Humber Low Carbon Pipelines Project

Creating jobs and supporting the decarbonisation of the Humber region

April 2022

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Agenda

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06	Q&A
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01

Introduction

Overview and context

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The project – context and what we're doing

- The Humber region is the UK's largest industrial cluster, meaning it can play a crucial role in helping the UK to transition to a low carbon economy
- The project will create an onshore network of underground pipelines to transport captured carbon dioxide emissions and enable the decarbonisation of the region
- It also aims to enable industries to fuel-switch from fossil fuels to low carbon hydrogen

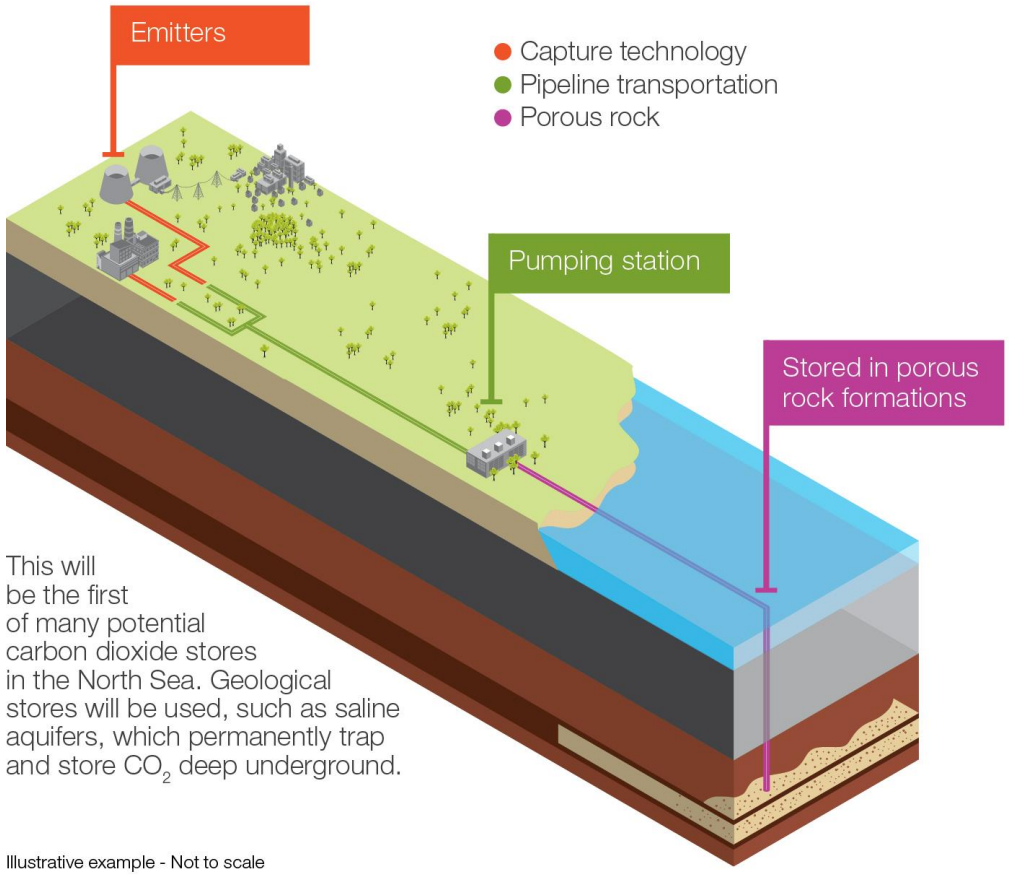
The project – context and what we're doing

- The pipelines will run from Drax to Easington and connect to a number of the region's major industrial emitters
- It is the backbone of Zero Carbon Humber

What is carbon capture, usage and storage (CCUS)

- Carbon capture, usage and storage (CCUS) refers to technology which captures harmful carbon dioxide emissions
- The carbon dioxide is then transported to be stored permanently beneath the seabed

How does CCUS work?



Capture

Carbon dioxide is captured via a filter system on a flue or stack at a fossil fuel power station or industrial facility.

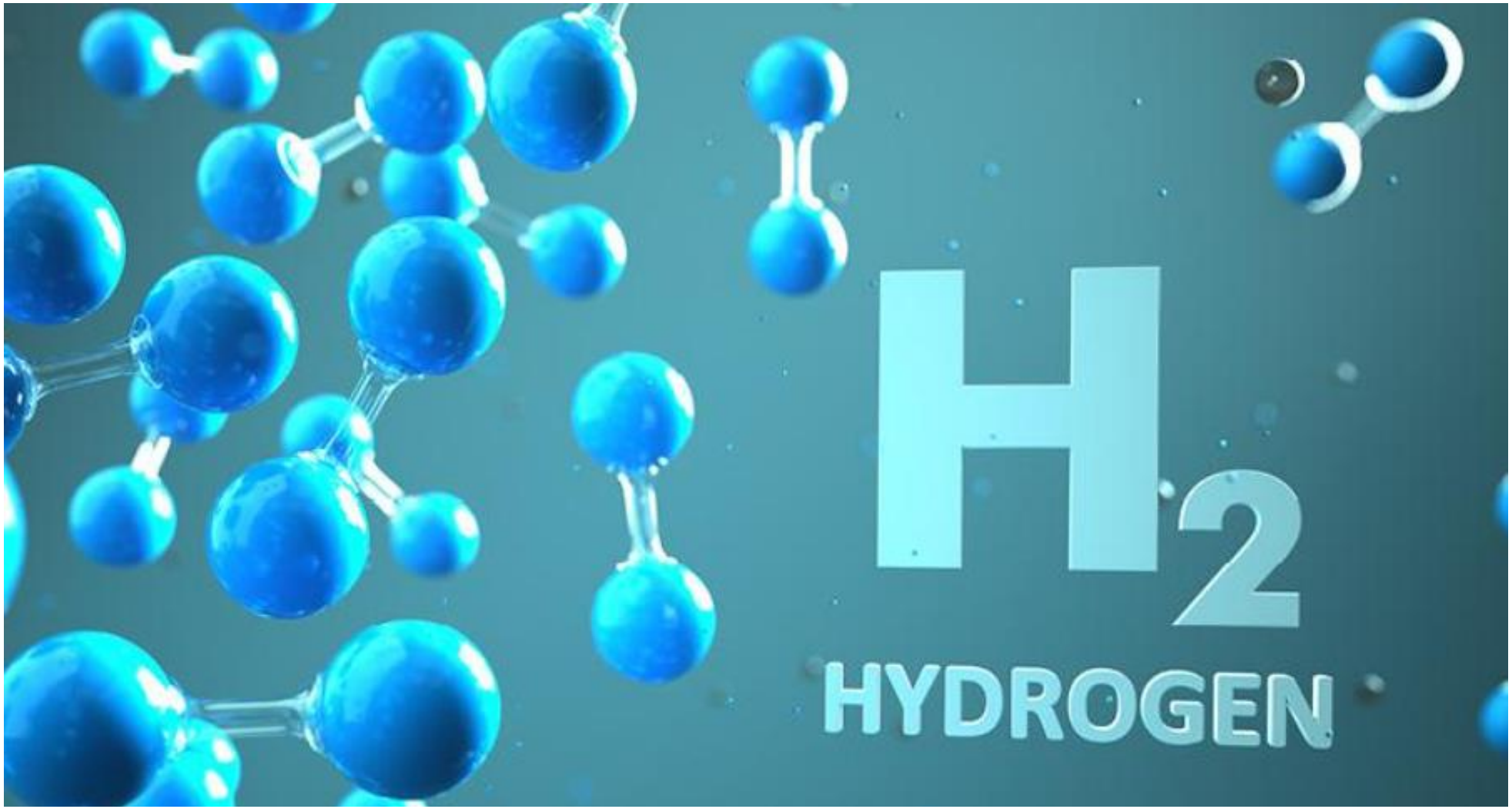
Transportation

Carbon dioxide is compressed and transported via onshore and offshore pipelines to a suitable storage location.

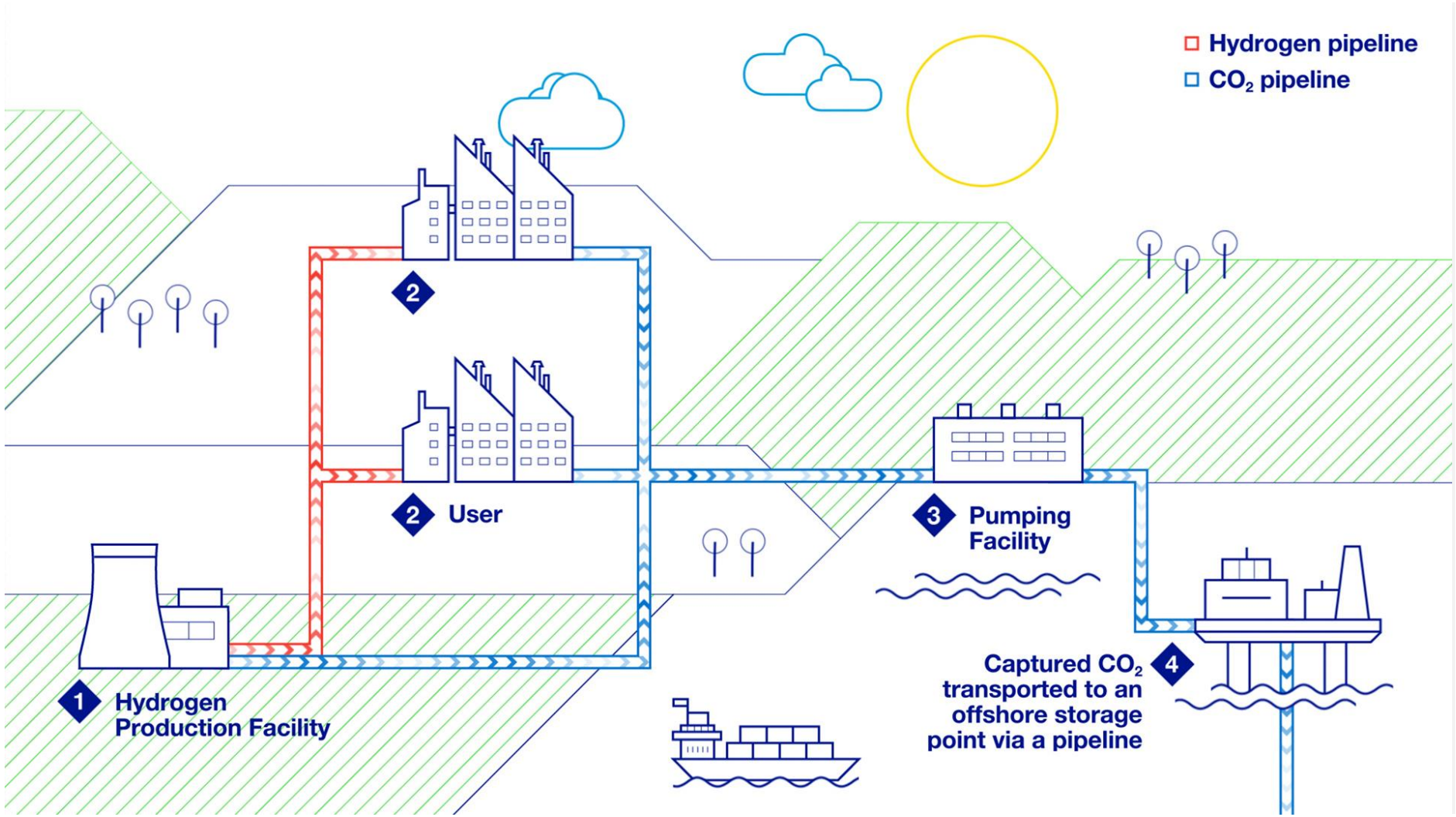
Storage

Carbon dioxide is injected into natural porous rock formations offshore where it will be stored permanently.

What is hydrogen

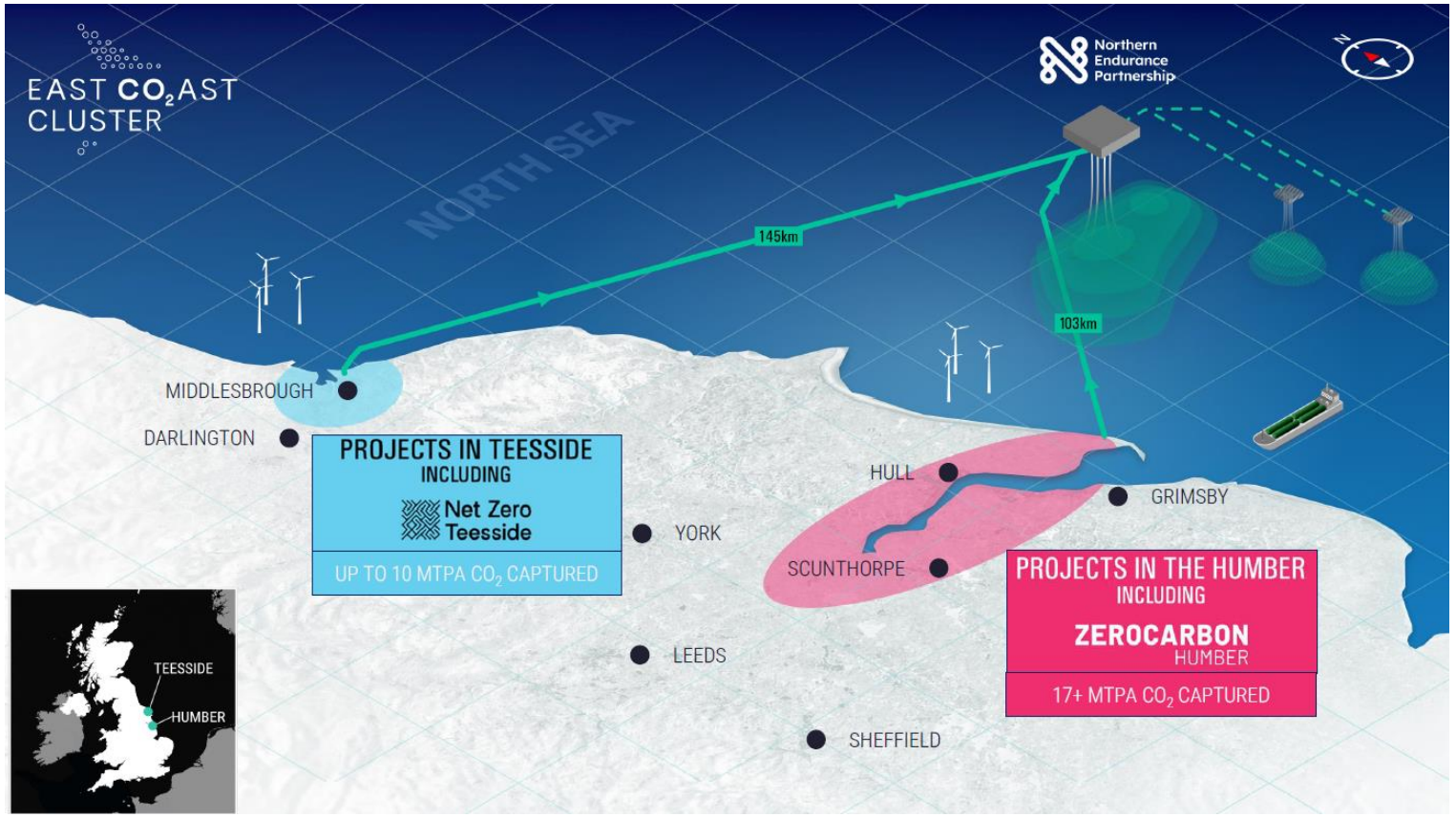


CCUS and hydrogen pipelines



East Coast Cluster

- The project is part of the East Coast Cluster which has been confirmed by the Government as one of two carbon capture, usage and storage (CCUS) clusters in the UK to be deployed by the mid-2020s as part of its net zero ambitions
- It unites Zero Carbon Humber and Net Zero Teesside with offshore infrastructure developed by the Northern Endurance Partnership



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Where we are

Progress and consultation

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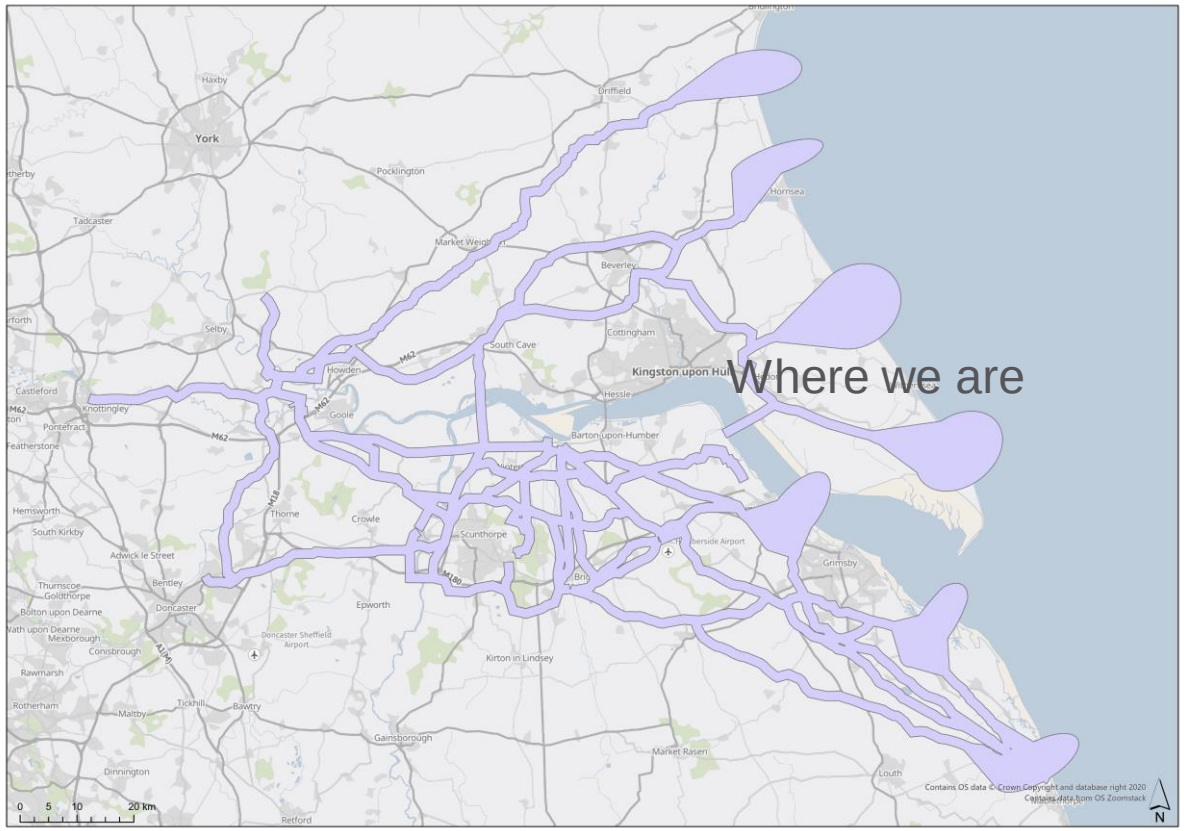
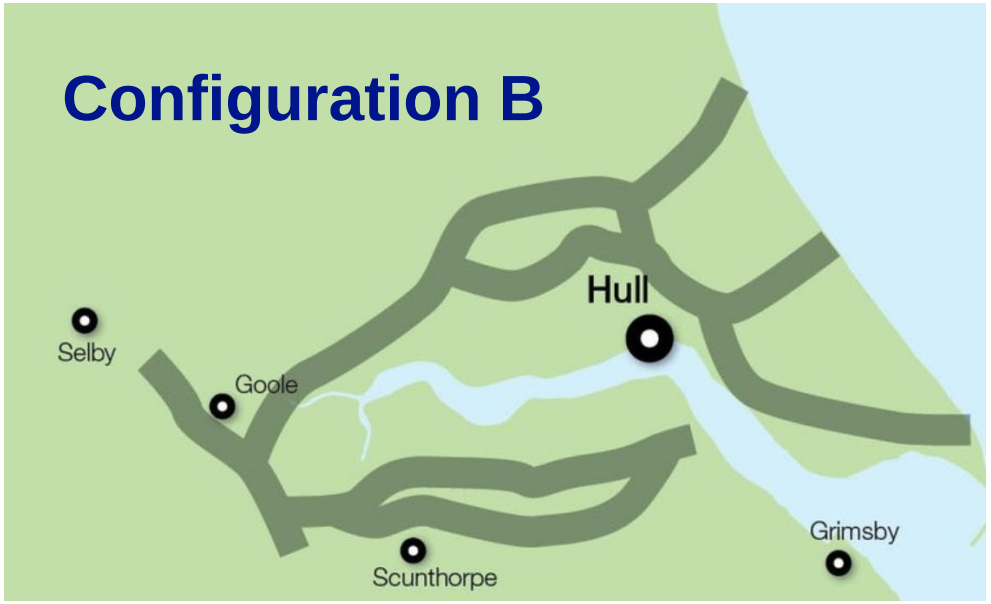
Route corridors – earlier options

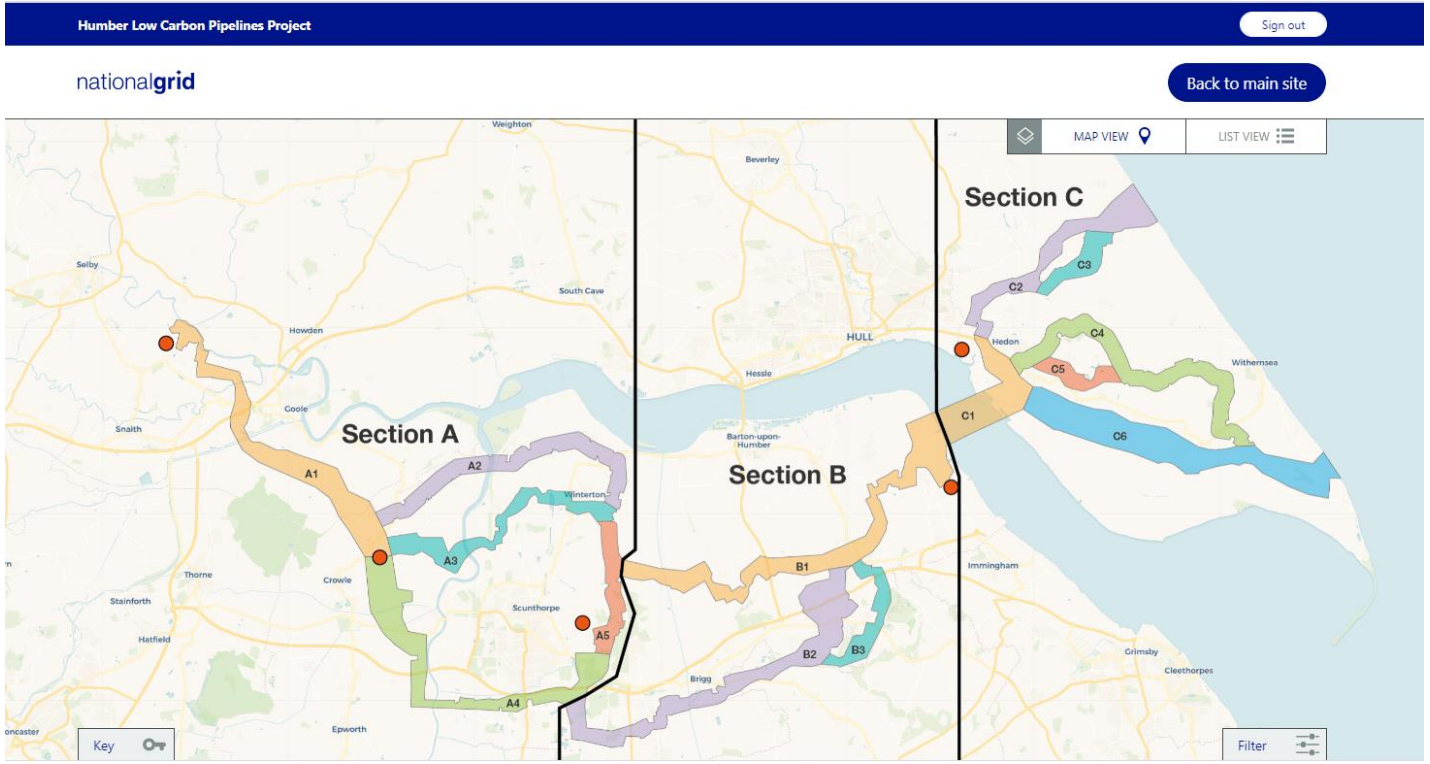




Stage One Consultation on potential route corridors

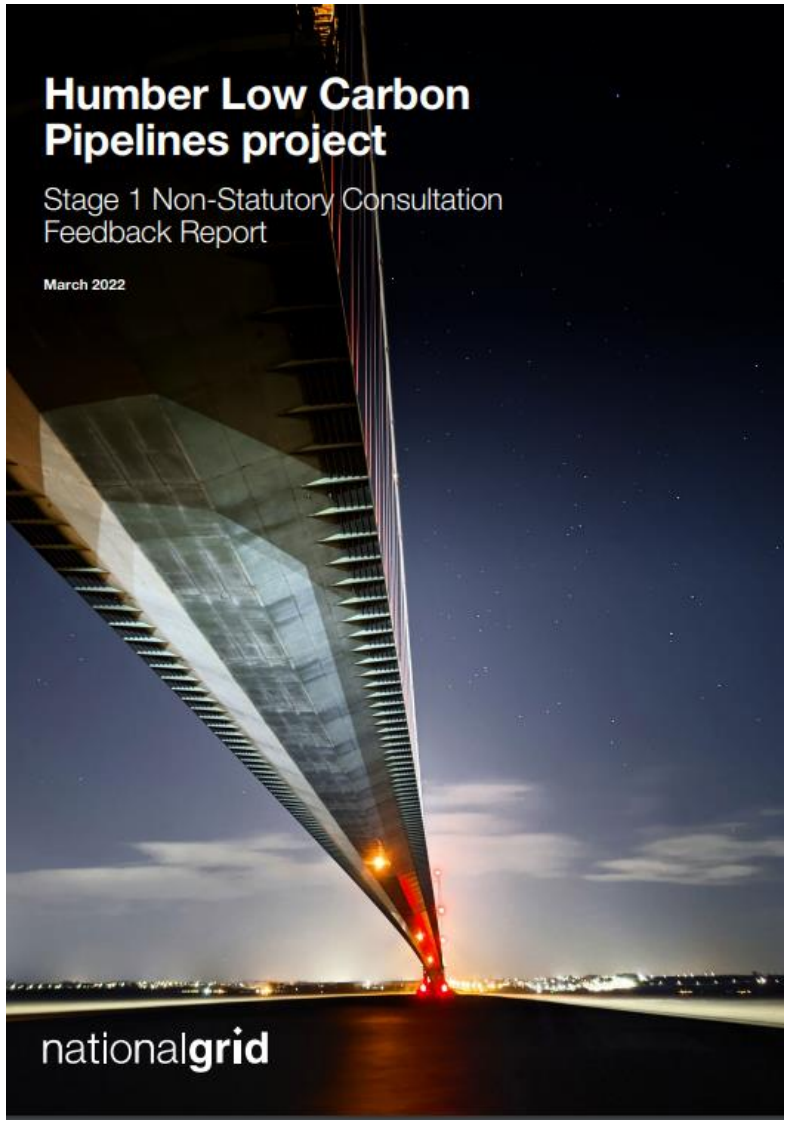
- Autumn 2021 – consultation on potential broad route corridors

- Raised awareness through:
  - Webinars
  - Project website
  - Consultation brochure
  - Local inspection locations
  - Letters to local residents
  - Council and stakeholder meetings



Stage One Consultation – summary of feedback

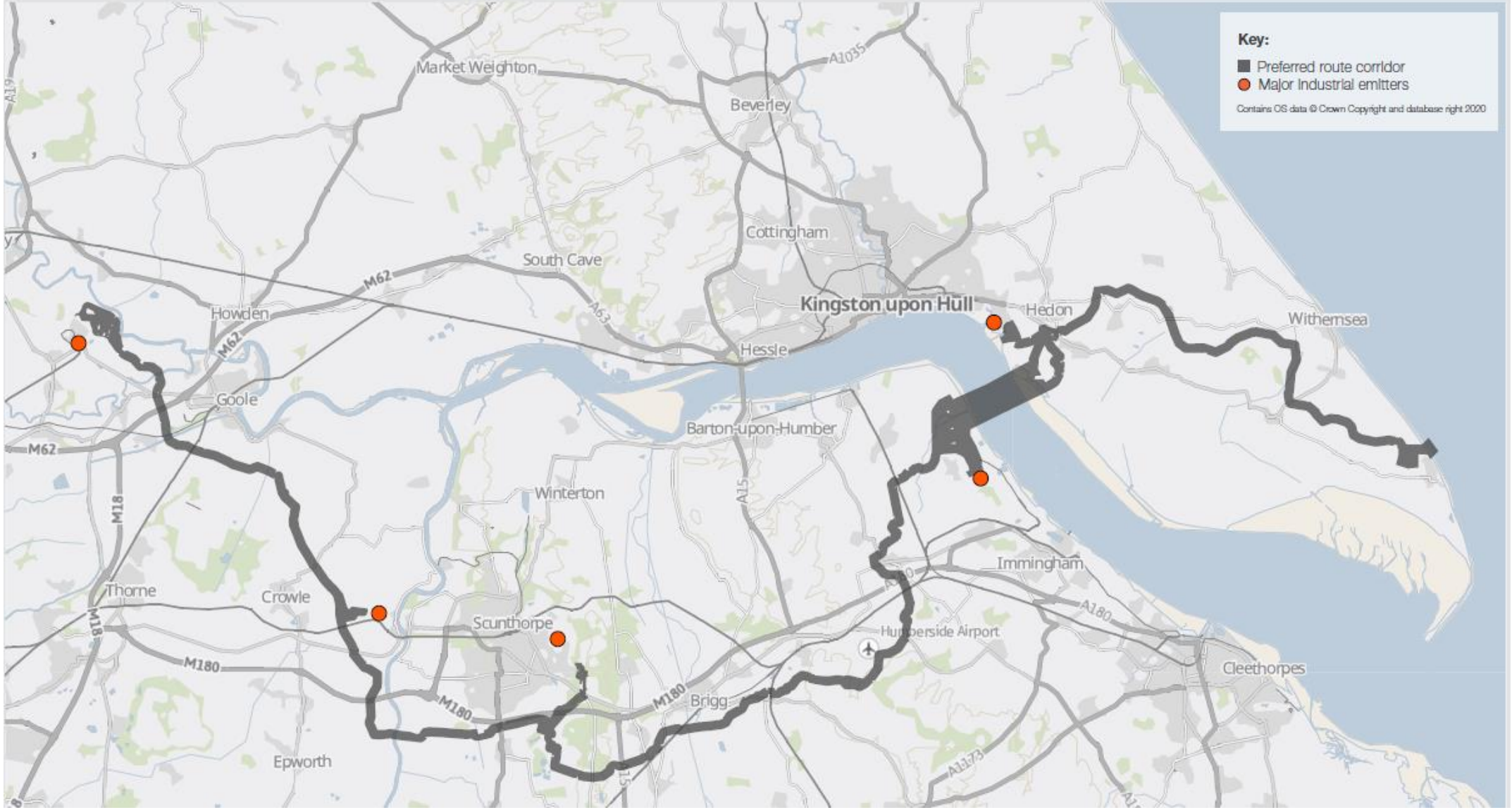
Feedback theme	Comments most consistently raised by theme
Construction	• Concerns about the routeing of pipelines below canals and rivers, and a request for considered design and management in these areas during the construction phase. • Requests for more information about the impact of construction traffic and noise on local communities. • Concerns about the cumulative construction impacts of this and other developments in the region.
Consultation	• Consultees requested that they be kept engaged through future stages of development and consultation. • Requests for more detailed information and project maps to help inform responses.
Compensation	• Requests for more information about possible compensation for project impacts and any future works.
Environment	• Some respondents welcomed National Grid Ventures' commitments to sustainability and biodiversity net gain. • Requests for habitats for birds and other species to be considered in our plans, and for the route to avoid Sites of Special Scientific Interest (SSSI).
Routeing	• Requests for further information about route corridor options. • Some respondents suggested changes to the route at specific sections due to local considerations.
Technology	• Recommendations for design practices for carbon dioxide pipelines to be standardised. • Comments arguing that greater focus should be put on other forms of renewable energy. • Feedback that more information is needed on safety measures.



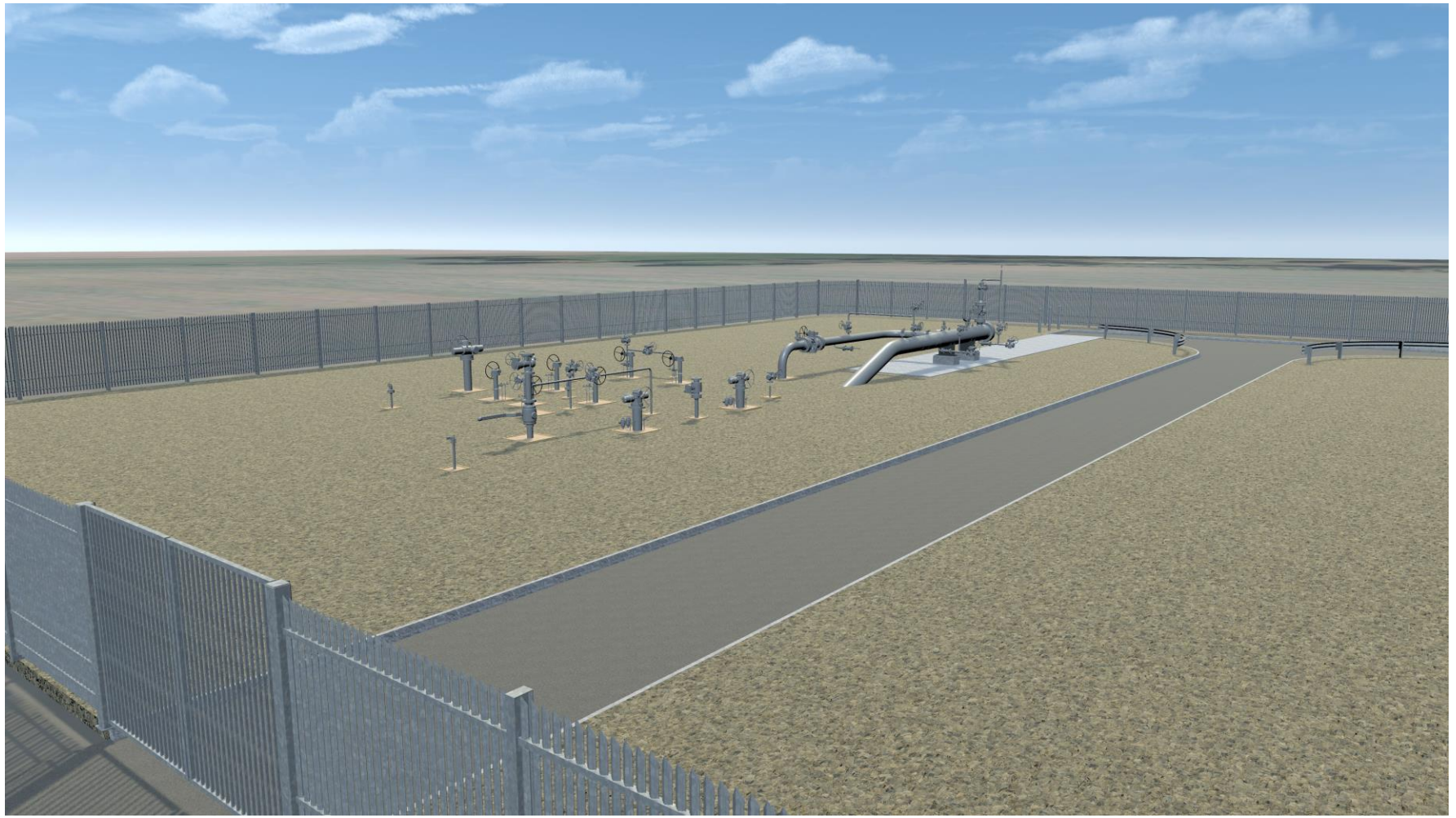
Environmental and technical surveys

- We also conducted environmental and technical surveys within the broad route corridor options
- Together with the feedback received during consultation, the environmental and technical information helped us to identify a narrower single preferred route corridor for this project, running from Drax to the Holderness coast

Preferred route corridor
Updated March 2022



Above Ground Installations (AGIs)



**Illustrative image of a Pipeline Inspection Gauge (PIG) trap installation*

- We will determine where the above ground installations (AGIs) could be located. These AGIs will be required at or near industrial emitters and at various points along the route.
- Additional detail in relation to Above Ground Installations will be available the next stage of consultation

Landowners

- We are continuing to engage with landowners within the preferred route corridor to help further refine the corridor
- The pipelines would primarily run through agricultural or industrial land and will not be routed through private gardens
- Our land agents (Dalcour Maclaren) will continue to be the point of contact to ensure landowners have a consistent relationship
- If you are a landowners and have any questions, please contact HLCP@Dalcourmaclaren.com

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Construction

Safely building the pipelines

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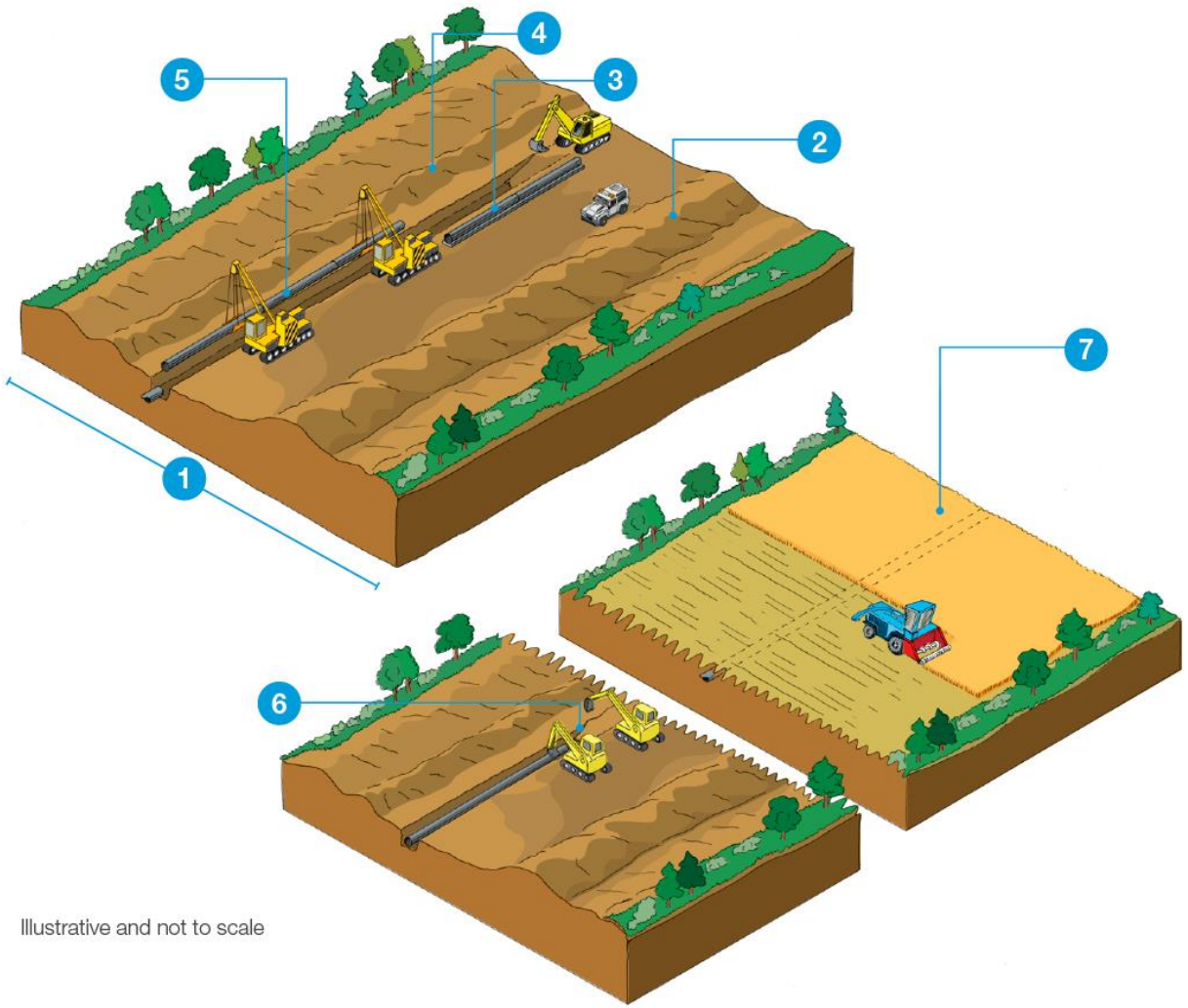
Constructing an onshore underground pipeline



Illustrative and not to scale

National Grid has extensive expertise in designing, building and operating safe and effective high-pressure gas pipelines

This is an illustrative diagram showing the construction process of an onshore pipeline. Please note, this image is based on a single pipeline. The Humber Low Carbon Pipelines project will involve two pipelines and will take a similar approach.

1 First, the working width – the total area within which construction work will take place – is marked out.

2 Next, the topsoil is carefully stripped and stored next to the pipeline route.

3 The pipeline is delivered in short lengths and placed on supports. These short lengths of pipeline are welded together into longer sections called 'strings'.

4 The pipeline trench is dug, with the excavated material being stored separately from the topsoil on the opposite side of the trench.

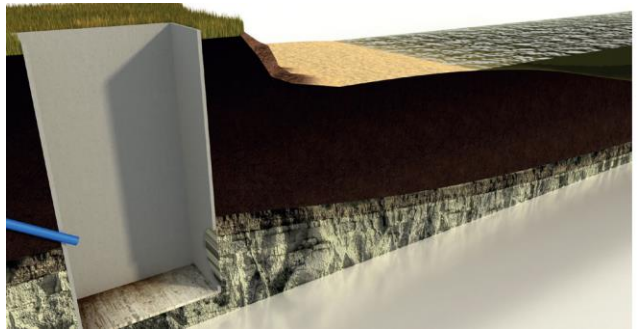
5 The pipeline 'strings' are lowered into the trench using special vehicles called 'side booms' and welded to the pipeline already laid.

6 The trench is filled in using the previously excavated material and the topsoil is replaced.

7 Once the land above the pipeline has been fully reinstated, it can be returned to its previous use, for example farming.

Constructing an onshore underground pipeline

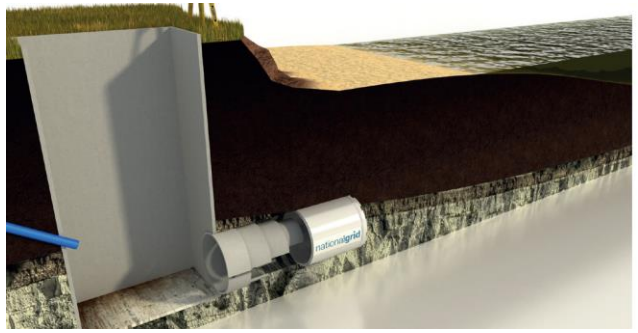
Going under the Humber



Shaft construction

Shafts are built on either side of the river.

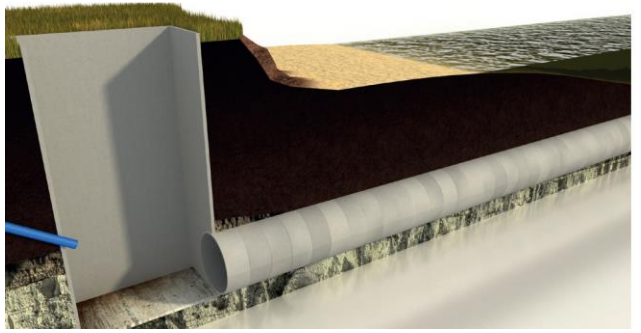
These can be vertical or sloped, depending on geological and engineering considerations.



Tunnel boring

A tunnel bore machine digs the tunnel beneath the river.

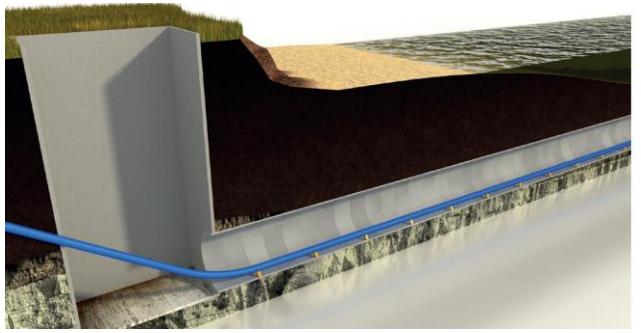
This can bore through anything from hard rock to sand.



Concrete lining

The tunnel is lined with concrete segments as it is dug.

The excavated material is transported for use or disposal away from the site. We are investigating options for its reuse.



String fabrication and pipeline pulling

The pipeline is pulled through the tunnel from the surface in 'strings' – long, welded sections of pipe assembled on-site on one side of the river.

Once complete, the tunnel shafts are filled and the land reinstated as close to its original condition as practical.

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Next steps

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Next steps: overview

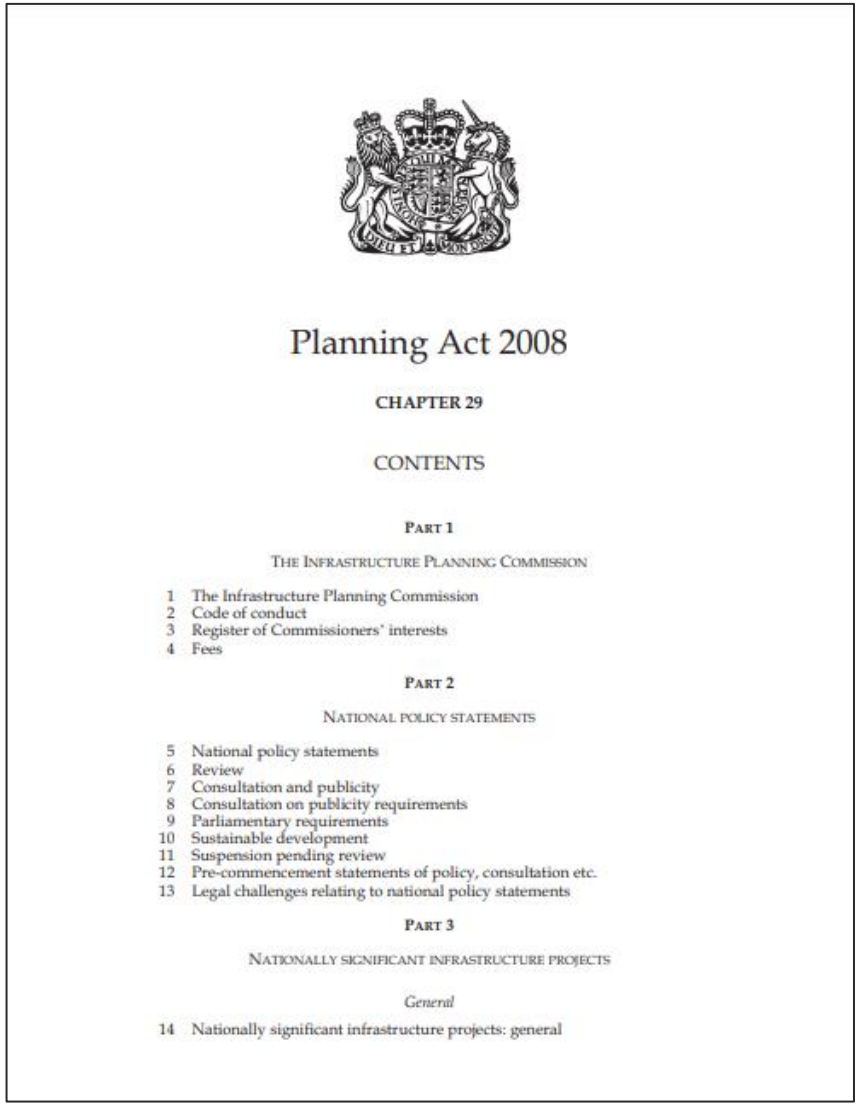
- Continuing technical and environmental surveys
- Dialogue with local authorities and other key stakeholders
- Engaging with local communities
- Continuing to engage with landowners
- Preparing for Stage Two consultation (statutory)

Stage Two Consultation – statutory

- Next stage of public consultation this summer – it will be statutory consultation
- Events will be held at local venues along the route corridor for communities to attend, learn more and ask questions – further information will be provided
- We will then be finalising the route corridor
- We are aiming to submit our application by the end of 2022

The planning process – NSIPs

- The project is a nationally significant infrastructure project (NSIP)
- It will be determined by the UK Government
- We will submit a ‘Development Consent Order’ to the Planning Inspectorate (PINS)
- PINS will examine the application and make a recommendation to the Secretary of State who will make the final decision
- The public can get involved in this process and submit representations to PINS



Planning Act 2008

CHAPTER 29

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Timeline

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Timeline – *subject to change*

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Q&A

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07

Thank you

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