

# CONTENTS

2.	THE ROUTEING PROCESS AND ALTERNATIVES	2-2
2.1	Introduction	2-2
2.2	Development Considerations	2-2
2.3	Design Solution	2-3
2.4	Approach to Route and Alignment Selection	2-3
2.5	Corridor Selection (Stage 1)	2-4
2.6	Route Selection (Stage 2): Overview	2-4
2.7	Route Selection (Stage 2): The Route Options	2-5
2.8	Route Selection (Stage 2): Reporting and Consultation	2-7
2.9	Alignment Selection (Stage 3): Overview	2-8
2.10	Alignment Selection (Stage 3): The Alignment Options	2-8
2.11	Alignment Selection (Stage 3): Reporting and Consultation	2-12
2.12	Further Consideration of Alternatives during the EA Process	2-13

# Figures

Figure 2.1: Corridor and Route Options

Figure 2.2: Proposed Route and Alignment Variants

# Appendices

Appendix 2.1: Summary of Consultation Responses at Route Selection Stage

Appendix 2.2: Summary of Consultation Responses at Alignment Selection Stage



# 2. THE ROUTEING PROCESS AND ALTERNATIVES

## 2.1 Introduction

- 2.1.1 This Chapter describes the routeing process and consideration of alternatives that have been undertaken for the Proposed Development.
- 2.1.2 The Proposed Development underwent a routeing appraisal process as described in Section 2.4 below, to establish an OHL route<sup>1</sup> and then an alignment<sup>2</sup> that was considered to provide an optimum balance in terms of environmental, technical and economic factors. The programme of consultation at routeing and alignment selection stage was designed to engage with key stakeholders in order to invite feedback on the rationale for, and approach to, the selection of the final alignment of the Proposed Development.
- 2.1.3 At route selection stage, the Applicant produced a Consultation Document<sup>3</sup>. This document was distributed to both statutory and non-statutory consultees. The consultation period was from October 2022 to January 2023 and the public consultation event was held in November 2022.
- 2.1.4 Following the conclusion of the route selection stage consultation period, a Route Stage Report on Consultation<sup>4</sup> was published, which confirmed the proposed route to be taken forward to the alignment selection stage and provided a summary of the responses received from key stakeholders (including statutory and non-statutory consultees, local communities, landowners and individual residents) during consultation. The feedback at route selection stage informed which route option was taken forwards to alignment selection stage.
- 2.1.5 At alignment selection stage, the Applicant produced a further Consultation Document<sup>5</sup> to seek feedback on their proposals. As with the route selection stage document, the alignment selection stage document was distributed to both statutory and non-statutory consultees. The consultation period was between May and July 2023 and included an in-person consultation event held in June 2023. As a result of the consultation feedback received, further discussions between the Applicant and consultees were conducted to further refine the alignment of the Proposed Development. This led to the publication of the Alignment Stage Report on Consultation<sup>6</sup> which confirmed the selection of the final alignment for the Proposed Development.
- 2.1.6 The following stages are described in this Chapter in further detail, along with their respective outcomes:
  - Design solutions considered;
  - The approach to the routeing and alignment selection stages of the project;
  - The route options process and consultation responses;
  - The alignment selection stage process and consultation responses; and
  - Other considerations to avoid or reduce potential effects.

### 2.2 Development Considerations

- 2.2.1 SSEN Transmission has obligations under section 9 of the 1989 Act to 'develop and maintain an efficient, coordinated and economical system of electricity transmission'.
- 2.2.2 Under Schedule 9 of the 1989 Act, 'when formulating proposals to generate, transmit, distribute or supply electricity', SSEN Transmission is required, to:

<sup>&</sup>lt;sup>1</sup> A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified constraints), which provides

a continuous connection between defined connection points.  $^{2}$  A centre line of an overhead line, along with the location of key angle structures.

<sup>&</sup>lt;sup>3</sup> SSEN Transmission (2022), Consultation Document: Route Options – Achany Wind Farm Extension Grid Connection (October 2022).

<sup>&</sup>lt;sup>4</sup> SSEN Transmission (2023), Report on Consultation: Route Options – Achany Wind Farm Extension Grid Connection (April 2023).

<sup>&</sup>lt;sup>5</sup> SSEN Transmission (2023), Consultation Document: Alignment Options - Achany Wind Farm Extension Grid Connection (June 2023);

<sup>&</sup>lt;sup>6</sup> SSEN Transmission (2024), Report on Consultation: Alignment Options – Achany Wind Farm Grid Extension Connection (September 2024)



- "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest"; and
- "do what [it] 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".
- 2.2.3 Furthermore, the requirements of the Construction (Design and Management) Regulations 2015<sup>7</sup> (CDM regulations) require that the project design aims to minimise hazards and reduce risks during construction.
- 2.2.4 Taking account of these obligations, SSEN Transmission has considered environmental, technical and economic factors in evaluating the reasonable alternatives to the Proposed Development, with the objective of identifying a proposed alignment and associated Limit of Deviation (LoD) which is 'technically feasible and economically viable' and 'which causes the least disturbance to the environment and to the people who live, work, visit and recreate within it'.

### 2.3 Design Solution

- 2.3.1 SSEN Transmission has determined that a trident H-wood pole is the preferred technological solution for the Proposed Development and would make use of this type of support structure for the OHL where possible. It is considered that trident H-wood poles provide the lowest cost solution whilst having the required electricity transmission capacity for this project, and minimising environmental effects where possible.
- 2.3.2 Early in the design process, it was established that the initial part of the connection from Achany Wind Farm Extension on-site substation to the proposed Cable Sealing End (CSE) pole structure, would be routed by way of underground cable (UGC). This avoids technical constraints and the potential 'wake effect' on the OHL from the consented Achany Wind Farm Extension wind turbines. The 'wake effect' of wind turbines refers to the excessive vibration on OHL components should they be too close. While the impact of the wake effect can vary depending on wind turbine height, local topography and specific OHL arrangements, the vibrations can lead to premature fatigue and failure of the OHL.
- 2.3.3 The route of the Proposed Development comprises UGC for approximately 1.2 km from the consented Achany Wind Farm on-site substation to the proposed CSE pole structure, where it would transition to 132 kV single circuit trident pole OHL for approximately 16 km, terminating at the existing Shin substation.

### 2.4 Approach to Route and Alignment Selection

- 2.4.1 Guidelines for the routeing of new high voltage overhead transmission lines have been established within the electricity supply industry. These guidelines are known as the 'Holford Rules'<sup>8</sup> and have been widely used throughout the UK since the 1960s. The 'Holford Rules' set out a hierarchical approach to routeing which advocates avoiding areas of high amenity value, minimises changes in direction, takes advantage of topography and minimises visual interaction with other transmission infrastructure.
- 2.4.2 SSEN Transmission has developed its own guidance, based on the principles set out in the Holford Rules, but broadening the basis for routeing decisions to reflect contemporary practice, and providing a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the routeing process.

<sup>&</sup>lt;sup>7</sup>UK Government (2015), *Construction (Design and Management) Regulations 2015*, Online, available at:

http://www.legislation.gov.uk/uksi/2015/51/contents/made [accessed 23rd June 2024].

<sup>&</sup>lt;sup>8</sup> Scottish Hydro Electric Transmission Limited (SHETL) (October 2004), The Holford Rules: Guidelines for the Routeing of New High Voltage Overhead Transmission Lines with NGC 1992 and SHETL 2003 Notes; Revision 1.01

Achany Wind Farm Extension Grid Connection: Environmental Appraisal Chapter 2: Routeing Process and Alternatives



- 2.4.3 The approach to route and alignment selection has therefore been informed by SSEN Transmission's guidance<sup>9</sup>. The guidance splits the routeing stage of a project into four principal stages, as follows:
  - Stage 0: Routeing Strategy Development;
  - Stage 1: Corridor Selection;
  - Stage 2: Route Selection; and
  - Stage 3: Alignment Selection.
- 2.4.4 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing environmental, technical and economic considerations together in a way which seeks to achieve the best balance at each stage. The stages that are carried out can vary depending on the type, nature of and size of a project. Consultation is carried out at each stage of the process where relevant. Each stage is described in further detail in the following Sections.
- 2.4.5 At routeing strategy development stage (Stage 0), a range of factors to determine the most appropriate technical solution were considered. The most appropriate solution for the Proposed Development in terms of operation and maintenance of the network, and in the best interest of the consumer, was considered to be OHL over UGC wherever possible.

## 2.5 Corridor Selection (Stage 1)

2.5.1 The corridor selection stage (Stage 1) identified an initial broad search area for the consideration and analysis of route options. The corridor was developed to encompass a range of feasible route options between the two connection points at the Achany Wind Farm Extension on-site substation and the Shin substation (see Figure 2.1: Corridor and Route Options). Stage 1 was combined with the route selection stage (Stage 2) in this project.

#### 2.6 Route Selection (Stage 2): Overview

- 2.6.1 The route selection stage (Stage 2) of the project involved the identification of route options, and an appraisal of environmental, technical and economic constraints of the route options, prior to arriving at a preferred route for the purposes of consultation and a proposed route to take forward to the alignment selection stage (Stage 3). For the Proposed Development, the route selection process was carried out between July 2022 and April 2023.
- 2.6.2 Route options were initially identified by SSEN Transmission utilising a specialist routeing software tool, and following desk-based review, informed by prior knowledge and experience of the area and making use of landform while remaining sensitive to existing infrastructure, three route options were decided upon for appraisal.
- 2.6.3 The three route options were identified at generally 1 km width. However, in some areas, in order to take account of known potential constraints, namely existing and proposed wind farms, a route option width of up to 2 km was established.
- 2.6.4 Desk-based studies were carried out to identify a broad range of potential constraints and opportunities within the three route options. The desk-based studies were also supplemented by high-level walkover assessments by specialist consultants during July and August 2022. These walkover surveys obtained further site data and observations of localised constraints, such as cultural heritage features and the composition of forestry.
- 2.6.5 In accordance with the steps outlined in the Holford Rules<sup>8</sup> and SSEN Transmission's guidance, 'Procedures for Routeing Overhead Lines and Underground Cables of 132 kV and above'<sup>9</sup>, the following principles were

Achany Wind Farm Extension Grid Connection: Environmental Appraisal Chapter 2: Routeing Process and Alternatives

<sup>&</sup>lt;sup>9</sup> SSEN Transmission (September 2020), Procedures for Routeing Overhead Lines and Underground Cables of 132 kV and above



taken into account as far as practicable at the routeing stage and were considered in more detail during Stage 3 (alignment selection):

- Avoid if possible major areas of highest amenity value (including those covered by national and international designations and other sensitive landscapes);
- Avoid by deviation, smaller areas of high amenity value;
- Try to avoid sharp changes of direction and reduce the number of larger angle pole structures required;
- Avoid skylining the route in key views and where necessary, cross ridges obliquely where a dip in the ridge provides an opportunity;
- Target the route towards open valleys and woods where the scale of poles or towers will be reduced and views broken by trees (avoid slicing through landscape types and try to keep to edges and landscape transitions);
- Consider the appearance of other lines in the landscape to avoid a dominating or confusing wirescape effect; and
- Approach urban areas through industrial zones and consider the use of undergrounding in residential and valued recreational areas.

## 2.7 Route Selection (Stage 2): The Route Options

- 2.7.1 The route options were identified within the corridor as identified at Stage 1, as described in **Section 2.5** of this Chapter. Appraisal of route options involved systematic consideration against the topic areas noted below:
  - Environmental:
    - Natural Heritage;
    - Cultural Heritage;
    - Proximity to Dwellings;
    - Landscape and Visual;
    - $\circ \quad \text{Land Use; and} \quad$
    - o Planning.
  - Technical:
    - Infrastructure Crossings;
    - Environmental Design;
    - Ground Conditions;
    - Construction and Maintenance; and
    - **Proximity**.
  - Cost
    - o Capital; and
    - $\circ$  Operational.
- 2.7.2 A Red-Amber-Green (RAG) rating was applied to each topic area for each route option, indicating potential constraint to development (red indicating high potential for the development to be constrained, amber intermediate potential and green low potential).
- 2.7.3 The options identified and appraised during the route options stage are described below and shown on **Figure 2.1**.
  - Route Option 1 represented the most central route option and was approximately 18.5 km long. It travelled generally in a south-easterly direction for its duration to connect into Shin substation from the



north-west. To allow for the existing Rosehall Wind Farm, Route Option 1 widened to approximately 1.5 km, remaining to the east of the hamlet of Rosehall. After crossing the A839, it then widened again to a width of approximately 2 km to accommodate the proposed turbines of a proposed wind farm called Braemore Wood Wind Farm, while keeping to the north of the A837 and Linsidemore. It should be noted that, while Braemore Wind Farm received section 36 consent from Scottish Ministers in October 2017, as more than five years have now passed this consent has lapsed and the wind farm is no longer considered a constraint to this development (THC ref: 10/05102/S36).

- Route Option 1a was approximately 20.5 km in total length and followed Route Option 1 for the first approximately 12 km, before branching off to offer an alternative route after the A839 crossing to approach Shin substation from a different angle. Route Option 1a travelled directly south after the A839 road crossing and continued south to cross the A837 to the west of the township of Linsidemore crossing the Kyle of Sutherland River Estuary. On the south side of the Kyle of Sutherland River Estuary, upon reaching the hamlet of Rhelonie and a minor road, Route Option 1a turned southeast. Travelling along the minor road for approximately 3 km, before turning northeast to cross the Kyle of Sutherland River Estuary a second time and connect into Shin substation from the south-west.
- Route Option 2 represented the most eastern route option and was approximately 20 km long. It travelled to the north of the operational Achany Wind Farm turbines then continued south to travel through Raemore Wood to the west of the hamlet of Achany, crossing the A839 east of Auchurigill. Route Option 2 continued travelling southeast remaining north of the A837 and passing to the north of the village of Invernan through Shin Forest. Reaching the B864 and the River Shin, Route Option 2 turned southwest through an already existing way leave in Shin Forest, where it crossed the A837 to connect into Shin substation from the north-east. Route Option 2 offered an alternative to passing to the south of the existing infrastructure in the area.
- 2.7.4 From an **environmental** perspective, the comparative analysis of route options highlighted that Route Option 1 was overall the preferred route option. The key constraints were natural heritage designations, habitats, landscape and visual, forestry, policy and proposals. Route Option 1 was the preferred route option in relation to natural heritage designations, although it had the same RAG rating as Route Option 2, it encompassed less Ancient Woodland Inventory (AWI) woodland than Route Option 2. Route Option 1a was the least preferred in in relation to natural heritage designations as it would pass over the River Oykel SAC and the Kyle of Sutherland Marshes SSSI at two locations. For habitats, all route options passed through large areas of Annex 1 habitats and peatland habitats, although Route Option 2 had the same rating as Route Option 1, it traversed a greater extent of blanket bog habitat making Route Option 1 the preferred route option, and again Route Option 1a was considered the least preferable. In terms of landscape character, Route Option 1 was preferred as it is largely confined to landscapes of lower sensitivity, and which have reasonably good opportunity to accommodate an OHL without any noticeable degree of change to landscape characteristics. Route Option 2 was the preferred route option in relation to forestry as it encountered less woodland overall. In relation to policy, Route Option 1 and Route Option 2 had the potential for some constraint in areas that may preclude adherence to planning policy, particularly in relation to natural heritage designations. Route Option 1a had the potential to be highly constrained and was therefore the least preferable option in relation to planning policy.
- 2.7.5 From an **engineering** perspective, Route Option 1 was also considered the most preferred. The key technical constraints were elevation and proximity to wind farms. The elevation for all the route options remained above 200 m for at least 50% of their lengths. OHLs at that elevation require a robust design due to extreme climatic loadings. Route Option 2 was above 200 m AOD at least 20% more than Route Options 1 and 1a making it the least preferred. Although Route Options 1 and 1a are routed through existing turbines, the separation distance of three-rotor-diameter to these would likely have been able to be maintained. However, Route Option 2 was unlikely to avoid the three-rotor-diameter buffer zone from the existing turbines.
- 2.7.6 From a **cost** perspective, all route options were considered to be comparable.

Scottish & Southern Electricity Networks

2.7.7 Overall, it was therefore considered that **Route Option 1** was the preferred route on environmental, engineering and cost grounds. The preferred route was then taken forwards to consultation for further scrutiny.

#### 2.8 Route Selection (Stage 2): Reporting and Consultation

- 2.8.1 The route options appraisal was set out in the Consultation Document: Route Options<sup>3</sup>, published in October 2022. The document provided a summary of project need, the route optioneering process that had been undertaken and a description of the route options appraised. The document sought comments from stakeholders and members of the public on the route option studies undertaken, as well as the rationale for, and approach to, the selection of the preferred route.
- 2.8.2 An in-person public consultation event took place at the Lairg Community Centre, The Main Street, Lairg IV27
   4DD, on 22 November 2022; 14:30 19:30.
- 2.8.3 Consultation events were advertised in the local press, on SSEN Transmission's social media channels and on the dedicated project website<sup>10</sup>. A mail drop of a booklet and letter informing of the event was also carried out to approximately 1,390 households along the route options ahead of the consultation event. A total of 13 people attended the public consultation event on 22 November 2022. One feedback form was received by post. No online feedback forms were received after the virtual consultation.
- 2.8.4 Comments received were documented in a Report on Consultation (April 2023)<sup>4</sup> which set out the consultation process during the route option stage of the Proposed Development between October 2022 and January 2023. A summary of the consultation responses received at route selection stage, as well as the SSEN Transmission project responses, can be seen in Appendix 2.1: Summary of Consultation Responses at Route Selection Stage.
- 2.8.5 As described in the Report on Consultation<sup>4</sup>, the route stage consultation process raised a number of comments seeking clarifications or setting requirements for further assessment. These comments included requests for additional detail on the connection, recommendations for continued consultation with stakeholders, and the importance of various surveys / assessments for protection of environmental aspects as the project progresses.
- 2.8.6 Of particular note was the consultation response from Forestry and Land Scotland (FLS), who raised a number of concerns with the three route options, and who stated an initial objection to the proposal on the grounds that:
  - the OHL could have a visual effect due to its wayleave cutting across the hillside through mature forest;
  - the OHL could result in a loss of tree cover due to the line cutting through mature conifer crop; and
  - the OHL could potentially have some effect on future forestry operations.
- 2.8.7 SSEN Transmission liaised further with FLS to understand their concerns in more detail and to inform the alignment options that were be brought forwards into Stage 3 (alignment selection) of the project, as described below.
- 2.8.8 The Report on Consultation<sup>4</sup> also confirmed that all relevant environmental surveys would be conducted as the project progressed and all relevant consultees would continue to be engaged with. Comments following the route option stage consultation event also queried why the consultation was held in Lairg and not closer to the project. This was taken into account and all later consultations were held in Rosehall, as described in Section 2.11 below.

<sup>&</sup>lt;sup>10</sup> SSEN Transmission (2025) Achany Wind Farm Extension Connection, Online, available at: https://www.ssen-transmission.co.uk/projects/projectmap/achany-wind-farm-extension-connection, [accessed 13<sup>th</sup> March 2025].



2.8.9 The Report on Consultation confirmed that **Route Option 1** would be taken forward as the proposed route for the consideration of alignment options at Stage 3.

#### 2.9 Alignment Selection (Stage 3): Overview

- 2.9.1 The alignment selection stage of the project sought to determine an alignment, subject to a Limit of Deviation (LoD) of approximately 100 m (approximately 50 m either side of the alignment centreline), within the proposed route identified during the route options stage of the project (described above).
- 2.9.2 For the Proposed Development, the alignment selection process was carried out between May 2023 and August 2024.
- 2.9.3 As can be seen in **Figure 2.2: Proposed Route and Alignment Variants**, a 'Baseline Alignment' was identified within the proposed route that was identified during the route selection stage of the project (described above), on the basis of it being the most technically feasible and economically viable alignment whilst minimising interaction with the environmental constraints identified. A number of alignment 'variants' were then identified from the Baseline Alignment in order to avoid localised constraints.
- 2.9.4 Whilst Route Option 1 was selected as the proposed route, some of the alignment variants that were identified for appraisal went beyond its extent, across a short section in Shin Forest. This was to take advantage of an existing forestry operational corridor where a now removed OHL crossed the A837 to connect into Shin substation. This area formed part of the appraisal of Route Option 2 during the route selection stage.
- 2.9.5 The localised constraints that the alignment options sought to avoid included dwellings and existing / proposed infrastructure. Alignment variants also sought to avoid peat which is present in the area, including peat hags, wet ground and lochans. In considering the potential environmental constraints, the following tasks were undertaken:
  - Desk-based review and targeted site survey by project landscape architects, ecologists, ornithologists, archaeologists, geologists and hydrologists to review alignment variants;
  - Targeted Phase 1 / National Vegetation Classification (NVC) habitat surveys and protected species surveys to supplement existing data;
  - Targeted peat probing surveys to establish peat depth level in selected alignment variants;
  - Review of ornithological survey data and records for the area, including requests for data held by RSPB, and targeted bird surveys to supplement existing survey data;
  - Review of comments received from stakeholders, including landowners during the route selection stage;
  - Workshops to discuss alignment options prior to the identification of a preferred alignment and design solution;
  - Site reconnaissance visits by the SSEN Transmission engineering team and environmental consultants to review alignment options; and
  - Virtual meetings with FLS given the interaction with the project and FLS land and FLS responses to route stage consultation.

### 2.10 Alignment Selection (Stage 3): The Alignment Options

2.10.1 As described above, a 'Baseline Alignment' was identified from which a number of alignment 'variants' were then identified. A description of the Baseline Alignment and the 12 alignment variants assessed and presented at alignment stage consultation, as shown in the June 2023 Consultation Document, are set out in Table 2.1: Alignment Options and Variants Presented at Alignment Stage Consultation below (see also Figure 2.2).



Alignment Option	Description	Reason for Development
Baseline Alignment	The Baseline Alignment leaves Achany Wind Farm Extension on-site substation and travels southwest for approximately 1 km through an area proposed for wind turbine development as part of the Achany Wind Farm Extension. It then turns in a south-easterly direction remaining to the west of the existing wind turbines of the operational Achany Wind Farm through Glen Rossal and to the south of the operational Rosehall Wind Farm. The Baseline Alignment would continue in a south-easterly direction, and after it has crossed the A839, it would pass to the south of Braemore wood, while keeping to the north of the A837 and Linsidemore. After passing Linsidemore, prior to reaching the village of Invernan, the Baseline Alignment would travel south to cross the A837. It would remain to the north of the Kyle of Sutherland River Estuary and connect into Shin substation from the northwest. The Baseline Alignment is approximately 17 km in length.	The Baseline Alignment was developed to be an environmentally, technically and economically feasible alignment. It was designed to be the shortest connection which avoids or minimises interaction with the environmental constraints and challenging ground conditions of the area. All alignment variants to the Baseline Alignment exist to avoid a localised constraint.
Alignment Variant 1	Alignment Variant 1 is approximately 1.5 km in length and departs from the Baseline Alignment to the south of Rosehall Wind Farm. It would initially travel northeast to the north of the Baseline Alignment, passing over a core path and through some sparse forestry. It would then turn southeast to re-join the Baseline Alignment northwest of Durcha.	Alignment Variant 1 was developed to reduce the potential for visual constraints associated with a core path, in comparison to the Baseline Alignment.
Alignment Variant 2	Alignment Variant 2 is approximately 0.6 km in length and departs from the Baseline Alignment to the northeast of Durcha, directly to the north of the hut circles at Doir A' Chatha. It would curve slightly north then south to re-join the Baseline Alignment.	Alignment Variant 2 was developed to minimise potential effects on a cultural heritage asset, in comparison to the Baseline Alignment.
Alignment Variant 3	Alignment Variant 3 is approximately 2.8 km in length and departs from the Baseline Alignment to the south of Rosehall Wind Farm. The variant takes a more northerly route through the forest, travelling parallel to a Core Path for a short distance. Alignment Variant 3 would then re-join the Baseline Alignment to the east of the hut circles at Doir A' Chatha.	Alignment Variant 3 was developed to avoid a cultural heritage asset, in comparison to the Baseline Alignment.

## Table 2.1: Alignment Options and Variants Presented at Alignment Stage Consultation



Alignment Option	Description	Reason for Development
Alignment Variant 4	Alignment Variant 4 is approximately 2.4 km in length and departs from the Baseline Alignment approximately 1 km to the northwest of Linsidemore. This variant initially takes a more southerly route than the Baseline Alignment before crossing back over to its northern side at a slightly higher elevation before re-joining the Baseline Alignment east of Linsidemore.	Alignment Variant 4 was developed to minimise potential effects on a cultural heritage asset, in comparison to the Baseline Alignment.
Alignment Variant 5	Alignment Variant 5 is approximately 2.8 km in length and departs from the Baseline Alignment approximately 1.2 km to the northwest of Linsidemore. It would travel east, at a higher elevation before re-joining the Baseline Alignment east of Linsidemore.	Alignment Variant 5 was developed to minimise potential effects on cultural heritage assets, in comparison to the Baseline Alignment.
Alignment Variant 6	Alignment Variant 6 is approximately 1 km in length and would depart from the Baseline Alignment approximately 0.7 km to the northeast of Shin substation. It would travel east then southeast then southwest to approach Shin substation via an existing forestry operational corridor in Shin Forest. It would cross the A837 to connect into Shin substation from the northeast.	Alignment Variant 6 was developed to take advantage of an existing forestry operational corridor that will be left behind after the removal of an existing OHL.
Alignment Variant 7	Alignment Variant 7 is approximately 1.3 km in length and would depart from the Baseline Alignment to the east of Linsidemore. It would travel to the south of the Baseline Alignment on slightly lower ground to pass through the forestry. It would re-join the Baseline Alignment to the northwest of Shin substation.	Alignment Variant 7 was developed to minimise effects on forestry, in comparison to the Baseline Alignment in this area.
Alignment Variant 8	Alignment Variant 8 is approximately 5.7 km in length and departs from the Baseline Alignment as Alignment Variant 5 would. The alignment variant is located to the north of the Baseline Alignment, initially along the northern border of the forestry plantation. Within Shin Forest, Alignment Variant 8 would turn south then southwest to approach Shin substation via an existing forestry operational corridor in Shin Forest. It would cross the A837 to connect into Shin substation from the northeast.	Alignment Variant 8 was developed to minimise effects on forestry in comparison to the Baseline Alignment, and to take advantage of an existing forestry operational corridor that will be left behind after the removal of an existing OHL.
Alignment Variant 9	Alignment Variant 9 is approximately 5.5 km in length and departs from the Baseline Alignment as Alignment Variant 8 would. Within Inveran Wood, Alignment Variant 9 would turn south then southeast for approximately 0.8 km. Then, for a distance of approximately 0.1 km, Alignment Variant 9 would turn southwest to approach Shin substation via the final extent of an existing forestry operation corridor. It	Alignment Variant 9 was developed to avoid potential effects on woodland recorded on the AWI, in comparison to Alignment Variant 8.



Alignment Option	Description	Reason for Development
	would cross the A837 to connect into Shin substation from the northeast.	
Alignment Variant 10	Alignment Variant 10 is approximately 1.7 km in length and departs from the Baseline Alignment to the north of Durcha. It would travel southeast to the south of the Baseline Alignment along a forestry edge before turning northeast to connect back into the Baseline Alignment east of Durcha, to the north of the Allt Mor and the A839.	Alignment Variant 10 was developed to minimise felling, in comparison to the Baseline Alignment in this area.
Alignment Variant 11	Alignment Variant 11 is approximately 4.9 km in length and departs from the Baseline Alignment as Alignment Variant 9 would. Within Inveran Wood, Alignment Variant 11 would turn southwest for a distance of approximately 0.5 km before re-joining the Baseline Alignment approximately 0.5 km northwest of Shin substation.	Alignment Variant 11 was developed to minimise effects on forestry, in comparison to the Baseline Alignment and in comparison to Alignment Variants 8 and 9.
Alignment Variant 12	Alignment Variant 12 is approximately 0.6 km in length and departs from the Baseline Alignment to the north of Tullich, following around a forestry edge going south for approximately 0.3 km then east for approximately 0.3 km to connect back into the Baseline Alignment.	Alignment Variant 12 was developed to minimise felling, in comparison to the Baseline Alignment in this area.

- 2.10.2 The Baseline Alignment and the alignment variants were appraised on environmental, technical and economic grounds to arrive at a preferred alignment.
- 2.10.3 From an **environmental** perspective, generally, the Baseline Alignment was considered preferable, with the exception of near Durcha and to the north of Linsidemore, where cultural heritage assets, people and recreational constraints were present. Around Durcha, Middle Hill and Linsidemore, Alignment Variant 1 and Alignment Variant 5 were considered to offer opportunities to minimise environmental constraints. Alignment Variants 6 and 8 would have had the potential to have an increased effect on AWI and were the least preferred alignment variants in terms of natural heritage designations, habitats, and forestry. Alignment Variants 6, 9 and 8 would also have had the potential for increased recreational and landscape and visual effects. Parts of Alignment Variants 6, 8, 9 and 11 are located within the River Shin surface water catchment which is considered an important fishery. The Baseline Alignment also crosses a lesser extent of peatland habitats compared to these variants. The overall environmental preference is therefore the Baseline Alignment, with Alignment Variant 1 and Alignment Variant 5.
- 2.10.4 From an **engineering** perspective, there were considered no real engineering preferences between the Baseline Alignment and Alignment Variants 1 to 7, and all were considered feasible from an engineering standpoint. For the engineering topic area of peat, Alignment Variants 8, 9 and 11 were less preferable as they crossed a larger extent of Class 1 peatland to the northeast of Linsidemore. Overall, no alignment variant would offer a particular advantage over the Baseline Alignment in terms of proximity to properties near Shin substation. In comparison with the Baseline Alignment, Alignment Variant 10 would bring the OHL closer to properties at Durcha. Similarly, Alignment Variant 12 would bring the OHL closer to the residential property at Tullich.



- 2.10.5 In terms of **costs**, there was considered to be little difference between the Baseline Alignment and any of the Alignment Variants.
- 2.10.6 Overall, it was therefore considered that the **Baseline Alignment, with Alignment Variant 1 and Alignment Variant 5** was the preferred alignment on environmental, technical and economic grounds. The preferred alignment was then taken forward to consultation for further scrutiny and to receive public feedback.

## 2.11 Alignment Selection (Stage 3): Reporting and Consultation

- 2.11.1 In accordance with SSEN Transmission's guidance, a similar process of consultation as undertaken at route stage, was undertaken for the preferred alignment. The alignment options appraisal was set out in the alignment selection stage Consultation Document<sup>5</sup>, published in June 2023. The Consultation Document was emailed to statutory consultees on 8 June 2023 and made available for download on 13 June 2023 from the project website<sup>10</sup>.
- 2.11.2 The alignment selection stage Consultation Document sought comments from stakeholders and members of the public on the alignment option studies undertaken. An in-person consultation event took place on Wednesday 14 June 2023, 15:00 – 19:00 at Rosehall Hall, in Rosehall.
- 2.11.3 Consultation events were advertised in the local press, on SSEN Transmission's social media channels and on the dedicated project website<sup>10</sup>. A mail drop of a booklet and letter informing of the event was also carried out to approximately 1,390 households ahead of the consultation. A total of 29 people attended the public consultation event. Seven feedback forms were received by post or online.
- 2.11.4 Comments received were documented in a Report on Consultation (September 2024)<sup>6</sup> which set out the consultation process during the alignment selection stage of the Proposed Development. A summary of the consultation responses received at alignment selection stage, as well as the SSEN Transmission project responses can be seen in Appendix 2.2: Summary of Consultation Responses at Alignment Selection Stage.
- 2.11.5 The alignment stage consultation process for the project raised a number of comments seeking further clarification and justification for the use of OHL rather than UGC for parts of the connection. Comments also sought clarification or set requirements for further assessment, particularly in relation to landscape and visual, peat, protected species and ornithological constraints. Other topics of importance that arose from the consultation process included:
  - deep peat and priority peatland;
  - proximity to dwellings, in particular the properties at Durcha; and
  - landowner concerns.
- 2.11.6 To address these issues, the preferred alignment as presented in the Alignment Consultation Document (the **Baseline Alignment, with Alignment Variant 1 and Alignment Variant 5**), was subject to revision, namely:
  - After the alignment stage consultation took place, additional peat probing was carried out to establish the depth of peat along the preferred alignment and some of the other alignment variants. Alignment Variant 5 which was presented as part of the preferred alignment was found to go through deeper peat than the Baseline Alignment. It was therefore subsequently considered by SSEN Transmission that although Alignment Variant 5 had other benefits, it would be more appropriate to take the Baseline Alignment forward due to the presence of deep peat and priority peatland along Alignment Variant 5.
  - SSEN Transmission also assessed the viability of utilising Alignment Variant 3 instead of Alignment Variant 1 as the part of the preferred alignment in order to locate the OHL further away from the properties at Durcha. It was subsequently considered by SSEN Transmission that although Alignment



Variant 1 had other benefits, it would be more appropriate to take the Alignment Variant 3 forward due to the proximity to properties at Durcha. Utilising Alignment Variant 3 would also follow the route of an existing forestry road to a greater extent than other alignments while allowing for an increased distance from the Doir A'Chatha Hut circles.

- The preferred alignment as presented at consultation, was anticipated to cross a small section
  (approximately 100 m) of RTS Forestry land. SSEN Transmission have continued to liaise with RTS
  Forestry in relation to this. Subsequent to the alignment stage consultation, as it was considered a
  minor change, SSEN Transmission have altered the alignment of the Baseline Alignment slightly to the
  north of the A839 northeast of Netherton to avoid this area.
- 2.11.7 Following the completion of additional peat probing, SSEN Transmission consulted further with FLS. FLS have since withdrawn their initial objection due to SSEN Transmission clarifying the proposed alignment to be taken forwards.
- 2.11.8 To summarise, the revisions to the alignment post alignment consultation stage were:
  - the use of Alignment Variant 3 over Alignment Variant 1 around Durcha due to proximity to dwellings;
  - the use of the Baseline Alignment over Alignment Variant 5 to the northeast of Linsidemore due to areas of deep peat; and
  - the alteration of the alignment of the Baseline Alignment by approximately 100 m to the north of the A839 northeast of Netherton to avoid RTS Forestry land completely.
- 2.11.9 It should also be noted that the Baseline Alignment has been altered slightly upon final approach to Shin substation due to engineering constraints.
- 2.11.10 The final proposed alignment was therefore the **Baseline Alignment (with some minor changes) in combination with Alignment Variant 3** as it was considered to provide an optimum balance of environmental, technical and economic factors.

#### 2.12 Further Consideration of Alternatives during the EA Process

2.12.1 The work that was undertaken during the route and alignment stages of the Proposed Development enabled a rigorous consideration of reasonable alternatives with respect to route options, alignment selection and the consideration of design solutions available for the project. Further review of the Proposed Alignment during the EA stage of the project by the engineering and environmental teams in conversation with landowners and consultees has resulted in some additional minor adjustments to the alignment. The Proposed Development with these adjustments made are discussed further in **Chapter 3: The Proposed Development** and presented in **Figures 3.1a-e: Proposed Development**.