



Stronelaing Wind Farm

Environmental Statement: Volume 1 - Non-Technical Summary

June 2012

Preface

This document forms the Non-Technical Summary (NTS) of the Environmental Statement (ES) for Stronelairg Wind Farm located on Garrogie Estate, near Fort Augustus, in the Highlands of Scotland. The ES accompanies a planning application to the Scottish Ministers for consent under section 36 of the Electricity Act 1989, and deemed planning permission under the Town and Country Planning (Scotland) Act 1997, section 57 (2), for the construction and operation of a wind farm of approximately 300 Megawatt (MW).

The ES comprises six volumes:

- Volume 1: Non-Technical Summary;
- Volume 2: Written Statement;
- Volume 3: Figures;
- Volume 3A: Landscape and Visual Wirelines and Photomontages;
- Volume 4: Appendices; and
- Volume 5: Confidential Annex.

Additional documentation that has been submitted with the section 36 application includes:

- Planning Statement; and
- Cover letter, confirming deposit locations for ES.

Landscape and Visual Supplementary Information (in accordance with The Highland Council's Visualisation Standards for Wind Energy Developments, 2010) has been issued to The Highland Council.

The ES documents (NTS, Written Statement, Figures and Technical Appendices) are available for viewing at the following locations:

The Highland Council
Glenurquhart Road
Inverness
IV3 5NX
(open during normal office hours)

The Highland Council
Fort Augustus Service Point
Memorial Hall, Fort Augustus
PH32 4DJ
(open Monday – Friday 09.30 to 13.00)

The ES is available for purchase at £450 for paper copies and £10 for a CD version from:

For the attention of Marianne Townsley
SSE
10 Henderson Road
Inverness
IV1 1SN
Tel: 01463 728069 / Email: marianne.townsley@sse.com

Paper copies of the NTS are available free of charge, or an electronic version is available online at www.sse.com/stronelairg.

The Application and ES has been advertised in the following newspapers:

- Edinburgh Gazette;
- The Herald; and
- Inverness Courier.

1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 SSE Renewables Developments (UK) Limited (the Developer), the renewable energy development division of SSE plc (SSE), is proposing to construct a new onshore wind farm to generate renewable electricity from wind power. The Developer would construct Stronelaig Wind Farm (the Development) on behalf of SSE Generation Limited, the SSE subsidiary company that currently holds the necessary generation licence required for the Development.
- 1.1.2 The Development is located on Garrogie Estate, adjacent to the recently constructed 100 Megawatt (MW) Glendoe Hydroelectric scheme (Glendoe Hydro) and approximately 11 kilometres (km) to the south-east of Fort Augustus, as illustrated in Figure 1: Site Location.
- 1.1.3 The total installed capacity of the Development would be around 300MW. This would comprise of 83 turbines with a maximum tip height of 135 metres (m). Each turbine would have an output capacity of up to 3.6MW. It is estimated that the Development could generate enough electricity to supply the equivalent of approximately 250,000 households, based on a 35% capacity factor and annual average consumption of 3.5MWh.

1.2 THE DEVELOPER

- 1.2.1 SSE is a FTSE-100 company, formed in 1999 by the merger of Scottish Hydro-Electric plc and Southern Electric plc. The company is headquartered in Perth, and within the group employs in excess of 20,000 people. Core activities include the generation and supply, and transmission and distribution of electricity. The company has a market capitalisation of around £13 billion, and supplies over 10 million energy customers in Great Britain and Ireland under the Scottish Hydro-Electric, Southern Electric, Swalec and Atlantic supply brands. The Company is co-owner of Scotia Gas Networks, which owns and operates the 'Scotland' and 'South of England' regional gas distribution networks. The gas network business employs around a further 4,000 staff.
- 1.2.2 SSE's portfolio of renewable energy currently comprises:
- 1,150MW conventional hydro;
 - 1,303MW onshore wind;
 - 187MW offshore wind;
 - 80MW dedicated biomass; and
 - 300MW pumped storage.
- 1.2.3 SSE Renewables leads the way in onshore and offshore wind power development that will contribute almost 1GW of wind energy from two major projects:
- 504MW Greater Gabbard offshore wind farm located off the Suffolk coast in which SSE Renewables holds a 50% stake, when complete will be the world's largest offshore wind farm; and
 - 350MW Clyde onshore wind farm in the Upper Clyde Valley in southern Scotland.

2 EIA Process and Methodology

2.1 INTRODUCTION

2.1.1 Environmental Impact Assessment (EIA) is a process that considers how a proposed development will change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the project design and planning decision making processes.

2.2 SCOPING AND CONSULTATION

2.2.1 The EIA Regulations require that an ES should describe the likely significant effects of the development on the environment. Scoping of potential issues against the physical and operational aspects of the proposed development provides a basis for ensuring that the assessment of environmental effects is appropriately limited to issues of genuine potential significance.

2.2.2 In March 2011, the Developer sent Scottish Ministers a copy of their environmental scoping report identifying the potential significant impacts to be addressed in the ES. In June 2011, Scottish Ministers issued their Scoping Opinion for the Development.

2.2.3 In addition to the scoping exercise, consultations have continued throughout the assessment process to:

- Ensure that statutory and other bodies with a particular interest in the environment are informed of the Development and provided with an opportunity to comment;
- Obtain baseline information regarding existing environmental site conditions;
- Establish key environmental issues and identify potential impacts to be considered in the ES;
- Identify those issues which are likely to require more detailed study and those that can be justifiably excluded from further assessment;
- Provide a means of identifying the most appropriate methods of impact assessment; and
- To proactively engage with the local community, community councils, local councillors and politicians.

2.2.4 Section 7 of this non-technical summary provides further detail on the scoping and consultation exercise undertaken for the Development.

3 Renewable Energy Policy Context & Alternative Technologies

3.1 OVERVIEW

- 3.1.1 The European Union (EU) Renewables Directive provides the framework for achieving the EU's target of securing 20% of all its energy requirements from renewable sources by 2020. For the UK, the Commission's proposals include a 16% reduction in UK greenhouse gas emissions by 2020 and for 15% of ALL energy consumed in the UK to come from renewable sources by 2020.
- 3.1.2 The UK Government retains control of the overall direction of energy policy including the attainment of UK national targets on renewable energy generation. Since devolution in 1999, some energy policy issues have been devolved to Scotland such as energy efficiency and renewable energy (including consents for generating plants covered by the Electricity Act 1989).
- 3.1.3 The Scottish Government is committed to promoting the increased use of renewable energy sources to help tackle climate change and to support economic growth in Scotland. In July 2011 the Scottish Government published the 'Routemap for Renewable Energy in Scotland'. This document outlines Scotland's renewables ambition and paths to delivery and provides an increase in previous Scottish Government's renewable energy generation target to 100% by 2020.
- 3.1.4 The mechanism introduced to achieve the renewables targets is the Renewables Obligation, which aims to incentivise the further development of renewables. The Renewables Obligation obliges electricity supply companies to source prescribed proportions of their total supply from eligible renewable sources or pay a 'buy out' fee. In terms of the Developer's obligation in 2015, at present customer levels, this equates to approximately 8TWh (Terrawatt hours), or the output from approximately 3,000MW of renewable generation (at 30% load factor).
- 3.1.5 The Developer's renewable energy strategy to meet its Renewables Obligation is diverse. Onshore wind power forms a key element of this strategy, with additional contribution from refurbishment of existing hydro, development of new hydro, and biomass co-firing. The Developer is also seeking to commercialise marine and deep offshore wind technologies.

4 Design Evolution, Site Selection and Consideration of Alternatives

4.1 APPROACH TO SITE SELECTION

- 4.1.1 The process by which the Development was identified was part of an exercise that covered the whole of Scotland as a fundamental part of the Developer's response to the Government's drive to increase significantly the proportion of electricity generated from renewable sources, particularly from wind energy.
- 4.1.2 An initial desk study identified areas of Scotland where because of a combination of topography and geography, the wind resource was likely to be satisfactory and where the infrastructure, landscape and settlement density would be likely to be able to accept the development of a commercially viable wind farm.
- 4.1.3 The selection process that was followed involved four stages;
- identification of selection criteria;
 - site search and initial evaluation;
 - feasibility; and
 - design and environmental assessment.

4.2 DESIGN EVOLUTION

- 4.2.1 The initial layout, which was presented within the Stronelairg Scoping Report (March 2011), identified a total number of 144 turbines with a tip height of 135m. The Development was located to maximise the interface with Glendoe Hydro and the turbines were concentrated in areas which were considered could produce the maximum energy yield for this site, although full analysis of the data obtained from the installed meteorological masts had not been carried out at this stage in the design process.
- 4.2.2 Following collation and preliminary analysis of environmental survey data collected as of July 2011, a first iteration environmental constraints meeting was held to outline and discuss preliminary findings. Comments from the Scoping Opinion (received June 2011) were also taken into account at this time.
- 4.2.3 It was agreed at this time that the eastern side of the site (i.e. surrounding and to the east of An Staonaig) comprised a number of potentially significant environmental constraints which, when combined, resulted in an area of the site appearing more environmentally sensitive than other areas. As a result, it was decided that no wind turbines should be positioned in this area of the site.
- 4.2.4 Further consideration and analysis of technical and environmental data throughout the Autumn and Winter of 2011 / 2012 led to a number of turbines being micro-sited. The design was fixed during April 2012 following its sixth iteration. The total number of turbines at design fix stage was 83.

5 Description of Development

5.1 DEVELOPMENT COMPONENTS

5.1.1 The operational wind farm would include the following key components:

- 83 turbines (up to 135m tip height);
- crane hardstanding area at each turbine base with a maximum area of 1800m²;
- 4 permanent meteorological masts;
- site substation with control building with parking and welfare facilities;
- two welfare buildings to provide emergency shelter for maintenance staff;
- on site access tracks and associated watercourse crossings (of which 59km are new access tracks and 21.7km are upgrades to existing tracks);
- on-site underground cabling; and
- an operational building containing welfare, offices and storage facilities, would be required adjacent to the site access point.

5.1.2 In addition to the above components of the operational wind farm, the construction phase would comprise the following:

- temporary construction compound and laydown areas;
- up to 2 temporary satellite construction compounds;
- a concrete batching plant;
- temporary telecoms infrastructure;
- 8 temporary meteorological masts; and
- Up to 20 borrow pits.

5.1.3 The principal construction and operations access to the site would be from the B862 to the west of the site, utilising approximately 14km of the existing Glendoe Hydro haul road off the B862 (see Figure 2). The 14km of existing track from the B862 to the dam at Glendoe Hydro has been built to a high standard with a width of around 8m. This width of track would largely be sufficient for delivery of turbine components and materials, although some sections would require widening. From the dam and extending through the Development site, 7.5km of the existing track would also be utilised during the construction and operation of the Development.

5.1.4 Further use of existing infrastructure in place following the construction of Glendoe Hydro would include site establishment and construction compounds (see Figure 2).

5.1.5 It is estimated that approximately 730,000m³ of stone would be required for construction of the Development (including access tracks, structural fill beneath turbine foundations, and hardstandings at turbine bases and compounds). Additionally, approximately 65,000m³ of surfacing material would be necessary to form a hard wearing surface on access tracks and hardstandings. It is anticipated this would be sourced from on-site borrow pits.

5.2 CONSTRUCTION PROGRAMME AND ENVIRONMENTAL MANAGEMENT

5.2.1 Given the altitude, as well as ground and climatic conditions experienced at this site, the construction period is likely to extend to approximately 36 months. The final period would be dependent on weather and ground conditions experienced at the site.

5.2.2 On-going consultation with the Local Community during the construction of the Development would be an important consideration for the Developer and the successful

contractor. At Glendoe Hydro, a community liaison group has been set up which provides the local community with information about key construction activities and a mechanism by which concerns from within the local community can be shared and discussed. A similar working group would be established during the construction of the Development.

- 5.2.3 Prior to construction works, sensitive ecological areas, and other specific sensitive locations (e.g. watercourses) would be marked out as appropriate on site by specialist advisers in order to avoid unnecessary encroachment and protect sensitive areas during construction.
- 5.2.4 An outline Construction Environmental Management Plan (CEMP) has been provided with the ES. The principal objective of this document is to provide information on the proposed infrastructure and to aid in avoiding, minimising and controlling adverse environmental impacts associated with the Development. Furthermore, this document aims to define good practice as well as specific actions required to implement mitigation requirements as identified in this ES, the planning process and/or other licensing or consenting processes. The CEMP would be updated during the pre-construction phase and would form part of the contract documents between the Developer and the appointed construction contractor.

6 Planning

6.1 OVERVIEW

- 6.1.1 Since the electricity generating capacity of the Development exceeds 50MW, the application for consent is submitted under section 36 of the Electricity Act 1989 and section 57 (2) of the Town and Country Planning (Scotland) Act 1997. In considering the application under section 36 of the Electricity Act, the Scottish Ministers must also fulfil the requirements of paragraph 3 of Schedule 9 to that Act. If section 36 consent is granted, the Scottish Ministers may also direct that planning permission for the Development is deemed to be granted.
- 6.1.2 The Highland Wide Local Development Plan and retained sections of the Inverness Local Plan, as well as national policy and guidance, provide the relevant planning policy context against which to assess the Development. A separate Planning Statement, which assesses in detail the Development in the context of the relevant Development Plan policies, national planning and renewable energy policy and other material considerations, has been submitted alongside the ES.
- 6.1.3 The Statutory development Plan relevant to the application consists of the following:
- The Highland Wide Local Development Plan; and
 - The Inverness Local Plan (adopted March 2006) (Retained Sections).

7 Scoping and Consultation

7.1 SCOPING

7.1.1 As part of the scoping process, and prior to issuing a scoping report to the Energy Consents and Deployment Unit (ECDU) and statutory consultees, a pre-scoping meeting was held with the ECDU, The Highland Council, Scottish Natural Heritage (SNH) and Scottish Environment Protection Agency (SEPA) during June 2010. The meeting provided an opportunity to discuss the project with the Developer and identify potential key issues prior to submission of the scoping report. The meeting also included a site visit by all attendees to enable a good appreciation of the site and its environs.

7.1.2 In March 2011, the Developer sent Scottish Ministers a copy of their environmental scoping report, identifying the potential significant impacts to be addressed in the ES. In June 2011, Scottish Ministers issued their Scoping Opinion for the Development.

7.2 PRE-APPLICATION CONSULTATION

7.2.1 Following the scoping stage, further consultation with relevant statutory and non-statutory consultees has been undertaken to establish detailed assessment methodology, seek views on the evolving wind farm layout and update on progress of the ES and application submission timescales.

Public Exhibitions

7.2.2 During March 2011, shortly after the submission of the scoping report, public exhibition events were held within the local area to allow members of the general public to obtain information and pass comment upon the Development. These exhibitions took place on the 29th March 2011 at Fort Augustus Hall (10am to 2pm) and Kilchuimen Academy (5pm to 9pm) and Thursday 31st March 2011 (Glenmoriston Millenium Hall, Invermoriston).

7.2.3 Following agreement with The Highland Council, these exhibitions were held in combination with the Bhlairidh Wind Farm application (formally known as Balmacaan) to demonstrate a joined up approach for similar developments within the local area.

7.2.4 A second round of public exhibitions were held during May and June 2012, to provide information to the community on the final design, key environmental sensitivities identified through the EIA process, timescales for submission and information on the application process. These exhibitions took place on the 31st May at Kilchuimen Academy (4pm to 7.30pm), Fort Augustus, and on the 1st June at Gorthleck Village Hall (3pm to 7.30pm). All exhibitions were widely advertised in advance in the local press and on local noticeboards.

Community Council Meetings

7.2.5 Throughout the EIA process, regular updates have been provided to Fort Augustus and Glenmoriston, and Stratherrick and Foyers Community Councils.

8 Landscape Character

8.1 OVERVIEW

- 8.1.1 A landscape character assessment was carried out in order to assess the extent of potential impacts on the landscape character of the area resulting from the introduction of the Development.
- 8.1.2 Following examination of the Zone of Theoretical Visibility (ZTV) diagram for the Development and an initial site appraisal, it was considered that any potentially significant impacts would be likely to occur within 15km. Therefore a detailed assessment of landscape character has been carried out within the 15km study area (referred to hereafter as “the detailed study area”).

8.2 SITE CONTEXT

- 8.2.1 The Development would be located within the Monadhliath Mountains, approximately 11km south-east of Fort Augustus and 14km west of Newtonmore. There are numerous distinct features within the surrounding area including: the Great Glen; the Monadhliath Mountains, Ardverikie Hills and the Cairngorms Plateau; and the low-lying Spey Valley and Glen Spean. The low lying areas of the glens and river valleys contain the majority of settlement and transport infrastructure, resulting in a greater diversity of land use which also includes agriculture, large blocks of forestry and lochs, often used for hydroelectric power generation. In contrast there is very little settlement in higher level areas and land use tends to be limited to sheep and deer grazing and estate management for shooting.
- 8.2.2 The site itself is located within a large scale high level plateau, which is surrounded by a series of high summits and ridges, providing a degree of distant enclosure. This effectively restricts distant views into and out of this area from many directions, and particularly from the west. The plateau area includes a network of new man-made structures, some of them large and prominent, and tracks relating to Glendoe Hydro and management of the estate.

8.3 BASELINE CONDITIONS

Landscape Designations and Wild Land

- 8.3.1 Landscapes can be ascribed an international, national, regional or local designation that recognises the importance of the landscape for its outstanding scenic interest or attractiveness. These designations include; National Parks, National Scenic Areas, Special Landscape Areas and Gardens and Designed Landscapes. Seventeen such areas were identified within the overall study area and ten of these fell within the visual envelope and were therefore included in the assessment. In addition four Search Areas for Wild Land (SAWL), as defined by Scottish Natural Heritage (SNH), were also identified within the overall study area and assessed. The potential for more localised areas of wild land character was also recognised and a detailed wild land assessment of areas identified as exhibiting qualities of wild land, within the detailed study area, has been carried out.

Landscape Character Areas

- 8.3.2 SNH, in conjunction with partner Councils, has undertaken detailed review and classification of various landscape areas and types of Scotland and produced a series of reports known as Landscape Character Assessments. In addition to the SNH landscape character assessments, the Cairngorms National Park Authority (CNPA) has produced a more detailed landscape character assessment of the national park area, part of which is within the study area.

- 8.3.3 The assessment identified twenty nine Landscape Character Areas (LCAs) within the detailed study area, seventeen of which would potentially be located within the visual envelope of the Development and have therefore been included in the assessment.

8.4 SUMMARY OF ASSESSMENT AND CONCLUSIONS

Landscape Designations and Wild Land

- 8.4.1 The assessment findings identified that the majority of the landscape designations found within the overall study area would not receive significant impacts as a result of the Development. However, it is considered that there would be locally significant impacts on a small area of the CNP. Due to the limited areas of the CNP affected, it is considered that the overall impacts on this designated area would not be significant. All other landscape designations, including four National Scenic Areas and five Special Landscape Areas, would not receive significant impacts as a result of the Development.

- 8.4.2 Four SAWLs cover parts of the 35km study area, with one covering a large part of the detailed 15km study area, including the proposed development site. However, due to the presence of existing infrastructure, the proposed development area itself is not considered to be wild land. In addition to the four identified SAWLs, the potential for more localised areas of wild land was recognised and therefore a detailed assessment of all LCAs within the detailed study area identified as possessing some wild land characteristics was carried out. This assessment concluded that there would be no significant impacts on the wild land quality of any of the LCAs, or of the four SAWLs in the wider study area.

Landscape Character

- 8.4.3 The assessment has found that the majority of the LCAs located within the detailed study area, including all lower lying areas, would not receive significant impacts. However, it is anticipated that the Rolling Uplands LCA, within which the Development would be physically located, would receive significant impacts. In addition, the assessment findings indicate that there would be locally significant impacts on parts of the South Monadhliath LCA. However, these locally significant impacts would largely be limited to the higher summits in close proximity to the Development, with the majority of the LCA not significantly affected.

Cumulative Impacts

- 8.4.4 An assessment of cumulative landscape impacts has been carried out in order to assess the likely landscape character impacts of the Development in combination with other wind farm developments in the area (i.e. all other operational, consented and proposed wind farms found within the 60km cumulative study area). The cumulative landscape assessment found that the majority of the landscape designations and LCAs within the study area would not receive significant impacts. One LCA would receive significant cumulative impacts as would small areas of one other LCA. One designation would receive locally significant cumulative impacts as a result of the Development.

Conclusions

- 8.4.5 In conclusion, although there would be some localised significant adverse impacts upon a small number of areas within the 15km detailed study area, the impact of the Development on the landscape character resource of the wider study area when taken as a whole is not considered to be significant.

9 Visual Amenity

9.1 INTRODUCTION

9.1.1 The visual impact assessment describes and evaluates the potential impacts on the visual amenity of the area, resulting from the introduction of the Development.

9.1.2 As with the landscape character assessment, an initial study area of 35km from the outermost turbines was identified, as per current best practice guidance. Following examination of the Zone of Theoretical Visibility (ZTV) diagram for the Development and an initial site appraisal, it was considered that any potentially significant visual impacts would be likely to occur within 15km. Therefore a detailed assessment of all potential visual receptors has been made within this area (referred to hereafter as “the detailed study area”).

9.1.3 For there to be a visual impact there is the need for a viewer. Views experienced from locations such as buildings, recognised routes and popular viewpoints used by the public have been included in the assessment. These locations are known as receptors. In order to assess the potential visual impact of the Development the theoretical extent of the visual envelope was determined and enabled the identification of a number of representative viewpoints, which form the basis of this assessment within the overall study area. The viewpoints were selected in consultation with The Highland Council, Cairngorms National Park Authority and Scottish Natural Heritage. In addition to the viewpoints, all routes, buildings and popular recreation and tourist destinations found within the detailed study area, and identified within the visual envelope, were also assessed.

9.2 SUMMARY OF ASSESSMENT AND CONCLUSIONS

9.2.1 A series of twenty two viewpoints have been identified in order to provide a representative cross section of potential impacts within the overall study area. The visual envelope diagram indicates that potential visibility of the Development from low-lying areas would be very limited. The majority of settlement, buildings, roads and recreational routes within the detailed study area are located in the low-lying areas and as such there are a limited number of locations potentially affected by the Development. From more elevated areas, locations potentially affected include a number of Munros and Corbetts and the walking routes to these summits.

9.2.2 The visual assessment has concluded that of the fifty seven receptors assessed, ten viewpoint/ outdoor receptors and six route or part-route receptors would receive significant operational impacts as a result of the Development. The main concentration of significant visual impacts is on hill top receptors in close proximity to the Development and on elevated sections of some of the route receptors. All other visual receptors, included in the assessment would not receive significant operational impacts.

Cumulative Impacts

9.2.3 An assessment of potential cumulative visual impacts relating to the addition of the Development in combination with other wind farm developments in the area (i.e. all other operational, consented and proposed wind farms found within the 60km cumulative study area).

- 9.2.4 The assessment of cumulative visual impacts has also identified that the main significant cumulative impacts are largely found on the hill tops and higher ground in close proximity to the Development. Four viewpoint receptors and three route receptors are anticipated to receive significant cumulative impacts as a result of the addition of the Development into the cumulative baseline scenario. The remaining viewpoints and route receptors included in the cumulative assessment would not receive significant cumulative impacts.

Conclusions

- 9.2.5 In conclusion, although there would be some localised significant adverse impacts upon a small number of receptors and viewpoints within the 15km detailed study area, mostly hilltops and some sections of footpath, the effects of the Development upon the visual amenity of the study area when taken as a whole are not considered to be significant. Cumulative adverse visual effects arising from the addition of the Development to the assumed baseline scenario are likewise not considered to be significant.

10 Ornithology

10.1 INTRODUCTION

- 10.1.1 The baseline ornithological conditions were assessed in two phases, the first a desk-study of historical data sources and the second targeted field surveys of important ornithological receptors identified in the desk-study.
- 10.1.2 The methods and results of desk and field studies are reported for designated sites and specially protected species and species of conservation importance/concern. The plateau development area does not qualify as nationally or internationally important for any species of birds. By changing the size and scale of the initial wind farm layout, the final design largely avoids most of the ornithological interest in the development area. The development area holds breeding habitat for two species of high nature conservation importance, golden plover and dunlin. Golden eagle, peregrine, hen harrier and merlin (species of high nature conservation importance) were occasionally recorded, but did not breed within the development area or a 2km buffer.
- 10.1.3 No significant residual effects are predicted on the important ornithological receptors from the development assuming planned and designed mitigation is fully implemented. This includes a targeted Habitat Management Plan to enhance prey densities and availability away from the development area to mitigate against any potentially significant adverse effects to breeding golden eagles in the wider area.

11 Ecology and Nature Conservation

11.1 INTRODUCTION

- 11.1.1 The baseline ecological conditions were assessed in two phases, the first a desk-study of historical data sources and the second targeted field surveys of important and legally protected ecological receptors identified in the desk-study.
- 11.1.2 The methods and results of desk and field studies are reported for designated sites, mammals, reptiles, amphibians, fish, targeted invertebrates, Phase 1 Habitat and National Vegetation Classification Surveys. 45% of the plateau study area was wet modified bog, 26% unmodified blanket bog and the remainder included dry dwarf shrub heath, montane heath, wet dwarf shrub heath and acid flush.
- 11.1.3 The plateau development area does not qualify as a nationally or internationally important site for ecology. There is only one designated ecology site (with two designations) close to the development area. The Monadhliath Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) is adjacent to the southeast edge of the development area and occurs in a different catchment to those where construction activity is planned.
- 11.1.4 There was no evidence of wildcat, pine marten or badger use of the development area. The development area holds water vole colonies, which are concentrated in narrow riparian grassland habitat corridors along several watercourses. There were few signs of otters, with no evidence of holts or sheltering/resting places in the development area. The development area was assessed as having low bat habitat suitability and bat surveys recorded a single soprano pipistrelle.
- 11.1.5 No important reptiles or amphibians were recorded within the development area. The majority of the watercourses in the development area provide relatively poor quality fish habitat (although there were exceptions), due to the existing Glendoe Hydro abstraction regime. There was no evidence of freshwater pearl mussels in any of the watercourses surveyed. The development area was relatively poor in terms of invertebrates.
- 11.1.6 Without exception, no significant impacts and associated effects are predicted on the important ecological receptors from the development assuming planned and designed mitigation is fully implemented. Therefore, no significant residual effects are predicted for the important ecological receptors in the development area.
- 11.1.7 A number of mitigation measures have been proposed to reduce the effects on ecological receptors and include:
- Implementation of a Construction Environmental Management Plan;
 - Pre-construction protected species surveys;
 - Work programming to avoid periods of high sensitivity for protected species; and
 - Habitat reinstatement.

12 Geology, Soils and Hydrogeology

12.1 INTRODUCTION

- 12.1.1 The Development is located on a geological plateau. Peat deposits are present across most of the site, with also occasional bedrock exposures. The peat depth across the site has been established through probing, and peat thickness was found to range from 0.2 to 2.4m.
- 12.1.2 Potential effects in relation to geology, soils and hydrogeology are most likely during construction and may relate to effects on groundwater flow or quality, private and public water supplies, drying out of peat, and effect on groundwater dependant terrestrial ecosystems. The potential for ground instability as a result of peat slide was also assessed and these results informed the layout design in terms of turbine locations, access tracks and site compounds.
- 12.1.3 As part of the design, the disruption of peat has been minimised by aiming to avoid areas of deeper peat deposits, and the re-use of excavated peat would be maximised in accordance with recently published guidance.
- 12.1.4 No private or public water supplies have been identified within the study area.
- 12.1.5 Mitigation measures, based on best practice, are proposed to control the effects on the receiving environment and are outlined within the ES chapter. These measures would be detailed within a site Pollution Prevention Plan to be implemented during the construction of the wind farm. This plan would be produced following consultation and agreement with SEPA and would incorporate a Pollution Incident Plan including emergency procedures.
- 12.1.6 Mitigation measures have also been proposed regarding the potential dewatering and fluctuation of groundwater levels within the peat deposits in order to prevent instabilities and protect sensitive habitats.
- 12.1.7 With the proposed mitigation measures in place, no significant effects are predicted on geology, soils or hydrogeology.

13 Surface Water

13.1 INTRODUCTION

- 13.1.1 This assessment considered potential effects on hydrology, flood risk, fluvial geomorphology and surface water quality, together comprising the surface water environment.
- 13.1.2 The study area is located in a predominantly upland area draining the Highlands. All watercourses in the study area with the exception of the River Tarff drain north into the River Killin, which outfalls into Loch Ness. The River Tarff is dammed at its headwaters to form the reservoir associated with Glendoe Hydroelectric scheme. The catchments are classified as essentially rural and there is no known or recorded history of flooding in the study area. The majority of the watercourses and drainage ditches within the study area are utilised as part of the Glendoe Hydroelectric scheme.
- 13.1.3 The characteristics of the watercourses in the study area range from minor tributaries to watercourses of up to approximately 5m in width and include a number of ecological designations including the Monadhliath SAC (Special Area of Conservation) and SSSI (Site of Special Scientific Interest) and the River Ness salmonid waters. Exposed peat on the banks and bed is a common characteristic of watercourses in the study area.
- 13.1.4 Potential for effects on the surface water environment is highest during the construction phase when there would be most activity on-site and includes changes to natural drainage patterns, effects on runoff, erosion and sedimentation, and risk of pollution incidents.
- 13.1.5 Mitigation measures, based on best practice, are proposed in the ES to prevent, reduce or offset the effects on the receiving water environment. For the construction phase these would be detailed within the Construction Environmental Management Plan, which would include a site Pollution Prevention Plan. A Pollution Incident Plan or similar would be implemented during the operational phase of the Development.
- 13.1.6 With the outlined mitigation measures in place, residual effects on the hydrological, geomorphological and water quality regime would be of Negligible to Slight significance.

14 Cultural Heritage

14.1 INTRODUCTION

- 14.1.1 An assessment on the potential impact of the Development, both direct and indirect, on archaeological or historical sites, areas of known or potential archaeological or historical interest and other features of cultural heritage has been carried out.
- 14.1.2 The area has been surveyed previously following work associated with Glendoe Hydro. Additional survey work was carried out for the Development which concluded that there are few archaeological sites on the high ground.
- 14.1.3 Those sites that were identified do not lie directly on the line of new access roads or in the locations of turbines. These sites are mostly of local significance, although two sites considered to be of regional significance are located within the development area and there would be an indirect, visual impact on these sites. However, this is not considered to result in a significant impact on these sites.
- 14.1.4 There are a number of sites of national significance in the wider area, but the Development would not be visible from these sites.
- 14.1.5 The evaluation concludes that the direct impact of the Development on elements of Cultural Heritage would be minimal.

15 Access, Traffic and Transport

15.1 INTRODUCTION

- 15.1.1 The Access, Traffic and Transport chapter assesses the effects of the traffic movements, transporting construction staff, construction materials, plant items and turbine components, related to the construction of the proposed development.
- 15.1.2 Relevant planning policy and guidance has been considered including 'Scotland's Transport Future', published by the Scottish Government, Scottish Planning Policy (SPP), published by the Scottish Government in February 2010, Regional Transport Policy, and the Guidelines for Environmental Impact Assessment produced by IEMA.
- 15.1.3 The assessment has been undertaken in accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' which have complemented professional judgement and the experience of trained assessors. These guidelines were used as a screening process to define the geographical boundaries of this assessment. A review of the roads hierarchy, a review of traffic count data, and a site visit to visually assess the general nature and condition of the routes around the site, have been undertaken to help determine the best routes to site based on the most suitable routes in terms of hierarchy and capacity to accommodate the proposed construction traffic. The potential effects of the development traffic were drawn from the Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993) including severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety.
- 15.1.4 Having identified the environmental effects to be considered and the road network to be included, the next stage of the assessment was to quantify the magnitude of the environmental effects and, critically, to identify the level of significance that such a change may have, taking into account an evaluation of the sensitivity and value of the receptors.
- 15.1.5 To determine the baseline conditions a review of the roads hierarchy, a review of traffic count data and a site visit (to visually assess the general nature and condition of the routes around the site) were undertaken to help determine the best routes to site based on the most suitable routes in terms of hierarchy and traffic volume, to accommodate construction traffic. The routes identified have been chosen to allow travel to the site from the widest catchment area on the most appropriate types of road.
- 15.1.6 The majority of material would be sourced from borrow pits on site and concrete would also be batched on site, which would significantly reduce transport requirements. A number of mitigation measures are also proposed to reduce the adverse effects of the construction traffic including traffic management measures, identification of preferred routes, and communications protocols. No mitigation measures during operation are envisaged as, during the operation of the wind farm, it is predicted that there would only be a very small number of vehicle movements per week for maintenance purposes.
- 15.1.7 Based on existing traffic data, the estimated volume of construction traffic, the methodology outlined and considering the potential effects, an assessment of the residual effect has been made. The assessment concludes that no significant effects are predicted.

16 Land Use, Socio-economics and Tourism

16.1 INTRODUCTION

16.1.1 The socio-economic effects of activity during construction, operation and decommissioning on the local area, in the Highland area and in Scotland were analysed in accordance with regional and national planning policy guidance. The following potential effects were analysed:

- support of local, regional and national strategy;
- impact on local and regional tourism;
- local, regional and national economic impacts; and
- impact on local residents' amenity.

16.1.2 Strategies at all levels of government are broadly in support of increasing the provision of renewable energy generation including wind power. However regional and national planning guidance highlight the need to consider the impacts on tourism and recreation.

16.1.3 These considerations have been incorporated into the design of the wind farm, as there is either no visibility or low visibility of the Development from the main population centres and from the key attractions. The design of the Development together with a review of the evidence of the effects of wind farms on tourism leads to the conclusion the visitor experience is not expected to be negatively changed and leisure visitors are not expected to be deterred by the Development.

16.1.4 The decrease in the total number of jobs between 2008 and 2010 was greater in Highland than in Scotland as a whole. In April 2012, there were 405 Jobseekers' Allowance claimants in the local area aged between 18-24 and in the Highlands area there were 1,035.

16.1.5 The projected socio-economic effects of the Development would take the form of a short-term effect during development and construction through employment, spending of employees and purchase of materials and services. The associated potential employment creation in the Local area has been estimated as equivalent to 379 job years. In the Highland area this opportunity is 611 job years and £90.6 million. There is also an effect during the operations and management phase of an opportunity of 92 jobs in the local area and 117 jobs in the Highland area.

16.1.6 It should be noted that these effects are estimated based on assumptions about the likely behaviour of local businesses and cannot therefore be guaranteed. However, these opportunities have been realised in previous projects by the Developer in the Highlands and the Developer has in place developments and initiatives to assist the local area realise this potential opportunity.

16.1.7 Longer-term effects include skills initiatives and community benefit funding which for the Highland region as a whole has a value of £37.35 million over the lifetime of the project, of which £18.68 million would exclusively be for the local area.

16.1.8 The development of local and Scottish supply chains would be supported by this Development and also by the portfolio of projects being progressed in the local area. This will also lead to investment by the Developer in infrastructure such as roads and ports. This will create jobs and leave a lasting legacy in the area as well as supporting the renewables sector as a whole.

- 16.1.9 There is no significant impact on recreation. There are no core paths within the site boundary that would be affected by the Development and few walkers have been recorded within the site boundary over the last decade.
- 16.1.10 In conclusion, an analysis of potential socio-economic effects was undertaken and it can be stated the Development would have a positive short-term and long-term socio-economic effect on the local and regional area. Regional and national policy and guidance supports this development. In line with this guidance, impacts on tourism and recreation have been considered and are likely to be negligible.

17 Other Issues

17.1 INTRODUCTION

17.1.1 Other considerations include:

- telecommunications;
- television/radio;
- aviation navigational equipment;
- shadow flicker;
- ice throw; and
- air and climate.

17.1.2 No disruption to telecommunications, television and radio reception are anticipated as a result of the Development, and no effects on aviation safety have been identified that cannot be mitigated by technical solutions.

17.1.3 Shadow flicker can arise from the moving shadow of the turbine rotor blade passing over a narrow opening such as the window of a nearby residence. However, shadow flicker effects would not occur as a result of the Development, as the closest residential property is 3.8km from the turbines and outwith the zone where shadow flicker effects can occur.

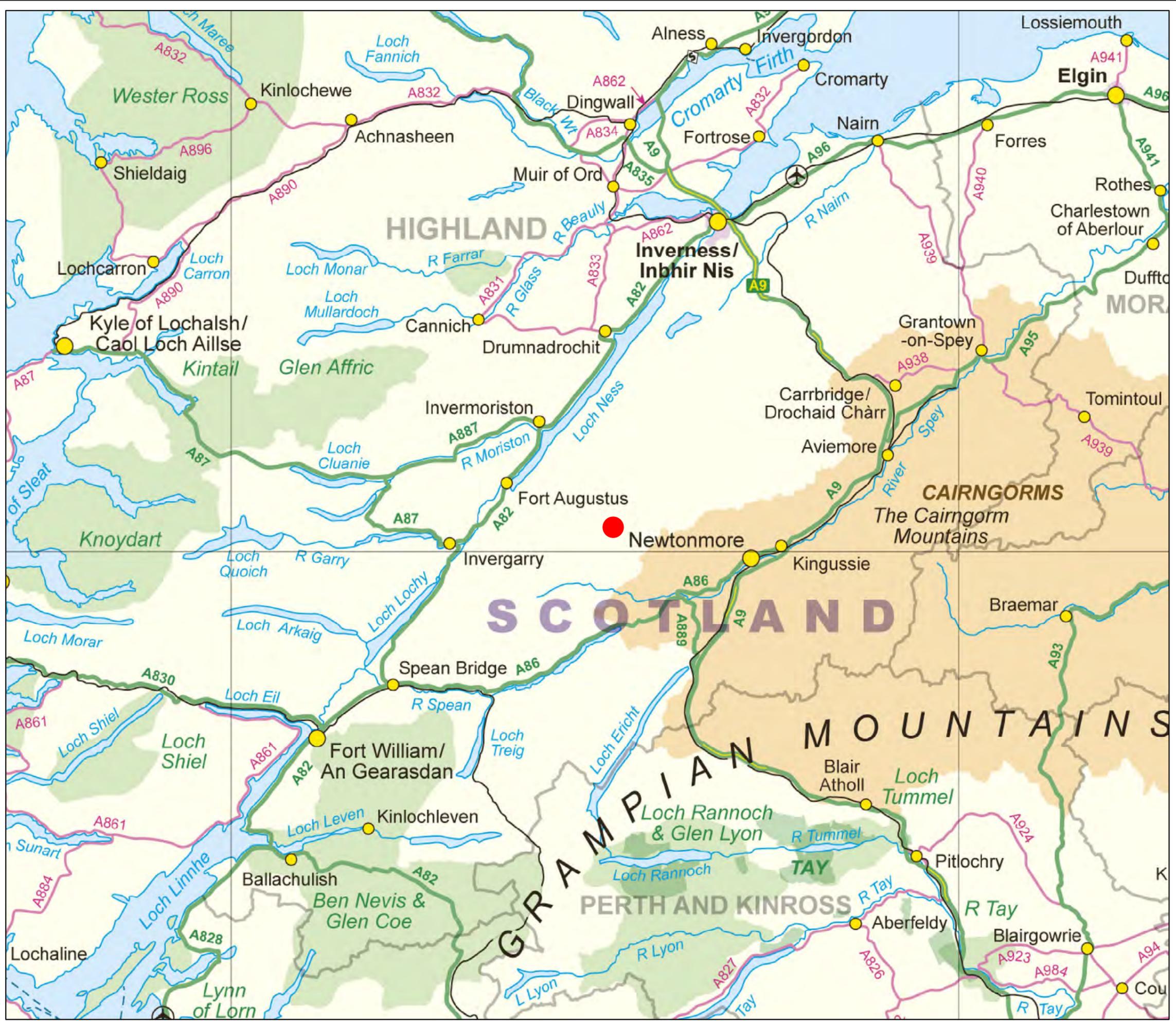
17.1.4 The risk of ice throw (ice building up on turbine blades and falling to the ground) resulting in damage or injury is considered to be low. Modern turbines are fitted with vibration sensors, which detect any imbalance that might be caused by icing and affected turbines are shut down. The maximum theoretical distance calculated for ice throw at the Development is 285m, the nearest public road and residential property are 3.8km from the nearest turbine. Appropriate measures are proposed in order to safeguard the safety of operations staff and the public, for example the use of notices at access points alerting members of the public of the possible risk of ice throw under certain weather conditions.

17.1.5 Potential adverse effects on local air quality during construction are considered to be minor, temporary and not significant. The operation of wind farms contributes to an overall beneficial effect on local and global air quality by contributing to the offsetting of the atmospheric emissions associated with global warming, produced by the generation of electricity from the burning of fossil fuels.

18 Schedule of Mitigation

18.1 INTRODUCTION

- 18.1.1 Mitigation measures have been integral to the design evolution of the Development to prevent, reduce or offset the effects of the Development on the receiving environment.
- 18.1.2 Prior to finalising the Development, a series of environmental and technical constraints exercises were undertaken to minimise potential significant environmental impacts where possible. This has included taking into account landscape and visual constraints, avoidance of sensitive habitats and protective species where possible, minimising watercourse crossings, and micro-siting of turbines and associated infrastructure to take account of peat depth.
- 18.1.3 In addition to this, a number of mitigation measures have been proposed throughout the Environmental Statement. During the construction phase these would be detailed within, and implemented through a Construction Environmental Management Plan (CEMP).



Key

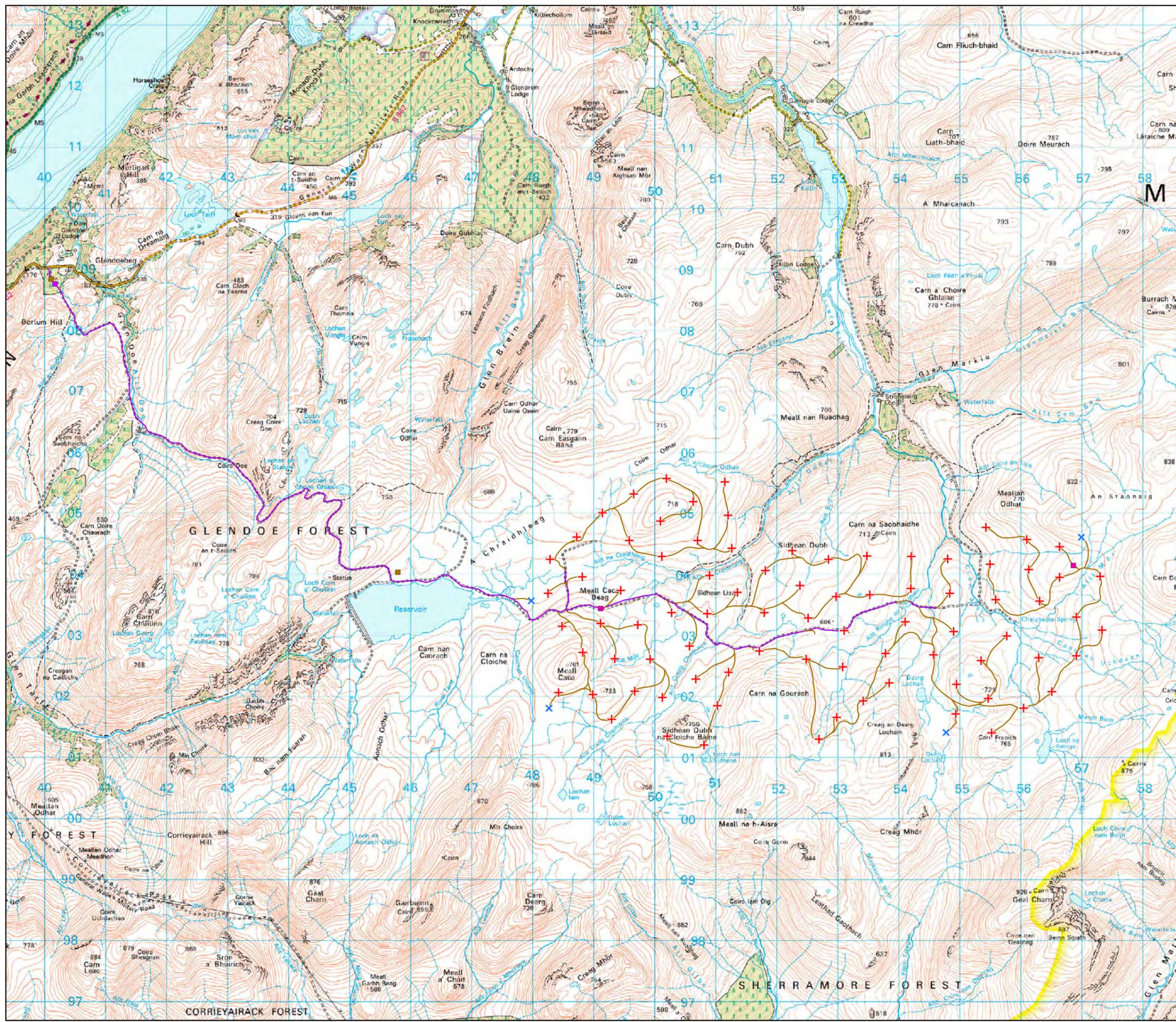
● Stronelairg Site Location

Scale 1:500,000 @ A3



Figure 1
SITE LOCATION

Stronelairg Wind Farm
Environmental Statement



- Key**
- + Turbine
 - x Permanent Met Mast
 - Construction Compound
 - Indicative location of Operations Building
 - Indicative location of Welfare Building
 - New Track
 - Existing Tracks (to be upgraded as necessary)

Scale 1:60,000 @ A3



Figure 2
SITE CONTEXT

Stronelairg Wind Farm
Environmental Statement