



PEAK CLUSTER



Putting the UK's cement and lime industry on the path to net zero

The MNZ-Peak Cluster Vision



Introduction

About the Peak Cluster

Peak Cluster is made up of five of the UK's leading cement and lime producers; Tarmac, Breedon, Lhoist, Aggregate Industries, SigmaRoc and the low carbon energy project developer Progressive Energy. From 2030, Peak Cluster will utilise carbon capture and storage technology to decarbonise 40% of the UK's cement and lime production industry.

About MNZ

MNZ (Morecambe Net Zero) is a joint venture between Spirit Energy and shareholders Centrica plc and Stadtwerke München GmbH (SWM). With a mission to provide a permanent decarbonisation solution, Spirit Energy will convert its depleted South and North Morecambe Bay gas fields off the coast of Barrow-in-Furness to provide a permanent, safe and secure, world-class carbon storage, which will sit at the heart of MNZ.



Forewards



Neil McCulloch, CEO of Spirit Energy

The MNZ-Peak Cluster brings together four of the UK's leading cement and lime producers, and MNZ (Morecambe Net Zero) - which has the potential to become the largest carbon store in the UK. Working together we have the opportunity to decarbonise 40% of the UK's cement and lime production.

Our partnership will repurpose the Morecambe Bay Gas Fields, which at one stage provided 14% of the UK's gas supply but are now depleted, transforming them into playing a pivotal part of the UK's journey to net zero. In its CCS Vision, the Government rightly recognised the large scale of carbon storage needed to meet the challenge posed by the climate crisis. Our plan does just that. It is a solution - providing the UK's cement and lime industry with a long-term, prosperous and net zero future.



John Egan, Peak Cluster Project Director

From our houses to our highways and high streets, the cement and lime industry provides the foundations for everyday life, and its transition to a net zero world is essential. The MNZ-Peak Cluster partnership will capture, transport, and permanently store carbon dioxide emissions from neighbouring industries across Derbyshire and Staffordshire creating and safeguarding over 13,000 jobs across the Peak District and Barrow-in-Furness in the process. It will also position the UK squarely as the world's leading producer of sustainable low carbon cement.



Alex Cunningham MP, Chair of the CCUS APPG

The MNZ-Peak Cluster partnership is one of the most exciting prospective CCS projects I have seen in my role as Chair of the APPG. It is one of the most advanced projects in the UK, offering an opportunity to repurpose one of the UK's largest gas fields into a world-leading carbon store, accepting carbon from an industry that has been a cornerstone of the Peak District's economy for centuries. Beyond the significant economic benefits of the project, the scale of storage on offer makes the MNZ-Peak Cluster a project that will be nationally and internationally significant.

Executive Summary

An uncertain future for cement and lime

UK-based manufacturing industries like the cement and lime sector face a series of challenges as they look to reduce their carbon emissions whilst protecting jobs and remaining profitable in a global market.

The UK has the world's most ambitious, legally binding climate commitment to reduce emissions by 78% by 2035. At the same time, these must be delivered in partnership with industry, supporting manufacturers with the technological solutions they need to make the transition, and ensuring overseas importers cannot undercut domestic production with low-cost, high-carbon alternatives.

Unlike other forms of manufacturing, it is impossible to decarbonise the process of producing cement and lime by electrification or fuel switching alone. This means that few industries are more affected by this challenge than the cement and lime industry, which faces an uncertain future if the price of carbon continues to rise without a way to economically capture and store these emissions.

CCS as a long-term, comprehensive solution

As indicated by the Climate Change Committee, carbon capture and storage (CCS) represents a permanent and comprehensive solution to this challenge. It allows hard-to-abate industries to safely capture, transport and store emissions, while eliminating the costs of emitting carbon under the Emissions Trading Scheme (ETS) - creating the right economic environment for manufacturers to invest in jobs, growth, and decarbonisation.

The UK is perfectly positioned to provide these solutions, with:

- A total storage capacity of 78 billion tonnes; enough carbon storage to hold two centuries' worth of the UK's current emissions
- A pipeline of projects capable of capturing approximately 94 million tonnes per annum of CO₂
- A world-leading offshore energy sector, with a workforce of valuable knowledge, experience and innovation, strategically focused on delivering a comprehensive transition to net zero



Decarbonising 40% of the UK's cement and lime industry



Utilising the UK's largest carbon store



Growing the UK's CCS export market

The MNZ-Peak Cluster as the next major CCS project for Government

The MNZ-Peak Cluster partnership is at the forefront of the UK's CCS offering. It will decarbonise 40% of the UK's cement and lime industry, ensuring that close to 4 million tonnes of industrial CO₂ emissions will be permanently stored each year, starting from 2030.

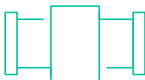
Beyond this, by connecting additional industrial sites and by importing CO₂ from further afield by ship and rail, it is projected that 25 million tonnes of CO₂ can be stored at MNZ each year by the end of the next decade. This scale will allow rapid commercialisation of the project with rising UK ETS prices, and become a net revenue generator for the UK moving forward given the scale of opportunity there is to export CO₂ storage services.

To do this, the MNZ-Peak Cluster will work in three simple stages:



Capture

CO₂ will be captured in specialist equipment installed at the industrial plants of Peak Cluster in Derbyshire and Staffordshire, with the potential to subsequently connect further industries to the transport infrastructure



Transport

CO₂ will be transported via newly built buried pipeline across to the coast, before being transported offshore to the storage site



Storage

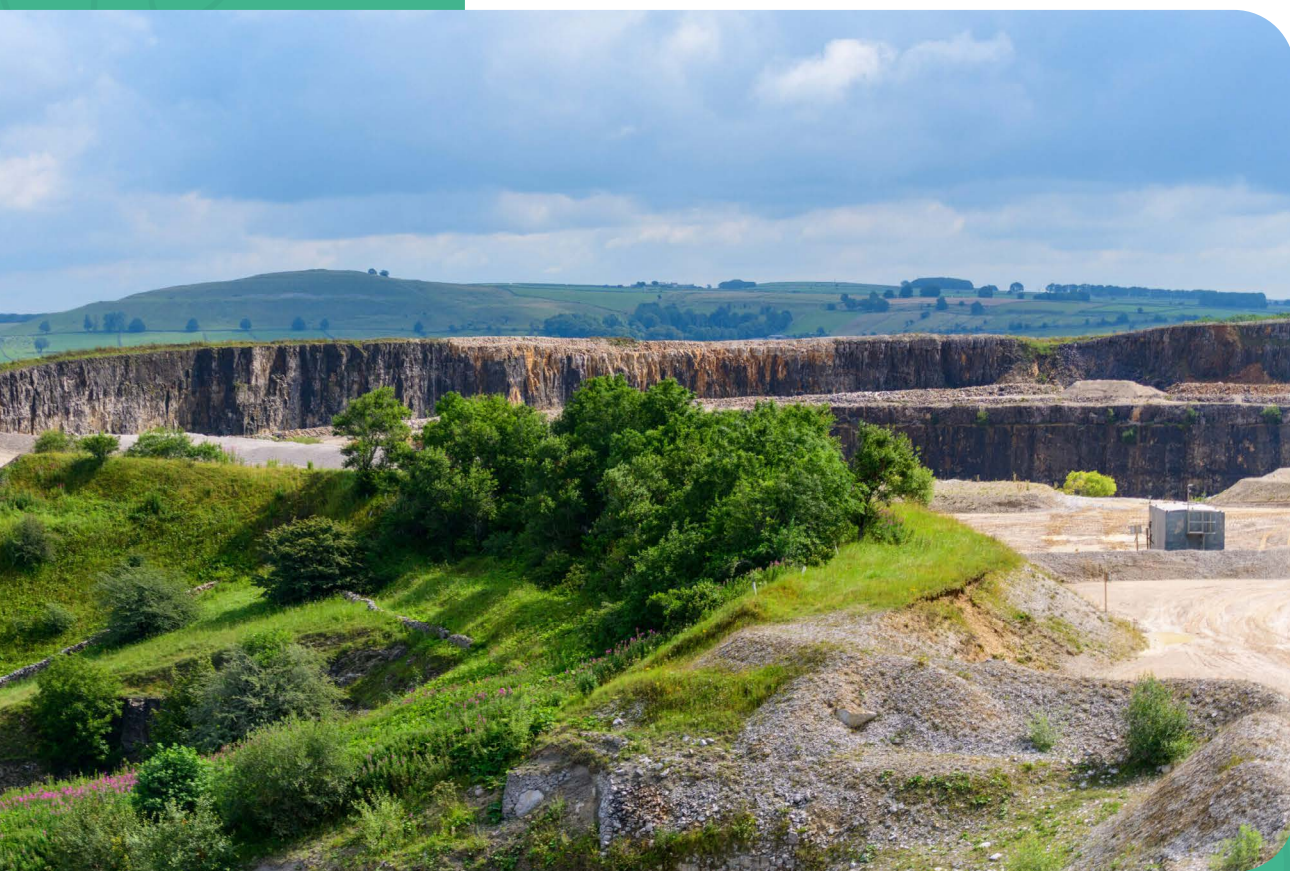
CO₂ will be injected into rock formations deep beneath the East Irish Sea for permanent storage

Delivering our vision

To realise our vision, the MNZ-Peak Cluster partnership is advocating three steps that the Government can take to unlock regulatory barriers to delivery, inspire investor confidence in CCS projects, and underpin the long-term future of industrial projects like that of the Peak Cluster.

In summary, the Government should do the following without delay:

- Provide a route to market for technically and commercially mature projects
- Deliver reliable carbon pricing on which CCS business models can be based
- Begin the 'market transition' phase now and support workable CCS business models



Our joint vision

The MNZ-Peak Cluster Joint Vision is our plan for the future of the industrial heartlands, delivering net zero and driving economic growth across the North West of England.

A vision for our industrial heartlands: Decarbonising 40% of the UK's cement and lime industry and defining its long-term net zero future.

A long-term solution for a critical national industry

Peak Cluster offers a stable anchor source of carbon and MNZ provides the guaranteed level of storage that the Peak Cluster can rely on, creating a solid commercial case that underpins our economic offer. The result of this scale of storage and long-term, commercially secure partnership is the creation and safeguarding of more than 13,000 jobs across the Peak District and Cumbria. We also project a combined annual increase of £154m in skills uplift and wage increases, and a total economic contribution of approximately £1.8bn GVA by 2050.

Working with the UK's system of carbon pricing

Without a means by which producers can avoid having to pay for carbon pricing, the cost of production will only continue to increase – putting jobs at risk. As the UK ETS (Emissions Trading Scheme) matures and a UK Carbon Border Adjustment Mechanism (CBAM) enters into force by 2027, the cost of offsetting cement and lime production can be expected to stabilise and progressively increase.

The long-term credentials of the project are therefore underpinned by the realities of carbon pricing. With the incentive to store carbon provided by the ETS, financeability secured by a suitable business model, and the risk of overseas cement importers undercutting Peak Cluster members removed through a UK CBAM, CCS is well placed to be a permanent solution to secure a sustainable domestic cement industry.

A vision of net zero: Utilising the UK's largest carbon store in its net zero journey, creating a CO₂ transportation network fit for the future

The next chapter in the story of Morecambe Bay

The Morecambe Bay Gas Fields have been a cornerstone of the UK's energy security for decades, and at one stage provided 14% of all domestic natural gas supply. Now that gas levels are depleted, the MNZ-Peak Cluster presents an opportunity to write the next chapter in Morecambe Bay's future; aligning with the Government's CCS Industry Vision to increase the amount of CO₂ stored annually to at least 50 megatonnes per annum (Mtpa) by 2035.

We project that rather than natural gas being extracted from the Morecambe Bay Gas Fields, 4 million tonnes of industrial CO₂ emissions from Peak Cluster will be stored in MNZ each year from 2030. Looking towards the end of the 2030's, 25 million tonnes of CO₂ will be stored each year delivering a nationally significant proportion of the UK's 2050 storage target.

Clean, low carbon cement

For the Peak Cluster and the cement and lime industry, which produces significant amounts of unavoidable carbon dioxide, there must be a pathway to decarbonisation. Through transporting the carbon, via buried pipeline, to the MNZ carbon store, the Peak Cluster will ensure that its emissions don't enter the atmosphere - ultimately ensuring that the Peak Cluster can continue to deliver construction materials for the UK economy while meeting its net zero commitments.

Broader Net Zero benefits

The development of the MNZ-Peak Cluster is one that will facilitate broader opportunities to store CO₂. It will deliver one billion tonnes of CO₂ storage capacity accessible to the UK and further afield by pipeline, shipping and rail. It will also add 250km of CO₂ transportation infrastructure that can be utilised by other industries located close to the Peak Cluster's pipeline, satisfying recommendation 15 of the National Infrastructure Commission's Second Infrastructure Assessment.

A vision of UK economic growth: Leveraging the growth potential of CCS to unlock future economic opportunity across the North West

Jobs, skills and wage uplifts

The MNZ-Peak Cluster will drive upskilling and wage growth across Barrow, the Peak District and across the North West of England through:

- The creation and safeguarding of more than 13,000 jobs
- An annual increase of £154m in skills uplift and wage increases
- Attract around £5bn of UK investment in construction and operations

Macroeconomic benefits

The broader economic impact of the MNZ-Peak Cluster, given the scale of carbon that will be captured, will make a material difference to the economy of the North West of England, and vastly improve the local economies across Barrow and the Peak District.

- It will generate the equivalent of £1.8bn GVA
- Between £34.6bn and £104.0bn will be saved by industry in ETS non-payments

Growing the UK's CCS export market

The MNZ-Peak Cluster will also generate opportunities to export CO₂ storage services. According to the Carbon Capture and Storage Association (CCSA), the export of CO₂ storage solutions to European industries could be worth £30 billion annually in taxable revenues by 2050. Given the MNZ Store's accessibility by pipeline, rail, and crucially, shipping, it can play a key role in helping EU Member States, as well as the UK, meet future CO₂ storage targets.



A private sector model requiring modest economic support before 2030

The UK faces a complex challenge to deliver major net zero projects in a fiscally responsible way. Large sums of upfront money from the Government to finance CCS projects is not a reality that is on offer and that is fully recognised in our Vision.

MNZ and Peak Cluster will finance the upfront costs of delivering the project, and only require a modest subsidy from the Government from the early 2030s that links to the price of carbon that the industry is saving. While it is impossible to project the scale of this subsidy as it is based on the future price of carbon, the taxpayer will only contribute when it becomes operational.

2024-27

Milestone	Process of securing economic licences, consents and permits
Taxpayer benefit	Job safeguarding by providing pathway for Peak Cluster execution

2027-30

Milestone	Construction phase (including pipeline)
Taxpayer benefit	Job creation and supply chain spend

2030+

Milestone	Beginning of operations
Taxpayer cost	Subsidy linked to the price of ETS
Taxpayer benefit	The generation of the equivalent of £1.8bn GVA Annual increase of £154m in skills uplift & wage increases Creation and safeguarding of over 13,000 jobs Between £34.6bn and £104.0bn saved by industry in ETS non-payments

Recommendations

1 Providing a route to market for technically and commercially mature projects

Context:

The Government’s continued progress in negotiating business models with Track-1 and Track-2 projects is welcome, as these will be the blueprint from which the UK’s CCS market will continue to develop and we look forward to Final Investment Decisions from September this year. However, projects that sit outside this process are currently without a clear route to market. To continue to drive private sector investment in CCS and meet the Government’s storage targets, a pathway for delivery must be on offer to new market participants.

Action:

The UK Government should immediately bring forward an accelerated process for commercially mature CCS projects, such as an additional economic licensing round as referenced in the Government’s CCS Vision. Furthermore, these should be assessed on a ‘whole cluster basis, rather than having individual projects within a cluster compete. Peak Cluster has been designed as an integrated project, and it is by delivering it in full that best value for money will be realised.

Impact:

This certainty will ensure a route to market and unlock private investment for project delivery. This would ensure that as the price of CO₂ increases, the supply of carbon storage meets demand and the UK can hit the target set out within the Government’s CCS Vision of at least 50 Mtpa by 2035.





2 Deliver reliable carbon pricing on which CCS business models can be based

Context:
Investor confidence is being harmed by the comparatively low price of carbon on the UK ETS as incentives to invest in decarbonisation are reduced. To meet the UK’s legally enshrined climate targets, industry must be assured of a long-term carbon price trajectory which will mean that emitting carbon is a more expensive option than storing these emissions. This will not only reduce emissions but also increase private sector confidence and investment in UK CCS projects without the need for taxpayer support.

Action:
The UK Government should intervene in the UK ETS market, committing to baseline pricing which ensures that the cost of CCS is significantly more attractive than emitting carbon into the atmosphere. At the same time, the Government should continue its work to implement a Carbon Border Adjustment Mechanism (CBAM) which prevents high-carbon, overseas imports from undercutting domestic, low-carbon products.

Impact:
A predictable and stable ETS carbon price, paired with an effective CBAM will bolster investor confidence in UK CCS projects, drive private sector investment, underpin CCS business models and minimise the need for taxpayers’ money to support the development of these projects.

3 Begin the ‘market transition’ phase now and support workable CCS business models

Context:
The Government’s Phase 2 and Phase 3 ambition for the CCS market detailed within the CCS Vision is welcome, but preparations for this phase must begin now. The MNZ-Peak Cluster partnership has a clear model that it can implement to begin operations in 2030, but the process of securing this economic licence must start now. Rather than a process of allocating certain capture contracts, the Government should recognise the robust coherent model of the entire MNZ-Peak Cluster, and move forward with this economic licensing process.

Action:
The Government should support a model of CCS economic licensing that offers subsidies that are directly linked to the difference between the cost of abatement and the price of CO₂ on the UK Emissions Trading System. Clarity must also be provided on the point at which Ofgem assumes the role of handling the economic licensing of CCS.

Impact:
By having this clear, transparent, and public benchmark, the Government will only need to fund mature CCS projects when they are operational. Before this point, all development and capital expenditure will be owned by the private sector. This model will deliver broader economic benefits such as job creation, job protection, and higher wages; all without the need for significant upfront taxpayer money.

With these modest but highly effective policies in place, we envisage the following timeline for the project:

Year	Milestone
2025	A third economic licensing round
2026	Commercial negotiations with the Government
2027-30	Final Investment Decision and start of construction
2030	First capture and storage of carbon
2040	25 million tonnes of carbon injected into MNZ per annum

Conclusion

The MNZ-Peak Cluster will decarbonise 40% of the UK's cement and lime industry, represent a major step forward in the UK's delivery of net zero through CCS, and turbocharge economic growth across the North.

To realise this prize, the Government does not need to immediately provide another major funding envelope for CCS, but first undertake modest and pragmatic policy reforms that will bolster investor confidence, incentivise industrial decarbonisation and provide a roadmap for project delivery that will create green jobs and growth for a generation.

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