

# The Great Grid Upgrade

**The way we are powering the things we love is changing. In the years ahead, more of our energy will come from renewables as part of the transition to a cleaner, greener future.**

This means we need to build new infrastructure, as well as upgrade the existing electricity grid, to bring this clean, green energy from where it's generated to where it's needed by homes and businesses.

The Great Grid Upgrade is the largest overhaul of the grid in generations.

### **More clean energy for all**

The Great Grid Upgrade will enable the electricity grid to carry more clean energy to communities in every part of England and Wales, helping us all reach net zero faster.

### **A grid that's fit for the future**

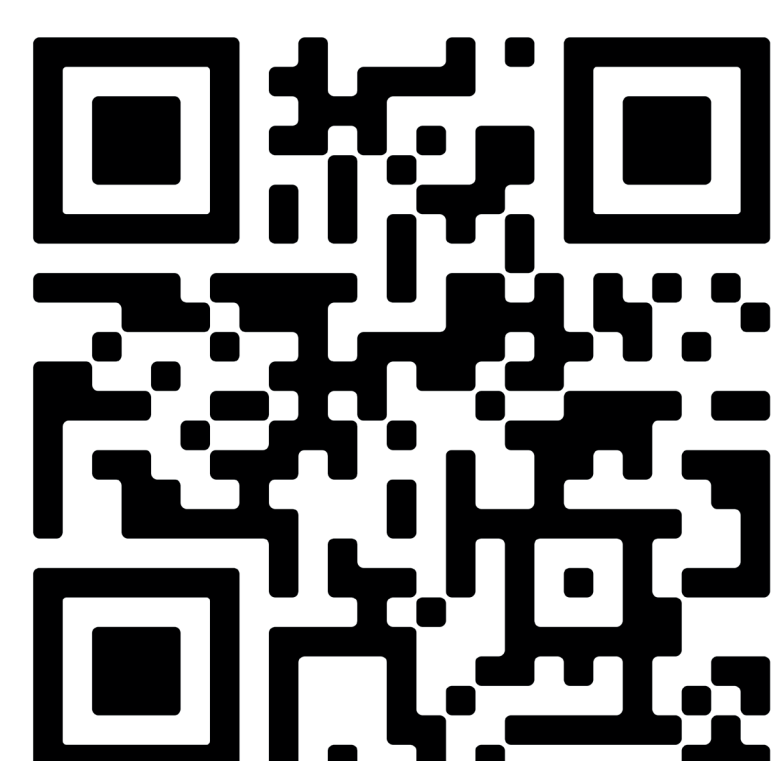
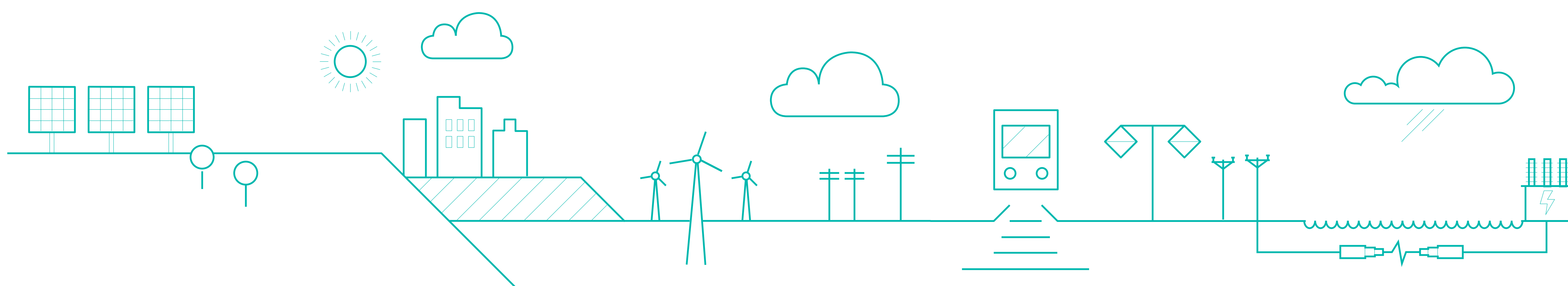
As we continue to reduce our reliance on fossil fuels and increase clean energy generation, we'll be using more electricity than ever. That means we'll need a grid that's able to carry all of this extra electricity to wherever we might need it.

### **Energy security**

The Great Grid Upgrade will connect clean energy that's produced right here in the UK, increasing the self-sufficiency of our energy supplies.

### **Investment in our economy**

As well as helping to reach net zero, the UK Government suggests that investment in onshore network infrastructure could support up to 130,000 jobs and contribute an estimated £4–11 billion of GVA (gross value added) to the United Kingdom economy in 2050.



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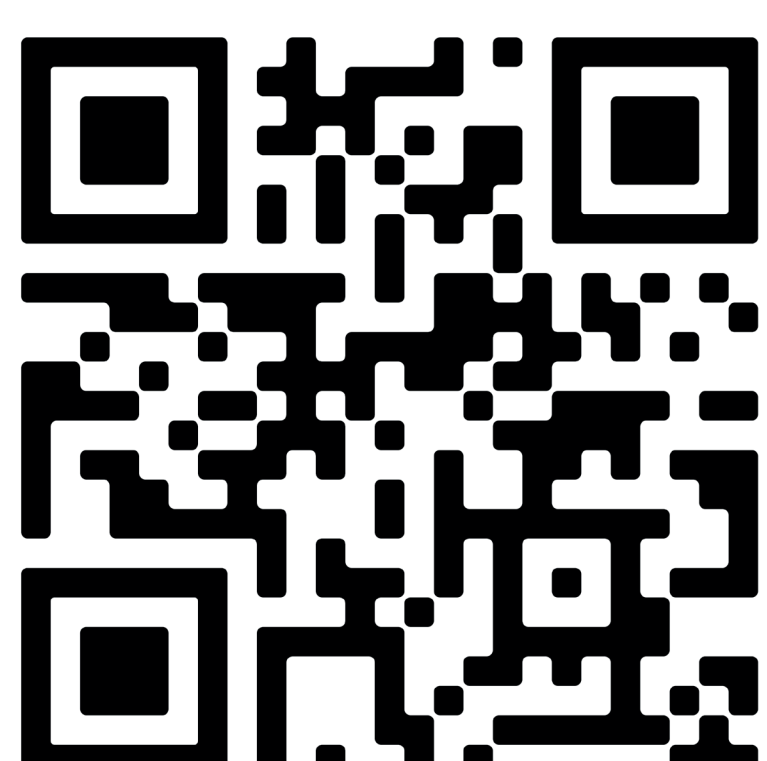
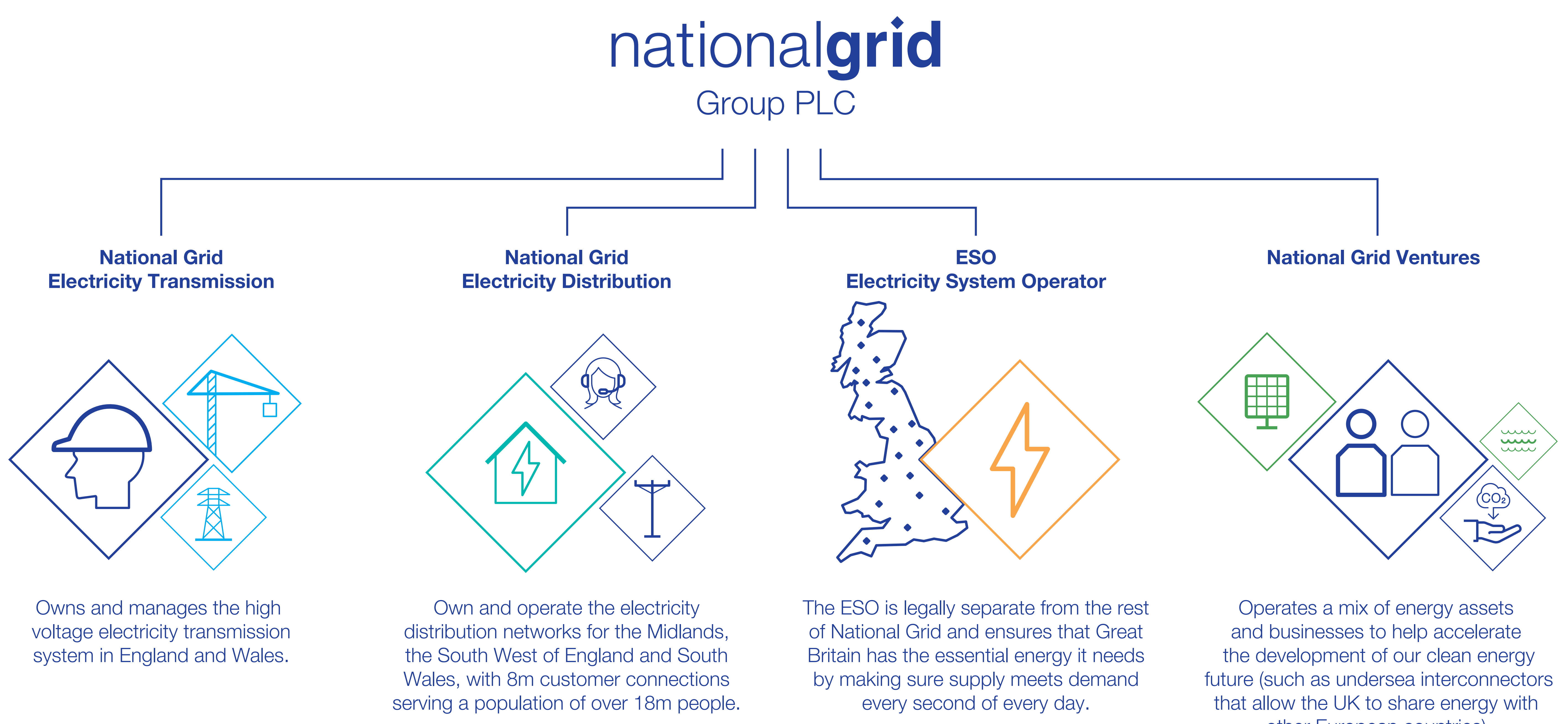
# About National Grid Electricity Transmission

**National Grid Electricity Transmission (NGET) is working to build a cleaner, fairer and more affordable energy system that serves everyone, powering the future of our homes, transport and industry.**

We sit at the heart of Britain’s energy system, connecting millions of people and businesses to the energy they use every day. We bring energy to life – in the heat, light and power we bring to our customers’ homes and businesses; in the way that we support our communities and help them to grow; and in the way we show up in the world.

It is our vision to be at the heart of a clean, fair and affordable energy future.

Within the National Grid Group, there are four distinctly separate legal entities, each with their individual responsibilities and roles. We are developing plans for Brinsworth to High Marnham.



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# Our Brinsworth to High Marnham Project

**National Grid Electricity Transmission is proposing to build and operate three new substations near Brinsworth in Rotherham, South Yorkshire, near Calow in Chesterfield, Derbyshire and High Marnham near Normanton on Trent in Nottinghamshire.**

**We also propose to upgrade (known as uprate), the existing 275 kV overhead electricity lines to operate at 400 kV between Brinsworth and High Marnham.**

Like much of the high voltage electricity transmission network across the country, the network in the North of England and the Midlands was largely built in the 1960s.

It is anticipated that the network between the North of England and the Midlands needs the capability to transfer around 31 GW of electricity by 2035, compared to the 11.6 GW that it can transfer today.

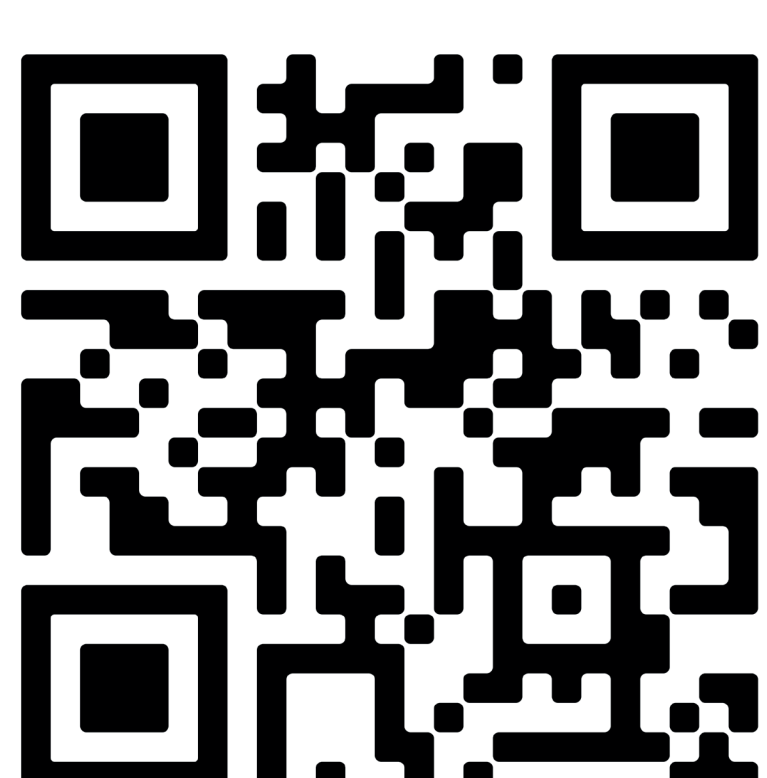
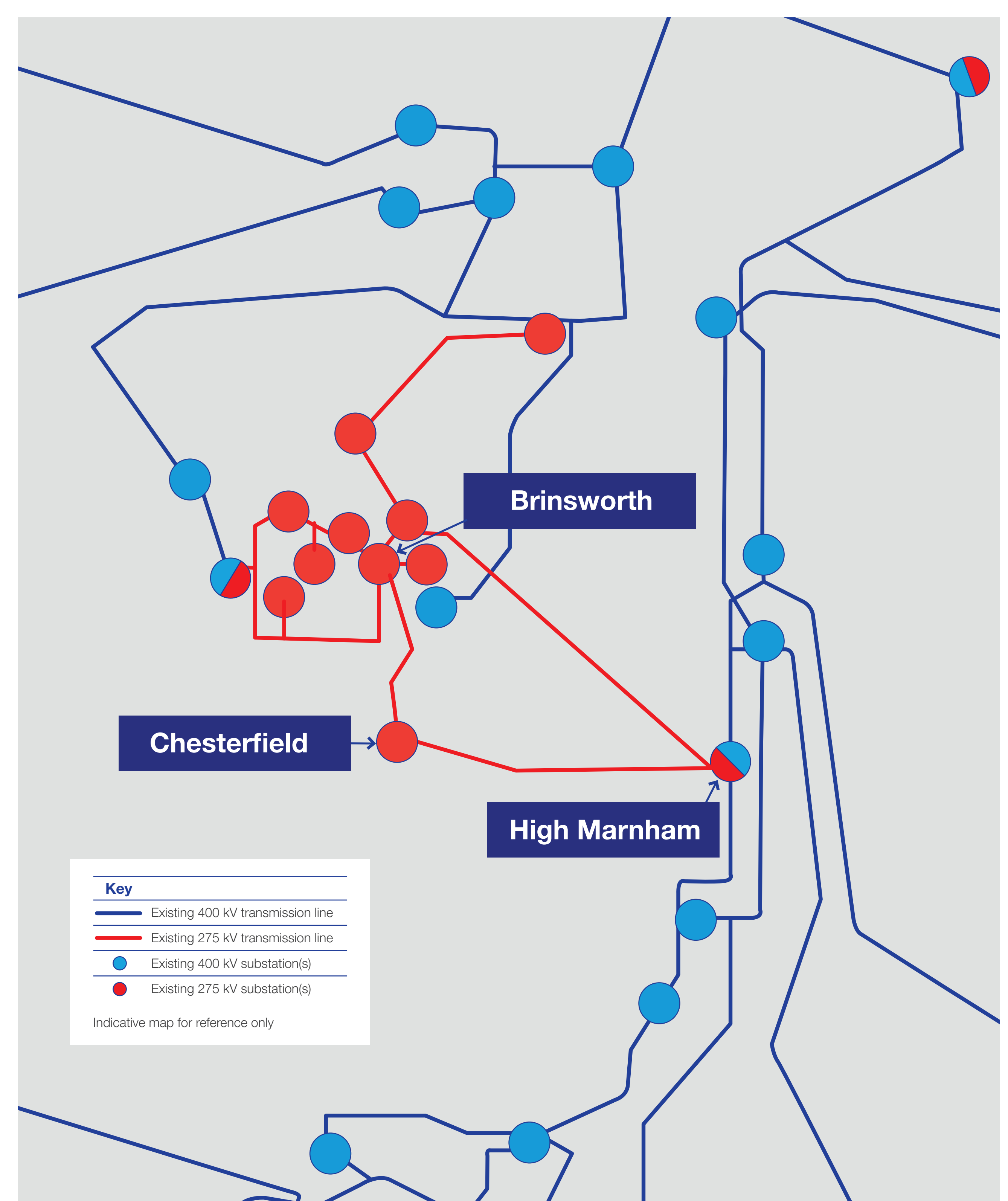
Some of the existing network in the centre of the country operates at 275 kV, which limits its capacity. The Brinsworth to High Marnham project would reinforce the network in this area through new substations, which enable electricity to be transported at different voltages, and upgrading some of the existing overhead electricity lines from 275 kV to 400 kV. This would provide the necessary increased capacity of the electricity transmission network between South Yorkshire and the North Midlands area.

Our Brinsworth to High Marnham project is part of The Great Grid Upgrade, which is the largest overhaul

of the grid in generations. The proposals would support the country's transition to net zero and make sure the grid is ready to connect more and more sources of low carbon electricity generated in Britain.

The project would transport clean energy from the North of England to homes in the Midlands and beyond and play an important role in building a more secure and resilient future energy system.

Brinsworth to High Marnham is one of 17 network reinforcements identified as essential and which need to be accelerated to meet the Government's 2030 targets for offshore wind.



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# Our proposals in Rotherham

## We propose a series of works to build and operate a new 400 kV substation east of Long Lane near Brinsworth in Rotherham, South Yorkshire.

A substation plays a crucial role in distributing electricity safely from power stations to homes and businesses. It transforms high voltage electricity into lower voltage suitable for local distribution networks.

Primarily, there are two different types of substation - air insulated switchgear (AIS) and gas insulated switchgear (GIS) substations. AIS relies on air as the insulation medium for electrical components, while GIS uses gas insulation. The decision depends on factors including availability of space, potential environmental impacts, cost, safety and maintenance requirements.

We expect to build an AIS 400 kV substation as the proposed site has sufficient space to accommodate an AIS.

The highest structures within the substation compound would be six overhead line gantries, which are bridge-like structures with platforms used to support equipment and cabling at approximately 12 metres.

The existing substation would remain in operation.

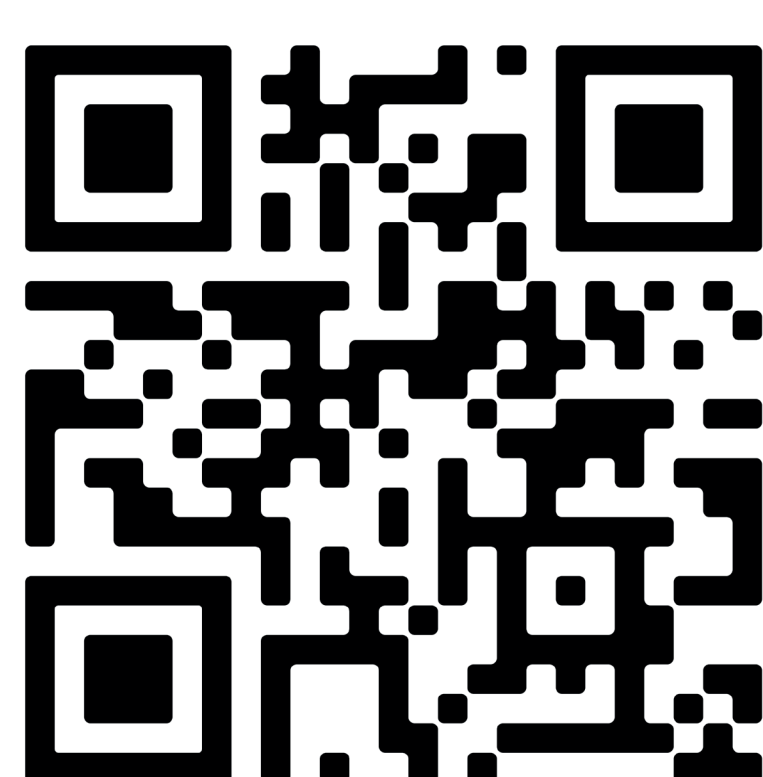
### Why is this substation needed?

The upgrade will mean the overhead transmission line can operate at 400 kV, rather than the existing 275 kV (known as uprating). The uprated transmission line will need to connect into Brinsworth substation. The existing Brinsworth substation, off West Bawtry Road, operates at 275 kV and 400 kV but it doesn't have enough space on-site to accommodate the additional equipment. This means we need to build a new substation.

### Why here?

We have to strike the right balance between maintaining secure reliable electricity supplies, managing the cost to consumers, potential effects on the community and local economy, as well as engineering considerations. We expect to access the proposed site near Brinsworth from the west, via Long Lane, during both the construction and operational phases. Long Lane benefits from a direct connection to the strategic road network, including the A631, A630 and M1.

We'll assess the proposals' potential traffic and transport effects as part of our planning application process. Before we start construction on the site, we'll submit a comprehensive Construction Traffic Management Plan to Rotherham Metropolitan Borough Council.



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# In the community

**Communities play a vital role in the transition to cleaner sources of energy. We believe those that host energy infrastructure should benefit from doing so.**

We are committed to working in collaboration with communities, stakeholders, suppliers and other parts of industry, to leave a lasting positive legacy by delivering community benefits in the areas that host our infrastructure.

In 2023, Government sought views about potential community benefits for those hosting new electricity transmission infrastructure. We welcome Government's intention to publish guidance outlining principles for how communities should benefit from the development of onshore transmission infrastructure.

This will help set a framework for us, in consultation with local communities and stakeholders, to deliver community benefits that work for them. This could include, for example, supporting local community projects as well as delivering broader socioeconomic and environmental enhancements.

### **Opportunities for young people**

To help achieve net zero by 2050, we estimate our industry needs to recruit 400,000 jobs between now and 2050.

Find out more about careers, apprenticeships and student placements with National Grid:



### **Grid for Good**

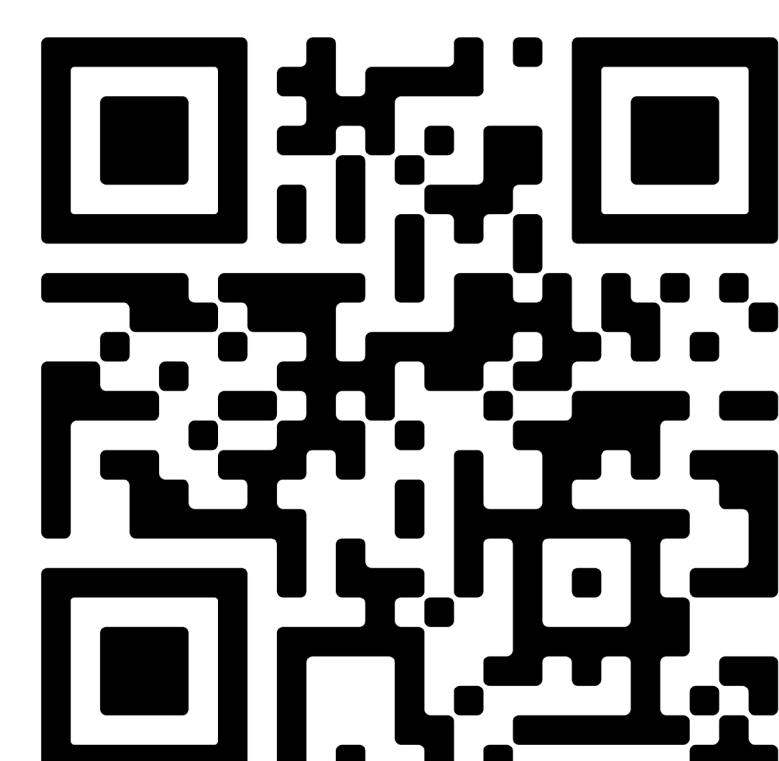
Grid for Good is our flagship programme that helps increase access to training and employment opportunities for young people. We support students with career coaching and masterclasses.

Already we've reached students from schools and colleges in many areas of England with more activities to come. Find out more about Grid for Good:



### **Community Grant Programme**

When we are nearer to construction, our community grant programme will be open for applications from local charities and not for profit organisations to support local community initiatives. You can find out more at:



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# How we manage and mitigate effects

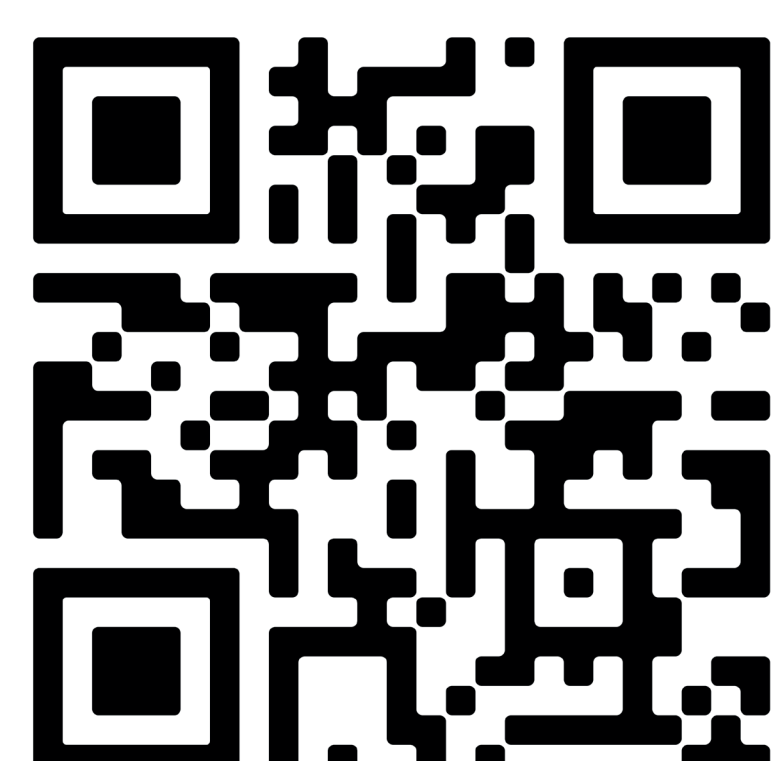
**Feedback from community consultation, along with findings from our ongoing environmental assessments, will help shape the proposals for the Brinsworth to High Marnham project.**

When we develop new infrastructure, we seek to reduce the effect of our work on communities, particularly in regard to noise. We adhere to environmental and sustainability standards and follow the code of practice for noise and vibration control on construction and open sites.

Our commitment also extends to the environment, where we consider factors such as Biodiversity Net Gain (BNG) and we aim to achieve a minimum of 10 per cent BNG. As part of our Environmental Assessment Report, we'll include an Ecological Appraisal alongside our planning application that we'll submit to Rotherham Metropolitan Borough Council.

Integrating these considerations into our processes will help us achieve a balanced approach that harmonises development goals with community wellbeing and environmental preservation.

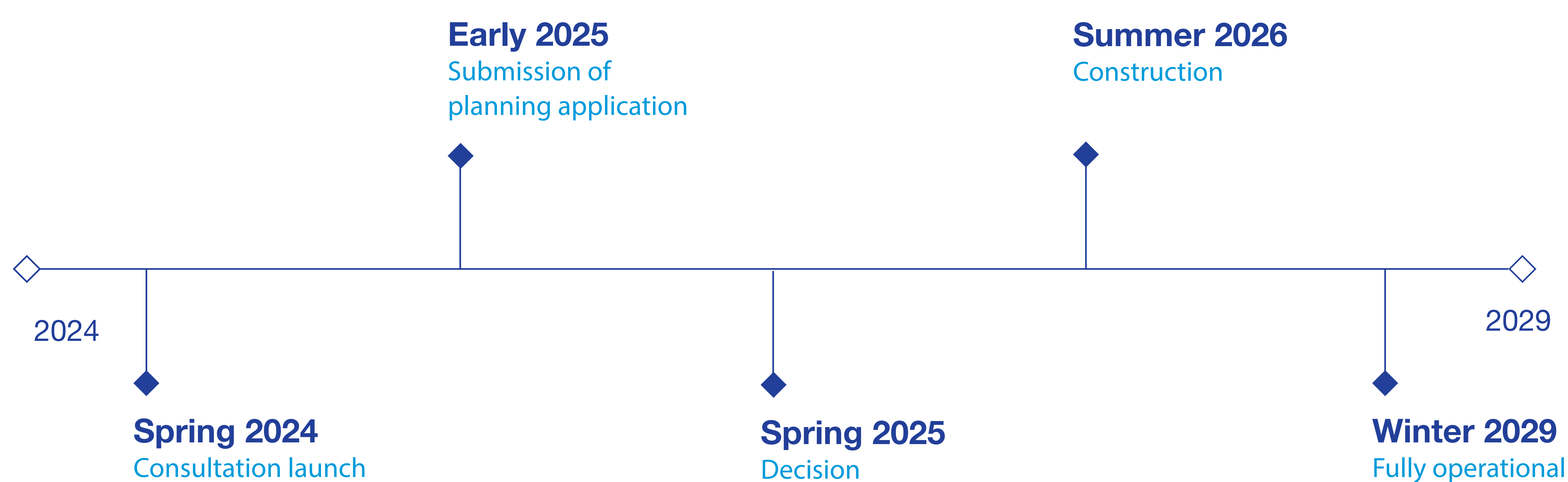
We've already carried out preliminary surveys to better understand the landscape and ecology within and around the site. Additional work is planned throughout 2024, including landscape walkovers and Public Rights of Way surveys, along with consultations with stakeholders such as Natural England and Rotherham Metropolitan Borough Council. The findings will help us to develop our proposals in a way that will reduce impacts on the area.



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# Feedback and next steps

## Project timeline



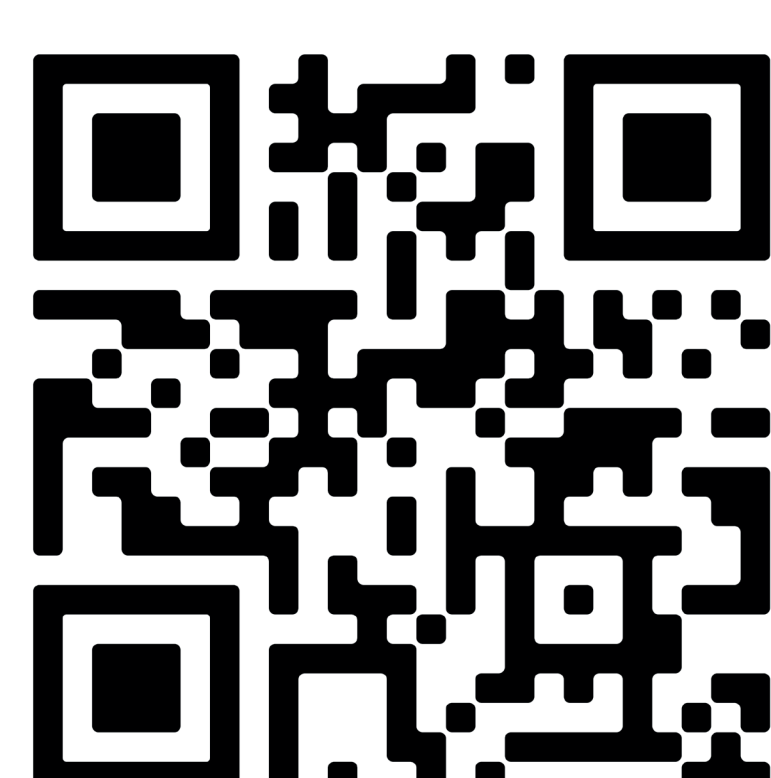
## Have your say

We welcome your views on our proposals. You can submit feedback in a variety of ways:

- via the online feedback form on our website
- by completing a hard copy form at today's event and returning it to us in person or posting it to **FREEPOST National Grid Projects (JBP)** (no stamp or additional address information required)
- by emailing **brinsworth-highmarnham@nationalgrid.com**
- by calling **0800 073 1047** between 9am and 5:30pm, seven days a week.

**Please provide your feedback by 11.59pm on Monday 17 June 2024.**

Should you have any questions please do get in touch with our community relations team - who are available via the contact details above.



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