

PEAK CLUSTER



# INDUSTRIAL DECARBONISATION AT SCALE

**Peak Cluster will make a crucial contribution to local, regional and national climate change targets, while protecting an area that is so valued by us all, securing quality jobs and maintaining the supplies of essential materials vital to the UK's prosperity and society.**

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## AN UNMISSABLE OPPORTUNITY.



The action we are taking will make a material contribution to delivering climate change targets locally, regionally and nationally.

We'll work with local stakeholders to develop and implement a way to maintain the region's active industrial economy, while protecting the much-loved Peak District landscape, ensuring that we tackle the decarbonisation of some of our most energy intensive industries.

We will help sustain the thriving communities that are part of such a special place. This innovation is vital if Staffordshire, Derbyshire and the Peak District National Park are to meet their commitment to net zero carbon emissions by 2050.

Peak Cluster will play a vital role in decarbonising an industry which is essential to the UK, safeguarding supplies and jobs, and enabling the acceleration of the nation's transition to net zero greenhouse gas emissions by 2050.



**Peak Cluster is a global first that will ensure the sustainable, net zero future for one of our most important industries.**

The area's cement and lime producers have been reducing CO<sub>2</sub> emissions from their operations for many years and Peak Cluster will help us to continue on this journey to a net zero future.

Peak Cluster is an innovative collaboration driven by British industry to revolutionise production and decarbonise a nationally essential industry.

We'll achieve this by capturing, transporting and storing carbon emissions from cement and lime manufacturing in and around the Peak District.

The Peak Cluster consists of five cement and lime plants in the Peak District, owned by Tarmac, Breedon, Lhoist and Aggregate Industries in Staffordshire together with Lostock Sustainable Energy Plant in Cheshire.

By decarbonising the vital industries producing society's essential materials, we will revolutionise the sector and **enable the removal of over three million tonnes of carbon dioxide emissions from the Peak District each year, from 2030. This represents a quarter of all of Derbyshire's and Staffordshire's CO<sub>2</sub> emissions.**

Our ambition will deliver a world-leading project focused on the future. We want to kickstart a new low carbon products sector that will generate quality career opportunities for local young people. We will create cutting-edge knowledge and skills for future generations that the UK can proudly export around the world.



## ESSENTIAL MATERIALS FOR MODERN SOCIETY.

The Peak District's unique geology and extensive mineral deposits mean that the cement and lime industries have been a feature of its landscape and part of its rich industrial heritage for more than a century.



**40%**  
of the UK's cement and lime comes from the Peak District

These vital industries have provided jobs for generations of families, boosted the local economy and delivered significant volumes of vital raw materials used to build the nation's infrastructure including roads, railways, bridges, buildings and homes. In addition they are essential in the manufacture of vital materials such as steel and glass.

The project is unique to the Peak District and surrounding area. Driven by local businesses, Peak Cluster will be shaped by the people who manage and care for the National Park, to create something we can all feel proud of. We are leading the way in decarbonising both the products we produce and the Peak District itself. The Peak District's cement and lime producers have been reducing CO<sub>2</sub> emissions from their operations for many years and Peak Cluster will help to continue this transition to net zero.

Lime is a strategically important product for the UK. It is a fundamental, but often unseen, ingredient for many key UK industries. Not only does lime production underpin the construction and manufacturing industries, but it is also used in many other industrial processes, such as drinking water purification, environmental remediation and sugar manufacturing. There is a secure and long-term supply of lime raw material readily available, which can ensure the UK remains self-reliant.

Similarly, over 70% of the cement used in the UK (of which a around a third comes from the Peak District) is produced in the UK, making us virtually self-sufficient. By comparison, 80% of timber and 60% of steel is imported from around the world, competing with UK manufacturing.


## DOING NOTHING IS NOT AN OPTION.

We're acting now to remove carbon emissions, helping put the UK on track to achieve net zero by 2050.

'Net zero' refers to the balance between the amount of greenhouse gas – such as CO<sub>2</sub> – emitted and the amount removed from the atmosphere.

For most industrial processes, the fuel is the primary source of CO<sub>2</sub> emissions. In many cases, this offers the opportunity to switch to low carbon alternative fuel, such as hydrogen. However, in the production of cement and lime, the majority of the CO<sub>2</sub> emitted is a direct consequence of processing limestone as the raw material.


This means CO<sub>2</sub> emissions can only be decreased sufficiently by capturing the CO<sub>2</sub> and permanently storing it. This is why the need to capture and safely store this carbon, preventing it going into our atmosphere, is so crucial.



Peak Cluster's ambition is to prevent more than 3 million tonnes of carbon from entering the atmosphere annually



Capture a quarter of Derbyshire's and Staffordshire's carbon emissions



Equivalent to taking 1.2 million cars off the road

## OUR PLAN IS A BOLD ONE.

Capturing carbon dioxide emissions in the Peak District and beyond.

Each of the cement and lime manufacturers will require technology at their plant to capture the emissions at source.

Capturing and storing carbon dioxide is a safe, proven process that's already being carried out in a range of industries around the world. Carbon dioxide Capture and Storage is widely recognised as an important technology to decarbonise industry.

To transport captured carbon emissions away from the Peak District for storage deep under the seabed, there are two main options available:

1. Move the cement and lime production plants to the coast, and transport the raw materials from where they're found naturally in the Peak District by rail or road in many thousands of journeys.
2. Capture and transport the carbon emissions to the coast via a new pipeline buried underground.

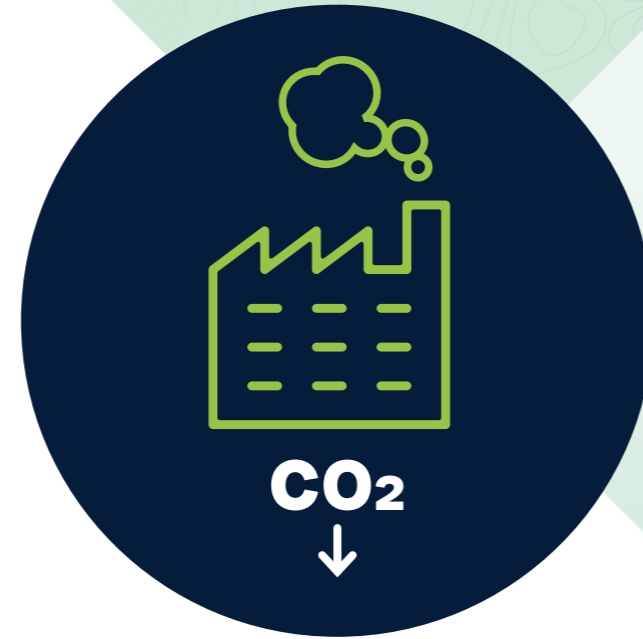
Having evaluated the options, our preferred solution is an underground pipeline to transport CO<sub>2</sub> emissions from industrial plants in Derbyshire, Staffordshire and Cheshire to a permanent storage facility underneath the eastern Irish Sea.

There are many thousands of miles of existing underground high-pressure pipelines across the UK, carrying natural gas and other products safely and reliably to homes and businesses for decades. Our pipeline would operate in a similar way, and would be regulated and managed to the same rigorous safety standards.

Another advantage of an underground pipeline is that, once installed, the land above will be restored to its original state. We will work with landowners and environmental specialists to explore opportunities to enhance the landscape and improve biodiversity along the route.

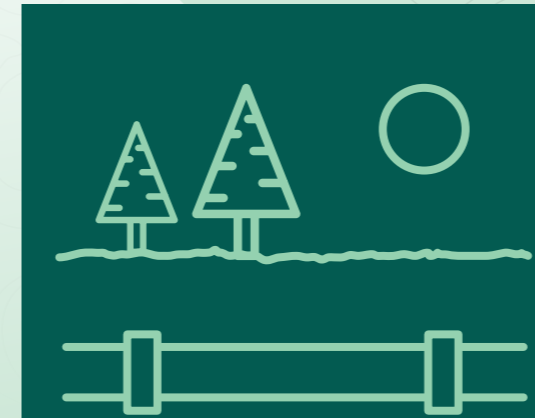
There is also the opportunity for other carbon emitters to connect to Peak Cluster. Over 600,000 tonnes of CO<sub>2</sub> could be captured from the Lostock Sustainable Energy Plant, which is under construction at Northwich in Cheshire. This will bring the total carbon dioxide captured and stored by the project to over three million tonnes each year.

We anticipate that we will need a number of above-ground installations (AGIs) at suitable distances along the pipeline's route, to allow for inspection, maintenance and intermediate compression.



At this early stage in the engineering process we haven't determined how many, or where they would be, but we expect around 4 to 6 will be required, spaced along the pipeline length.

We're confident that Peak Cluster is the smartest, swiftest and most cost-effective solution to transport captured CO<sub>2</sub> emissions from industry in the Peak District from 2030.



The UK already has more than **10,000km** of buried high pressure pipelines transporting natural gas, demonstrating the safe and reliable nature of this technology

## INNOVATION AT THE HEART OF OUR VISION.

We will deliver jobs, investment and environmental benefits, now and for future generations.

Peak Cluster will help protect around 1000 direct jobs in an industry that delivers significant value (GVA) to the area's economy.

In addition, the creation of new decarbonisation facilities on existing industrial sites will protect hundreds of skilled jobs, including work for chemists, engineers and other specialists, as well as more opportunities throughout the supply chain. The construction of the pipeline will require skilled construction workers throughout the build of the project.

Around **1000** skilled jobs in the industry locally



### Opportunities to enhance biodiversity along the route

The corridor through which the pipeline runs will create opportunities to enhance biodiversity along its route. We will appoint specialist ecologists who will work with ecologists from the Peak District National Park, environmental organisations, landowners and other experts and interest groups to ensure the best outcome for the environment.



# WE'RE IN THE EARLY STAGES OF DEVELOPMENT.

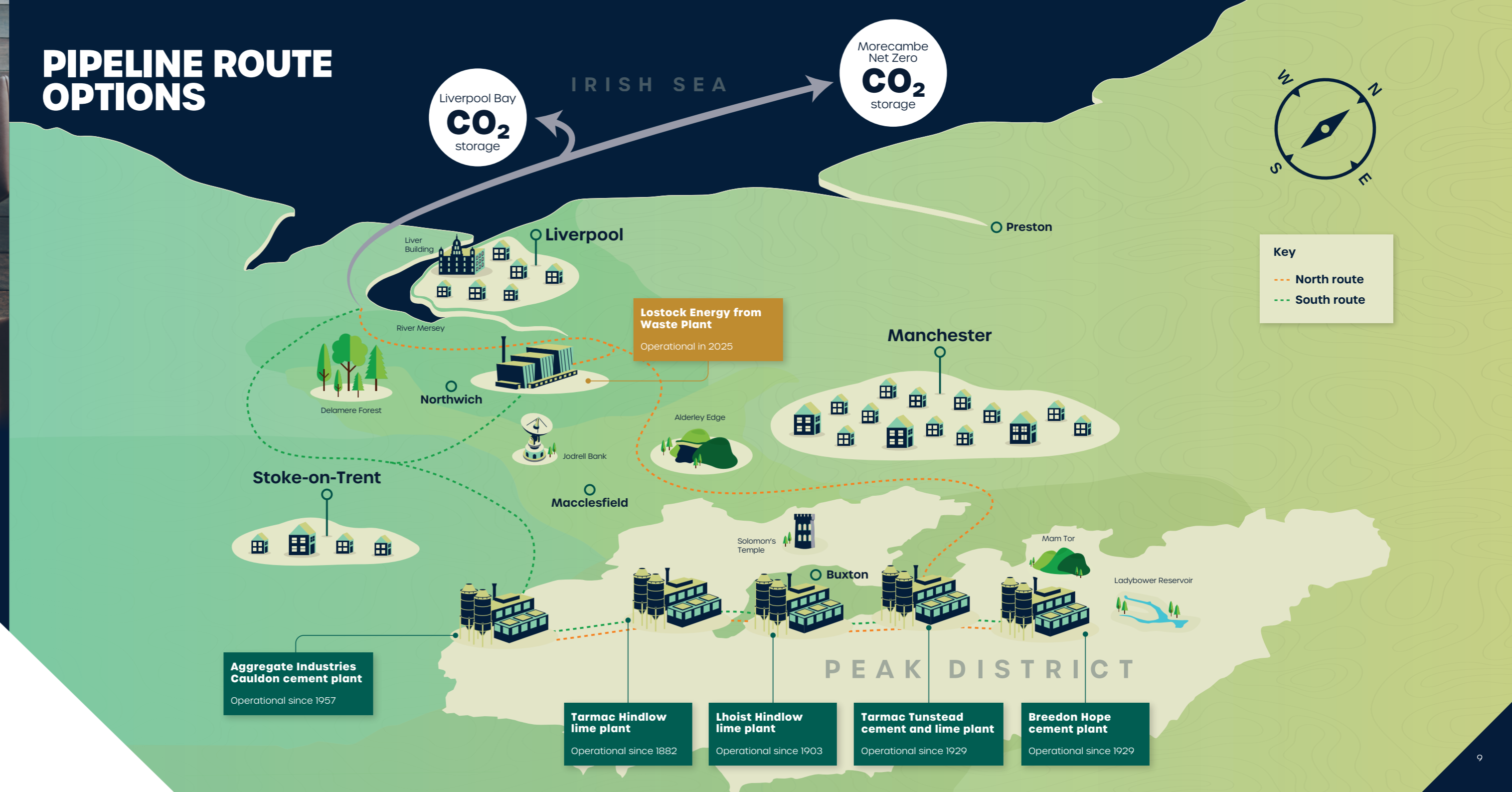
Important technical studies are underway.

An investigation into the technical feasibility of Peak Cluster is well underway, examining how the project can minimise any impact on the surrounding landscape and people.

We will carefully consider how to cross other features, like roads, rivers and railways and will not cross private homes or gardens. In order to determine the best route, there's still much more work including stakeholder input into selecting the corridors and routes and detailed environmental studies to be done.

No final decisions have been made and there will be extensive consultation and opportunities for people to have their say throughout the development process.

# PIPELINE ROUTE OPTIONS



# EVERYONE IS PART OF THE PEAK CLUSTER CONVERSATION.

Peak Cluster is an opportunity for the Peak District, the wider region, the UK and the world.

The views and local knowledge of stakeholders, surrounding communities, industry and the supply chain are essential to the success of the Peak Cluster. We want our proposals to embody the needs and priorities of the area. This is why we will work closely with local stakeholders and interest groups, not only in the Peak District National Park, but also along the full length of the pipeline's route in Derbyshire, Staffordshire and Cheshire.

We will collaborate with government agencies, councils, regional planners, delivery bodies and local communities to enhance their understanding of Peak Cluster as a key carbon capture proposition for the UK.

These conversations will help shape the project reasoning, preparation and conclusions. At the same time, we'll also liaise closely with utilities, industry associations and other prospective partners to maximise awareness of Peak Cluster's environmental benefits and economic potential.

The Peak Cluster team is committed to early and ongoing engagement, to ensure everyone has the opportunity to help shape the project to be the best it can.

The game-changing nature of Peak Cluster will deliver exciting employment, training and education opportunities for local communities – especially young people. But we also know there may be concern about local effects of the project, particularly during construction, in such a cherished place.

That's why we will engage and consult with local people and businesses to ensure we gather local knowledge and take their views on our proposal into account, to minimise these effects wherever possible. As momentum builds, we'll continue to work with Government and industry to highlight Peak Cluster's essential role in decarbonising the Peak District and wider UK.

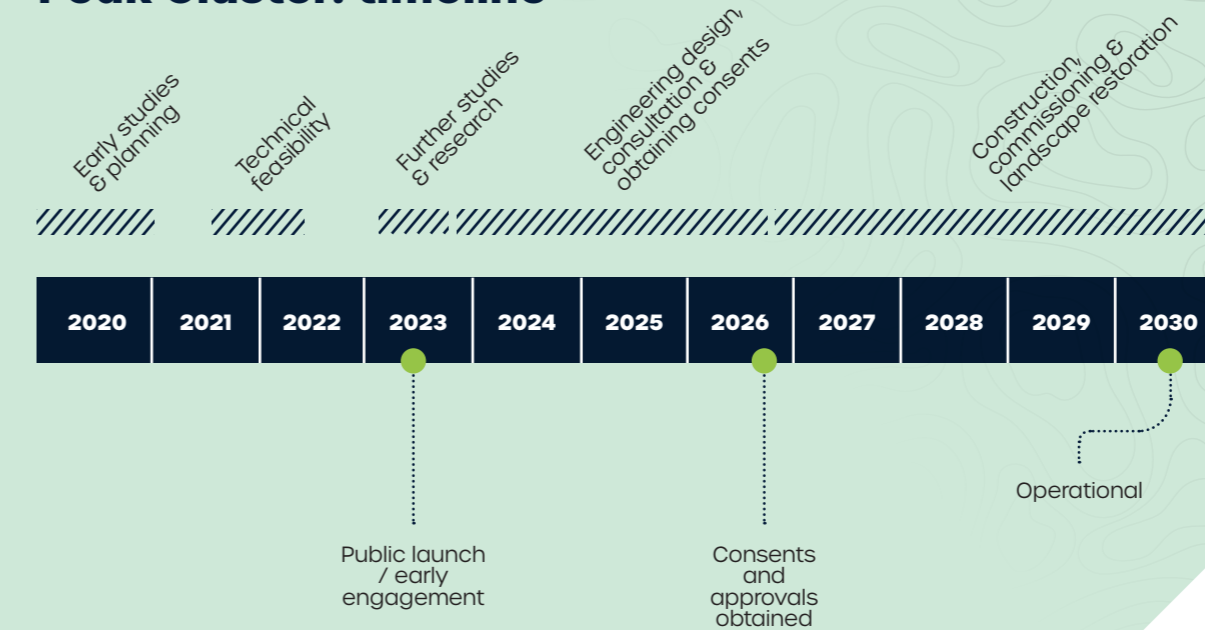
We will engage at a level that reflects the magnitude of the opportunity for clean growth, involving local people in the conversation about the positive legacy we will create for future generations.

# JOIN US ON PEAK CLUSTER'S JOURNEY TOWARDS 2030 AND BEYOND.

A pioneering major infrastructure project, such as Peak Cluster, is a complex one, with many stages to make it a reality.

Our timeline below shows our key milestones, leading to operation by 2030.

## Peak Cluster: timeline



All the necessary approvals for constructing the pipeline will be obtained through the Development Control Order (DCO) process, which is the legally required consenting route for Nationally Significant Infrastructure Projects.

## Collaboration will deliver unparalleled benefits.

Progressive Energy is leading the technical development of the Peak Cluster CO<sub>2</sub> pipeline. Formed 25 years ago to develop and deliver clean energy and Carbon Capture Usage and Storage (CCS) projects, the team has significant project management 'know-how' and engineering expertise. Progressive Energy leads other regional decarbonisation projects, including the groundbreaking HyNet cluster, which also includes direct capture of CO<sub>2</sub> from industry and the building of a new low carbon hydrogen production plant.

Progressive Energy is joined by the Peak Cluster partners, Breedon, Lhoist, Tarmac and Aggregate Industries, as well as Lostock Sustainable Energy Plant in Cheshire, in an innovative industry collaboration that sets the Peak District on the journey to net zero.



PEAK CLUSTER



## FOR MORE INFORMATION

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If you have any questions, please  
get in contact with us.



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