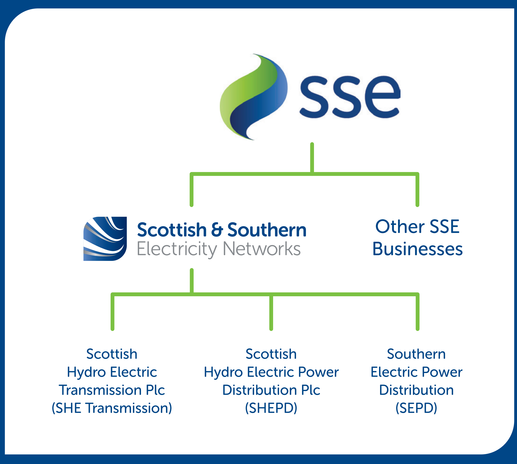
Scottish & Southern Electricity Networks

TRANSMISSION

Who we are

We are Scottish and Southern Electricity Networks Transmission (SSEN Transmission), operating under licence as Scottish Hydro Electric Transmission Plc (SHE Transmission) for the transmission of electricity in the north of Scotland.



In total we maintain about 5,000km of overhead lines and underground cables – easily enough to stretch across the Atlantic from John O'Groats all the way to Boston in the USA.

Our network crosses some of the UK's most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

The landscape and environment that contribute to the challenges we face also give the area a rich resource for renewable energy generation. There is a high demand to connect from new wind, hydro and marine generators which rely on Scottish and Southern Electricity Networks to provide a physical link between the new sources of power and electricity users. Scottish and Southern Electricity Networks is delivering a major programme of investment to ensure that the network is ready to meet the needs of our customers in the future.

Our responsibilities

We have a licence for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator Ofgem.

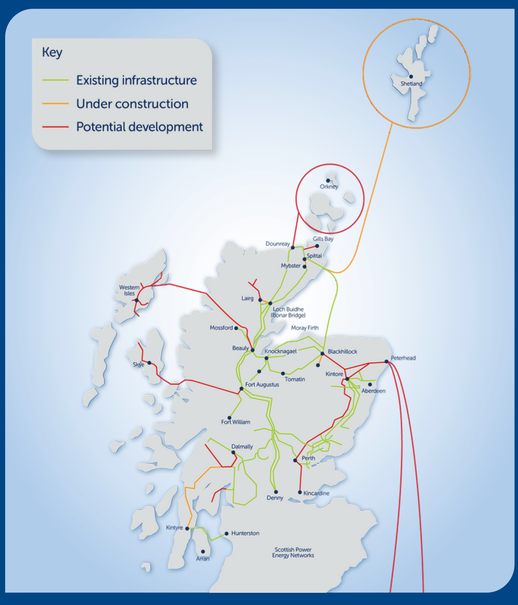
Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

What is the difference between Transmission and Distribution?

Electricity Transmission is the transportation of electricity from generating plants to where it is required at centres of demand.The Electricity Transmission network, or grid, transports electricity at very high voltages through overhead lines, underground cables and subsea cables. Our transmission network connects large scale generation, primarily renewables, to central and southern Scotland and the rest of Great Britain. It also helps secure supply by providing reliable connection to the wider network of generation plans.

The Electricity Distribution network is connected into the Transmission network but the voltage is lowered by transformers at electricity substations, and the power is then distributed to homes and businesses through overhead lines or underground cables.

Overview of Transmission Projects



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Project need and overview

Project overview

The project is needed to connect the 99MW Elchies windfarm to the 132kV busbars at Blackhillock substation. Under our Network Operators Licence, we are required to be efficient, co-ordinated and economic, whist having the least possible impact on people and the environment.

The preferred route was consulted on in July 2020 and the next stage of development has been identifying a suitable alignment within that preferred route. The alignment that has been selected aims to balance technical, environmental and economic constraints. This is achieved by a number of methods including avoiding forestry and maintaining a buffer zone around residential properties.

The alignment is also selected to avoid areas of high ground to both reduce visual impact and it allows the span length between poles to be longer and so less poles are required.

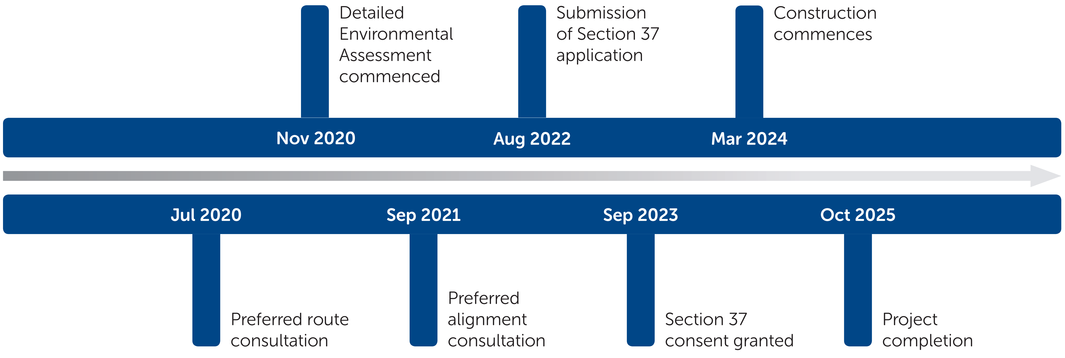
Main elements

This transmission connection will be known as the Elchies Windfarm Connection. There will also likely be a connection to the distribution network at a different point and this will be known as the Rothes III Windfarm Connection. The Rothes III Windfarm Connection will not be considered further at this consultation and will be consulted on separately where appropriate.

The Elchies Windfarm Connection consists of the following:

- 23km 132kV single circuit trident double wood pole overhead line
- Installation of access tracks
- Establish a new 132/33kV outdoor substation at Elchies windfarm site
- Connection into the existing substation at Blackhillock via 1km of underground cable

Project timeline



Consultation on the preferred alignment

At a series of online virtual consultation events in 2020, SSEN Transmission presented the preferred route. In the last year the project team have been in consultation with land owners, statutory bodies and specialist consultants to confirm the preferred double trident wood pole line alignment.

The purpose of this consultation is to present our alignment proposal for the overhead line between Elchies substation and Blackhillock substation. Following this consultation, we will continue to carry out environmental and technical studies which will form part of our Consent Application (Section 37) to the Scottish Government. Throughout this process we will continue to liaise with consultees

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Technical

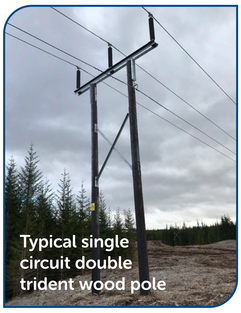
Overhead line

The proposed overhead line will consist of wood pole trident structures. A typical single trident overhead line is formed of an 'H' pole with three conductors arranged in a horizontal formation. An example of this is shown to the right. The height of the wood pole structures will vary between 10 – 18m depending on the span length required. However, the average height of the structures across the line will be 14m. Each structure has a width of 2.5m between the two wooden poles and 5m between the two outmost conductors. Stays, as seen in the picture on the right are only required for angle poles. The poles are buried directly into the ground and generally requires foundations excavations of approximately 2.5 metres by 3.0 metres and to a depth of 2.0 metres.

When determining the alignment and the position of the wood pole structures multiple technical factors are taken into account. One major factor on this project is the presence of pre-existing utilities. There is a high-pressure gas pipeline which is currently installed between Rothes and Keith. Due to the nature of the pipeline we must keep a 40m buffer away from the pipeline when installing poles. There is also a number of smaller utilities such as water mains, telephone lines and low voltage electricity lines, which should be avoided where possible. Another key factor taken into consideration is the altitude. As the altitude increases the forces which the line is subject to due to weather increase. With the increased loadings the span lengths become shorter resulting in more structures. For this reason, we aim to keep the line at lower altitudes where possible. Another factor taken into consideration is trying to minimise the number of angle positions required. As mentioned before angle positions require additional stays which mean they have a larger footprint. When crossing arable fields, the use of angle poles are minimised and, where possible, restricted to field boundaries. This is to minimise the land sterilisation and to maintain safer and easier access for farmers.

Cable section

Due to the nature of the existing equipment inside Blackhillock substation a cable is required for the connection. To facilitate this a trident cable sealing end similar to the one shown above will be installed approximately 1km away from Blackhillock substation. From here a 132kV underground cable will be installed to between this structure and the substation. To install the underground cable a 30m wide construction zone will be established and a trench will be dug which will be roughly 6m wide by 2m deep. Once the cables have been laid this cable and the trench will be backfilled and reinstated. The 6m wide area above the cable will likely be sterilised against future use to prevent any harm to people or damage to the cables. Although it is possible to install a cable on this circuit we aim to keep the length of the cable to a minimum for a number of reasons including maintenance and access challenges, environmental impact of construction and the lasting impact on arable fields.



Typical single circuit double trident wood pole

Example of stays

Example of trident cable sealing end

Construction of access tracks

Due to the light nature of the trident wood pole, construction access can generally be gained by all-terrain vehicles and low ground pressure vehicles. This largely negates the need for stone access tracks. Access tracks will be constructed where the terrain and ground conditions mean access cannot be achieved by using all-terrain vehicles. Where possible temporary access tracks will be created using panels as seen in the image below. Where this is not possible access tracks will be constructed with imported and/or locally won material. It is not envisioned that access tracks will be retained after construction of the overhead line.

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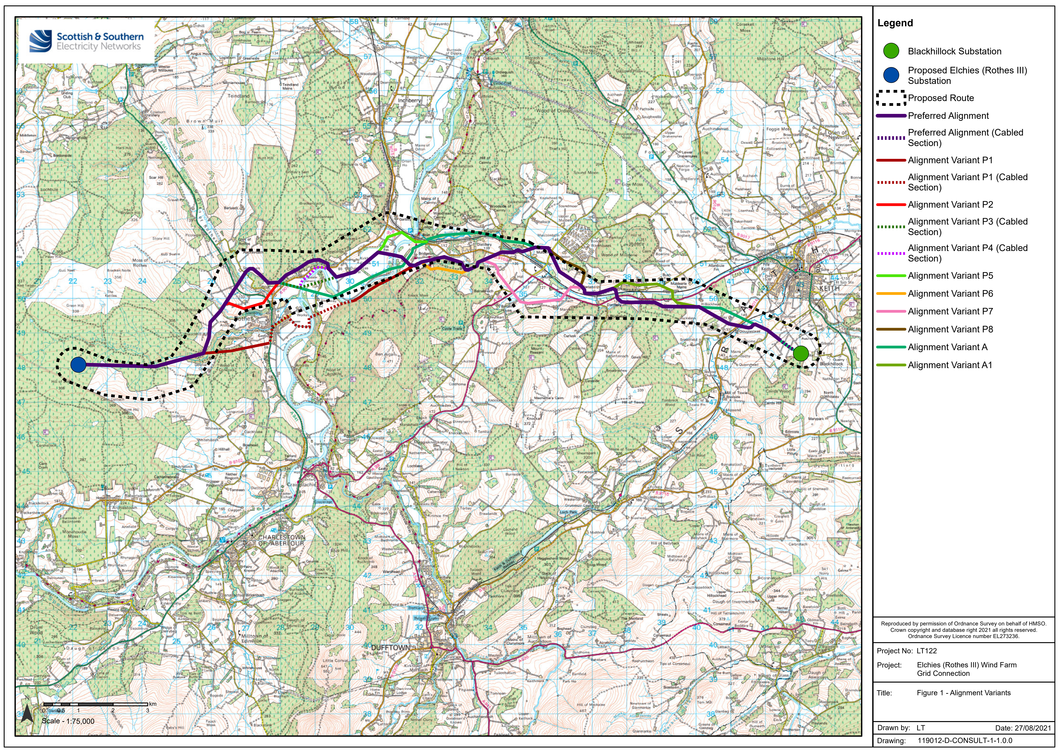
Preferred alignment

SSEN Transmission will publish the overhead line alignment selection consultation document in September 2021.

This consultation follows the completion of the route selection study carried out for the overhead line grid connection during 2020. The route selection study reviewed five route options between the two connection points, and determined a preferred route to take forward for consultation with statutory consultees and other stakeholders. Following this consultation, the preferred route was revised resulting in a final proposed route within which to define alignment options. It is recognised that the proposed route runs through a sensitive environment with challenging terrain in places. However, the proposed route has been selected on the basis that it is considered to provide an optimum balance of environmental, technical and economic factors.

This consultation seeks views from statutory authorities and other interested stakeholders on the alignment options identified within the proposed route. The preferred alignment and all other options considered, termed 'alignment variants' are shown below.



SSEN Transmission are seeking views on the preferred alignment through this consultation prior to identifying a proposed overhead line alignment.

All consultation documentation is available from our project website which can be accessed via the following URL:
https://bit.ly/3ygUEog

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Environment

The baseline alignment and alignment variants have been appraised against these environmental constraints and opportunities prior to the identification of a preferred alignment. Following this consultation exercise, confirmation of the proposed alignment will be provided prior to more detailed environmental assessment work in support of an application for consent under Section 37 of the Electricity Act 1989. This is due for submission to Scottish Ministers in Autumn 2022.

Environmental aspects

The preferred alignment has undergone comparative appraisal of potential environmental constraints grouped in categories below which have been informed by desktop study and high-level site appraisals:

Ecology/Ornithology

Landscape and Visual

Recreation

Forestry

Ecology/Ornithology

The River Spey has been designated as a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The qualifying features of which include Atlantic salmon, fresh water pearl mussel, otter and sea lamprey.

The baseline alignment would reduce the number of crossings of the River Spey SAC and SSSI, compared to the alternative variants.

Areas of woodland and sensitive habitats are located within the vicinity of the preferred alignment. Protected species such as otter, capercaillie, pine martin, badger, bat and red squirrel will likely reside in these habitats. Woodland and scrub habitat will also support breeding bird species, whilst more wetland areas could provide habitats of value to breeding waders and wildfowl. Ecological and ornithological surveys are ongoing to ensure potential effects on ecology and ornithology are minimised.

Landscape and visual amenity

The Spey Valley has been designated as a regionally important landscape by Moray Council due to its diverse and attractive landscape comprising a broad, gently weaving river, floodplain farmland, wooded valley sides and distinctive settlements together with the romance associated with the Spey due to its connection with whisky distilling.

The preferred alignment has been selected to minimise potential effects as practicable on the Spey Valley Special Landscape Area (SLA) and other sensitive visual receptors throughout the area.

Recreation

The Spey Valley is popular with walkers, hikers, cyclists, canoeists, anglers, whiskey enthusiasts and heritage railway enthusiasts. Tourism, including the pursuit of recreational activities (particularly fishing) contributes significantly to the local economy annually.

Forestry

Commercial conifer plantations are common throughout the area, and the preferred alignment has sought to minimise interaction with commercial forestry where practicable, whilst also balancing consideration of other constraints. Potential effects on other environmental considerations such as visual amenity.

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What happens now and how do I have my say?

We understand and recognise the value of the feedback provided by members of the public during all engagements and consultations. Without this valuable feedback, the project development team would be unable to progress projects and reach a balanced proposal.

We are keen to receive your views and comments in regards to the following questions:

- Has the requirement for the project been clearly explained?
- Have we been clear in providing the reasons forselecting our preferred alignment?
- Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?
- Do you have any other comments about our preferred alignment?
- Overall how do you feel about the Elchies (Rothes III) Grid Connection project?

Comments

Your views and comments can be provided to the project team by completing a feedback form or by writing to Louise Anderson, Community Liaison Manager. We will be seeking feedback from the members of the public and Statutory Bodies until **15 October 2021**

All received feedback will be assessed and the proposed options adapted where necessary.

Community Liaison Manager, Louise Anderson

louise.anderson@sse.com

07384 454 233

Louise Anderson
Scottish and Southern Electricity Networks,
200 Dunkeld Road,
Perth, PH1 3AQ

Additional information

Information will also be made available via the project webpage and social media channels:

Project Website: www.ssen-transmission.co.uk/projects/elchies-rothes-iii-wind-farm-grid-connection

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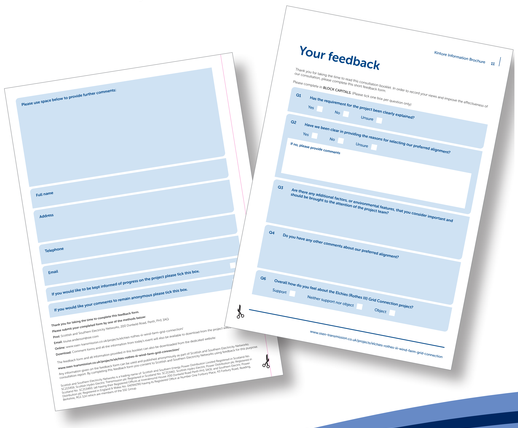

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