

nationalgrid

# Western Gas Network Upgrade

Project overview



**National Grid is at the heart of Britain's energy system; we're central to the green energy revolution. We are committed to reducing our direct greenhouse gas emissions to net-zero by 2050.**

**While leading the transition to a clean, fair and affordable energy future, we must also continue to bring heat, light, and power to homes and businesses. Our role in the UK's energy system requires us to ensure that the right pipes and wires are available to transport energy around the country.**

By 2026 more gas will be coming along the western part of our gas network – from South Wales through to the Midlands.

Having carried out extensive research, we believe the most appropriate way to increase capacity is a mix of upgrades and additions to our existing network. This approach requires the least amount of new infrastructure, has the least impact on the environment and communities, and comes at the least cost to consumers – people all over the country that pay for the project through energy bills.



## Why gas?

Gas is a critical part of our journey to net zero. It's a secure and reliable source of energy that generates the least carbon of all fossil fuels; provides 80% of Britain's homes with heat and generates 40% of the UK's power needs. Gas will continue to meet the nation's energy needs as we innovate and explore cleaner, but more intermittent, renewable energy sources. In the transition to net zero, we are looking to deliver low-carbon gas transmission through biogas and hydrogen.

At the same time, where our gas comes from is changing. As the availability of gas from North Sea fields decreases, imports via Liquefied Natural Gas (LNG) terminals are increasing. National Grid needs to respond to these changes.

## Project overview

On the western part of our network, enabling the transition to net zero means we need to increase capacity by 2026 to accommodate more gas from South Hook Gas Company's LNG terminal. The gas arrives by sea in liquid form. It is then converted into gas and transferred by an underground pipeline into our network. To allow the gas to flow, we need to release constraints in our network near Churchover (Warwickshire) and between Wormington (Gloucestershire) and Honeybourne (Worcestershire).

There are many ways of bypassing these constraints, and how we achieve the increase in capacity is important. Construction has environmental and community impacts, and the cost of the work is met by households and businesses through energy bills. National Grid considered numerous possibilities to manage the gas flows along with options for reinforcing our network and increasing capacity. We ran a full analysis to determine the best-value solution for UK consumers. We discounted options which would not increase capacity enough, involved excessive impact on the environment or local people or cost too much.

A review of shortlisted options was then carried out against our guiding principles for this project. These being, using existing infrastructure where possible, minimise environmental and community impact, keeping new routes short, ensuring value for bill payers and – above all – safety.

We have identified what we believe to be the most suitable and cost-effective option, known as the Western Gas Network Upgrade. It balances National Grid's various legal duties, obligations, and guiding principles, and will be focused on the following key pieces of work:

- 9km of new pipeline between Wormington (Gloucestershire) and Honeybourne (Worcestershire)
- 2km of new pipeline in Churchover (Warwickshire)
- pressure uprating of some of the existing pipeline in Wales
- related works at six existing above ground installation (AGI) sites to facilitate pressure uprating, connection of new pipelines, and effective compression at existing stations.

There are several benefits to this project option:

- it requires the least new infrastructure, minimising impact on communities and the environment
- it represents the most economic and efficient solution for UK customers

## Assessing options to increase capacity

We followed a robust and transparent process to compare options and to assess the positive and negative effects they may have. The criteria included environmental, social-economic, technical and cost factors.

As we narrowed down the options, we began to look at possibilities and testing them against the criteria:

- Connecting to new markets such via offshore pipelines in France and Ireland. Discounted as excluding any uncertainty over access to the other markets, these options require considerably more additional new infrastructure at greater cost and with greater environmental effects than other options

- it maximises the use of existing infrastructure and minimises the construction of new infrastructure
- although it is more technically complex than other options, National Grid's assessments indicate that any challenges can be resolved.

We are aiming to begin construction towards the end of 2023; however, we need to work with landowners and local authorities to develop the project before this date. We'd also like feedback from people in the local community.

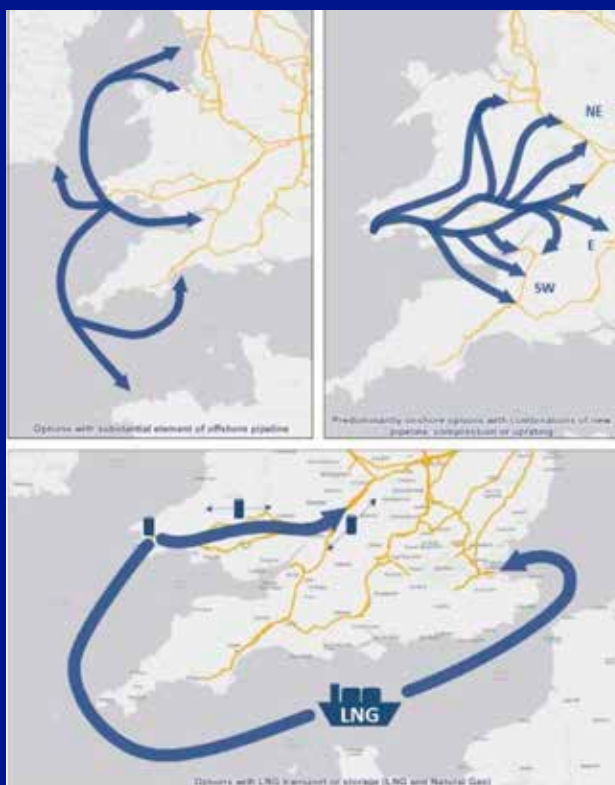
It is very important to us that we are conscientious constructors and operators, and local knowledge on routes for construction vehicles, public rights of way, and so on will help us to design construction activity in the most appropriate manner.

We'll review the project regularly as it progresses through routing, siting, environmental appraisal, and landowner and local authority consultation, to make sure it continues to represent the best option.

- Building new storage facilities as at standard atmospheric pressure LNG requires 1/600th of the storage volume of natural gas. Under the Gas Act, National Grid's license does not allow for storage of gas at the scale required
- Transporting the required gas via ship, road and rail. Our transport infrastructure isn't robust enough to consistently and safely provide transport the volumes needed.

The following provides an illustration of the potential strategic options that would involve physical works. The figure in top left illustrates consideration of using offshore connections including movement to other markets (Ireland or France).

The figure at top right shows the range of onshore infrastructure options considered to move gas beyond the existing constraint area into more north eastern, eastern or southwestern parts of the National Transmissions System. The lower figure illustrates options incorporating storage or movement as LNG either onshore (in a pipeline or using road or rail tankers) or by redirecting LNG ships to other facilities (to the other UK facility as shown or to other international facilities (not shown).



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