About SP Energy Networks





SP Energy Networks operates, maintains and develops the network of cables, overhead lines and substations which transport electricity to homes, schools and businesses in our local communities, and onwards to where it's needed further afield.

Our high-voltage transmission network takes electricity generated from wind farms, power stations and imports, and transports it through over 3700 km of overhead lines, over 600 km of underground cables and more than 150 substations, to our local distribution networks, where the voltage is reduced for use in homes and businesses.

The UK and Scottish Governments are committed to increasing the use of renewable energy and have targets to achieve net-zero greenhouse gas emission by 2045 in Scotland and 2050 in the UK.

By the end of this decade, the UK Government also aims for every home in the country to be powered by offshore wind and has set a 50GW offshore wind connections target by the early 2030s.

Much of the new offshore wind energy is in or around Scotland, but the existing electricity network does not have enough capacity to transmit

all the additional clean, green energy from where it's produced to where it's needed.

Eastern Green Link 4 (EGL4) is being developed in partnership between SP Energy Networks and National Grid Electricity Transmission and is one of four similar projects that will significantly increase the capacity of the electricity network between Scotland and England.

Eastern Green Link 4 (EGL4): what's involved



EGL4 is a new High Voltage Direct Current (HVDC) electrical link that will connect Fife in Scotland with Norfolk in England. It will be able to transmit up to 2GW of clean, green renewable energy – enough to power around 1.5 million homes.

EGL4 is made up of three parts:

- A 530km subsea HVDC cable between Kinghorn, Fife, and Anderby Creek, Lincolnshire
- A 16.4km underground HVDC cable from Kinghorn to a new converter station at Westfield, near Ballingry, Fife
- A 100km underground HVDC cable from Anderby Creek to a new converter station near Walpole, Norfolk

In everyday life we use Alternating Current (AC) electricity, which can have its voltage increased or decreased using transformers, making it safe to use in our homes, schools, businesses, and hospitals.

But to transmit large volumes of electricity over long distances it is more efficient to use HVDC, which operates at a fixed voltage, requires fewer conductors (cables or wires) and incurs less power loss than AC networks.

AC electricity is converted into HVDC electricity using specialised equipment at a converter station. The HVDC electricity can then be transmitted over long distances via underground and subsea cables to a second converter station, where it is converted back to AC to flow into the local electricity network.

By doing this, projects like EGL4 can remove 'bottlenecks' on the existing transmission network while reducing the need for more onshore overhead or underground power lines and associated infrastructure.

Westfield converter station

Proposed new converter station

Existing converter station at Blyth, Northumberland

Converter stations are needed at each end of an HVDC link to change the DC electricity to and from AC electricity, so it's safe to use in our homes and businesses.

The converter station will be made up of large warehouse-type buildings and outside electrical equipment. The total converter station footprint will be approximately 250m x 350m in size with buildings up to 28.5m in height, to accommodate the equipment needed. We will also need temporary construction and parking areas, and underground cables to connect the converter station to the existing substation. Our plans will include landscaping and tree-planting to help screen the site, reduce its visual effects and increase biodiversity.

Westfield is the starting point for EGL4 because it is a strong point on our existing transmission network which is closest to the Fife coast. The Westfield substation is currently a 275kV substation but will be rebuilt in the future as a 400kV substation. We need to have suitable network connectivity at the substation to provide the strongest support for the HVDC link. Westfield substation is the only substation in this area that provides this level of network connectivity and security, with four circuit infeeds to provide the resilience needed to keep the electricity moving.

Kinghorn landfall point

We propose to bring the subsea cables ashore below ground at Kinghorn, south of Kirkcaldy, using Horizontal Directional Drilling (HDD) to minimise any impact on the sensitive coastal environment and protected sites, and avoiding disturbance to the seal haul-out area to the north. No works on the beach or cliffs will be required.

Following the first round of consultation in 2024, further design work has enabled us to move the proposed HDD compound to the north-east of the proposed site near Kinghorn, further away from homes to the south.

Further work will focus on the design of the HDD compound site to ensure the drill works are carried out as sensitively as possible both for the residents and for the environment and wildlife (including seals and overwintering birds). This will be driven by the Environmental Impact Assessment (EIA) which will be completed following the consultation and before the submission of the planning application.

The subsea cables will be joined to underground cables in a buried pit. Once installation is complete, the ground will be reinstated and no permanent above-ground infrastructure will be visible.

Underground cable route

Our proposed route for the underground cables between the converter station at Westfield and

the landfall point at Kinghorn is approximately 16.4km in length, running mainly through rural areas to the south of the A92, and on the margins of scattered settlements to the north of the A92.

The proposed route avoids designated areas including Camilla Loch SSSI, Raith Park and Beveridge Park Garden. It will cross under the A92, the Fife Circle Railway Line, Minto Woodlands and watercourses using trenchless technology (such as HDD) to avoid or minimise disturbance.

Following last year's public consultation, our design team has developed a detailed route alignment for the underground cables within the preferred route corridor, including locations for construction compounds and access routes for construction vehicles. The route includes the cable trench, topsoil storage bunds, haul road and drainage. The design work included boreholes and other intrusive surveys to assess the suitability of the land along the route, and technical assessments of how and where to cross beneath roads, railway lines, watercourses and woodlands. Ecologists have also walked the route to identify potential habitats for protected species including badgers, otters and bats.

The 'red line boundary' (shown on the map) allows for a small amount of deviation in the route, so we can make adjustments to allow for any environmental sensitivities that may be discovered at the time of project construction.

Underground cable installation

HDD drill rig

HDD drill exit point

Underground bored drill tunnel

We will need a 'working width' of approximately 40 metres along the cable route, so we have enough space to excavate a trench for the cables and store topsoil and subsoil alongside it, and allow vehicles to pass up and down.

Once the trench has been excavated we will install protective ducts within it, through which the cables will be pulled.

Cross-section of typical working width for HVDC cable installation

HVDC cable installation

Where the cable route crosses roads, railway lines, watercourses and sensitive areas (such as Minto Woodlands), we will use HDD to pass safely underneath without disturbing the surface environment. This involves establishing a compound for the HDD rig, from which it will drill beneath the area before emerging at another smaller compound on the other side.

We recognise that construction work can cause temporary inconvenience and disturbance, but we believe our proposed route will keep this to a minimum. Once the cables are installed the land will be reinstated and there will be no visible above-ground infrastructure.

Horizontal Directional Drill (HDD) rig

Example of HDD road crossing

Marine Cable route

Our proposed route for the subsea cables

has been developed through careful environmental and technical assessment of potential route options, in consultation with Scottish shipping and fisheries organisations and environmental bodies.

Following benthic and geotechnical marine surveys, which gathered data on the geology and ecology in the marine environment, marine technical consultants developed a route for the cables which takes into account protected and designated areas and infrastructure such as pipelines, cables, wrecks and military considerations. Wherever possible the route seeks to avoid difficult ground conditions, such as outcropping rock, and areas of high shipping, fishing and environmental sensitivity.

The marine cables will be installed by special cable-laying vessels (pictured below). The cables will be buried in the sea bed or covered by rock armour throughout their length to protect them from accidental damage.

Supporting the communities we serve

We are on a mission to develop a safe, secure and resilient network that's ready for Net Zero, to tackle climate change and build a cleaner future for the communities we serve.

By upgrading our network to enable decarbonisation, we are unlocking long-term benefits for everyone – from a cleaner air to a more reliable supply of energy.

Communities that host new infrastructure will have access to funding for initiatives bringing lasting social, economic or environmental benefits. We will help communities develop robust project plans that will turn their ambitions into reality.

From 2018 to 2021, we delivered **our £20m Green Economy Fund**, which directly funded projects that support Scotland's green energy strategy and Net Zero targets.

• 35 projects including heat, transport, local energy systems and education

Carbon savings of 637 tCO₂

• 58 new jobs created and 647 supported indirectly

Our **£5m Net Zero Fund** was launched in 2022 to provide guidance and support to communities in vulnerable situations, and contribute to the national Net Zero objectives.

• 16 tailored community workshops

16 project feasibility reports

• Funding for 27 projects, including energy saving upgrades to community buildings and electric vehicles supporting vulnerable communities

In March 2025, the UK government published guidance on community benefit funds for transmission infrastructure. The guidance sets out the recommended level of funding for eligible onshore electricity transmission infrastructure projects, including £530,000 for a new converter station or substation.

Applications for project planning and feasibility support will open in 2026, but discussions can start now!

How and when will we engage with communities?

Project Timeline

We want to hear your views!

Our public consultation runs until Friday 06 June 2025.

SP Energy Networks attaches great importance to the effect our work may have on the environment and local communities. We want to hear what local people think about our plans, to help us develop the EGL4 project in the best way.

Please give us your views on our proposed converter station site, underground cable route, landfall point and marine cable route, and anything you would like us to take into account – such as site access – to help us develop our plans.

You can find more information, project documents and an online feedback form at our project website: www.spenergynetworks.co.uk/pages/eastern_green_ link_4.aspx

You can also contact us to ask any questions or give us your comments:

Email: <u>egl4@communityrelations.co.uk</u> Freephone: 0800 021 7890 Freepost: FREEPOST SPEN EGL4

What happens next?

Following pre-application consultation we will complete a detailed Environmental Impact Assessment (EIA), which will assess the potential impact of the project on landscape, ecology, water and flooding, cultural heritage,

traffic and transport, noise, geology and tourism. The EIA will be completed and submitted as part of the planning application in autumn 2025.

SP Energy Networks will be applying to Fife Council for planning permission in principle (PiP) under the Town and Country Planning (Scotland) Act 1997 for the proposed converter station, and full planning permission for the DC underground cable from Mean Low Water Springs (MLWS) at the landfall site to the converter station and for the AC underground cable from the converter station to Westfield Substation.

For the marine cables, our marine environmental consultants conduct a separate environmental appraisal which assesses the potential impact of the project on the marine environment, shipping and navigation, commercial fisheries and other marine users. The appraisal will accompany an application to the Scottish Government Marine Directorate Licensing Operations Team (MD-LOT) for a licence to install the marine cables.

At this stage, your comments are not representations to the planning authority or MD-LOT. When we make an application for development

consent in future, you will be able to make formal representations at that stage.

