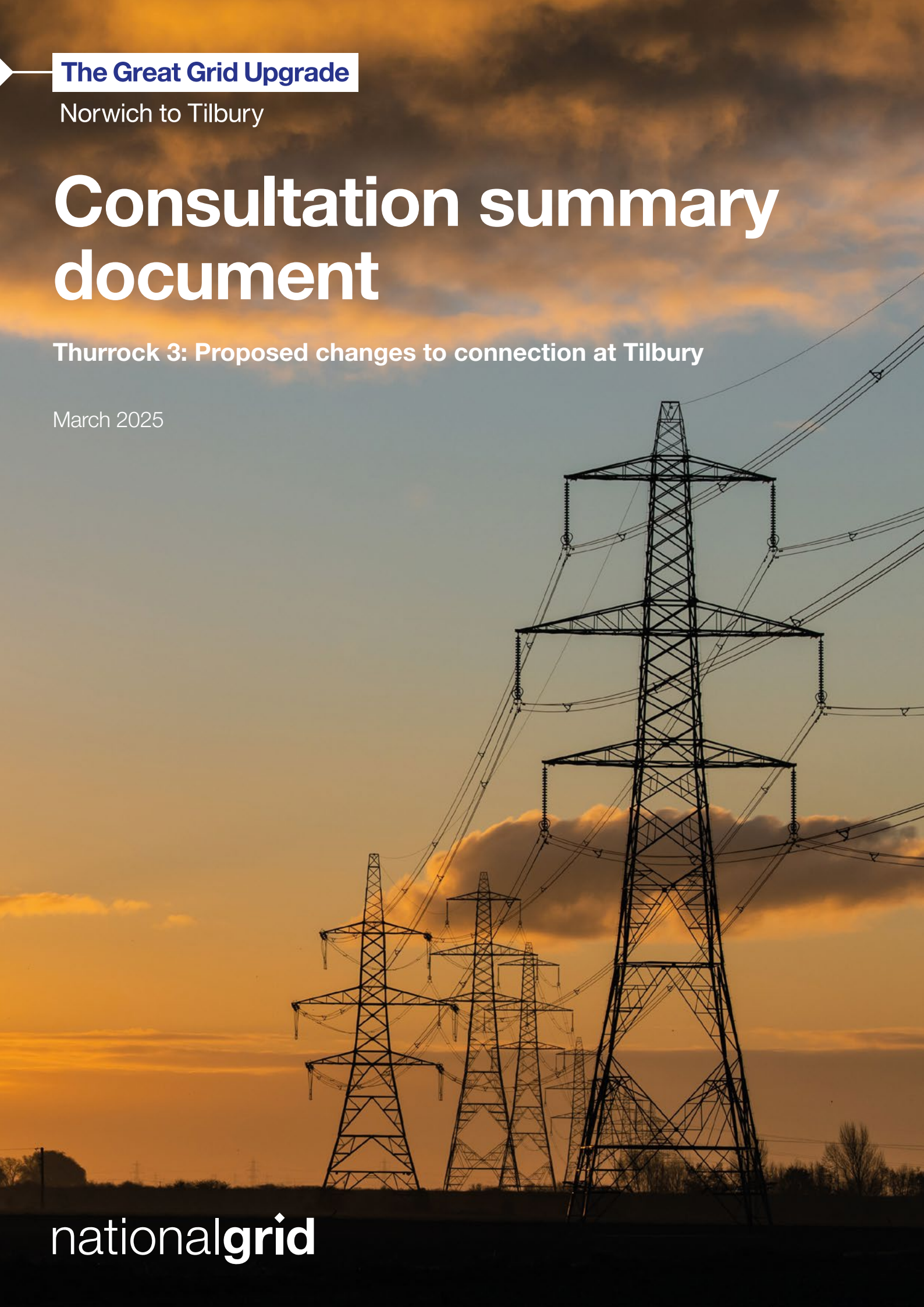
The Great Grid Upgrade

Norwich to Tilbury

# Consultation summary document

## Thurrock 3: Proposed changes to connection at Tilbury

March 2025



nationalgrid

# About National Grid

## National Grid delivers electricity safely, reliably and efficiently to the customers and communities we serve – all while working towards building a cleaner, fairer and more affordable energy system for the future.

**The parts of National Grid involved in ensuring we all have the essential electricity supplies we need are shown in the diagram below. Each is a separate legal entity with its own role and responsibilities across England and Wales.**

National Grid Electricity Transmission (NGET), referred to in this document as National Grid, sits at the heart of Britain's energy system, connecting millions of people and businesses to the energy they use every day.

Every time a phone is plugged in, or a switch is turned on, we have played a part, connecting you to the electricity you need.

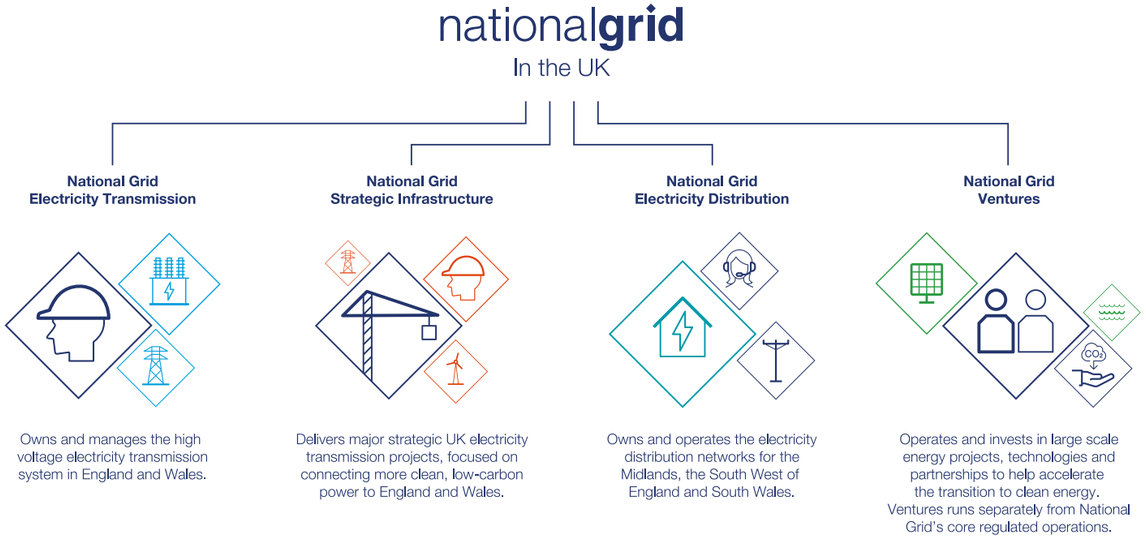



**Figure 1.1** – Structure of National Grid in the UK





# The Great Grid Upgrade: Norwich to Tilbury

## At National Grid, we are investing around £1.3 billion each year to adapt and develop our network to connect new sources of low carbon energy to homes and businesses.

**We are investing for the future, connecting more and more low carbon electricity to our network and playing a crucial role in turning the UK's net zero ambitions into reality.**

By the end of the decade, there could be as much as 18 gigawatts (GW) of new, cleaner electricity – enough to power around 18 million homes – connected into the East Anglian network. Ensuring this energy can reach homes and businesses means we need to improve our onshore energy infrastructure, much of which was built to accommodate less demand.

Norwich to Tilbury is a proposal by National Grid Electricity Transmission (National Grid) to reinforce the high voltage power network in East Anglia between the existing substations at Norwich Main in Norfolk, Bramford in Suffolk, and Tilbury in Essex, as well as connect new offshore wind generation.

Therefore, we are proposing to build approximately 180 kilometres (km) of new electricity transmission reinforcement between Norwich and Tilbury. This will be made up mostly of overhead line and pylons, along with some underground cables and two new 400 kilovolts (kV) substations.

We have been consulting communities in Norfolk, Suffolk and Essex for the last three years and are now refining our proposals. For more information on Norwich to Tilbury and on our previous consultations please visit our website – **nationalgrid.com/norwich-to-tilbury**.

For now, there are some changes in your local area and we would like to hear your views, so please read on.

# What we are proposing to change in your area and why

## We are presenting a change to our proposals, specifically the substation connection point at the southern end of the route in your area.

**Rather than connecting at the existing Tilbury Substation, we are now proposing a new Tilbury North Substation 5 km to the north, close to Orsett and between the villages of Linford and Chadwell St Mary. The substation would be located where we had previously proposed to build a cable sealing end (CSE) compound.**

The Norwich to Tilbury project would connect into the national electricity transmission system through the new substation and a modification of the existing overhead line (known as YYJ). The YYJ line already connects to the existing Tilbury substation.

We would also need to underground a section of a second existing overhead line (known as ZB) to avoid crossing with the new lines coming out of the substation.

The proposed change removes the need to construct approximately 4.5 km of underground cabling and we would no longer need to extend the existing Tilbury Substation.

You can see the alignment we presented at our 2024 statutory consultation on page 10 of this document as well as our proposed changes, including the new substation on page 11.

The change is being proposed in response to feedback about the potential interactions with a number of existing and proposed developments in the area, including potential impact on economic growth opportunities at the Freeport and challenging construction sections to cross under existing infrastructure.

## How we are consulting

We have chosen to hold further targeted consultations to provide stakeholders and the public with the opportunity to provide feedback on these proposed changes before we finalise our proposals for submission. As these changes would not fundamentally change the project as a whole, a targeted consultation approach is proposed, which is in line with guidance (Planning Act 2008:Pre-application stage for Nationally Significant Infrastructure Projects, paragraph 020) issued in April 2024 by the Department for Levelling Up, Housing and Communities (now Ministry of Housing, Communities and Local Government):

*"In understanding whether there has been a material and substantial change, applicants should take into account the following guiding factors:*

- *the degree of change as compared to the proposals previously consulted upon as a whole*
- *the number of materially worse environmental effects as compared to what has been the subject of previous consultations*
- *the level of public interest, and the likelihood that such interest would merit further consideration in the context of that change.*

*"For any material change to a part of the proposed application where the project as a whole is not fundamentally changed, for example in the case of linear aspects where new information leads to a new alignment for a particular section of the proposal, a bespoke and targeted approach to further consultation can be adopted, which can address the specific consultation obligations arising proportionately.*

*"Targeted consultation can be statutory or non-statutory or a combination of the two depending on whether new persons needing to be consulted under section 42 of the Planning Act have been identified, but such targeted consultation will not require the production of PEI provided proportionate and appropriate information on environmental implications of any changes, where necessary, is provided."*

The consultation for Thurrock 3: proposed changes to connection at Tilbury is a targeted statutory community consultation as the proposed changes to the existing overhead lines and primary access routes may affect communities, residents and landowners in the vicinity of the area that have not been consulted before.





# Targeted consultation on proposed changes to the connection at Tilbury

## The deadline for providing feedback to this targeted consultation is 11:59pm on Thursday 17 April 2025.

**We are holding a targeted statutory consultation where we are considering changes to the project presented to the public at the statutory consultation in summer 2024.**

Since the close of the statutory consultation in 2024, we have reviewed and considered all consultation feedback and continued to carry out further assessments and survey work to inform our proposals. As a result, we are now considering making some changes to our proposals at a number of locations, including some proposed changes to the connection at Tilbury. These potential changes do not materially change the effects or fundamentally change the project as a whole.

These proposed changes would reduce the length of the underground cabling and replace a previously proposed CSE compound with a substation. We are also proposing some additional works to the existing infrastructure in the area – including modifications to the existing overhead lines – to enable the electrical connection into the existing Tilbury Substation via the new substation.

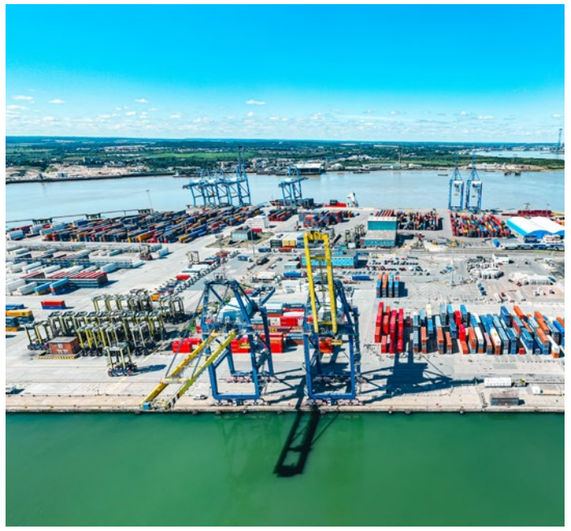
We intend to submit our application for development consent for the Norwich to Tilbury project in summer 2025. Before we finalise our proposals, we want to give nearby residents and local communities the opportunity to provide feedback on proposed changes at this location.

We are consulting on Thurrock 3: the proposed changes to the connection at Tilbury between 18 March and 17 April 2025 and we welcome your feedback.

You can view all the documents we presented during the summer last year, as well as at earlier non-statutory consultations, in the document library on our project website – **nationalgrid.com/norwich-to-tilbury**.

# Consideration of alternatives

## Our initial site selection process for a new substation identified six potential locations.



**Potential sites to the south of Church Road weren't considered as they would be within flood storage areas or conflict with land being used for development proposals in the Tilbury Substation area. Sites to the north beyond the A13 near Orsett Fen weren't considered as they would present an extensive flood risk.**

The six sites we identified were assessed against a range of different, technical, environmental, socio-economic, programme and costs factors, as well as the relevant planning policy guidance to determine the most suitable site.

Following this process, we consider the proposed location we are showing in this consultation would be the most suitable. Building a new substation here would:

- avoid interaction with the Thames Freeport development
- avoid the area of focus for the potential Thames Estuary Marshes SSSI designation
- allow for the crossing of the proposed Lower Thames Crossing development by overhead line rather than underground cable.

Not needing to construct underground cabling would also reduce any temporary landscape and visual effects, and impacts on users of Public Rights of Way and Common Land at West Tilbury.

For further information on our site selection process, you can read the Design Development Report, which is available to view in the document library of our project website – **nationalgrid.com/norwich-to-tilbury**.





# New Tilbury North Substation

## This change includes a proposal to build a new 400 kV Gas Insulated Switchgear (GIS) substation and modifications to the existing National Grid Electricity Transmission overhead lines.

**You can see a map of the proposed location for the new substation on page 11 of this document.**

We are proposing a GIS design as opposed to an Air Insulated Substation (AIS) in line with National Grid guidance for substations which are located less than 5 km from saline or marine environments. The GIS substation would need less land than an AIS substation.

The proposed GIS substation would be located in a secure compound with an operational footprint of approximately 340 metres (m) x 300 m. The height would be approximately 15 m excluding any requirement for landscaping and overhead line or cable connections.

This will include:

- new GIS hall building (approximately 130 m x 20 m and 15 m in height)
- annex building (approximately 130 m x 10 m and 5 m in height)
- exterior and interior lighting
- internal access and circulation
- associated plant and apparatus
- drainage
- security fencing (approximately 4 m in height)
- two access options into the site.

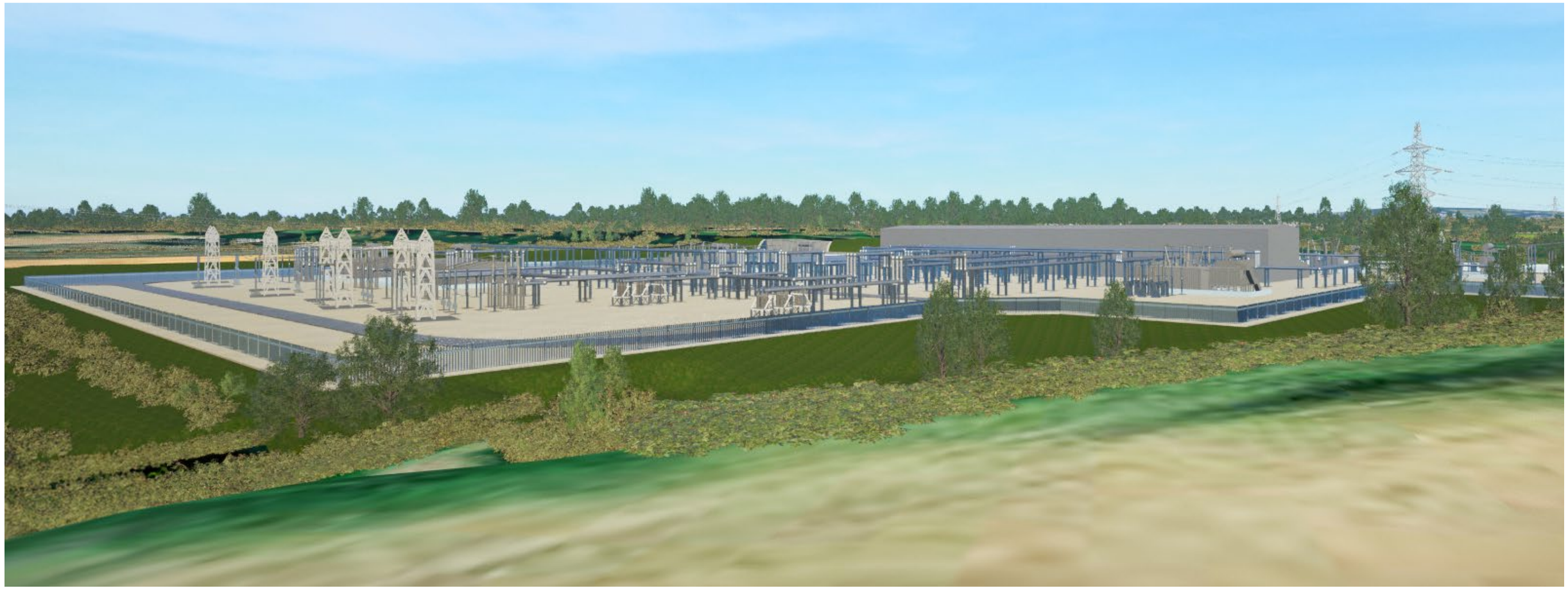

There are primarily two different types of substation – air insulated switchgear (AIS) substations and gas insulated switchgear (GIS) substations. AIS relies on air as the insulation medium for electrical components and is the most common type, which accounts for more than 70 per cent of substations all over the world, while GIS uses gas insulation.

# What is a substation and why is it needed

## Transmission substations are used to connect big energy projects to the UK's electricity grid.

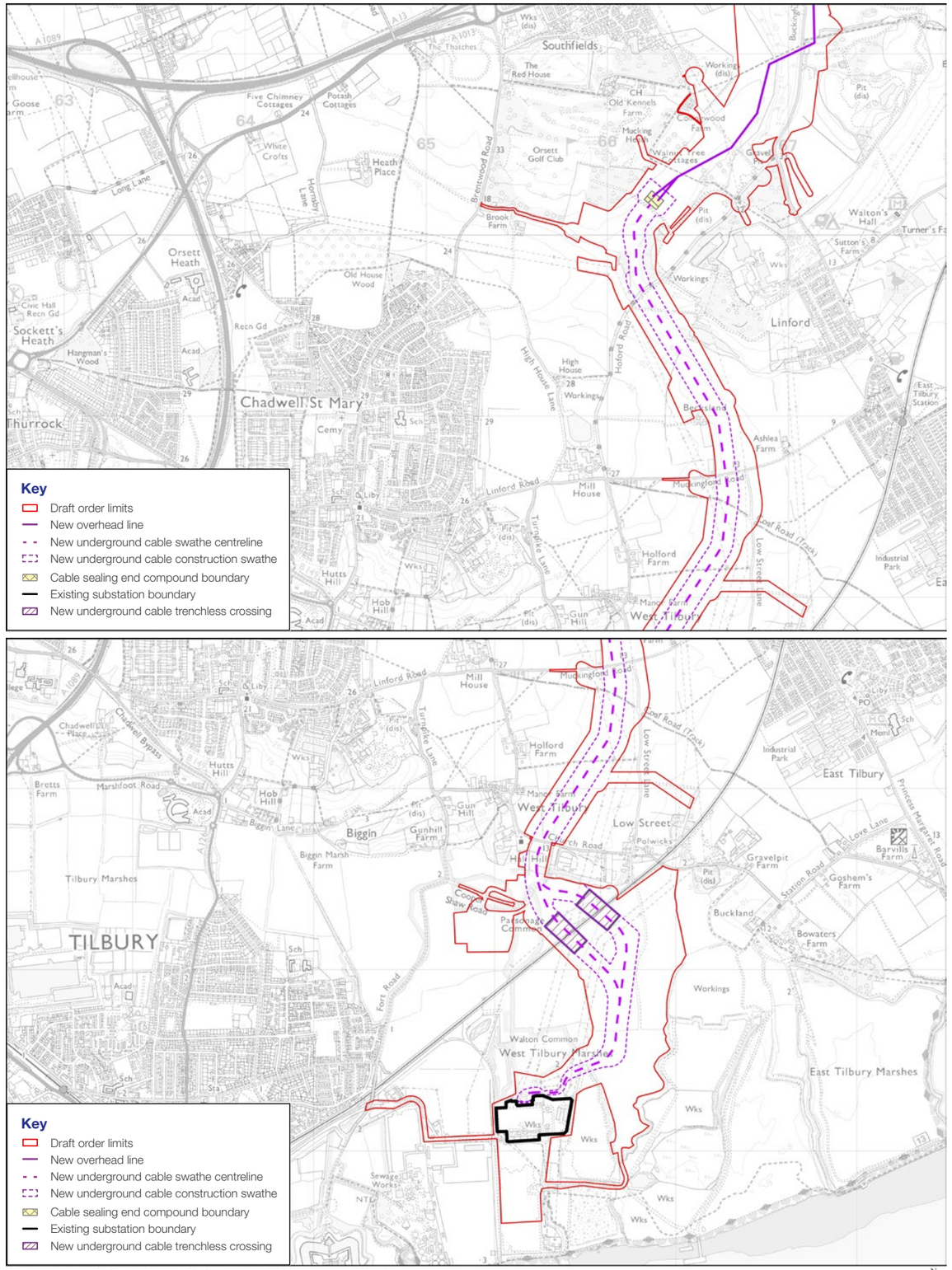
**Substations contain equipment that helps keep our electricity transmission and distribution systems running as smoothly as possible, without repeated failure or downtime. This includes protection equipment, which detects and clears faults in the network.**

The substation at Tilbury North would enable the connection of the new Norwich to Tilbury overhead line into existing the national electricity transmission network via the existing overhead lines.



3D visualisation of the proposed Tilbury North Substation

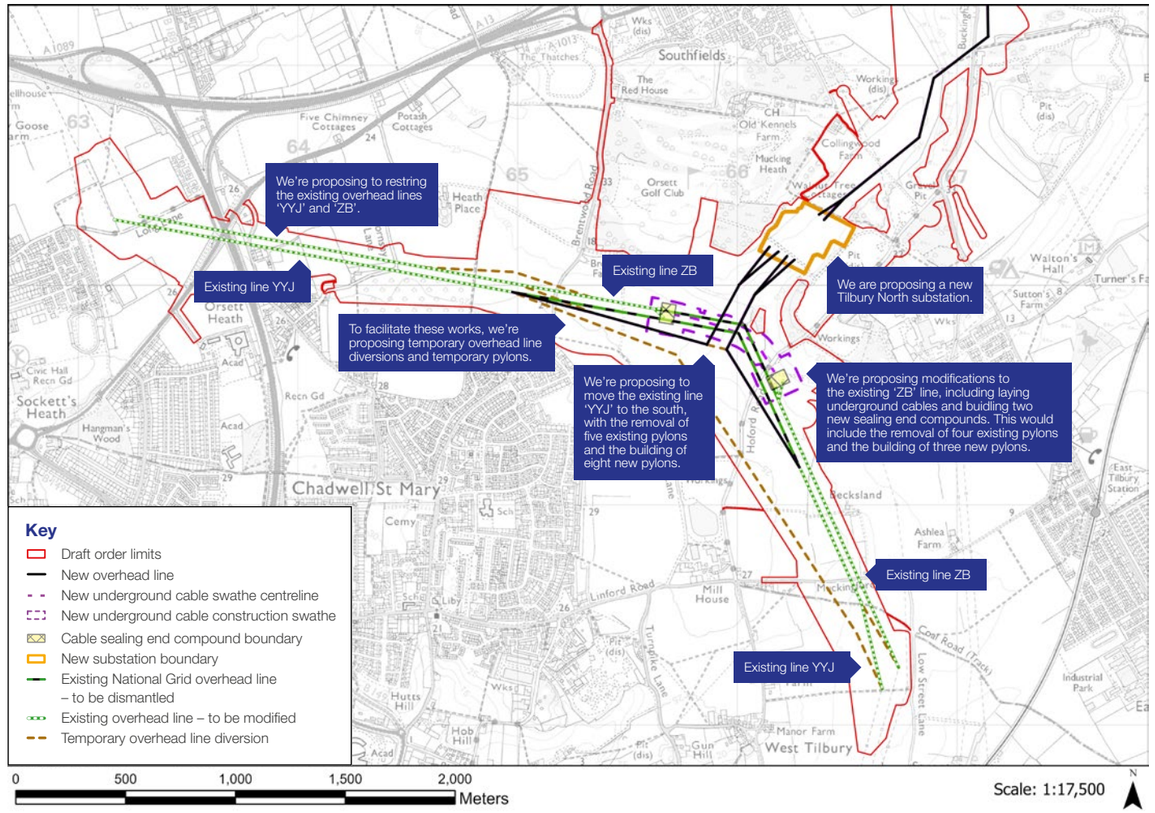
# Alignment presented at the 2024 statutory consultation








# Area of proposed change March 2025




## Modifications to the existing overhead lines

Should the proposed change be carried forward, sections of the existing YYJ and ZB National Grid Electricity Transmission overhead lines (marked on the map above) would require modification to facilitate the connection of the existing transmission network into the Tilbury North Substation.

As part of this change, we would need to make modifications to two existing National Grid overhead lines to connect into the new Tilbury North Substation (marked on the map above). The existing line which we call 'YYJ' would be moved south. We would need to remove five existing pylons and build eight new pylons.

The modification of the existing line we call 'ZB' would involve laying approximately 0.55 km underground cables and the construction of two new cable sealing end (CSE) compounds, each with a permanent access. These access routes are marked on the map located on page 12 as well as on the maps available in the document library of our project website. This would avoid the ZB line crossing with the new lines coming out of the substation. We would need to build three new pylons and would remove four existing pylons.

In order to keep the power running through the lines, we would need to build some temporary overhead line diversions and temporary pylons. These temporary diversions would be required for a minimum of two years. If temporary pylons are required, they will be approximately 50 m in height.

Three access routes are proposed for works to the existing transmission network:

- via Stanford Road/Heath Road
- via Stanford Road/Gammonfields Way
- via Marshfoot Road/Muckingford Road (Light Goods Vehicles (LGVs) only).

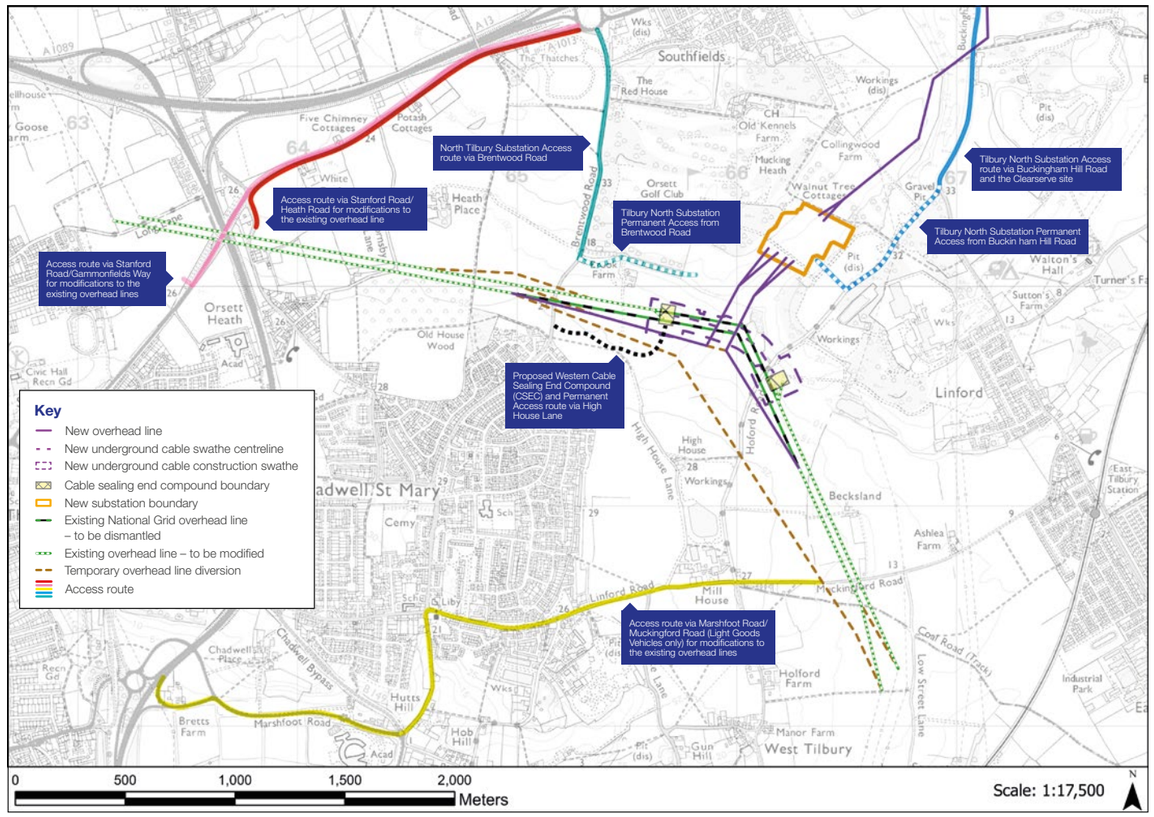
A map of the proposed access routes can be found on page 12.

# Managing impacts

As part of the 2024 statutory consultation, we sought views on the potential environmental effects of the proposals and whether consultees have suggestions for reducing these effects (for example, through mitigation measures). This information is detailed in the Preliminary Environmental Information Report (PEIR) that was prepared for the 2024 statutory consultation and which can be viewed here – **nationalgrid.com/norwich-to-tilbury**.

We have carried out further environmental assessments of our proposed changes in this area and, you can find more information in Thurrock 3: Environmental Implications of Change Document on our project website – **nationalgrid.com/norwich-to-tilbury**.

If, following careful consideration of any feedback we receive, we make this change, baseline information, environmental surveys and assessments associated with this change will be provided in the Environmental Statement (ES) that will form part of our application for a Development Consent Order (DCO).




The map above shows the proposed access routes for the new substation and the modifications to the existing overhead lines. For more information and to view the full extent of the access route via Buckingham Hill Road, please view the maps available on our project website.

## Traffic and transport impacts

We have also carried out traffic and transport assessments for our proposals for the new Tilbury North Substation.

This includes any potential impact during construction as well as for the day-to-day operation and maintenance of the new substation site.

We are proposing two access options into the proposed Tilbury North Substation for both construction and operational traffic (see map on page 12):

- via Buckingham Hill Road, Hoford Road and then either a temporary haul road (during construction) or a permanent private access road (during operation) across the Clearserve site; and
- via Brentwood Road then either a temporary haul road (during construction) or a permanent private access road (during operation).

These access options have been developed so that we would be able to access the proposed Tilbury North Substation whether or not the Lower Thames Crossing project goes ahead.

You can find more information on potential traffic and transport effects in our Thurrock 3: Environmental Implications of Change document located in the document library on our project website – **nationalgrid.com/norwich-to-tilbury**.

The Lower Thames Crossing is a proposed new road that would connect Kent and Essex through a tunnel beneath the River Thames which is awaiting consent from the Secretary of State. Should the Lower Thames Crossing receive development consent we anticipate access will be via Buckingham Hill Road.

## Construction

Building Norwich to Tilbury would involve a range of construction activities, including preparing land and creating temporary haul roads to access work areas, as well as providing temporary areas to store materials, vehicles and staff welfare facilities.

To construct the proposed changes at Thurrock 3 we would need to use a range of different construction techniques.

## Building overhead lines

The first step in building overhead lines is to set up a working area where each new pylon will be built.

Foundations are laid, then the pylons are assembled in sections on the ground and craned into position. The number of sections for each pylon would vary according to the size and type of pylon being built.

Once the pylons are built, we hang the wires – or conductors – that carry the electricity. This is known as ‘stringing’. We string a section of approximately ten pylons at a time. The conductor is pulled from one end to the other using large machinery.

The size, height, and spacing of pylons is determined by safety, topographical, operational and environmental considerations.

## Installing underground cables

Most underground cables are laid using open trench installation.

Underground cables are installed using ducts which protect and organise cables. Installing ducts means that trenches can be backfilled sooner and underground cables pulled into the ducts at a later date.

In some cases, other trenchless techniques such as micro-tunnelling, boring or Horizontal Directional Drilling (HDD) would be used where open trench installation is not appropriate. For example, when crossing features such as heavily trafficked highways, rivers or railways.

## Temporary construction compounds

Temporary construction compounds are used to support construction activities.

These activities include material loading and unloading, material storage, vehicle parking, siting of welfare facilities, siting of construction cabins and modular offices.

As well as compounds, construction laydown areas and highway mitigation laydown areas would be required to store materials to support construction.

For more information on construction compounds, see the Preliminary Environmental Information Report (PEIR) located in the document library on our project website – **nationalgrid.com/norwich-to-tilbury**.

## Primary access routes (PAR) and haul roads

PARs are public roads which have been identified to route construction vehicles and HGVs.

They have been identified considering existing highway constraints and avoiding settlements or other sensitive locations where practicable. PARs would connect to a trunk road network along the preferred draft alignment by new site access points which would then connect to haul roads.

Haul roads would be needed to transport all the machinery and materials safely from the public roads to the sites where we would be carrying out construction activities.

Where a haul road connects to the existing public highway, we would need to build a site access point known as a bellmouth junction. These are normally built from the side of fields to minimise disruption to highways.

Where there are environmentally sensitive locations and businesses, we are proposing to divert haul road routes around them wherever practicable. In places we may be seeking highway powers to regulate the movement of vehicles.

# Have your say

## Our targeted statutory consultation on proposals for the Thurrock 3: Proposed Changes to Connection at Tilbury runs from 12noon Tuesday 18 March to 11:59pm Thursday 17 April 2025.

## Attend an in-person event

We are holding two public information events to give local residents the opportunity to view our proposals, speak to members of the Project team and find out more about our proposals.

| Date and time | Venue |
|---|---|
| Tuesday 25 March 2025<br>10:30am – 3:30pm | Chadwell St Mary Village Hall,<br>Waterson Rd, Grays<br>RM16 4NX |
| Thursday 27 March 2025<br>11:30am – 4:30pm | West Tilbury Village Hall,<br>Rectory Rd, West Tilbury<br>RM18 8UD |

## Attend a webinar

We will also hold two public webinars via Microsoft Teams, on:

- Wednesday 2 April 2025 at 6:00pm
- Tuesday 8 April 2025 at 12noon.

You can sign up for the webinars on our website – **nationalgrid.com/norwich-to-tilbury**





## Visit our website

**nationalgrid.com/norwich-to-tilbury** where you will find maps, consultation materials, and our online feedback questionnaire.

## Feedback can be provided by:

If you have any comments regarding this proposed change, you can provide feedback by using the location reference **Thurrock 3**.

Completing an online feedback questionnaire: **nationalgrid.com/norwich-to-tilbury**

Filling out a paper feedback questionnaire and sending it to the Freepost address below – If you haven't been sent one, please call us on **0800 915 2497** and we will post one to you.

Sending us an email: **contact@n-t.nationalgrid.com**

Writing to us (no stamp required) at:
**FREEPOST N TO T**

**The deadline for feedback is 11:59pm Thursday 17 April 2025.**

## Notes





## Notes


## Contact us

If you would like to contact the Community Relations team, please get in touch via:

**FREEPOST N TO T**

**T: 0800 915 2497**

**E: contact@n-t.nationalgrid.com**

**W: nationalgrid.com/norwich-to-tilbury**