# Achany Wind Farm Connection Project

## Consultation Booklet

June 2023

Scottish & Southern Electricity Networks

TRANSMISSION

## Contents

# 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.

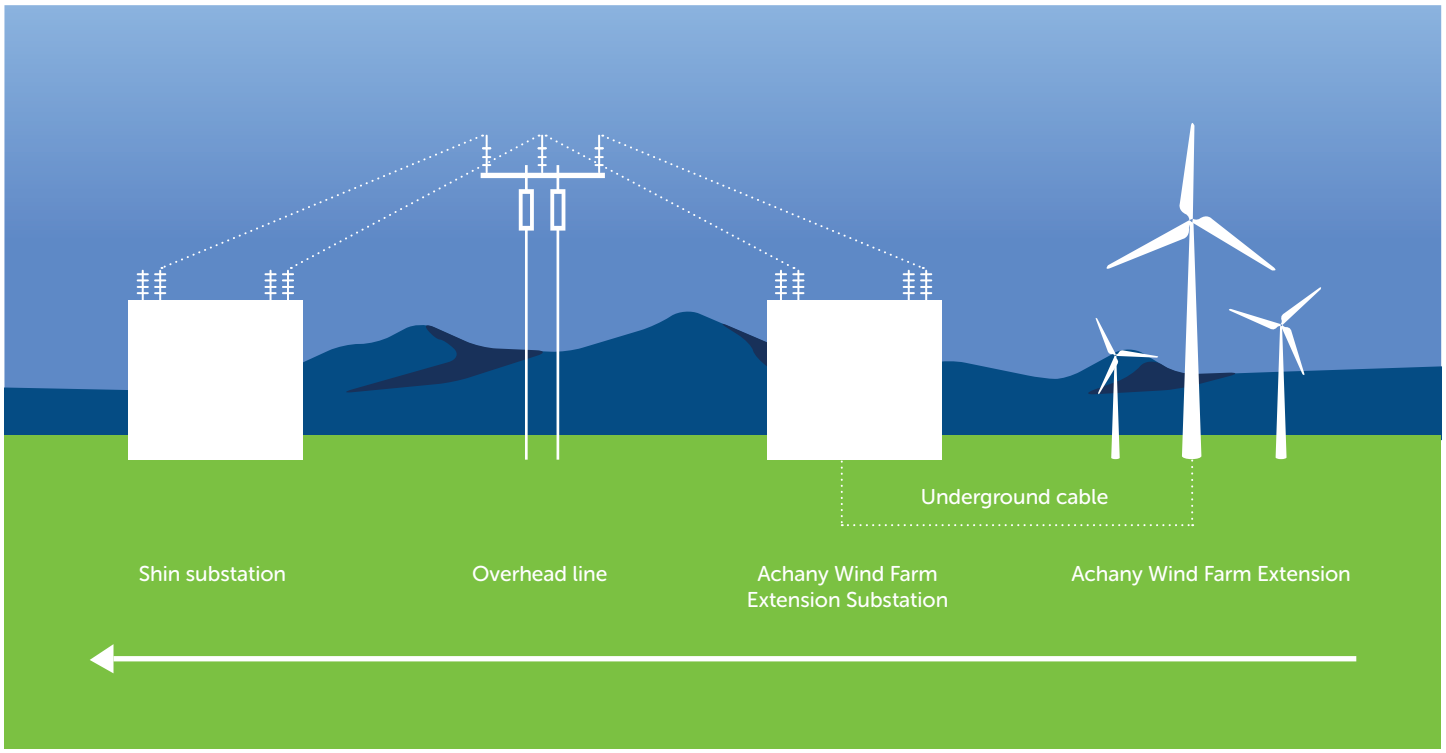
Scotland's transmission network has a strategic role to play in supporting delivery of the UK and Scotland's Net Zero targets. We're already a mass exporter of renewable energy, with around two thirds of power generated in our network area exported to demand centres further south. By 2050, the north 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.**




We are required to connect the Achany wind farm extension to the transmission network, to facilitate this we are proposing to construct a new 132kV overhead line on the connection route 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 18km in length between the existing Shin Substation and the Achany Wind Farm Extension 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.**

**July 2022**
Commencement of ornithology surveys across multiple route options.

**November 2022**
Optimal route consultation.

**June 2023**
Alignment consultation.

**November 2023**
Section 37 application submitted.

**March 2025**
Section 37 consent determination.

**June 2025**
Construction commences.

**March 2027**
Project completion.

# 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 optimal 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 optimal 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 optimal 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 Achany, 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 which 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.

The dimensions of a route will depend on the context provided by the corridor. A route may be several kilometres 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 an optimal route being selected.

### Stage 4: Alignment selection

Alignment selection seeks to identify an alignment within the optimal 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 optimal 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 alignment selection process is an optimal alignment which will be taken forward for formal environmental assessment and then 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 (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 from May 2022 and is ongoing in the form of bird surveys (both breeding bird and flight activity surveys). These high-level surveys help 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 an optimal alignment for the connection, further detailed studies and assessment work will be undertaken to support the consenting process from June to August 2023.

The results of these surveys will be analysed and reported on during late autumn. It will form part of the Section 37 submission that is available to public.

## 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. Achany will be screened for EIA in June 2023.

## Engineering and economic considerations

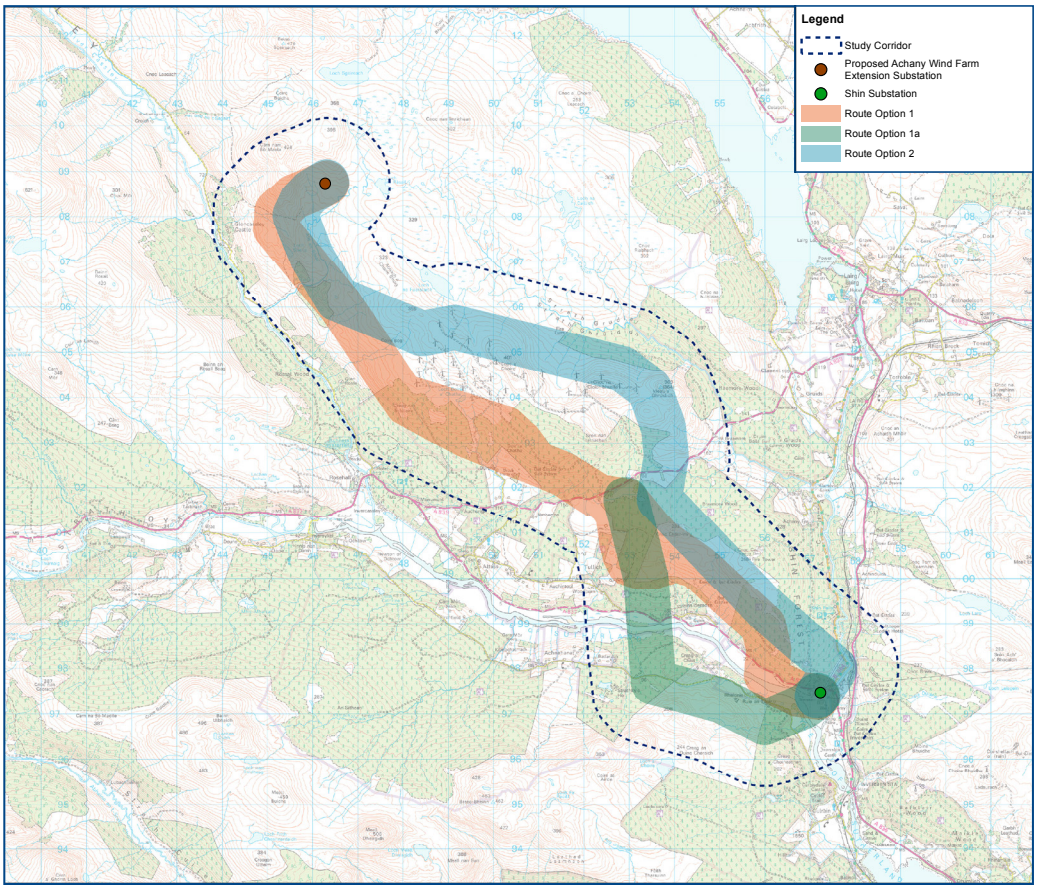
**In addition to the suite of environmental assessments undertaken, the following engineering and economic considerations form a key part of our routeing process:**

- 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 overhead line and underground structures.
- Vicinity to any other utility, overhead or underground.
- Wind farms.
- Communications masts.
- Urban development.
- Technology costs and design parameters.
- Site accessibility.
- Route length.

# Recap of the optimal route option

To recap on the optimal route option taken forward, based on Red-Amber-Green (RAG) ratings. A number of different routes were considered taking into account physical and development constraints, namely the topography and the operational wind farms within the area as well as numerous environmental designations. The optimal route selected is Route 1 as shown below, chosen as it had the least technical and environmental constraints. This was agreed with the Statutory Consultees to be a suitable route for more detailed alignment assessment to occur within. Detailed comments were received which have been considered at the alignment stage and will be considered as the detailed design progresses.

The route options assessed are shown in the following figure.




| Route options | Key topics relating to site | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Heritage | | | | | Cultural Heritage | | Landscape and visual | | | People | Land use | | | Planning | | Engineering | | |
| | Designations | Protected species | Habitats | Ornithology | Hydrology, Geology and Hydrogeology | Designations | Cultural Heritage Assets | Designations | Landscape character | Visual amenity | Residential properties and other sensitive receptors | Agriculture | Foresty | Recreation | Policy | Proposals | Infrastructure Crossings | Ground Conditions | Construction |
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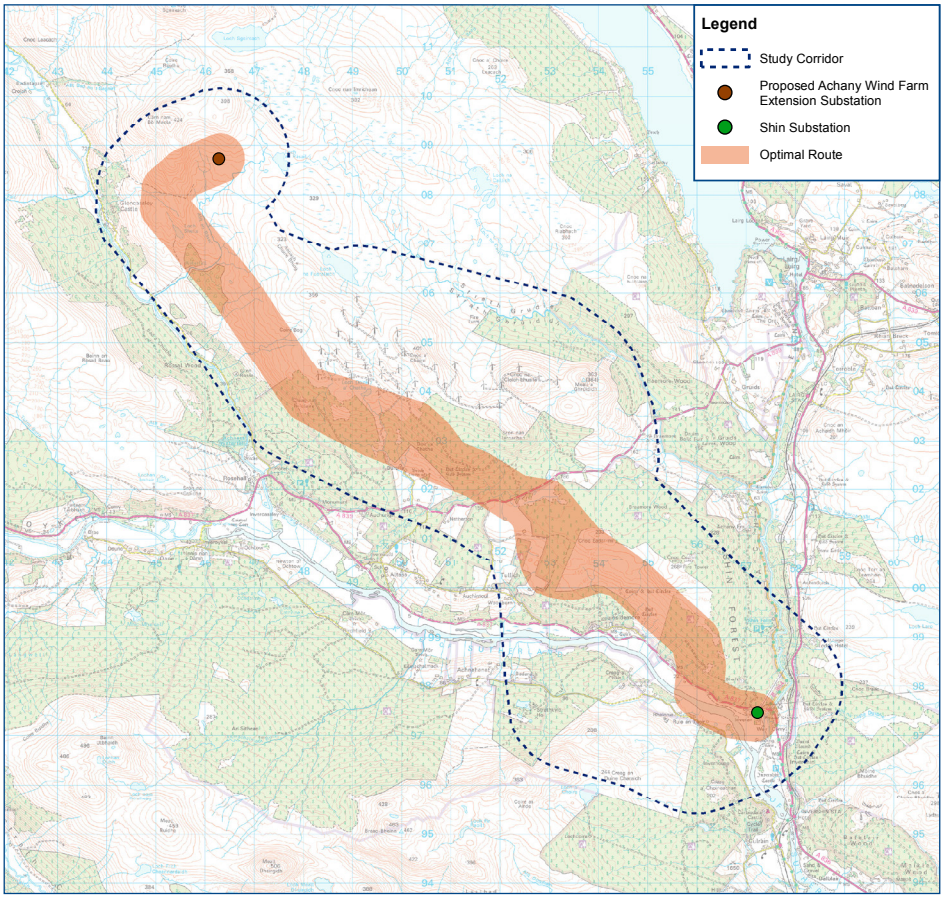
# Feedback from the routing consultation process

## SSEN Transmission published a route consultation document in October 2022. This followed on from a detailed routeing process and identified broad (typically 1km wide) routes through which a connection to the wind farm might be located.

Route Option 1 was assessed as the least constrained. Route Option 1 connects the optimal Achany Extension Wind Farm on-site substation to the operational Shin Substation and represents the most central route option of those being considered for the connection and is approximately 20km long. Route Option 1 leaves the Achany Extension Wind Farm substation and travels southwest for approximately 2km to leave the area of the turbines of the Achany Extension Wind Farm. It then turns in a south-easterly direction for approximately 8km remaining to the west of the turbines through Glen Rossal.

Route Option 1 would then widen to approximately 1.5km as it continues to travel southeast remaining to the east of the hamlet of Rosehall. After it has crossed the A839, it then widens again to a width of approximately 2km as it would pass to the south of Braemore wood (in which a consented wind farm may be developed) but to the north of the A837 and Linsidemore. After passing Linsidemore. Prior to reaching the village of Invernan, Route Option 1 would turn south to cross the A837. It would remain to the north of the Kyle of Sutherland River Estuary and turn east to connect to Shin substation from the northwest. Route Option 1 is shown in the following figure.




## Summary of key feedback on the routeing consultation:

- Potential impacts to historic monuments and their setting to be considered;
- NatureScot guidance on power lines and survey methods for onshore wind farms to be consulted;
- Connectivity with the SAC should be fully considered as part of any protected species surveys;
- Consideration of potential impacts to the qualifying features of the River Oykel SAC to be undertaken;
- Consideration of potential impacts on peatland habitats including Grudie Peatlands SSSI as part of surveys Consult the Linside Common Grazing committee;
- Liaison with Highland Forestry Limited on habitat management;
- Suitable habitat and specialist ornithological surveys required to understand baseline and avoid impact/ provide mitigation;
- Consideration on the use of UGC;
- Impact on flooding/drainage to be considered.

# Alignment selection consultation

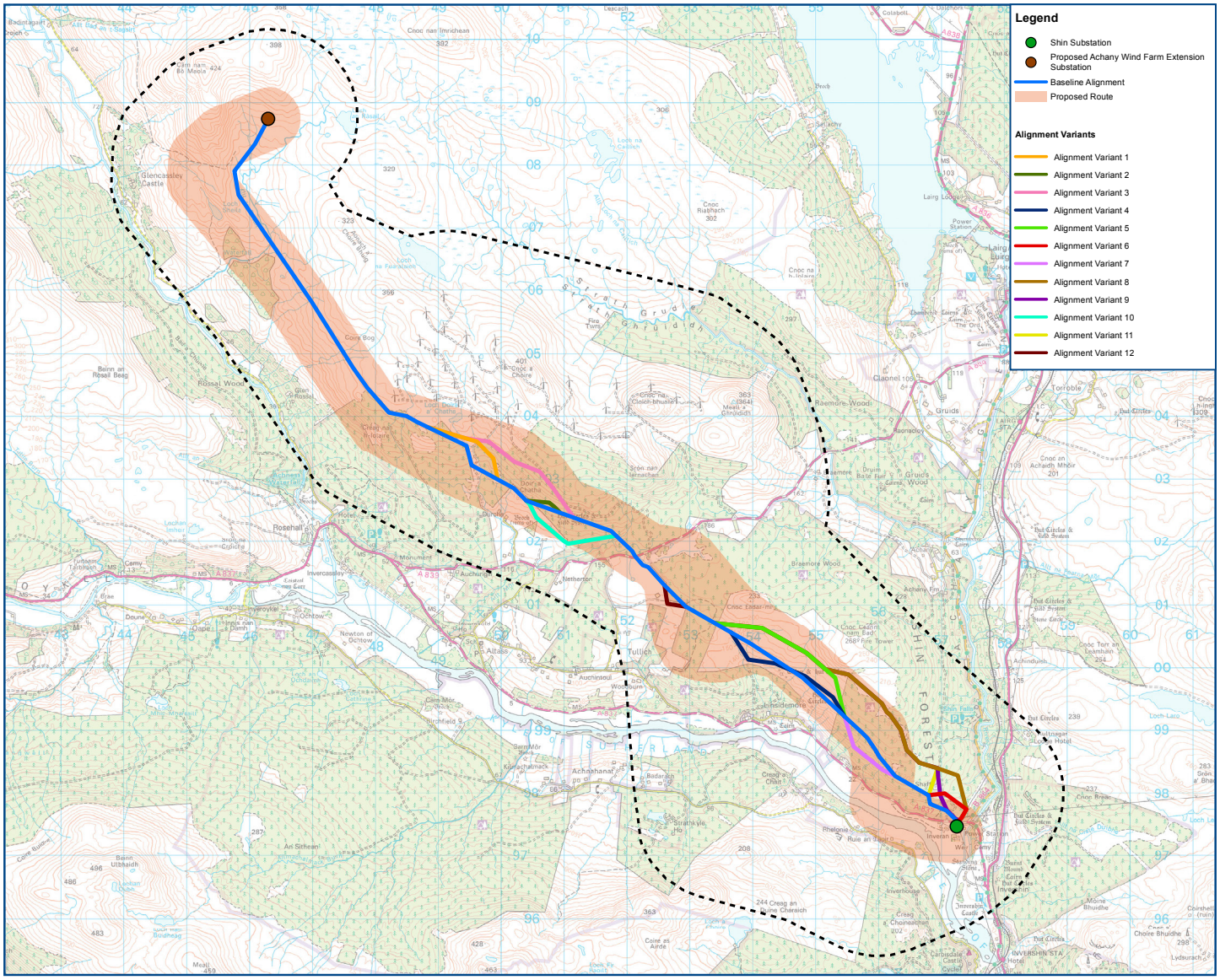
## SSEN Transmission is consulting on the selection of an optimal alignment. The consultation document posted on the project website provides the detailed justification for the optimal alignment presented.

Overhead lines and underground cables are subject to a detailed alignment selection process. This ensures that the least constrained alignment is selected and provides a balance between meeting technical engineering requirements, causes the least impact on the environment and is economically viable.

The process is iterative and will include consideration of stakeholder feedback and concerns so that they can be addressed, or further data collection and appraisal is undertaken to better define the nature and extent of potential constraints and their materiality.

As explained earlier, at the Route Consultation stage between October 2022 and January 2023 feedback was received. This has been considered and appraised at the Alignment stage.

All alignment options considered within Route 1 are shown in the following figure. In addition, large print outs of the alignment options, the variants and the environmental constraints are displayed on tables in the exhibition hall.




ssen-transmission.co.uk/projects/project-map/achany-wind-farm-extension-connection

# Achany alignment selection consultation

## The least constrained alignment

One technically feasible and economically viable alignment option which is likely to be the shortest connection while avoiding or minimising interaction with the environmental constraints was identified within Route 1. This is the "Baseline Alignment".

A number of variants (12 in total) branching from this were also developed to avoid localised constraints. The Baseline Alignment and the alignment variants have been defined as centrelines; however, it is assumed that Limits of Deviation (LOD) of approximately 100m either side of the alignment centrelines would be applied to the alignment taken forwards for detailed assessment and into the consenting process to allow for further design iterations during the environmental assessment process as more detailed survey information is gathered and analysed.

## Environmental constraints

In selecting the least constrained alignment on environmental grounds, consideration has been given to a number of factors and topic areas. Whilst there are potential constraints that are consistent across all topic areas, the key differentiators to consider in this alignment selection exercise are as follows:

**Landscape and Visual**

- Peatland and River Shin surface water catchment; Woodland loss, particularly woodland listed on the Ancient Woodland Inventory;
- Cultural heritage assets; and Recreation.
- Following the Routing process, these topics have been assessed in more detail using data obtained from initial site visits and preliminary site walkovers.

Generally, the Baseline Alignment is the least constrained, with the exception of near to Durcha and to the north of Linsidemore, where cultural heritage assets, people and recreational constraints are present. In these locations, Alignment Variant 1 and Alignment Variant 5 offer opportunities to minimise these constraints.

Around Durcha, Alignment Variant 1 and Alignment Variant 3 are both preferable to the Baseline Alignment in relation to cultural heritage assets. However, Alignment Variant 3 would lead to a slightly greater visual and recreational effects on a core path.

To the north of Linsidemore, Alignment Variant 5 is part of the northern group of variants and is preferable over the Baseline Alignment in terms of cultural heritage asset impacts, people and agriculture.

On balance, the overall environmentally least constrained alignment would be: Baseline Alignment with Alignment Variant 1 and Alignment Variant 5.

## Engineering constraints

The engineering appraisal of the alignments takes into consideration constraints such as road crossings, elevation, terrain, the requirement for angle towers and access, amongst others. It follows the same process as the environmental and economic appraisal in order to find the least constrained alignment. It has been determined that the above selection of Baseline Alignment with Alignment Variant 1, Alignment Variant 3 and Alignment Variant 5 is is feasible from an engineering perspective. The approach to Shin Substation will have to be refined following the final alignment proposal and technology solution.

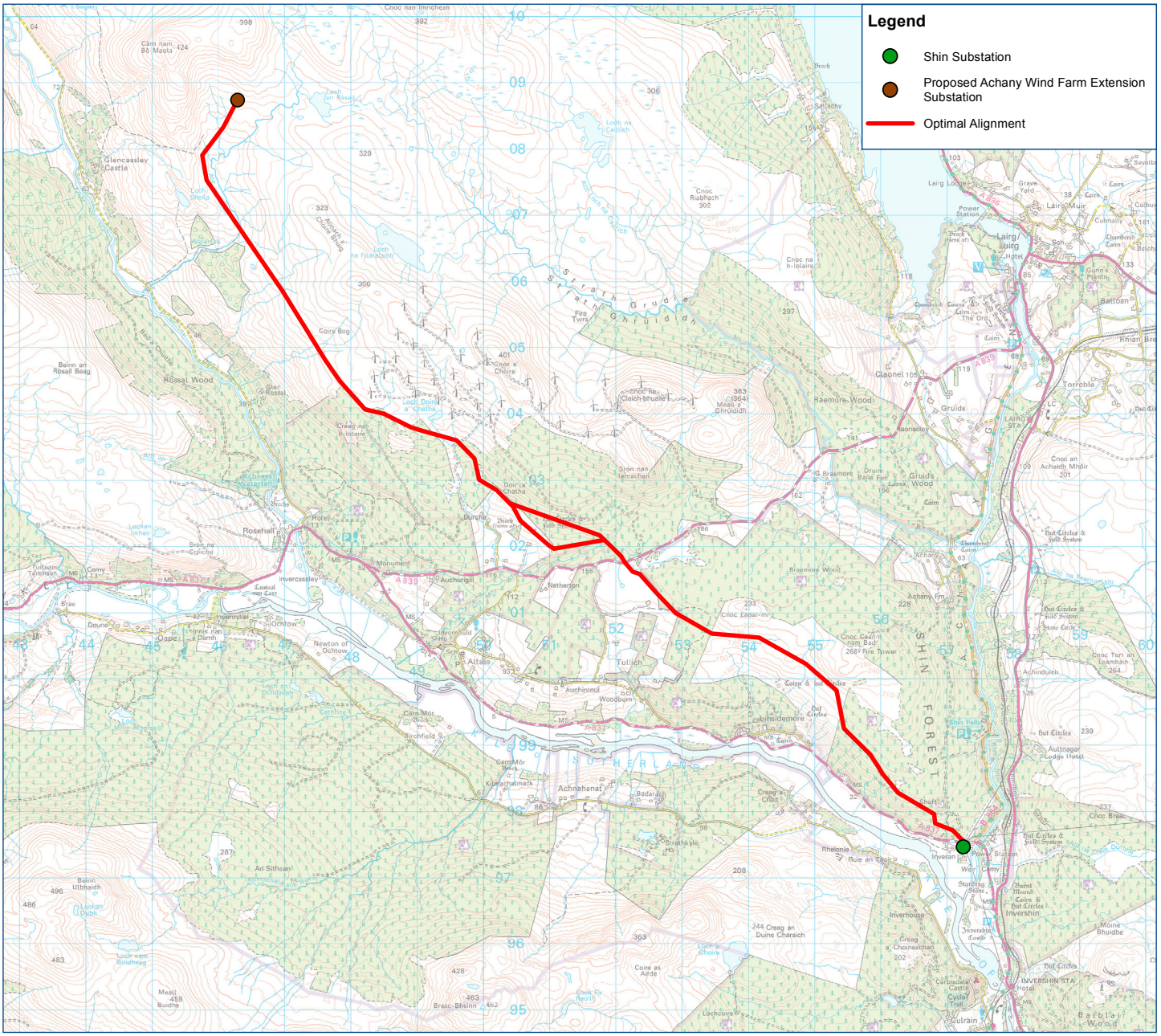
## Additional options

Variant 10 is also indicated as a potential alignment option. Environmental, economic and technical appraisal of this variant are ongoing, and it is included here for completeness.

# Optimal alignment option

## In selecting the optimal alignment, consideration has been given to a variety of environmental, technical and cost considerations relevant to this section, as detailed above. It is proposed that the Baseline Alignment with Variant 1 and 5 is taken forward as the optimal alignment. Variant 10 may be included in this optimal alignment once the selection process is complete.

The optimal alignment will undergo further review taking into account engineering and economic constraints and further consultation with statutory consultees and stakeholders to achieve an acceptable alignment with minimal environmental effects. This will then form the basis to take forward into detailed assessment and consenting.



# 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 clearly explained?
- Has the approach taken to select the most optimal alignment been adequately explained?
- 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 feel that the Alignment selected is the most appropriate? Please provide an explanation of your answer.
- If you don't agree with our Alignment, which of the Alignment options would you consider the best 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 14th July 2023**.

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


### Lisa Marchi

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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/project-map/achany-wind-farm-connection

**Follow us on Facebook:**
@ssencommunity

**Follow us on Twitter:**
@ssetransmission

# 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

**Comments:**

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

☐ Yes ☐ No ☐ Unsure

**Comments:**

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

☐ Yes ☐ No ☐ Unsure

**Comments:**

**Q4 Do you feel that the Alignment selected is the most appropriate? Please provide an explanation of your answer.**

☐ Yes ☐ No ☐ Unsure

**Comments:**

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

☐ Yes ☐ No ☐ Unsure

**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:** Scottish Hydro Electric Transmission, 10 Henderson Road, Inverness, IV1 1SN

**Email:** lisa.marchi@sse.com

**Online:** www.ssen-transmission.co.uk/projects/project-map/achany-wind-farm-extension-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.