UK Government

Summary Business Case for Padeswood Carbon Capture Usage and Storage (CCUS) Project

Department for Energy Security and Net Zero (2025)

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1. Introduction

As of 11 June 2025, all projects and programmes on the Government Major Projects Portfolio (GMPP) are required to publish a Summary Business Case, Full Business Case, or Programme Business Case. This is to provide greater transparency on how HMG business cases are developed and how decisions are made. This Summary Business Case supports investment in the Padeswood Carbon Capture, Usage and Storage (CCUS) project.

Padeswood is an operational cement plant located in North Wales. With a cement clinker production capacity of around 820,000 tonnes/year [1], it is one of 10 cement production plants across the UK that together meet 70% of the UK's cement demand[2]. Padeswood will be the first at-scale UK cement plant incorporating Carbon Capture and Storage (CCS) technology therefore making it a key demonstrator for decarbonising the cement industry, on which the security of the UK's net zero transition relies.

2. Strategic case

2.1 Strategic Assessment

2.1.1 Background

There is growing demand for low carbon products, including cement, therefore decarbonising the cement sector presents a growth opportunity. In cement production, process emissions account for roughly 60% of total emissions[3]. This means that emissions cannot be fully abated through fuel switching, electrification or methods to increase efficiency, and must be captured directly and stored via CCUS. Without CCUS, the cement industry will increasingly be exposed to a rising carbon price, impacting competitiveness with imports.

2.1.2 Current position

To reach decarbonisation targets, the UK needs to enable widespread decarbonisation of its "hard-to-abate" sectors, which is not achievable without CCUS. The absence of viable decarbonisation options may result in carbon leakage. CCUS can protect vital industry and jobs to sustain existing growth in the UK through the net zero transition.

As well as sustaining growth, CCUS presents a high-value economic opportunity for the UK. With an estimated 78 gigatonnes of potential CO_2 storage capacity in the UK Continental Shelf,[1] one of the largest in Europe, the UK is well positioned to take advantage of this growing market. The CCUS vision outlines HMG's deployment approach to CCUS, which aims to enable the development of a self-sustaining CCUS industry in the UK. The UK CCUS industry has the potential to generate £4-5 billion in GVA per year by 2050, which includes exporting out expertise and storage service to our countries.[4]

However, industry is not able to deploy CCUS technology on its own. There are a number of market barriers which inhibit this. To resolve these market failures, government intervention is required for an interim period.

The Government agreed a process to confirm funding for HyNet projects once they had reached higher maturity and were ready to proceed to FID, and we are now in that position with Padeswood.

2.1.3 Justification

Securing the future of the UK cement industry

Deploying CCUS at Padeswood will provide substantial economic benefits for the UK's economy. It will support the growth mission by securing jobs, skills and vital materials for our net zero transition.

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[1] Hanson Cement, Padeswood Works, Annual Report as required by Condition 4.2.2 Permit EPR/BL1096IB for Calendar Year 2018 (2018)
[2] UK Concrete (2023), 'Decarbonising UK Concrete and Cement'
[3] Gailani et al (2024) 'Assessing the potential of decarbonization options for industrial sectors'
[4] GDP output approach – low-level aggregates, apportioned across sectors using the approximate GVA figure from the Annual Business Survey.

The UK cement sector is at risk of carbon leakage. The UK Carbon-Border Adjustment Mechanism (CBAM), designed to ensure that imported goods face a carbon price comparable to those produced in the UK, will be introduced in 2027. However, unabated UK sites would be competing with sites overseas. Most UK cement sites are operated by companies that are internationally owned and make investment decisions on a global basis. Without investment in CCUS, companies may de-prioritise their UK interests and shift production elsewhere where the cost is lower or there are decarbonisation options available. Without a pathway to a secure future, this could put a sector which directly supports over 1,100 jobs[5] and contributes £200m in GVA per year at risk[6]. If cement production in the UK falls, we will become increasingly reliant on imports and increase our exposure to international cement markets. Investment in Padeswood will demonstrate a credible decarbonisation pathway for the UK cement industry.

Drive economic growth and innovation through green cement

In turn, this will help position the UK as a global leader in low-carbon cement production, driving innovation and growth, and provide security for the infrastructure needed for economic growth and the UK's net zero transition. Cement is a foundation industry and an essential material for society and its demand in the UK is met through a combination of domestic production and imports. There has been an increase in cement imports and decrease in domestic production, which reflects broader challenges within the industry, including economic factors. Additionally, demand for cement products is likely to increase in the future to provide the necessary infrastructure for our net zero transition and to deliver the government's commitment to deliver 1.5 million more homes.[7]

Padeswood can demonstrate the viability of low-carbon cement in the UK. In the context of the upcoming CBAM implementation across Europe from as early as 2027, adapting low-carbon technology could enable UK cement production to become more competitive both domestically and internationally. This could encourage new entrants into the UK market, creating jobs whilst driving growth and investment in the UK's cement industry, with learnings expected to reduce future costs. Cement production continues to be carbon-intensive (currently ~7% of global emissions) and thus, demand for low carbon cement can be assumed to grow.

2.1.4 Help meet UK carbon targets

Padeswood will deliver essential emissions reductions to contribute to the delivery of our Nationally Determined Contributions (NDCs) and CB6.

2.1.5 Improve VfM in the HyNet Cluster

Padeswood will improve the value for money of the HyNet cluster, as Padeswood provides an opportunity to increase the T&S network utilisation and therefore the value for money of that investment. This is because it can capture emissions at a competitive price, in a sector that lacks alternatives. In addition, it is highly unlikely that alternative users could commission on the same timeline.

2.1.6 Strategic Fit (Departmental)

Padeswood is a critical component of our broader departmental strategy to prioritise climate security, consumer security and economic security. As outlined in the sections above, Padeswood:

- Helps sustain existing growth by decarbonising cement production, securing a fair transition for the UK's cement industry.
- Supports economic growth by facilitating the growth of a low-carbon cement industry in the UK.
- Helps support the UK's net zero ambitions by delivering emissions savings required to meet CB6.
- Provides economic security for infrastructure construction through the UK's net zero transition.
- Backs long-term growth and economic security by stimulating private sector investment within industrial areas. It brings significant investment to Padeswood CCS and the region's economy and helps to secure a sustainable future for 1,100 people employed in the UK cement industry.[8] Furthermore, the construction sector, which supported 2.2m jobs in 2023, relies on the cement production industry.[9]

[5] https://www.padeswoodccs.co.uk/en
[6] GDP output approach – low-level aggregates, apportioned across sectors using the approximate GVA figure from the Annual Business Survey where data in the publication above isn't granular enough.
[7] Ali, M. and Markkanen, S. (2023). "Cement sector deep dive: How could demand drive low carbon, innovation in the cement industry." Cambridge: Cambridge Institute for Sustainability Leadership (CISL); UK Government (July 2024). "Press release: Housing targets increased to get Britain building again"
[8] https://www.padeswoodccs.co.uk/en
[9] https://www.padeswoodccs.co.uk/en

2.1.7 Wider Government Priorities

Delivery of Padeswood will make significant contributions toward wider government priorities. Our Project Outcome Profile (POP) shows how Padeswood outputs will directly support departmental outcomes across DESNZ, His Majesty's Treasury (HMT), the Department for Transport (DfT), the Department for Business and Trade (DBT), and the Ministry for Housing, Communities and Local Government (MHCLG), as well as the metrics we are using to measure this.

2.1.8 Strengthening the UK Union

The Padeswood project is crucial to CCUS' strengthening of the UK Union because, being located in North Wales, it is the only capture project so far that is not located in England. This makes it key to ensuring that the benefits of CCUS are distributed across the UK, rather than being concentrated in England alone.

2.2 Aims and outcomes

The scope of this FBC is for approval of the first "build-out" project Padeswood, which is expected to become the first CCUS-enabled cement plant in the UK.

In line with previous business cases, we have chosen to show a tiered approach for objectives and have not created any project specific objectives for Padeswood. Our objectives sit at the HyNet and ECC cluster level and, with respect to 1 and 2 below, are aligned to delivery requirements for CB6. The key objectives for the previous HyNet FBC are HyNet and ECC cluster SMART objectives – shown in the lowest tier. Whilst the guidance documents HyNet and ECC cluster set out objectives, we have refined these to be SMART objectives in Table 1.

Table 1: CCUS Objectives and Metrics

CCUS Objectives and Metrics
1. **Two CCUS clusters supported by the mid-2020s (with combined peak storage capacity of 8.5 Mtpa CO2) and 4.7 Mtpa averaged captured CO2 by 2030, measured by:** o Combined peak storage capacity of the two clusters (Mtpa) by 2030 o Average volumes of CO2 captured (Mtpa) by 2030
2. **Stimulate the deployment of first of a kind CCUS projects by supporting 2 CO2 T&S networks, 1 gas CCUS power plant (MW), up to 3Mt/year of ICC (inc. waste) and at least 1GW of CCUS-enabled hydrogen, measured by:** o Capacity/capture in operation with government support: CO2 T&S capacity (Mtpa) from 2028, gas CCUS power capacity (MW) from 2028, industrial and waste carbon capture (Mt/year) from 2028, CCUS-enabled hydrogen capacity from 2028
3. **Stimulate the CCUS supply chain, jobs, and skills, over the support contracts' lifespans, through the deployment of first of a kind projects to establish a competitive CCUS industry which supports and safeguards essential UK industrial sectors, measured by:** o Number of jobs created and supported directly by project by COD o Value of spend on supply chains o Skills level increases, and salary uplift resulting from upskilling of staff working in CCUS projects o Qualitative evidence from industry on safeguarding the sector
4. **Establish a commercial framework to stimulate private sector investment in CCUS projects by reducing investor risk and overcoming first mover market barriers to enable a pathway to a fully self-sustaining and competitive CCS industry, measured by:** o Number of investors committed to CCUS projects and value of private investment o Capital and operating (excluding fuel costs where appropriate) unit costs of CCUS projects. o Strike prices during HyNet, ECC, Viking and Acorn cluster support windows o Number of projects applying to subsequent stages of CCUS deployment o Volume of unutilised network capacity (Mtpa) across the clusters by 2030

2.3 Public Sector Equalities Duties

Public Sector Equality Duty (PSED) analysis was conducted for both HyNet and East Coast Clusters, which includes the "anchor" and "build-out" projects. We judged that analysing impacts at a combined HyNet and ECC cluster level rather than an individual cluster or project level was more appropriate, as the evidence sources were not significantly different or granular enough to differentiate. For further details on the PSED, please refer to the Full Business Case for HyNet Cluster.[10]

[10] GOV UK (June 2025), 'Full Business Case for HyNet Cluster Carbon Capture, Usage & Storage (CCUS)'

3. Economic case

3.1 Shortlisted options for appraisal

The economic case focuses on assessing the value for money of Padeswood on its own merits and the options to deliver this project. It does not assess alternative projects that could be delivered in its place given this would pre-empt the HyNet expansion competitive selection process which is currently ongoing. Two options for appraisal have been considered and are appraised relative to Option 0, the counterfactual.

- **Option 0: *Counterfactual:*** outlines the impact of not proceeding with Padeswood. Options 1 and 2 are appraised relative to this.
- **Option 1 (preferred): *Padeswood Baseline:*** asks for the approval of Padeswood FID in June 2025, with contracts becoming active (i.e. allowing drawdown on the grant) once relevant conditions precedent have been fulfilled.
- **Option 2: *Padeswood Delayed:*** presents an alternative option where FID is delayed by 4 months to align with their spurline timelines, resulting in a subsequent 5-month delay to COD[11].

3.2 Counterfactual

The impact of both policy options are appraised relative to two counterfactuals: a Net Zero Compliant Counterfactual (NZCC) and a Known Policy Counterfactual (KPC).

The NZCC represents a scenario in which Padeswood does not receive investment to deploy CCS, however it continues to operate unabated, with its emissions instead abated through alternative activities in line with a pathway to net zero. As equal abatement is achieved in both the policy intervention and the NZCC, this assessment answers the question of whether investing in deployment of CCS at Padeswood is part of a cost-effective route to decarbonisation. For Padeswood to decarbonise, there is deemed no direct alternative to CCS. The next most plausible abatement alternative is deemed to be the deployment of additional greenhouse gas removal (GGR) technologies. Where there is a gap between abatement required to offset Padeswood emissions and the abatement that can be achieved through additional deployment of GGRs, greater effort from elsewhere in the economy is required to bridge the gap. In the NZCC, Padeswood Transport & Storage (T&S) costs are used as a proxy for GGRs T&S costs. As such, T&S costs are equal, and thus, zero, relative to the NZCC.

Impacts are also appraised against a secondary, Known Policy Counterfactual (KPC). This represents a scenario in which Padeswood continues to operate unabated, however no alternative government intervention occurs to offset its emissions. Therefore, all costs and benefits associated with investment in Padeswood are additional and attributable to the intervention. Appraising impacts against the KPC enables a value for money assessment without consideration of HMG's net zero target, focusing on its value to society in isolation versus a business-as-usual scenario.

3.3 Monetised Impacts and Sensitivity Analysis

Cost benefit analysis (CBA) is conducted to appraise monetised impacts against both the NZCC and KPC to present a quantified value for money assessment of this intervention.

Impacts are appraised from 2025 to 2054, to align with the 25-year lifespan of the T&S network. Monetised benefits reflect the social value of carbon abatement. The economic costs reflect the incremental investment associated with building and operating a carbon capture facility to the Padeswood cement manufacturing plant. These costs include development costs, capital costs, operating costs, energy costs and financing costs.

[11] The value for money impact of a delay to Padeswood COD beyond this is summarised in '3.4 Risk Appraisal'.

Monetised costs and benefits are discounted at the HMT Green Book social time preference rate of 3.5% to ensure impacts are presented on a comparable present value basis. Benefit cost ratios (BCR) are not presented because, against the NZCC, benefits are zero and costs are negative, resulting in BCRs which are difficult to interpret. NPV estimates are the primary metric used to represent a value for money assessment of the monetisable impacts. Impacts which were not possible to monetise were considered qualitatively in the value for money assessment. Non-monetised benefits identified were protected employment and GVA, skills and job creation, innovation spillovers, CCUS technology option value and cost-reduction benefits. Non-monetised costs identified were leakage of carbon, non-GHG environmental impacts and potential under-utilisation of the T&S network (in the counterfactual scenario only).

Table 2: CBA Results and Sensitivity Analysis (NZCC, 2021 prices, 2021 present value, £bn)

		Low	Central	High
Option 1	Net Present Value	**1.0**	**2.3**	**3.2**
Option 2	Net Present Value	**1.0**	**2.2**	**3.2**

Table 2 presents the total NPV of each policy option appraised against the NZCC. Padeswood demonstrates a positive NPV relative to the NZCC, demonstrating that its addition to the network will improve the overall NPV of the HyNet Cluster. Given the same level of abatement is achieved in both the intervention and the NZCC, a positive NPV is driven by the lower cost associated with investing in Padeswood to achieve these emissions savings relative to the net zero compliant alternative. In the central scenario, Option 1 presents a slightly higher NPV of £2.3bn relative to Option 2 with an NPV of £2.2bn. The primary reason for this is because in Option 1, abatement costs (which are higher in the NZCC vs the intervention) are incurred sooner than in Option 2. Therefore, cost savings relative to the counterfactual are realised sooner if Option 1 is pursued. The low and high value for money scenarios demonstrate the NPV when core cost assumptions (Padeswood and T&S network costs, exogenous fuel costs and costs underpinning the NZCC) are varied in combination to reflect uncertainty in these. Results show that Padeswood maintains a positive value for money position of £1.0bn in a high-cost scenario in both Options 1 and 2.

Table 3: CBA Results and Sensitivity Analysis (KPC, 2021 prices, 2021 present value, £bn)

		Low	Central	High
Option 1	Net Present Value	**-0.1**	**0.7**	**1.0**
Option 2	Net Present Value	**-0.1**	**0.7**	**1.0**

Table 3 presents the NPV of each policy option appraised against the KPC. The low and high value for money scenarios reflect NPV estimates when core cost assumptions (Padeswood and T&S network costs and exogenous fuel costs) are varied in combination to reflect uncertainty in these. Padeswood demonstrates value for money in both a central (£0.7bn) and low-cost (£1.0bn) scenario. This demonstrates that the intervention provides a net benefit to society in these scenarios as the carbon benefits achieved through investing in Padeswood outweigh the social costs of the intervention. Results show a negative NPV in a high-cost scenario (-£0.1bn). However, this assessment is based solely on impacts which are possible to monetise. As such, it is plausible that if it were possible to value and incorporate non-monetised benefits of the intervention into NPV estimates, such as employment and GVA impacts, the resulting NPV would be positive. However, as these non-monetised impacts cannot be quantified, the overall value for money position of Padeswood in a high-cost scenario is uncertain relative to the KPC. Whilst NPVs appear equal due to rounding, Option 1 presents a higher NPV as abatement benefits are realised sooner relative to Option 2.

3.4 Risk Appraisal

The NPV impact of each identified cross chain and cross-cutting risk materialising has been appraised. The base case is Option 1 relative to the KPC, in a central value for money scenario

impacts on T&S have not been modelled. Table 4 and Table 5 present a qualitative assessment of the impact on value for money.

Table 4: Cross Chain Risk Appraisal (£bn, 2021 prices, 2021 present value)

Cross Chain Risk	Net Impact on Value for Money
T&S Construction Delay [2-year delay]	Negative – reduction in carbon benefits due to delayed capture.
User Construction Delay [2-year delay]	Negative – reduction in carbon benefits due to delayed capture.
User Underperformance [80%]	Negative – reduction in carbon benefits due to reduced annual capture.
T&S Availability [80%]	Negative – reduction in carbon benefits due to reduced annual capture.
Discontinuation	Negative – reduction in carbon benefits due to single year of capture which outweighs drop in project costs.

Table 5: Cross Cutting Risk Appraisal (£bn, 2021 prices, 2021 present value)

Cross Cutting Risk	Net Impact on Value for Money
Inflation [+1pp on yearly OBR forecast from 2025 onwards]	Neutral – analysis completed in real 2021 prices.
Commodity Price [high commodity prices]	Impacts of low and high LRVCs tested within sensitivity analysis presented in Table 2.
Traded Carbon Price [low carbon price]	Neutral – VfM analysis not sensitive to traded carbon price.*
Capex Overrun	n/a – impacts are accounted for within optimism bias assumption applied in analysis.
Opex Overrun [15% increase]	Neutral/negative – higher opex costs from COD

*The value for money modelling uses carbon appraisal values rather than UK ETS price series. UK ETS price determines who pays for the carbon (the market or the government in this scenario) which has no impact on the economic value of the intervention.

3.5 Rationale for preferred option

Both Option 1 and 2 demonstrate value for money when appraised against both counterfactuals. This demonstrates that the addition of Padeswood to the HyNet Cluster will improve the overall HyNet Cluster VfM and allow for further realisation of benefits outlined in the HyNet Cluster FBC. Option 1 is preferred as it demonstrates a higher NPV. Option 1 facilitates Padeswood taking FID and reaching COD to earlier timelines. This enables carbon to be captured sooner, realising a greater level of carbon benefits relative to Option 2. Ultimately, Option 1 reduces delivery risk for the project.

4. Commercial case

The Padeswood Carbon Capture and Storage (CCS) plant is a cornerstone project for demonstrating commercial scale CCS in the UK's cement sector. Located at Heidelberg Materials' cement works in North Wales; it will be the first at-scale CCS-enabled cement plant in the UK and the first CCS project in Wales.

4.1 Project Maturity and Development Status

The project is being developed by Heidelberg Materials and is progressing toward a Final Investment Decision (FID) in 2025. Key design, procurement, and delivery partners have been engaged, and significant preparatory work has been completed. The project is on track to meet pre-agreed conditions ahead of drawdown of government support.

4.2 Emitter Selection and Assurance Process

Padeswood was selected through the UK government's Cluster Sequencing for CCUS Deployment process.

A structured and competitive process was followed, including detailed assessments of projects' eligibility, affordability, and strategic alignment. To support its commercial and delivery case, the project has undergone independent assurance across financial, legal, and technical areas. A robust Open Book Model (OBM) was developed jointly with Padeswood, integrating cost assessment templates, inflation and energy assumptions, and subsidy modelling undertaken by DESNZ.

Independent assurance provided by EY (financial), WSP (technical), and Ashurst (legal) has confirmed the project's commercial and delivery viability. This rigorous process ensures that Padeswood is both financially sound and technically deliverable.

4.3 Government Support

The Padeswood project will be supported by the Industrial Carbon Capture (ICC) business model, which is comprised of two elements:

- **The ICC Contract**, which provides revenue support per tonne of CO_2 captured, offering long-term certainty over income and helping to bridge the gap between conventional operations and CCS-enabled production.
- **The CCS Infrastructure Fund (CIF) Grant**, which provides upfront capital support during the construction phase, up to 50% of Padeswood's eligible capital costs.

These mechanisms are designed to incentivise early deployment, mitigate key investment risks, and ensure a proportionate use of public funds.

Additionally, the Industrial Carbon Capture business model has been designed to meet the relevant Energy and Environment principles, notably that the subsidies do not to relieve the beneficiary from liabilities as a polluter.

4.4 Business Model Framework

The Padeswood project will benefit from a business model tailored to the needs of first-of-a-kind CCS deployment. The model is designed to address key market barriers facing CCS deployment – such as high upfront costs, cross-chain risks, and revenue uncertainty – while ensuring accountability and value for money.

Revenue support is structured similarly to a Contract for Difference (CfD), with payments tied to performance and volumes of CO_2 captured. This approach balances delivery incentives with long-term financial viability.

Commercial agreements include standard protections and risk management provisions, such as performance thresholds, safeguards against under-delivery, and contractual clauses covering change in law and force majeure. These are designed to ensure strong governance and accountability throughout the project lifecycle. Oversight is provided by relevant government and regulatory bodies.

4.5 Governance and Oversight

Padeswood will be overseen through a range of bodies including:

- Ofgem: Economic Regulator for T&S Network Users and T&SCo (Liverpool Bay)
- Low Carbon Contracts Company (LCCC): Contract counterparty for revenue support and performance monitoring
- DESNZ Central Grants & Loans (CGL): Grant administration and compliance
- DESNZ Cluster Function Team: Oversight of cluster-level governance, coordination across connected projects, and ensuring alignment with cluster deployment objectives

4.6 Network Code Compliance

Padeswood is compliant with the CCS Network Code, which standardises technical and operational arrangements for CO_2 transport and storage in the UK. The Code enables consistent risk management, contract terms, and performance expectations across CCS networks.

4.7 Long-Term Strategy

The project supports the UK's ambition to develop a competitive and self-sustaining CCUS industry by 2035. While government intervention is necessary to enable early deployment, future market phases are expected to operate with reduced subsidy support through competitive allocation rounds.

4.8 Delivery Outlook

Final cost and contractual agreements will be completed ahead of FID (Final Investment Decision. Delivery will be supported by clear risk allocation, commercial incentives, and ongoing assurance processes.

4.9 Conclusion

The Padeswood project is a strategically significant initiative that demonstrates the UK's commitment to Net Zero. It is commercially robust, underpinned by a structured process and tailored business model, and supported by strong governance. The project will play a leading role in decarbonising UK industry while delivering value for money.

5. Financial Case

5.1 Purpose

The purpose of this section is to: a) assess affordability of the contract within the constraints agreed with HMT; b) explain the basis of the spending powers (section 5.3); and d) set out and quantify the financial risks in the contract (section 5.4).

5.2 Affordability

In Autumn 2024, the Chancellor approved a Final Funding Envelope (FFE) of £21.7bn in Real 2021 prices to support CCUS anchor projects of HyNet and East Coast Cluster. HyNet Cluster FBC received approval in September 2024.

This finance case makes recommendations on the nominal funding required for business model payments made under the grant funding agreement and ICC Contract, which cover operational expenses, fees paid to the CO_2 T&S network to transport and store the ICC facility's captured CO_2, and repayment of, and a rate of return on, the project's capital investment in carbon capture equipment (to note, grant payments only cover capital investment and do not include a return on investment).

5.3 Spending powers

The Energy Act 2023 contains a spending power to help to facilitate the government's CCUS and hydrogen ambitions. This power extends to England and Wales, Scotland, and Northern Ireland to support the deployment of CCUS and low carbon hydrogen across the UK. The UK government has engaged with the devolved administrations throughout the process of developing the design of the business models and considered their views expressed.

The spending power for the support to be provided to Padeswood is contained in section 129 of the Energy Act 2023 which permits financial assistance to be provided for, amongst other things, CO_2 capture facilities which operate in association with T&S facilities.

Padeswood is the first CCUS project in Wales and is therefore of interest to the Devolved Administrations.

5.4 Financial Risks

Beyond the whole-life costs noted above, the programme is exposed to several risks which have been assessed on the basis of their timing, likelihood and quantum in light of *International Accounting Standard 37: Provisions, Contingent Liabilities and Contingent Assets* (IAS 37) and MPM. These risks would be classified as contingent liabilities and would therefore be "off balance sheet" and excluded from the funding requirement. Where contingent liabilities require parliamentary approval, these approvals will be sought.

5.4.1 Revenue Support Agreement (RSA)

RSA would be paid to the T&SCo (Eni) in two circumstances: firstly, where the network is underutilised, and secondly in circumstances where users are unavailable to inject CO2 and therefore are not paying user fees. Padeswood joining the T&S network will reduce the level of underutilisation in the network and will therefore reduce RSA payments to the T&SCo.

5.4.2 Discontinuation risk for Padeswood

Discontinuation risk entails the potential for Padeswood to be unable to continue under the business model contract, due to the actions of another party or events outside of their control. This could happen due to a large-scale, programme-wide issue (such as a leakage), a prolonged T&S issue or due to external events such as Qualifying Change in Law (QCiL), Qualifying Shutdown Events or Force Majeure. The risk of having to make a discontinuation payment to Padeswood is judged to be a remote contingent liability given that the risk is very unlikely (<1%).

Projects (e.g. Padeswood) connected to the T&S network via a spurline (i.e. a pipeline that connects the project to the main T&S network) can be exposed to an additional risk if the spurline FID is taken after T&S FID. The timing of spurline FID is not within the capture project's control and in principle is a variation of the existing cross chain risks protected by the business model.

5.4.3 Exchequer funding Secretary of State direct agreements (SoSDA)

LCCC is only liable to make payments against its contractual obligations to the extent that it has received sufficient funds from HMG. As such, if HMG did not make sufficient funding available to LCCC, Padeswood would not have recourse under the private law contracts to oblige LCCC to pay, thus creating the risk that they do not receive the payments owed to them. To address these concerns, the Secretary of State will sign a direct agreement with Padeswood (to which LCCC is also party), to fund payments directly where LCCC fails to pay. This agreement does not increase the liabilities of DESNZ overall and does not give rise to a contingent liability as it is an intragroup transaction.

5.4.4 Fraud

A CCUS Fraud Management Strategy is being developed which will specify the programme's strategic approach to deterrence, prevention, detection, and management of fraud and error, as well as outlining counter fraud governance and reporting structures. A key part of this strategy is the development of high-quality fraud risk assessments (FRAs) for the different tranches of the CCUS programme.

5.4.5 Financial sensitivities

Whilst a significant number of contractual terms will be "locked in" at Padeswood FID, several drivers of the financial impact of Padeswood will continue to move post-FID. Two sensitivities that could result in higher subsidy are the carbon market price and the opex reopener. For the **carbon market price sensitivity**, the Low ETS series is used as the reference price in the extension period for calculating an estimated increase the subsidy. **The Opex reopener sensitivity**, results in an estimated increase in subsidy because of higher opex expenditure payments. There are other financial sensitivities which have the effect of reducing total subsidy.

5.4.6 Cross-chain and cross-cutting risks

Cross-chain risks are those risks which the private sector is exposed to through the network, but which they cannot mitigate against. These risks include T&S Construction delay, Padeswood Construction Delay, Padeswood-Underperformance, T&S Underperformance and Discontinuation Provisions. The introduction of Padeswood into the HyNet cluster increases HMG exposure in terms of compensation payments to the project should the T&S network fail or cease to be available.

Cross-cutting risks, which are those risks which are challenging for the private sector to price or they relate to events outside their control, include inflation risk, carbon price risk, and OpEx risk.

6. Management Case

The management and governance of the Padeswood project is integrated within the broader HyNet cluster and the overall CCUS programme. As part of the transition arrangements in the Post-FID Operating Model (PFOM), the HyNet cluster has now moved to the Cluster Sponsor Function ahead of Padeswood reaching Final Investment Decision (FID). The governance structure, aligned with DESNZ's framework and best practices, ensures appropriate accountability, decision-making, and risk escalation across both the HyNet cluster and the CCUS programme.

Table 6: Summary of key high-level milestones

Milestone	Date
Approvals & Assurance	
IPA Gateway 3 Review	w/c 24/02/25
Full Business Case (FBC) – Grants Commercial Assurance Board (GCAB) Review	11/03/25
FBC – PIC Review	10/04/25
FBC – TAP Review	13/05/25
SoS Approval	May 25
Gateway 4 Review	Q3 2029
HMG Fiscal events	
2025 SR: Phase 2	June 2025
M&E key dates	
Process Evaluations	2024-2026
Interim Impact Evaluations	2028-2030
Final Impact Evaluation	Post 2030

6.1 Project Accountability

The DESNZ Permanent Secretary fulfils AO responsibilities for the programme. We have not identified any major risks against the four tests and the document will be signed off by the Permanent Secretary once Padeswood has reached FID. The appointed Senior Responsible Owner (SRO) have ultimate accountability for the successful delivery of CCUS and the Cluster Sponsor Function will have Deputy Director delegated authority from the SRO, to enable it to have the necessary oversight and influence for the scope of its function.

6.2 Pre-FID roles and responsibilities

The Padeswood project, as part of the HyNet cluster, was subject to DESNZ CCUS programme governance before it was transitioned to the Cluster Sponsor Function. This programme works closely with cross-Whitehall, industry, and partner organisations, who play an essential role in achieving FID.

6.3 Post-FID roles and responsibilities

Organisational roles and responsibilities in the Post-FID Operating Model are largely determined by the CCUS Regulatory Framework, including the Economic Regulatory Regime (ERR), and governmental support to the private sector. These responsibilities are effective from the issue of the Economic Licence

and signature of contracts as relevant. In addition, DESNZ established the Cluster Sponsor Function for proactive oversight of the projects at a cluster-level and to encourage cooperation between key decision-makers post-FID, noting the significant risk government is taking on. The key roles are summarised in the figure below.

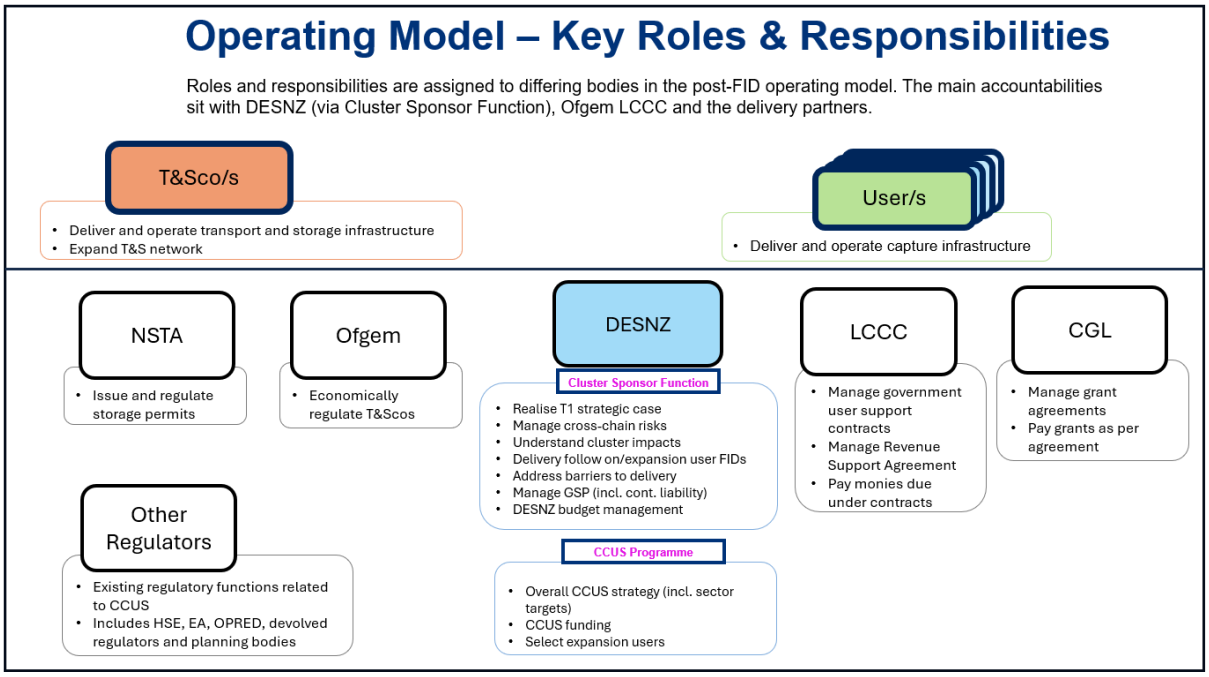

Figure 1: Post-FID Operating Model – key roles and responsibilities

6.4 Post-HyNet FID roles and responsibilities

Now that HyNet has achieved financial close, the Post-FID Operating Model is fully implemented. Ofgem is the Economic Regulator of the T&S network and responsibility for the HyNet cluster overall has transitioned to the Cluster Sponsor Function. The core functions of the **Cluster Sponsor Function** during both the **project's negotiations and delivery phases** include:

- Managing government-owned cross-chain delivery risks and operating model integration risks.
- Overseeing the overall cluster construction schedule, agreement & monitoring of DESNZ budget and business planning.
- Recommending/advising DESNZ SoS on key decisions, such as variation requests under the Government Support Package (GSP), remediation activities, and commission of new user selections, etc.
- Managing business cases and overseeing negotiations for build-out users.
- Coordinating the removal of barriers to successful delivery, such as resolution of regulatory and business model issues.
- Representing DESNZ SoS on the Liaison Committee as required.
- Developing a data management strategy, including reviewing relevant data sharing arrangements.

6.4 Post-Padeswood FID roles and responsibilities

After Padeswood reaches FID, LCCC and DESNZ CGL will become the counterparties to the User Support Contract and Grant Funding Agreement respectively. The core functions of the Cluster Sponsor Function remain as outlined previously, with a greater focus on oversight of project delivery.

6.5 Monitoring and Evaluation of Benefits

The key objective of the Monitoring & Evaluation (M&E) Plan in place is to assess the effectiveness of the CCUS programme's policy support utilising evidence produced from process, impact, and value for money (VfM) evaluations. The plan sets out the evaluation data collection plan (including relevant monitoring data) and includes an indicator framework that sets out the indicators that we will use to track progress against our core and wider benefits, including data sources, collection frequencies and options for baseline data. It also describes our intended approach to evaluation and determines appropriate evaluation timings.

6.6 Risk management

The CCUS programme's treatment of risk is aligned with DESNZ risk guidance and the Programme Risk Management Framework (April 2021) is based upon M_o_R™ and HMT's Orange Book. Project level risks are recorded in the CCUS project level risk registers and are escalated to the CCUS Programme Risks, Assumptions, Issues and Dependencies (RAID), in accordance with the DESNZ Risk Guidance and DESNZ Risk Appetite Statement. CCUS escalation processes are established in current reporting structures and direct engagement with Senior Project Staff and the SROs.