Volume 5: Appendix 8.2.30 – Woodland Report: Fetteresso





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WOODLAND REPORT: FETTERESSO FOREST 1.

1.1 Introduction

- This Woodland Report has been prepared by Scottish Hydro Electric Transmission plc (the Applicant) who, operating 1.1.1 and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.
- This Woodland Report will accompany an application for Consent under Section 37 of the Electricity Act 19891 (as 1.1.2 amended) and Section 57(2) of the Town and Country Planning (Scotland) Act 1997 to construct and operate approximately 105.2 kilometres (km) of new double circuit 400 kilovolts (kV) overhead transmission line (OHL) between Kintore and Tealing (hereafter referred to as the 'Proposed Development'). A full description of the Proposed Development and its ancillary works is set out within Volume 1, Chapter 3: Project Description of this EIAR.

1.2 **Purpose of this Woodland Report**

- 121 As part of the Environmental Impact Assessment (EIA) process, it was identified that the OHL construction and the access tracks required to construct the Proposed Development would cross a number of woodland areas within private or state-owned landholdings.
- 1.2.2 This Woodland Report provides a conceptual assessment of the woodland areas that are affected by the Proposed Development, including the requirement of woodland removal and management recommendations to mitigate the impact of the woodland removal.
- This Woodland Report relates to land at Fetteresso Forest and the relevant landholding property boundary is presented 1.2.3 in Figure 8.1.30: Landowner Boundaries.
- 1.2.4 Field surveys of the woodland areas have been undertaken and have been used to determine the various woodland characteristics in order to identify the woodland removal required and recommended. This Woodland Report also sets out the area quantity (in hectares (ha)) to be compensatory planted to ensure no net loss of woodland is achieved as required by The Scottish Government's Policy on Control of Woodland Removal².

Requirement and Objectives of the Report

- 1.2.5 This Woodland Report details the works required to the woodland, including the felling and any restocking, due to the construction and operation of the Proposed Development.
- 1.2.6 The objectives of this Woodland Report are to:
 - provide an assessment of the woodland areas that are affected by the Proposed Development, including the requirement for woodland removal and management recommendations to mitigate the impact of the woodland removal; and
 - describe any mitigation measures proposed to address likely impacts relating to loss of woodland and windthrow risk and to meet The Scottish Government's Policy on Control of Woodland Removal by identifying the required quantity for compensatory planting.

Limitations and assumptions

1.2.7 All data included within this Woodland Report has been gathered from field surveys or desk-based assessments, which includes analysis of nationally held datasets, up to date aerial imagery and field measurements and data collection.

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¹ UK Government, 1989. *Electricity Act 1989*. [Online] Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents

² Forestry Commission Scotland, 2009. Scottish Government's Control of woodland Removal Policy [Online] Available at:



- 1.2.8 Baseline data was derived from Scotland's environmental web³ and Scottish Forestry map viewer⁴. The data sources identified in **paragraph 8.4.6** of **Volume 2**, **Chapter 8: Forestry** were also used to inform this Woodland Report.
- 1.2.9 Forests (or woodlands) comprise the land, of at least 0.5 ha (UKFS: V5 2023) under areas of trees with a canopy cover of at least 20%, or having the potential to achieve this, including the integral open space, as well as any felled areas awaiting replanting and are identified on the National Forest Inventory (NFI). The term 'forest' and 'forestry' for the purpose of this report is used to refer to areas that are typically coniferous that are managed for commercial timber production. The term 'wood' and 'woodlands' is used to refer to areas that are typically broadleaved and deciduous and not principally managed for timber production.
- 1.2.10 Woodland structure and age for the purpose of this Woodland Report have been categorised into an age class matrix:
 - Young young trees, generally less than 5 years old;
 - Immature trees between approximately 6-15 years old;
 - Pole Stage trees between 16 30 years old, primarily conifer;
 - Mature trees considered to be of felling age, 31 –50 years and over; and
 - Established established range of age classes with mature trees and an understory of younger trees.
- 1.2.11 In addition, to simplify the reader's understanding, a species matrix has been derived to categorise the species along the length of the Proposed Development:
 - Felled trees which have been felled and are awaiting restocking;
 - Mixed Broadleaves broadleaf trees containing a range of species including native trees such as Oak or Birch, may also contain non-native trees such as Sycamore or Chestnut;
 - Mixed Woodland a diverse mix of conifer and broadleaf trees with non-native species present;
 - Native Mixed Woodland mixed woodland containing native broadleaf species such as Oak or Birch and including elements of Scots Pine:
 - Conifer Conifer species; Sitka spruce, Norway spruce, Larch, Firs or Pines; and
 - Scrub/Regen areas of unmanaged land with low density, self-seeded trees. A mixture of species with non-native conifer and broadleaf trees present.

1.3 Woodland Property

1.3.1 Fetteresso Forest, is under public ownership, managed by Forestry and Land Scotland (FLS) and sits within the wider Mearns Forest Design Plan (2015 – 2024) which is under review (at the time of this report). The forest is comprised mainly of productive conifer species and is managed on a rotational harvesting basis as a commercial forest of approximately 60,000 m³ of timber harvested annually for the Mearns plan area. Other significant management activities include forest recreation, wildlife, biodiversity, and environmental management. Fetteresso Forest is impacted from Tower S4 at the southern boundary to Tower N87 and from Tower N81 to Tower N70 on the northern forest boundary.

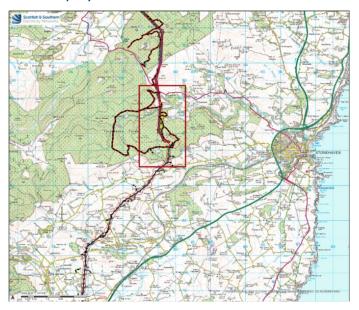
https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

³ Scottish Forestry Land Information Search URL: https://map.environment.gov.scot/LIS_Agri/Agri.html

⁴ Scottish Forestry Map Viewer URL:



Plate 1: Property Location



1.4 Development Requirements

400 kV Overhead Line

- 1.4.1 The Study Area for this assessment is based on the required Operational Corridor (OC) (see paragraphs 3.8.21 to 3.8.22 in Volume 1, Chapter 3: Project Description. The Applicant defines the OC as the area in which it has rights to remove woodland for the purposes of the safe construction, resilience and continued maintenance of OHLs, or protection of electrical plant as required by the *Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002 regulations* and the *Electricity Act 1989*. The OC is defined with reference to the distance at which a tree could fall and cause damage to the OHL, resulting in a supply outage. As a result, the final OC width would be based on the safety distance required to allow for a mature tree falling towards the OHL at the mid-point on an OHL span between two Towers, taking account of topography and tree height at maturity. Standard falling distance for a mature conifer tree is considered to be a minimum of 30 m. Where the OC passes through areas of native broadleaved woodland, it is noted that the width of woodland may be reduced, due to the general lower height and characteristics of the tree species present and as will be detailed in the Woodland Retention Plan.
- 1.4.2 The 400 kV OHL standard tower dimensions for the Proposed Development have a width of 11.2 m at the widest part (crossarm) of the tower ie from outside conductor to outside conductor, in addition to this the safety vicinity zone from each conductor is a 5.3 m radius around the conductor.
- 1.4.3 The OHL infrastructure and minimum safety clearance distance is therefore 90 m (45 m either side of the OHL centreline) and this has been utilised to calculate the area of the OC. In some cases, such as angle towers the requirement may be slightly in excess of this distance, however the average minimum distance has been used in this assessment.

Access Track Route Design

- 1.4.4 Access track requirements to facilitate tower construction Access to Tower N55 will require the existing cat1a forest road access from the A957 (Slug Road) to be upgraded, no tree felling is anticipated for this upgrading work. Access to Tower S3 will require the construction of a temporary stone track from the existing forest road at Elf Hill.
- 1.4.5 General access track tree maintenance work may be required along the existing forest road/access track in preparation for the civil engineering access track upgrade works.
- 1.4.6 Sections of new stone access track are required to be built as part of the construction work scope, to service Towers N90 to N95 and to Tower N87. Elements of the new access track build routes are located within the 90 m wide OC for Towers N87, N90, N91, N92, N93, N94 and N95.



- 1.4.7 The access track new build corridor width required to be cleared through woodland is 20 m wide (10 m either side of centreline). This will increase the impact of woodland removal along new build access track routes that are outside the OHLOC.
- 1.4.8 Temporary woodland removal will be required to facilitate 'holding out positions' tension towers require a temporary 'holding out position' to raise the tower working platforms which would be utilised when stringing the conductors. This platform is winched into position by a tractor at one and a half the tower height away and once in position gets locked off and attached to concrete sledges.
- 1.4.9 Stump removal and residue mulching will be required for the installation of new access tracks and at each tower location for the formation of a construction compound and temporary crane pad.

1.5 Woodland Characteristics

- 1.5.1 The property is situated 3.6 miles from the edge of the town of Stonehaven and is accessed via the A957 (Slug Road). Sitka spruce is the most common species present with Japanese larch comprising the second most common crop species, Scots pine is present as a minor component. The OHL runs to the east of and parallel to the existing Kintore to Fetteresso 275 kV/400 kV OHL Diversion.
- 1.5.2 Forestry and Land Scotland (FLS), manage the forest on behalf of Scottish Ministers as a multi-functional resource with timber production a significant aim. This Proposed Development will have an impact on the future management of the forest. The impact of the Proposed Development will be reflected in the Land Management Plan (Mearns LMP) which is (at the time of writing this report) undergoing a 10 year review, following discussions with FLS.
- 1.5.3 Fetteresso Forest is managed primarily on a commercial basis for the purposes of timber provision5. Non-native conifers are the dominant species, with broadleaves and open ground comprising a relatively small proportion of the forest area. The forest has a diverse age structure, with several age classes represented within those parts of the forest to be impacted by the Proposed Development. Maximum top height for these blocks is ca. 30 35 m. The management regime is clearfell and replant, with the predominant tree species being Sitka spruce. The conifer age class ranges from young restock plantation (circa. P2004) to mature woodland (circa. P1951) and all of plantation origin. Windblow is not evident in the development area.
- 1.5.4 In addition to commercial forestry activities, there is significant use of the forest for recreational purposes, with walkers and cyclists being most common.
- 1.5.5 The forest area impacted by the development project is an area of commercial conifer crops. The forest structure is broken up by areas of open ground integrated throughout. The conifer area has undergone significant woodland restructuring in recent years, which is continuing by the landowner through a Scottish Forestry approved Land Management Plan (LMP under review at the time of this report).
- 1.5.6 The ground conditions are variable on mostly peaty podzols, mineral podzols with pockets of peaty gleys present sporadically around the site⁶.
- 1.5.7 The Forest benefits from an extensive network of internal roading providing access to practically all compartments.
- 1.5.8 Although the landowner's LMP felling phase and restock maps are part of the 10-year review, the restructuring proposals have been reviewed during the OHL forestry felling assessment.
- 1.5.9 A desk-based study of the woodland areas was conducted, utilising web-based data provided by Scottish Forestry³ and referencing the Scottish Government's Ancient Woodland Inventory, to identify current woodland environmental designations and classifications.

https://scottishforestry.maps.arcgis.com/apps/webappviewer/index.html?id=0d6125cfe892439ab0e5d0b74d9acc18

⁵ This data is sourced from the Mearns Forest LMP (currently undergoing a 10 year revision March 2025)

⁶ Scottish Government's Scotland's soils website:



- 1.5.10 The Scottish Forestry Map Viewer⁴ provides spatial data on the Native Woodland Survey of Scotland⁷ and classifies the woodland types into four categories:
 - Native woodland⁸;
 - Nearly-native woodland⁹;
 - Open land habitat¹⁰; and
 - Plantations on Ancient Woodland Sites (PAWS)¹¹.
- 1.5.11 An area of 1.10 ha of broadleaved woodland has been identified of which 0.88 ha is noted on the NWSS as upland birchwood located in the area adjacent to Tower N87.
- 1.5.12 An area of 0.51 ha has been identified on the AWI as being Long Established (of plantation origin) (LEPO) 2b. This area is currently stocked with a mixed conifer crop consisting of Sitka spruce, Scots pine and Japanese larch planted in 2009. There appear to be no veteran trees present, and the ground flora appears to be relatively impoverished.
- 1.5.13 There are no formal environmental woodland designations present for the productive conifer area.
- 1.5.14 A desk-based study of the woodland area, using both the Ancient Woodland Inventory and the Native Woodland Survey of Scotland, has identified small areas of Long Established of Plantation Origin (LEPO) (2b 1860) and Native Woodland as detailed in **Table 1: Woodland type affected by the Proposed Development**.

Table 1: Woodland type affected by the Proposed Development

Woodland	Ancient semi- natural native broadleaved woodland (ASNW) 1a	Ancient semi- natural native broadleaved woodland (ASNW) 2a	Long Established of Plantation Origin (LEPO) (1b – 1750)	Long Established of Plantation Origin (LEPO) (2b – 1860)	Other Woodlands (Roy)	Native broadleaved woodland	Total classified woodland area
Fetteresso Forest	-	-	-	0.51 ha	-	0.88 ha	1.39 ha

^{* -} Rounding errors can occur

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⁷ Scottish Forestry Native Woodland Survey of Scotland: Glossary of Terms; URL: https://www.forestry.gov.scot/publications/75-native-woodland-survey-of-scotland-glossary-of-terms/viewdocument/75

⁸ Native Woodland – woods where the canopy cover is composed mainly of native species (ie over 50%)

⁹ Nearly Native Woodland - where native species make up between 40% and 50% of the canopy. These are woods that could have potential to be converted into native woodlands by altering their species mix.

¹⁰ Open Land Habitat – areas with <20% canopy cover of trees and shrubs adjoining a native woodland.

¹¹ PAWS - Plantations on Ancient Woodland Sites. These are surveyed in the NWSS where they are recorded in the Scottish ancient woodland inventory (SAWI). These woodlands appear to have originated through natural regeneration sometime before the mid-19th century, but were later converted to planted woods.



Plate 2: Looking south towards Tower N90



1.5.15 Plate 2 highlights the existing OC, primarily consisting of Sitka spruce. Sitka spruce and Japanese larch are the dominant conifer species present within the OC with elements of Scots pine and Norway spruce also present. This has been planted as commercial tree crop and varies from semi-mature (circa. 25 years old) to young plantation (circa. 12 years old), with integrated open ground. Harvestable timber within this section of OC will be comprised of Sitka spruce and Japanese larch with an element of Scots pine within. The terrain is generally undulating, with steep banking on the northern edge of the forest.



Plate 3: Looking south towards Tower N87



1.5.16 **Plate 3** shows the young Sitka spruce plantation north of Tower N87, approximately 10 m in height. Given the age, stocking density and ground conditions, there is minimal harvestable timber in this section of the OC. The understorey is predominantly young silver birch and scrub species such as willow, gorse and broom.

1.6 Windthrow Risk Impact

1.6.1 An assessment was undertaken of the risk of windblow to areas of woodland adjacent to the OC which would be exposed due to the tree clearance required for the OC. This assessment is based on the professional judgement of the forestry surveyor with consideration being given to the soil and moisture regime, the topography, tree species, top height, exposure, altitude and aspect in relation to the prevailing wind direction and any previous management regimes from



either, observations at a site level or via an approved management plan. Reference is also made to Forest GALES¹². Felling outwith the OC to a windfirm boundary is termed Management Felling and is presented within **Figure 8.2.30**: **Proposed Felling Requirements**.

- 1.6.2 The ground conditions throughout the OC are variable on mostly peaty podzols, mineral podzols with pockets of peaty gleys present sporadically around the site.
- 1.6.3 The woodland site affected by the Proposed Development has a 'Detailed Aspect Method of Scoring' (DAMS)¹³ windthrow hazard class score ranging between 12 and 14, classified as highly sheltered to moderately exposed. Indicating that there is a low to moderate risk of windthrow due the construction of the OC. The potential risk of windthrow affecting adjacent woodland is therefore considered negligible.
- 1.6.4 The local climate is classified as cool and wet. These factors suggest that a moderate range of tree species can be grown on site.
- 1.6.5 As detailed above and identified in **Figure 8.2:30: Proposed Felling Requirements**, the management felling coupes of the mature conifer woodland have been proposed to minimise windthrow and achieve suitable woodland windfirm boundaries.
- 1.6.6 No impact of windthrow risk will be created by the removal of the young conifer plantation areas within the OHL OC and access track corridors, due to the age a structure being of such that the crop is still developing and any exposed edges are likely to become windfirm during this development stage.
- 1.6.7 A minimal impact of windthrow has been assessed for the native mixed broadleaved woodland areas, due to their location, size and structure.

1.7 Woodland Management Impact

- 1.7.1 The OHL alignment will create additional challenges for the future management of the forest as it dissects existing management coupes and introduces an electrical hazard. The constraint associated with the electrical hazard will be reduced by regular maintenance of the OC, which will avoid the incidences of "Red Zone" trees¹⁴ (reference FISA 804 "Electricity at Work: Forestry").
- 1.7.2 The OHL alignment crosses the forest road network at either approximately 45 or 90 degrees and will be built to the regulatory safe height clearances above forest roads/access tracks, which will reduce the hazard in respect of future timber haulage.
- 1.7.3 The OHL alignment may be restrictive to future in-forest machinery access. The requirement for dedicated forestry machine OHL crossing points will be discussed with the Landowner and if required will be identified once the OHL has been constructed, thus providing a safe OHL crossing point(s) for future working within the woodland.
- 1.7.4 The Proposed Development will permanently remove existing mature and young conifer woodland with an area of broadleaved woodland from the operational corridor where the OHL exits the forest on Northern boundary close to tower N90. This will reduce the forestry restructuring/planting land available within the woodland property area, as the OC will be maintained clear of trees.

¹² Forest Research (2025). Available at: http://www.forestdss.org.uk/geoforestdss/. The Detailed Aspect Method of Scoring (DAMS) is a system used to assess wind exposure in forestry and land management. It provides a numerical score that quantifies the level of exposure a site experiences based on factors such as elevation, topography, and aspect (the direction a slope faces). The DAMS score helps foresters predict wind risk, which is crucial for understanding tree stability, growth potential, and the likelihood of windthrow (trees being uprooted or broken by wind) The scoring system ranges from 0 to 24, with higher scores indicating more exposure to wind.

¹³ Detailed Aspect method of Scoring (DAMS) Ref. Forest Research, "Forest Gales software programme" and Forestry Commission Leaflet 85 "Windthrow Hazard Classification"

¹⁴ As specified by the 'Red Zone' set out in paragraph 41 of the Forest Industry Safety Accord (FISA) Safety Guide 804 Electricity at Work: Forestry (2020) FISA 804: https://ukfisa.com/



1.7.5 During the construction phase, a level of disruption will be created for the undertaking of routine forestry management activities by the Landowner on the woodland property. This will be project managed through communication and agreement with the affected stakeholders.

1.8 Mitigation Opportunities

- 1.8.1 The OC woodland removal area is required for the construction and functioning of the new OHL infrastructure.

 Opportunities will be assessed for woodland replanting within the OC, the identification of suitable areas cannot be guaranteed due to the requirement of maintaining the safe energisation of the OHL. Reference to **Table 2**, will fully mitigate the OC woodland removal area by replanting the area quantity (hectares) of woodland removed.
- 1.8.2 Prior to the construction phase these areas will be assessed for further selective felling to identify if greater tree retention can be achieved, consideration will also be given to potential opportunities to reduce felling corridor, carry out crown and tree height reduction in important woodland areas, opportunities to implement those mitigations will be determined during the mark out for felling exercise reflecting any further micro siting of infrastructure and considering the individual tree location/characteristics with priority being to ensure future resilience of the network. This will be dependent on the requirements of the development project, and particularly the safety of OHL wiring operations.
- 1.8.3 Where the OC impacts the small area of native upland birchwood referenced in **Section 1.5**, opportunities as described above will be considered to minimise the loss of native woodland.
- 1.8.4 Management felling areas will be assessed, taking into account; the soil and moisture regime, the topography, tree species, top height, exposure and aspect in relation to the prevailing wind direction and any previous management regimes, to identify windfirm boundaries to which crops adjacent to the OC can be cut back too in order to minimise the risk of catastrophic windthrow. Areas identified for management felling are shown on Figure 8.2.30: Proposed Felling Requirements.
- 1.8.5 Areas identified for management felling are between Tower N93 and Tower N89, however FLS have identified these areas as being suitable for a shelterwood silvicultural management regime which indicates that the proposed management felling should not be undertaken for forest management reasons.
- 1.8.6 Areas identified for management felling will require approval for Scottish Forestry and will be applied for through any necessary amendments to the FLS approved LMP, restocking of management felled areas will be a requirement of the felling approval.
- 1.8.7 The felled areas will be replanted by the Landowner and must meet UKFS and UKWAS standards.
- 1.8.8 The OC woodland removal area is required for the construction and functioning of the new OHL infrastructure. Reference to **Section 1.10: Compensatory Planting**, will fully mitigate the OC woodland removal area by replanting the area quantity (hectares) of woodland removed.
- 1.8.9 The management felling areas will be replanted by the landowner, in-line with the Scottish Forestry felling licence regulations of the area felled must be replanted.

1.9 Woodland Removal Impact

1.9.1 Woodland removal area calculations are approximate and have been rounded up to reflect the worst case scenario for removal. Woodland felling will be reduced as much as possible through mitigation.

Table 2: Woodland Removal for Infrastructure

Item	Woodland Type	Area
Infractructure felling	Conifer plantation	24.26 ha
Infrastructure felling	Mixed broadleaved woodland	1.15 ha
Scrub/regen clearance	Scrub/regen	0.26



Table 3: Compensatory Planting

Item	Woodland Type	Area
Compensatory Planting Area	Mixed conifer or mixed broadleaves	25.41 ha

Table 4: Woodland Removal Impact of Infrastructure

Item	Woodland Type	Area
Total Loss of Woodland Area		25.41 ha
Total Compensatory Planting Area		25.41 ha
Total Net Loss of Woodland Area		0.00 ha

Table 5: Woodland Removal for Management Felling

Item	Woodland Type	Area
Management Felling		26.74 ha
Replanting/Restocking		26.74 ha
Net Loss of Woodland Area		0.00 ha
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Note. Felling approval is via Scottish Forestry Felling Licence application process or Long-Term Forest Plan application or amendment process.

1.10 Compensatory Planting

- 1.10.1 Compensatory planting to achieve the area quantity (hectares) of woodland removal, referenced above will be provided for the OHL and access track OC area and will be in accordance with the Scottish Government's Policy on Control of Woodland Removal of no net loss of woodland.
- 1.10.2 Compensatory planting will be detailed within **Volume 5, Appendix 8.1: Compensatory Planting Management Strategy**.
- 1.10.3 Areas of tree felling required to facilitate construction (where necessary) outside of the OC, temporary access tracks, holding out positions and EPZ (Equi-potential zones) and areas felled to a windfirm boundary will be replanted on site. Replanting of these sites will follow the conditions set out in the Scottish Forestry approved felling permission (where required) and will be the responsibility of the landowner.

