical for accelerating store development, and in turn, stimulating competition. 2 of these respondents further observed that cross-border $CO_2$ has the potential to reduce demand uncertainty and stranded-asset risk by providing an additional source of demand if UK network utilisation decreases or if there are delays with UK users coming online
- 4 respondents emphasised that the UK ETS price must rise sufficiently and provide a stable, long-term signal to incentivise deployment, particularly in the absence of government-backed Contracts for Difference (CfDs). Additionally, 1 respondent viewed linking the UK and EU ETS as critical but noted that it would not be sufficient without an increase in the ETS price
- 2 respondents suggested publishing a roadmap of capture projects, viewing this as a way to support the development of additional stores and increase market participation. Several respondents referenced the need for government-supported CfDs for users and similar mechanisms, along with potential product mandates to provide certainty of supply to storage developers

Beyond demand certainty, 8 respondents considered unbundling and TPA as essential for enabling competition. These respondents believed that such measures would allow storage operators to compete independently within shared networks, stimulating competition based on cost, innovation, and service quality.

Several (5) respondents suggested that the regulatory landscape will play a role in how and when competition is possible:

- 4 respondents noted the need for greater coordination and streamlining between regulatory and other bodies involved in storage licence arrangements, ensuring alignment between the schedule of storage licence development milestones and progress on commercial aspects of the project (e.g., user contracts). They noted that improved coordination could reduce both timelines and costs
- 3 respondents cautioned that excessive regulation could limit or prevent competition and innovation, noting that oversight must be proportionate to sector needs and market maturity. They maintained that storage providers are incentivised to maintain fair and affordable pricing, as excessive costs would deter users and stall value-chain development. However, no firm views were provided on what the appropriate level of oversight should be

Several (4) respondents proposed that the number of market participants must increase, as the sector is currently dominated by a small number of T&SCos, with market access largely determined by Government selection and allocation of capture projects rather than by direct competition between potential operators. These respondents further noted that enabling non-government-supported projects is also important.

Some (3) respondents stated that market design will be critical to delivering greater competition and cited business-model design and allocation frameworks as ways to introduce competitive processes.

Some (3) respondents stated that establishing a framework for NPT is needed to broaden access, expand $CO_2$ supply options, and provide geographic flexibility in where $CO_2$ is stored, thus enabling competition.

Across responses, data-sharing and lessons learned from current projects were cited as valuable for accelerating deployment of other projects and for the coordination between projects.

There were various views on how geography may impact the development of competitive dynamics:

- 3 respondents highlighted that competitiveness would depend on the technical and economic viability of individual storage sites, as well as the natural constraints of each geological basin. They noted that most basins have limited capacity, creating constraints on timing and availability, which supports a market-share model rather than dominance by a single operator

- 2 respondents suggested that competition is only likely in regions with multiple accessible storage sites and users located in close geographic proximity

However, 6 respondents believed that competition is unlikely even as the market transitions. They cited reasons such as the monopolistic nature of early development, strong reliance on government support, and limited current demand for $CO_2$ storage services.

- 4 respondents expected fixed pipeline infrastructure to maintain monopolistic characteristics, and they assume it will remain most cost-effective for projects to stay tied to pipelines even after initial contracts expire, further limiting competitive pressures
- 1 respondent suggested that geology and location will likely restrict T&S user choice, as users will typically select the shortest, and therefore the most cost-efficient option, limiting the practical level of competition

1 respondent suggested that planned networks should be fully utilised, implying that competition should not be the preferred approach, even if it were feasible.

**5. Which factors would be most important to enhance/limit competition?**

Question 5 received 18 responses.

It was noted across responses that it is challenging to determine a hierarchy of importance of factors which are perceived as drivers of competition, as these factors must complement one another and be coordinated in delivery.

As with question 4, 10 respondents identified stimulating demand for $CO_2$ storage as the single most important factor in enhancing competition. Respondents offered a range of suggestions for how demand for $CO_2$ storage could be increased, including:

- Transparent, contestable allocation methodologies for capture business models – 7 respondents
- NPT – 7 respondents
- TPA – 7 respondents
- Enabling imports – 5 respondents
- Merchant $CO_2$ volumes – 4 respondents
- ETS price increase and stability – 4 respondents
- Unbundling of the T&S network – 3 respondents
- Greenhouse Gas Removals (GGRs) – 3 respondents
- Standardisation – 3 respondents
- Sustainable Aviation Fuel (SAF) – 2 respondents

6 respondents perceived the current RAB model to be a barrier to competition. These respondents argued that the RAB model does not sufficiently incentivise innovation, operational efficiency, or cost reduction. A further 3 respondents suggested that the current RAB model is perceived to reward capital expenditure rather than delivering performance-

based outcomes. These respondents suggested that moving towards hybrid or commercial structures with merchant elements could stimulate competition by encouraging innovation and operational efficiency. Furthermore, 3 respondents cautioned that continuing Track-1 business models beyond their intended purpose could constrain deployment and delay the sharing of operational data needed to attract private investment and stimulate competition.

5 respondents pointed to market-entry barriers for storage companies as a potential constraint on competition. These respondents considered high upfront costs, requirements for technical expertise, subsurface risks, capacity constraints, and regulatory and permitting hurdles as factors that hinder or complicate the development of storage projects. Together, these issues were seen to reduce the number of market participants, limit available storage capacity, narrow the choice of storage operators, and ultimately weaken competitive pressures.

**6. What is the value of $CO_2$ storage competition, and what impact(s) could this have? Please include views on the impact on a) costs, b) operational efficiencies, c) market efficiencies, d) innovation, e) outcomes for investors, users, taxpayers and consumers**

Question 6 received 19 responses.

Most (17) respondents agreed that competition could deliver benefits over time, such as lower costs, increased innovation, and improved operational and market efficiencies, but emphasised that these benefits will take time to materialise. They also noted that competition should not be introduced prematurely and that its success depends on a mature market with multiple storage options.

*Impact on costs:*

9 respondents agreed that competition may deliver long-term cost efficiencies, primarily through innovation and learning effects. However, several of these respondents argued that competition alone is unlikely to be the main driver of cost reductions. Instead, they indicated that the most significant early-stage efficiency gains and cost reductions are expected to come from measures such as infrastructure sharing, asset reuse, economies of scale, and standardisation, rather than from direct price competition.

5 respondents cautioned that competition may not automatically lead to positive outcomes. 2 respondents specifically warned that if introduced prematurely, competition could potentially increase costs through duplication of infrastructure, higher financing costs, and the creation of excess capacity which may result in underutilisation.

2 respondents also noted that quantifying the cost benefits of competition is challenging given the infancy of the CCUS market.

1 respondent highlighted the importance of enabling NPT, which would allow stores to compete for volumes and could help reduce costs.

*Impact on operational and market efficiencies:*

7 respondents agreed that competition could foster operational efficiency by driving operators to reduce costs and provide a quality service to users, particularly where information and lessons are shared between operators. Respondents highlighted that early cluster deployment has already demonstrated valuable market learning. However, 3 respondents considered the current economic licence for T&S to be restrictive to effectively facilitate the sharing of lessons.

4 respondents noted that competition could offer capture facilities greater choice and help reduce risks, such as users becoming stranded, by providing multiple storage options and minimising access delays and bottlenecks. However, several (3) respondents cautioned that having multiple stores and networks could increase T&S costs compared to a regional approach with fewer, larger entities.

3 respondents also observed that shared infrastructure and collaboration are often as important as, or more efficient than, direct competition in improving operational outcomes, and can help avoid underutilisation and duplication.

*Impact on innovation:*

5 respondents viewed competition as a driver of innovation. Responses highlighted innovations in the supply chain processes, service offerings, and technology spillover (hydrogen and negative emissions are examples provided). There was consensus amongst these responses that the expected innovation is most likely when competition is accompanied by lesson sharing, market maturity, and clear investment signals.

Conversely, 2 respondents noted that innovation gains may be limited in offshore infrastructure, as $CO_2$ storage services, equipment, and supply chains closely resemble those in the oil and gas sector, which has already undergone decades of optimisation.

*Impact on investors, users, taxpayers, and consumers:*

5 respondents considered that competition could offer value for users through better service quality, increased choice and flexibility, enhanced system utilisation, and potentially lower costs, but only if the market is sufficiently mature to support these benefits.

1 respondent suggested that although competition may introduce additional risk, it could also create new opportunities for investors by offering greater choice and clearer risk-return trade-offs, depending on the market structure and support mechanisms in place.

Another respondent noted that well-managed competition could reduce subsidy burdens over time, improve resource allocation, and deliver better value for taxpayers. However, they cautioned that this would require careful balancing of competition with coordination to avoid stranded assets or excessive public backstops.

A further response highlighted that public investment in early-stage infrastructure can generate economic benefits, including job creation and export opportunities.

**7. Does existing government financial support for current market participants have an effect on the growth of the storage market? Please explain your views.**

Question 7 received 18 responses.

Most (12) respondents stated that government financial support has been fundamental in de-risking projects, enabling Final Investment Decisions (FIDs), and establishing foundational infrastructure. The initial projects are viewed as proof of T&S bankability and scalability. 2 of these responses highlighted that public financing, contract allocation, and support for initial projects has been critical in attracting private capital.

However, there were diverging views on continued Government Support:

- 10 respondents expressed the view that a transitional, phased reduction in government support is needed as the market matures, allowing commercially managed risk frameworks to develop. They noted that a predictable and growing $CO_2$ supply will eventually reduce the need for government intervention, and that a balanced approach to support is required to avoid market distortions
- 10 respondents cautioned that maintaining the current level or structure of government support could slow overall market growth, reinforce incumbent positions, or create an unsustainable cost model over time. These respondents argued that support should be phased out as the market matures, and that more targeted approaches should be considered to enable competition and diversification. These respondents proposed grants, co-investment, and tax incentives to support the transition, acting as positive signals to maintain private investment. 3 respondents view the current model as providing returns that reward spend rather than performance, which they noted as unsustainable in the long term
- 8 respondents highlighted that continued public funding for capture facilities will be critical for market growth. These responses reasoned that Government support enables the commercial viability of contracts such as send-or-pay agreements, and provides time for the insurance market to develop
- 4 respondents stressed that confidence in policy delivery, timelines, and regulatory frameworks is critical to attracting further investment. They warned that delays to delivering early projects or missing targets can increase costs and erode investor confidence, particularly as initial projects are closely monitored by investors and are viewed as pivotal for demonstrating bankability, stimulating market development, and identifying cross-chain risks that require mitigation. These steps are seen as supporting the transition towards commercially managed risk and reduce reliance on government support
- 3 respondents also noted that projects outside the ‘Track process’ are likely to face heightened risks. Non-track projects may not benefit from the same level of support, creating development challenges and investor uncertainty, particularly for storage licence holders in the appraisal phase of their carbon storage licences

**8. What would be the potential opportunities and challenges associated with co-existing forms of economic regulation for $CO_2$ storage within these market structures, and the potential impacts of this? E.g. RAB and alternate forms of regulation.**

Question 8 received 16 responses.

6 respondents believed that alternative or hybrid regulatory models (e.g., combining regulated and market-based mechanisms) could promote flexibility and innovation, enabling the sector to evolve as it matures and risks change. Within this group:

- Hybrid models were viewed as a route for attracting diverse investors, reducing costs, and allowing tailored approaches for different project types and maturity levels. Respondents viewed these evolving mechanisms, such as dynamic pricing and risk sharing, as routes reducing the need for Government support
- 5 respondents agreed that, in the long term, ex-ante economic regulation should only apply to monopoly parts of the value chain, such as pipelines. Furthermore, these responses suggest that competitive elements could be agreed and managed through commercial arrangements and market mechanisms

Separately, 6 respondents raised concerns about any regulatory evolution or coexistence of different regulatory models:

- 6 respondents proposed that any evolved regulatory design should be simple, proportionate, transparent, and predictable to maintain market confidence, enable investment, and avoid market distortions or predatory behaviour
- 5 respondents expressed concern that co-existing or overly complex regulatory models could create confusion, increase administrative burdens, raise financing costs, and stifle innovation and competition
- 4 respondents explicitly stated that first movers should not be disadvantaged by future regulatory changes and should benefit from grandfathering protections. These respondents highlighted the important role of early movers and the risks taken on by these developers. They also stressed the importance of fair competition and ensuring that follow-on projects cannot unfairly leverage de-risked infrastructure
- 3 respondents proposed regulatory sandboxes and experimental frameworks to test new business models, while 3 others favoured competitive tendering and benchmarked tariffs as the primary mechanism for regulatory evolution

## Storage Costs

**9. What are the barriers to entry for a new $CO_2$ storage developer (in terms of cost, expertise, financing etc.)? How do the costs of developing a $CO_2$ store compare with those associated with transport infrastructure?**

Question 9 received 18 responses.

Broadly, there was consensus on the key barriers to entry for $CO_2$ storage developers:

- Most (12) respondents identified economic and financing barriers, citing high upfront costs for subsurface appraisal, seismic surveys, drilling, and permitting. Respondents noted that pre-FEED and FEED costs are substantial, and that developers face long periods between initial investment and revenue generation, making it difficult to secure financing for pre-revenue, high-risk projects without government-backed contracts or guarantees. Additionally, 2 respondents highlighted long-term costs associated with $CO_2$ storage projects, particularly monitoring, asset management, decommissioning, and post-closure liability, as further barriers to investment
- 10 respondents noted that the lack of an established and clear regulatory pathway outside the track process creates uncertainty. They also described the regulatory process as time- and resource-intensive, with potential delays in approvals discouraging investment. Across these responses, there was a strong call for stable, predicative frameworks and faster permitting processes
- 9 respondents pointed to the need for specialist technical and financial expertise as a barrier. They noted that appraisal, permitting, and operations require advanced skills, with oil and gas firms generally better positioned than new entrants or smaller operators who may lack access to relevant data and capabilities
- 5 respondents highlighted interdependency with capture projects as a barrier to entry. They explained that non-track storage projects cannot reach FID until capture projects commit to contracts yet capture projects cannot commit until government confirms funding and support. This circular dependency can create uncertainty and may delay or deter investment decisions in storage
- 2 respondents noted that successful projects should help lower barriers over time, such as operational data improving insurability and enabling more accurate risk pricing

Views varied on the comparative cost between transport and storage:

- 4 respondents argued that, generally, storage development is riskier and more front-loaded relative to transport due to geological uncertainty and permitting requirements, with 1 respondent noting the risk of sunk costs if a storage site proves unviable
- 3 respondents noted that pipeline transport often has higher absolute CAPEX but benefits from economies of scale and predictable cost structures
- 2 respondents suggested that storage projects generally have lower CAPEX because stores are incrementally scalable, unlike pipelines which require oversizing

## Contract Duration and Allocation

**10. How easy would it be for users to switch storage providers? Would that be favourable? What would need to happen to make this possible?**

Question 10 received 18 responses.

All respondents agreed that, under current arrangements, users cannot switch storage providers. There was consensus on the reasons for this, including:

- The limited number of operational storage sites and the lack of network interconnectivity
- Physical and geographic constraints, with 1 respondent noting that once a pipeline is constructed to connect users to a store, those users are 'locked in' by both contractual obligations and available infrastructure
- The requirement for long-term contracts to provide demand and revenue certainty, effectively tying users to specific storage providers and sites

3 respondents noted that enabling switching could introduce risks, particularly if implemented too early or with high frequency. These risks include price uncertainty, potential underutilisation of infrastructure, and increased stranded asset exposure, that could represent poor value for money and destabilise cost recovery under the RAB model. Furthermore, 2 respondents highlighted that managing these 'switching' risks would require specific support mechanisms, commercial insurance solutions, or adjustments to the risk-reward balance.

Some respondents argued that switching should not be considered until the market has matured and initial clusters have been proven, while others saw value in exploring mechanisms during the transition phase, provided the associated risks are mitigated.

1 respondent linked switching to system resilience, suggesting that it could help mitigate outages and maintain service standards, with NPT enabling this benefit.

*Conditions required to enable switching*

5 respondents stated that multiple operational storage sites with accessible capacity will be essential to enable switching between storage providers. 3 respondents highlighted the need for standardised technical specifications and interoperability across infrastructure to support this flexibility.

Responses concluded that policy and regulatory reform will be required, including:

- 6 respondents suggested updating the T&S Economic License and Network Code to allow for flexible capacity products and switching. Similarly, 5 respondents indicated that enabling switching would require a variety of contract lengths and types
- 5 respondents noted the importance of enabling NPT to provide users with flexibility beyond the initial fixed infrastructure and associated stores
- 3 respondents stated that enabling TPA will be essential for switching

While long-term contracts remain essential for providing demand and revenue certainty, respondents suggested that shorter-term contracts could allow flexible products to be offered where excess capacity exists. In turn, this could promote greater resilience and efficiency within the T&S network.

**11. During the market transition phase, what are the pros and cons of using long-term contracts vs. spot market for storage services – particularly in terms of their impact on competition and market development? Please respond from the perspective as an operator or a user of a storage site.**

Question 11 received 19 responses.

The majority (16) of respondents viewed long-term contracts as essential for $CO_2$ storage development:

- Across responses, this view was attributed to long-term contracts providing predictable revenues that enable financing, support management of cross-chain risks and support the taking of FIDs. 5 respondents added that baseload volumes and stable flow profiles from long-term contracts allow for efficient pipeline design and greater technical efficiency, reducing cost uncertainty. Similarly, respondents noted that users require firm capacity bookings to support capture technology investments, both of which are achieved through long-term contracts
- However, 4 respondents identified inflexibility as a key drawback, noting that long-term agreements can limit competition and market liquidity. Users cannot switch storage providers before contract expiry, even if more favourable terms become available elsewhere, which may weaken incentives for efficiency and innovation

Many (8) respondents noted that short-term contracts could introduce market uncertainty and are widely regarded as a long-term aspiration rather than a near-term solution:

- These respondents believe a liquid spot market is considered unviable in current market conditions and will only emerge once the market is mature, infrastructure has expanded, and sufficient liquidity exists
- However, these respondents also acknowledged that short-term or spot contracts could enhance network utilisation, particularly where networks or storage sites are dominated by dispatchable power with low load factors, by allowing storage operators to sell excess capacity. They also highlighted that system resilience could be improved if $CO_2$ volumes could be diverted to alternative stores when required

No respondents stated that short-term or spot contracts should replace long-term contracts as the foundation for storage development. Many responses noted that short-term arrangements carry higher risk, are likely non-bankable, may introduce revenue volatility, and risk operational disruptions if not supported by long-term bookings.

There was a broad agreement that, over time, a hybrid model combining long-term contracts with limited short-term or spot arrangements will emerge. Such a model is expected to deliver flexibility and efficiency while maintaining the stability necessary for investment and market confidence.

**12. How might capture contract allocation design influence the evolution of economic regulation for $CO_2$ storage and move towards a competitive market for $CO_2$ storage?**

Question 12 received 17 responses.

16 respondents emphasised that longer-duration capture contracts are essential to provide certainty for storage developers, reducing perceived demand risk and asset stranding risk. These contracts underpin investment decisions, enable storage operators to commit to infrastructure development, and support bankability.

Many respondents considered that capture capacity, not storage capacity, is currently the limiting factor in CCS market growth. These responses noted that the pace and design of capture contract allocations will play a central role in shaping the regulatory framework and determining when a competitive storage market can emerge:

- 6 respondents highlighted that allocation rounds and eligibility criteria will influence which capture projects progress and how storage competition evolves. They stressed that well-designed allocation processes are essential to accelerate deployment and create sufficient demand for multiple storage providers
- 5 respondents suggested that competitive allocation processes should incentivise efficient use of network capacity and storage development. They also noted that government support for capture projects remains necessary during the transition phase, alongside robust carbon pricing
- 4 respondents advocated for the early introduction of competitive tension in allocation rounds to drive efficiency, while 3 other respondents cautioned that premature competition could increase costs and risk, recommending a phased approach instead

There were varying views on what competitive allocation rounds could look like:

- 4 respondents proposed bilateral negotiation for initial projects, whereas 3 others favoured rules-based or auction-style processes to improve transparency and reduce cost uncertainty
- 3 respondents highlighted that enabling merchant $CO_2$ volumes could stimulate demand and incentivise storage development, while others focused on government-backed projects as the primary driver in the near term
- 3 respondents suggested synchronising allocation rounds, setting clear milestones, and providing visibility on future opportunities. 1 respondent also highlighted the risk of misalignment between the timing and volume of capture contracts and the availability of storage capacity, noting that this could undermine competitive tension.

# Investment: Equity and Debt Considerations

## General Investment

**13. How do you view the trade-offs between risk and returns for $CO_2$ storage during the market transition phase?**

Question 13 received 15 responses.

Most (10) respondents emphasised their desire for transitional and temporary government risk absorption and support mechanisms. Of these responses, 5 respondents suggested that reduced government support should align with increasing developer returns, with respondents expecting returns to rise accordingly as storage operators assume more risk. 4 respondents also suggested that there should be a gradual shift from public support to a self-sustaining, market-led industry.

4 respondents agreed that long-term regulatory stability and policy continuity across political cycles must be ensured to maintain investor confidence in the sector.

3 respondents perceived bankability to be the primary concern rather than risk appetite. 2 respondents pointed out that early investment and support will help avoid supply chain constraints and limit any potential increase in future costs.

3 respondents highlighted that, during the market creation and transition phase, $CO_2$ storage continues to carry significant “development risks”, including subsurface geological uncertainty, long-term liability, counterparty credit risk, uncertain regulatory treatment, demand risk for storage space, cross-chain exposure, underutilisation, and stranded asset risks. 2 respondents noted that many of these risks are currently difficult to quantify but will become clearer as early projects mature and the first clusters begin to provide operational data. 2 of these respondents stated that, until a sufficiently large and stable user market is established, certain RSA elements may need to remain in place. These respondents stated that early-stage policy must continue to reallocate pioneer risks to dedicated support instruments, and that any support should be transitional and assessed during FID stage.

1 respondent suggested that the lack of transparency on the allowable return for Track-1 projects hinders storage investment. They stressed that clearer guidance on the expected returns for future RABs will be essential to support early-stage development and to sustain ongoing development expenditure (DEVEX). They also emphasised the need for continued Government support for DEVEX activity, proposing that supporting multiple projects would help build a pool of FID-ready sites.

1 respondent suggested that government should avoid regulating returns for NPT and instead set minimum technical standards, noting that using RAB-based stores to develop NPT could blur boundaries between fair and anti-competitive practices, with a potential requirement for overlapping regulation. 1 respondent urged that UK CO2 storage projects must remain competitive and financeable within a broader international portfolio.

**14. Are there efficient capital structures that existing approaches to regulation presently discourage, and how could the evolution of CCS policy facilitate a range of efficient financing options?**

Question 14 received 16 responses.

There was consensus among respondents that current regulatory approaches are perceived to inhibit the development of efficient capital structures for CCS projects and constrain access to diverse financing options:

- 7 respondents highlighted that currently, regulation is perceived to discourage competition, innovation, and alternative financing approaches as the RAB is seen to be a low-risk, low-return model, which potentially deters investors willing to take higher risks and innovate. Of these 7, 1 respondent outlined several perceived regulatory issues that discourage efficient capital structures, including perceived uncertainty or open-ended liability rules, which could deter private investors from taking long-term merchant exposure; perceived complexity and slow licensing and access rules, which could increase transaction costs; a lack of clear open access rules for users, which could deter third-party merchants; and a revenue model design that is perceived to deter private developers and shapes the types of financiers who participate in the market
- 5 respondents observed that debt or hybrid financing structures are not available during the pre-appraisal and appraisal phases, a situation they believe is unlikely to change until a self-sustaining market is established

There was agreement amongst respondents that addressing these perceived regulatory constraints is essential to enabling a broader range of efficient and investable capital structures as the CCS market evolves. Respondents provided suggestions for how updated and targeted CCS policies could enable a more diverse and viable set of financing approaches:

- 8 respondents considered that it could be beneficial to work closely with institutions like Great British Energy (GBE), National Wealth Fund (NWF), and British Business Bank (BBB) to gain grant funding and equity stakes, therefore derisking investments and accelerating the pathway to project FIDs. 2 of these respondents added that continued government intervention will likely be required to create the conditions for market formation and promote investor confidence
- 5 respondents agreed that the RAB model has been effective in de-risking early projects, with 2 respondents highlighting how the RAB model, and government support mechanisms, lend themselves to low-cost and low-risk capital
- 3 respondents suggested that providing operational data could enable easier and cheaper access to capital. 2 respondents emphasised the importance of sharing geological and operational data to reduce risks and improve access to finance, also noting that timely disclosure of carbon storage information could help for societal acceptance of CCUS as viable climate mitigation technology. 1 respondent highlighted the potential for lower-cost, lower-regret projects to build confidence and to provide

operational data. Additionally, 3 respondents expected access to capital to become easier organically, as the market matures and empirical data clarifies cross-chain risks

- 3 respondents expect access to capital to become easier organically, as the market matures and empirical data clarifies cross-chain risks
- 3 respondents suggested that competitive, market-led structures could replace current regulation to encourage efficiencies and effective risk management.
- 2 respondents stated that $CO_2$ storage companies would typically use equity funding for development costs and transition to project financing at FID and during construction. Additionally, 2 respondents noted project financing at FID and construction during the market transition will require coordination across the CCS value chain. Separately,1 respondent suggested that policy should allow cost recovery before FID, similar to oil and gas exploration models, to help lower entry barriers
- 1 respondent noted that the CCS network code may require changes to make revenues bankable for non-recourse debt and recommended an outcomes-based model under the RAB, embedding per-tonne verified storage plus an availability element within the allowed-revenue framework. They also emphasised the need for long-term revenue protection, particularly to underpin long-dated price and regulatory risk
- 1 respondent also pointed to the potential benefits of developing a Carbon Dioxide Removals (CDR) credit market to attract corporate buyers and provide financiers with long-term revenue certainty
- 1 respondent recommended codifying stewardship and liability handover with a pre-funded, ring-fenced pot, and suggested providing predictable seabed rights and reduced access costs to avoid cost shocks
- Another respondent requested that Government work with the EU to link ETS schemes and design standards. They cited Norway's Northern Lights project as an example of how a market-facing storage business can be viable through a mix of early public support, well-defined rules, and customer contracts.

**15. What do you see as the pros and cons of the RAB regime for investors?**

Question 15 received 17 responses.

Respondents expressed a wide range of views on the RAB model, which broadly fell into distinct advantages and disadvantages.

*Perceived advantages of the RAB model for investors*

- Most (12) respondents pointed to the long-term stable revenue stream as a key advantage. 6 respondents noted that the RAB model has led to a lower cost of capital from both public and private finance, owing to predictable cashflows and the credibility of contracts between government and investors. 6 respondents also observed that the RAB model is well-understood by infrastructure investors. Furthermore, 5 respondents highlighted that the RAB model provides regulatory certainty, with several emphasising the confidence this gives investors in the regulatory process and long-term asset value

- Many (7) respondents believe that the RAB model provides clarity on cross-chain risk allocation, which reduces investor exposure and gives investors and lenders confidence to commit capital, despite the risks associated with first-of-a-kind (FOAK) CCS projects, such as stranded asset risk
- 6 respondents noted that the RAB model encourages investment in pre-development phases, which are typically high-risk and underfunded, making large-scale CAPEX projects bankable and allowing for investment
- 1 respondent highlighted that the RAB model can facilitate collaboration and provide a basis for stakeholder engagement between capture and T&S providers, noting that it has encouraged closer collaboration between stakeholders within their chain

*Perceived disadvantages of the RAB model for investors*

- Many (8) respondents highlighted that the RAB model could hinder the development of competitive storage markets and reduce the UK's global competitiveness, with 1 respondent specifically cautioning that guaranteed returns may reduce motivation to innovate or pursue lower-cost delivery models
- 5 respondents noted that the RAB model limits feedback and information sharing, citing Track-1 settlements as examples, which may affect confidence and slow investment
- 5 respondents considered RAB regulation to be complex, and 2 respondents noted that it could limit total returns, contributing to perceptions of lower growth potential which in turn may discourage investment
- Although the RAB is seen as essential for de-risking projects, 5 respondents noted that uncertainty and some risk exposure remain, particularly in the early stages of project development. Identified risks included uncertainty around the licence awards and appraisal success, exposure to political risk, and hydrocarbon-related abandonment issues that could add additional complexity to storage liability and increase investor risk pricing. 1 respondent also highlighted out-of-range $CO_2$ specifications, as risks that may not yet be fully addressed within the current RAB model
- Several respondents perceive the RAB model to reward capital expenditure, with 3 respondents indicating that it may incentivise higher expenditure to increase the asset base for returns
- Additionally, 2 respondents consider the RAB model to limit upside potential, with returns sitting below expectations for fully market-exposed projects
- 1 respondent cited the compliance requirements of the RAB model as a drawback, stating that reporting, monitoring, and access obligations add cost and complexity

**16. What could be the best roles that public finance institutions can play in carbon storage projects?**

Question 16 received 17 responses.

Most respondents consider that public financing institutions will play a key role in the development of the CCS sector:

- 12 respondents suggested that their most effective role would be in de-risking early investment. Several responses pointed to the potential for public finance institutions to provide early-stage funding, guarantees, and co-investment to reduce project risk
- 12 respondents proposed that public finance institutions could offer flexible funding mechanisms. These included mechanisms such as junior debt, mezzanine finance, preferred equity, blended finance, guarantees, pooled insurance structures, government-led syndication loans, liquidity backstops, sinking funds, regulated cost recovery, and a revolving facility aligned to fixed capacity rounds
- 3 respondents observed that public finance institutions could unlock support for small- and medium-scale projects, and 1 respondent added that they could support early demonstration projects to prove viability
- 2 respondents suggested that public finance institutions could purchase CDRs to create stable revenue streams for users with biogenic emissions. Another suggested that public finance institutions could facilitate collaboration between multiple operators through joint infrastructure investment. 1 respondent also proposed that public finance institutions could ensure transparency on responsibilities and partnering approaches
- 1 respondent proposed making support conditional and temporary; requiring open access, standard contracts, transparent queues, and emissions reporting; tapering support as utilisation and carbon prices rise

## Equity Investment

**17. What aspects of the current economic regulatory regime influence your organisations' prioritisation of investment in $CO_2$ storage projects in the context of a global portfolio and against other investment opportunities?**

Question 17 received 16 responses.

Overall, respondents agreed that their organisations' willingness to prioritise investment in UK $CO_2$ storage projects, relative to global opportunities, depends primarily on the predictability of the UK's regulatory environment, the stability of revenue frameworks, and the ability to manage risks that are perceived as complex.

The responses fell into two broad groups: those supportive of investment in UK projects under the right regulatory conditions, and those stating their interest in alternative global markets.

*Respondents supportive of investing in UK Projects*

Most (11) respondents indicated that the UK can be an attractive investment destination if regulatory clarity and confidence are maintained.

- 10 respondents pointed to regulatory certainty and clarity, government commitment, and fair and timely regulatory processes as regulatory aspects positively influence organisations' prioritisation of investment in UK $CO_2$ storage projects. 1 respondent

emphasised that predictability within the current regime is particularly important for NPT investment decisions. They noted that a perceived regulatory bias toward pipeline-based models could disadvantage FOAK, potential non-RAB NPT business models, which would require greater clarity to be considered investable

- 7 respondents highlighted that a key aspect shaping their investment prioritisation is the revenue certainty and assurance of fair returns relative to the risks undertaken
- 4 respondents noted that clear and market-enabling policies within the existing regulatory environment also influence their willingness to prioritise $CO_2$ storage investments in the UK over other jurisdictions
- 2 respondents stated that infrastructure access and broader market development within the regulatory regime are important considerations for their investment decisions. These included factors such as third-party access to regional infrastructure, pre-FID cost-recovery mechanisms, voluntary carbon markets, CBAM mechanisms, and merchant access provisions
- 2 further respondents highlighted that cost mitigation through ETS avoidance is a significant driver, explaining that investments depend on the ability to manage or avoid ETS compliance costs through the use of CCUS infrastructure
- In addition, 1 respondent noted that the strength of 'capture-ready' user demand during the market transition, supported by instruments such as Carbon Contracts for Difference (CCfDs), affects their view of the UK's investability. They also indicated that enabling EU volumes into UK stores would enhance investment signalling

*Respondents with interest in alternative global markets*

A second group expressed concerns that current UK structures could make investment less attractive compared to global alternative.

- 3 respondents expressed a need for evolution of the current UK RAB model and regulatory framework as the market evolves and risks change. These respondents highlighted the risk of carbon leakage as a primary factor shaping investment appetite and called for developments in mechanisms such as CBAM
- 3 respondents also perceived challenges in finance structuring, due to the nature of the regulatory environment, noting that $CO_2$ storage projects are likely to be debt-financed Special Purpose Vehicles (SPVs), making equity investment more difficult compared with other sectors
- 1 respondent considered that under the current structure of economic regulation and the wider UK CCUS regime, there is a risk that market growth will be limited, noting that the current cost and risk structure is not scalable for CCUS to meet Carbon Budget 6 (CB6) and Carbon Budget 7 (CB7) ambitions. They stressed that Government assuming full risk could increase the burden on the taxpayer
- 1 respondent also noted that the prolonged waiting period for investment opportunities between projects could push developers to rank the UK lower and shift investment towards developments abroad, where they perceive investment to be readily available.

They warned that this could impact growth in the UK market and proposed that the Government providing signals on next-steps development could help prevent stagnation.

**18. If not-RAB, what provisions would you propose to safeguard financial resilience during the market transition phase?**

Question 18 received 13 responses.

Ensuring financial resilience for non-RAB $CO_2$ storage projects during the transition phase was seen as requiring a mix of measures to stabilise cashflow, contain exposure to hard to manage risks, and provide confidence to lenders and investors:

- 5 respondents suggested the use of provisions such as government-backed credit support and liquidity mechanisms
- 4 respondents proposed capital ringfencing measures, such as safeguarding financial resilience through secure decommissioning funds, user credit balances, and liabilities to protect against financial shocks
- 4 respondents expressed support for long-term send-or-pay contracts to provide revenue certainty and reassure lenders. 2 respondents emphasised the need for clarity on the last resort process and recommended transparency in user and operator agreements
- 4 respondents highlighted that a greater share of cross-chain and business interruption risks could be managed through the insurance sector, such as leakage, geological failure, and $CO_2$ specification issues
- 3 respondents stressed the importance of transparency and knowledge-sharing to support the development of products that strengthen financial resilience
- 3 respondents suggested enforcing standardised $CO_2$ specifications to reduce technical risks
- 3 respondents endorsed a progressive risk transfer from government to private capital through insurers, supported by potential temporary measures until users and other industry parties can assume cross-chain risks
- 2 respondents proposed prudential regulation, including robust oversight, accountability for operators and users, store monitoring, verification, and stress-testing. 1 respondent urged avoiding reckless market entry for $CO_2$ storage developers, stating that policies should ensure costs of failure are not spread across users
- 2 respondents also proposed demand-side and build-phase safeguards, with one respondent suggesting measures such as completion guarantees, capped cost-overrun facilities, seabed/licence charges, and pass-through only for pre-agreed uncontrollable events
- 2 respondents proposed clear risk allocations in which storage providers assume cost overruns, small-scale and catastrophic leakage, transport interface issues, and $CO_2$

specifications, while transport operators retain their own risks with pricing and availability incentives

- 2 respondents suggested that revenue stability mechanisms would need to endure to support financial resilience during the market transition, with 1 proposing fixed price or revenue floor arrangements and the other suggesting a contract-for-difference style floor and ceiling on per-tonne revenue. 1 respondent also highlighted that any transitional policy framework must compensate for the loss of guaranteed revenues under the RAB model by creating predictable cash flows, establishing risk-sharing mechanisms, and supporting credit confidence
- 1 respondent suggested the use of tariffs, balancing clauses, and agreements to manage delays and underperformance
- 1 respondent stressed the need for a clear roadmap for user contract allocation, with visibility required on when merchant $CO_2$ volumes will be enabled
- 1 respondent called for aligning investment decisions for capture, transport, and storage to reduce timing mismatches and enable private sector risk assumption
- 1 respondent proposed outcome-based storage contracts, with payments tied to verified net $CO_2$ storage, standing readiness payments, clear availability and connection targets, inflation-linked terms, and independent auditing
- 1 respondent suggested a contracting stack, retaining 70–90% under long-term standard contracts and a small managed spot window for balancing

## Debt Investment

**19. As the scale of CCS in the UK increases, how should the economic regulation of CCS evolve to facilitate the continued ability of developers to readily access efficient debt finance?**

Question 19 received 16 responses.

Across responses, long-term revenue certainty and predictable cashflows were viewed as essential to maintaining access to efficient debt finance.

- 11 respondents stressed that any future changes to the economic regulation of CCS must continue to provide revenue stability, describing it as critical to lowering financing costs and attracting debt financing
- 5 respondents highlighted the need for sufficient risk mitigation measures to accompany any changes to economic regulation
- 5 respondents suggested a lighter touch, with more flexible regulation to enable new and innovative financing structures. 2 respondents highlighted that flexibility is required to plan for and incentivise investment at both system-wide and network levels. Another supported gradual deregulation as the industry matures, backed by a larger user base

and proven operational track record, while 1 respondent supported broadening flexibility without undermining financeability

- 5 respondents emphasised the importance of transparency and clear communication in enabling developers to continue accessing efficient debt finance. They noted that any evolution of the current model should maintain sufficient consistency to preserve lender confidence, while still allowing the flexibility needed for new financing structures to emerge. 2 of these respondents emphasised the value of early and ongoing engagement with financiers and insurers on risk-sharing approaches. 1 respondent specifically urged the sharing of operational data with insurers to accelerate development of insurance products
- 3 respondents noted economic regulation should evolve proportionality to market maturity, citing the availability of commercially priced insurance products as a key enabler of the market transition. These respondents suggested the use of empirical performance data from early projects to build insurer confidence, expand coverage, and to support a shift from state-backed arrangements to private insurance and capital markets
- 1 respondent suggested exploring mechanisms such as insurance pools or government-backed guarantees to manage risks including leakage and decommissioning
- 1 respondent recommended differentiated returns for existing RAB assets and new major capital projects to balance risks among investors, users, and taxpayer
- 1 respondent raised fiscal incentives, such as accelerated depreciation or frameworks that allow residual asset values to be incorporated into economic models, to signal long-term viability
- 1 respondent also proposed long-dated, inflation-linked regulated bonds to access cheaper capital
- 1 respondent highlighted the need to ensure policy continuity beyond initial contracts, stressing the importance of clear pathways for second- and third-term contract opportunities to avoid market stagnation

**20. How do developers view refinancing risk, and what actions could be taken to increase market liquidity for lending to the CCS sector?**

Question 20 received 15 responses.

Respondents' views on refinancing risk and market liquidity revealed several recurring themes, which can be grouped into how developers perceive the risk and what actions they believe could improve lending conditions in the CCS sector.

*How developers view refinancing risk*

- 6 respondents observed that future drivers of refinancing risk will hinge on operational de-risking and stable project performance

- 4 respondents noted that refinancing risk is not a near-term concern given the long-term nature of most T&S contracts
- 3 respondents suggested that refinancing risk remains a concern due to policy uncertainty and underdeveloped market frameworks, and because they view CCS as an emerging sector with limited market liquidity
- 2 respondents commented that existing market liquidity is adequate for initial CCUS networks but may require greater clarity for standalone, unbundled T&S operators
- 2 respondents also remarked that refinancing risk decreases once 'Track' projects achieve Commercial Operations Date (COD) with 1 respondent specifically noting that refinancing risk is reduced when CCS projects benefit from sustained government support and clear decarbonisation policy
- 1 respondent highlighted perceived risks affecting refinancing such as rule changes, cash-flow volatility, minimal operating track record, rate and credit market swings, and single-asset concentration

*Suggested actions to increase market liquidity for lending to CCS sector*

In terms of improving market liquidity, respondents identified several actions that they felt could strengthen lender confidence and expand financing capacity for the CCS sector:

- 10 respondents suggested that government-backed guarantees and clear frameworks should be available, as they will underpin investor trust and facilitate refinancing with 1 respondent emphasising that aligning policy with investor expectations could help improve market liquidity and attract broader infrastructure funds
- 6 respondents underlined the need for a strong operational track record, arguing that large-scale (i.e. Megatonne (Mt) scale), proof of concept is key to improving lender confidence
- 4 respondents highlighted customer credit quality as an important factor, noting that strong user creditworthiness is necessary to maintain lender confidence. 1 respondent recommended a contractual framework including open access on standard contracts, firm bookings, time-bound connections, automatic release of unused capacity, and a creditworthy hub-gate buyer with 6–12-month liquidity reserves
- 3 respondents believed that greater clarity is required on market liquidity, with 1 respondent proposing the publication of transparent $CO_2$ transport and storage pricing data. 1 respondent proposed regular updates on available cluster capacity, while another suggested operational milestones such as setting refinancing windows after 12–24 months of proven operations, allowing lender step-in rights, keeping reopeners narrow, and sharing refinancing gains with users. 1 respondent urged finalisation of all business models to help with market liquidity
- 2 respondents noted that a cross-border $CO_2$ trade should be enabled to attract investment and support supply chains. Additionally, two respondents urged greater sharing of operational data across international borders, noting that this could support wider market development

- 1 respondent proposed liquidity-enhancing mechanisms such as credit enhancement facilities, green bond certification, and public-private refinancing platforms
- Another respondent suggested providing backstops or insurance against major risks while allowing for variable upside opportunities
- 1 respondent proposed the development of a flexible network code to support system expansion
- 1 respondent called for greater regulatory flexibility, including the ability to increase allowed debt costs for $CO_2$ storage operators and T&S networks.

**21. Do you believe the existing RAB model is well suited to allow a maturing $CO_2$ storage sector to secure access to high credit quality debt finance?**

Question 21 received 14 responses.

All 14 respondents said they believe that the existing RAB model is well-suited to allow a maturing $CO_2$ storage sector to secure access to high credit quality debt finance.

However, conditions for the effective use of the existing RAB model were also raised by several respondents:

- 3 respondents stated that they believe the RAB model will not be sufficient for delivering a fully self-sustaining CCUS market in the long term and that it will need to evolve, with 2 respondents pointing to the need for transitional mechanisms during the market transition stage to manage cross-chain risk and to avoid constraints on growth and innovation. 1 respondent further noted that risk-allocation approaches should incorporate NPT models as the sector matures
- 3 respondents noted that the market will need to continue maturing to enable Government to step back from current obligations, while 2 respondents emphasised the importance of clear guidance on how appraisal, development and market risks will be allocated across the $CO_2$ store lifecycle to give investors' confidence
- 2 respondents indicated that, over time, the industry should move towards market-based financing structures that reward performance and efficiency, supported by improved risk perceptions as operational data accumulates
- 2 respondents also highlighted the importance of defining which parts of the debt market will be targeted as the sector evolves, including clarity on the types of lenders expected to participate
- 1 respondent stressed the need for a regulatory guarantee to support efficient operation and investment-grade financing, while another highlighted uncertainty for future projects, noting that the suitability of the RAB model for a maturing $CO_2$ storage sector requires further consideration
- 1 respondent also highlighted the importance of maintaining a clear distinction between RAB and non-RAB models to maintain clarity in regulatory evolution

- 1 respondent expressed a desire to keep the foundation simple, calling for open access on standard terms, a single creditworthy buyer, a single coordinator per pressure-connected basin, and a ring-fenced stewardship fund with clear legacy-well duties and public monitoring
- 1 respondent proposed confidence-building mechanisms such as setting defined refinancing windows after proven operations and sharing gains when spreads fall, along with maintaining a small liquidity reserve

**22. Under future regulatory models for the $CO_2$ storage sector, do you think it is desirable that future licensees are able to access investment grade or equivalent debt finance? If so - what policy levers could be considered to enable this policy objective?**

Question 22 received 16 responses.

Most (14) respondents agreed that access to investment-grade debt is essential for the sector's growth and long-term viability. Across submissions, respondents pointed to several policy levers that could support this policy objective:

- 10 respondents emphasised the importance of stable policy and contractual frameworks, including a clear long-term government commitment to net zero pathways, to provide certainty through transparent and predictable pricing and access mechanisms, alongside continued engagement with lenders, investors, and rating agencies. A further respondent also recommended the development of merchant-based business models, and another proposed demand-side policies to increase the number of "capture ready" users during market transition, enabling EU volumes into UK stores
- 6 respondents stressed the necessity of financial resilience requirements for licensees, ensuring the overall financial robustness of the $CO_2$ storage sector. Another 6 respondents called for transitional risk-sharing mechanisms involving government, industry, and insurers until private markets mature. 4 respondents observed that securing investment-grade debt for $CO_2$ storage will require strong and predictable government policy paired with targeted risk-mitigation measures, such as guarantees, improved insurance markets, and robust financial resilience and licensing conditions, and 1 respondent proposed the provision of empirical operating data to allow insurers to offer products covering cross-chain and business interruption risks. 2 respondents suggested government-backed credit support or guarantees, particularly for early-phase projects

# Next Steps

Government and Ofgem will consider representations received, as summarised in this document, and use the information gathered to inform policy development and decisions on future economic regulation for $CO_2$ storage.

Government and Ofgem will maintain close collaboration with stakeholders as future policy is developed and will consider developing and consulting on proposals to evolving the economic regulatory regime for $CO_2$ storage.

The Government and Ofgem would like to thank all respondents to this call for evidence.

This publication is available from: https://www.gov.uk/government/calls-for-evidence/evolution-of-economic-regulation-for-co2-storage

Any enquiries regarding this publication should be sent to us at: CO2storagestrategy@energysecurity.gov.uk

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.