The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and Eastern Green Link 4 (EGL 4)

nationalgrid

EGL 3 and EGL 4 are two offshore high voltage electricity links between Scotland and England, with converter stations and associated onshore infrastructure.

EGL 3 and EGL 4 are needed as the existing transmission network does not have enough capacity to securely and reliably transport the increasing amount of energy generated in Scotland to population centres in the Midlands and the South of England.

Project timeline

- **2024** Stage 1 consultation
- **2025** Stage 2 consultation
  EGL 3 and EGL 4 are at this stage
- **2026** DCO application submission
- **2029** Construction starts if approved
- **2033** Fully operational

In March 2025, the Government published guidance for delivering community benefits for communities that host new onshore electricity transmission infrastructure. In line with this guidance, we will deliver programmes that deliver social, economic and environmental benefits to the local community and wider region. We will work with communities and stakeholders to understand their preferences.

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0800 298 0405
Freepost EASTERN GREEN LINKS 3 & 4

Scan the QR code here to view our consultation documents on our website, see our webinar schedule, or book a 'team call-back' session.

Call us to request paper copies of the materials or materials in a different format.

Who are we?

nationalgrid Group PLC

National Grid Electricity Transmission

Owns and manages the high voltage electricity transmission system in England and Wales.

National Grid Strategic Infrastructure

Delivers major strategic United Kingdom electricity transmission projects, focussed on connecting more clean, low-carbon power to England and Wales.

National Grid Electricity Distribution

Owns and operates the electricity distribution networks for the Midlands, the South West of England and South Wales, with 8m customer connections serving a population of over 18m people.

National Grid Ventures

Operates a mix of energy assets and businesses to help accelerate the development of our clean energy future (such as undersea interconnectors that allow the United Kingdom to share energy with other European countries).

What is The Great Grid Upgrade?

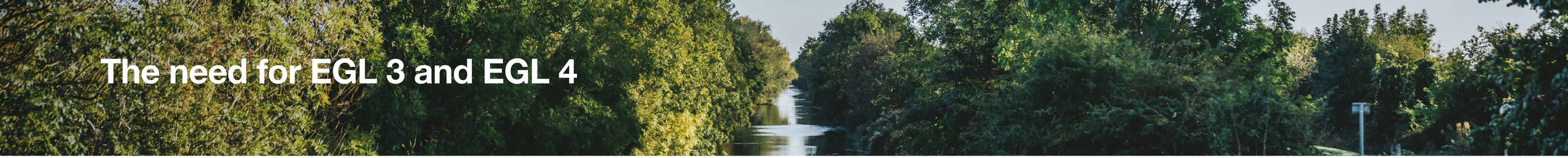
The Great Grid Upgrade is the largest overhaul of the electricity grid in generations. Our infrastructure projects across England and Wales are helping to connect more renewable energy to your homes and businesses.

A grid that's fit for the future

Investment close to home

More clean energy for all

Energy security



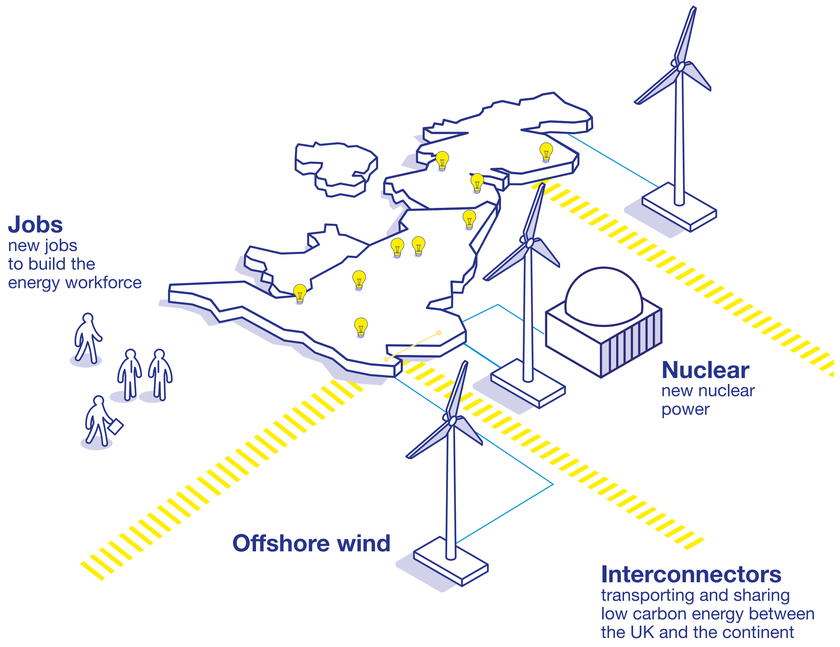
The need for EGL 3 and EGL 4

Increasing energy security

The way electricity is generated is changing, with more renewable energy being generated in Britain.

Demand is also set to significantly increase as the way we power our homes, businesses, industry and transport changes.

EGL 3 and EGL 4 will help provide clean, secure and more affordable energy.



Reinforcing the transmission network between Scotland and England

Demand for electricity is forecast to increase as more electricity is being generated offshore. We need to make sure our grid has the capacity for the increased amount of power that will flow between Scotland and England.

We have identified that the existing transmission network between Scotland, the Midlands and the South of England does not currently have the capacity to reliably transport this increasing energy.

Moving energy around the country

The electricity network system in Britain is split into boundaries. Each boundary has a limit to the amount of electricity that can flow through it. As more electricity is needed and is being generated in Britain, we can assess where the power flows between these boundaries will need to increase.

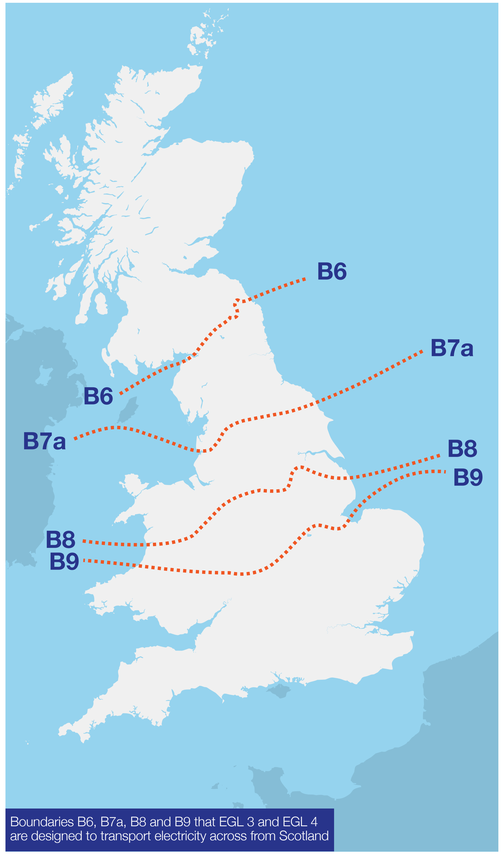
The boundaries shown here: B6, B7a, B8 and B9, are where we need to increase the capacity of the Grid for this increased amount of electricity. EGL 3 and EGL 4 will help achieve this by together transporting up to 2 GW of electricity each – enough to power around four million homes in total.

Why here?

An assessment of the options for the landfall for EGL 3 and EGL 4 determined that the best place would be on the Lincolnshire coastline, connecting into the transmission network in the Walpole area, in Norfolk, via a new substation, called Walpole B.

The Walpole area connection point is south of the B9 transmission boundary and can connect into existing electricity transmission infrastructure that supplies the Midlands and South of England.

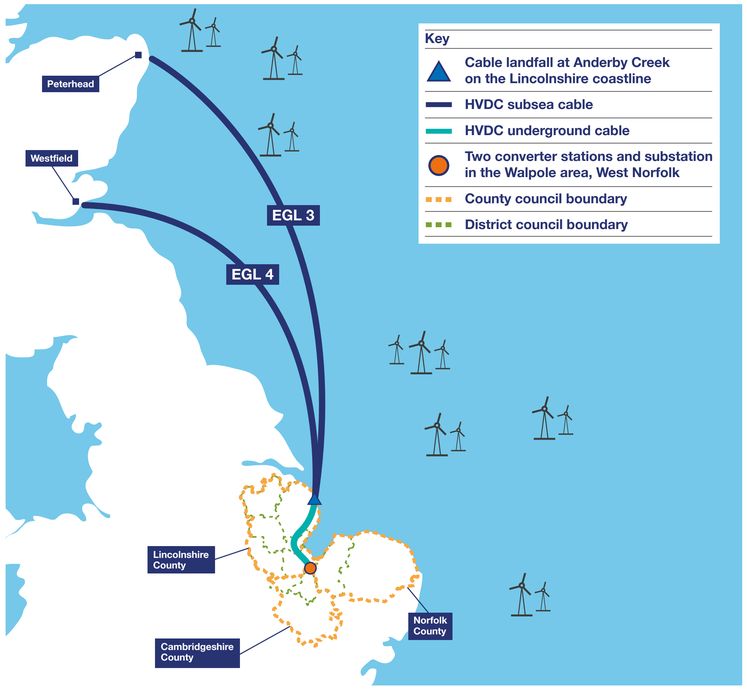
For more detail on the need case for EGL 3 and EGL 4, please see our Stage 2 consultation document and Strategic options report update.



Boundaries B6, B7a, B8 and B9 that EGL 3 and EGL 4 are designed to transport electricity across from Scotland

An overview of our proposals

Overview of EGL 3 and EGL 4



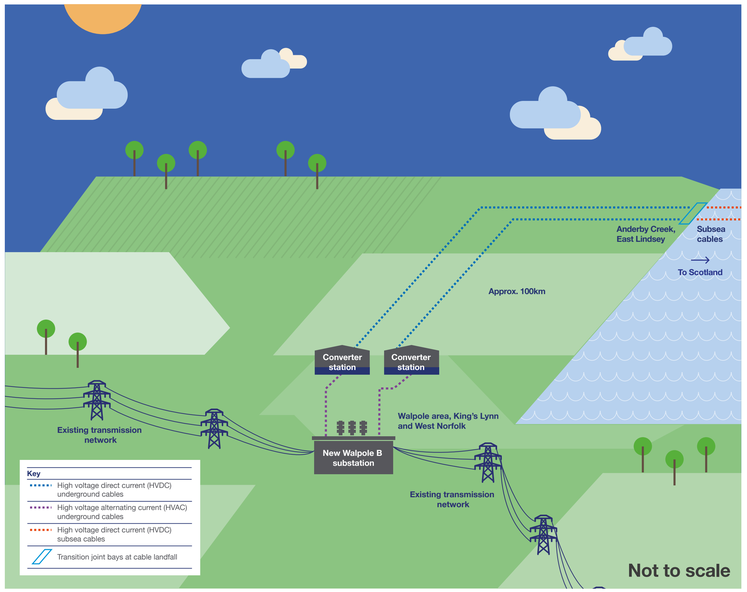
For a detailed map of our proposals, please see our interactive map that is available at this public information event and on our project website.

What we propose developing

- Offshore high voltage direct current (HVDC) cables.
- Transition joint bays to connect our marine and onshore HVDC cables, located onshore near to our proposed cables landfall at Anderby Creek on the Lincolnshire coastline.
- Underground HVDC cables running together approximately 100 km from joint landfall at Anderby Creek to converter stations in the Walpole area, West Norfolk.
- Two converter stations in the Walpole area, with one converter station for EGL 3 and one for EGL 4.
- One substation in the Walpole area, called Walpole B, where both EGL 3 and EGL 4's converter stations would connect to and then onto the transmission network (this substation is also jointly proposed as part of National Grid Electricity Transmission's (NGET) Grimsby to Walpole project).
- Underground high voltage alternating current (HVAC) cables that would connect the converter stations to the substation.
- Supplementary works to the existing 400 kV overhead line to enable a connection with the new Walpole substation.

A cross-section of a cable

EGL 3 and EGL 4 onshore in England



The Scottish ends of the projects

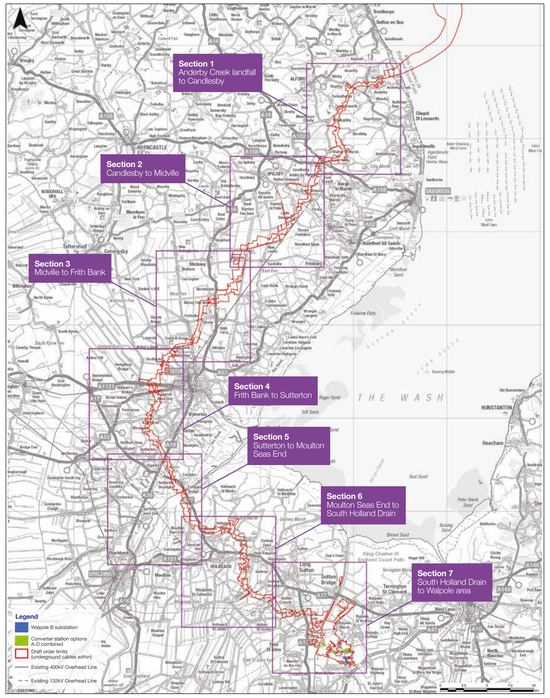
We're jointly developing EGL 3 with Scottish and Southern Electricity Networks Transmission (SSEN Transmission) and EGL 4 with SP Energy Networks.

SSEN Transmission and SP Energy Networks are responsible for obtaining the relevant consents in Scotland and in Scottish waters.

Overview of our onshore proposals in England

View our Preliminary environmental information report for more information regarding environmental effects and how we aim to minimise any impact.

Overview of our onshore proposals in England



If you would like to see a section of this map up close, please view our section maps or the interactive map available at this public information event or on our project website.

Converter stations

Converter stations enable us to control the direction in which energy flows along high voltage direct current cables and contain specialist electrical equipment that converts electricity from direct current to alternating current or vice versa.

Each of our converter stations would sit on a platform. The platform footprint for each converter station would be approximately 350 m x 250 m (8.8 ha). The converter stations would have a maximum height of 30 m (excluding the platform height (1.7 m), lightning protection and aerials).

As part of our design process, we have selected four options – A to D – for the siting of our two converter stations. We are seeking feedback on these options as part of our stage 2 consultation. We will consider this feedback along with the wider environmental and engineering constraints, before deciding on a preferred option for inclusion in our DCO application.

Substation

Substations convert electricity into different voltages. This enables electricity to be transmitted and distributed throughout the country into our homes and businesses.

The Walpole B substation's functional footprint could extend up to 793 m x 190 m (approximately 15.4 ha including an area for ancillary works and parking). It would have a maximum height of 15 m.

Underground cables

A variety of methods can be used to lay underground cables, including ducted and trenchless methods.

To install our cables a construction area is required. This is called a swathe and includes a cable trench/ducting, soil storage and a temporary haul road. Once the cables have been installed, the swathe is reinstated, with the land returned to its former use.

The ducted method of cable laying

Transition joint bays

Our proposed landfall at Anderby Creek is where the onshore underground cables and offshore cables would meet.

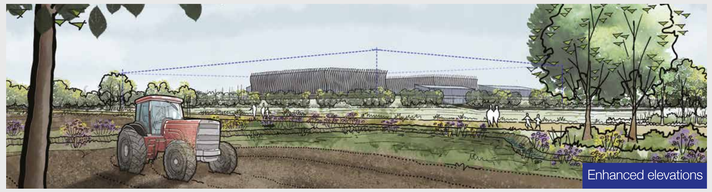
The cables would be connected at buried transition joint bays located on land above the mean high water springs level.

A transition joint bay is a permanent underground chamber constructed of reinforced concrete that houses the onshore and offshore cable joints and a fibre chamber/link pit.

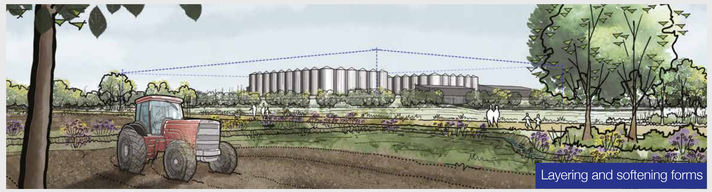
A single transition joint bay typically comprises an area of 60 sq. m. It is currently anticipated that we would construct two single transition joint bays - one for EGL 3 and one for EGL 4.

See our Stage 2 consultation document for more information on both onshore and offshore cable installation.

Potential design approaches to proposed converter stations



Enhanced elevations



Layering and softening forms

Mosaic patterns

Vernacular building form

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Our offshore proposals

Our proposed offshore cable routes

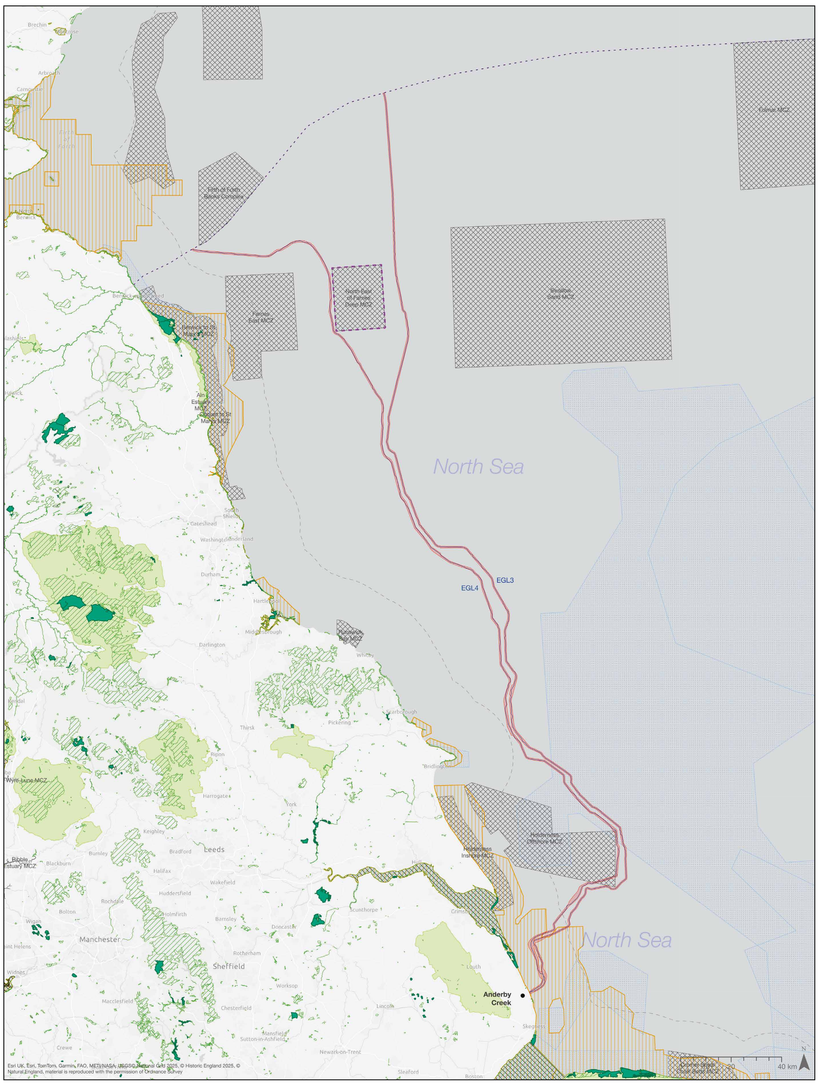
EGL 3's offshore cables would be approximately 580 km in length and extend from Sandford Bay, Peterhead in Scotland to a joint landfall with EGL 4 at Anderby Creek on the Lincolnshire coastline in England. Approximately 436 km of this would be in English waters.

EGL 4's offshore cables would be approximately 530 km in length and extend from Kinghorn, Fife in Scotland to the joint EGL 3 and EGL 4 landfall at Anderby Creek. Approximately 425 km of this will be in English waters.

The proposed offshore routes for EGL 3 and EGL 4 have been carefully routed to avoid ecologically important areas and minimise interactions with designated sites as much as possible. This has been balanced with finding routes that are technically feasible, as well as considering infrastructure and activities for other industries and sectors.

Legend

- EGL 3 and EGL 4 offshore cable route
- Marine conservation zones
- EGL 3 and EGL 4 marine cable draft order limits
- Highly Protected Marine Areas
- National Nature Reserves
- Sites of Special Scientific Interest
- National Landscape
- Ramsar
- Special Areas of Conservation with Marine Components
- Special Protection Areas with Marine Components
- Scottish Adjacent Waters
- Territorial Sea Limit (12nm)



Contact us

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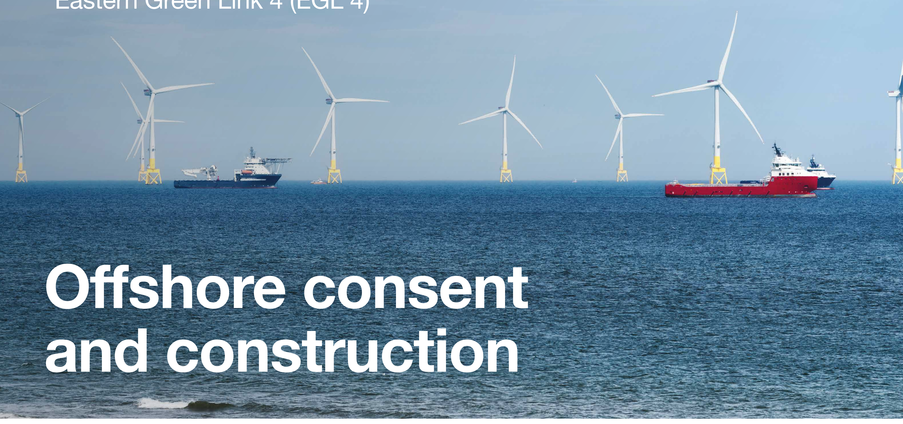


Offshore consent and construction

We will be seeking consent for the projects' offshore subsea cables in English waters via the development consent order (DCO) process, together with the onshore elements of EGL 3 and EGL 4 in England.

The DCO will include a deemed marine licence for each of the projects regarding the offshore works.

Scottish and Southern Electricity Networks Transmission (SSEN Transmission) and SP Energy Networks are responsible for obtaining the relevant consent in Scottish waters.

How we lay new subsea cables out at sea

The cables themselves are made from reinforced material and are buried beneath the seabed to be further protected from shifting seabed sediments, tidal movements and ship anchors. The cables are loaded onto large reels on a specialist cable laying vessel.

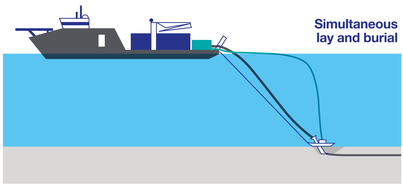
We use two methods to lay cables under the seabed:

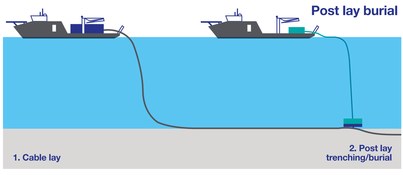
- simultaneous lay and burial, where one vessel lays and buries the cables
- post lay burial, where one vessel will lay the cables and a second follows behind and buries them.

The seabed surface conditions determine which method is used.

If our offshore cable crosses existing cables or pipelines, then a concrete mattress can be laid on top of the existing cable before the new cable is laid on top.

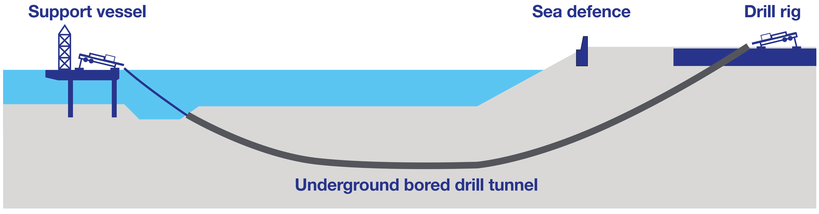
Rock protection can then be used in discrete locations to cover it for protection. Rock can also be used to protect the cables if we have been unable to bury it to an optimal depth due to local ground conditions.





How our cables will make landfall

When cables come ashore, our preference is to use a trenchless construction method, such as horizontal directional drilling (HDD), to reduce disruption and potential environmental impacts. Consultation with key stakeholders, and ground investigation works are required to confirm whether this is possible.



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