

# Chleansaid Wind Farm Connection

Consultation Booklet

June 2023



**Scottish & Southern**  
Electricity Networks

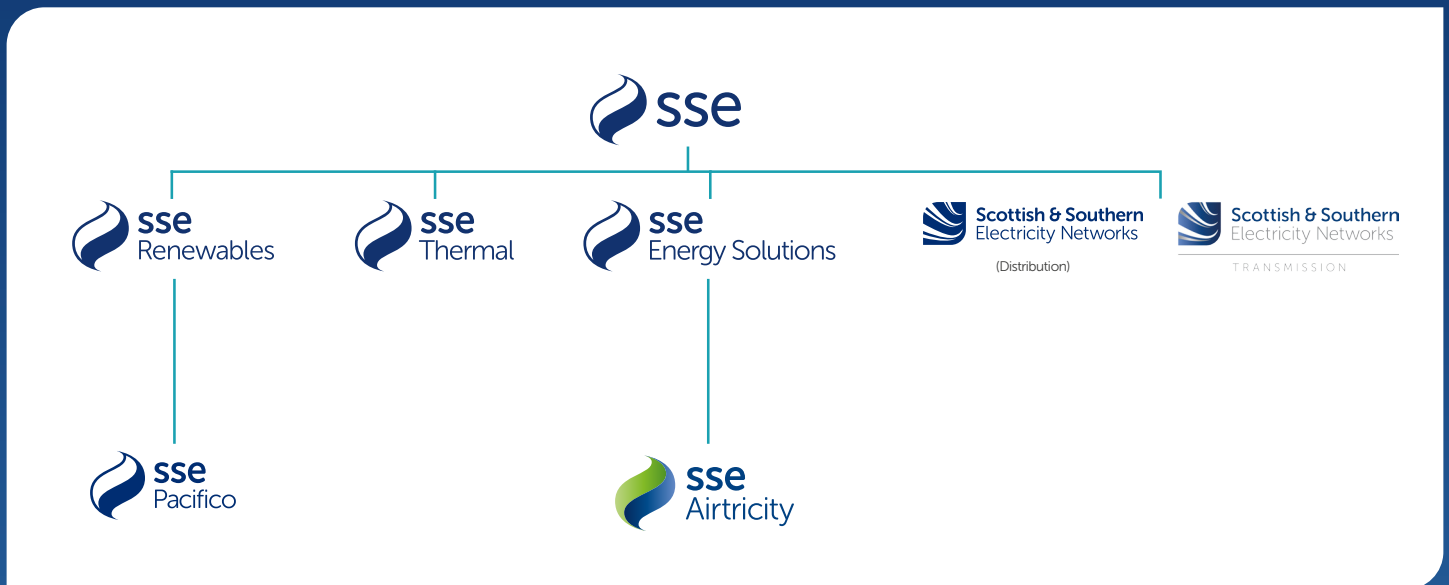
TRANSMISSION

## Contents

- 03 Who we are
- 04 Project need and overview
- 05 Project timeline
- 06 Our overhead line routing and design process
- 07 Meeting our obligations
- 08 Route options
- 09–11 Alignment options
- 12 Most viable alignment options
- 13 Construction of an overhead wood pole line
- 14 What happens now and how do I have my say?
- 15 Your feedback

# Who we are

We are SSEN Transmission, the trading name for Scottish Hydro Electric Transmission. We are responsible for the electricity transmission network in the north of Scotland, maintaining and investing in the high voltage 132kV, 220kV, 275kV and 400kV electricity transmission network.



Our network consists of underground and subsea cables, overhead lines on wooden poles or steel towers, and electricity substations. It extends over a quarter of the UK's land mass, crossing some of its most challenging terrain.

Our first priority is to provide a safe and reliable supply of electricity to our communities. We do this by taking the electricity from generators and transporting it at high voltages over long distances through our transmission network for onwards distribution to homes and businesses in villages, towns and cities.

Our operating area is home to vast renewable energy resources and this is being harnessed by wind, hydro and marine generation. Working closely with National Grid, the GB transmission System Operator, we also enable these electricity generators to connect to the transmission system by providing their connections and allowing the electricity generated by them to be transported to areas of demand across the country.

Scotland's transmission network has a strategic role to play in supporting delivery of the UK and Scotland's Net Zero targets. We're already a mass exporter of renewable energy, with around

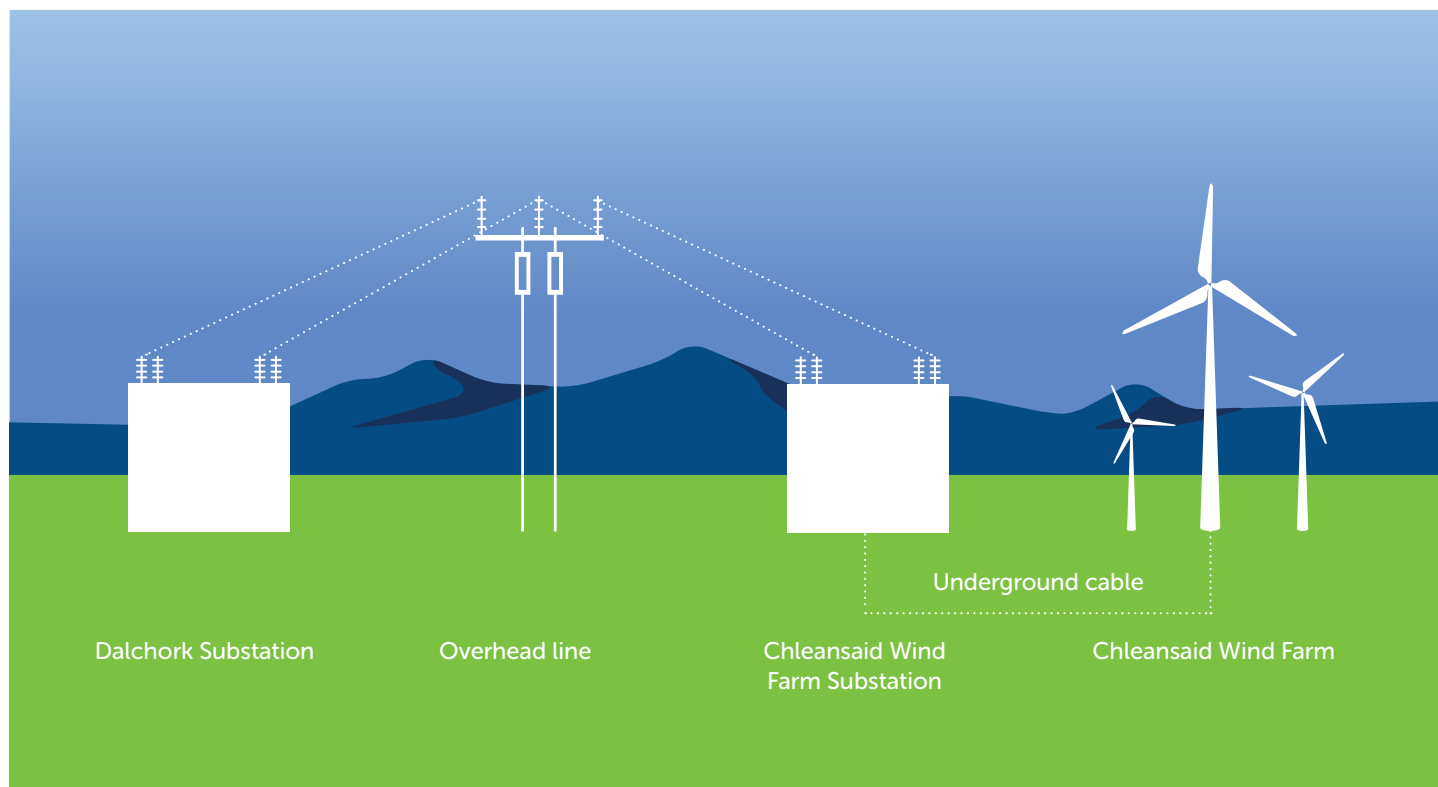
two thirds of power generated in our network area exported to demand centres further south. By 2050, the north of Scotland is expected to need 40GW of low carbon energy capacity to support net zero delivery. For context, we currently have around 8GW of renewable generation connected in the north of Scotland.

As a natural monopoly, we are closely regulated by the GB energy regulator, Ofgem, who determines how much revenue we are allowed to earn for constructing, maintaining and renovating our transmission network in the north of Scotland. These costs are shared between all those using the transmission system, including generation developers and electricity consumers. Following a minority stake sale which completed in November 2022, we are now owned 75% by SSE plc and 25% by Ontario Teachers' Pension Plan Board.

As a stakeholder-led business, SSEN Transmission is committed to inclusive stakeholder engagement, and we conduct this at an 'Advanced' level as assessed by AccountAbility, the international consulting and standards firm.

# 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 Chleainsaid Wind Farm to the transmission network, to facilitate this we are proposing to construct a new 132kV overhead line on the connection alignment taken forward. Under our Network Operators License this connection should be efficient, coordinated, and economic, whilst having the least possible impact on the environment.

The proposal is a single circuit 132kV trident wood “H” pole arrangement as shown in the image supporting the overhead line running over a distance of approximately 10.5km in length between the existing Dalchork substation and the Chleainsaid Wind Farm substation.

The average height of the trident poles is between 13 and 16 meters, up to 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.



## Project timeline

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

**October 2022**

Commencement of environmental assessments



**June 2023**

Alignment consultation



**July 2025**

Section 37 consent determination



**July 2027**

Project completion



**January 2023**

Route consultation



**March 2024**

Section 37 application submitted



**September 2025**

Construction commences



# Our overhead line routeing 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 an 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 an 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 most viable 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 Chleainsaid Wind Farm connection, 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 the most viable route being selected.

#### Stage 4: Alignment selection

Alignment selection seeks to identify an alignment within the selected 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 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 overhead line alignment process is to identify the most viable 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.

# 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 routing 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 from October 2022 to January 2023 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 the most viable route and alignment for the connection, further detailed studies and assessment work will be undertaken to support the consenting process from April 2023 to January 2024.

## 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. Chleansaid will be screened for EIA in late Spring 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 routing process:**

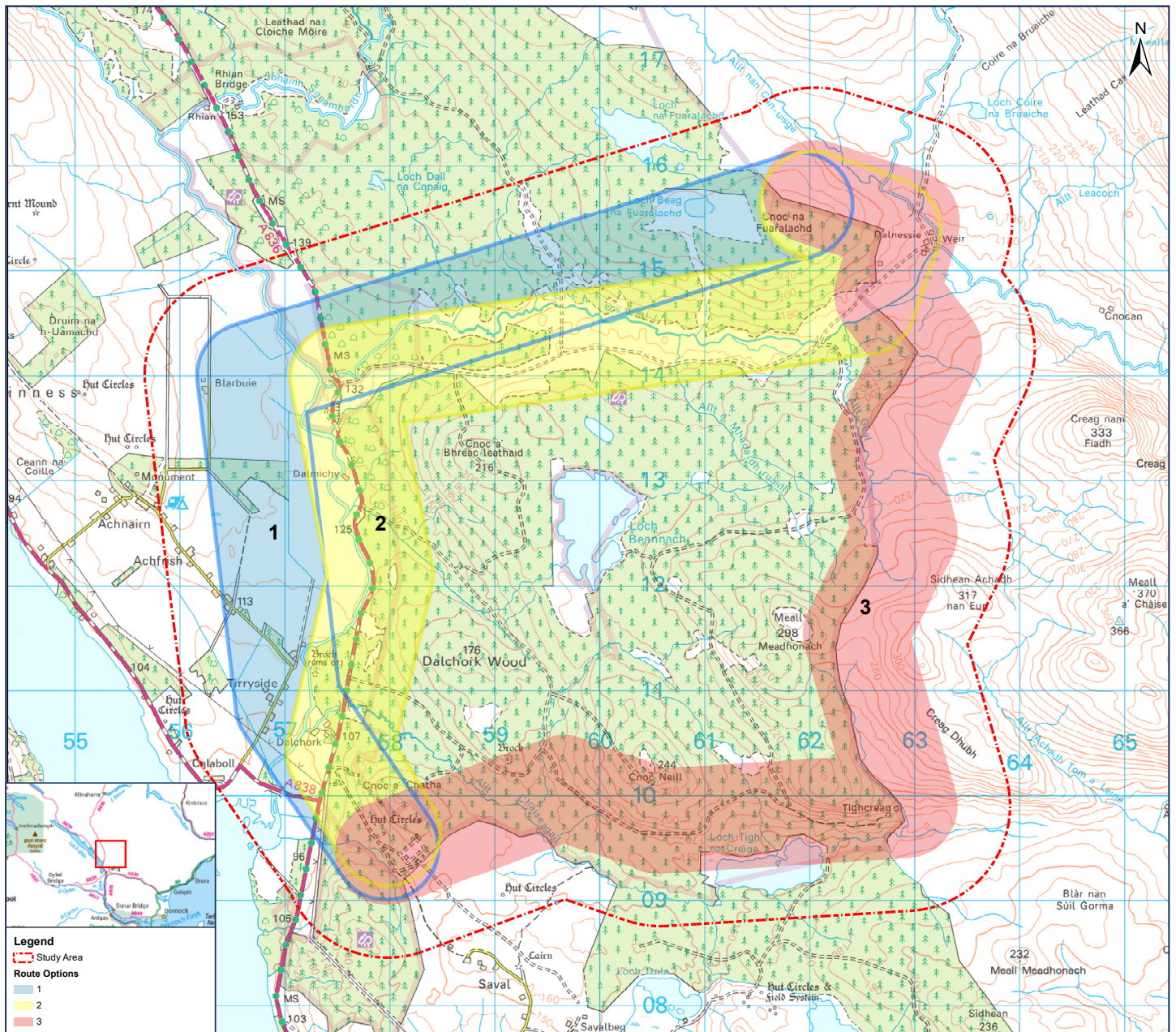
- Construction costs and buildability (largely affected by ground conditions, such as peat/rock/flooding/contaminated land, etc).
- Operations and maintenance requirements.
- Outage requirements and network constraints.
- Vicinity to other electrical overhead line and underground structures.
- Vicinity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

# Route options

Three potential Route Options were identified for detailed appraisal following an initial desk-based review of potential constraints. A Route Options appraisal was undertaken in December 2022 to select an optimal Route Option. The appraisal was informed by desk studies and walk over surveys. Workshops integrating engineering, environmental and cost considerations were then held to select the optimal Route Option as the starting point for developing an overhead line alignment. Route Option 2 shown below was selected as the optimal Route Option.

Consultation on the Route Options was undertaken with stakeholders between December 2022 and February 2023. As part of this consultation, a public consultation event was held in Lairg Community Centre on 24th January 2023. Following consultation on the Route Options, Route Option 2 was confirmed as the basis for subsequent alignment selection.

All consultation documentation is available from our project website [ssen-transmission.co.uk/projects/project-map/chleainsaid-wind-farm-connection](https://ssen-transmission.co.uk/projects/project-map/chleainsaid-wind-farm-connection)





# Alignment options

The map below shows the alignment options under consideration for the connection of Chleansaid Wind Farm substation to Dalchork substation.

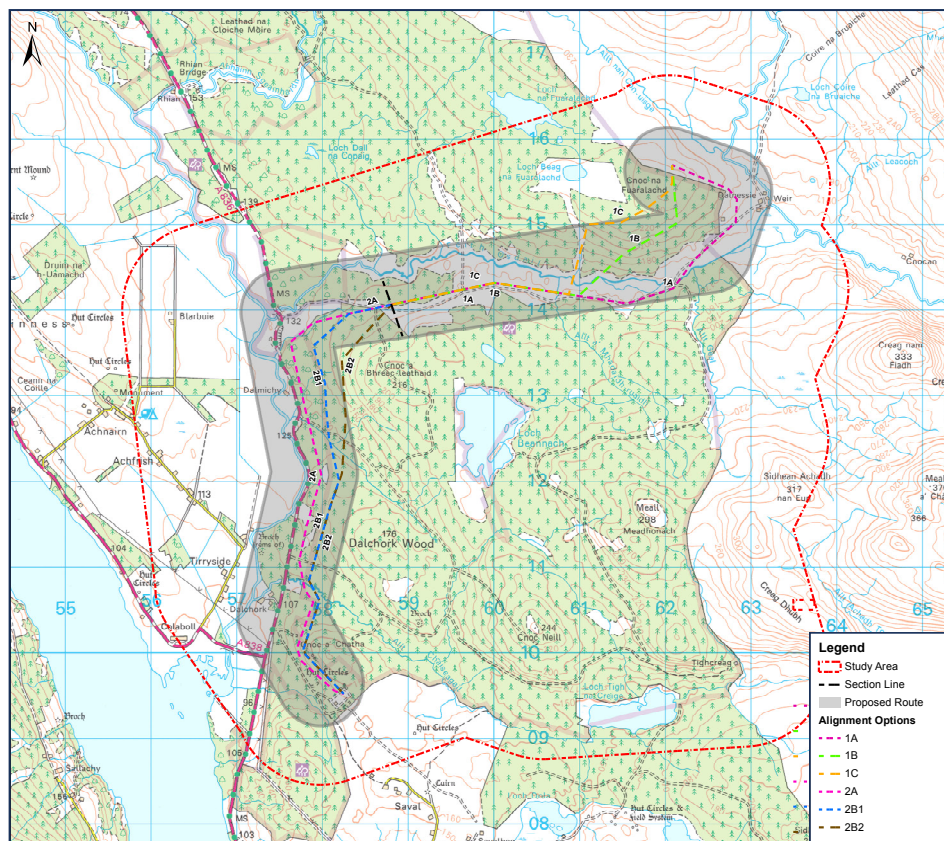
Alignment Options below were identified for detailed appraisal. For ease of appraisal and interpretation, the Selected Route has been divided into two 'Sections' for the definition of options with the Alignment Options described within each Section.

The aim is to avoid 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.

In consideration of these principles, the method of identifying the most viable alignment has involved the following four key tasks:



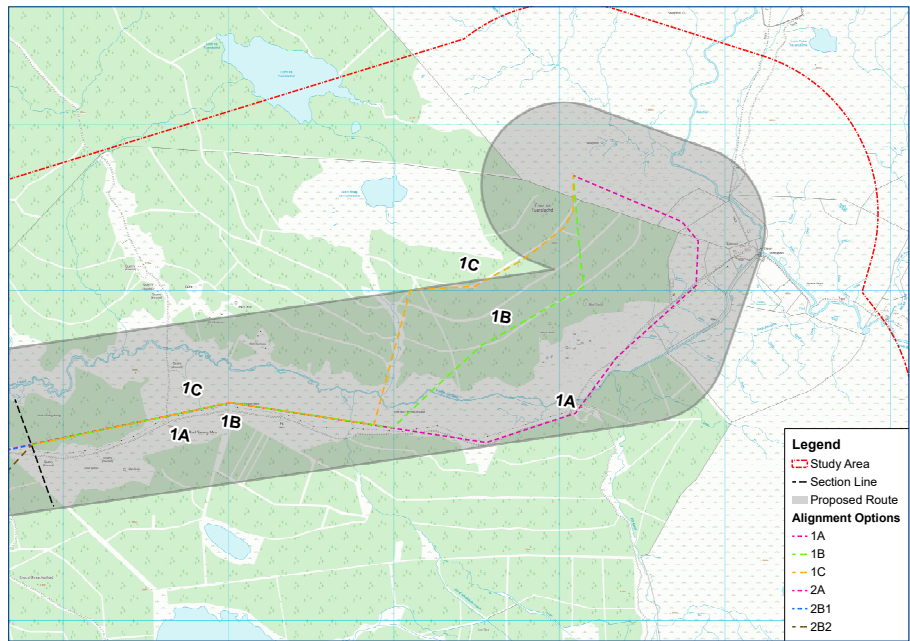
More information on the alignments is provided in each alignments option summary.



Environmental and Engineering RAG table	
Performance	Comparative appraisal
Most viable	Low potential for the development to be constrained.
↓	Intermediate potential for the development to be constrained.
	High potential for the development to be constrained.
Least viable	

Economic RAG Rating	
Performance	Comparative appraisal
Most viable	<120% of least cost option
↓	120% - 140% of least cost option
	>140% of least cost option
Least viable	

### Alignment Section 1



Option 1A travels south-east from the Chleainsaid Wind Farm Substation for approximately 850m towards Dalnessie estate. It then extends south for approximately 300m south towards the existing access track leading to Dalnessie estate, before running in a south-western direction adjacent to the access track for approximately 1km to the north-eastern extent of forestry block. Option 1A then heads west along the Feith Osdail watercourse valley, parallel to the access track, for approximately 3.2km.

Option 1B travels south from Chleainsaid Wind Farm Substation for approximately 660m through a block of commercial forestry to an existing forestry track, before traveling south-west along the forestry track, through the commercial forestry block and crosses the Feith Osdail watercourse for approximately 1.4km. Once across the watercourse and over the other side of the valley Option 1B intersects and follows the same route as Option 1A, traveling west across the valley, parallel to the access track for approximately 2.2km.

Option 1C initially follows Option 1B, traveling south from Chleainsaid Wind Farm Substation for approximately 100m towards the forestry block. Here, Option 1C splits and travels south-west and west along a forestry track for 1.2km to the western edge of the forestry block. Option 1C then travels south through an opening in the forestry block for approximately 850m, where it crosses the Feith Osdail watercourse and valley. Here, Option 1C follows the same route as Option 1A and Option 1B, traveling west across the valley, parallel to the existing access track and south of the watercourse.

Considering environmental, engineering and cost assessment, Option 1A is the proposed option.

RAG Impact rating - Environmental														RAG Impact rating - Engineering						Costs																		
Section 1 - Alignment options	Landscape and visual			Natural heritage				Cultural heritage		People		Land use		Planning		Infrastructure		Engineering design		Ground conditions		Construction		Proximity		Capital		Operational										
	Designations	Character	Visual	Designations	Protected species	Habitats	Biodiversity	Ornithology	Geology, hydrology, and hydrogeology	Designations	Cultural heritage assets	Proximity to dwellings	Agriculture	Forestry	Recreation	Policy	Proposals	Major crossings	Road crossings	Elevation	Atmospheric pollution	Contaminated Land	Flooding	Terrain	Peat	Access	Angle towers	Clearance distance	Wind Farms	Communication Masts	Construction	Public road improvements	Felling	Land assembly	Consents mitigation	Inspection and maintenance		
1A	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	
1B	Green	Red	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
1C	Green	Red	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green



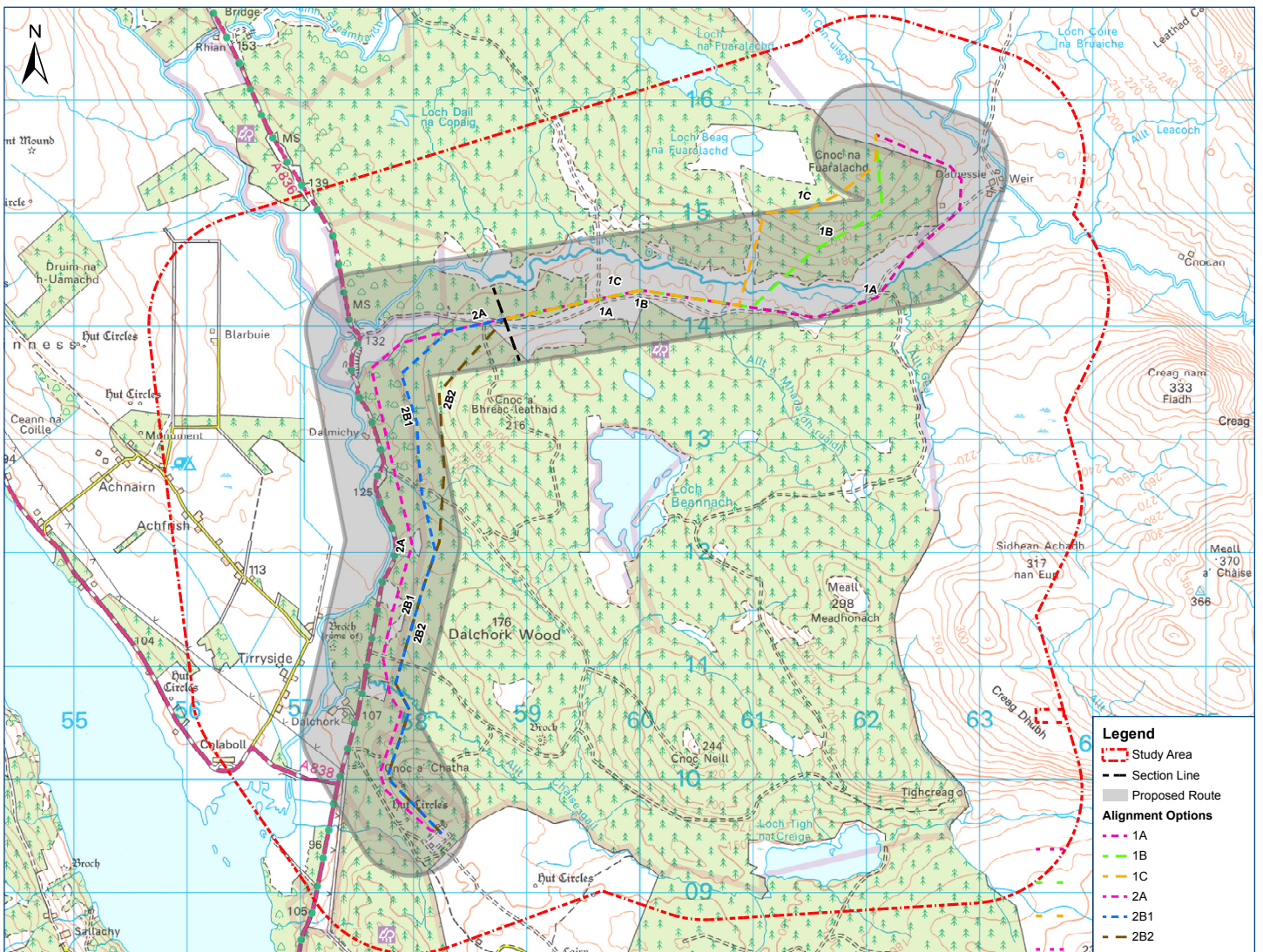
# Most viable alignment options

The analysis to date has concluded that Alignment Options 1A and 2B1 provide advantages over the other Alignment Options and could offer a viable alignment and solution for the project from an environment, engineering, and cost perspective. This is now subject to stakeholder engagement with the public, statutory bodies and landowners.

On balance and based on current analysis, it is considered that Alignment Options 1A and 2B1 are the most viable alignment options as:

- For Section 1, Option 1A has the potential to give rise to significant effects on cultural heritage designations, particularly in relation to setting impacts on the Scheduled Monuments located in proximity to all the Section 1 Alignment Options. Compared to the other Alignment Options, Option 1A has no significant impacts on commercial forestry as it avoids the existing commercial forestry blocks associated with Dalchork Wood. Option 1A is also considered to have substantially less impact upon the landscape character of the area and relevant planning policy.
- For Section 2, Option 2B1 has no significant impacts on landscape designations, character or visual. Option 2B1 has fewer significant impacts compared to the other Alignment Options, particularly in relation to landscape character and planning policy impacts. The presence of the existing Craig Rhiabhach 132kV overhead line also means Option 2B1 has the potential to run parallel and in close proximity to the existing Craig Rhiabhach 132kV overhead line, resulting in substantially less forestry and visual impact when compared to the other Alignment Options.

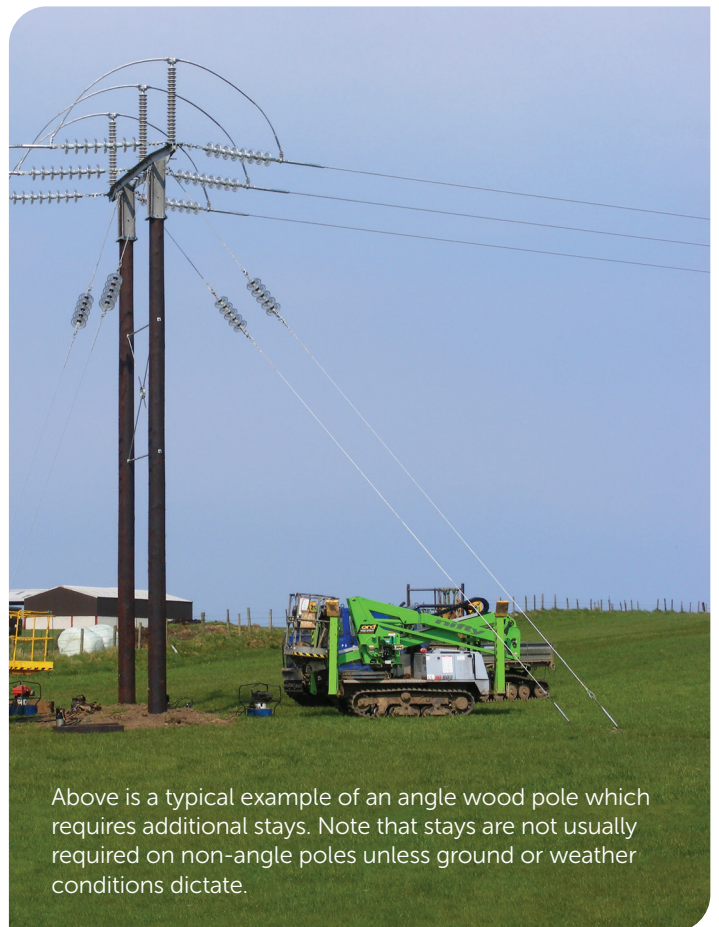
The Alignment that will be taken forward will require careful consideration during EIA Stage of the Project to achieve an acceptable final alignment with minimal environmental effects.



# 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 sourced 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.



# 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 adequately explained?
- Has the approach taken to select the most viable alignment been adequately explained?
- Are there any factors, or environmental features, that you consider may have been overlooked during the route selection process?
- Do you feel that the identified most viable alignment option is the most appropriate? Please provide an explanation of your answer.
- If you don't agree to our most viable alignment, which of the alignment options would you consider the best alignment option for SSEN Transmission to develop? Please provide an explanation of your answer.

## 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 and the proposed options adapted where necessary.

## Feedback


We will be seeking feedback from members of the public on this exhibition until **Friday 7th July 2023**.


Feedback is welcomed throughout the development of the project. To provide comments on the proposal or to gain further information on the project, or contact our Community Liaison Manager.



**Martin Godwin**  
Community Liaison Manager

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## Additional information

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

### Project website:

[ssen-transmission.co.uk/projects/project-map/chleainsaid-wind-farm-connection](https://ssen-transmission.co.uk/projects/project-map/chleainsaid-wind-farm-connection)

**Follow us on Facebook:**  
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**Follow us on Facebook:**  
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# 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 adequately explained?

Yes  No  Unsure

**Comments:**

**Q2** Has the approach taken to select the most viable alignment been adequately explained?

Yes  No  Unsure

**Comments:**

**Q3** Are there any factors, or environmental features, that you consider may have been overlooked during the route selection process?

Yes  No  Unsure

**Comments:**

**Q4** Do you feel that the identified most viable alignment option is the most appropriate?  
Please provide an explanation of your answer.

Yes  No  Unsure

**Comments:**

**Q5** If you don't agree to our most viable alignment, which of the alignment options would you consider the best alignment option for SSEN Transmission to develop? Please provide an explanation of your answer.

Comments:

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:** SSEN Transmission, 10 Henderson Road, Inverness, IV1 1SN

**Email:** martin.godwin@sse.com

**Online:** [ssen-transmission.co.uk/projects/project-map/chleansaid-wind-farm-connection/](https://ssen-transmission.co.uk/projects/project-map/chleansaid-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 project websites.

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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