

A satellite night-time photograph of Europe, showing the continent's outline and major cities glowing with yellow and orange lights. The surrounding oceans are dark blue. A thin red horizontal line is visible near the top of the image, just above the text.

Proposals for the NeuConnect Interconnector

Public Information Leaflet

What is NeuConnect?

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NeuConnect Interconnector 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.

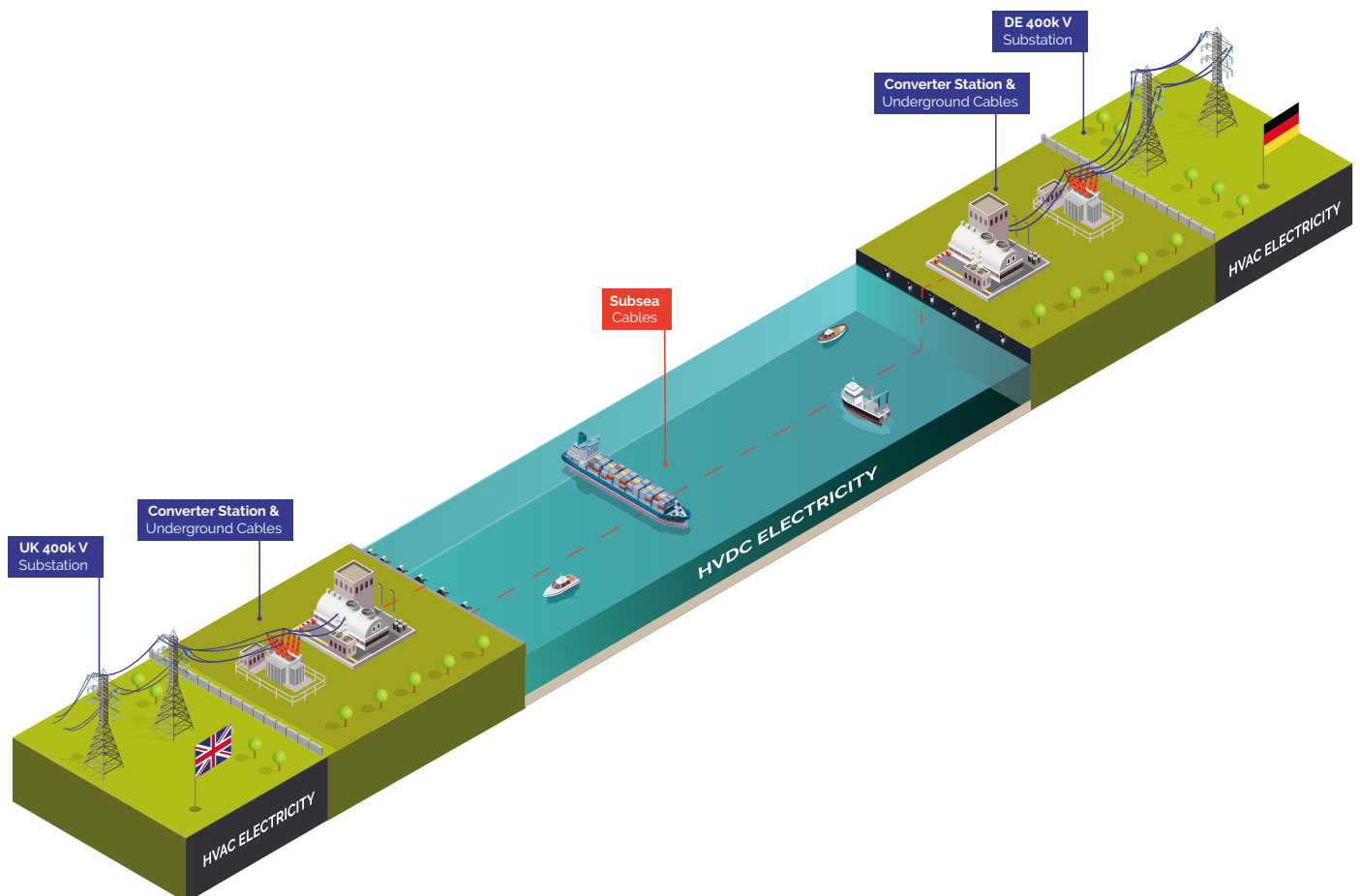
Why are interconnectors needed?

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.

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.



Benefits



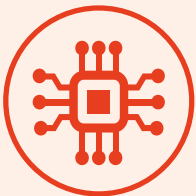
RESILIENT - dependable, safe and more secure

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 low-impact substations in Germany and on the Isle of Grain in Kent.

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.

GB Onshore elements

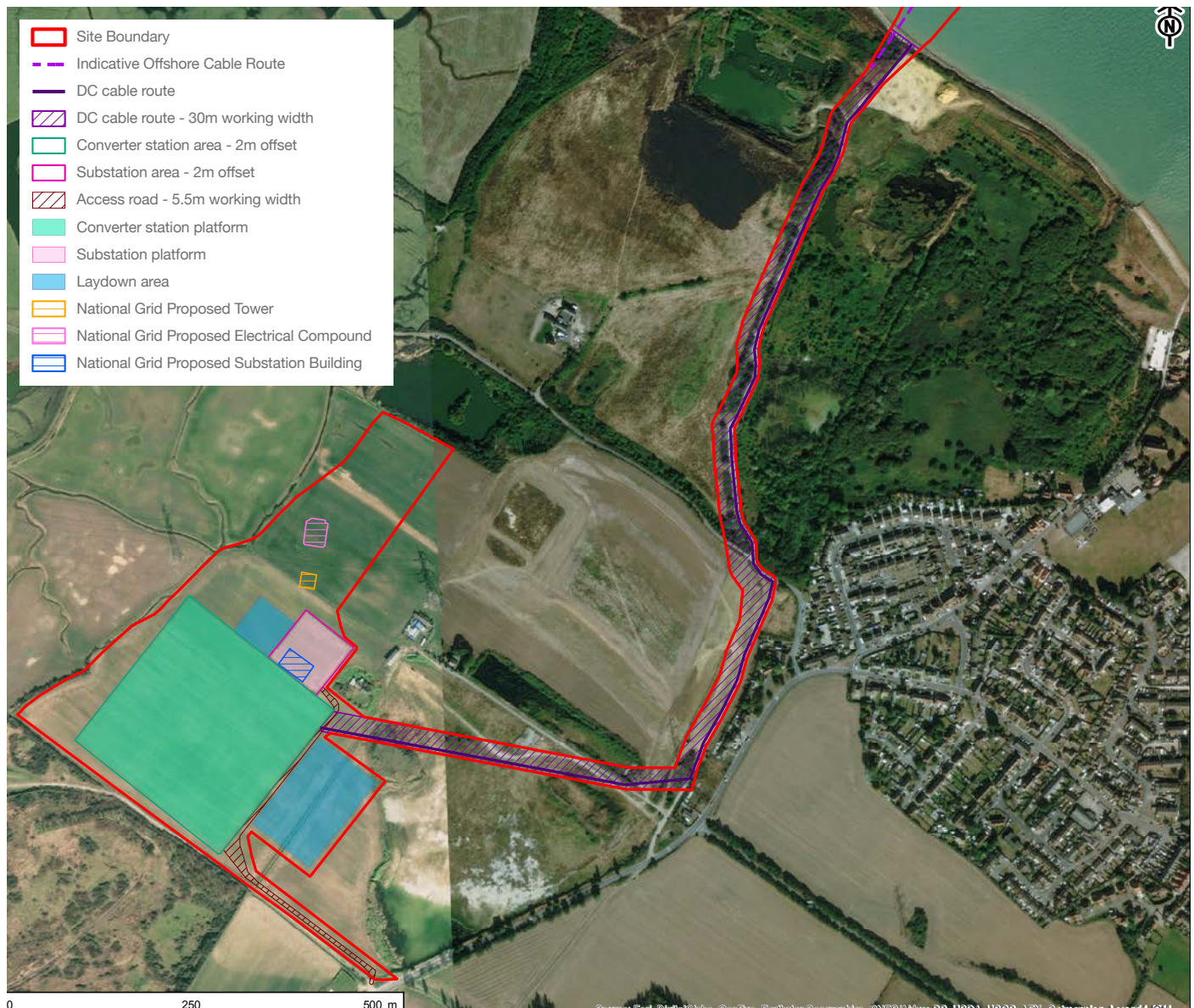
The GB onshore elements are comprised of the following:

- A Landfall Location, where the high voltage subsea cables will be brought ashore to connect the offshore cables to the onshore cables, on the north coastline of the Isle of Grain;
- Underground direct current ('DC') cables running from the landfall location to the new Converter Station located approximately 2km inland;
- Construction of a new Converter Station, located to the south-west of Grain village, primarily comprising buildings containing specialist electrical equipment. The building roofline will vary in height, but will be a maximum of 26m at its peak;

- Construction of a new substation, to be undertaken by National Grid and located to the north of the proposed Converter Station, to connect the Converter Station to the National Electricity Transmission System (NETS) for distribution across the existing network in Great Britain; and
- Alternating current ('AC') cables, connecting the new substation and Converter Station.

To enable construction of these elements to take place, National Grid will also undertake a limited amount of work to their existing network, including:

- Potential changes to the existing pylons 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; and
- Construction of a new connection between the existing overhead line and the new substation.



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.



The NeuConnect site in the Isle of Grain

Once National Grid had confirmed the location for the connection to the NETS, NeuConnect considered possible locations for the Converter Station and routing for the offshore and onshore cable including the location for the landfall. The chosen location for the Converter Station provides the best balance of these factors whilst also taking into account land suitability and availability in the vicinity of the connection location.

German Onshore Elements

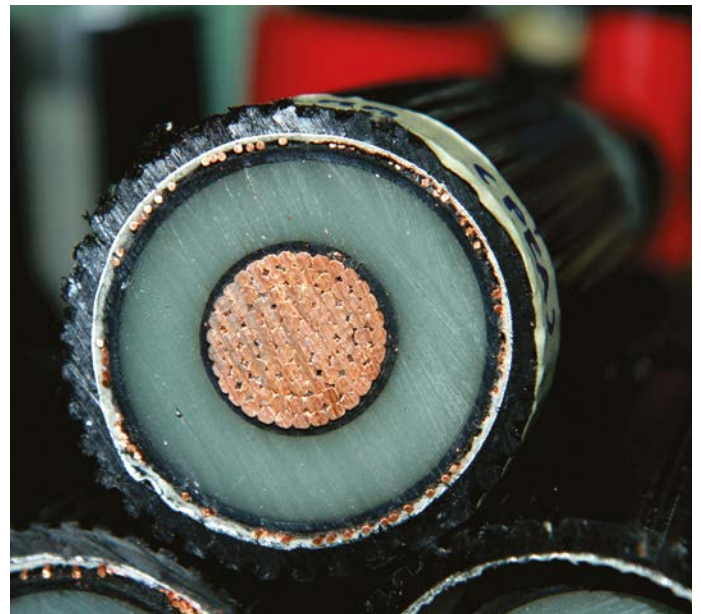


The German onshore elements are comprised of the following:

- A Landfall Location, where the high voltage subsea cables will be brought ashore to connect the offshore cables to the onshore cables, located at Wilhelmshaven;
- Underground ('DC') cables running from the landfall location to the Converter Station;
- Construction of a new Converter station, located in close proximity to the Fedderwarden substation, primarily comprising buildings containing specialist electrical equipment. The building roofline will vary in height, but will be approximately 26m at its peak; and
- Underground AC cables connecting the new Converter Station and Fedderwarden substation.

The locations of the German onshore elements of the project were largely arrived at as a result of the connection point designated by TENNET, the German transmission system operator.

Once the connection point was agreed to be located at Fedderwarden substation, NeuConnect considered possible locations for the Converter Station and routing of the onshore cable, however the final locations were largely dictated by the availability and suitability of land in the vicinity of the chosen substation.



Offshore Elements

The offshore cable route corridor will run from the Isle of Grain in Kent, through UK, 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, along with the fibre optic cable. The DC 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.

A desktop study which looked at a wide range of possible constraints was initially undertaken to identify a corridor, approximately 500 m wide, which was then subject to a series of seabed surveys (geophysical, geotechnical and benthic investigations).

The offshore cable route corridor has been developed, taking into account:

- Seabed characteristics will allow the cable to be buried at a secure depth wherever possible;
- Avoiding hazardous seabed terrain wherever possible, minimising the risk of the cable becoming exposed;
- Minimising incursion into environmentally protected areas, particularly the Margate and Long Sands Special Area of Conservation (SAC) in the outer Thames estuary; and
- Minimising interaction with existing offshore infrastructure, such as other cables and pipelines, offshore windfarms, oil and gas facilities and other marine users.

The offshore cable route corridor has been chosen taking account of a range of environmental, engineering and commercial factors. As a result, the corridor proposed is technically feasible, economically viable and reduces the potential for environmental impacts as far as possible.

NeuConnect has also met with regulatory authorities and key stakeholders in the UK, Netherlands and Germany to discuss route options at key stages prior to and during the desktop studies, seabed surveys and as part of the permitting process.

Onshore Impacts and mitigation



To understand the likely onshore impacts of the project, inform the design of the proposals and assess the need for potential mitigation measures, NeuConnect undertook an Environmental Impact Assessment (EIA). The findings of the EIA informed the Environmental Statement (ES), which was submitted to Medway Council alongside the planning application for the GB onshore elements.

The ES identified any activities related to the onshore elements that have the potential to cause environmental impacts, assessed the level of any impacts, suggests potential measures to mitigate the impacts (where required), and covered the following topics:

- Landscape & Visual Amenity
- Ecology & Nature Conservation
- Noise & Vibration
- Archaeology & Cultural Heritage
- Water Resources & Flood Risk
- Transport & Access
- Ground Conditions

The ES concluded that the majority of the potential impacts would be minor in nature, with a small number of potentially significant impacts on landscape character, unknown archaeological assets and users of West Lane.

Where impacts have been identified, NeuConnect has committed to implementing various mitigation measures to reduce or minimise the effects of these impacts, including:

- Adoption of good working practices and management on site, following an approved Construction Environmental Management Plan
- Boundary planting for visual screening and biodiversity enhancement
- Management of all construction traffic through implementing a Construction Traffic Management Plan



Offshore Impacts and Mitigation



To understand the likely offshore impacts of the project and assess the need for potential mitigation measures, NeuConnect undertook an Offshore Environmental Assessment that was submitted to the Marine Management Organisation alongside the marine license application.

The EA identifies project activities associated with the offshore elements of the project that have the potential to impact upon the environment, considers the significance of any impacts and outlines potential mitigation measures where required, and covers the following topics:

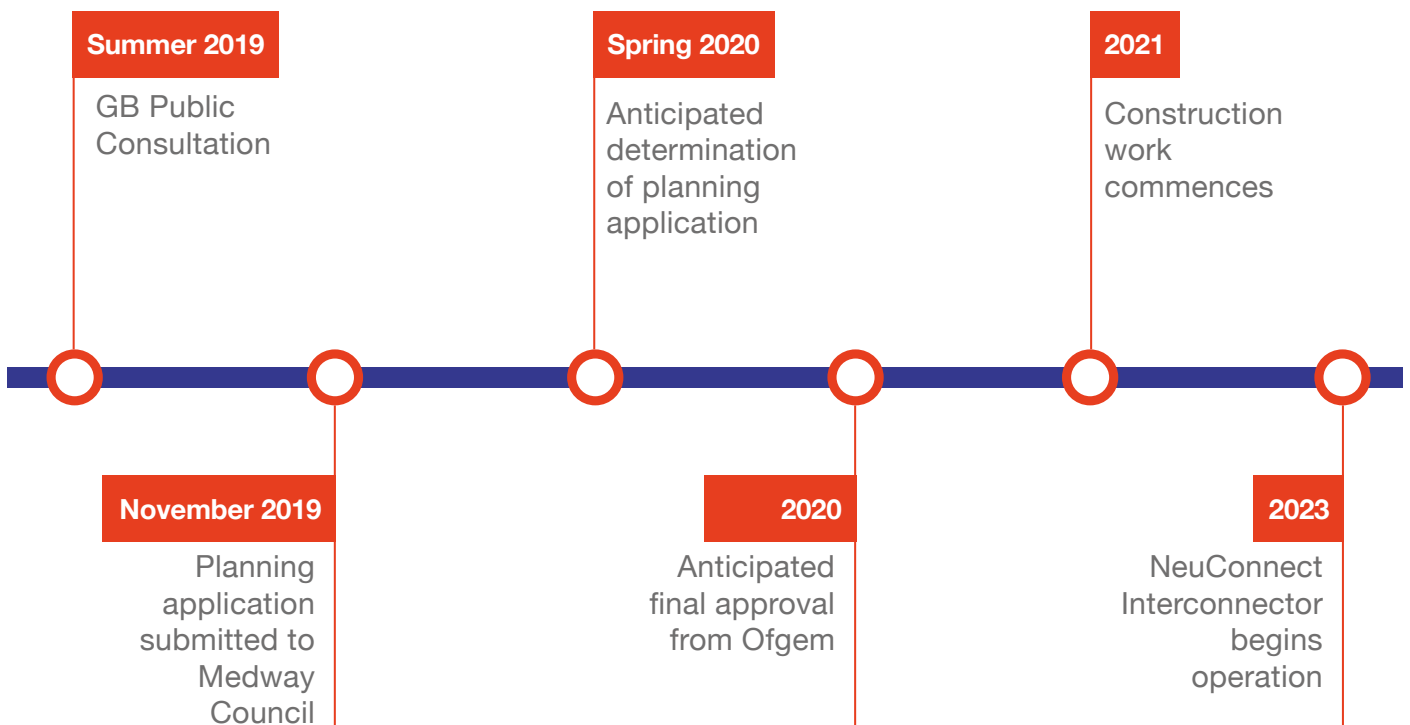
- Physical processes;
- Benthic ecology
- Fish and shellfish
- Marine mammals
- Ornithology
- Designated sites
- Shipping & navigation
- Marine archaeology
- Sea users
- Cumulative impacts

The EA concluded that, whilst the project will have interactions with some of the marine receptors listed above, no significant impacts have been identified.

Where the potential for minor impacts to occur have been identified, NeuConnect has committed to a number of mitigation measures in order to further minimise the effects of these minor impacts, including:

- Utilising installation methods that minimise impacts on habitats
- Minimising deployment of anchors from boats, vessels and barges
- Development and implementation of an offshore Construction Environmental Management Plan (CEMP)
- Regular communications with other sea users and developers, including through the appointed Fisheries Liaison Officer (FLO) where appropriate

Timescales



 The Manual of Procedures for TEN-E Projects is available at - GB: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/311184/uk_manual_procedures_ten_e_regulation.pdf

 The EU Transparency Platform website is available at:
<http://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest>

Contact us

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