16 Forestry

16.1. Introduction

16.1.1. This chapter of the Environmental Impact Assessment (EIA) Report describes the forestry aspects of the Lochluichart Wind Farm Extension II (hereafter referred to as the Proposed Development).

16.1.2. Forestry is not being regarded as a receptor for Environmental Impact Assessment purposes in this chapter. Commercial forests are dynamic and their structure continually undergoes change due to normal felling and restocking by the landowner; natural events, such as windblow, pests or diseases; and external factors, such as a wind farm development. This EIA Report chapter therefore describes the Proposed Development plans for felling, restocking and forest management practices; the process by which these were derived; and the changes to the physical structure of the forest. It further discusses the issue of forestry waste arising from the Proposed Development. The forestry proposals are interrelated with environmental effects, which are assessed separately. This chapter should be read in conjunction with the other EIA Report chapters, in particular, Chapter 3: Project Description; Chapter 9: Landscape & Visual; Chapter 11: Ecology and Chapter 12: Ornithology as they are interrelated to the changes in the forest structure.

16.1.3. Part of the Proposed Development is located within commercial forestry. This chapter identifies areas of forest to be removed for the construction and operation of the Proposed Development (as described in Chapter 3: Project Description) and outlines the proposed management practices, while identifying the likely restocking proposals and future land management of the remaining forest within the Proposed Development Area. The responsibility for the management of the remainder of the forest lies with the landowner and therefore the wider felling operations, restocking, and aftercare operations do not form part of the Proposed Development for which consent is sought.

16.1.4. The Proposed Development (as shown in Volume 2: Figure 3.1) of the EIA Report) lies within existing commercial forestry plantations. The forestry is privately owned and managed. The forestry proposals have been developed to:

- identify areas of forest to be removed for the construction and operation of the Proposed Development;
- identify those areas which may or may not be replanted as part of the Proposed Development; and
- propose management practices for the forestry works.

16.1.5. In general, throughout this chapter data labelled "baseline" refers to the current crop composition and any existing plans without any modification as a result of the Proposed Development. Data labelled "wind farm" refers to the forestry plans incorporating the Proposed Development.

16.1.6. This chapter is structured as follows:

- Legislation, Policy and Guidance;
- Forestry Study Area;
- Forest Plans;

- Development of the Wind Farm Forest Plan;
- Baseline Conditions;
- Wind Farm Forest Plan;
- Requirement for Compensatory Planting;
- Forestry Waste;
- Forestry Management Practices; and
- Summary.

16.2. Legislation, Policy and Guidance

Summary of Relevant Planning Policy

16.2.1. Relevant overarching planning policies for the Proposed Development are detailed in Chapter 5: Planning Policy Context and within the Planning Statement that accompanies the application. A desktop study was undertaken drawing upon published National, Regional and local level publications, assessments and guidance to establish the broad planning and forestry context within which the Proposed Development Area is located. Forestry related policies and documents listed below have been considered within the forestry assessment. The following section provides an outline of those planning policies which are relevant to the Proposed Development and in particular to forestry.

National Legislation and Policy

Scottish Forestry Strategy (SFS)

16.2.2. The SFS[i] provides the wider context and Scottish Ministers' vision for multi-benefit woodland management and expansion focussing on the key themes of climate change, timber, business development, community development, access and health, environmental quality, and biodiversity. It sets out a vision that acknowledges the central role that the forestry resource will play in the culture, environment and economy of Scotland. The Scottish Forestry Strategy informs other policies and guidance about woodland expansion and removal in Scotland.

16.2.3. The SFS set the following targets:

- 25% woodland cover in Scotland by the second half of this century;
- a woodland creation target of 10,000 hectares per year over the period 2012-2022; and
- the forestry sector delivering annual carbon savings of 0.6 million tonnes of carbon (MtC) by 2010, 0.8 MtC by 2015, and 1.0 MtC by 2020.

The Scottish Land Use Strategy

16.2.4. The Scottish Land Use Strategy[ii] sets out a strategic framework for getting the best out of Scotland's land resources. It looks at the potential of the land and the ways in which it is used, both now and in the future. Principles of sustainable land use are central to its vision for the future. With specific reference to forestry, the strategy seeks to identify more closely which types of land are best for tree planting in the context of other land-based objectives and promote good practice and local processes in relation to tree planting so as to secure multiple benefits. This will be achieved by a partnership approach

through Forestry and Woodland Strategies to be developed by the local authorities.

Third National Planning Framework (NPF3)

16.2.5. Scotland's NPF3[iii] recognises woodlands and forestry are an economic resource, as well as an environmental asset (NPF3 Paragraph 4.2). It further supports the continued expansion of Scotland's woodland and forestry resource (NPF3 Paragraph 4.23). A key action of NPF3 (NPF3 Paragraph 6.10) is a commitment to create on average 10,000 ha per annum of new woodland from 2015.

Scottish Planning Policy (SPP)

16.2.6. The SPP[iv] includes a section on woodlands (SPP Paragraphs 216 - 218). This refers to the Scottish Government's Control of Woodland Removal Policy (Forestry Commission Scotland, 2009) which is discussed in more detail below. The SPP states that woodland removal should only be permitted where it would achieve significant and clearly defined additional public benefits. It further states that where woodland is removed in association with development proposals, developers will generally be expected to provide compensatory planting and that the acceptability of woodland removal, in the context of the Control of Woodland Removal Policy, should be taken into account in determining planning applications.

Control of Woodland Removal Policy

16.2.7. In parallel with the SFS and other national policies on woodland expansion, there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's 'Control of Woodland Removal Policy'. The guidance relating to the implementation of the policy was revised and updated in 2015[v].

16.2.8. The purpose of the policy is to provide direction for decisions on woodland removal in Scotland. The policy document lays out the background to the policy, places it into the current policy and regulatory context, and discusses the principles, criteria and process for managing the policy implementation. The following paragraphs summarise the policy relative to the Proposed Development.

16.2.9. The principal aims of the policy include:

- to provide a strategic framework for appropriate woodland removal; and
- to support climate change mitigation and adaptation in Scotland.

16.2.10. The guiding principles behind the policy include:

- There is a strong presumption in favour of protecting Scotland's woodland resources; and
- Woodland removal should be allowed only where it would achieve significant and clearly defined additional public benefits. In appropriate cases a proposal for compensatory planting may form part of this balance.

16.2.11. Woodland removal, without a requirement for compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- enhancing priority habitats and their connectivity;
- enhancing populations of priority species;
- enhancing nationally important landscapes, designated historic environments and geological Sites of Special Scientific Interest (SSSI);
- improving conservation of water or soil resources; or
- public safety.

16.2.12. Woodland removal, with compensatory planting, is most likely to be appropriate where it would contribute significantly to:

- helping Scotland mitigate and adapt to climate change;
- enhancing sustainable economic growth or rural/community development;
- supporting Scotland as a tourist destination;
- encouraging recreational activities and public enjoyment of the outdoor environment;
- reducing natural threats to forests or other land; or
- increasing the social, economic or environmental quality of Scotland's woodland cover.

16.2.13. The consequences of the policy are stated as:

- minimising the inappropriate loss of woodland cover in Scotland;
- enabling appropriate woodland removal to proceed with no net loss of woodland -related public benefits other than in those circumstances detailed in the policy; and
- facilitating achievement of the Scottish Government's woodland expansion ambition in a way that integrates with other policy drivers (such as increasing sustainable economic growth, tackling climate change, rural/community proposed development, renewable energy and biodiversity objectives).

16.2.14. Addressing the policy requirements can be met through changes to forest design, increasing designed open space, changing the woodland type, changing the management intensity, or completing off site compensation planting.

Regional Policy: The Highland Council Forestry and Woodland Strategy

16.2.15. The Highland Council "Forest and Woodland Strategy (The Highland Council, 2006)[vi] was published prior to publication of the Scottish Government's Control of Woodland Removal Policy. The key themes of the strategy are:

- Measures to increase community benefits from forests;
- Enhancement of the region's attractiveness for tourism and recreation;
- Expansion of native woodland;
- Expansion of productive forest; and
- Improvement of the infrastructure for forestry and local processing.

16.2.16. The strategy makes no reference to the location of renewable energy developments within forestry plantations or to the Scottish Government's Control of Woodland Removal Policy.

16.2.17. A new Highland Council Forest and Woodland Strategy is currently under consultation, due to be released in 2018. At the time of preparing this report the new Strategy had yet to be officially adopted by the Highland Council.

16.3. Forestry Study Area

16.3.1. The Forestry Study Area, as shown on **Figure 16.1** in **Volume 2** of the EIA Report, extends to approximately 296.97 hectares (ha) and comprises one forest block under private ownership. The forest is comprised of Scots pine. Further information on the composition of the woodlands in the Forestry Study Area is provided in the baseline description below.

16.3.2. One of the original key objectives of the Forestry Commission was forest expansion, in both state and private forests, to produce a strategic reserve of timber, and consequently, a limited range of species was planted. More recently, greater emphasis has been placed on developing multi-purpose forests, which require a restructuring of age and species in existing woodlands. Restructuring is achieved through the forest planning process.

16.4. Forest Plans

16.4.1. A Forest Plan will typically contain felling and restocking proposals covering a 10 year period in detail, with outline proposals for the remainder of the forest. There is a Long Term Forest Plan (LTFP) for the wider Loch Luichart Estate woodlands. However, no work is proposed in this plan for the woodlands within the Forestry Study Area.

16.4.2. Restructuring presents forest managers with many challenges and opportunities, particularly in relation to the management of potential catastrophic windblow. The forest planning process allows forest managers to review and revise proposals in a structured way to take account of such external factors. The inclusion of a wind farm within the forest is an example of one such external factor. The current guidelines require diversification of species and woodland types as part of the forest planning process, specifically an increase in the proportion of broadleaf woodland, other conifers, and open ground. The incorporation of the Proposed Development into the forest would result in earlier restructuring of some crops.

16.4.3. A Forest Plan relates to individual forests or groups of woodlands. It describes the woodlands, places them in context with the surrounding area, and identifies issues that are relevant to the woodland or forest. Forest Plans describe how the long-term strategy would meet the management objectives of the owner, the criteria of the UK Forestry Standard (UKFS)[vii] and the UK Woodland Assurance Standard 4th Edition (UKWAS)[viii], under which the woodlands would be managed if certificated.

16.4.4. The Forest Plan involves a scoping exercise whereby the views of Statutory Consultees, neighbours and stakeholders are sought, resulting in an agreed Scoping Report. The results of the scoping exercise are incorporated into the Forest Plan. The Forest Plan covers all aspects, such as conservation, archaeology, landscape and the local community in addition to forestry and silvicultural considerations. Restructuring of age class and species are important factors in this process to ensure proposals meet the current standards.

16.4.5. A Wind Farm Forest Plan would be prepared along the same principles with the relevant information being provided by other members of the project team. In

this case, due to the small proportion of the overall Estate woodlands being affected by the Proposed Development, it is recommended the wind farm plans, if the Proposed Development is approved, would be included in the Loch Luichart Estate LTFP as an amendment.

16.5. Development of the Wind Farm Forest Plan

Introduction

16.5.1. Existing crop information was provided by the landowner's agents. Landowner information comprised existing species and planting year, compartment database; felling plans. Information from aerial photographs and published datasets were incorporated including more accurate mapping of stocked woodland, open ground, and management boundaries.

16.5.2. Details of turbine locations, new tracks, storage compounds, and substations were provided by other disciplines within the project team. This data was amalgamated with the forestry data to construct the forestry proposals. The location of turbines and infrastructure is heavily influenced by site constraints and technical considerations, e.g. wind capture, ground conditions, etc. The final location of turbines and infrastructure takes the various site constraints into consideration. Environmental constraints, together with any land management requirements, associated with the proposed construction of the Proposed Development would also be incorporated into the forestry proposals, where appropriate.

16.5.3. The wind farm felling programme would largely be driven by technical constraints. Within forests habitats, areas of crop require to be felled to accommodate the construction and operation of a Proposed Development. Typically, a minimum area of approximately 2 ha (80 m radius) would be required to be felled for each turbine; a 10 m buffer around each item of infrastructure, in addition to the area required for the infrastructure; and a 25 m - 30 m wayleave for access roads, though this is project and site dependent. In certain cases, further felling may be required for wind yield, turbine performance and forest management purposes in addition to the felling required for the infrastructure.

16.5.4. In this case taking into account technical and environmental constraints a 2.0 ha (80 m radius) keyhole was adopted around each turbine location within woodland for construction, operation and environmental mitigation, with 10 m buffers for other infrastructure and 20 m corridor for road lines. No additional felling would be required for wind yield or turbine performance purposes.

Felling Plan

16.5.5. Felling required for a Proposed Development can be divided into two categories. Firstly, that required during the construction phase of the Proposed Development, which for the purposes of this assessment, has been anticipated as 2021 Secondly, felling required during the operational period of the Proposed Development. In this case no additional felling for wind resource is planned during the operational period.

16.5.6. The crops were assessed to identify those areas which would require to be felled for a number of reasons. Due to the crop growth rates and current crop

height it has been assessed that all infrastructure within woodland areas could be keyholed into the crops.

16.5.7. The wind farm felling plan shows which woodlands within the Forestry Study Area would be felled as a result of the Proposed Development and when this felling would take place.

Restocking Plan

16.5.8. The wind farm restocking plan would show which woodlands would be restocked and with which species. In this case, as all infrastructure is being keyholed into the existing crops, all the areas to be felled for the Proposed Development would be not be restocked.

16.5.9. The forestry proposals have been assessed by each of the separate environmental disciplines / consultants as part of the EIA process and the effects are reported in individual chapters of this EIA Report and supporting Technical Appendices.

16.6. Baseline Conditions

Baseline Planting Year and Species

16.6.1. According to the landowner's database the woodlands were planted in 1985 and consist of entirely of Scots pine. Examination of aerial photographs and the National Forest Inventory[ix]highlight that the stocked area of woodland is as detailed in **Figure 16.0** of **Volume 2** of the EIA Report and in Table 16.1 below. Land designated as failed is classed as "ground preparation" not crop under the National Forest Inventory. In these areas ground preparation is clearly visible but there is no evidence of an established 33 year old crop.

Table 16.1: Baseline Stocking Summary

Species	Area (ha)	Area (%)
Scots pine	86.23	29.04
Open ground	92.86	31.27
Failed	117.88	39.69
Totals	**296.97**	**100**

Baseline Felling and Restocking Plans

16.6.2. There is no felling planned within the Forestry Study Area during the timescale of the baseline LTFP. All the woodland is designated as Long Term Retention.

16.6.3. Long Term Retentions (LTR) are crops to be retained beyond their age of economic or silvicultural maturity for conservation and biodiversity purposes.

These woodlands would otherwise be managed as normal and would in due course be felled and replanted. No ultimate felling date is given for the woodlands within the Forestry Study Area. The identification of LTRs is part of the requirements of UKWAS and the UKFS.

Baseline Restocking Plan

16.6.4. As an LTR no baseline restocking plan was available for the Forestry Study Area.

16.7. Wind Farm Forest Plan

Introduction

16.7.1. The effect of the Proposed Development on the structure of the woodlands within the Forestry Study Area has been compared against the baseline current species. This has concentrated on changes to the felling plan and species composition.

Felling Plan

16.7.2. The Proposed Development wind farm felling plan is shown in **Figure 16.2**. A total of 4.09 ha of stocked woodland would be removed for the Proposed Development. The remainder of the infrastructure is located in areas classified as failed or open ground.

Wind Farm Species Plan

16.7.3. The current species plan has been amended to integrate the Proposed Development infrastructure into the forest design. The wind farm species plan is shown in **Figure 16.3**.

16.7.4. There is a net reduction in the area of stocked Scots pine woodland of 4.09 ha.

16.8. Woodland Loss and Requirement for Compensatory Planting

16.8.1. As a result of the construction of the Proposed Development, there would be a net loss of woodland area. The area of stocked woodland in the study area would decrease by 4.09 ha, equivalent to 1.4% of the stocked area within the Forestry Study Area.

16.8.2. In order to comply with the criteria of the Scottish Government's Control of Woodland Removal Policy, off-site compensation planting would be required. The Applicant is committed to providing appropriate compensation planting. The extent, location and composition of such planting to be agreed with the relevant authorities prior to the commencement of construction.

16.9. Forestry Waste

16.9.1. The SEPA guidance document WST-G-027, "Management of Forestry Waste" (SEPA, 2013)[x] highlights that all waste producers have a statutory duty to adopt the waste hierarchy as per the Waste (Scotland) Regulations 2012 (the Scottish Government, 2012)[xi], which amended Section 34 of the Environmental Protection Act (EPA) 1990 (duty of care) (UK Government, 1990)[xii]. This places

a specific duty on any person who produces, keeps or manages (controlled) waste to take all such measures available to them to apply the waste hierarchy in Article 4 (1) of the revised Waste Framework Directive (rWFD), which is:

- prevention;
- preparing for re-use;
- recycling;
- other recovery, including energy recovery; and
- disposal, in a way which delivers the best overall environmental outcome.

16.9.2. Further guidance is contained in LUPS-GU27, "Use of Trees Clear Felled to Facilitate Proposed Development on Afforested Land" (SEPA, 2014)[xiii].

16.9.3. A hierarchy of uses for forestry materials is proposed, derived from the waste hierarchy contained within the regulations, summarised as follows:

- prevention via the production of timber products and associated materials for use in timber and other markets;
- the re-use of materials on site for a valid purpose, where such a use exists e.g. road construction;
- there is no valid re-cycling use for forestry residues;
- other recovery via collection and use as biomass for energy recovery or other markets, where not included above; and
- where no valid on or off site use can be found for the material, disposal would be in a way that is considered delivers the best overall environmental outcome.

16.9.4. Where no valid on or off site use or other disposal method can be found for the material, it should be regarded as waste and handled accordingly. Disposal of timber residues as waste in or on land requires a landfill permit or a waste exemption licence and should be considered the option of last resort.

16.9.5. As discussed in this EIA Report chapter, the crops to be felled will not be replanted on site. The crops into which the Proposed Development infrastructure would be keyholed are slow growing and would not yield large quantities of merchantable timber. The objective would be to recover as much merchantable timber and biomass as possible from these crops for sale into timber markets and failing that to treat them in line with the hierarchy outlined above. As a result, it is anticipated the forestry waste arising from the works will be minimal.

16.9.6. It is proposed that full consideration and further clarification on this issue should be included in a Forestry Waste Management Plan to form part of the Construction Environmental Management Plan (CEMP) during the detailed planning phase following receipt of planning consent.

16.10. Forestry Management Practices

Crop Clearance

16.10.1. In areas of lower yield class crops, where little or no merchantable timber would be recovered, a number of options could be utilised depending on the factors prevailing at the time of clearance. The methodology used would depend on tree size; site conditions; the availability of suitable equipment; and the markets prevailing at the time of the works being carried out.

16.10.2. Where there was suitable access and ground conditions the trees could be whole tree harvested and extracted to roadside for chipping as biomass. Where trees are very small or ground conditions prevent access, it may be more viable to fell the crop manually using scrub cutters or chainsaws. The end use of the material would depend on the factors mentioned above, but could potentially be used on site in the base of floating roads, extracted and processed for biomass, or used for ecological enhancement.

16.10.3. Stumps would be left in situ as per the guidance contained in the Forestry Commission Research Note "Environmental effects of stump and root harvesting" (Forestry Commission, 2011)[xiv] except where they would be removed for borrow pits, excavated roads, turbine bases and other infrastructure requiring excavation. Such material would be treated as described above.

Restocking / Planting Methodology

16.10.4. There would be no restocking on site.

Standards and Guidelines

16.10.5. All forestry operations would be carried out in accordance with current good practice and guidelines. This would include, but not be limited to:

- UK Forestry Standard Guidelines (Forestry Commission 2011b)[xv]; and
- Forest Industry Safety Accord (FISA, 2014) Guides[xvi] (or equivalent).

16.10.6. All operations would be carried out in accordance with current relevant legislation including, but not limited to, Health and Safety at Work Act 1974 (UK Government, 2014).

16.11. Summary

16.11.1. The total Forestry Study Area extends to 296.97. and is comprised of privately owned and managed woodlands.

16.11.2. The species composition of the forest would change as a result of the Proposed Development forestry proposals. In particular, there would be a net loss of woodland area of 4.09 ha of Scots pine woodland.

16.11.3. In order to comply with the Scottish Government's Control of Woodland Removal Policy, off-site compensation planting would be required by the legal agreement attached to any consent. The applicant is committed to providing appropriate compensation planting.

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[xv] Forestry Commission (2011b): The UK Forestry Standard Guidelines.
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