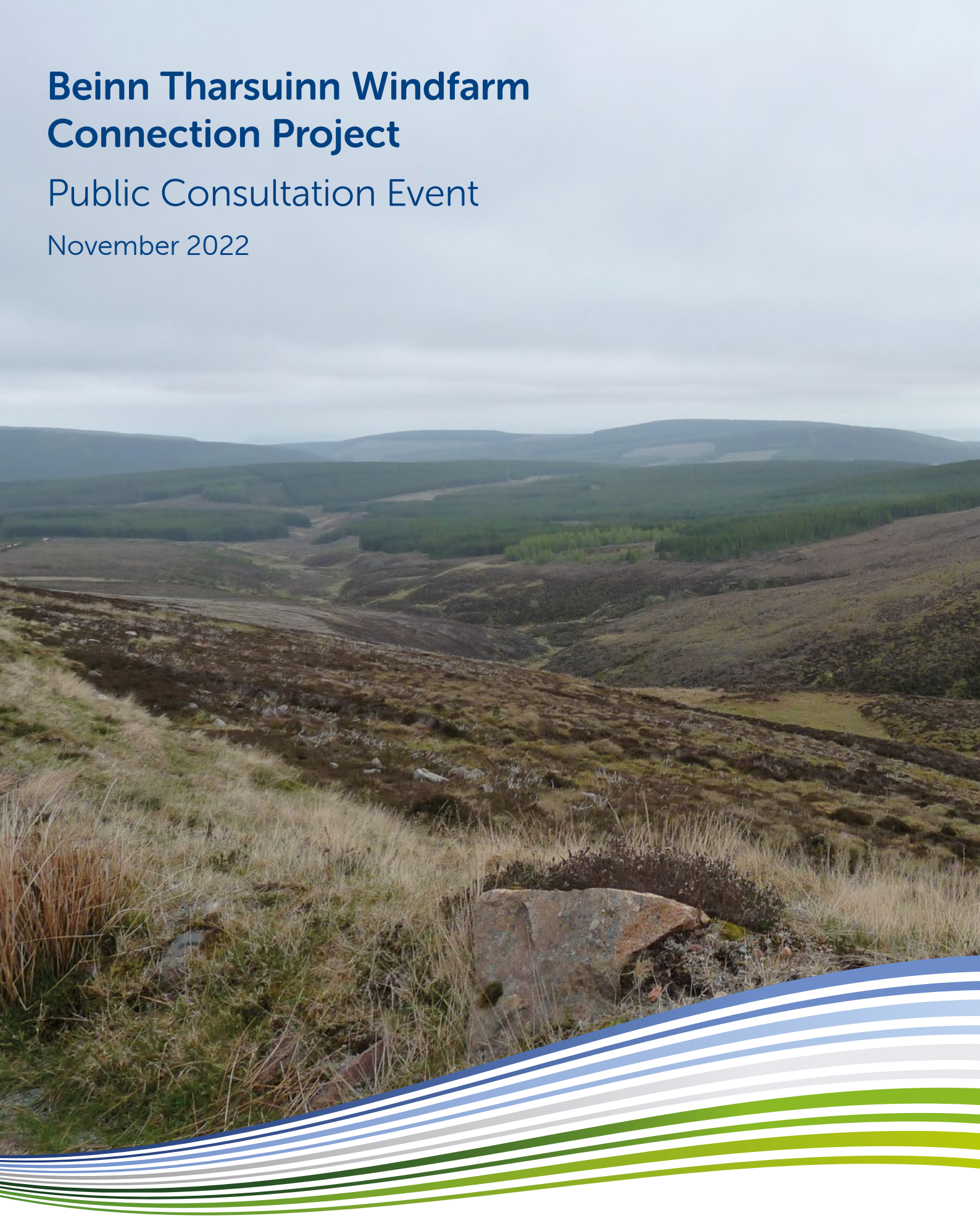
Beinn Tharsuinn Windfarm Connection Project

Public Consultation Event

November 2022



Scottish & Southern Electricity Networks

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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.

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

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.

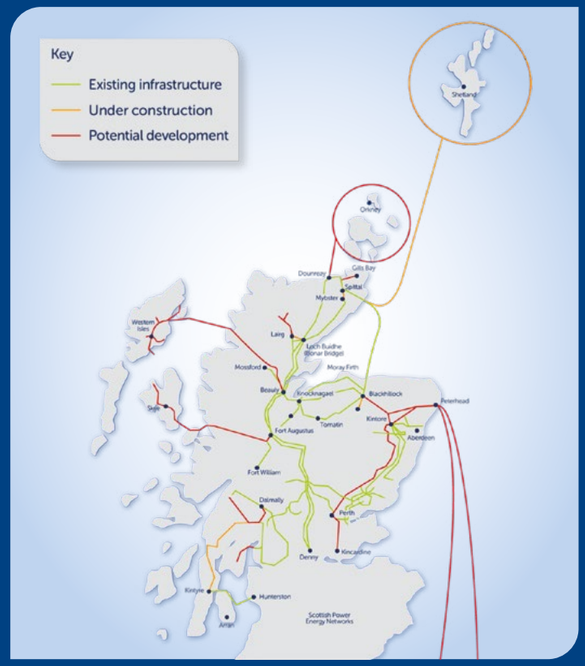
Our network crosses some of the UK's most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

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.



Project need and overview

As the transmission license holder in the north of Scotland, we have a duty under Section 9 of the Electricity Act 1989 to facilitate competition in the generation and supply of electricity. We have obligations to offer non-discriminatory terms for connection to the transmission system, both for new generation and for new sources of electricity demand.

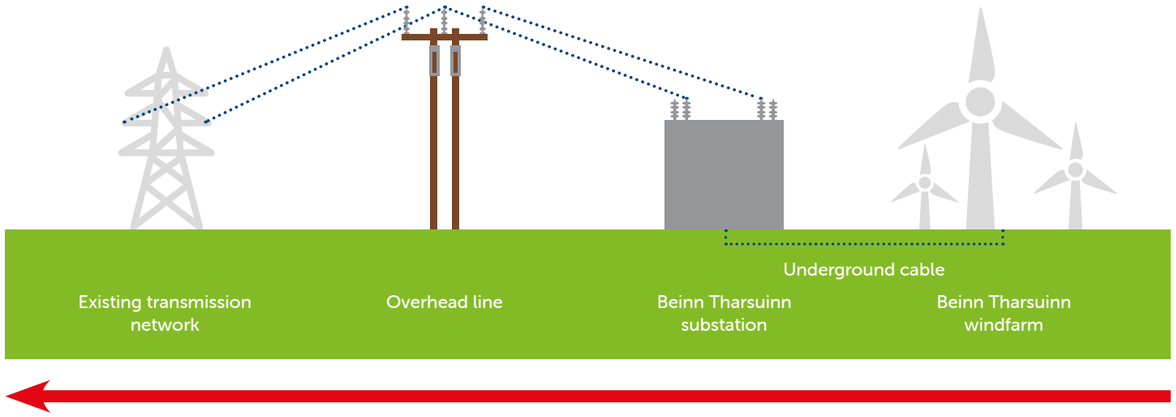
Subject to planning consent we are required to connect the Beinn Tharsuinn windfarm extension to the transmission network, to facilitate this we are proposing to construct either a new 132kV overhead line or underground cable depending on the connection route taken forward. Under our Network Operators License this connection should be efficient, co-ordinated, and economic, whilst having the least possible impact on the environment.

The connection may comprise a single circuit 132kV trident wood "H" pole arrangement as shown in the image supporting the overhead line running over a maximum distance of approximately 20km in length between the existing Fyrish substation and the Beinn Tharsuinn windfarm extension windfarm substation.

In this scenario there will be two 132kV underground cable sections; one as it leaves Beinn Tharsuinn substation and one as it enters Fyrish 132kV substation. In addition to a connection point at Fyrish, a second point of connection is being assessed which would result in the windfarm connecting via underground cable to our existing 275kV network approximately 6km to the east.

The average height of the trident poles is between 13 and 15 metres, up to a maximum of 18 meters, with an average span of between 70 and 100 metres.

Traffic management will be required during construction and consultation will be undertaken on this in due course.



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Project timeline

The figure below identifies key milestones for consenting and construction programmes.

March 2022
Commencement of ornithology surveys across multiple route options.

November 2022
Preferred route consultation.

March 2023
Environmental impact assessment commences.

April 2024
Section 37 application submitted.

September 2025
Section 37 consent determination.

February 2026
Construction commences.

June 2027
Project completion.

Our overhead line routing and design process

SSEN Transmission has developed and implemented formal guidance for the selection of routes and alignments for its new Overhead Lines (OHL).

The main aim of the guidance is to provide a consistent approach to the selection of new OHL alignments and is underpinned by our statutory obligations to: 'develop and maintain an efficient, coordinated and economical electricity transmission system in its licenced area' and in so doing, to 'have regard to the desirability of preserving the natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and protecting sites, buildings and objects of architectural, historic or archaeological interest; and do what we reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites buildings or objects'.

These duties capture the principal objective of the routeing process which is to balance technical and cost considerations with environmental considerations, to select a proposed alignment that is economically viable, technically feasible, minimises impacts on important resources or features of the environment and reduces disturbance to those living in it, working in it, visiting it or using it for recreational purposes.

Key stages

For new OHL projects, the process follows four principal stages, each iterative and increasing in detail and resolution, bringing cost, technical and environmental considerations together in a way that seeks the best balance. This staged process leads to the identification of a proposed overhead line alignment that is capable of being granted consent by the Scottish Government under Section 37 of the Electricity Act 1989. The key stages are:

Stage 1: Strategic options assessment/routeing strategy
The starting point in all OHL projects is to establish the need for the project and to select the preferred strategic option to deliver it. This process will be triggered by the preparation of a number of internal assessments and documents which identify the technology to be used and the point on the existing Transmission network where a connection can be made. The routeing strategy also determines which of the following stages are required.

Stage 2: Corridor selection
Corridor selection seeks to identify possible corridors which are as short as practicable, which are not constrained by altitude or topography, and which would avoid, where possible, any interaction with man-made infrastructure and features of environmental sensitivity. For Beinn Tharsuinn, the corridor stage is omitted as the location of the wind farm and point of connection on the network naturally define a corridor.

Stage 3: Route selection
Route selection seeks to find a route within the corridor that avoids where possible physical, environmental, and amenity constraints, is likely to be acceptable to stakeholders, and is economically viable taking into account factors such as altitude, slope, ground conditions and access.

A route may be several kilometers in length and may range from 200m to 1km in width, depending on the scale of the project, the nature and extent of constraints and the character of the area in question. A number of route options are usually identified and assessed, leading to a preferred route being selected.

Stage 4: Alignment selection
Alignment selection seeks to identify an alignment within the preferred route and to define the access strategy which will be adopted in terms of, for example, the nature and extent of temporary and/or permanent access tracks and possible road improvements. It will be influenced by local constraints, such as individual properties, their aspect, and amenity; ground suitability; habitats; and cultural heritage features and setting. There may be more than one distinct alignment option through the preferred route. It is more likely, however, that variants to sections of an alignment may arise where there are different ways to avoid a constraint.

What happens next
The outcome of the OHL routeing process is to identify a preferred alignment, which following stakeholder engagement with the public, statutory bodies and landowners, is finalised as a proposed alignment to be taken forward for formal environmental assessment and consent application.

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Meeting our obligations

Our Transmission Operators licence requires us to provide the best value for customers and Great Britain (GB) consumers. As a natural monopoly, SSEN Transmission are closely regulated by the GB energy regulator Office of Gas and Electricity Markets (OFGEM), which determines how much revenue we are allowed to earn for constructing, maintaining and renovating our transmission network. These costs are shared between all those using the transmission system, including generation developers and electricity consumers. We, therefore, work to strict price controls which means the following environmental, engineering, and economic considerations form a key part of our routeing process:

Environmental assessments

Desk-based assessments using available mapping and GIS (Geographic Information Systems) data, together with initial site walkovers by specialists, have been undertaken to gather baseline information. This is crucial to enable us to understand the key environmental constraints and sensitivities.

This work has been carried out during 2021-22 and has helped to identify key environmental issues including landscape and visual amenity, sensitive habitats, protected ecology and ornithology, forestry, hydrology, hydrogeology, recreation and cultural heritage.

Following confirmation of a preferred route and alignment for the connection, further detailed studies and assessment work will be undertaken to support the consenting process in 2022 and 2023.

Consenting

Before a project progresses to consent application stage (under Section 37 of the Electricity Act 1989), a Screening Opinion is requested from the Scottish Ministers (through the Energy Consents Unit) to clarify whether the project falls within the thresholds of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

If the project meets or exceeds certain criteria, then it is deemed to be an EIA Development and any application for consent must be accompanied by a formal EIA Report.

If it is not EIA Development, SSEN Transmission will provide equivalent environmental information through a voluntary Environmental Appraisal (EA) Report. Beinn Tarsuinn will be screened for EIA in Q1 2023.

Engineering and economic considerations

In addition to the suite of environmental assessments undertaken, the following engineering and economic considerations form a key part of our routeing process:

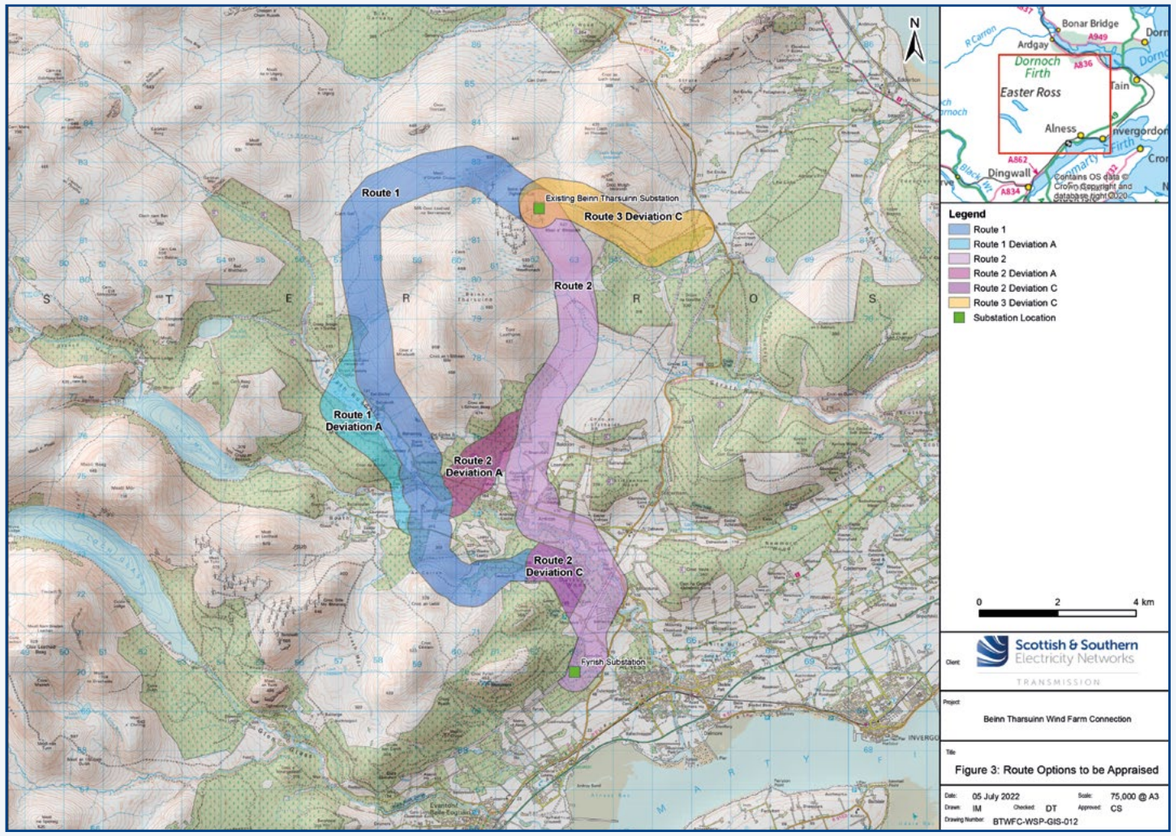
- Construction costs and buildability (largely affected by ground conditions, such as peat/rock/flooding/contaminated land, etc).
- Operations and maintenance requirements.
- Outage requirements and network constraints.
- Vicinity to other electrical OH line and underground structures.
- Vicinity to any other utility, overhead or underground.
- Windfarms.
- Communications masts.
- Connections infrastructure.
- Urban development.
- Forestry and biodiversity costs.
- Technology costs and design parameters.
- Site accessibility.
- Route length.

A summary of key environmental and engineering considerations for each route option are presented in the route options tables.

Route options

The map below shows the route options considered for the connection of Beinn Tharsuinn windfarm to Fyrish substation as well as an alternative connection route to our existing 275kV network to the east. Six route options were identified for assessment following a desk based assessment.

Route option 3C has been identified as our initial preferred route to be taken forward to consultation with the public and statutory bodies, having been selected on the basis it provides an optimum balance of environmental, technical and cost factors.



Each topic within environmental, engineering and cost categories has been considered in terms of the potential for the development to be constrained and a Red/Amber/Green (RAG) rating has been applied as appropriate. This rating is based on a three-point scale as indicated in the table.

Most preferred	Low potential for the development to be constrained.
	Intermediate potential for the development to be constrained.
Least preferred	High potential for the development to be constrained.

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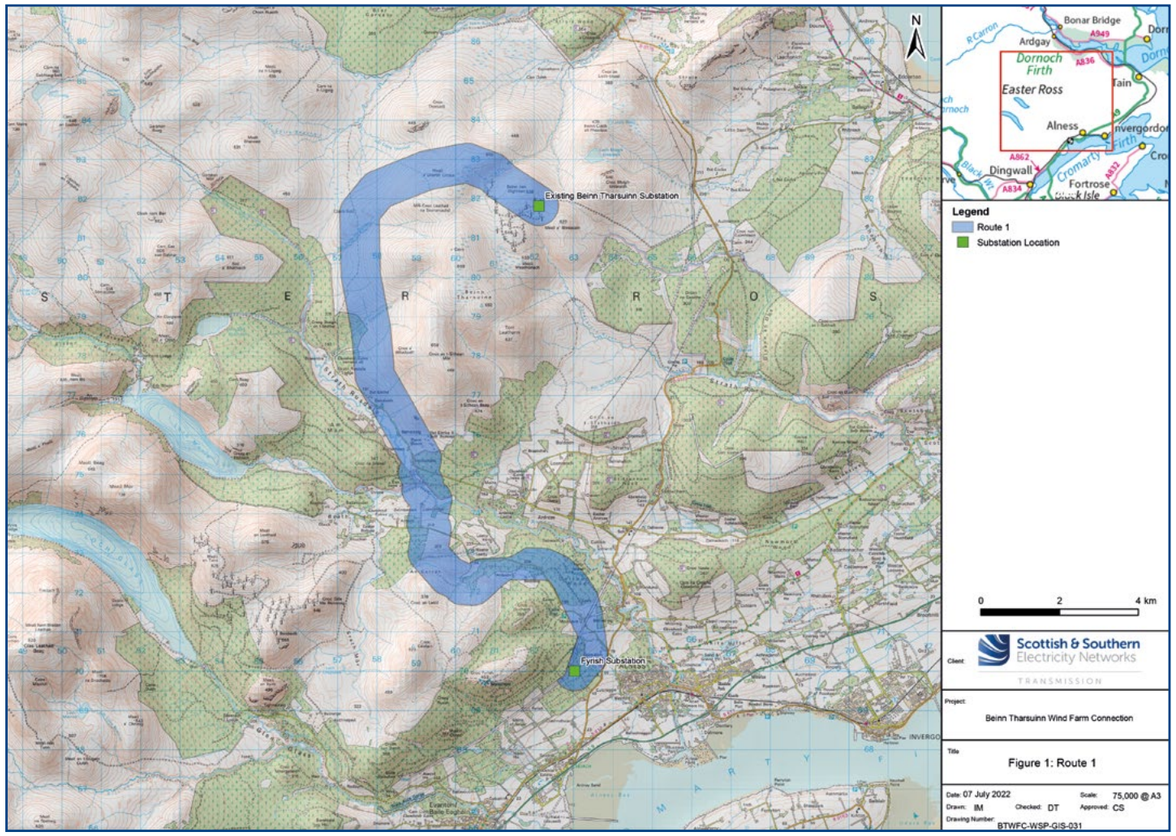
Route options

Route option 1

Route option 1 is the most westerly and longest route of the options and travels west from Beinn Tharsuinn substation curves southwards travelling south around the base of Beinn Tharsuinn along the route of Strath Rusdalle / Blackwater. The route then curves east and travels through Dalreoch Wood to meet existing OHL and onto Fyrish substation.

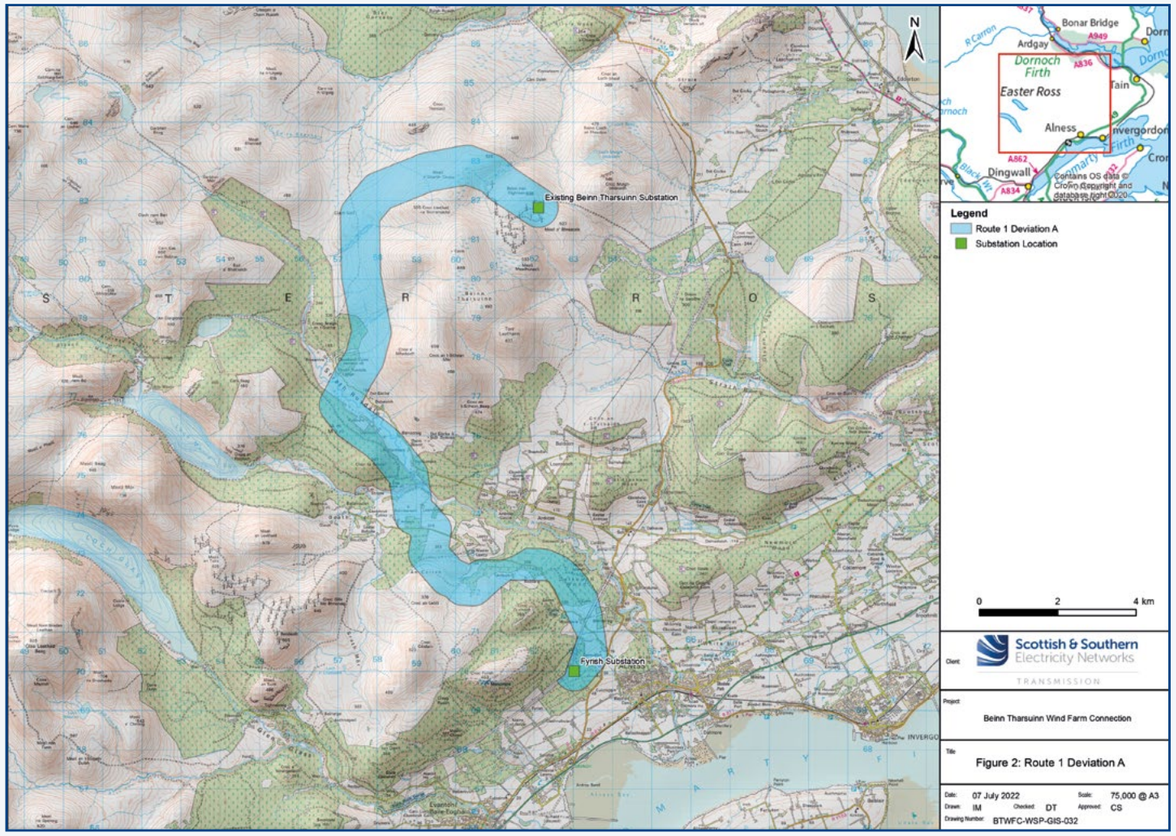


	Key topics relating to site																	
	Natural heritage					Cultural heritage		Landscape and visual			People	Land use			Planning		Engineering		
	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 1																			

Route options

Route option 1A

Following route option 1 for the majority of the route, the route then deviates to cross over Black Water/Strath Rusdale to travel along the west bank of this watercourse within an area of forestry, before curving east and travelling through Dalreoch Wood to meet the existing OHL and onto Fyrish substation.



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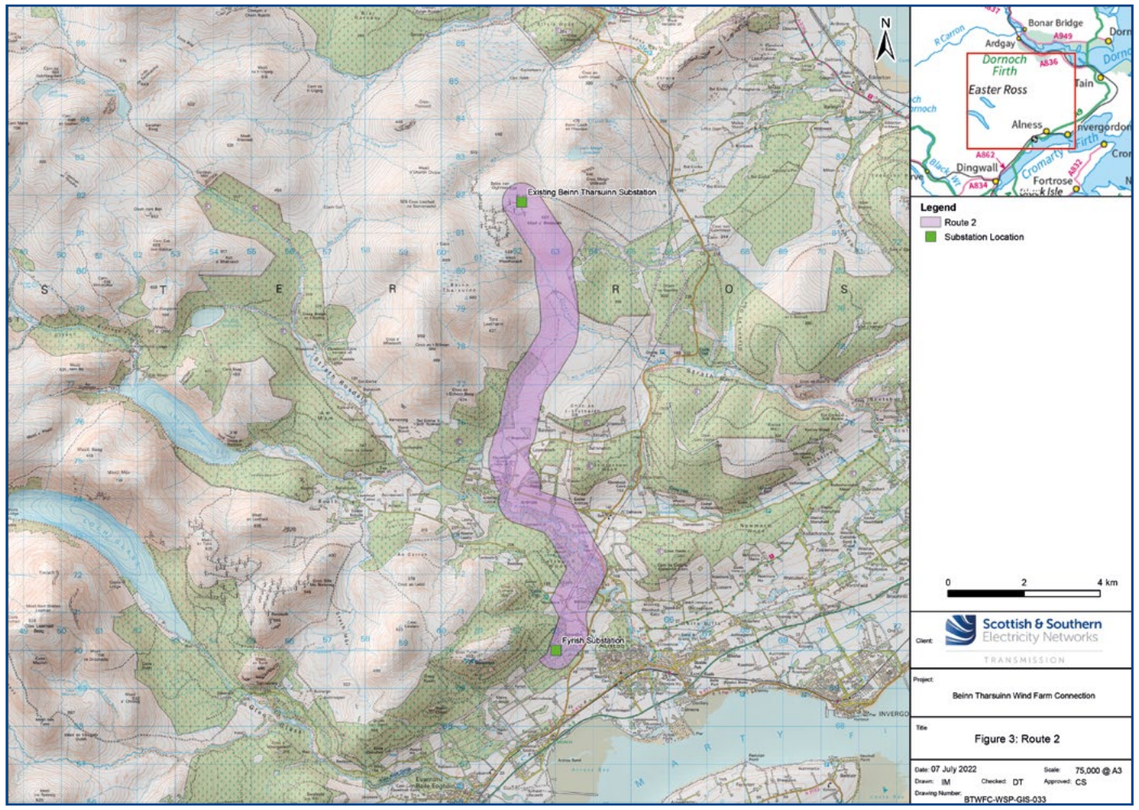
	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 1 deviation A																			

Route options

Route option 2

Route option 2 travels in a generally southerly direction between Beinn Tharsuinn Substation and Fyrish Substation. This route travels along the eastern side of Beinn Tharsuinn on the edge of an area of forestry and towards Adross Castle, through Ardross Castle Gardens and designed landscapes (GDL) where it then follows the valley of the River Averon/River Alness to meet the existing OHL and onto Fyrish substation.

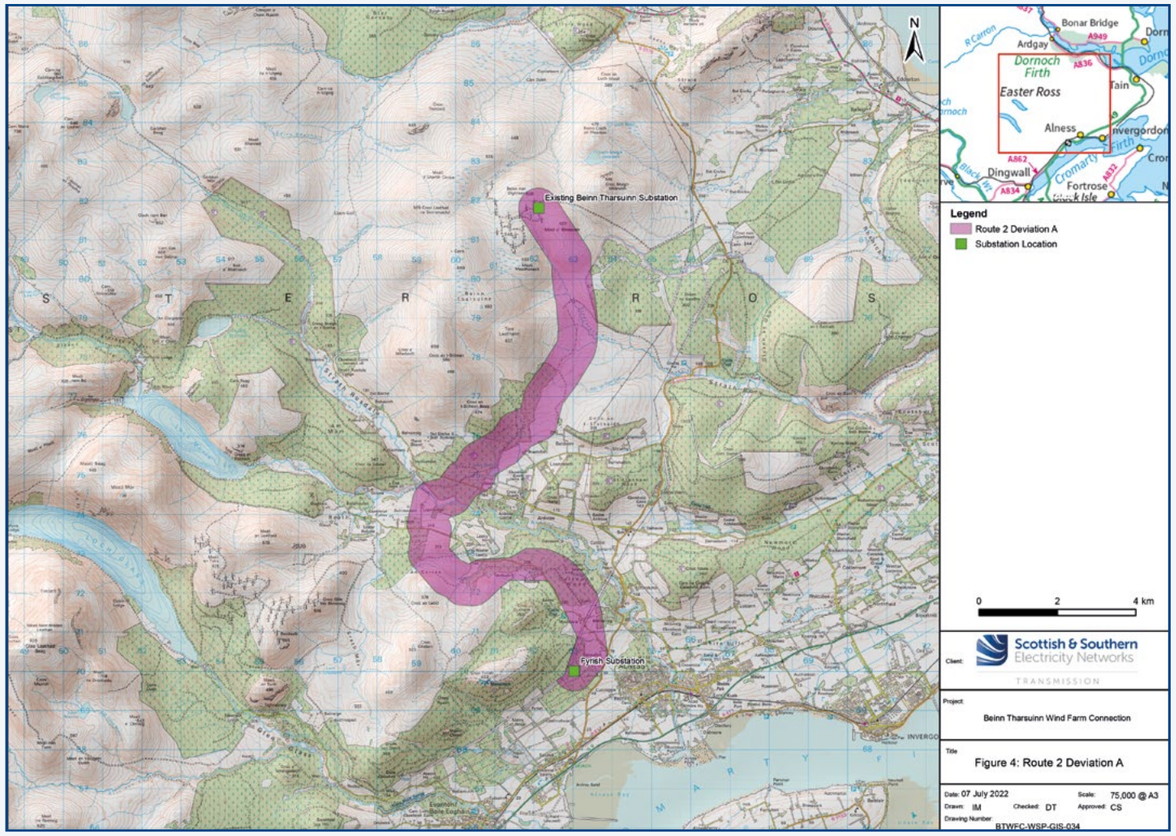


	Key topics relating to site																	
	Natural heritage					Cultural heritage		Landscape and visual			People	Land use			Planning		Engineering		
	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 2																			

Route options

Route option 2A

Route option 2A follows the majority of route option 2, however deviates at Braetollie to travel within a forested area, across the River Averon/Alness valley and around the western edge of Ardross GDL where it curves easterly through Dalreoch Wood and along the northern boundary of Novar SPA. It then meets the existing OHL and onto Fyrish substation.

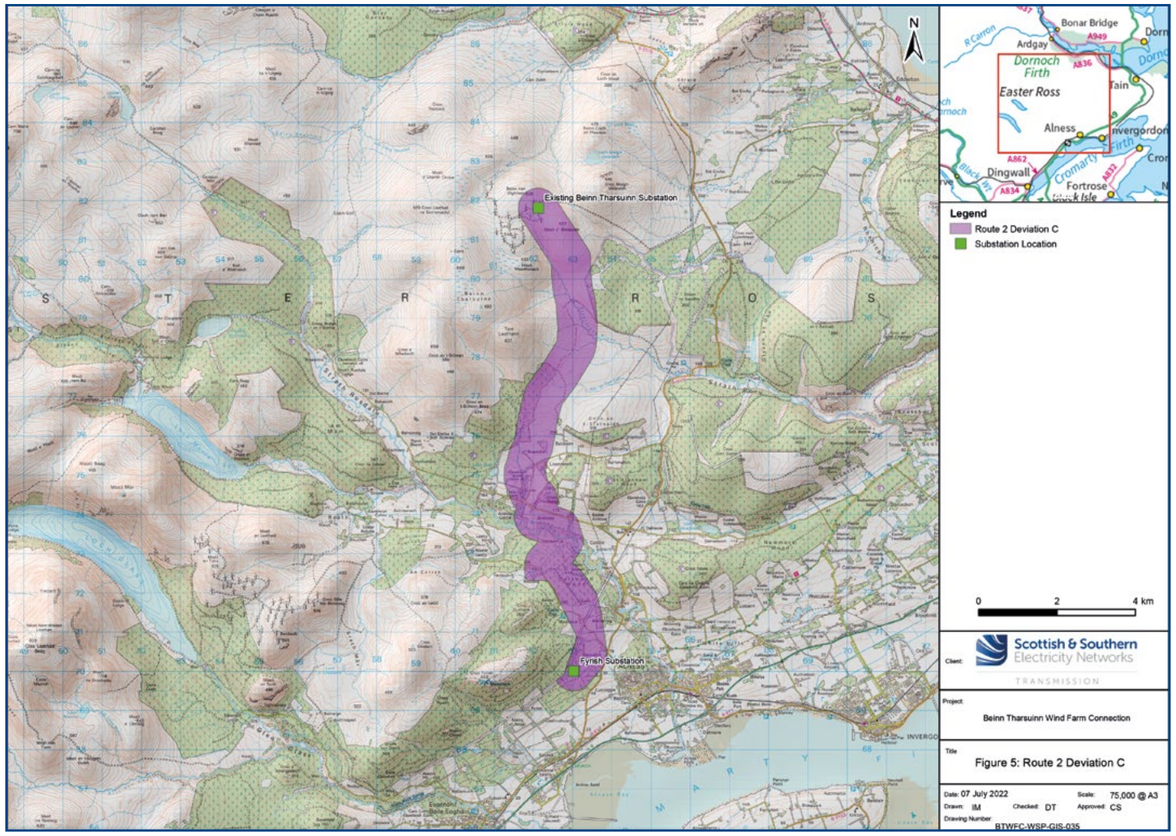


	Key topics relating to site																	
	Natural heritage					Cultural heritage		Landscape and visual			People	Land use			Planning		Engineering		
	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 2 deviation A																			

Route options

Route option 2C

Route option 2C follows the majority of route option 2 and travels in a generally southerly direction between Beinn Tharsuinn Substation and Fyrish Substation. This route travels along the eastern side of Beinn Tharsuinn on the edge of an area of forestry and towards Adross Castle, through Ardross Castle GDL where it then crosses the valley of the River Averon/River Alness at Ardross to overlap the north-eastern boundary of Novar Special Protection Area (SPA) where it meets the existing OHL, and onto Fyrish substation.

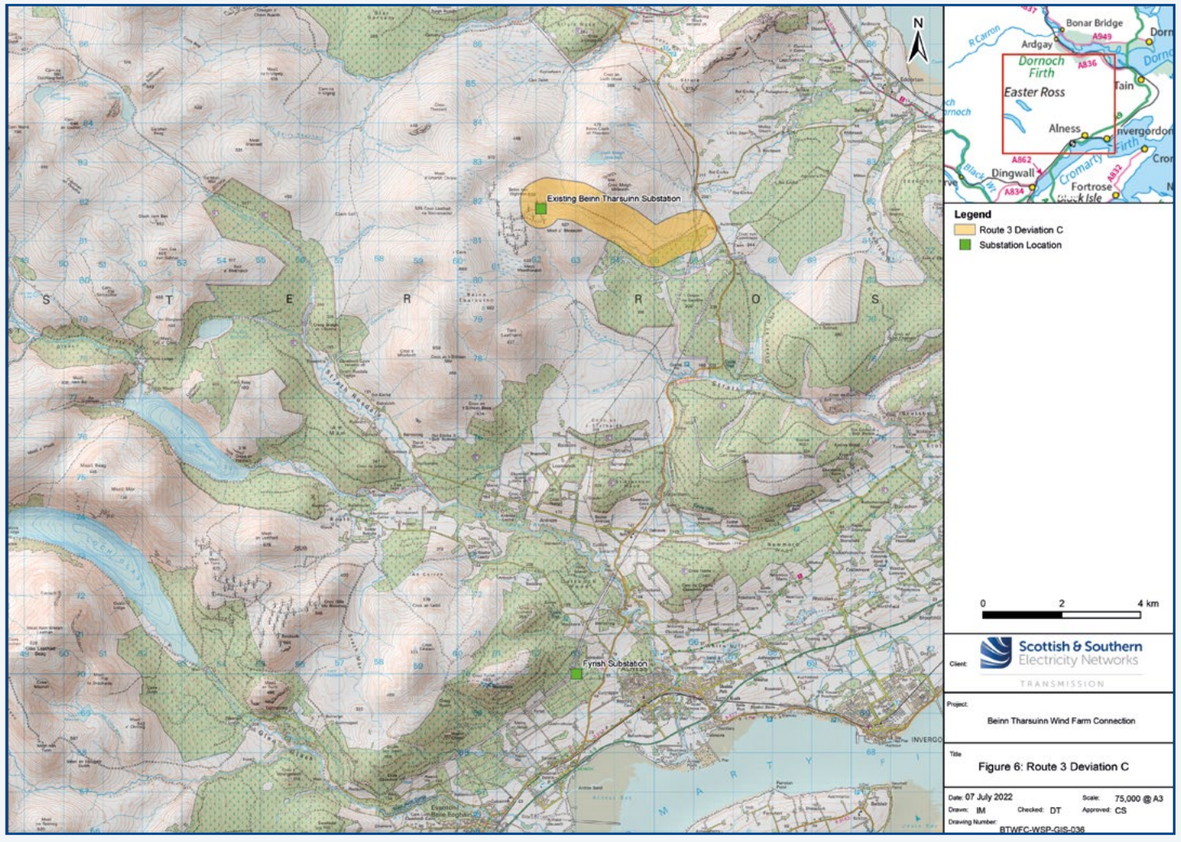


	Key topics relating to site																	
	Natural heritage					Cultural heritage		Landscape and visual			People	Land use			Planning		Engineering		
	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 2 deviation C																			

Route options

Route option 3C (our preferred option)

Route option 3C travels in a predominantly easterly direction from the Beinn Tharsuinn Windfarm substation. The route curves south-east before turning north-east over a short distance, running adjacent to an area of woodland where it will then join the existing 275kV OHL leading to south to the Fyrish substation. This route option that performs the best from an environmental perspective, with one red RAG rating, and only four amber ratings the rest are green indicating a much lower overall potential for the development to be constrained by environmental issues. This is largely due to the fact that route option 3C is considerably shorter in length than other routes and also because it will not connect to the Fyrish substation where there are numerous environmental constraints at the southern end of the corridor.



	Key topics relating to site																	
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	Designations	Protected species	Habitats	Ornithology	Geology, hydrology and hydrogenology	Designations	Cultural heritage assets	Designations	Landscape character	Visual amenity	Residential properties and other sensitive	Agriculture	Forestry	Recreation	Policy	Proposals	Infrastructure crossing	Ground conditions	Construction
Route option 2 deviation C																			

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Route options

		Route option					
		1	1A	2	2A	2C	3C
Natural heritage	Designations						
	Protected species						
	Habitats						
	Ornithology						
	Geology, hydrology and hydrogeology						
Cultural heritage	Designations						
	Cultural heritage assets						
Landscape and visual	Designations						
	Landscape character						
	Visual amenity						
People	Proximity to dwellings						
Land use	Agriculture						
	Forestry						
	Recreation						
Planning	Policy						
	Proposals						
Engineering	Infrastructure crossings						
	Ground conditions						
	Construction						

Construction of an overhead wood pole line

A typical "H" wood pole installation requires foundations of approximately 2.5m by 3m across and to a depth of around 2 metres. To minimise construction impact and the requirement for access tracks helicopters are used wherever possible to help deliver the materials to the site.

The picture below shows a typical helicopter delivery of the steel work used on the top of a pole and the baulk timbers used in the foundation at the base of each structure.

Helicopters are also used to assist with the stringing of the conductors.

Above is a typical example of an angle wood pole which requires additional stays. Note that stays are not usually required on non-angle poles unless ground or weather conditions dictate.

Construction of access tracks

Access tracks will only be constructed where access by all-terrain vehicles or the use of trackway is not feasible.

Access tracks will be constructed with imported and/or locally won material.

Access tracks are not usually retained after construction of the overhead line. Permanent access may be required to terminal structures where an OHL meets a cable section.

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Notes

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 explained the approach taken to select the preferred OHL route adequately?
- 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 the preferred route?
- Following review of the provided information, how would you describe your understanding of the Beinn Tharsuinn Windfarm Connection project?
- Overall how do you feel about the Beinn Tharsuinn Windfarm Connection project?

Comments

Your views and comments can be provided to the project team by completing the feedback form or by writing to our Community Liaison Manager. All feedback received will be assessed.

Feedback

We will be seeking feedback from members of the public on this exhibition until Friday 9th December 2022.

Please note comments made to Scottish and Southern Electricity Networks Transmission (SSEN Transmission) are not representations to the Scottish Ministers and if SSEN Transmissionsubmits an application there will be an opportunity to make representations on that application to the Scottish Ministers.

Community Liaison Manager, Lisa Marchi

lisa.marchi@sse.com

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07825 015 507

Lisa Marchi
Scottish and Southern Electricity Networks,
10 Henderson Road,
Inverness, IV1 1SN

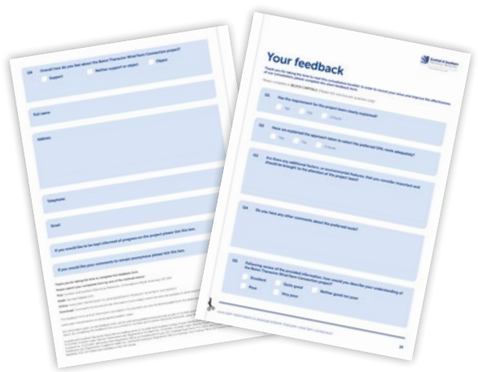
Additional information

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

Project website:
www.ssen-transmission.co.uk/projects/beinn-tharsuinn-wind-farm-connection/

Follow us on Twitter:
@SSETransmission

Follow us on Facebook:
@ssencommunity



Your feedback

Thank you for taking the time to read this consultation booklet. In order to record your views and improve the effectiveness of our consultation, please complete this short feedback form.

Please complete in **BLOCK CAPITALS.** (Please tick one box per question only)

Q1 **Has the requirement for the project been clearly explained?**

☐ Yes ☐ No ☐ Unsure

Q2 **Have we explained the approach taken to select the preferred OHL route adequately?**

☐ Yes ☐ No ☐ Unsure

Q3 **Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?**

Q4 **Do you have any other comments about the preferred route?**

Q5 **Following review of the provided information, how would you describe your understanding of the Beinn Tharsuinn Windfarm Connection project?**

☐ Excellent ☐ Quite good ☐ Neither good nor poor

☐ Poor ☐ Very poor

Q6 Overall how do you feel about the Beinn Tharsuinn Windfarm Connection project?

☐ Support ☐ Neither support or object ☐ Object

Full name

Address

Telephone

Email

If you would like to be kept informed of progress on the project please tick this box. ☐

If you would like your comments to remain anonymous please tick this box. ☐

Thank you for taking the time to complete this feedback form.

Please submit your completed form by one of the methods below:

Post: Scottish and Southern Electricity Networks, 10 Henderson Road, Inverness, IV1 1SN

Email: lisa.marchi@sse.com

Online: www.ssen-transmission.co.uk/projects/beinn-tharsuinn-wind-farm-connection/

Download: Comments forms and all the information from today's event will also be available to download from the project website.

The feedback form and all information provided in this booklet can also be downloaded from the dedicated website:

www.ssen-transmission.co.uk/projects/beinn-tharsuinn-wind-farm-connection/

Any information given on the feedback form can be used and published anonymously as part of Scottish and Southern Electricity Networks consultation report. By completing this feedback form you consent to Scottish and Southern Electricity Networks using feedback for this purpose.

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