Gordonbush Extension
Scoping Report

September 2013

By:

ash
design + assessment

For:

SSE
Renewables

GORDONBUSH EXTENSION

SCOPING REPORT

SEPTEMBER 2013

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EXECUTIVE SUMMARY

SSE Generation Ltd is proposing to develop an extension to the operational Gordonbush Wind Farm, located near Brora in Sutherland. The Environmental Statement for this proposal is being prepared by SSE Renewables Developments (UK) Limited (SSE Renewables) on behalf of SSE Generation Ltd, the applicant. The existing wind farm comprises 35 turbines, each at a height of 110m to tip, and with a total output capacity of 72MW. The final construction work at the site which was to erect turbines began in August 2011 and was completed in February 2012, with the site being at full operational status by June 2012.

The core development area for the proposed extension, named 'Gordonbush Extension', would be located in an area to the south west of Gordonbush Wind Farm (see Figure 2). The installed capacity of the proposed development would be dependent on detailed analysis of environmental and technical considerations, and would follow a design process focussed on minimising potential environmental effects. Early technical analysis has indicated an installed capacity in excess of 50MW could be achieved, based on a layout of up to 20 turbines with a maximum tip height of 132metres.

Construction access to the proposed extension is anticipated to utilise the same route through Strathbrora as was used during the construction of Gordonbush Wind Farm. Successful negotiations with the local communities during the construction of the existing wind farm ensured local concerns were addressed and impacts reduced. It is the aim of the developer that this would continue and lessons learnt throughout this exercise would be applied during the design and construction of the extension site.

This Scoping Report prepared by SSE Renewables forms the written request of SSE Generation Ltd to the Scottish Government (Energy Consents and Deployment Unit) for its Scoping Opinion to determine the information to be provided within the Environmental Statement. The document provides stakeholders with information about the proposed development, baseline information with regard to the core development area and surrounding vicinity, the potential significant environmental effects of the project and the proposed scope and methodology of the Environmental Impact Assessment (EIA).

The detailed scope of the EIA would be informed by the Scoping Opinion, and further discussions with relevant consultees and specialists as required.

Have Your Say

SSE Renewables welcomes your comments on this Scoping Report, particularly in relation to any information which may be useful in determining the scope or informing the EIA. Responses from statutory and non-statutory consultees on this Scoping Report should be directed to the Energy Consents and Deployment Unit to ensure all responses are collated and included within the Scoping Opinion. Responses should be sent to the following address:

Energy Consents and Deployment Unit

4th Floor, 5 Atlantic Quay

150 Broomielaw

Glasgow, G2 8LU

energyconsents@scotland.gsi.gov.uk

In submitting your response to the ECDU, SSE Renewables would be grateful if you could send a copy of your response to them at the address below:

For the attention of Nicki Small

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All other responses or comments relating to the proposed scheme should be entitled 'Gordonbush Extension Wind Farm' and sent to the above address.

This Scoping Report is also available online at www.sse.com/Gordonbush

1 INTRODUCTION

1.1 Background Information

1.1.1 SSE Generation Ltd is proposing to construct an extension to the operational Gordonbush Wind Farm. The proposed development is located approximately 9.5km to the north-west of Brora, Sutherland, as illustrated in Figure 1.

1.1.2 SSE Renewables Developments (UK) Limited (SSE Renewables) is the renewable energy development division of the SSE plc. group (SSE). SSE Renewables is preparing the Environmental Statement for this proposal on behalf of the applicant, SSE Generation Ltd, a member of SSE group.

1.1.3 In developing the wind turbine layout, an environmentally led design process would be followed. All environmental considerations would be taken into account during the design process and would be considered alongside technical considerations such as the analysis of meteorological data from existing meteorological masts on the operational site. The design process is described in more detail in Section 2.2. Preliminary technical analysis has indicated that an installed capacity in excess of 50MW is achievable, based on a layout of up to 20 turbines.

1.1.4 The scheme is being promoted by SSE as one of a number of significant projects in support of the UK commitment to increase the proportion of electricity generated using renewable resources. SSE is the leading generator of renewable energy in the UK, with over 3,200 MW of renewable electricity generation capacity (including wind, hydro and biomass) and a significant portfolio of renewable energy projects in construction, with consent, or in development in the UK and the Republic of Ireland.

1.1.5 The proposed development forms part of SSE's response to the Renewables Obligation (as amended) which came into force in April 2002 to stimulate an increase in the proportion of renewable energy in the UK's energy mix. The proposals are also in support of international and national targets to reduce greenhouse gas emissions and increase the supply of energy through renewable sources. The Scottish Government has set a target of supplying an equivalent of 100% of gross annual electricity demand from renewable sources by 2020[1].

1.2 Aims of the Scoping Report

1.2.1 This Scoping Report has been prepared by ASH design+assessment Ltd (ASH), on behalf of SSE Renewables, to enable a request for a Scoping Opinion to be made to the Scottish Ministers to inform an EIA under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.

1.2.2 The specific aims of this Scoping Report are to:

[1] http://www.scotland.gov.uk/Resource/Doc/917/0118802.pdf [accessed 12th July 2013]

- Set out the approach to the EIA, including the proposed content and structure of the Environmental Statement (ES);
- Summarise existing baseline information in relation to the core development area and surrounding vicinity (from both existing data relevant to the operational scheme and survey data completed since 2012 in the core development area);
- Identify the issues which are to be assessed as part of the EIA;
- Agree the general approach to the assessment and the methodologies that would be used; and
- Identify those issues which should be scoped out of the EIA.

1.2.3 The Scoping Report includes the following Sections:

- **Section 1;** Introduces the proposed development, describes the aims of the Scoping Report and the process and procedures for its preparation, the overall approach to the EIA and the intended format of the ES;
- **Section 2;** Provides a description of the scheme and its context;
- **Section 3;** Provides an outline of the planning policy context;
- **Section 4;** Consideration of potential environmental effects on People and Property, Natural Resources and the Natural and Cultural Heritage;
- **Section 5;** Provides a summary of other wind farm sites or applications within the surrounding area and describes the approach to assessing cumulative impacts;
- **Section 6;** Summarises the process of responding to the findings of the Scoping Report; and
- **Section 7;** Provides a list of references.

1.3 Preparation of the Scoping Report

1.3.1 The scoping review has comprised a number of key activities:

- Initial consultations between SSE Renewables and landowners, Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA), The Highland Council and the Energy Consents and Deployment Unit (ECDU) of The Scottish Government;
- Preliminary joint site visit with statutory consultees and SSE Renewables;

- Review of existing environmental survey information collected as part of previous studies associated with Gordonbush Wind Farm; and
- An initial appraisal of likely environmental impacts of the scheme, the potential for mitigation and recommendations for the main EIA studies.

1.3.2 A range of information sources have been used to prepare this report and to undertake the initial appraisal work. These include:

- Ordnance Survey Mapping - Landranger Sheets 17 and 21 (1:50,000) and Explorer Sheets 441 and 444 (1:25,000);
- Information obtained from site visit on 19 August 2013;
- Information obtained from the Gordonbush Wind Farm ES and submitted addendums, on-going monitoring programmes and Habitat Management Plan, and lessons learnt from the construction of Gordonbush Wind Farm;
- The Highland Wide Local Development Plan (HwLDP), April 2012;
- The Sutherland Local Plan, June 2010;
- Caithness and Sutherland Landscape Character Assessment, SNH Review No.103, 1998;
- The Moray Firth Landscape Character Assessment, SNH Review No. 90, 1998;
- The Sutherland Biodiversity Action Plan;
- Scottish Natural Heritage GIS datasets;
- PASTMAP, historical and archaeological features database; and
- Circular 1/2013 (EIA).

1.4 Consultations

1.4.1 Consultation with statutory bodies and the local community has been on-going since the inception of Gordonbush Wind Farm. This dialogue has been an important aspect in the successful development and construction of the current operational wind farm and would continue throughout the EIA process for the proposed extension.

1.4.2 Pre-scoping meetings have been held with the ECDU, The Highland Council, SNH and SEPA during August 2013. The meetings provided an opportunity to discuss the project and potential key issues prior to submission of the Scoping Report, and included a site visit attended by The Highland Council, SNH and SEPA. Comments and advice received during these meetings have been considered during the preparation of this Scoping Report.

1.4.3 This Scoping Report has been issued to the organisations listed in Table 1.1, following agreement on the consultee list by the ECDU.

Table 1.1: Consultees in Receipt of this Scoping Report

Statutory Consultees	
Energy Consents and Deployment Unit	The Highland Council
SNH	SEPA
Non Statutory Consultees	
Historic Scotland	Transport Scotland
Marine Scotland	Scottish Water
Defence Infrastructure Organisation	Nuclear Safety Directorate (HSE)
Civil Aviation Authority (Airspace)	BAA Aerodrome Safeguarding
British Telecommunications plc	NATS Safeguarding
Brora District Salmon Fishery Board	Highlands and Islands Airport Ltd
Scottish Wildlife Trust	Association of Salmon Fishery Board
John Muir Trust	The Crown Estate
Mountaineering Council of Scotland	Joint Radio Company
Forestry Commission	RSPB Scotland
Visit Scotland	
Community Councils	
Brora Community Council	Golspie Community Council
Helmsdale Community Council	Rogart Community Council

1.4.4 Upon receipt of the Scoping Opinion, further consultation would take place with relevant statutory and non-statutory bodies as part of the EIA process. This would include agreement on specialist assessment methodologies, as a result of the EIA findings and design process, and the incorporation of appropriate mitigation measures if necessary.

1.4.5 Public consultation would be undertaken during the EIA process. Two rounds of public exhibitions would be held within the local area prior to the application and ES being submitted. The first exhibition stage is anticipated to be held during October/November 2013 following submission of this Scoping Report to the Energy Consents and Deployment Unit, and will be focused on raising awareness of the

scheme and gathering feedback. The second exhibition stage would be held later in the EIA process prior to submission of the planning application, to present the final design.

1.5 The Overall Approach to the EIA

1.5.1 The ES would be prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, and with reference to Planning Circular 1/2013 (Environmental Impact Assessment).

1.5.2 The EIA work would comprise a series of specialist environmental studies which would be targeted to the potential significant impacts as a result of the proposed development. Each topic would be included as a separate chapter in the main body of the ES, or included as an appendix if the subject matter requires to be more detailed.

1.5.3 Each specialist chapter of the ES would generally be constructed according to the following structure:

- Introduction;
- Methodology;
- Baseline Conditions;
- Assessment of Impacts – Construction, Operation, Decommissioning;
- Identification of any Significant Environmental Impacts;
- Mitigation Measures;
- Residual Impacts (impacts after mitigation); and
- Conclusion.

1.5.4 Throughout the ES, where an issue raised in the scoping opinion is addressed, this would be clearly referenced in the chapter. A scoping matrix would also be included in the ES which would detail all consultation responses received, both within the Scoping Opinion and during the EIA process, with a reference to where these responses have been addressed in the ES. A schedule of mitigation measures would also be included as an appendix.

1.5.5 Pre-application procedures would be discussed and agreed with ECDU and The Highland Council in accordance with the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008 prior to submission of a formal application. In line with ECDU guidance for developers[2], the scoping matrix would be used in pre-application discussions to confirm matters raised during the scoping process have been taken into account in the ES.

[2] http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Infrastructure/Energy-Consents/Guidance (accessed 09th September, 2013)

Supporting Documents

1.5.6 A Planning Statement would be prepared in support of the application for consent. The Planning Statement would not be part of the ES. It would discuss the relevant energy and environment policies relating to wind energy development, Scottish Government's policies on renewable energy development and the Development Plan context for the proposed development.

1.5.7 A Design Statement would be prepared setting out the design principles that have influenced and shaped the proposed development.

1.5.8 A Consultation Report would be prepared detailing engagement regarding the proposed development with local Community Councils, The Highland Council, other consultees and members of the public.

1.5.9 A Construction Environmental Management Plan (CEMP) for the operational Gordonbush Wind Farm was put in place during the construction of that scheme following agreement with The Highland Council, SNH and SEPA. The same principles of this CEMP would be adopted for Gordonbush Extension, subject to a review in relation to site specific constraints and best practice guidance including the publications 'Good Practice during Wind Farm Construction' (Scottish Renewables et al 2010) and 'Construction Environmental Management Process for Large Scale Projects' (The Highland Council, 2010). A draft copy of this CEMP would be included in the ES.

Lessons Learnt

1.5.10 There would be a section in the ES detailing the lessons learnt from the construction of Gordonbush Wind Farm. During the EIA process for the proposed development, consideration would be given to how these lessons could be applied or acted upon during the construction of Gordonbush Extension, should consent be granted.

2 THE PROPOSED DEVELOPMENT

2.1 Description of the Scheme

Location

2.1.1 The proposed Gordonbush Extension is located approximately 9.5 km to the north-west of Brora, Sutherland within the Highland region of Scotland. The site is located to the South of the recently constructed Gordonbush Wind Farm.

2.1.2 The core development area, which comprises the area which would be considered for the proposed development of wind turbines and associated infrastructure, is shown on Figure 2. The site boundary, also illustrated on Figure 2, includes the existing access track to Gordonbush Wind Farm, the existing substation and borrow pits utilised during its original construction.

Wind Farm Components

2.1.3 The principal permanent components of the proposed scheme would be as follows:

- wind turbines;
- access tracks and hard-standings;
- interconnecting cables between the turbines; and
- welfare building.

2.1.4 It is anticipated that existing infrastructure from the operational Gordonbush Wind Farm would be utilised for the proposed extension where possible and is therefore included within the site boundary, extending the planning consent for these. This would be explored further during the design process and would include the use of the existing substation for grid connection, existing access tracks and the original borrow pits during construction within the site boundary. Figure 3 illustrates the existing infrastructure in place at Gordonbush Wind Farm.

2.2 Design Process

2.2.1 The wind turbine layout would be developed through an environmentally led design process, with a particular focus on visual composition, minimising potential landscape and visual impacts and minimising impacts to deeper areas of peat and Ground Water Dependant Terrestrial Ecosystems (GWDTEs).

2.2.2 The visual composition of the proposed extension in combination with Gordonbush Wind Farm would be a key consideration in both local and more distant views. Early design work would be undertaken in combination with the project landscape architects to ensure the design of the wind farm is firmly supported by clear design principles and objectives.

2.2.3 All Environmental considerations would be taken into account during the design process and would be considered alongside technical considerations such as the analysis of meteorological data from existing meteorological masts on the operational site. All constraints and opportunities would be considered during a series of design workshops with the EIA team prior to a final design being developed. Statutory consultees would be kept informed during the design process.

2.2.4 The site design would seek to achieve a balance between maximising energy yield and avoiding or reducing any negative environmental effects. Where appropriate, existing wind farm components e.g. access tracks would be reused for the proposed development to reduce the disturbance of new areas.

2.2.5 An integral part of the overall design strategy of the wind farm, will be the avoidance or minimisation of impacts (e.g. altering and refining the site layout to reduce watercourse crossings or avoid sensitive species and habitats) to prevent or reduce environmental effects.

2.2.6 An iterative approach would be adopted whereby mitigation is considered at all stages of the project, and the final design of the wind farm would evolve over the project cycle, systematically being optimised in response to increasing knowledge of the site and potential environmental effects. As an existing site, there is substantial knowledge of the existing conditions and SSE would ensure this knowledge is applied in the EIA process for the proposed development.

Turbine Design

2.2.7 The dimensions of the proposed turbines would be explored and determined as the design process progresses. A nominal height of 132m (tip height) is being considered based on current and likely future availability of turbines from turbine manufacturers.

2.2.8 The colour and finish of the towers are expected to be consistent with the existing turbines at Gordonbush and other turbines in the Highlands of Scotland, and be pale grey with a semi-matt finish.

2.3 Site Access

2.3.1 It is anticipated that both construction traffic and operational traffic would access the proposed site using the same delivery route used for Gordonbush Wind Farm, including routes taken for abnormal loads. The route has already been upgraded and it was successfully utilised without any difficulties. From the A9 trunk road at Brora, the route would turn west along an unclassified road past the Clynelish Distillery to meet the C6 Strath Brora road. The route would continue along this road to Ascoile, as shown on Figure 2.

2.3.2 There have been substantial works undertaken on the public road to facilitate the delivery of abnormal load vehicles to Gordonbush Wind Farm, which include:

- Opening the junction of the A9 / Clynelish Distillery at Old School House;

- Strengthening, reinforcement and widening of the Clynelish and Moss roads;
- Straightening the approach to Gordonbush Bridge; and
- Widening of the approach to Oldtown Bridge.

2.3.3 The existing track from Ascoile leading to the wind farm site (see Figure 2) has been built to a high standard, sufficient for delivery of turbine components and materials. New tracks would be required to each turbine, for use both during construction and operation.

2.4 Electrical Layout and Grid Connection

2.4.1 The proposed turbines would be electrically connected to each other via inter-array cable circuits. It is anticipated that the proposed extension would connect to the National Grid using the existing substation developed for Gordonbush Wind Farm to the north of the proposed development. The substation would connect the wind farm to the adjacent existing 275kV transmission line.

2.4.2 A transformer is required at the base of each turbine to convert the electricity produced to a higher voltage for onward transmission to the substation. Transformers can be external or internal but it is anticipated that the use of external transformers would be adopted for this project, as was the case at the operational Gordonbush Wind Farm. These would be housed in a separate enclosure at the base of each turbine.

2.4.3 The colour of the external transformers would be agreed with The Highland Council, although it is expected that they would be coloured van dyke brown (including all doors, vents and drain pipes) to blend into the surroundings, and to replicate the colour used for the existing transformers at Gordonbush Wind Farm. Underground cables would link the transformers to the existing substation.

2.4.4 An application for connection to the grid would be lodged separately by the network operator (Scottish and Southern Energy Power Distribution / Scottish Hydro Electric Transmission plc.).

2.5 Temporary Construction Compound and New Welfare Building

2.5.1 A temporary construction compound would be established to include site cabins and welfare facilities for construction workers. It is anticipated that this would be located approximately 1.5km north east of the site entrance. The compound would provide parking facilities for cars, plant equipment and storage for materials. In general the turbine components would be delivered direct to the erection site. These would be temporary facilities for use during the construction period only.

2.5.2 A new permanent welfare building is proposed within the site boundary.

2.5.3 It is likely that a concrete batching plant would also be proposed on-site, in order to minimise construction traffic.

2.6 Borrow Pits

2.6.1 Stone required during construction, for construction of new access tracks, or other site requirements, is expected to be obtained from existing borrow pits which were utilised for the existing Gordonbush Wind Farm site (as shown on Figure 3). Depending on the availability of suitable material and proximity to where it is required, any further borrow pits required would be identified following detailed site surveys, within the extension site boundary.

2.6.2 Detailed information on the size and location of all borrow pits would be included in the ES, together with a borrow pit reinstatement plan.

2.7 Project Construction

2.7.1 It is anticipated that the construction phase of the proposed development would be completed over a period of up to 18 months.

2.7.2 All statutory legislation would be fully complied with during construction and SEPA best practice guidance including Pollution Prevention Guidelines would be adhered to.

2.7.3 Construction mitigation and environmental protection measures would be implemented via a Construction Environmental Management Plan (CEMP), as described in Paragraph 1.5.9.

2.8 Project Operation and Maintenance

2.8.1 Once commissioned, it is expected that the development would have an operational life of 25 years, and would require the continued use of the current existing infrastructure within the wider site boundary.

2.8.2 Routine operational and maintenance work would be carried out as necessary.

2.9 Decommissioning

2.9.1 The key components of the scheme would have a design life of 25 years. If the proposed wind farm should cease operation, decommissioning would take place and the site restored with the visible infrastructure removed. This would be discussed and agreed with the appropriate authority.

2.9.2 It is recognised that any decommissioning strategy would need to be considered in conjunction with the existing Gordonbush Wind Farm.

2.10 Habitat Management Plan

2.10.1 As part of the Gordonbush Wind Farm development, a Habitat Management Plan (HMP) was designed and implemented to deliver a range of long-term mitigation and enhancement measures on Gordonbush Estate. The HMP was secured by means of an agreement under Section 75 of the Town and Country Planning Act. The HMP boundary is shown on Figure 4.

2.10.2 The overall aim of the Gordonbush Wind Farm HMP is to provide mitigation for any potential adverse effects of the wind farm on golden eagle, merlin and golden plover;

both by deterring species from the wind farm site ('push' factors) and attracting them elsewhere on the estate ('pull' factors) by enhancement of peatland, woodland and grassland habitats. This aim is being met via implementation of the following measures:

- Reduction in deer on the Estate to promote heather moorland;
- Removal of coniferous forestry plantations to restore peatland habitats;
- Improved moorland and heather management;
- Blocking of drains on peatland;
- Native woodland management; and
- Low-intensity cattle grazing.

2.10.3 The HMP is being supported by a number of specific plans, as detailed below:

- **Deer management plan** – aims to reduce deer grazing levels across the estate for the first five years (at least) to allow sward height to recover after the large-scale burning of 10 years ago. Grazing reduction will be greatest in the wind farm area, where it is intended to allow the sward to grow long to discourage golden plover, and consequently discourage predatory raptor species;
- **Heather management plan** – aims to increase structural heterogeneity of the dwarf shrub heath habitat by heather management in the form of cutting and burning;
- **Bracken control plan** – aims to restore upland grassland and heath habitat;
- **Woodland plan** – aims to remove and/or thin areas of conifer plantation on deep peat, restock with native species in other areas and extend existing native woodland areas by regeneration and planting;
- **Ditch blocking plan** – aims to block moorland drainage grips to increase habitat wetness and reverse localised erosion; and
- **Lowland grassland management plan** – aims to restore species-richness and sward heterogeneity at a number of more lowland sites of the estate, including the former greens associated with settlements in the Allt Smeorail valley and the Ascoile flats. This is to be achieved by bracken control and cattle grazing.

HMP Progress

2.10.4 The specific works undertaken for the current HMP to date cover the following;

Deer management

2.10.5 Culling undertaken during winter of 2009/10, 2010/11, 2011/12 and 2012/13 has reduced the deer herd across the estate. Transect monitoring has shown grazing levels to have reduced in some areas of the estate, but fluctuated in others.

Heather management

2.10.6 Targeted heather management in the form of cutting has been undertaken in 2010 and 2011, burning undertaken in 2012, and both cutting and burning in 2013, comprising the first such management since the extensive burning of 2002. Results indicate that the reduction in grazing pressure, rather than heather cutting or burning, is largely responsible for the increased sward heterogeneity recorded to date.

Bracken control

2.10.7 Bracken spraying was undertaken in 2010 on the common grazings in the south of the estate and in 2011 and 2012 across the whole estate, including areas of bracken in the lower Allt a Mhuilin valley and on the southern slopes facing the strath. Follow up treatment is planned for future years.

Woodland management

2.10.8 HMP Management works undertaken to date cover the following;

- Removal of 10km of old deer fence;
- Removal of the conifers on the deep peat areas of the Bullburn plantation, and thinning of the Scots pine areas on the lower slopes;
- Fencing and planting of native woodland on lower slopes of Allt a Mhuilin and Smeorail valleys and on south-facing slopes between Gordonbush Lodge and the wind farm entrance;
- Felling and restocking the Westwood plantation adjacent to Gordonbush Lodge and the two shelterbelts on the west side of the Allt Smeorail with native woodland;
- Completion of the first phase of Rhododendron control, west of the Smeorail valley; and
- Further works to be undertaken include restructuring the shelterbelt to the east of the Smeorail valley once commercially viable, and silvicultural thinning and Rhododendron control in the policy woodland around the Lodge.

Ditch blocking

2.10.9 A number of ditches were blocked in late summer 2012, with further ditches blocked in summer 2013. Piezometers had been installed in these ditches in 2011, a year prior to blocking by the University of Glasgow research project on carbon export on the wind farm site, which completes in January 2014.

Grassland management

2.10.10 Bracken spraying works are complete.

Monitoring

2.10.11 A comprehensive vegetation and bird monitoring programme has been implemented since 2010 to monitor the effectiveness of the HMP. The following monitoring programmes are currently underway:

Vegetation

- Site condition monitoring, grazing impact assessment and sward heterogeneity assessments (at 0.25km scale) carried out in 2010. This will be repeated in 2014 (Year 5 of HMP), with review thereafter of frequency;
- Annual upland fixed transect monitoring until 2014 (started in 2010) with review thereafter of frequency;
- Annual fixed plot monitoring in the Bullburn Plantation clear fell areas until 2014 (started in 2010) with review thereafter of frequency; and
- Fixed plot monitoring in the Smeorail tree planting and regeneration enclosure in 2012, to be repeated in 2016, with review thereafter of frequency.

Birds

- Vantage Point (VP) survey, Breeding Bird Survey (BBS) sample squares and grouse counts were undertaken in 2010 (with further additional surveys in 2011), to be repeated n 2014 (Year 5 of HMP) with review thereafter of frequency. In addition, pre-, during- and post-construction bird monitoring has been undertaken on the wind farm site and adjacent control site.

Trends

2.10.12 The following trends were identified after three years of vegetation transect monitoring across the estate (2010-2012):

- There were large decreases in the two highest grazing impact classes on all transects, which was probably due to deer culling.
- General increase in sward height and a decrease in differences between height classes between 2010 and 2012. This indicates greater spread between classes and therefore increased heterogeneity in dwarf shrub sward height. To this end, it would appear that the aim of upland management in this five year period (2010-2014) of the HMP, which is to increase sward heterogeneity, is being met.
- Heather beetle damage, which was recorded in 2010 and 2011, was still extensive in 2012, but the level of infestation had decreased in some areas.

- Sward height does not, at present, correlate with grazing impact levels between transects. The impact of insect damage, differences in baseline sward height, vegetation type and altitude are all likely to influence sward height to some extent.

Reporting

2.10.13 The HMP management team, in association with Gordonbush Estate, meet and report on an annual basis, providing feedback on survey information from vegetation and species surveys undertaken as part of the HMP. Minutes from annual HMP meetings are also distributed to key stakeholders.

Research Project

2.10.14 Separate to the HMP, SSE has commissioned RSPB to carry out surveys for the 'Gordonbush Golden Plover Research Project'. This is a programme to monitor golden plover both prior to construction, during construction and in the early years of the operation of the wind farm, to identify whether the development poses a risk to the bird species. To date these surveys have been running consecutively from 2009 and are due to conclude in 2013.

Potential Amendments to the Existing HMP

2.10.15 The proposed Gordonbush Extension core development area overlaps a small part of the existing Gordonbush Wind Farm HMP area. Therefore the Ecological Impact Assessment (EcIA) that would be carried out for the Gordonbush Extension ES would treat the existing HMP as a receptor by considering each of the current HMP Objectives. If there was a predicted impact on any of these Objectives, it is proposed that the existing HMP would be amended accordingly.

2.10.16 Any required amendment/addition to the existing HMP would be presented as an updated HMP and included as an appendix to the Gordonbush Extension ES. This would be undertaken in full consultation with the SSE HMP management team of appropriately skilled and experienced ecologists, foresters, and land managers.

3 PLANNING POLICY CONTEXT

3.1 Introduction

3.1.1 This section presents an overview of the planning policy context for the proposed development. A more detailed discussion and evaluation of relevant policies would be included within the ES.

3.2 Planning Context

National Planning Context

- Scottish Planning Policy (SPP) (February 2010); this is the statement of Scottish Government policy on nationally important land use and other planning matters supported, where appropriate, by a locational framework. Guidance regarding renewable energy including onshore wind farms is contained within the renewable energy section of the document. This consolidated document supersedes previous Scottish Planning Policies (SPPs) and National Planning Policy Guidelines (NPPGs). A review of the SPP was announced in September 2012. The SPP Consultation Draft (30th April, 2013) has been informed by a period of pre-draft engagement from October 2012 to early January 2013;

- National Planning Framework 2 (June 2009); this is a long term spatial strategy for Scotland's developments and is supportive of renewable energy. It acknowledges the importance of onshore wind farms in meeting targets. Work on the third National Planning Framework (NPF3) is underway and is due to be adopted summer 2014; and

- Scottish Government online advice note for Onshore Wind Turbines (Scottish Government, 2013b); this advice note provides greater clarity and focus for planning authorities in locating wind farms and assessing wind turbine applications. It also places emphasis on the importance of pre-application discussions.

Local Planning Context

3.2.1 The site lies entirely within the jurisdiction of The Highland Council. Development Plans currently in force for the site are:

- Highland Wide Local Development Plan, April 2012;

- Sutherland Local Plan, June 2010; and

- Supplementary planning guidance such as the Onshore Wind Energy: Supplementary Guidance (Interim) would also be referred to.

4 POTENTIAL ENVIRONMENTAL EFFECTS

4.1 Introduction

4.1.1 This section presents the findings of an initial appraisal of the likely environmental impacts of the proposals on people, property, natural resources and the natural and cultural heritage. An overview of the baseline conditions on site is provided under each section, together with the potential effects as a result of the proposed development. Where survey work has been completed, results are provided where possible. Where further assessment is required as part of the EIA process, this is identified and the assessment methodology outlined.

4.2 Landscape Character and Visual Impact

Introduction

4.2.1 The Landscape and Visual Impact assessment (LVIA) would assess the effects of the proposed development on the landscape and visual amenity and receptors within the study area, and would inform the design of the turbine layout to reduce potential landscape and visual effects (see Section 2.2).

4.2.2 A Zone of Theoretical Visibility (ZTV) would be used to inform this assessment. A ZTV of a theoretical nominal layout (up to 20 turbines) at 132m tip height, based on the core development area, has been run for the purposes of this Scoping Report and is included in Figure 7.

Baseline Situation

Site Description

4.2.3 The proposed core development area is located in an area of moorland plateau and lies between 160m and 300m AOD, sloping gently in a south-west direction and bound by a series of high peaks to the east including Beinn Smeórail (486m AOD) and Meallan Liath Mor (510m AOD). The site is located between Strath Brora and Strath of Kildonan on the eastern edge of a mountainous range which includes Ben Klibreck, Ben Hope and Ben Loyal.

4.2.4 As illustrated on Figures 2 and 3, other infrastructure in the immediate vicinity includes the operational Gordonbush Wind Farm, a 35 wind turbine development joining the northern boundary of the proposed site, along with an upgraded access track and existing substation. In addition, the Beauly to Dounreay 275kV overhead transmission line crosses the estate along its western boundary.

Designations

4.2.5 The proposed scheme is not located within any areas covered by statutory landscape policy designations; however landscape designations of varying importance are present in the wider area, as shown on Figure 5 and described below.

National Scenic Area (NSA)

4.2.6 The Dornoch Firth NSA is located approximately 22km to the south of the core development area, and is valued for its large tidal water body and the hills and mountains that surround it.

Special Landscape Areas (SLA)

4.2.7 There are four Special Landscape Areas (SLA) identified and designated by The Highland Council in its document 'Assessment of Highland Special Landscape Areas', 2011 within the study area. These include The Flow Country and Berriedale Coast SLA, Bens Griam and Loch nan Clar SLA, Ben Klibreck and Loch Choire SLA, and Loch Fleet, Loch Brora and Glen Loth SLA, which is the closest SLA to the proposed development at approximately 1.5km to the east of the site at its closest point.

Gardens and Designed Landscapes (GDL)

4.2.8 Gardens and Designed Landscapes in the surrounding area are listed in An Inventory of Gardens and Designed Landscapes in Scotland (Historic Scotland, 2012) and include Langwell Lodge (25km, north-east), Dunrobin Castle (9km, south), Skibo Castle (24km south-west) and Kildonnan Lodge (9km, north).

Wild Land

4.2.9 SNH have published a policy document[3] relating to the definition of wild land that sets out criteria to assist in the identification of such areas of land, and identifies areas of Scotland known as 'Search Areas for Wild Land' (SAWL) where wild land may occur; the proposed site falls within a SAWL. A more detailed analysis of where wild land may occur across Scotland has since been undertaken by SNH[4], culminating in the publication of the 'Core Areas of Wild Land in Scotland 2013' map (April 2013). Based on the revised map, the proposed site falls outwith an area classed as 'Core Areas of Wild Land' (CAWL). The Government's consultation on the NPF3 Main Issues Report and draft SPP closed on 23rd July 2013. Until the results of the consultation have been considered and the Government has confirmed its approach to wild land in the finalised NPF3, due for publication in 2014, the established set of Search Areas of Wild Land would continue to apply.

Landscape Character

4.2.10 The proposed development falls within an area covered by the Caithness and Sutherland Landscape Character Assessment (Scottish Natural Heritage, Review no.103, 1998). The Moray Firth Landscape Character Assessment (Scottish Natural Heritage, Review no. 90, 1998) covers an area to the south of the study area.

4.2.11 The proposed wind farm straddles the Sweeping Moorland Landscape Character Type (LCT) and Moorland Slopes and Hills LCT reflecting a transitional landscape. Both LCTs

[3] Wildness in Scotland's Countryside, Policy Statement No. 02/03, Scottish Natural Heritage.

[4] Mapping Scotlands Wildness and Wild Land, Scottish Natural Heritage: http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/landscape-policy-and-guidance/wild-land/mapping/ [accessed 16th July 2013]

exhibit vast openness and remoteness, with the Sweeping Moorland LCT having gently undulating topography, whereas Moorland Slopes and Hills LCT being more variable.

Visual Amenity

4.2.12 The proposed development is located adjacent to an operational wind farm in a relatively remote area used primarily for the management of deer. There are a limited number of properties within the immediate vicinity with the nearest habited property being located just over 1km to the south of the core development area. Generally, most settlements are located along the coast, close to the A9(T) road including Golspie, Brora, Helmsdale and Rogart. Settlements tend to be smaller and scattered along the straths. Receptors in the area include residents and tourists, game hunters, walkers and road users.

Potential Effects

Landscape and Visual

4.2.13 Development of the wind farm extension would add a number of large elements, including turbines and tracks, which would be formed in the landscape, and may be visible from outwith the site.

4.2.14 Potential effects on landscape and visual amenity which would be considered include:

Construction

- Temporary physical effects on landscape fabric;
- Temporary effects on landscape character; and
- Temporary effects on views.

Operation

- Long term effects on landscape character;
- Long term effects on views; and
- Long term cumulative effects with other wind farms.

Proposed Scope of Assessment

4.2.15 The LVIA would be prepared with reference to the following best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment: Third Edition (Landscape Institute and IEMA, 2013);
- Onshore Wind Energy: Interim Supplementary Guidance (The Highland Council, 2012);
- Visual Assessment of Windfarms: Best Practice, prepared by University of Newcastle for SNH, 2002;

- Siting and Designing Windfarms in the Landscape (SNH, 2009a);
- Visual Representation of Windfarms: Good Practice Guidance, (SNH, 2007a);
- Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydroelectric Schemes (SNH, 2002);
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH, 2012);
- The Special Qualities of the National Scenic Areas, SNH Commissioned Report No. 374 (SNH, 2010b); and
- Assessing the Impacts on Wild Land: Interim Guidance Note (SNH, 2007b).

4.2.16 Baseline conditions within a study area of 35km would be described. An assessment of the effects of the proposed wind farm would be made under the following headings:

- Assessment of physical effects;
- Assessment of effects on landscape character;
- Assessment of effects on views;
- Cumulative assessment;
- Assessment of significance; and
- Nature of effects.

4.2.17 Sensitive receptors include the following:

- Physical landscape features e.g. trees, hedgerows and ground cover;
- Landscape receptors e.g. Landscape Character Areas and designated landscapes; and
- Views experienced by different receptors e.g. local residents, road users and walkers.

4.2.18 For the purpose of identifying, mapping and assessing the most likely significant effects of the proposed development on the landscape of the site and its immediate surroundings, a 'detailed study area' from the proposed turbines would be defined. This detailed study area would be informed through on-going design work but is likely to be in the region of 15km.

4.2.19 Site survey, desk-based analysis and computer software would be used to assist and focus the design and assessment process through the use of maps, ZTV plots and visualisations including photographs, wirelines and photomontages. Visualisations would be prepared to conform with both the SNH guidance (Visual Representation of

Windfarms: Good Practice Guidance, 2007a) and the recently revised Highland Council Visualisation Standards for Wind Energy Developments methodology (May 2013).

4.2.20 The majority of viewpoints are anticipated to be within 15km of the core development area and are likely to be similar to viewpoints selected for other wind farm developments in the area such as the operational Gordonbush Wind Farm, Kilbraur Wind Farm and its extension. These locations would be developed and agreed in consultation with The Highland Council and SNH as the final design of the wind farm evolves through the design process (Section 2.2).

4.2.21 The assessment process would inform the design of the turbine layout to reduce landscape and visual effects.

4.2.22 The detailed methodology for the LVIA, including the final selection of viewpoints would be developed in detail by SSE Renewables and specialist consultants, and agreed further in consultation with The Highland Council and SNH.

Wild Land

4.2.23 An assessment of direct and indirect impacts upon areas of wild land character would be carried out for the proposed wind farm. SNH guidance would be followed throughout this assessment (SNH, 2007b).

Cumulative

4.2.24 The approach adopted for this assessment is founded upon the SNH guidance 'Assessing the Cumulative Impact of Onshore Wind Energy Developments' (SNH, 2012). The guidance suggests that a cumulative study area up to 60km be applied for the cumulative landscape and visual assessment. This would be defined in consultation with The Highland Council and SNH.

4.2.25 The methodology used in this cumulative assessment to assess potential cumulative impacts on both landscape character and visual impact would be based primarily on the above guidelines. SNH and The Highland Council would be closely consulted to determine which other wind farms should be taken forward in the cumulative assessment for Gordonbush Extension. Other wind farms would include those that are operational, under construction, consented or have submitted applications. Those sites at scoping stage are likely to be excluded from detailed analysis but would be referred to within the baseline.

4.2.26 It is proposed to agree the list of cumulative sites to be taken forward into the assessment with The Highland Council and SNH three months prior to submission of the ES. This would allow sufficient time to complete the assessment prior to submission, with the dates specified in the ES.

4.2.27 A selection of those viewpoints used in the LVIA would be used in the cumulative landscape and visual assessment. However, the final identification of cumulative viewpoints would not take place until the relationship between Gordonbush Extension and the developments which are to be included in the cumulative assessment is finalised.

4.2.28 Further information on potential cumulative impacts is provided in Section 5 of this report.

4.3 Ecology and Nature Conservation

Introduction

4.3.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on flora and faunal communities.

Baseline Situation

Nature Conservation Designations

4.3.2 The proposed scheme is not situated in any areas designated for nature conservation features. There are two SSSIs within 2km of the site. These are the Carrol Rock Site of Special Scientific Interest (SSSI) to the south of the site, on the south-westerly shore of Loch Brora, and the Coir' an Eoin SSSI north-west of the site, west of the Allt a' Mhuilinn. The Carrol Rock SSSI is designated for its botanical importance and has the largest blockscree birchwood in East Sutherland. The Coir' an Eoin SSSI is designated primarily for its 'central watershed blanket bog' which contains a number of rare or scarce moss species such as *Sphagnum fuscum* and *S. imbricatum*. It also contains the nationally scarce but locally abundant dwarf birch *Betula nana*.

4.3.3 The Coir' an Eoin SSSI is also part of the Caithness and Sutherland Peatlands Special Area of Conservation (SAC) and Ramsar site designated for its upland wetland and peatland habitats and species, and also the Caithness and Sutherland Special Protection Area (SPA) designated for its internationally important populations of raptors, wildfowl and waders.

Non-Statutory Designations

4.3.4 There are areas of ancient semi-natural woodland within Strath Brora and the lower parts of the Allt Smeorail valley. None of these areas fall within the core development area, and there are no other non-statutory sites for nature conservation in the vicinity of the core development area.

4.3.5 Figure 6 provides further context with regard to national and international nature conservation designations.

Habitats

4.3.6 Previous habitat survey work has been undertaken throughout Gordonbush Estate. This includes survey work within the core development area, namely a Phase 1 habitat survey that was undertaken for the 2003 Gordonbush Wind Farm Environmental Statement, and a more detailed Phase 1 habitat survey of the entire Gordonbush Estate that was produced in 2009 for the Gordonbush Wind Farm Habitat Management Plan (HMP) (see Section 2.10 and Figure 4). This latter survey included a review of aerial photographs which were ground-truthed during vegetation monitoring for the HMP in 2010. Descriptions of the NVC communities covered by these surveys were provided in the 2003 ES and 2009 HMP report.

4.3.7 Overall, the predominant habitats recorded during these surveys throughout the core development area of the proposed extension site were wet heath and blanket bog, with a smaller amount of dry heath. Blanket bog habitat was reported to predominate in the northern end of the site, the majority comprising M17 *Scirpus-Eriophorum* mire & M18 *Erica-Sphagnum* mire. To the southern end, M15 *Scirpus-Erica* wet heath and H10 *Calluna-Erica* heath was reported to become much more prevalent, where the gradients increase. Bog myrtle (*Myrica gale*) was more frequent in this area than anywhere else.

4.3.8 An NVC survey of the proposed core development area was also undertaken during summer 2013 to inform the EIA process for the proposed Gordonbush Extension. The results of this survey will be made available to SEPA and SNH upon submission of this scoping report to enable those organisations to consider the results of this survey in their scoping response.

4.3.9 Further survey work has been on-going throughout Gordonbush Estate as part of the existing Gordonbush Wind Farm HMP requirements. These surveys have included:

- Site Condition Monitoring;
- Grazing Impact Assessment;
- Sward Heterogeneity Assessment; and
- Annual Vegetation Transect Monitoring.

4.3.10 These surveys are discussed in more detail in Section 2.10 of this report.

4.3.11 Information from these surveys would be used within the Terrestrial Ecology Chapter of the ES to describe the baseline habitat within the proposed core development area.

Species

4.3.12 As part of pre-construction surveys associated with the construction of Gordonbush Wind Farm, mammal surveys were undertaken in 2008 and 2010.

4.3.13 The 2008 survey, which concentrated predominantly on the Gordonbush Wind Farm site identified the following key findings:

- Most of the major watercourses within the survey area contained sections of suitable water vole habitat, but many of the smaller watercourses and drainage ditches were considered to be unsuitable due to insufficient water levels, together with a lack of available good-quality bank-side vegetation;
- Otter spraints were found at two locations, but no holts were found, although suitable holt habitat exists within the network of peat hags which are honeycombed with underground water channels; and
- Pine marten and wildcat activity was confirmed, although no breeding or resting dens of these species were found.

4.3.14 The 2010 survey looked at otter and water vole along the whole length of the two main water courses bordering the Gordonbush Wind Farm (the Allt a' Mhuilin and the Allt Smeorail), as well as the wind farm plateau. The results are summarised as follows:

- Otter activity was confirmed by the presence of holts and couches, together with spraints and prints. Holts and couches were located on the Allt a' Mhuilinn, and the Allt Smeorail. Sprainting activity was light and sporadic on all watercourses, with concentrations on the smaller burns and tributaries which support breeding amphibians.

Potential Effects

4.3.15 The proposals would result in impacts on some of the ecological and nature conservation interests. The main effects would arise from the temporary and permanent changes associated with:

- The construction of wind turbines and associated infrastructure in moorland;
- The construction of new access tracks to each turbine location;
- The construction of a new welfare building;
- The use of borrow pits, site establishment and compound areas; and
- The temporary disturbances to animals during construction from, for example, traffic, noise, and increased or all-day human presence.

Proposed Scope of Assessment

4.3.16 Much of the core development area has already been surveyed extensively to identify habitats, protected species and mammals as part of the Gordonbush Wind Farm ES and on-going monitoring programme. Existing information would therefore be utilised, and targeted surveys conducted as appropriate, if required.

4.3.17 An assessment of habitats and species would be undertaken as part of the EIA. The ecological features of the site would be evaluated according to the methodology advised in the *Guidelines for Ecological Impact Assessment* by the Chartered Institute of Ecology and Environmental Management (CIEEM 2006**)** and SNH guidance (SNH 2009b)**.**

Habitats

4.3.18 An NVC survey has been carried out for the core development area, the results of which will be provided to SNH and SEPA during consideration of their scoping opinion. The results of this survey, supplemented by the habitat information available following survey works associated with Gordonbush Wind Farm and the HMP, would be used for the habitat baseline. No further survey work is proposed.

4.3.19 An assessment of the impacts of the scheme on these habitats would be made and mitigation measures proposed to minimise potential adverse impacts resulting from the proposed wind farm and associated infrastructure.

Species

4.3.20 Targeted faunal surveys would include:

- **Badger** - The site and surrounding area within 100m would be surveyed by walkover survey for evidences such as faeces, paths and setts.
- **Otter** - The watercourses on the site and land within 250m would be searched for signs of otter, based on the methodology by Chanin (2003) which include spraints, footprints, lying-up sites, potential holts or couches, and meal remains.
- **Water vole** - All pools, streams and ditches that flow into and around the site within 100m would be surveyed. Signs including burrows, runs, footprints, feeding stations, latrines, and faeces would be recorded.
- **Pine marten and wildcat** - Scat survey and camera trapping would be carried out. Suitable location for camera traps would be selected following a search of the area for signs, including wildcat and pine marten signs (footprints, scats, dens and scrape marks) or rabbit or hare signs (burrows or latrine sites). Two camera traps each with two cameras would be set up 1.5km apart. Each station would be baited on a post 20-150cm off the ground.
- **Bats –** Bat surveys would be advised by recent protocols concerned with bat survey and in particular bats and windfarms (Bat Conservation Trust 2012, Cathrine and Spray, 2009, Mitchell-Jones & Carlin 2008). The level of risk for bat roost potential and suitable foraging habitat on the site determines the survey effort required to undertake a bat survey to minimum standards. The proposed development is determined to be a low risk site hence minimum survey effort will include; desktop study, inspection and survey of any structures suitable to support a bat roost, two monitoring transects per season (spring, summer and autumn) and static ground monitoring surveys (minimum five nights per season).
- **Reptiles** - An initial walkover survey of the site will establish suitable habitat and refuge for reptile species (this will be undertaken whilst undertaking the walkover mammal surveys). Following this a focussed survey will be undertaken to establish the presence/absence of reptiles and the species present. This will involve a search of existing refugia. If no suitable refugia are present on site, artificial refugia (bitumous carpet tiles), will be located throughout the site and inspected for reptiles over a two month period.
- **Great crested newt** - The site is not considered to be of high potential for Great crested newt (GCN). The Habitat Suitability Index (HIS) will be used as the basis for determining the level of detailed survey following a site scoping visit. The method will include; identification of potential great crested newt (GCN) ponds within 250m of turbine bases or access tracks, and ponds within 1km of known GCN ponds. Ponds would be assessed to determine their

terrestrial habitat suitability for GCN. Where the HIS indicates GCN potential more detailed survey will be carried out entailing a mix of searching of refugia, egg search of ponds and netting or night time torch survey.

4.3.21 Surveys for red squirrel have been scoped out given the lack of proposed works within adjacent plantations.

4.3.22 Where potential significant adverse impacts are considered possible, mitigation measures would be drawn up in the ES to minimise damage and disturbance to habitats and species. Construction mitigation and environmental protection measures would be implemented via a CEMP (see Section 1.5.9).

4.4 Aquatic Ecology

Introduction

4.4.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on aquatic ecology.

Baseline Situation

4.4.2 The Allt a' Mhuilinn and the Allt Smeorail make up the two main rivers within the vicinity of the core development area. Both of these rivers are outside the core development area, although some tributaries to these rivers are located within it. These water bodies, plus Loch Brora and the River Brora downstream of the loch are classified by SEPA as 'Good' status, while the section upstream of Loch Brora to Balnacoil is classified as 'Moderate' due to abstraction upstream at Dalnessie to supply the Shin hydropower scheme. The River Brora is a Freshwater Fish Directive protected area.

4.4.3 The River Brora and Loch Brora are both important salmonid fisheries, and confirmed salmonid spawning gravels occur on the Allt a' Mhuilinn near Ascoile beyond the core development area.

4.4.4 Specific fish surveys were not undertaken for the Gordonbush Wind Farm ES, as natural waterfalls near Ascoile and Gordonbush Lodge restrict upstream migratory salmonid fish passage. Self-sustaining populations of wild brown trout that provide a potential food source for otter are considered likely to occur in suitable burns above these waterfalls.

4.4.5 A fisheries assessment was undertaken on the Allt a' Mhuilinn in March 2013 in relation to works associated with the hydro infrastructure on the river (located at approximate grid reference NC83131 12417). Consultations for the assessment with the Brora District Salmon Fisheries Board confirmed that there are stocks of brown trout within the catchment, but no salmon, which is thought to be due to impassable falls near Ascoile cottage.

4.4.6 A survey was undertaken for the assessment, which extended as a continuous stretch for approximately 150m upstream of the dam to 1km downstream, with further spot surveys undertaken as far as the section directly downstream of the public road. The method used was a modified version of the Hendry Cragg-Hine method, plus elements

of the SFCC Habitat Survey method, to provide a graphical representation of the importance of the various stretches of the watercourse for fish. The study identified some potential parr habitat, as well as pools that could accommodate adult salmonids, downstream of the dam.

4.4.7 Consultations with SNH in March 2013 as part of the above study revealed that a breeding population of freshwater pearl mussel exist further upstream on the River Brora, but no survey data exist for the Allt a' Mhuilinn. As part of the hydro study, a survey for the species, following SNH's guidance '*Freshwater mussel survey protocol for use in site-specific projects'* was undertaken in March 2013. The survey area extended 100m upstream of the dam and 500m downstream. The survey area was divided into 50m transects, ten downstream of the dam and two upstream. A 1m section was surveyed visually within each transect. Every 10m within each transect the sediment within a 1m square quadrat was searched by hand for buried individuals and juveniles.

4.4.8 No mussels were found in any of the 12 transects. Within the majority of transects there was a general lack of sand and finer sediments required by mussels to burrow into, probably as a result of sediment trapping by the upstream dam. Many of the sections also had bedrock as the underlying substrate. Flow was, however, good throughout the transects and capable of supporting a population of freshwater pearl mussels.

Potential Effects

4.4.9 Potential effects as a result of the proposed development could include freshwater sedimentation and pollution from surface runoff during construction, including the potential for impacts on freshwater ecology.

Proposed Scope of Assessment

4.4.10 An assessment on aquatic ecology would be undertaken as part of the EIA by utilising information obtained from survey work associated with hydro infrastructure on the Allt a' Mhullinn. Freshwater pearl mussel presence/absence survey on all the watercourses on the site, and within 100m upstream and 500m downstream of the site, would also be undertaken.

4.4.11 Considering the natural barriers to migration at Ascoile (Allt a' Mhuilinn) and Gordonbush Lodge (Allt Smeorail), no migratory salmonids are anticipated within the vicinity of the proposed works. Therefore, no further fisheries survey work is anticipated.

4.4.12 Best practice measures would be followed to ensure that any freshwater sedimentation from surface runoff during construction is minimised. Construction mitigation and environmental protection measures would be set out in the ES and implemented via a CEMP (see Section 1.5.9).

4.5 Ornithology

Introduction

4.5.1 This section outlines the approach to the evaluation of ornithological interest at the site and the surrounding area and to the assessment of potential impacts.

Baseline Situation

Ornithological Designations

4.5.2 The core development area lies immediately to the south-east of the Caithness and Sutherland Peatlands Special Protection Area (SPA) (see Figure 6). The SPA qualifies under Article 4.1 of the EU Birds Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

- Black-throated diver (*Gavia arctica*);
- Golden eagle *(Aquila chrysaetos)*;
- Golden plover *(Pluvialis apricaria)*;
- Hen harrier *(Circus cyaneus)*;
- Merlin *(Falco columbarius)*;
- Red-throated diver *(Gavia stellata)*;
- Short-eared owl *(Asio flammeus)*; and
- Wood sandpiper *(Tringa glareola)*.

4.5.3 The SPA also qualifies under Article 4.2 of the EU Birds Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

- Common scoter (*Melanitta nigra*);
- Dunlin (*Calidris alpina schinzii*);
- Greenshank (*Tringa nebularia*); and
- Wigeon (*Anas penelope*).

4.5.4 One of the component parts of the SPA lies adjacent to the core development area; this component is underpinned by the Coir' an Eoin SSSI, which has golden plover as a notified feature.

4.5.5 The SPA is separated from the core development area by the Allt a Mhuillin burn.

Previous Survey Work

Gordonbush Wind Farm

4.5.6 Previous bird survey work associated with the operational Gordonbush Wind Farm has included:

- vantage point surveys, breeding bird surveys and raptor surveys that were undertaken for the 2003 Gordonbush Wind Farm ES;
- an Appropriate Assessment in 2008 to consider the potential impacts on the qualifying species of the SPA; and
- subsequent pre-construction, construction and post-construction surveys between 2009 - 2012.

4.5.7 Conclusions of the Appropriate Assessment suggested that there were potential significant effects predicted for golden plover and merlin. Mitigation to off-set these potential significant effects has been carried out under the HMP and monitoring of bird populations has continued through to 2012 (see Section 2.10).

Proposed Gordonbush Extension

4.5.8 In relation to the proposed Gordonbush Extension, survey efforts were undertaken during spring 2012 and through the winter of 2012/2013. The surveys included:

- Vantage point (VP) observations (from April 2012 – March 2013) 36 hours from April to August 2012 and a further 36 hours from September 2012 to March 2013 at each of two VPs to provide a complete coverage of the area within 500m of the core development area. The vantage point survey methodology followed SNH Guidance (SNH 2010a) and focused on target species as defined by the guidance; namely species specially protected under EU legislation by being listed in Annex 1 of the EU Birds Directive; species specially protected under UK legislation by being listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); species listed on the Red List of Birds of Conservation Concern; UK BAP species; migratory waterfowl and qualifying species of nearby SPAs and SSSIs;
- A Breeding Bird survey (BBS) of the area within 500m of the core development area, total area surveyed was 7.8km^2 (from April 2012 – July 2012) with three survey visits during the breeding season following protocol developed by Brown and Shepherd (1993) as recommended in current SNH guidelines (SNH 2010a). The observer walked transects across the site at 200m intervals, so that each part of the area was approached to within a maximum of 100m. The observer stopped at intervals of approximately 100m to scan the surrounding area with binoculars and to listen for calls and songs. All birds detected were recorded on a large-scale map of the area and behaviour, such as display, carrying nest material, carrying food for young, and other activity which suggests breeding, was noted. At the end of the breeding season, the data from the separate visits were combined, and the breeding pairs identified were mapped on a master map and counted. Surveys of the small areas of woodland and scrub within 500m of the core development area were carried out by territory mapping (Bibby et al. 2000); and

- Breeding Raptor survey of the area within 2km of the core development area was carried out four times during the breeding bird season (March 2012 – July 2012) following SNH guidance (SNH 2010) and specific advice on each target species in Gilbert et al. (1998) and Hardey et al. (2009). In general, the surveyor carried out a walkover survey, covering the whole area on transects at 500m intervals, but concentrating on patches of habitat likely to be used by raptors. Any features which appeared to be likely perches, plucking posts or potential nest sites were visited. Some time was spent observing from suitable vantage points, to detect flight activity which might suggest breeding, such as display flights, food passes, etc.

4.5.9 A summary of results from the surveys carried out for Gordonbush Extension is included below. A stand alone report providing detailed results will be made available to SNH upon submission of this scoping report to allow consideration of these in the scoping opinion.

Summary of Results from Gordonbush Extension Bird Surveys in 2012 / 2013

4.5.10 No breeding raptors have been found within 2km of the core development area in 2012 and no Annex 1 or Schedule 1 bird species have been found to be resident within 500m of the search area boundary. A greenshank pair (Schedule 1) was found 1.2km to the west of the core development area, in a clear felled area.

4.5.11 Golden plover and merlin, both identified as a species of concern in the Appropriate Assessment as part of Gordonbush Wind Farm, were not found to be resident in the core development area and very few have been detected flying over the site. The only records were: four golden plovers seen flying together over the site in April 2012 and two flights by juvenile merlins recorded at the west edge of the bird survey area in August 2012.

4.5.12 Six flocks of greylag geese, with a total of 207 birds and six flocks of pink-footed geese, totalling 674 birds, were recorded flying over the extension survey area in 2012/13. Some of the flocks were outside the area likely to be occupied by turbines and some were flying higher than 150m, above the collision risk zone.

4.5.13 Four species of conservation concern (Red List and UKBAP species) were found to be resident in the core development area in 2012; curlew, dunnock, red grouse and skylark. In addition, three lapwing pairs were found to the west of the core development area in a clear felled area, with the nearest pair at 800m from the nearest point of the core development area.

Potential Effects

4.5.14 Potentially significant adverse effects on birds are considered to comprise:

- disturbance and displacement;
- indirect effects e.g. disruption to habitat function, effects on prey;

- indirect effects on designated sites;
- collision risk with the rotating blades of the turbines; and
- barrier effects causing disruption of flight lines due to the addition of turbines.

4.5.15 Disturbance and displacement could potentially have effects on the resident bird species of conservation concern, especially skylarks, curlew and red grouse. Collision risk could potentially have effects on greylag geese and pink-footed geese. There are unlikely to be indirect effects on any designated site, since no birds from the nearby SPA have been found to be using or flying over the core development area.

Proposed Scope of Assessment

4.5.16 The ornithological impact assessment would follow the methodology set out by the Institute of Ecology and Environmental Management (IEEM, 2006) and SNH guidance (SNH 2002). The assessment of collision risk impacts would use the guidelines set out by SNH (Band 2000, Band et al. 2007, SNH 2013).

4.5.17 The conservation importance in numeric terms would be assessed by using the standard 1% criterion method detailed in Austin *et al*. (2008) where >1% of the national population is considered to be nationally important and >1% of the international population is considered to be internationally important.

4.5.18 The national breeding bird populations would be taken from Eaton *et al*. (2009) and regional populations from information in Forrester et al. (2007) augmented by further desk study and consultation. Bird populations would be assessed in the context of the SNH Natural Heritage area in which the site falls, following SNH guidance. Collision risk modelling, as per SNH methodology, would be carried out for all target species that were recorded regularly within the collision risk zone during the surveys. Potential impacts on all qualifying species of the SPA will be assessed.

4.5.19 The impact assessment would utilise information from the bird surveys carried out within the vicinity of the core development area (see 4.5.8), as well as information available from other surveys carried out in relation to the operational Gordonbush Wind Farm.

4.5.20 For the bird surveys carried out for the proposed extension (see 4.5.8), only one spring and one winter survey were originally envisaged to be necessary because of the low numbers of birds recorded in the 2012/13 surveys. However, handover of the wind farm to SSER Operations took place in June 2012 and site traffic in the early spring was therefore slightly greater than would typically occur during Operations. For this reason, a second spring BBS has been completed in 2013 in case disturbance in 2012 was atypical of the operational wind farm.

4.5.21 However, it was not considered necessary to repeat the vantage point surveys, since no raptors were recorded foraging in the area in the earlier surveys and the geese which were recorded flying over the site were unlikely to be affected by variations in the amount of traffic on the road. Furthermore, the results of previous vantage point surveys at the operational wind farm are consistent with those undertaken for the

proposed extension area, in showing small numbers of flights by target species. Taking all of this evidence together, it is considered that it is unnecessary to carry out further vantage point observations at the proposed extension site. A second winter VP survey has therefore been scoped out. As detailed in paragraph 4.5.9, detailed results of bird surveys will be issued to SNH upon submission of this scoping report.

4.5.22 The assessment would also consider the cumulative effect of the impacts of the proposed wind farm in combination with those associated with wind farm and other developments to a distance of 20km of the proposed development (this being the accepted connectivity distance for geese). The key issue is likely to be cumulative potential collision risk for target bird species.

4.5.23 If potential effects on birds are determined likely to be significant, the planned approach to mitigation would follow the best practice defined by Planning Circular 1/2013 (Environmental Impact Assessment) and IEEM (2006). This standard hierarchic approach to mitigation is widely accepted across industry and with regulators and incorporates: (i) avoiding or preventing effects, (ii) reducing effects, and (iii) offsetting effects.

4.6 Hydrology and Ground Conditions

Introduction

4.6.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on hydrology and hydrogeology during construction and operation. Potential impacts on peat are also considered.

Baseline Situation

4.6.2 As part of the Gordonbush Wind Farm ES and pre-construction works, a survey of the area to identify hydrological constraints and ground conditions including a peat stability assessment was completed. Although predominantly outside the core development area, information from relevant surveys would be considered in forming the baseline context for the general area.

4.6.3 The core development area lies within the River Brora catchment area and drains into two southward draining tributaries, the Allt a' Mhuilinn to the west and Allt Smeorail to the east. The River Brora runs to the south of the site through Brora Loch. The catchment is dominated by upland peat bog, with some areas of coniferous forest. There are a number of burns and drainage ditches within and surrounding the core development area, which drain the site including Allt a' Bhreac-achaidh, Ristocky Burn and Allt nan Nathraichean.

4.6.4 The core development area is mainly dominated by modified bog and dry heath. Man-made drainage ditches are present across the site.

Potential Effects

4.6.5 There could be impacts on the hydrology and ground conditions within the vicinity of the proposed works, particularly during the construction phase. This could include the risk of pollution to both surface water and groundwater, potential effects on water

flows, quality and run-off rates. Such impacts would be avoided as far as possible through the design process and where this is not possible appropriate mitigation would be implemented through the CEMP, as agreed with statutory consultees.

Proposed Scope of Assessment

4.6.6 Building on existing survey data for the wider area, further assessment of potential impacts of the proposed development on hydrology and ground conditions would be undertaken as part of the EIA, with reference to relevant legislation, policies and guidance.

4.6.7 A peat depth survey would be undertaken throughout the core development area to inform the design and layout of the proposed wind farm. An approach to avoid deeper areas of peat would be adopted as part of the design process (see Section 2.2).

4.6.8 The peat depth survey would be undertaken to full depth and would include details of the basic peatland characteristics. The peat depth survey and associated assessment would accord to recognised guidance, in particular:

- Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Executive, 2006); and
- Development on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste (Scottish Renewables and SEPA, 2012).

4.6.9 Informed by the results of the peat depth survey, a Peat Management Plan (PMP) would be developed and would include details on the likely volumes of surplus peat generated and its re-use and preventative / mitigation measures to avoid significant drying or oxidation of peat during construction. A draft PMP would be included within the ES.

4.6.10 Watercourse crossings would be avoided wherever possible. Where this is not possible, a water crossing assessment would be provided and consultation with SEPA would be undertaken to determine whether licensing or registration is necessary under The Water Environment (Controlled Activities) (Scotland) Regulations 2011. Construction details and required mitigation would be included within the watercourse crossing assessment which would detail all proposed engineering activities in the water environment, accompanied with a map of each activity. This would be included in the ES.

4.6.11 Potential impacts as a result of borrow pit workings on the water environment would be considered.

4.6.12 All mitigation measures would be detailed in a CEMP (see 1.5.9).

4.7 Cultural Heritage

Introduction

4.7.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on sites of archaeological and cultural heritage interest.

Baseline Situation

4.7.2 Field survey as part of the existing Gordonbush Wind Farm covered the area to the north of the proposed development site and the existing access track, which traverses the core development area.

4.7.3 These surveys identified a number of archaeological sites, mainly along the existing access track that relate to post medieval agricultural landscape in the form of small farms with buildings, enclosures and sheep folds.

4.7.4 There are no Scheduled Ancient Monuments (SAMs) located within the core development area, although the wider area around the site is known to include archaeological remains which have designated status; a cairn on Balnacoil Hill and a Tumulus near Ascoilebeg both located to the south of the proposed development. There are also no listed buildings, conservation or designed landscapes on or immediately adjacent to the site.

4.7.5 An initial review of PASTMAP has indicated that there are a number of archaeological sites located within the vicinity of the proposed development that are listed on the National Monuments Record and the Highland Historic Environment Record.

Potential Effects

4.7.6 Potential effects on the cultural heritage resource as a result of the proposed development would relate to the direct physical damage to or destruction of cultural heritage features during the construction phase, and the potential effects on the setting of cultural heritage features during operation.

Proposed Scope of Assessment

4.7.7 A detailed desk study would be undertaken based on available data sources and consultation with the Highland Council Archaeology Unit and Historic Scotland. The need for a site visit would be determined following completion of the desk study and consultation.

4.7.8 An assessment of direct and indirect impacts (i.e. potential issues of setting on cultural heritage interest in the wider area) would be carried out and included in the ES, with reference to best practice guidance and methodologies, and in agreement with The Highland Council Archaeology Unit and Historic Scotland.

4.7.9 Effects on the cultural heritage resource would be assessed by comparing the visibility of the wind farm with known and potential cultural heritage sites and their setting.

4.7.10 The archaeologist would inform the development of the scheme design and mitigation measures would be recommended to minimise the impact of the development on archaeology and cultural heritage.

4.8 Land Use and Recreation

Introduction

4.8.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on land use and recreation during construction and operation.

Baseline Situation

4.8.2 The core development area is located in a generally remote area with sparse settlement. The main settlements of Brora, Golspie, Helmsdale and Rogart are located along the coast near A9(T) road and are the centre for local services. Settlement is limited to scattered individual house and farmsteads along the straths and minor road corridors surrounding the site.

4.8.3 The proposed wind farm extension is located on Gordonbush Estate which currently consists of an operational wind farm, deer stalking, and grouse management for shooting.

4.8.4 The site is located within East Sutherland and Edderton Ward, which has a population of approximately 8,000. Tourism is the main economic activity followed by agriculture, crofting, forestry and sporting activities.

4.8.5 The principal road within the wider area is the A9(T), which runs along the coast in a north-east to south-west direction. Tourist routes in the area include the Moray Firth Tourist Route, approximately 20km south of the site and A897 which extends through Strath Fleet and Strath of Kildonan.

4.8.6 The minor C6 road runs inland from Brora along the eastern edge of Loch Brora and is the closest road to the proposed site. This road has undergone upgrading during construction of the Gordonbush Wind Farm and it is proposed to utilise this road during the construction and operation of the proposed extension.

4.8.7 There are no known Rights of Way within the site. The closest Core Path to the proposed site is Core Path SU06.03 named 'The Drove Road'. This track starts approximately 2.8km south-east of the site at Old Town and travels 5.6km to East Clyne. There are a number of Scottish Hill Tracks present in the wider area (see Figure 5)

4.8.8 Key visitor attractions and activities in the area include golf courses at Brora, Golspie and Dornoch, fishing along the River Brora (salmon river) and on Loch Brora, along with several estates in the area undertaking sporting activities such as deer stalking.

Potential Effects

4.8.9 The proposal would result in impacts on land use and recreation and the main changes would be the temporary and permanent land take associated with:

- Erection of wind turbines and associated ancillary infrastructure;
- The construction of new tracks for temporary construction access and permanent maintenance access to each turbine;
- The construction of a new permanent welfare building
- Temporary site establishment and compound areas; and
- Temporary loss of amenity resulting from construction traffic and construction activity occurring close to recreational routes and viewed from peaks.

Proposed Scope of Assessment

4.8.10 Further assessment is recommended following more detailed evaluation and design development to ensure that any adverse impacts on land use and recreation are kept to a minimum and that mitigation measures maximise the potential for any benefits arising from the scheme.

4.9 Socio-Economic Impacts

Introduction

4.9.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on socio-economic activity during construction and operation.

Baseline Situation

4.9.2 The proposed development is located within Gordonbush Estate, which currently consists of an operational wind farm, and deer stalking and other shooting activities. Much of the land surrounding the estate is also used for countryside sports and game conservation.

4.9.3 The principle settlements of Brora, Golspie, Helmsdale and Rogart are situated on the A9 trunk road which links Sutherland to the south and north. Closer to the site, key areas of settlement include the outlying crofting townships at East and West Clyne, Doll and Uppat and there are some further areas of dispersed residential settlement.

4.9.4 The demographic data of the area suggests the population of the area is declining which corresponds with a decrease in employment and educational opportunities.

4.9.5 Tourism and agriculture are key sectors and important to the local economy. Popular activities include deer stalking, walking, cycling, fishing and golf.

Potential Effects

4.9.6 The proposed wind farm would result in the creation of temporary jobs during the construction period. The resourcing for the construction workforce would be a matter for the contractor and would depend on the skills required. However, it is envisaged that a proportion of the workforce would be from the local area.

4.9.7 There may be some indirect jobs resulting from the supply of goods and services for construction which could benefit the local economy.

4.9.8 In terms of local benefits, the construction of Gordonbush Wind Farm has delivered real and significant economic and social benefits to the local area, which the development of Gordonbush Extension would further build upon. Appendix 1 is a case study prepared by independent consultants Biggar Economics that outlines the social and economic benefits as a result of the Gordonbush Wind Farm (SSER, 2012); the key points are listed below:

- SSE invested over £100m in the development of Gordonbush Wind Farm with many of the larger contracts awarded to Scottish business and several local firms;
- Gordonbush Wind Farm would provide 32 full-time jobs during its 25 year operating lifetime, 23 of which would be in the Highlands and 15 in the local Sutherland economy;
- Investment in local transport infrastructure, circa £2m such as upgraded road and planned bridge upgrade would provide legacy benefits to the local community and economy; and
- Environmental benefits include estimated carbon dioxide emission savings of around 10,000 tonnes each year.

4.9.9 During the construction of Gordonbush Wind Farm, SSE employed a Community Liaison officer to keep the local community informed of progress and to provide a mechanism for consultation with the local community including regular engagement with the Community Councils, liaison meetings, production and distribution of a regular newsletter as well as turbine delivery schedules. Due to the success and positive feedback on this arrangement from the community, SSE would ensure that this process was repeated during the construction of the proposed Gordonbush Extension.

Proposed Scope of Assessment

4.9.10 A socio-economic impact assessment would be carried out to consider the potential impact of the proposed wind farm on the wider tourist economy. The assessment would build upon the work already undertaken (see Appendix 1) and would extend to the consideration of job creation during the construction phase and indirect benefits to the local economy as a result of this.

4.10 Noise

Introduction

4.10.1 This section sets out the proposed approach to the assessment of the noise generated from the construction and operation of the wind farm.

Baseline Situation

4.10.2 There are no properties within the core development area. Ascoile represents the closest habited building to the proposed site at approximately 1.0km south-west of the core development area. Other properties in close vicinity include Gordonbush at

approximately 1.7km and Oldtown at approximately 2.7km both located to the south of the development.

Potential Effects

4.10.3 The main source of noise impact during the construction phase is likely to be from increased traffic flows during construction. Construction traffic, including the delivery of components, is likely to be routed along the same route used for the original Gordonbush scheme which has already undergone upgrading works. This would direct traffic via Clynelish Distillery road at the junction north of Brora via C6 minor road at Brora bridge and then along the upgraded and extended estate track to the site.

4.10.4 Operational noise generated by the wind turbines is usually from the blades rotating in the air and from internal machinery. Noise during operation is generally low and modern wind turbines have significantly reduced noise levels compared with earlier models.

Proposed Scope of Assessment

4.10.5 At Gordonbush Wind Farm it was found that noise levels at the nearest noise sensitive properties would be considerably less than the recommended 35dB(A) at all wind speeds up to 12ms-1 as a result of the large separation distance between the turbines and the properties. Therefore a 'simplified' methodology approach was undertaken, which considered it not necessary to measure the background noise levels. It was considered that the operation of Gordonbush Wind Farm would have an insignificant effect on the noise amenity of the closest residents.

4.10.6 Discussion with The Highland Council would be required to determine the appropriate methodology and approach for the noise assessment and noise limits for the proposed development. An assessment on potential noise effects would be carried out with reference to the following guidance:

- Good Practice Guide to the application of ETSU-R-97 for wind turbine noise assessment;
- PAN 1/2011: Planning and Noise (Scottish Government, 2011a);
- Supplementary Guidance: Onshore Wind Turbines Online Guidance (Scottish Government, 2013b);
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings, Annex A: The Control of Noise at Surface Mineral Working (Scottish Executive, 1996);
- Technical Advice Note – Assessment of Noise (Scottish Government, 2011b);
- The Assessment and Rating of Noise from Windfarms (ETSU, 1997); and

- British Standard (BS) 5228 – Code of Practice for Noise and Vibration Control on Construction and Open Sites (British Standards Institution, 2009).

4.10.7 Impacts from construction activities would be controlled by the adoption of best site management practices and all mitigation measures would be agreed with The Highland Council. SSE would impose contractual obligations on the contractor to ensure that construction noise is restricted to a minimum and is controlled in accordance with the relevant British Standards.

4.11 Air Quality

Introduction

4.11.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on air quality during construction and operation.

Baseline Situation

4.11.2 Given the remote location, the current air quality in the area is expected to be high and typical of a rural location.

Potential Effects

4.11.3 Impacts would likely be as a result of emissions from construction activities (such as exhausts from site plant and dust generated from disturbed ground during dry periods).

4.11.4 Impacts from construction activities would be controlled by the adoption of best site management practices and all mitigation measures would be agreed with The Highland Council and imported into the Construction Environmental Management Plan (CEMP) used by the contractor.

4.11.5 There would be no routine emissions to air during operation of the scheme, with the only source being vehicles visiting the site for maintenance purposes. Operation of the scheme would displace alternative sources of power generation, mainly fossil fuel, and would therefore result in reduced emissions of carbon dioxide and other pollutant gases.

Proposed Scope of Assessment

4.11.6 No significant impacts on local air quality from construction or operation are envisaged. Moreover the wind farm would have a net positive impact on air quality through the generation of electricity without the emissions of carbon dioxide. Given the remote location of the proposed scheme and the distance between it and sensitive receptors, it is not considered that further assessment on air quality during both construction and operation is required.

4.12 Carbon Balance

Introduction

4.12.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on the calculation of carbon.

Baseline Situation

4.12.2 A peat depth survey would be undertaken to inform the layout and design of the proposed wind farm (see Section 4.6). An approach to avoid deeper areas of peat would be adopted during the design process.

Potential Effects

4.12.3 Construction of the proposed wind farm could potentially result in the loss of areas which may act as a 'carbon sink', where carbon is absorbed from the atmosphere, or perhaps more significantly cause a loss of carbon store material, thus releasing carbon into the atmosphere.

Proposed Scope of Assessment

4.12.4 Guidance on the calculation of carbon from proposed wind farm developments has evolved over recent years. Current best practice guidance is found within 'Calculating Carbon Savings from Wind Farms on Scottish Peat Lands – A New Approach' (Nayak et all, June 2008, amended June 2010). The guidance has been completed by the University of Aberdeen's Institute of Biological and Environmental Sciences, and Macaulay Land Use Research Institute. Cognisance would be taken of current best practice in calculating the impact of the proposed wind farm on the soil carbon stocks.

4.13 Traffic and Transport

Introduction

4.13.1 This section sets out the approach to the consideration of site access, traffic and transportation as a result of the proposed development during construction and operational phases.

Baseline Situation

4.13.2 The nearest main road to the proposed development is the A9 trunk road located approximately 8.5km to the east and links central Scotland to the north coast. Two roads run in land from the A9 which converge approximately 3km to the west of Brora. The Clyne C6 minor road / A9(T) junction is located in the centre of Brora and the Clynelish Distillery road, which leaves the A9 approximately 1.5km north of Brora.

4.13.3 There are no public access roads within the site boundary.

4.13.4 There are no statutory designations regarding traffic, transportation and access in the vicinity of the wind farm.

Potential Effects

4.13.5 It is anticipated that both construction traffic and operational traffic would access the proposed site using the same delivery route used for Gordonbush Wind Farm, including any deter routes for abnormal loads (see Section 2.3). New purpose-built tracks to each wind turbine would also be required.

4.13.6 An initial Abnormal Load Route Survey has been undertaken by Halcrow Group Ltd, which included a swept path assessment prior to the submission of this scoping report. It is anticipated that the proposed extension would use a different model of

turbine compared to Gordonbush Wind Farm due to the advancement in technology in recent years, and hence would have larger turbine components. It is anticipated that the proposed turbines could have a tip height of up to 132m. The aim of the preliminary assessment was to consider the suitability of the existing delivery route for the delivery of larger turbine components and to identify areas that may be constrained and would require remedial works. The preliminary assessment demonstrated that, subject to further assessment and the development of appropriate mitigation and traffic management measures, the transportation of larger turbine components along the existing delivery route would be technically possible.

4.13.7 The main traffic impacts are anticipated to be during construction, both in the delivery of materials to site as well as turbine components and specialist construction equipment. Some of these deliveries would be made by long / slow moving vehicles. The number of vehicle movements during construction would depend largely on the arrangements made by the contractor, and details cannot be provided at this stage.

4.13.8 As a condition of consent for the Gordonbush Wind Farm, a detailed traffic management plan was prepared prior to construction works taking place. A number of improvements were undertaken on the minor Clyne C6 road and Clynelish Distillery road to accommodate the abnormal loads, which included upgrading Gordonbush Bridge, upgrading 12km of the Clyne C6 road by Loch Brora and restricted access by heavy goods to certain hours of the day.

Proposed Scope of Assessment

4.13.9 An assessment would be carried out as part of the EIA to include the likely number of construction traffic movements and the capacity of local roads to accommodate delivery of turbine components. The assessment will be based on guidance detailed below in addition to other related technical and planning guidance and in close consultation with The Highland Council and Transport Scotland:

- Transport Assessment Guidance (Scottish Government, 2012);
- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Management and Assessment, 2005a);
- Scottish Planning Policy (Scottish Government, 2010) paragraphs 165-181 on Transport; and
- PAN 57: Planning for Transport (Scottish Executive, 1999).

4.13.10 A request would be made to Transport Scotland and The Highland Council to obtain traffic count data on the A9 to further inform the assessment during the EIA process.

4.13.11 Once operational, the number of traffic movements would be significantly reduced and it is anticipated that no further assessment on operational traffic movements would be required as part of the EIA.

4.14 Aviation

Introduction

4.14.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on aviation.

Baseline Situation

4.14.2 The proposed development is outwith the Ministry of Defence (MoD) Tactical Training Area LFA 14(T), which extends over much of northern Scotland and is located to the west of the existing Beauly to Dounreay 275kV overhead transmission line.

4.14.3 The site is remote from civilian airfields at Inverness and Wick, and the military airfields at Lossiemouth and Kinloss.

Potential Effects

4.14.4 Wind turbines can create false radar returns for aircraft. When there are a large number of turbines these can appear as 'clutter' on Air Traffic radar displays and other communication and navigation facilities, which has a potential impact on safety for aircraft.

4.14.5 A preliminary search on potential disturbance to existing infrastructure and equipment on the NATS website[5] suggests that the proposed site would not cause interference to aircraft.

Proposed Scope of Assessment

4.14.6 Potential impacts would be assessed through consultation with NATS, MoD, Highlands and Islands Airports Limited, other airport operators as appropriate and other stakeholders, primarily through the mechanism of the consultation procedure managed by Defence Estates Wind Farm Safeguarding. The consultation would be managed in two stages: the first to gather general views regarding the suitability of the site; and a further detailed consultation to determine the potential impacts on aviation issues of the final site layout.

4.14.7 The potential impacts on military and commercial aviation would be undertaken through detailed consultation as part of the scoping process, and continued throughout the EIA process, if required.

4.15 Telecommunications

Introduction

4.15.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on telecommunications.

[5] http://www.nats.co.uk/services/information/wind-farms/self-assessment-maps/ [accessed 28th August 2013]

Baseline

4.15.2 The development site does not have any live or planned mobile phone masts.

4.15.3 The properties close to the proposed development site receive their domestic reception of broadcast from either Rosemarkie main transmitter in the south or from Rumster Forest to the north-east.

Potential Effects

4.15.4 Wind farms can cause television, radio and microwave interference by blocking and / or causing part of the signal to be delayed.

Proposed Scope of Assessment

4.15.5 All fixed television, radio and microwave transmitters within 30km of the site would be identified. Further consultation on this matter with relevant organisations would take place.

4.16 Shadow Flicker

Introduction

4.16.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed wind farm on shadow flicker.

Baseline

4.16.2 Shadow flicker can arise from the moving shadow of the turbine rotor blade passing over the narrow opening of a nearby residence. There are no known shadow flicker issues caused by the existing wind farm.

Potential Effects

4.16.3 In the UK, only properties within 130 degrees either side of north, relative to the turbines, can be affected as turbines do not cast shadows on their southern side (ODPM, 2004). Shadow flicker effects are likely only to occur within a distance of up to approximately 10 rotor diameters of a turbine.

Proposed Scope of Assessment

4.16.4 As there are no properties within 130 degrees either side of north of the core development area, the potential impacts on shadow flicker would be scoped out of the EIA process.

5 CUMULATIVE IMPACTS

5.1.1 There are a number of existing and emerging wind farms within the wider area of the proposed Gordonbush Extension Wind Farm. The closest of these is Gordonbush Wind Farm which became officially operational in June 2012 and is located to the north of the proposed development.

5.1.2 Other wind farms of note within the vicinity of the proposed Gordonbush Extension Wind Farm include the operational Kilbraur Wind Farm (including an approved extension). A planning application was submitted on the 30th August 2013 for a wind farm on Balnacoil Estate, to the west of Gordonbush.

5.1.3 The EIA for the proposed Gordonbush Extension Wind Farm would consider all operational wind farms, those consented and those with submitted applications up to a maximum of 60km radius as appropriate for each specialist topic. Consultation and discussion with The Highland Council, SNH and other bodies as required would be carried out to determine which wind farms within the 60km radius have the potential to incur significant cumulative impacts and therefore should be taken forward within the EIA.

6 NEXT STEPS

6.1 Response to the Scoping Report

6.1.1 This Scoping Report has been issued to the Energy Consents and Deployment Unit (ECDU) in support of a request for a scoping opinion under Regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.

6.1.2 The responses to the Scoping Report would inform the detailed methodology for each aspect of the impact assessment and, at each stage, dialogue would be maintained with statutory bodies and key stakeholders to ensure that methods are both appropriate and robust.

6.1.3 The ECDU would seek the views of those consultees listed in Table 1.1 in forming its Scoping Opinion. All responses should be sent to the following address:

Energy Consents and Deployment Unit

4th Floor, 5 Atlantic Quay

150 Broomielaw

Glasgow

G2 8LU

energyconsents@scotland.gsi.gov.uk

6.1.4 In submitting your response to the ECDU, SSE Renewables would be grateful if you could send a copy of your response to them at the address below:

For the attention of Nicki Small

SSE Renewables Developments (UK) Limited

Inveralmond House

200 Dunkeld Road

Perth

PH1 3AQ

nicki.small@sserenewables.com

6.1.5 All other responses or comments relating to the proposed scheme should be entitled 'Gordonbush Extension Wind Farm' and sent to the above address.

6.1.6 This Scoping Report is also available online at www.sse.com/Gordonbush

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Appendices

SSE Renewables

Delivering Social and Economic Benefits

Gordonbush Wind Farm Case Study

A wind turbine blade makes its way to the Gordonbush wind farm

SSE Renewables is part of the SSE Group, Scotland's leading energy business. We develop renewable energy projects across the UK and Ireland. You may know us as 'Scottish Hydro'.

We have a long history in the Highlands with our hydro stations, and as Scotland moves to a low-carbon economy with more renewable energy needing to be developed, SSE aims to ensure that the lasting legacy of our developments is a positive one for the communities within which we live and work. Our objectives are to deliver green energy, local economic benefits, jobs, training, community development and social and environmental responsibility.

To illustrate our commitment this document demonstrates the local and regional, social and economic benefits of one of our previous renewable energy projects, and touches on some other examples. There may not be the local supply chain for some aspects of a particular project, this is always the case, but we will do our utmost to ensure that the lasting legacy of our developments is one that maximises local social and economic benefits. These are the kind of things you can expect from an SSE Renewables development.

Case Study: Gordonbush Wind Farm

Gordonbush is a 35 turbine wind farm near Brora in Sutherland. It has an installed capacity of 70 megawatts (MW). Work on preparing the site started in Autumn 2009, the turbine installation started in August 2011 and the wind farm was completed and commissioned in May 2012.

The Environmental Statement that was submitted as part of the planning process for this onshore wind farm project included a review of the potential socio-economic impacts of the proposed development. This case study summarises the actual impacts that Gordonbush wind farm has had during its development and construction, as well as the impacts that are expected over its 25-year operating lifetime.

SSE aims to ensure that the lasting legacy of our developments is a positive one for the communities within which we live and work.

Key Points

- The construction of Gordonbush wind farm has delivered real and significant economic and social benefits to Brora, the Highlands and Scotland; an estimated 237 construction job years in Scotland, including 166 in the Highland Council area and 52 in the local Sutherland economy;

- Gordonbush will continue to deliver economic, social and environmental benefits during its 25-year operating lifetime, providing 32 jobs in the Scottish economy;

- SSE Renewables invested over £100m in the development of Gordonbush wind farm;

- Local firms in Brora and other towns benefitted by providing a wide range of materials, services and labour;

- Local accommodation and service providers have housed and supplied those working on site from outwith the local area;

- Gordonbush and other investments have provided sustainable construction jobs in companies including Highland company RJ McLeod, at a time where the construction sector has suffered a deep and lengthy recession;

- Environmental benefits include estimated carbon dioxide emission savings of around 100,000 tonnes each year;

- Investment in local transport infrastructure, circa £2m, such as an upgraded road and planned bridge upgrade will provide legacy benefits to the local community and economy;

- Gordonbush wind farm will, as part of its Estate Management, continue to employ ornithological surveyors, deer management and forestry management from local suppliers from Aboyne, Brora and Inverness respectively, to maintain the estate to the standard specified in the Planning Application's Environmental Statement. Estate Management is required every year of the 25-year consent.

- Community investment funding is delivering both social and economic benefits, therefore supporting the local economy;

- SSE takes its responsibilities and contribution to the Scottish and local economy seriously; SSE is the biggest Scotland headquartered energy company and a leading private sector employer in the Highlands; and

- SSE is demonstrating its commitment to maximising Scottish economic impacts by investing in the Scottish supply chain (for example Wind Towers Ltd in Argyll) and by investing in research and development in Scotland.

Direct and Supply Chain Economic Impacts

SSE Renewables invested over £100m in the Gordonbush wind farm. Many of the larger contracts were awarded to Scottish businesses and several local firms worked on the project.

During the development and construction phase (to May 2012), the project supported an estimated 237 job years in Scotland (i.e. the equivalent of 237 jobs for a year) across a wide range of sectors, including, planning, legal and environmental impact assessment services, civil engineering and infrastructure development and grid connection. The supply chain for these services included everything from electrical services to plant hire to ecological clerk of works. Of these impacts an estimated 166 job years were supported in the Highland economy (i.e. within the Highland Council area), including 52 job years in the local Sutherland economy.

Employment will also be supported directly and indirectly during the operational phase of the wind farm including on turbine maintenance, site maintenance and other asset management services. This will vary both seasonally and over the lifetime of the project with service schedules etc. On average, it is estimated that 32 full-time equivalent jobs will the supported directly and indirectly in the Scottish economy, of which 23 will be in the Highlands and 15 in the local Sutherland economy.

SSE Renewables invested over £100m in the Gordonbush wind farm. Many of the larger contracts were awarded to Scottish businesses and several local firms worked on the project.

Local Suppliers

Local suppliers of materials to the project included:

- fuel from Highland Fuels;
- drainage supplies from Alpha Drainage in Dingwall, Keyline in Tain and WT Burden in Muir of Ord;
- traffic signs from Ansco Signs in Muir of Ord;
- aggregates from Dornoch Quarry and Edward Mackay Ltd in Brora;
- concrete from Pat Munro in Alness and Achley Concrete in Dornoch;
- general site supplies from MacGregor Industrial Supplies in Inverness;
- office supplies from Grants Office Supplies in Alness;
- timber products from G & R Sutherland in Brora;
- grass seed from WA Geddes in Brora; and
- building stone from Sutherland Estates.

Local staff employed included vehicle servicing, joiners, electricians, plumbers, fencers, stonemasons and general construction labour from Brora and the surrounding area.

A number of plant and tool hire businesses benefitted from the project including Edward Mackay Ltd of Brora, Waverley Engineering of Golspie, JA MacDougall of Ardross, KV Shepherd of Contin, Duncan Mackay of Rogart, James Jack of Invergordon, Campbell Plant Hire of Inverness, MacDonald Scaffolding of Invergordon and Fraser MacLennan of Dornoch.

Suppliers have also included Highland-based specialist wind energy companies such as Chillwind, which has provided wind monitoring services for Gordonbush as well as SSE's other proposed and operating wind farms in the region. Chillwind is based in Glenelg in Wester Ross and has a depot in Inverness. The company manufactures, supplies and installs guyed meteorological masts and associated instrumentation.

Local staff employed included vehicle servicing, joiners, electricians, plumbers, fencers, stonemasons and general construction labour from Brora and the surrounding area.

Spending on Accommodation and Local Businesses

The wider economic impacts of the Gordonbush wind farm have included the use of local accommodation and services in the Brora area, including outside the normal tourism season. Examples include lunches from Harry Gows in Brora main street; rental of around 12 houses in the area for periods ranging from one to two years; use of hotels, including the Marine Hotel in Brora and the Trentham Hotel in Dornoch; and food and groceries purchased by visiting employees from the Co-op and Spar Shops in Brora and Golspie.

There will also be a positive legacy impact for the local tourism sector in the Brora area. SSE is refurbishing the old schoolhouse building next to the access to Gordonbush wind farm, on the key A9 tourist route, which will then be gifted to Brora Heritage Trust for use as a heritage visitor centre. This is expected to generate income to support the work of the Trust as well as providing a facility that will attract and retain visitors in the locality.

Environmental Benefits

The installed capacity of Gordonbush wind farm is 70MW. Using government approved methods, it is estimated that the wind farm will provide energy for around 70,000 homes, based on an average demand per home of 3,300 kilowatt hours (KWh), the standard unit of measurement for domestic electricity.

Each year the wind farm is estimated to generate around 233,000MWh (or 233 million kWh) of electricity, although it could generate more or less than this, depending on wind conditions. Every kWh of electricity produced by Gordonbush wind farm and consumed in the UK will displace a unit of electricity, which would otherwise have been produced by a power station burning fossil fuel. The industry standard for calculating the positive environmental impact of wind power is based on 430 grams of carbon dioxide emissions saved by each kWh of wind power generated. Gordonbush could result in carbon dioxide emission savings of around 100,000 tonnes each year.

RJ McLeod

RJ McLeod, formed by Roderick John MacLeod from the north west of Scotland, has operated as a Scottish business for over 60 years. In this time, it has had a proven track record of creating employment, either directly or by employing local plant/labour/services, for generations of families from all over Scotland, including the Highlands and Islands and retains a big Highland presence with a large northern office in Dingwall.

The firm undertakes a wide range of construction contracts, has a turnover of almost £80m and around 400 employees. In its early days in the 1950s, energy projects were a key element of the business, particularly the construction of hydro schemes for The North of Scotland Hydro-Electric Board. Civil and balance of plant contracts on wind farm projects, as well as new hydro schemes and grid infrastructure projects, represents a return to its roots for RJ McLeod. It has established expertise in heavy civil engineering in harsh and challenging environments.

The total contracts at Gordonbush were worth more than £13m, with work undertaken over a period of just over a year. The work undertaken at Gordonbush included 22.2km of access roads, the upgrade of a 12km section of the C6 road, 35 wind turbine bases, 48,000 square metres of hard standings, a welfare building and two met masts.

The portfolio of energy projects undertaken by RJ McLeod in the Highlands, for SSE Renewables (including Fairburn wind farm in Strathconnon, Ross-shire; Achany near Lairg, Sutherland; and Spurness, Orkney) and other developers, has allowed the firm to provide sustainable construction employment in the Highlands, at a time when the construction sector as a whole has suffered a serious downturn.

"The last few years have seen markets such as infrastructure for housing/offices/etc. in decline, which could have meant a significant reduction in our employee numbers, as well as reduce our ability to employ site specific local workers and services. The renewable energy industry, including wind farms such as Gordonbush, has therefore contributed to us maintaining a sustainable business model, and allowed us to continue to provide much needed employment in the Highlands and Islands of Scotland."
Jamie Corser, Business Development Manager at RJ McLeod

RJ McLeod preparing one of the turbine bases

Investment in Transport Infrastructure

As well as on the site itself, the investment in the Gordonbush wind farm includes more than £2m on the local transport infrastructure, including upgrading the Gordonbush Bridge and upgrading of 12km of the Clyne C6 road by Loch Brora. This investment provided local construction employment (for example, the surfacing contractor was Pat Munro) and the improvement to the local infrastructure will be a legacy of the project.

Although the turbines were made in Germany, transporting them to the site creates jobs in local ports and haulage companies. The parts for the turbines required 280 return lorry journeys between Invergordon Harbour and the site, which were timed to minimise disruption to local communities. The transport operations were important to Collett Transport, specialist transport contractors and to the Cromarty Firth Port Authority at Invergordon. For all future wind farm developments, SSE intends to procure the towers from Wind Towers Limited in Machrahanish, Argyll, which SSE acquired in 2010. WTL also sources some of its supplies from Highland companies.

Working with the Community

SSE worked closely with the local community during the construction of Gordonbush wind farm to maximise economic opportunities and minimise disruption for businesses and residents. On the day that Gordonbush first generated power Brora Community Council chairperson, Kathleen Cunningham, said:

"This is an important day for the community as it signifies that Gordonbush is nearing completion. We have worked closely with SSE since the start of the project to ensure that the community is kept up to date and considered properly during the construction works and we have been delighted with the efficient, regular engagement and communication demonstrated throughout the entire process. The liaison has been excellent and SSE's team has gone the extra mile in responding to local questions and concerns. The turbine deliveries have gone much smoother than anticipated and we look forward to Gordonbush being fully up and running next year."

Community Benefits

The Scottish Hydro Gordonbush Community Fund has been established for the benefit of residents in the geographic areas represented by the Community Councils of Brora, Golspie, Rogart and Helmsdale. SSE contributes at least £144,000 per year, index linked for 25 years, and an additional variable amount linked to the output of the wind farm.

The Fund provides grants to support charitable activities that enhance quality of life for local residents; contribute to vibrant, healthy, successful and sustainable communities and promote community spirit and encourage community activity. As well as these important social impacts, the Fund also has an economic impact where facilities are built or refurbished and as a result of supporting staff and seasonal workers in community projects.

In April 2012, ahead of the commissioning of the wind farm, it was announced that 33 community organisations in Brora, Golspie, Helmsdale and Rogart have benefited from the second round of awards from the Scottish Hydro Gordonbush Community Fund, receiving more than £100,000. Awards included the purchase of essential equipment for sporting facilities such as funding towards replacing Helmsdale Community Golf Clubs' 100 year old golf greens; sports equipment to help talented young athletes and cyclists; a new play park facilities in Rogart; vital funds to upgrade Kinbrace village hall; an upgrade to the kitchen in the Royal British Legion, Golspie; and new links and pathways in Rovie Woods.

In April 2012, ahead of the commissioning of the wind farm, it was announced that 33 community organisations in Brora, Golspie, Helmsdale and Rogart have benefited from the second round of awards from the Scottish Hydro Gordonbush Community Fund, receiving more than £100,000.

SSE has revised its community investment approach for all new onshore wind farms. This maintains the local community element of £2,500 per MW per year, but has now doubled the benefit to £5,000 per MW. The additional funds will be aimed at supporting skills and training initiatives, community energy schemes and environmental and built environment across the Highland region, and is also of course open to the local community.

This new policy will allow a wider range of activities to be supported. There are good examples of community investment funded projects that could be applied elsewhere in the country. In the Fort Augustus area, community investment funds have been used to assist many local residences to purchase energy efficient household appliances, improving quality of life and reducing demand for electricity.

Community at Heart

In addition to the community investment fund, members of the Gordonbush construction team also helped restore local footpaths which ran past Brora's old Ice House. The work was made possible as part of SSE's 'Community at Heart' scheme, which gives every member of staff a day away from their normal work duties to do voluntary work for a local organisation or charity. Kathleen Cunningham, Secretary for 'A Brighter Brora' said:

"We're delighted with the excellent job that the Gordonbush team has done. They've given this popular local walk, which is also a section of the 'Brora Heritage Village Trail' such a facelift and all in time for Easter visitors too! The path runs past the Ice House which was used heavily back in the day when Brora exported a lot of salmon to London; the crofters used to cut the ice from the river in winter and store it in the Ice House for use during the summer to keep the salmon fresh. 'A Brighter Brora' and dedicated local volunteers work hard at maintaining the Ice House's semi wild garden area and pathways but it would have taken us weeks to achieve what 'Community at Heart' accomplished in just one day. Once again, we've benefited from our positive working relationship with the Gordonbush wind farm team and are very grateful to them for investing their time in the local community of Brora."

SSE staff help restore local footpaths as part of SSE's Community at Heart scheme

SSE: Scotland's leading energy company

SSE is one of Scotland's biggest companies, with headquarters in Perth and 20,000 staff located in over 100 offices throughout the UK, and around 1,800 staff and contractors currently employed in the Highland Region. SSE has its origins as a supplier of electricity in the north of Scotland (Scottish Hydro) and in southern England. The company has firm roots in renewable energy with hydro power in the Highlands and is the UK's largest generator of renewable energy with existing capacity of over 1,450MW of hydro and over 1,300MW of wind capacity in the UK and Ireland and further onshore and offshore wind farms under development.

SSE in the Highlands

SSE supports 1,800 jobs in the Highlands and Islands, making the company one of the largest private sector employers in the region. This includes direct employees and jobs supported in contractors. In 2012 SSE announced significant expansion plans across the business in our Highland headquarters at Henderson Road, Inverness, creating 50 new roles.

SSE has made commitments in 2012 to deliver a pilot training initiative for young people with the University of Highlands and Islands (Inverness College) with a view to significantly scaling up recruitment and training between now and 2020.

On announcing these commitments SSE's Managing Director for Group Services, Jim McPhillimy, said:

> *"The Highland region has always been very important to us since the early 'Hydro' days and we have significant development opportunities in the region planned for the future. We are determined to leave a lasting legacy and our move to significantly expand our presence in the Highlands is a signal of our intent."*

Welcoming the news of SSE's commitment to the Highland region in early 2012 the then Highland Council Convener Sandy Park said:

"The Highland Council welcomes this news of expansion by SSE at its main Inverness office. This represents a significant boost to the local economy in tough economic times. We are also very pleased to be working with SSE on training opportunities for young people as the Council has identified youth employability as a top priority."

In June 2012 SSE is to launch a new web portal for the Highlands supply chain, so that we can maximise the opportunity and input of local businesses to our projects. In addition to this we will normally hold open days for local businesses well in advance of any construction works getting underway.

SSE and Wind Towers Limited

SSE is committed to increasing the value of the Scottish supply chain.

This has included a significant investment in a joint venture, Wind Towers Limited, which secured the future of the wind turbine tower manufacturing plant near Campbeltown in Argyll. The facility is currently working on orders for towers for onshore wind farms across the UK and its management team is planning to exploit the longer-term opportunities from offshore wind farm development. WTL provided all the towers for SSE's Clyde wind farm in South Lanarkshire, where an estimated £118m of contracts were awarded to Scottish companies, or companies with significant Scottish headquarters.

SSE intends to procure all of its towers for future wind farms from Wind Towers Limited.

SSE and Investment in R&D

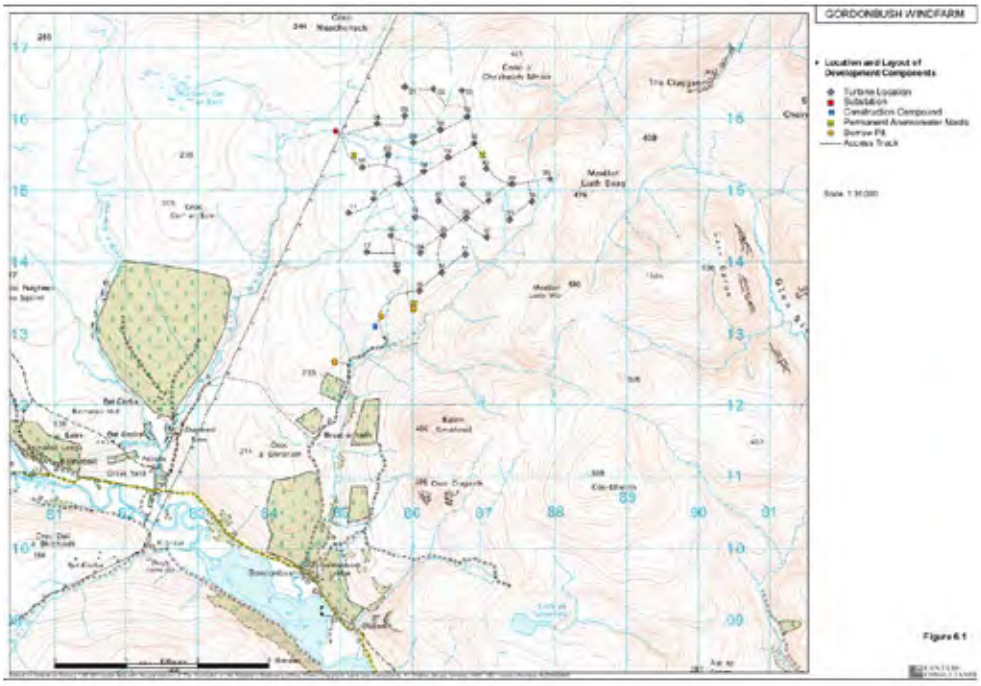
SSE is also investing heavily in research and development, which will help to ensure that the Scottish economy increasingly benefits from the growth of the renewable energy sector, both as a result of capacity installed in Scotland and as an exporter of renewable energy technologies and expertise.

In addition, SSE is supporting a major RSPB research project on the effect of wind farm construction on Golden Plover at Gordonbush, which involves monitoring before, during and after construction.

Summary

This document sets out a picture of how a typical SSE wind farm is developed, the benefits to the local community and to the wider economy in the Highlands. It is by no means exhaustive but it does point to significant positive impacts. SSE is committed to going even further where we can. For example in June 2012 SSE will launch a new Highlands supply chain web portal to help companies in the Highlands engage with SSE and bid for work. In addition we have upgraded our community benefit package for all new projects with £5,000 per MW going to both the local community and also for wider skills development, community energy and environmental restoration projects. SSE is also developing significant plans for investment in young people and skills to ensure that the number of people working on energy projects in the Highlands, come from the Highlands.

This case study was produced with research carried out by independent consultancy Biggar Economics.



Please contact us for more information,
or to feed back your views on how we can do better.

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Produced June 2012

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Figures

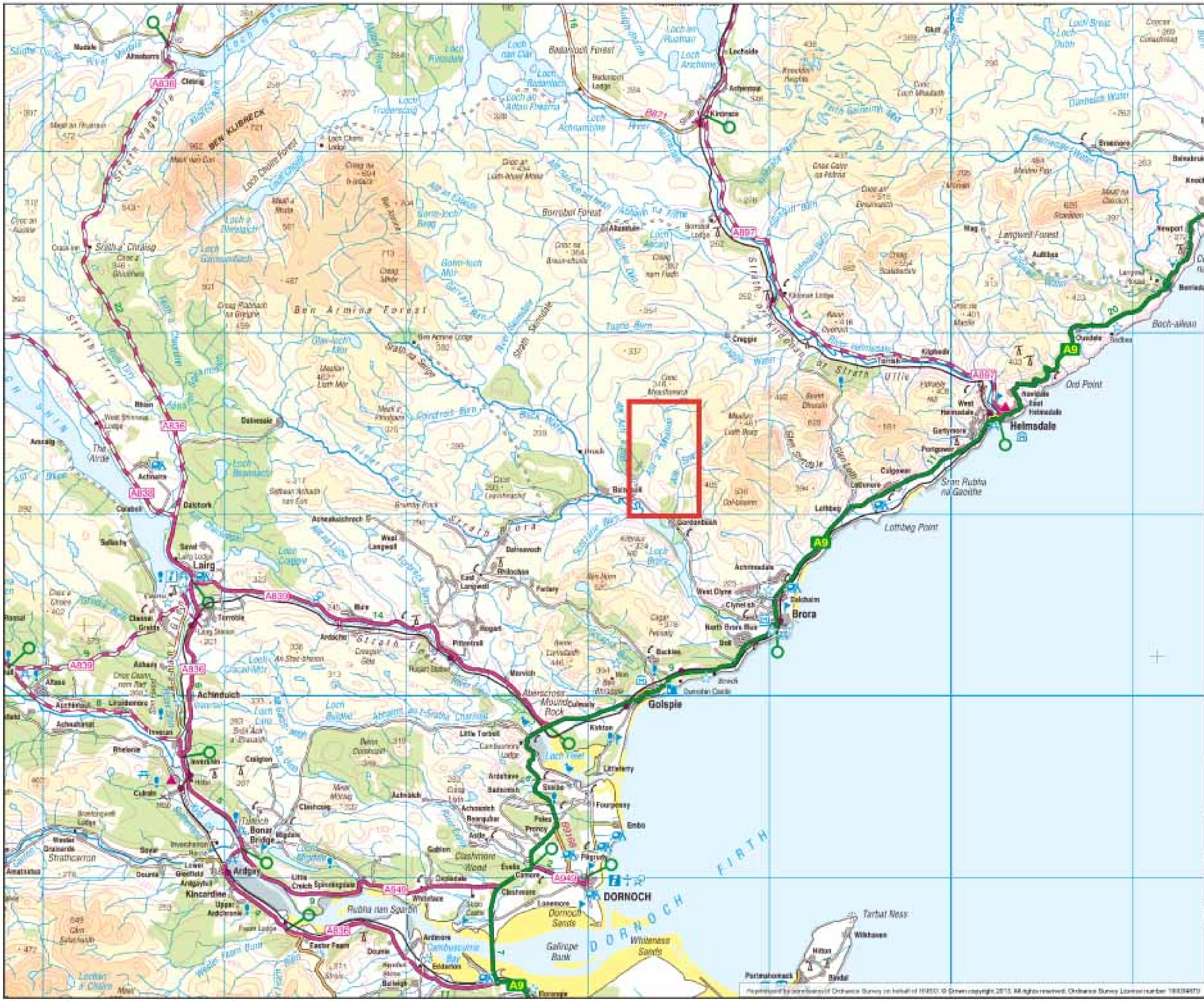


Figure 1

Key

Proposed Wind Farm Location

0m 5km 10km

SCALE 1:200,000 @ A3

Client

SSE Renewables

Project

Gordonbush Extension

Title

Location Plan

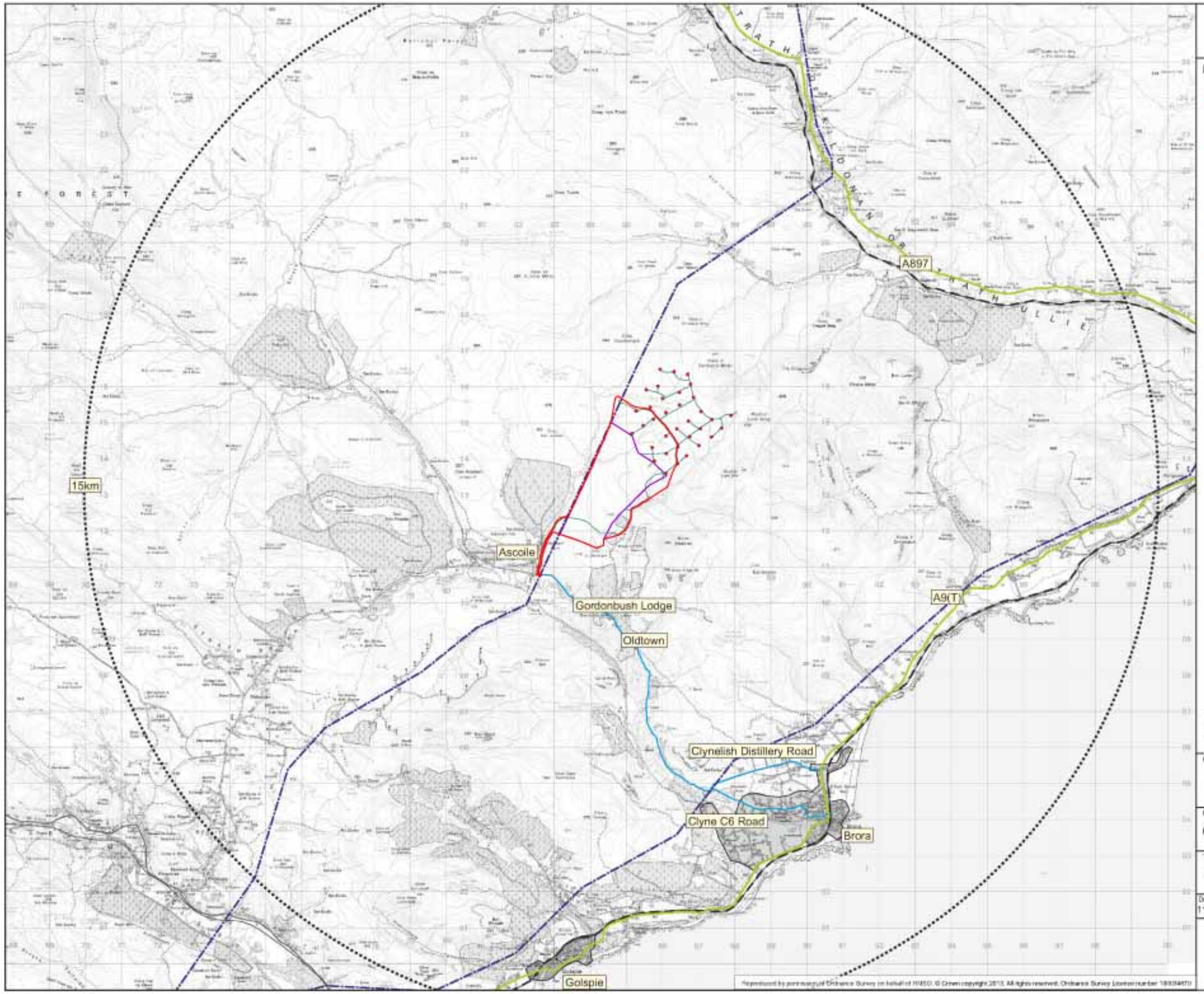
Drwg No.	Date	Rev.	Drwn.	App'd
1130001/1	Aug. 2013		LR	AC

ash design + assessment

Figure 2

Key

- Site Boundary
- Core Development Area
- Existing Access Track
- Gordonbush Wind Turbines
- A Road
- Minor Road (route for construction delivery)
- Railway Line
- Overhead Transmission Line



0m 1km 2km 3km 4km 5km

SCALE 1:100,000 @ A3

Client: SSE Renewables

Project: **Gordonbush Extension**

Title: Site Context

Drwg No	Date	Rev.	Drwn.	Appd
113001/2	Aug 2013		LR	AC

ash design + assessment

Figure 3

Key

- Site Boundary
- Core Development Area
- Existing Gordonbush Wind Turbines
- Gordonbush Anemometer
- Gordonbush Tracks / Hardstanding
- Gordonbush Control Building Substation
- Gordonbush Borrow Pits
- Site of Former Temporary Construction Compound for Gordonbush (now re-instated)

0m 1km

SCALE 1:25,000 @ A3

Client: SSE Renewables

Project: **Gordonbush Extension**

Title: Existing Infrastructure

Drwg No.	Date	Rev.	Drwn.	Appd
113001/3	Aug. 2013		TW	AC

ash

Figure 4

Key

- Site Boundary
- Core Development Area
- Existing Gordonbush Wind Turbines
- Gordonbush Tracks / Hardstanding
- Habitat Management Plan Boundary

0m 1km 2km 3km 4km

SCALE 1:75,000 @ A3

Client: SSE Renewables

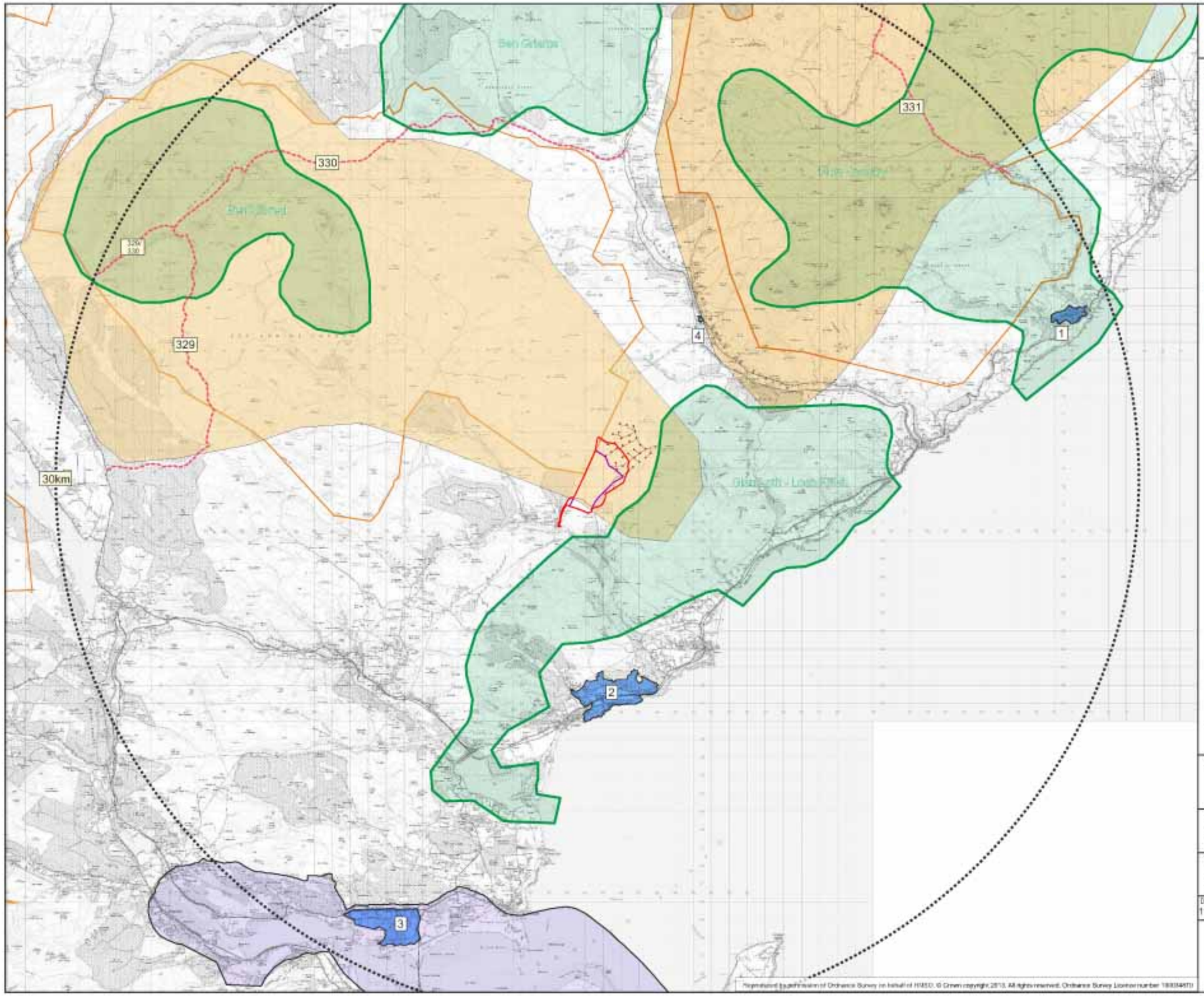
Project: **Gordonbush Extension**

Title: Gordonbush Habitat Management Plan

Drwg No	Date	Rev.	Drwn.	Appd
113001/4	Aug. 2013		TW	AC

ash

Figure 5



Key

- Site Boundary
- Core Development Area
- Existing Access Track
- Gordonbush Wind Turbines
- Highland Special Landscape Areas
- Scottish Natural Heritage Search Area for Wild Land (SAWL) (2002)
- Scottish Natural Heritage proposed Core Areas of Wild Land (CAWL) (April 2013)
- 330 Scottish Hill Tracks *
- National Scenic Area
- Garden and Designed Landscape

1 Langwell Lodge
2 Dunrobin Castle
3 Skibo Castle
4 Kildonnan Lodge

* Only those Scottish Hill Tracks within the vicinity of the site boundary are shown.

0m 5km 10km
SCALE 1:200,000 @ A3

Client: SSE Renewables

Project: **Gordonbush Extension**

Title: Landscape Designations & Recreational Interests

Drwg No.	Date	Rev.	Drwn.	Appd
113001/5	Aug. 2013		LR	AC

ash

Figure 6

Key

- Site Boundary
- Core Development Area
- Existing Access Track
- Gordonbush Wind Turbines
- Site of Special Scientific Interest
- Special Protection Area
- Special Area of Conservation
- RAMSAR
- Semi-Ancient Woodland
- Ancient Woodland

0m 1km 2km 3km 4km 5km

SCALE 1:100,000 @ A3

Client

SSE Renewables

Project

Gordonbush Extension

Title

Nature Conservation Designations

Drwg No.	Date	Rev.	Drwn.	App'd
113001/6	Aug. 2013		LR	AC

ash design + assessment

Figure 7

Key

- Core Development Area
- Gordonbush Wind Turbines
- Zone of Theoretical Visibility (ZTV)
  * based on a theoretical maximum layout of up to 20 turbines at 132m blade tip height

0m 5km 10km

SCALE 1:200,000 @ A3

Client: SSE Renewables

Project: **Gordonbush Extension**

Title: Zone of Theoretical Visibility (ZTV)

Drwg No:	Date:	Rev:	Drwn:	Appd:
1130017	Aug. 2013		BVL	AC

ash