

**Welcome to our public consultation displaying proposals for the NeuConnect Interconnector, which will create the first direct power link between Germany and Great Britain, connecting two of Europe's largest energy markets for the first time.**

A pair of subsea cables will form an 'invisible highway' of around 720km allowing up to 1.4GW of electricity to move in either direction, enough to power tens of millions of homes over the life of the project.

The main elements included are:

- Subsea and underground cables
- A landfall location in both Great Britain and Germany
- A new converter station in both Great Britain and Germany
- A new substation will be built in Great Britain to enable NeuConnect to link with the existing national grid

All of the GB land-based elements will be located on the Isle of Grain in Medway, Kent.



For more information, please visit [www.neuconnect.eu](http://www.neuconnect.eu)

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# Where is NeuConnect?

NeuConnect



The NeuConnect site in the Isle of Grain

## Who is developing the NeuConnect Interconnector?

NeuConnect is a fully privately funded £1.4bn project. It is being developed by an international, experienced consortium that includes Meridiam, Allianz Capital Partners on behalf of Allianz Group and Kansai Electric Power, with the project also supported by Greenage Power and Frontier Power as developers.

Lead-investor Meridiam bring a long-term commitment to invest in, develop and manage the asset over 25 years and beyond.



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# What are interconnectors?

## Key Elements

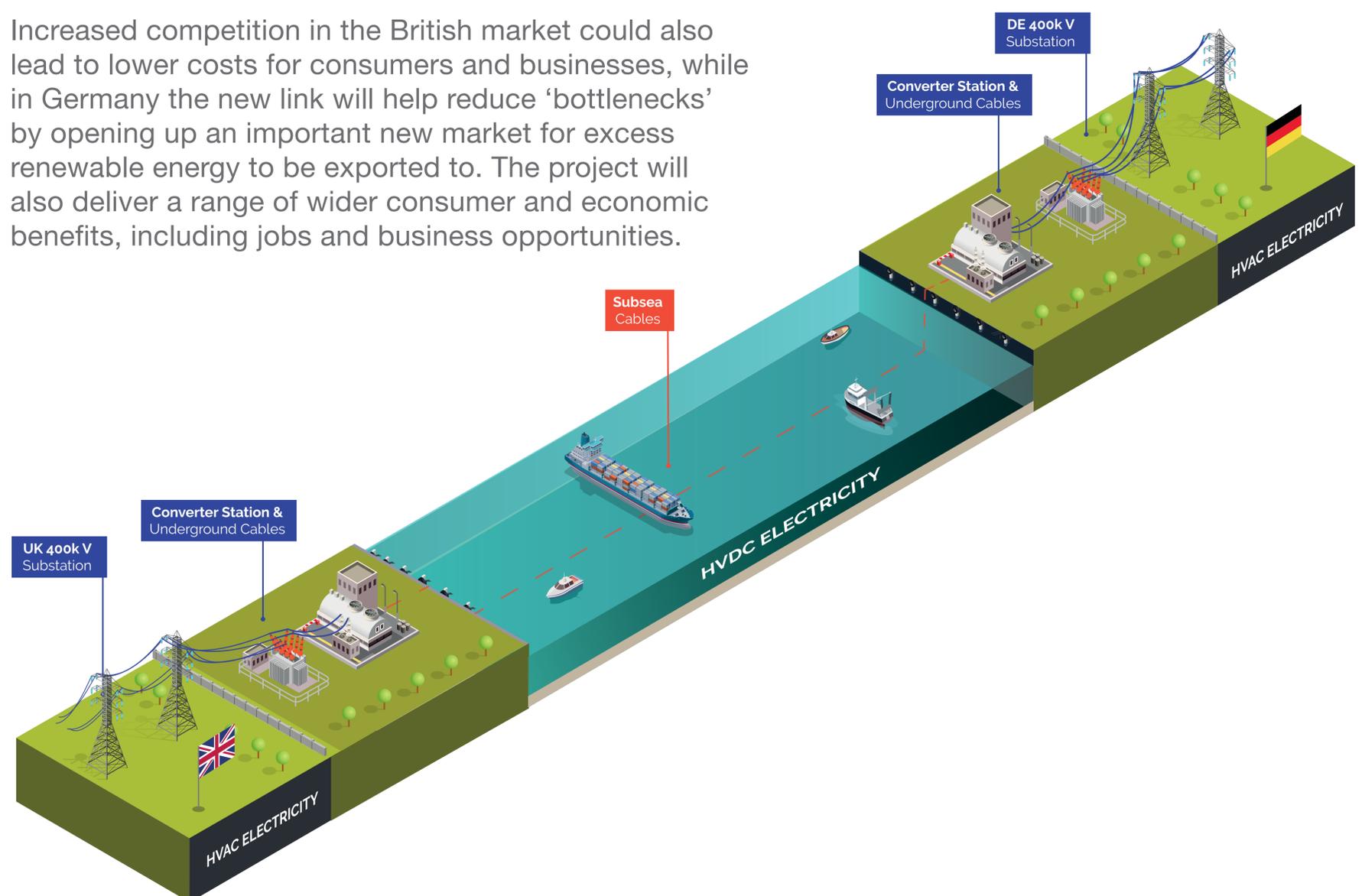
**Interconnectors create important new links between the energy networks of different countries, allowing a safe, secure and affordable energy supply to cross geographical boundaries.**

Many countries, including GB and Germany, have identified a long-term need for interconnectors as they help to integrate energy markets, increase competition and security of supply, and deliver value for money for consumers.

## Why are interconnectors needed?

By connecting two of Europe's largest energy markets for the first time, the project will offer a more diverse and sustainable supply, offering much needed resilience, security and flexibility in GB and Germany.

Increased competition in the British market could also lead to lower costs for consumers and businesses, while in Germany the new link will help reduce 'bottlenecks' by opening up an important new market for excess renewable energy to be exported to. The project will also deliver a range of wider consumer and economic benefits, including jobs and business opportunities.



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# Benefits of NeuConnect

NeuConnect



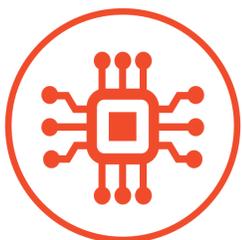
## **RESILIENT - dependable, safe and more secure**

The fully financed £1.4bn / €1.6bn interconnector scheme will create the first direct link between Great Britain and Germany's electricity networks. Connecting two of Europe's largest energy markets for the first time will offer a more diverse and sustainable supply, offering much needed resilience, security and flexibility in each market.



## **ECONOMIC - more competition means lower prices**

By allowing up to 1.4GW of electricity to flow in either direction between Germany and Great Britain, the new link will significantly increase choice and competition in each market. This could lead to millions of consumers and businesses benefitting from reduced electricity prices.



## **EFFICIENT - investing in reliable technology**

The investment in proven, reliable high-voltage direct current (HVDC) technology offers British and German networks greater efficiency and flexibility to deal with the changing demands of industry, businesses and consumers.



## **TRANSFORMATIVE - £3bn in benefits, a significant economic boost**

The vital new link will create an 'invisible highway' to carry 1.4GW of electricity, enough to power tens of millions of homes over the life of the project and offering net consumer benefits of over £3bn / €3.4bn.



## **SUSTAINABLE - low-impact, low-carbon**

720km of cables will connect substations in Germany and on the Isle of Grain in Kent. The integration of renewable energy sources will see a reduction of up to 34 million metric tonnes of CO<sup>2</sup> over the life of the project.

The new connection will allow Britain to tap into the vast energy infrastructure in Germany, including its significant renewable energy sources as the world's third largest producer of wind power.



## **DELIVERABLE - meeting future energy needs**

NeuConnect received Interim Project Approval from Ofgem in January 2018. Final approval for the scheme is expected in 2020, allowing construction to start shortly afterwards. NeuConnect is targeting 2023 for project completion, helping meet Britain and Germany's future energy needs and delivering significant benefits for consumers, businesses and industry in less than four years.

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# Offshore cable route

The offshore cable route will run from the Isle of Grain, through British, Dutch and German waters, to the German landfall location at Fedderwarden, near Wilhemshaven.

The offshore cable will comprise two high-voltage DC subsea cables, together with a fibre-optic cable of a much smaller diameter for operational control and communication purposes

The two DC cables will be installed together as a pair of cables. The cables will typically have a copper core with various layers providing insulation and protection to the cable. Each DC cable will be approximately 150mm in diameter



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# Offshore cable route

## Landfall Location

A landfall location is required to bring the high voltage subsea cables ashore. It is proposed that the GB landfall will be located on the north coastline of the Isle of Grain.

An underground Transition Joint Chamber (TJC) will be constructed at the landfall location to bring the offshore HVDC cables ashore and connect them to onshore HVDC cables that will run underground from the landfall to the converter station.

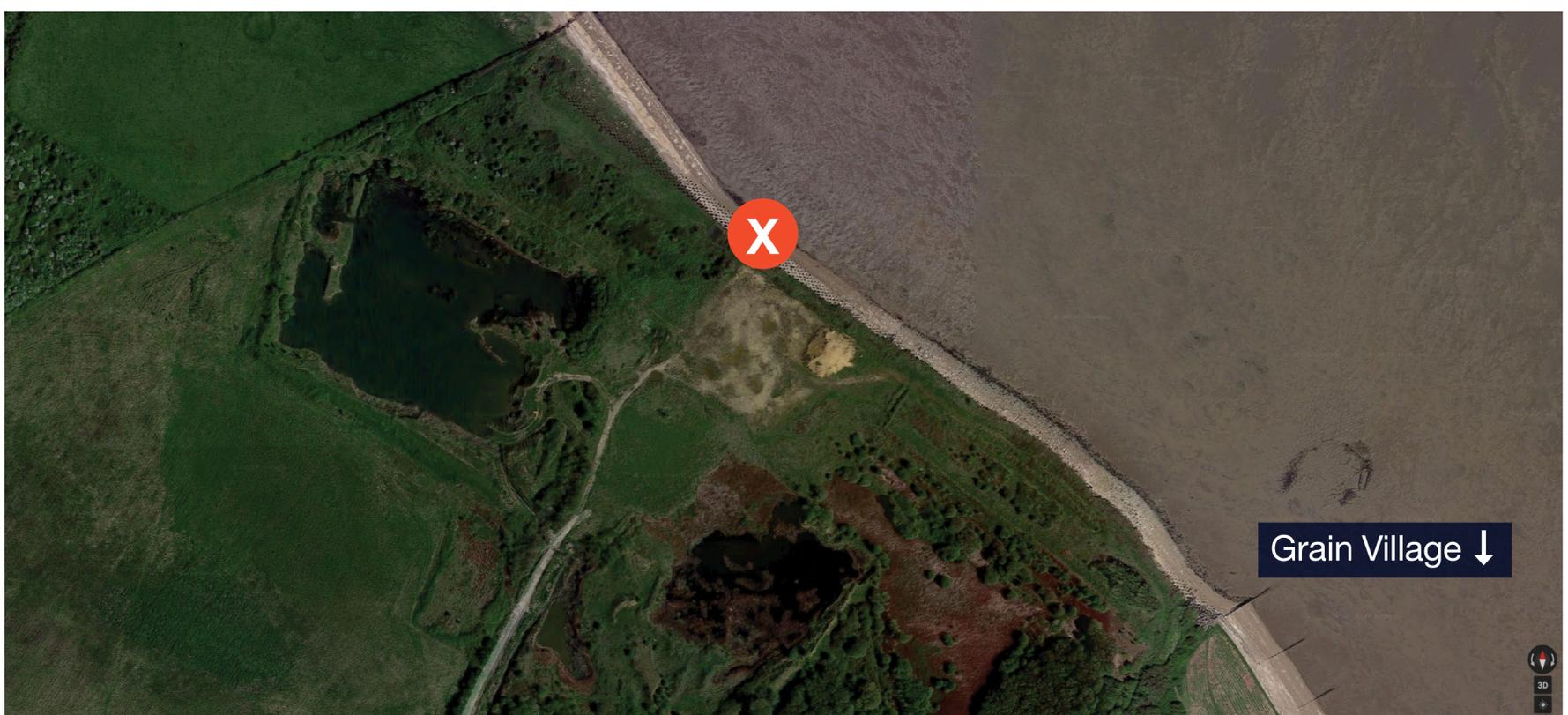
## Why was the Isle of Grain selected?

To identify the connection point for NeuConnect, National Grid undertook an Ofgem approved assessment of a number of connection points on the electricity transmission network.

This assessment process evaluates the respective transmission options required which leads to the identification and development of the overall efficient, coordinated and economical connection point, onshore connection design and where applicable, offshore transmission system/ interconnector design in line with National Grid's obligation to develop and maintain an efficient,

coordinated and economical system of the electricity transmission network.

The assessment process uses National Grid's knowledge of the network (including agreed future connections), agreed cost information and data supplied by NeuConnect to make the assessment. The process for selecting the most appropriate connection location is undertaken by National Grid, based on their technical knowledge of the network, studies, and other considerations associated with the project, and input from the developer on the details of the assets to be connected.



Indicative marine cable landing point

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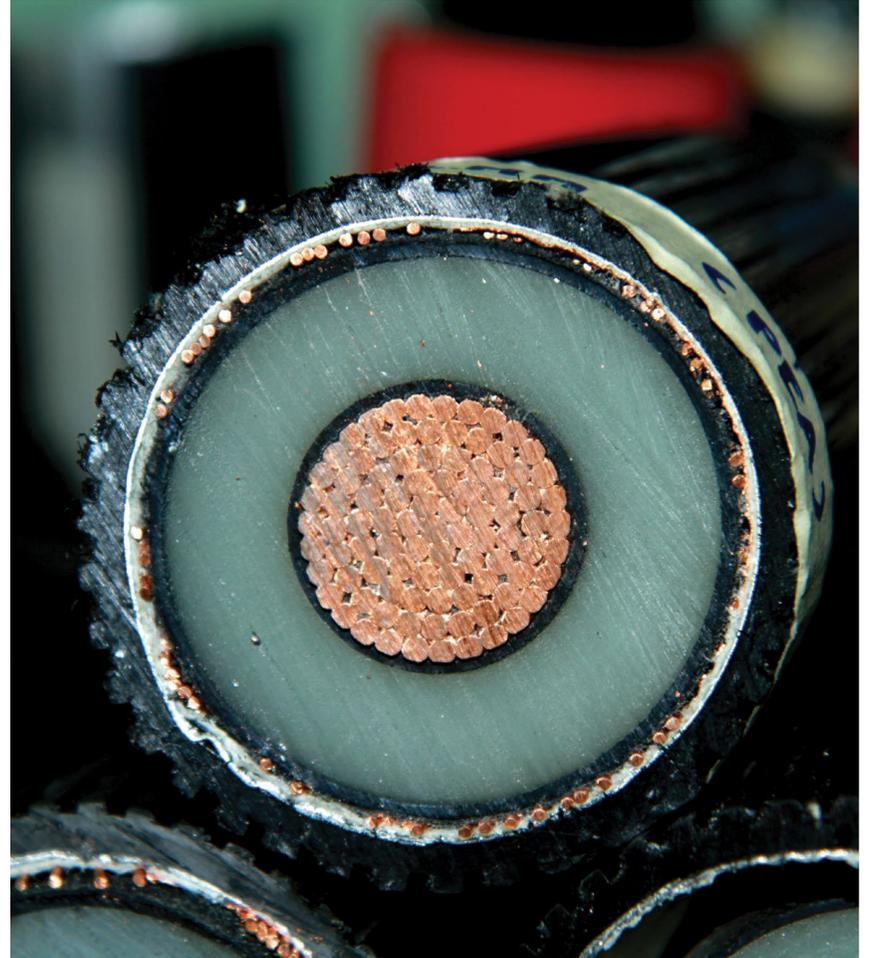
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# Onshore cable route

**The onshore cable will run from the landfall location to the new substation and converter station located around 2km inland.**

The onshore cable route will be installed from the proposed converter station east towards the B2001/ Grain Road. It will then extend north along the eastern boundary of the field to the west of the B2001/ Grain to West Lane. At West Lane the cable route passes under West Lane in an existing culvert. North of West Lane the cable route will largely follow the existing track to the point of landfall to join with the subsea cable.

This cable route has been selected as it follows areas of existing hardstanding and therefore limits the environmental disturbance of the installation process. Other constraints have also been taken in to consideration, such as the area of landfill to the northeast of the converter station site, which has been avoided to prevent the risk of disturbance of the landfill material and the potential impacts to the environment and construction staff.



## National Grid overhead line

In addition to the underground cable route, some changes will need to be made to the existing pylons close to the converter station site. This may include an additional pylon close to the proposed new substation, or the relocation of the existing pylon currently located to the west of the proposed substation and converter station.

Should this be necessary, the new pylon or the relocation of existing pylon may be relocated to within the area of works – the approximate location is designated by the orange shaded box in the diagram on the next board. In addition, NeuConnect will be making land available for a new National Grid substation.

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# Onshore cable route

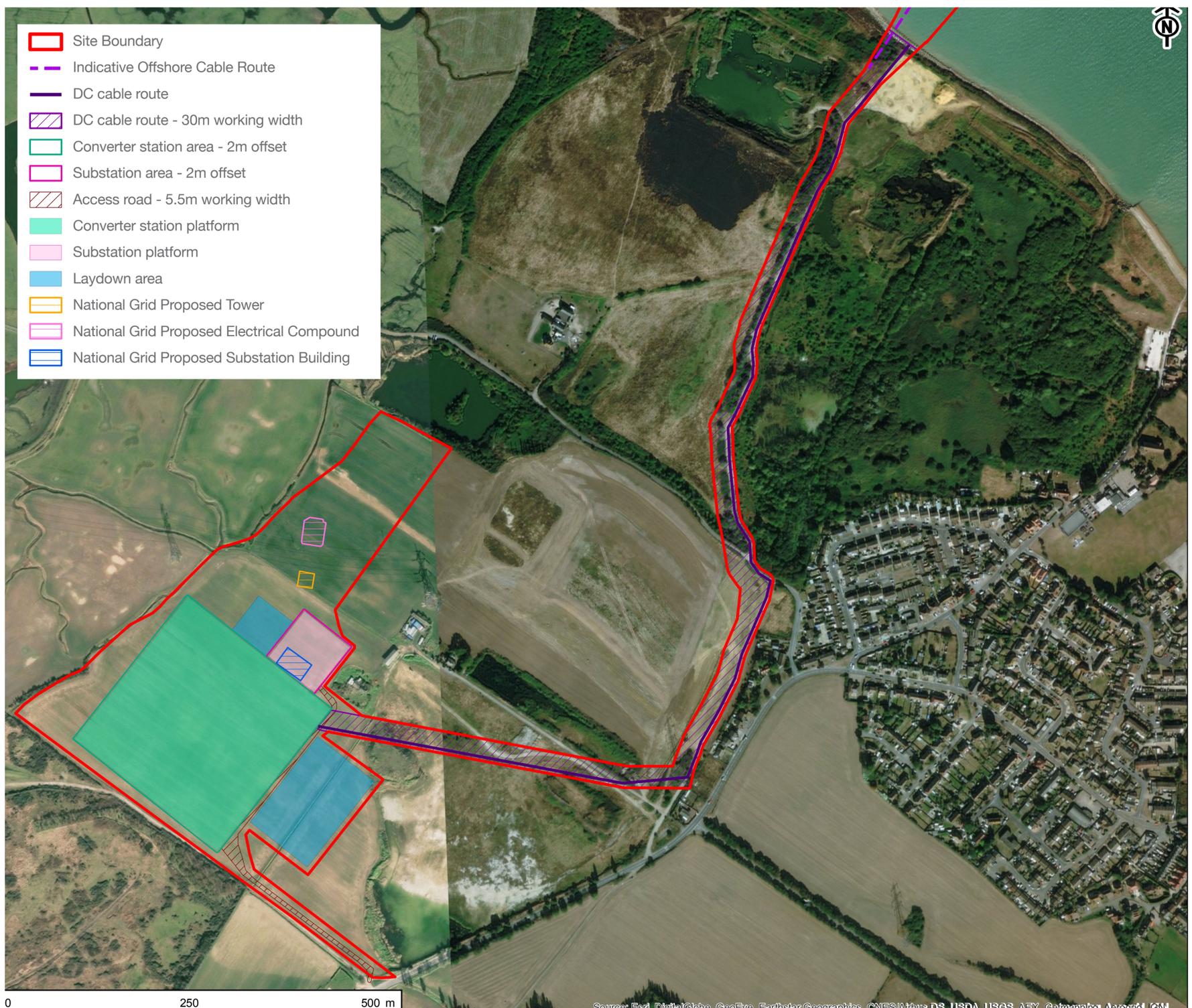
## How will the cables be installed?

The installation of the onshore cables between the converter station and the landfall location will be by buried, open cut trenches. The cable trench will be approximately 1m wide by 1.5 m deep and will be backfilled after installation is complete.

A working corridor of up to 30 m will be required for the installation of the underground cables. This corridor allows for the cable trench or duct, excavated spoil storage and plant operation.

Alternative methods of installation may also be utilised should detailed ground investigation determine particular constraints or sensitivities associated with ground conditions.

Installation of the underground cable from the landfall location out to the intertidal area will be by Horizontal Directional Drilling (HDD) techniques and installing ducts through which the subsea cable is pulled. The maximum length of HDD is between 800 m to 1 km.



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# Converter Station and Substation

## Approach to design and site selection

### Converter Station

The converter station will primarily comprise buildings containing specialist electrical equipment. A small amount of electrical equipment will be located outdoors, which will be similar in nature to the equipment at the new substation. The building roof line will vary in height but will be approximately 26m at its peak. The design and layout of the converter station will be finalised in due course.

It is anticipated that up to 10 hectares of land will be needed for the converter station, although the physical footprint of the converter station will only occupy a small portion of the site.

The siting and orientation of the converter station within the chosen site at Grain has been selected taking in to consideration the best 'fit' in to the existing landscape. This includes being farthest away from the residences in Grain village and orientated so that the larger massing of buildings is located further south also.



### Substation

The proposed substation will contain specialist electrical infrastructure necessary to transform electricity from large voltages received from the interconnector (converter station), to voltages which are more commonly utilised in the National Electricity Transmission System (NETS) for distribution across the existing network in Great Britain. This system can also be operated in reverse, to increase the voltage from the electricity network to a voltage more readily used by long distance links.

The exact size of the substation is subject to further studies by National Grid. However, NeuConnect anticipates that the substation compound will be approximately 80 m by 80 m. There will be one main structure within this footprint, which will be approximately 40 m x 26 m, with a maximum height of approximately 14 m. However, the size of both the compound and main structure may be larger, should additional connections to the network be required by other parties. The substation will be directly connected to the existing overhead line via down leads into a sealing end compound and then through to the substation by an underground cable.

The area will be surrounded by palisade security fencing.

# Converter Station and Substation

## Mitigation measures

### Visual Impact

NeuConnect will consider all possible options to minimise the visual impact of the converter station and, will incorporate these into the final design proposals. Measures typically employed for this purpose include setting the buildings into the landscape, planting trees and the colour scheme chosen for the building cladding to be similar to the appearance of the other existing industrial units within the area.



### Why are the new substation and converter station required?

Converter stations are required in both GB and Germany to convert electricity from Direct Current (DC) to Alternating Current (AC). AC is used in the GB and German electricity grids, while DC is used for sending electricity along the high-voltage subsea and underground cables because it is more efficient over large distances.

A new substation is required as initial investigation works for the project concluded none of the existing National Grid substations had the space or capacity to enable the construction and connection of a new interconnector. As a result, the construction of a new electricity substation is necessary to enable NeuConnect to link with the National Grid network.

### Noise

Both the substation and converter station will produce some additional noise, however the audible impact upon residential properties in the respective localities at the Isle of Grain is expected to be minimal due to the significant distance between majority of local properties and the converter station and substation.

Limits on the permitted noise levels will be set by Medway Council as part of any planning approval. In order to meet such designated limits, NeuConnect will explore a number of measures to mitigate against the audible impact of the substation and converter station. These measures could include:

- Use of enclosures
- Localised barriers
- Improving the acoustic performance of the buildings to better contain the noise

In addition, an environmental assessment will consider any noise arising from the operation of the converter station and help to develop appropriate mitigation strategies. Further information on the noise mitigation strategy will be made available as a part of the environmental assessment.



## Highways Access & Traffic Management

Vehicular access to the site will be provided via an existing lane to the west of the site, which links to the B2001 south of Grain village. As part of the works on site, the existing access will be widened and formalised in order to accommodate deliveries.

Construction traffic volumes will vary throughout the various phases of the project development, and will be confirmed when a contractor is appointed to develop the project.

NeuConnect will work closely with Medway Council to establish a Construction Management Plan which will help manage the impact of construction. The Construction Management Plan will mitigate the impact of construction traffic and set out best practice in terms of acceptable operating hours to minimise any disruption to local residents.

## Environment & Ecology works

NeuConnect is currently undertaking an Environmental Impact Assessment (EIA) to help inform the design and define measures and commitments for the project to help protect the environment and surrounding community.

NeuConnect has engaged with the Medway Council planning department, as well as other statutory bodies and stakeholders to determine the scope of the EIA. The EIA includes the following specialist assessments:

- Ecology
- Landscape and Visual Amenity
- Noise
- Traffic and Transport
- Water Resources and Flood Risk
- Archaeology and Cultural Heritage, and
- Ground Conditions.

The assessments included within the EIA will be reported within an Environmental Statement which will be submitted to Medway Council as part of the planning application for the NeuConnect project.



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# Have your say & next steps

## Thank you for taking the time to attend our public consultation.

We would greatly appreciate it if you would take a few minutes of your time to fill out a feedback form and post it in the ballot box provided. Alternatively, you can post it back to us using one of the freepost envelopes provided, or by posting it to 'Freepost NeuConnect Consultation'.

The deadline for submitting feedback is **Monday 8th July 2019**.

Following this consultation, NeuConnect will consider all feedback submitted and will, where possible, make alterations to the proposals based upon the comments received, before submitting a planning application to Medway Council.

## Timeline:



## Contact us:

If you have any questions, please feel free to get in touch via one of the following methods:



[neuconnect@communityfeedback.co.uk](mailto:neuconnect@communityfeedback.co.uk)



0800 298 7040



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