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Creag a' Bhàird Wind Farm

Scoping Report

Prepared by LUC in association with Sub Consultants
March 2013

Project Title: Creag a' Bhàird Wind Farm

Client: Force 9 Energy

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Planning & EIA
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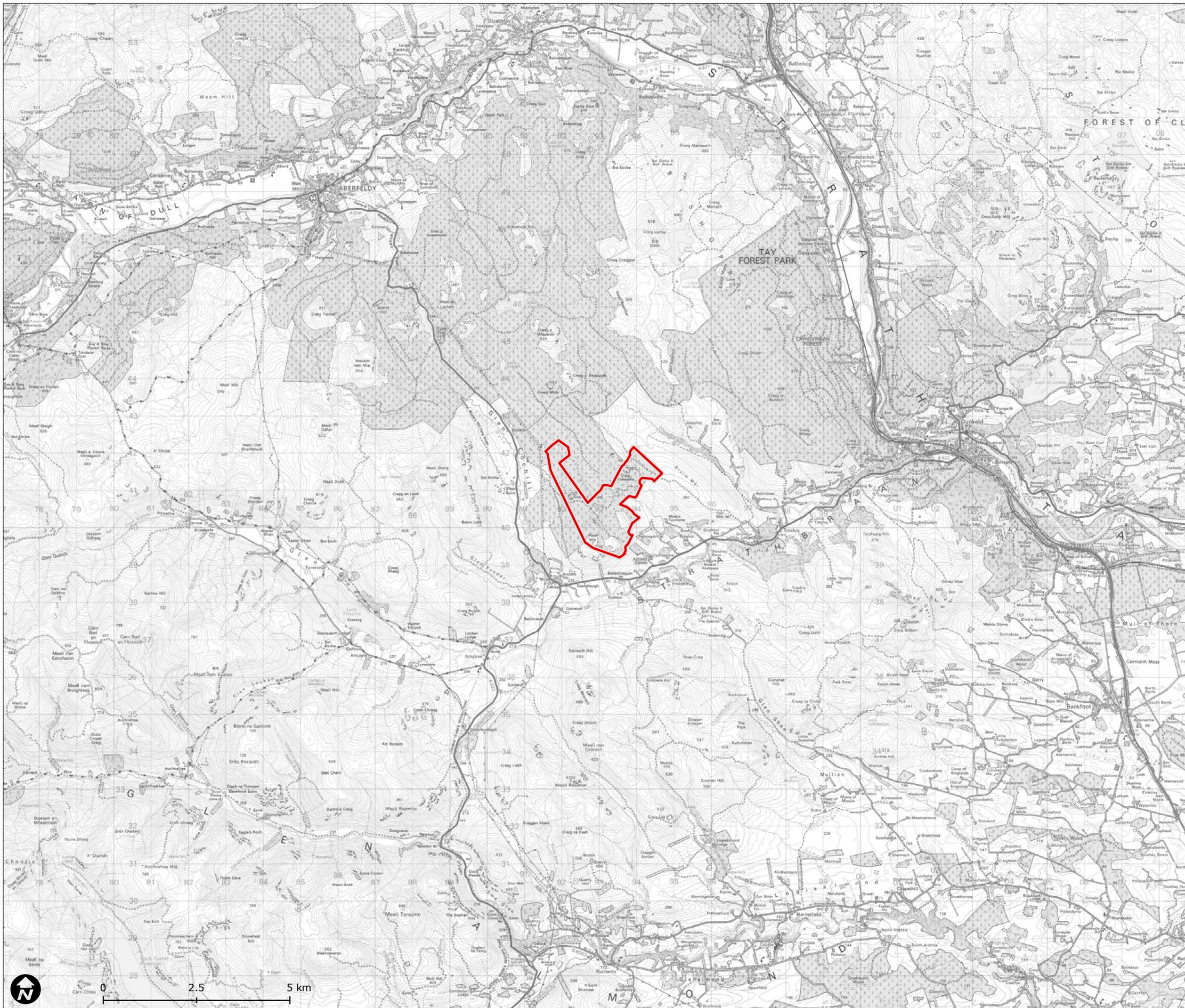
1 Introduction

- 1.1 Force 9 Energy is a dedicated wind farm development company with offices in Scotland and England and with a focus on the UK market. To date Force 9 Energy has taken six developments through planning, four of which will have been consented without appeal or Public Inquiry, one of which was consented on appeal, and one of which was refused after public inquiry. Two of those developments are now in operation, one is under construction, one is in pre-construction and work is on-going to discharge planning conditions on the remaining consented project. The remaining consented development is likely to be in construction during 2013. Force 9 Energy is **continuing to expand its wind farm development portfolio in response to the Government's targets** for energy generation from renewable sources and is currently awaiting determination of a further four wind farm planning applications.
- 1.2 Force 9 Energy has a joint development agreement with EDF Energy Renewables (EDF). Through the agreement Force 9 Energy leads on the development process of wind farm proposals up to the start of construction. Should a wind farm be consented EDF will take the lead during construction and subsequently own and operate the wind farm. Force 9 Energy is supported by EDF both financially and with staff resources requested by Force 9 on issues such as grid studies, access studies and public relations.
- 1.3 Force 9 Energy has identified an area approximately 8.5km south-east of Aberfeldy and 20km north-west of Perth, as a potential wind farm site (see **Figure 1.1**). The proposed wind farm will be known as **Creag a' Bhàird Wind Farm**.
- 1.4 The site comprises an area of coniferous woodland, semi-improved grassland and enclosed moorland (**heathland**) around **Creag a' Bhàird** (AOD 408m) and Craig Tombane (AOD 383m), north of Meall Mor (AOD 466m) and to the east of Glen Cochill. The site lies wholly within the Perth & Kinross Council area.
- 1.5 It is likely that the proposed wind farm will comprise up to 13 turbines, with a maximum blade tip height of 115m, with a combined installed capacity of up to 29.9MW. In addition to the wind turbines, there will be a site access point; an electricity substation; transformers; power cables; onsite access tracks; borrow pits; and a steel tower anemometer mast. An indicative turbine layout is shown in **Figure 1.2**, although this is subject to change as the design of the site progresses.
- 1.6 As the proposal has a generating capacity of under 50MW, Force 9 Energy will submit an application for planning permission to Perth & Kinross Council under the Town and Country Planning (Scotland) Act 1997, as amended by The Planning etc. Act (Scotland) 2006. It is acknowledged that this application should be subject to an Environmental Impact Assessment (EIA) under Schedule 2 of The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 (**'the Regulations'**) and will be accompanied by an **Environmental Statement (ES)**.
- 1.7 As the wind farm will have a generating capacity above 20MW, it is technically classified as a **'Major Development' under the Town and Country Planning (Hierarchy of Developments)** (Scotland) Regulations 2009. Planning applications for Major Developments formally require Pre-Application Consultation and are required to be accompanied by a Design and Access Statement. Therefore, these requirements will be fulfilled and a Pre-Application Consultation (PAC) Report and Design and Access Statement will be produced to accompany the planning application.
- 1.8 This Scoping Report (**the 'Report'**) forms Force 9 Energy's **written request to Perth & Kinross Council for a 'Scoping Opinion' as to which environmental effects are to be considered in the EIA** (Regulation 14 (1) of the Regulations). It provides details of the wind farm, the site and surrounding area, identifying likely significant effects of the proposed wind farm and the proposed approach to assessing these effects.

- 1.9 A team of independent specialist consultants will be appointed to provide input to the wind farm design and mitigation and avoidance of adverse environmental effects to inform the production of the ES to accompany the application for consent.

Document structure

- 1.10 The remainder of this report is structured as follows:
- **Chapter 2** provides information on the Environmental Impact Assessment (EIA) process and considers the information required by the Regulations;
 - **Chapter 3** describes the policy and legislation relevant to the proposed wind farm;
 - **Chapter 4** provides an outline of the site selection process as well as a brief description of the nature and purpose of the wind farm;
 - **Chapters 5-13** outline the topic areas to be considered in the EIA; including an overview of the environmental baseline and a brief description of the likely significant effects of the wind farm and the effects which are proposed to be scoped out of the assessment.
- 1.11 In addition, **Appendix 1** details the consultees that will be approached either for information to inform the EIA, or for their view on the proposals set out in this report. **Appendix 2** provides an outline of the proposed contents of the ES.



Crag a' Bhàird
Wind Farm



Site Location

 Site Boundary



Figure 1.1

Map Scale @ A3: 1:100,000



Indicative Turbine Layout

- Turbine Layout
- Site Boundary

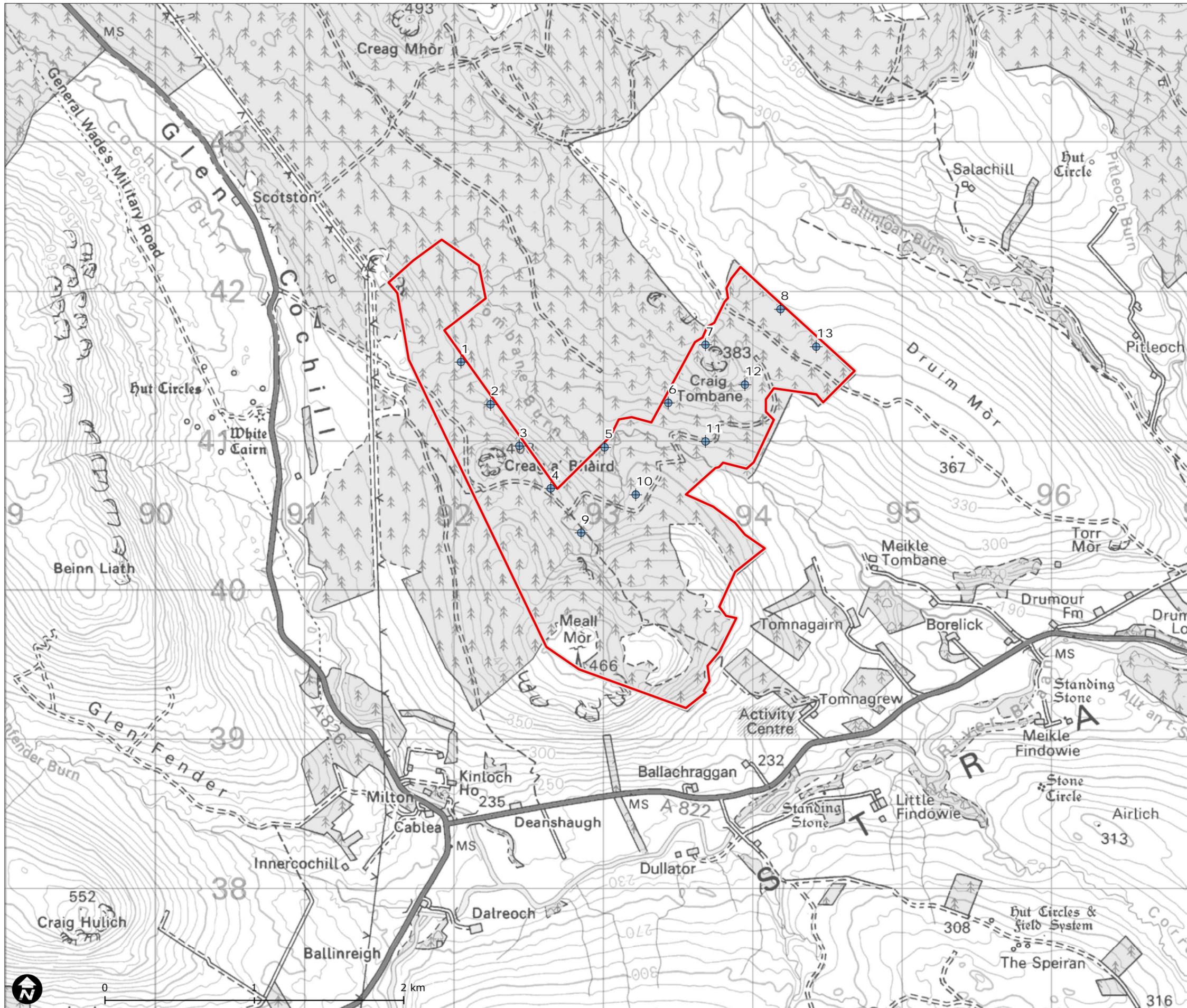


Figure 1.2

Map Scale @ A3:1:25,000



2 The Environmental Impact Assessment

The Environmental Impact Assessment Process

- 2.1 EIA is the process of systematically compiling, evaluating and presenting all the likely significant environmental effects, both positive and negative, of a proposed development, to assist the determining authority in considering the application. It enables the significance of these effects, and the scope for reducing negative, or enhancing positive, effects to be clearly understood. The information compiled during the EIA will be presented in an ES which will accompany the planning application. The proposed structure of the ES is provided in **Appendix 2**.
- 2.2 EIA is an iterative process and runs in tandem with project design. As potential effects are identified, the design of the project, for example the layout of the turbines, will be adjusted to reduce or avoid adverse effects where possible and mitigation measures proposed.
- 2.3 The EIA will be conducted in accordance with current Government regulations, policy and guidance, including:
- Scottish Government Web Based Guidance on wind turbines (first published in February 2011 and updated in October 2012);
 - The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011;
 - Scottish Planning Series Planning Circular 3 2011 The Environmental Impact Assessment (Scotland) Regulations 2011;
 - Scottish Planning Policy (SPP) (February 2010);
 - PAN 3/2010 *Community Engagement* (2010);
 - Planning Circular 4 2009 *Development Management Procedures*;
 - SNH (2009) *Handbook on Environmental Impact Assessment (EIA): Guidance for Competent Authorities, Consultees and others involved in the Environmental Impact Assessment Process in Scotland*;
 - Institute of Environmental Management and Assessment (2004) *Guidelines for Environmental Impact Assessment*;
 - PAN 58 *Environmental Impact Assessment* (1999).
- 2.4 The following sections outline how the EIA process will be undertaken.

Scoping

- 2.5 The Regulations provide for obtaining a Scoping Opinion from the determining authority, Perth & Kinross Council, as to the environmental effects to be considered in the EIA (Regulation 14 (1)). Force 9 Energy is now requesting such an Opinion. To inform this process, this Scoping Report identifies all aspects of the site which are of likely environmental significance and highlights the key issues proposed for coverage in the EIA.
- 2.6 The purpose of scoping is to help focus the EIA on the likely significant environmental effects of relevance to the site. Therefore, on the basis of the work undertaken to date, the professional judgement of the assessment team, experience from other similar projects, and policy, guidance and standards of relevance, each topic-based section within this report outlines both:
- potentially significant effects associated with the construction and/or operation of the wind farm, proposed for detailed consideration within the ES;
 - effects considered likely to be insignificant, adopting a precautionary approach, which can be **'scoped out' and given only brief treatment unless further investigation suggests otherwise.**

- 2.7 Additional objectives of the Report are:
- to establish the availability of baseline environmental data;
 - to define a survey and assessment framework from which a comprehensive overall assessment can be produced;
 - to invite consultees to identify any concerns that they might have in relation to the scheme; to comment on the proposed methodology; and to provide and receive information relevant to the scheme;
 - to consider the way in which the findings are presented in the ES.
- 2.8 Each of the topic-based chapters of this report includes a list of consultees who will be contacted as part of the scoping process. The Report will be made available to all consultees should they require it. A combined list of consultees is provided as **Appendix 1**; and additional suggestions of further stakeholders who may have an interest in the proposed development would be welcomed.

Forestry

- 2.9 As can be seen on **Figure 1.2**, the site is almost entirely covered by commercial forestry. The ES 'Development Description' chapter, which will describe the construction process and the main components of the development, will include a description of the forestry on site and information on the approach to felling which will be adopted on site, once this has been agreed with the landowners. Consideration will be given to the Forestry Commission document 'The Scottish Government's Policy on Control of Woodland Removal', however, it is proposed that the following impacts on forestry, both in economic terms and as an environmental receptor, will be 'scoped out' of detailed consideration in the ES:
- risk of windthrow to retained trees;
 - effects on forest management during construction and operation of the Development;
 - the loss of regional forest resource;
 - effects on forest management during construction.

Baseline Conditions

- 2.10 The purpose of baseline studies is to determine and describe the environmental conditions against which any future changes as a consequence of a development can be measured or predicted and assessed. As the benchmark for considering likely significant effects, baseline studies underpin both the quality and validity of an EIA, and must therefore be robust. The approach to baseline data collection and analysis is defined within each of the topic-based chapters below.

Assessment of Effects

- 2.11 The assessment of potential effects, using a range of appropriate methodologies, will take into account the construction and operation of the wind farm in relation to the site and its environs. An assessment of the decommissioning of the wind farm will not be undertaken as part of the EIA as, at this stage, the future baseline conditions (environmental and other developments) cannot be predicted accurately and both the proposals for decommissioning and the future regulatory context are unknown.
- 2.12 An assessment will be made of the likely significant cumulative effects of the wind farm in combination with other developments which have been submitted to the relevant determining authorities but not yet determined, or which are at the consented or construction phase, particularly other wind farms in proximity to the site.
- 2.13 The survey area for each discipline will be defined separately to reflect the potential extent of likely significant effects associated with the proposed wind farm.
- 2.14 In the interests of producing a focussed and concise report, which highlights clearly those issues of particular relevance to the proposed wind farm, the specialist topic area assessment methodologies are not presented in detail within this report as these are now generally well

established and widely understood. Current guidance, standards and legislation will be adhered to in all specialist assessments.

Mitigation

- 2.15 Part 1(5) of Schedule 4 of the EIA Regulations notes that the ES should include “*a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.*” These measures will be termed mitigation measures and will be included for each topic area, where appropriate. Good practice measures will be identified where relevant.
- 2.16 The EIA will identify and assess potentially significant effects prior to mitigation, and, where mitigation measures are proposed, their likely effectiveness will be examined and the significance **of the ‘residual’ effect then assessed.** Force 9 Energy will be committed to implementing all the mitigation measures identified in the ES and where appropriate, the mitigation measures implemented will be monitored for effectiveness.
- 2.17 It is important to note that given both the prior experience of Force 9 Energy in implementing accepted good practice during the construction and operation of schemes such as this, and the **current regulatory context, a number of measures are not considered ‘mitigation’ as such but** rather an integral part of the design/construction process, and will be taken into account prior to assessing the likely effects of the wind farm. Further tailored mitigation measures will then be proposed prior to determining the likely significance of residual effects.

3 Project and Site Description

Site Selection

- 3.1 Force 9 Energy has a site selection process whereby potential sites are screened against a series of technical, environmental and economic factors. In assessing a potential site the following criteria would usually need to be met:
- avoid locations within international environmental designations;
 - avoid locations within national landscape and environmental designations;
 - **as a preference don't locate in locally designated landscapes but don't discount areas as a result of designation;**
 - as a preference avoid areas which may be susceptible to radar **impact, but don't discount them;**
 - **as a preference locate close to trunk roads and national grid, but don't discount other areas at this stage on account of access;**
 - as a preference avoid areas where other infrastructure may impact on scheme feasibility (e.g. **pipelines or significant levels of telecommunications traffic**), **although don't discount them;**
 - as a preference locate in areas with a wind speed of 6.5ms at hub height or greater;
 - as a preference locate in areas with grid connection availability;
 - locate in areas where a land owner is willing to host wind turbines;
 - locate in areas with a suitable separation distances to residential properties based on site specific conditions;
 - locate in preferred areas of search for wind farms in policy documents where possible;
 - locate in areas where evidence of existing infrastructure defines or contributes to landscape character.

The Selection of the Creag a' Bhàird Wind Farm Wind Farm Site

- 3.2 The location of the site was selected by Force 9 Energy for a number of reasons, including the following:
- the development area within the proposed site has no statutory planning or environmental designations which would prevent development coming forward;
 - there are no Local Plan or Structure Plan policies which, in principle, preclude wind energy development;
 - the proposed development site is a reasonable distance away from the nearest residential dwellings;
 - there is likely to be an appropriate wind resource;
 - there are potential connection options on the Scottish electrical grid system;
 - there is no obvious radar or other technical constraints;
 - access is deemed to be feasible;
 - the site is available for wind farm development;
 - With appropriate mitigation and proposed compensation measures there was no indication of likely significant bird or other environmental concerns on site.

Site Location

- 3.3 As detailed in **Chapter 1**, the site comprises an area of coniferous woodland, semi-improved grassland and enclosed moorland (heathland) and lies wholly within the boundary of Perth & Kinross Council administrative area.
- 3.4 The site is adjacent to Griffin Wind Farm, located to the north and north east of the site, which was granted consent in 2008 and is now operational.

Project Description

- 3.5 The main elements of the wind farm will comprise:
- up to 13 turbines, with a combined installed capacity of up to 29.9MW, and turbine foundations including associated transformer plinths and enclosures;
 - an electrical substation;
 - a site access point;
 - power cables linking the turbines laid underground in trenches;
 - graded stone tracks within the site integrated with any existing tracks and giving access to turbine bases;
 - borrow pits for sourcing local materials for tracks and hardstandings;
 - a steel tower anemometer mast for wind turbine performance monitoring;
 - a temporary site construction compound and associated infrastructure.
- 3.6 Careful consideration will be given to the design and layout of the wind farm as the EIA progresses. The proposed turbines will be three bladed horizontal axis turbines. The turbine towers will be of tapering tubular steel construction, likely to be finished in a light grey semi-matt colour. At this early stage, it is considered that turbines up to 115m high to blade tip may be suitable for the site. The proposed turbine height has been guided by the turbine height selected for the adjacent operational Griffin Wind Farm. This is to ensure the design of the proposed wind farm will relate appropriately to the design of Griffin Wind Farm from a landscape and visual perspective.
- 3.7 It is important to note, however, that the final choice of turbines and the most appropriate layout of the site will be guided by the findings of the EIA, which includes consultation with all relevant stakeholders. As a consequence, a finalised layout is not presented in this report.

Grid Connection

- 3.8 **An application for connection to the electricity network ('the grid') will be made separately, under different consenting procedures, by the local grid operator, Scottish and Southern Energy as required.**

Access

- 3.9 The access route for construction vehicles will be subject to survey and assessment and will be selected to minimise potential effects on the local area and transport infrastructure. Whilst access options remain under review at this stage, it is proposed that access to the site will be via the A9, A822 and A826. The site entrance lies just north of crossing of Cochill Burn. It is proposed that the widened sections of road created for Griffin Wind Farm will be utilised by construction vehicles, and therefore no road layout modifications will be necessary.
- 3.10 A network of new tracks servicing turbines will be required. Additional tracks may be required to link the borrow pits, construction compound, substation and anemometer mast to the main access track network.

Borrow Pits

- 3.11 Where possible, the stone required for tracks, turbine bases and hardstandings for the operation of cranes will be predominantly sourced from on-site borrow pits. This approach will minimise transportation movements of stone to the site. However, depending on the quality of stone found, it may be necessary to import stone into the site for use as a capping material for the access tracks and hardstandings. The transport implications of this approach will be assessed fully in the ES.
- 3.12 The location, design and re-instatement of the borrow pits will be considered as part of the design/EIA process. The borrow pits will be reinstated after use, using the excess overburden and excavated material from the track building process where possible.

Vehicle Movements

- 3.13 A traffic management plan will be agreed in consultation with the local roads authority.

Construction Details

- 3.14 It is expected that the construction of the wind farm will be completed over a period of approximately 12-18 months. The construction phase will consist of the following principal activities:
- removal of forestry as required;
 - construction of temporary construction compound;
 - extraction of stone from the borrow pits for track and turbine base construction;
 - construction of site access tracks, passing places and any watercourse crossings if required, interlinking the turbine locations and other infrastructure;
 - construction of culverts under tracks to facilitate drainage and maintain existing hydrology;
 - construction of turbine foundations and transformer plinths;
 - construction of an onsite substation;
 - excavation of trenches and cable laying adjacent to site tracks;
 - connection of distribution and signal cables;
 - movement onto site and erection of wind turbines;
 - commissioning of site;
 - restoration of borrow pits and temporary construction compounds.
- 3.15 Many of these operations will be carried out concurrently, although predominantly in the order identified. This will reduce the overall length of the construction programme. Restoration works will be programmed and carried out to allow the restoration of disturbed areas as early as possible and in a progressive manner.

Wind Farm Lifecycle

- 3.16 It is currently proposed that the wind farm would have an operational life of 25 years. At the end of this period, the site would be decommissioned and the turbines removed. Alternatively, a new application may be made to extend the life of the wind farm or replace the turbines.

4 Planning and Legislative Context

Introduction

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

Legislative Background

- 4.2 **The generating capacity of Creag a' Bhàird Wind Farm will be less than 50MW, and therefore an application for planning permission is being submitted to the planning authority, Perth and Kinross Council, under the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006.**
- 4.3 The application is categorised as a **'major development' under The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009**, on the basis that the installed capacity of the development is above 20MW.

National Planning Policy

National Planning Framework 2

- 4.4 The second National Planning Framework for Scotland (NPF2), published in June 2009, represents **a spatial expression of the Scottish Government's aspirations for sustainable development in Scotland to 2030**. While it is not prescriptive, NPF2 will form a material consideration when determining the outcome of planning applications and appeals and as such will be a consideration **in determining the application for the proposed Creag a' Bhàird Wind Farm**.
- 4.5 Tackling climate change through the development of renewable energy technologies is strongly supported in this document, reflecting the commitments of the Scottish and UK Governments in relation to emissions reduction and energy generation targets, highlighting the important role that onshore wind farms have played, and will continue to play.

Scottish Planning Policy (SPP)

- 4.6 The most recent Scottish Planning Policy (SPP) document was published in February 2010. It replaces the National Planning Policy Guidance series and the SPP series into a single Scottish Planning Policy.
- 4.7 This document maintains the importance of tackling climate change and, in particular, addresses the need to reduce greenhouse gas emissions and to continue to develop renewable energy projects.

Planning Advice Notes and Specific Advice Sheets

- 4.8 Planning Advice Notes (PANs) and Specific Advice Sheets set out detailed advice from the Scottish Government in relation to a number of planning issues. Relevant PANs and Specific Advice Sheets potentially include the following:
- PAN 58 Environmental Impact Assessment;
 - PAN 60 Planning for Natural Heritage;
 - PAN 68 Design Statements;
 - PAN 75 Planning for Transport;

- PAN 79 Water and Drainage;
- PAN 3/10 Community Engagement;
- PAN 1/2011 Planning and Noise;
- PAN 2/2011 Planning and Archaeology;
- Specific Advice Sheet: Onshore Wind Turbines.

Regional and Local Development Planning Policy

- 4.9 Section 25 of the Town and Country Planning (Scotland) Act 1997, as amended, requires that applications are determined in accordance with the extant Development Plan, unless material considerations indicate otherwise.
- 4.10 As the Development is situated within the Perth and Kinross Council area, the relevant Development Plan for the area comprises:
- TAYplan Strategic Development Plan 2012-2032;
 - 6 Adopted Local Plans (Eastern Area Local Plan, Highland Area Local Plan, Kinross Area Local Plan, Perth Central Local Plan, Perth Area Local Plan, and Strathearn Area Local Plan).

TAYplan Strategic Development Plan 2012-2032

- 4.11 The TAYplan sets out a long-term development vision for the TAYplan region which comprises Perth and Kinross including the newly designated part of the Cairngorm National Park, Dundee, Angus and North Fife.
- 4.12 *"By 2032 the TAYplan region will be sustainable, more attractive, competitive and vibrant without creating an unacceptable burden on our planet. The quality of life will make it a place of first choice where more people choose to live, work, study and visit, and where businesses choose to invest and create jobs".*
- 4.13 This vision is supported by a number of principles and objectives including the need to switch to a low carbon economy and support resource security.
- 4.14 In relation to renewable energy, *TAYplan Strategic Development Plan 2012 Policy 6 Part A* states, *"Local Development Plans should identify areas that are suitable for different forms of renewable heat and electricity infrastructure and for waste/resource management infrastructure or criteria to support this; including, where appropriate, land for process industries (e.g. the co-location/proximity of surplus heat producers with heat users)".*

Highland Area Local Plan 2000

- 4.15 The Development is situated in an area covered by the Highland Area Local Plan.
- 4.16 *Highland Area Local Plan Policy 11* states that Perth and Kinross Council encourages renewable energy developments and that applications will be assessed against the following criteria:
- a) "The development will not have a significant detrimental effect on sites designated at national, regional or local level for nature conservation interest or archaeological interest;*
 - b) The development will not result in an unacceptable intrusion into the landscape character of the area;*
 - c) The development will not result in an unacceptable loss of amenity to neighbouring occupiers by reasons of noise emission, visual dominance, electromagnetic disturbance or reflected light."*
- 4.17 In addition to the specific policies relating to renewable energy and wind farms detailed above, the TAYplan and Highland Area Local Plan also contain a number of general and broad development control and environmental protection policies and objectives (including those relating to landscape, the historic environment, natural heritage, water, traffic and transport, and social and economic issues). The careful design of the wind farm layout, together with good

practice and mitigation measures implemented as a consequence of the EIA, will seek to ensure compliance with these policies and objectives.

Other Material Considerations

Emerging Local Development Plan

- 4.18 Perth and Kinross Council published a Proposed Local Development Plan in January 2012 which sets out the proposed vision, strategy, policies and supplementary guidance of the emerging Local Development Plan. Until the Local Development Plan is adopted and subsequently supersedes all six Local Plans (estimated by late 2014, as per the Development Plan Scheme), the existing policies within the six Local Plans will continue to stand. As the planning application for **Creag a' Bhàird** Wind Farm will be submitted prior to the adoption of the final Local Development Plan, it is necessary to consider the relevant policies therein as material considerations to the application.

Supplementary Planning Guidance

- 4.19 The current Supplementary Planning Guidance (SPG) for Wind Energy Proposals in Perth & Kinross, approved in May 2005, provides supporting guidance to the policies within the **Development Plan documents. The SPG identifies 'Sensitive Areas' and 'Broad Areas of Search' for wind farm developments. The entire site lies within one of the 'Broad Areas of Search'. Whilst a proposal may be more readily supported if located within one of the 'Broad Areas of Search', it will still be necessary to demonstrate adherence to the detailed guidelines within the SPG which includes:**
- **Guideline 1 – Landscape Impact:** seeks to avoid significant adverse impacts on landscape character in Perth & Kinross.
 - **Guideline 2 – Visual Impact:** aims to avoid significant visual impacts on houses, settlements, locally prominent or important landforms and buildings or Scheduled Monuments.
 - **Guideline 3 – Cumulative Landscape and Visual Impacts:** seeks to avoid significant cumulative landscape and visual impacts within and outside Perth & Kinross.
 - **Guideline 4 – Impact on Biodiversity:** aims to protect biodiversity, particularly sites or species identified as being internationally or nationally important.
 - **Guideline 5 – Cumulative Ornithological Interests:** aims to prevent significant cumulative impacts on birds both within and outwith Perth & Kinross.
 - **Guideline 6 – Operational Impacts:** aims to protect residential amenity through avoiding effects caused by noise, shadow flicker, construction traffic and electromagnetic interference.
 - **Guideline 7 – Water Resources:** aims to protect drinking water supplies and their catchments by avoiding significant effects on ground and surface water resources.
 - **Guideline 8 – Aviation:** seeks to ensure the safe use of airports, aerodromes and airfields and to protect aviation interests.
 - **Guideline 9 – Maintaining Carbon Sinks:** aims to prevent the release of greenhouse gases due to wind farm development.
 - **Guideline 10 – Decommissioning and Site Reinstatement:** seeks to ensure re-instatement of decommissioned sites to a satisfactory condition.
 - **Guideline 11 – Protection of Wind Energy Developments:** aims to protect the operation of developed or approved wind farms.
- 4.20 Perth and Kinross Council propose to adopt a new SPG for wind energy as part of the emerging Local Development Plan. This will replace the existing SPG for wind energy above and will contain a spatial strategy for wind energy development (based on the capacity of the built environment to accommodate it) and guidance on addressing environmental, social and economic effects when preparing wind energy proposals.

Energy Policy and Legislation

- 4.21 The rationale for the development of Creag a' Bhàird Wind Farm is founded upon the climate change context and the renewable energy policy context at an International, European, UK and Scottish Government level.
- 4.22 Creag a' Bhàird Wind Farm is proposed as part of the response to targets set to increase the proportion of electricity generated from renewable sources and hence **reduce Scotland's** contribution to climate change.

European Union Renewable Energy Directive

- 4.23 The European Union's **Renewable Energy Directive (2009/28/EC)** on the promotion of the use of energy from renewable sources sets ambitious targets for all member states. This introduces the requirement for 20% of all energy used (electricity, heat and transport) to come from renewable sources by 2020, split between the member states. The national target for the UK set out in the Directive is for 15% of all energy use to come from renewable sources by 2020. This represents a required tenfold increase from the current level of 1.5%.

Climate Change (Scotland) Act 2009

- 4.24 The Scottish Government introduced the Climate Change (Scotland) Act 2009 as **Scotland's policy** framework for addressing climate change. This aims to reduce greenhouse emissions by 80% by 2050, but with a higher interim target for a 42% cut in emissions by 2020 and a 50% reduction by 2030. The Act also set targets for renewable energy to meet 80% of Scottish electricity demand from renewable sources by 2020. The target was further increased in May 2011, to supply 100% of Scotland's electricity demands from renewable energy by 2020.

Climate Change Delivery Plan 2009

- 4.25 The Climate Change Delivery Plan (2009) identifies high level measures required to meet the interim 2020 targets and the additional action required by 2030 in order to meet 2050 targets.
- 4.26 Paragraph 3.10 states that the aim of the Scottish Government is to achieve a **"largely de-carbonised electricity generation sector by 2030"**. The Plan explicitly states that large-scale onshore wind will be central to achieving these aims with a further 3 Gigawatts (GW) of installed capacity required over the coming decade, in addition to the existing 5.5GW of capacity either in operation or with planning consent.

The 2020 Routemap for Renewable Energy in Scotland

- 4.27 On 30 June 2011, the 2020 Routemap for Renewable Energy in Scotland was launched, to **"drive forward the renewables revolution, and to meet the Scottish Government's world-leading green energy targets"**.
- 4.28 The updated Routemap reflects the challenge of a new target to meet an equivalent of 100% of demand for electricity from renewable energy by 2020 (equating to approximately 16 Gigawatts of installed renewable generation capacity), as well as the target of 11% renewable heat.

5 Landscape and Visual Amenity

Introduction

- 5.1 This chapter sets out the approach to the assessment of potential effects of the proposed wind farm on landscape and visual amenity, during both construction and operation.
- 5.2 Following the approach to the assessment set out in **Chapter 2**, the LVIA will be carried out in line with relevant legislation and standards, as well as the following guidance:
- Scottish Natural Heritage (SNH, 2009) *Siting and Designing Windfarms in the Landscape*;
 - SNH (2012) *Assessing the Cumulative Effects of Onshore Wind Energy Developments, (Version 3)*;
 - SNH (2006) *Visual Representation of Windfarms: Good Practice Guidance*;
 - SNH (2004) *Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity*;
 - Landscape Institute and the Institute for Environmental Assessment (2002) *Guidelines for Landscape and Visual Impact Assessment 2nd edition*, and 3rd edition when available;
 - The Countryside Agency and SNH (2002) *Landscape Character Assessment: Guidance for England and Scotland* (and any relevant Topic Papers);
 - SNH (2009) *Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage*;
 - SNH (2007) *Assessing the Impacts on Wild Land, Interim Guidance Note*;
 - SNH (2005) *Constructed Tracks in the Scottish Uplands*;
 - SNH (2010) *Good Practice During Windfarm Construction*;
 - SNH *Wildness in Scotland's Countryside, Policy Statement No. 02/03*;
 - Perth and Kinross Council (2005) *Supplementary Planning Guidance for Wind Energy Proposals in Perth & Kinross*;
 - Perth and Kinross Council *Guidance for the Preparation and Submission of Photographs and Photomontages to illustrate the impacts of Wind Energy Development for inclusion in Planning Applications and Environmental Statements*; and
 - Perth and Kinross Council *Landscape and Ecological Mitigation of Renewable Energy On-site Infrastructure*.

Existing Conditions

- 5.3 A desk based review of existing information has been undertaken, including Ordnance Survey maps, relevant Local Plans, and the *Tayside Landscape Character Assessment*. The proposed study area for the Landscape and Visual Impact Assessment (LVIA) has a radius of 35km (see **Figure 5.1**).
- 5.4 The area covered by the site is classified within Tayside LCA as Landscape *Type 3: Highland Summits and Plateaux* within the *Western Highlands Regional Character Area*. This landscape type has a varied and often complex physical character due to the variation in topography and altitude across the area it covers. Around the **Creag a' Bhàird Wind Farm** site heather moorland and semi-improved grassland, with rocky outcrops provide the characteristic land cover with areas of coniferous plantation to the north, west and east of the site. These large coniferous

forests, including Craigvean Forest to the east of the site, are less intrusive on the upland plateaus than in the sheltered glens where the scale of the landscape is less expansive.

- 5.5 The north-eastern boundary of the Loch Lomond and The Trossachs National Park lies within the 35km study area, approximately 27km south-west of the site. The southern boundary of the Cairngorms National Park lies within the 35km study area, approximately 20km to the north of the site.
- 5.6 There are four National Scenic Areas (NSAs) within the study area including, River Tay (Dunkeld) 5km to the east, Loch Tummel 15km to the north, Loch Rannoch and Glen Lyon 18km north-west and River Earn (Comrie to St Fillans) 20km south-west of the site.
- 5.7 Out of the five Areas of Great Landscape Value (AGLVs) within the study area, the nearest is approximately 18km to the south-east, as set out within the Perth Area Local Plan.
- 5.8 Following the production of the preliminary Zone of Theoretical Visibility (ZTV), an initial list of viewpoints for the assessment of effects on visual amenity has been identified. The initial list is set out in **Table 5.1** below and includes the location and approximate grid reference of each viewpoint. All of the viewpoints lie within the preliminary ZTV and are shown overlaid with the ZTV on **Figure 5.2**. The viewpoints have been selected to represent key viewer locations across the study area, such as settlements, routes, significant natural and cultural heritage sites and visitor attractions as well as views from popular hill summits and walking routes. They will also be used to assess the potential cumulative visibility of the site in association with other relevant wind farms.

Table 5.1 Initial Viewpoint List

LUC Working Number	Location	Approximate Grid Reference
1	Druim Mor	295246, 741095
2	Track near Salachill	294831, 743279
3	A826 within Glen Cochill	290828, 739918
4	General Wade's Military Road, Glen Cochill	290047, 742011
5	A822 near Borelick	295598, 739498
6	A822 near Ballinreigh	291456, 737333
7	Creag Liath	298639, 737295
8	Meal nan Caorach	292888, 733874
9	A822 near Corrymuckloch	289184, 733721
10	King's Seat, Birnam	303188, 740208
11	Newtyle Hill	304985, 741885
12	A9 south-west of Perth	305047, 721169
13	Dunsinane Hill	321353, 731703
14	Schiehallion	271442, 754744
15	Ben Vrackie	295067, 763249

- 5.9 This initial list of viewpoints will be discussed with consultees, and may be modified to include further locations. The final list of viewpoints will be agreed with the relevant consultees.
- 5.10 In addition to static viewpoints, the visual assessment will consider the effects on views from settlements around the study area, and from the principal routes around the study area.
- 5.11 To further inform the LVIA, desk and field based survey work will be carried out to determine the character, condition and sensitivity of the landscape and the nature of existing views and visual amenity, against which likely effects will be assessed. The proposed additional baseline work includes:
- a detailed review of the *Tayside Landscape Character Assessment, Loch Lomond and The Trossachs National Park Landscape Character Assessment* and *Cairngorms Landscape Character Assessment*, and the landscape character types identified within the 35km study area;
 - a detailed review of the national and local landscape designations and areas of sensitivity within the 35km study area;
 - clarification (where possible) of the nature of, and reasons for, each landscape designation by reference to written citations where available;
 - identification of the sensitivity of the landscape resource to wind farm proposals;
 - collation of information regarding other wind farms (existing, consented and those which are the subject of planning applications) within the study area;
 - generation of further ZTVs, including cumulative ZTVs with other wind farms within the study area;
 - extensive fieldwork throughout the study area;
 - final selection of viewpoints.

Effects on Landscape and Visual Amenity

- 5.12 The LVIA will assess the potential effects of the construction and operation of the wind farm on the following receptors within the ZTV and the study area:
- landscape character of the site and wider landscape;
 - landscape designations;
 - static viewpoints;
 - settlements;
 - key routes (sequential views).
- 5.13 The assessment of effects on landscape and visual amenity during construction will take account of any tall cranes and partially constructed turbines which will be visible over approximately the same area as the turbines and anemometer mast that comprise the completed site. However, construction effects will be temporary and will be superseded by operational effects once construction is complete.
- 5.14 The LVIA will also consider cumulative effects arising from the relationship between the wind farm and other wind farms in the surrounding area. **Table 5.2** outlines the wind farms within 35km of the site, with tip heights of over 60m, which may need to be included within the cumulative landscape and visual impact assessment. This draft list will be reviewed and updated as the project progresses.

Table 5.2 Draft Cumulative Wind Farm List

Wind Farm	Number of Turbines	Current Status
Griffin	68	Operational
Calliachar	14	Under construction
North Calliachar	7	Design/Scoping
Crossburns	40	Design/Scoping
Mull Hill	9	Application Submitted
East Gormack	1	Consented
Ardlebank	3	Application Submitted
Tochie Burn	1	Design/Scoping
Welton of Creuchies	4	Consented
Drumderg	16	Operational
Montalt	5	Design/Scoping
Tullymurdoch	7	Application Submitted
Bamff	7	Application Submitted
Lochelbank	12	Operational
Green Knowes	18	Operational
East Camno Farm	1	Consented
Mains of Pittendreich	1	Consented

- 5.15 On the basis of the work undertaken to date, the professional judgement of the landscape team and experience from other similar projects, it is not considered likely that any likely landscape and visual effects can be scoped out, except through careful design of the wind farm to restrict the visibility of the site.

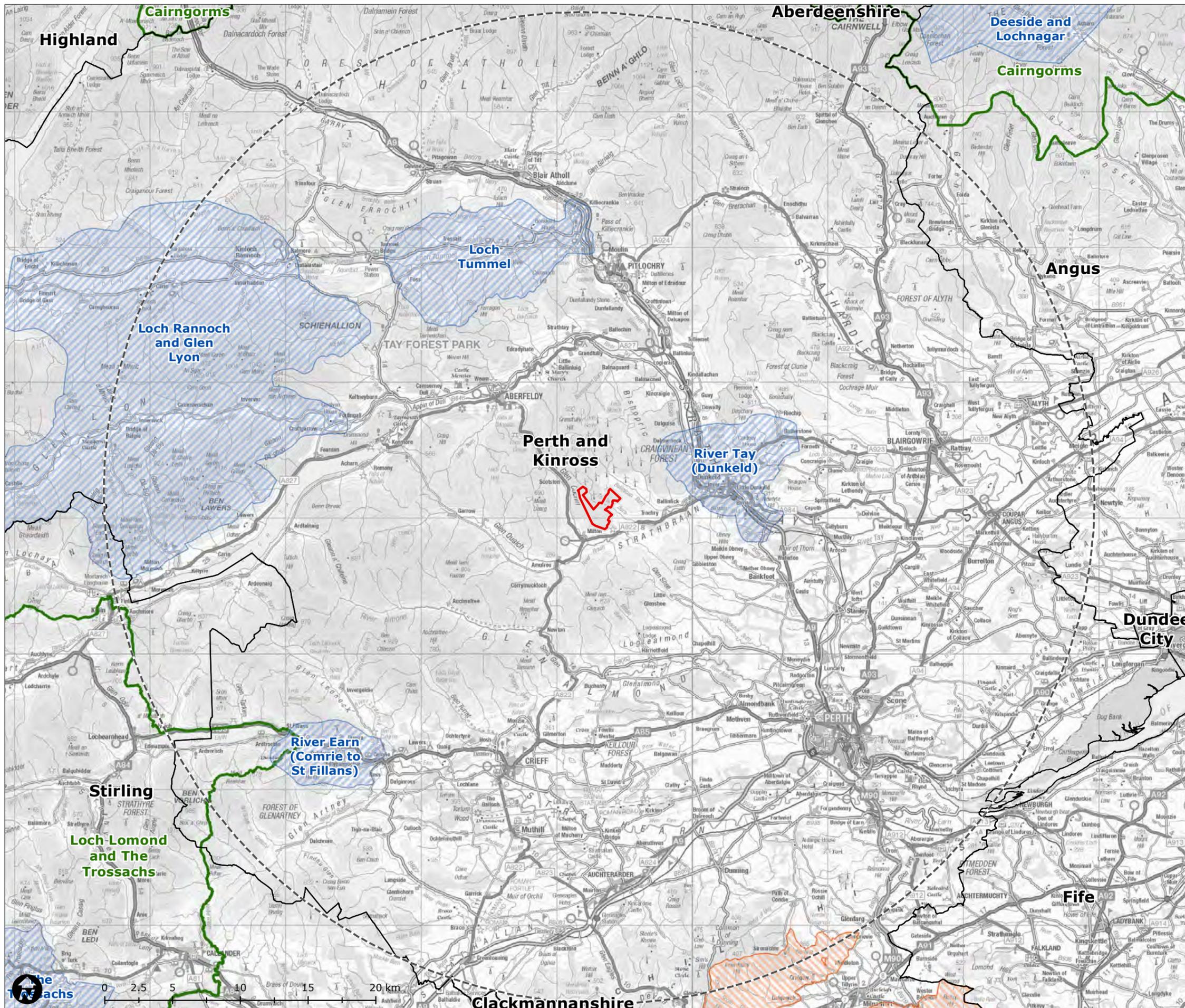
Approach to Mitigation

- 5.16 Force 9 Energy is committed to using the design process to minimise, as much as possible, adverse landscape and visual effects of the wind farm. Whilst additional mitigation measures will be considered, given the intrinsic characteristics of wind turbines, some landscape and visual effects will be unavoidable.

Consultation Proposals

5.17 The consultees below will be approached for information to inform the LVIA, including discussion of methodology, selection of viewpoints and identification of developments to be included in the cumulative assessment. They may also be contacted by Perth & Kinross Council regarding the scope of the EIA:

- Perth & Kinross Council (Landscape Architect);
- Scottish Natural Heritage (SNH).



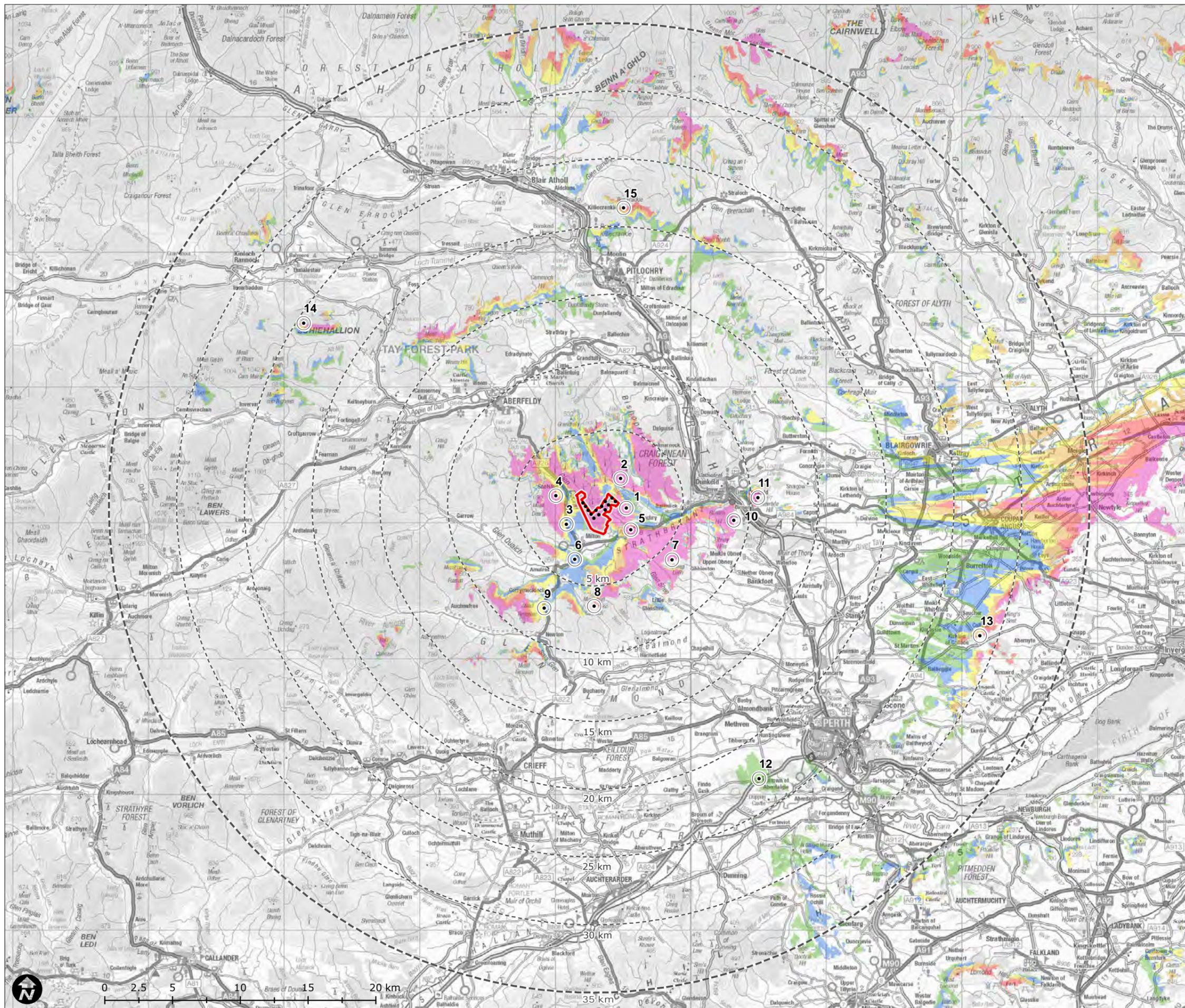
Landscape Designations within 35km of Creag a' Bhàird Wind Farm

- Site Boundary
- 35km Buffer around site boundary
- Local Authority
- Landscape Designations**
- National Scenic Areas
- Perth and Kinross Local Landscape Designations**
- Areas of Great Landscape Value
- National Park

Figure 5.1

Map Scale @ A3:1:275,000





Crag a' Bhàird Wind Farm



Zone of Theoretical Visibility (ZTV) to tip height, showing the potential number of turbines visible and initial viewpoint locations

- Turbine Location
 - ▭ Site Boundary
 - - - 35km study area
 - - - 5km interval
- Potential number of turbines visible:**
- 1-2 turbines visible
 - 3-4 turbines visible
 - 5-6 turbines visible
 - 7-8 turbines visible
 - 9-10 turbines visible
 - 11-13 turbines visible
- Viewpoint Location

1. Drum Mor
2. Track near Salachill
3. A826 within Glen Cochill
4. General Wades Military Road, Glen Cochill
5. A822 near Borelick
6. A822 near Ballinreigh
7. Crag Liath
8. Meal nan Caorach
9. A822 near Corrymuckloch
10. Kings Seat, Birnam
11. Newtyle Hill
12. A9 south-west of Perth
13. Dunsinane Hill
14. Schiehallion
15. Ben Vrackie

Notes:

The ZTV is calculated to turbine tip height (115m) from a height of 2m above ground level.

The terrain model is bare ground and derived from OS Panorama height data.

The earth curvature and atmospheric refraction have been taken into account.

Figure 5.2
Map Scale @ A3: 1:275,000



6 Geology, Hydrology, Hydrogeology and Peat

Introduction

- 6.1 This chapter sets out the proposed approach to the assessment of potential effects of the proposed wind farm on geology, hydrology, hydrogeology and peat during both construction and operation.
- 6.2 Following the approach to assessment set out in **Chapter 2**, the assessment will be carried out in line with relevant legislation and standards, as well as the following guidance:
- *SEPA Regulatory Position Statement – Developments on Peat* (2010);
 - *Technical Flood Risk Guidance for Stakeholders, Version 6* (SEPA, August 2010);
 - Scottish Renewables, SNH, SEPA and the Forestry Commission Scotland (2010) *Good practice during wind farm construction*;
 - *PAN 51: Planning, Environmental Protection and Regulation* (Scottish Government, revised 2006);
 - Scottish Government (2006) *Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments*;
 - *PAN 69: Planning and Buildings Standards Advice on Flooding* (2004);
 - SEPA guidance (e.g. CAR Practical Guide);
 - Scottish Environment Protection Agency (SEPA) *Pollution Prevention Guidelines* (PPGs).

Existing Conditions

- 6.3 The site lies wholly within the River Tay catchment. Tombane River is the only watercourse within the site. It runs **between Creag a' Bhàird and Craig Tombane and is a tributary of the River Braan** which flows south of the site. Tombane River has tributaries of its own that flow within the site, running broadly southwards towards Meall Mòr.
- 6.4 The underlying groundwater is classified by **SEPA as having 'Good' status and is within the Drinking Water Protection Area**. Perth & Kinross Council will be consulted to confirm the locations of any private water supplies within the hydrological study area and Scottish Water will be consulted to identify the location and use of any public water supply infrastructure within the hydrological study area.
- 6.5 **An initial review of SEPA's Indicative River and Coastal Flood Map** shows that Tombane Burn is at risk from flooding. However, the flood risk is not extensive and the map does not identify any other particular concerns with regard to flood risk from the watercourses on site, although this will be confirmed through consultation with SEPA and Perth & Kinross Council.
- 6.6 There are no designated sites within the site boundary, including sites designated for geological interests. Little Glenshee Site of Special Scientific Interest (SSSI) is the closest designation to the site of interest geologically, located approximately 6km to the south-east. It has good examples of tectonic and sedimentary structures.
- 6.7 According to the Macaulay Land Use Institute Depth of Peat Map (2010), the site lies in an area where peat is not present and, therefore, peat probing may not be required. This will be confirmed following further investigation during on-site surveys.
- 6.8 Whilst there are a limited number of watercourses on site, as felling will be required, input will be provided into the felling strategy to avoid, reduce and mitigate potential effects. The assessment

will refer to the Forest and Water Guidelines and SEPA PPGs, and will address specific issues raised by consultees.

Effects on Geology, Hydrology, Hydrogeology and Peat

- 6.9 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects associated with the construction and/or operation of the proposed wind farm include:
- pollution of public/private drinking water supplies caused by sedimentation of watercourses from excavated/stockpiled material during wind farm construction;
 - pollution of surface water (including the Tombane Burn and its tributaries) and groundwater, including drinking water supplies, through operation of machinery (e.g. spillage of fuels, oils etc.) during site preparation and construction of the site;
 - modifications to natural drainage patterns, changes to runoff rates and volumes and a consequent increase in flood risk during construction and operation of the wind farm as a result of forestry felling and increased areas of temporary and permanent hardstanding;
 - pollution of surface water and groundwater as a result of maintenance activities associated with the operation of the site (e.g. spillage of fuels, oils, etc.);
 - reductions in natural flows arising from any temporary or permanent abstractions.
- 6.10 Should construction of watercourse crossings be required for access tracks, the following effects may result if not properly controlled:
- localised flooding and bank erosion caused by impediments to flow, particularly in conditions of high discharge;
 - pollution of public/private drinking water supplies from high levels of suspended solids and turbidity in watercourses as a result of soil erosion and sedimentation.
- 6.11 On the basis of the work undertaken to date, the professional judgement of the assessment team and experience from other similar projects, it is considered likely that the following effects can be scoped out:
- increased flood risk caused by impediments to flow in watercourses during operation and maintenance of the wind farm;
 - effects on geology during construction and operation.

Approach to Mitigation

- 6.12 Given both Force 9 Energy's **commitment to, and prior experience of, implementing accepted** good practice during construction and operation, and the current regulatory context, many potential effects on the water environment can be avoided or reduced. With respect to the current regulatory context, since the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR) came into force, CAR authorisation will be required in relation to a number of activities e.g. engineering works in inland waters and wetlands. Consultation with SEPA throughout the EIA process will be undertaken in relation to those activities for which a licence or registration is required where sediment management near rivers less than three metres wide occurs.
- 6.13 As a consequence, a number of measures are not considered to be mitigation as such, but rather an integral part of the design/construction process; and it is proposed that these will be taken into account prior to assessing the likely effects of the site. However, where appropriate, more tailored mitigation measures will be identified prior to determining the likely significance of residual effects.

Consultation Proposals

6.14 The consultees below will be approached for information to inform the EIA. A number of these consultees may also be contacted by Perth & Kinross Council regarding the scope of the EIA including:

- Perth and Kinross Council
- SEPA;
- SNH;
- Scottish Water.

7 Ecology

Introduction

- 7.1 This chapter sets out the proposed approach to the assessment of potential effects of the proposed wind farm on flora and fauna, during both construction and operation. Potential effects on birds are considered separately in the following chapter.
- 7.2 Following the approach to assessment set out in **Chapter 2**, the ecological assessment will be carried out in line with relevant legislation and standards, as well as having regard to the following guidance:
- Institute of Ecology and Environmental Management (IEEM) (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom (version 7)*;
 - Scottish Executive (now Scottish Government) *Interim Guidance on European Protected Species, Development Sites and the Planning System* (2001);
 - Institute of Environmental Assessment (1995) *Guidelines for Baseline Ecological Assessment*.

Existing Conditions

Designated Sites

- 7.3 There are no designated sites within the site boundary. The closest designation to the site is the River Tay Special Area of Conservation (SAC) which is approximately 5km to the east. The qualifying interests of this site include:
- River lamprey;
 - Brook lamprey;
 - Otter;
 - Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels;
 - Sea lamprey;
 - Atlantic salmon.
- 7.4 There are five SSSIs that lie wholly within 10km of the site and a few others that overlap with this study area slightly. Those that lie wholly within the study area include the following:
- **Weem Meadow SSSI** is located approximately 9.5km north-west of the site and is important as an area of northern hay meadow (a type of neutral grassland) on low-lying haughland, a habitat that is becoming increasingly rare in Britain;
 - **Birks of Aberfeldy SSSI** is located approximately 8km north-west of the site in the gorge of Moness Burn. The site is designated for the presence of upland mixed ash woodland on schist and lichen flora;
 - **Balnaguard Glen SSSI** is located to the north of the site, approximately 8.5km away. It is important for its juniper scrub woodland. It is the third largest area of this type of woodland in Perth & Kinross. There are also areas of mixed gorge and birch woodland here that contain a number of locally uncommon plant species and contribute to a rich and varied ground flora;
 - **Shingle Islands SSSI** is located north east of the site, approximately 8km away. This designation is made up of five parts and comprises a series of extensive riverine shingle areas in various stages of colonisation from bare shingle to mixed woodland, including old abandoned river channels. There is a large number of plant species present, including a

number that are uncommon. Some rare and local flies are present here also, associated with damp deciduous woodland. This site is also a designated SAC;

- **Loch Freuchie Meadows SSSI** is located approximately 5.5km south-west of the site. The site is important for its lowland neutral grassland, which partly consists of northern hay meadow. Of particular importance is the presence of nationally and locally rare plant species.

Surveys

- 7.5 Bat surveys were undertaken on the site during summer 2011 (April - November), this included dusk and dawn transect route surveys, surveying remotely from a detector at ground level and surveying **remotely from a detector 'at height' (i.e. secured within the canopy)**. Surveys were undertaken within the site and a 250m buffer around it.
- 7.6 At least three bat species were confirmed as being present on the site. This included common pipistrelle, soprano pipistrelle and brown long-eared. In addition, unidentified pipistrelle and *Myotis* species were also recorded during the surveys.
- 7.7 The species recorded are all considered to be of low population level risk to the effects of a wind farm development and no bat roost sites were identified.
- 7.8 The overall bat activity levels recorded were very low and based on these findings, the wind farm is not considered to pose a significant threat to local bat populations at this stage.
- 7.9 Further surveys detailed below will be required and surveys work commenced in spring 2012:
- a desk top review of the habitats and features of the site;
 - Phase 1 Habitat survey of the site and access route;
 - species surveys for otter, red squirrel, pine martin, wildcat, badger and water vole;
 - electrofishing surveys;
 - National Vegetation Classification (NVC) survey.
- 7.10 Survey requirements and methods for all surveys will be agreed with SNH.

Effects on Ecology

- 7.11 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects associated with the construction and/or operation of the proposed wind farm include:
- direct temporary or permanent loss of habitats with high nature conservation value for turbines and associated infrastructure and felling (habitat loss calculations will be undertaken and presented in the ES);
 - habitat fragmentation and isolation;
 - direct temporary or permanent loss of species with high nature conservation value, or their shelters, through land take for turbines and associated infrastructure and felling;
 - disturbance to species with high nature conservation value as a result of construction and felling activity;
 - indirect temporary or permanent loss of/damage to habitats and species through secondary changes to local hydrological conditions as a result of felling and construction;
 - increased levels of silt-laden run-off from construction activity compromising habitats within local catchments;
 - cumulative effects of the wind farm with other development proposals in proximity, constructed during the same time period and/or affecting the same habitat/species types;
 - direct and indirect effects on sites designated for their nature conservation interest.

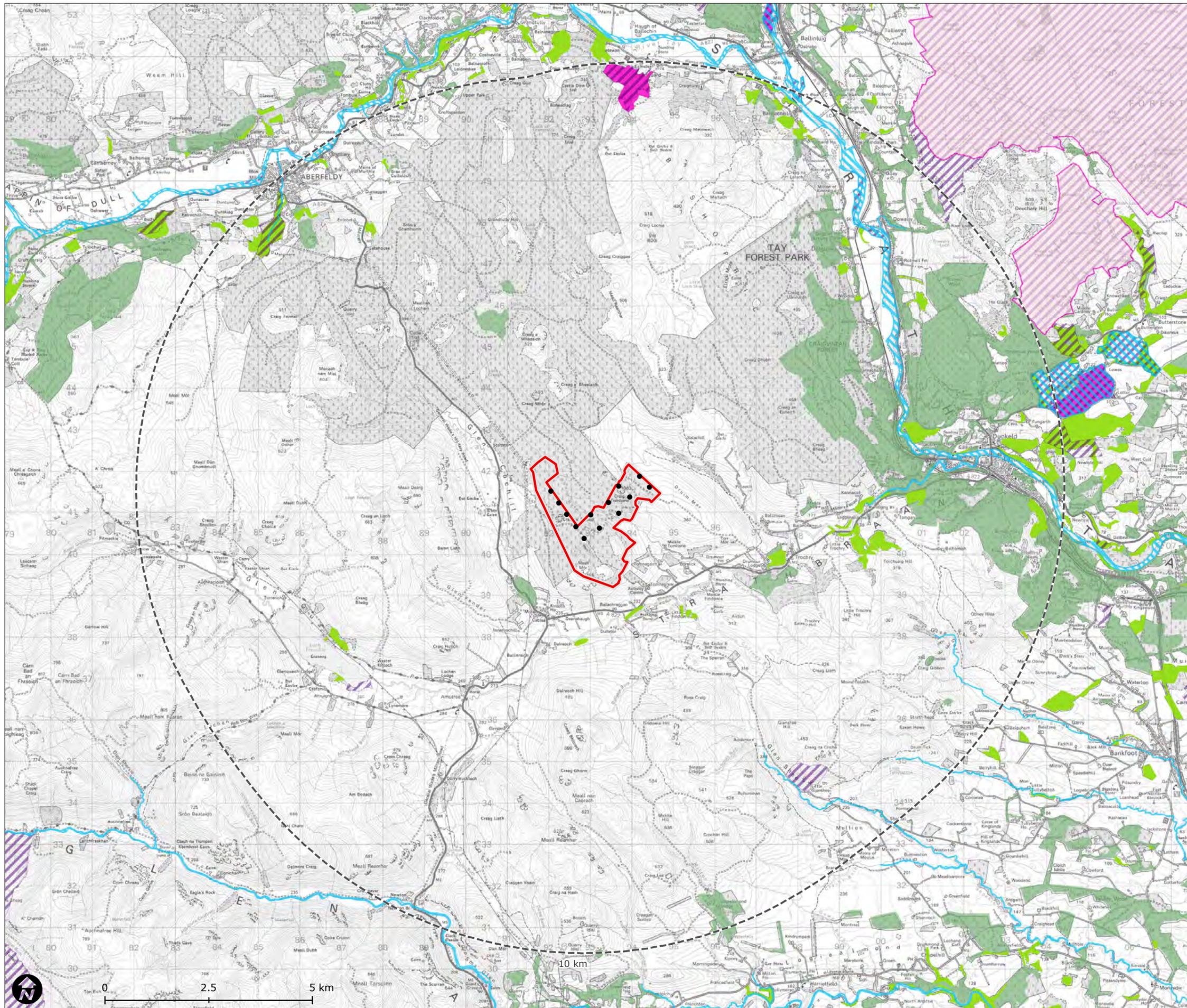
- 7.12 On the basis of the work undertaken to date, the professional judgement of the ecology team and experience from other similar projects, it is considered likely that no effects can be scoped out at this stage.

Approach to Mitigation

- 7.13 Force 9 Energy is committed to implementing accepted good practice during construction and operation of the wind farm thereby ensuring that many potential effects on ecology can be avoided or reduced.
- 7.14 Where likely significant effects on ecology are identified, measures to prevent, reduce and where possible offset these adverse effects will be proposed. Measures likely to be utilised include:
- appointment of an Ecological Clerk of Works (ECoW) during construction of the wind farm;
 - adherence to Pollution Prevention Guidance (see **Chapter 6**);
 - implementation of water quality protection measures (see **Chapter 6**);
 - reinstatement of habitats to pre-construction conditions where possible;
 - careful timing of activities and other construction measures such as ramping of trenches and installation of dry culverts to avoid effects on protected species.

Consultation Proposals

- 7.15 The consultees below will be approached for information to inform the EIA. Perth & Kinross Council may also contact a number of these consultees regarding the scope of the EIA:
- SNH;
 - Perth & Kinross (Biodiversity Officers);
 - The Scottish Government Internal Teams (Ecology, Research and GIS Unit; the Protected Species Team and Marine Scotland);
 - The Scottish Wildlife Trust;
 - The Association of Salmon Fishery Boards;
 - The Forestry Commission;
 - The Tay District Salmon Fishery Board.



**Nature Designations within
10km of Crag a' Bhàird
Wind Farm**

- Turbine Location
- ▭ Site Boundary
- - - 10km study area
- ▨ Special Area of Conservation (SAC)
- ▨ Special Protection Areas (SPA)
- ▨ Sites of Special Scientific Interest (SSSI)
- ▨ Scottish Wildlife Trust Reserve (SWT)
- ▨ Semi-Natural Ancient Woodland Inventory (SNAWI)
- ▨ Ancient Woodland Inventory (AWI)

Figure 7.1

Map Scale @ A3:1:90,000



8 Ornithology

Introduction

- 8.1 The proposed approach to the evaluation of bird interest on the proposed wind farm and surrounding area, and to the assessment of potential effects on birds is set out below.
- 8.2 Following the approach set out in **Chapter 2**, the assessment of effects on birds will be carried out in line with relevant legislation and standards, as well as the following guidance:
- SNH (2005) *Survey Methods for Use in Assessing the Impacts of Onshore Windfarms on Bird Communities (as revised – December 2010)*;
 - SNH (2006) *Assessing the Significance of Impacts from Onshore Windfarms on Birds outwith Designated Areas*;
 - The appropriate guidance for assessing effects on birds within SPAs (see links to various guidance notes on the SNH website¹).

Existing Conditions

Designated Sites

- 8.3 The site is not covered by any nature designations relevant to birds, however there are three within 10km all broadly located to the north-east.
- 8.4 Shingle Islands SSSI is approximately 8km from the site. The SSSI supports open habitats that act as breeding sites for a number of birds including Ringed Plover and Common Terns. This habitat type is now rare both inland and in the District.
- 8.5 The Lochs of Butterstone, Craiglush and Lowes SSSI is important for its wintering wildfowl, most notably its roosting population of Icelandic greylag geese. The wetland habitat supported here attracts a diversity of breeding birds, including ospreys and other water and wetland birds.
- 8.6 The Forest of Clunie SSSI covers an expansive area and creeps into the 10km study area at 9.7km away. It broadly correlates with the area designated as the Forest of Clunie Special Protection Area (SPA). The site supports moorland and grassland habitats, with open waters and woodlands. The moorland comprises predominantly dry heath with smaller areas of wet heath, blanket bog and spring-fed fens (flushes). The site attracts breeding hen harrier, osprey, short-eared owl, and black grouse, and a diverse upland breeding bird assemblage.

Surveys

- 8.7 Bird surveys have been undertaken since March 2011. The following surveys have been undertaken:
- vantage Point surveys;
 - breeding bird surveys;
 - breeding Annex 1/raptor surveys;
 - black grouse surveys;
 - woodland point counts;
 - winter walkovers.

¹ <http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/natura-sites/habitats-regulations-appraisal/>

- 8.8 Vantage point bird surveys have been carried out between the end of March and August 2011 – the breeding season and from September 2011 until March 2012 – the non-breeding season. Surveys continued until the end of the 2012 breeding season. **Table 8.1** below summarises hours per VP per season up to March 2012.

Table 8.1: VP hours per season

Season	VP1 hours	VP2 hours	VP3 hours	Average hours per VP per season
Spring Migration 2011	36	36	35	35.7
Summer (Breeding) 2011	54	51	53	52.7
Non-breeding 2011/12	36	36	36	36

- 8.9 Breeding raptor surveys, breeding Annex 1/raptor surveys and black grouse lek surveys have been completed. The findings revealed six curlew territories, a snipe territory and a breeding pair of red grouse. The presence of breeding short-eared owl was confirmed in addition to lek sites, all of which are located outwith the site, but within the 1.5/2km survey buffer.
- 8.10 The following Target Species were recorded on site and at Potential Collision Risk Height (PCH) during the VP surveys to date:
- Goshawk;
 - Hen Harrier;
 - Peregrine Falcon;
 - White-tailed Eagle.
- 8.11 The following Target Species were recorded outwith the site, outwith PCH, or both during all surveys to date:
- Black Grouse;
 - Merlin;
 - Short-eared Owl.

Effects on Birds

- 8.12 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects on birds associated with the construction and/or operation of the wind farm include:
- a short-term reduction in breeding or wintering bird populations due to felling/construction disturbance (causing chilling, predation, damage or loss of eggs/chicks and the premature fledging of young);
 - a permanent reduction in breeding or wintering bird populations due to the loss of habitat critical for nesting or foraging. This may arise as a consequence of direct loss of habitat under infrastructure or disturbance/displacement as a result of operational activities;
 - a permanent reduction in breeding or wintering bird populations due to collision mortality (if collision risk is identified as a concern, predicted collision rates will be calculated through a combination of theoretical collision risk modelling and professional judgement);

- cumulative effects with other nearby development proposals that are constructed during the same period, and/or with other developments which pose either a potential collision risk or loss of habitat by displacement (the approach to the assessment of cumulative effects will be agreed with SNH).

8.13 On the basis of the work undertaken to date, the professional judgement of the ornithology team and experience from other similar projects, it is not considered likely that any potential effects can be scoped out.

Approach to Mitigation

8.14 Force 9 Energy is committed to implementing accepted good practice during construction and operation of the wind farm thereby ensuring that many potential effects on ornithology can be avoided or reduced.

8.15 Any requirement for mitigation following impact assessment will be discussed with SNH prior to submission of the application.

Consultation Proposals

8.16 The consultees below will be approached for information to inform the EIA. A number of these consultees may also be contacted by Perth & Kinross Council regarding the scope of the EIA:

- SNH;
- Perth & Kinross Council (Biodiversity Officer);
- The Royal Society for the Protection of Birds;
- The Tayside Raptor Study Group.

9 Noise and Vibration

Introduction

- 9.1 This chapter sets out the proposed approach to the assessment of potential noise and vibration effects associated with the proposed wind farm during construction and operation. During their operation, wind farms have the potential to create noise effects through both aerodynamic noise (caused by the interaction of the turbine blades with the air) and mechanical noise (caused by the operation of internal components of the turbines, albeit that this is generally engineered to a low level in modern turbines).
- 9.2 Following the approach set out in **Chapter 2**, the assessment will be carried out in line with relevant legislation and standards, as well as the following guidance:
- Scottish Government Policy Guidance - Onshore Wind Turbines (February 2011);
 - PAN 1/2011: *Planning and Noise*;
 - BS 5228 (2009) *Code of Practice for Noise and Vibration Control on Construction and Open Sites*;
 - Institute of Acoustics Bulletin article (Bowdler et al, March/April 2009);
 - PAN 50: *Controlling The Environmental Effects of Surface Mineral Workings*, 1996;
 - ETSU-R-97 *The Assessment and Rating of Noise from Wind Farms*;
 - HMSO Department of Transport, 1988 *Calculation of Road Traffic Noise*.

Existing Conditions

- 9.3 The proposed wind farm site is located in a sparsely populated area with scattered residential and farm properties. Within the vicinity of the site, properties lie predominantly to the south and south-east. The proposed wind farm will be designed so that operational noise emissions at the nearest residents are controlled to acceptable levels, relative to the existing baseline noise environment, in accordance with the guidelines of ETSU-R-97 '**The Assessment and Rating of Noise from Wind farms**'. ETSU-R-97 provides a robust basis for assessing the noise implications of an operational wind farm and has become the accepted standard for assessing such developments within the UK.
- 9.4 The study area will comprise noise sensitive receptors considered to be representative of residential dwellings that may experience noise effects from construction or operation of the site. Particular consideration will be given to potential cumulative operational effects from operating or proposed wind farm in the area.
- 9.5 The assessment methodology will be agreed with the Environmental Health Officer from Perth & Kinross Council.
- 9.6 In assessing the impact of construction noise and vibration, it is usual to accept that the associated works are of a temporary nature. The assessment of potential effects due to noise emissions during construction will be undertaken in accordance with the BS5228 British Standard guidance. Predictions of construction noise will be made referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the methodology set out in BS5228:2009. This assessment will identify if, and when, predicted noise levels may be above standard guideline limits, taking into account the rural character of the area and the different construction activities used throughout the construction programme.

- 9.7 Construction noise management procedures will also be determined. Consideration will also be given to the potential impact of construction traffic on sensitive receptors in the area.

Noise and Vibration Effects

- 9.8 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach, at this preliminary stage, possible noise and vibration effects associated with the construction and/or operation of the proposed wind farm include:
- effects of construction noise on receptors in the area surrounding the site, taking account of the construction works programme and construction traffic routes to, from, and on, site;
 - effects of operational turbine noise on receptors in the area surrounding the site;
 - effects of vibration during construction on receptors in the area surrounding the site;
 - cumulative noise effects with other developments during operation of the site.
- 9.9 On the basis of the work undertaken to date, the professional judgement and experience from other similar projects, it is considered likely that effects of vibration during operation of the site on receptors in the area surrounding the site can be scoped out.

Approach to Mitigation

- 9.10 Force 9 Energy is committed to implementing accepted good practice during design, construction and operation of the proposed wind farm, thereby ensuring that many potential noise and vibration effects can be avoided or reduced.
- 9.11 Where significant construction noise and vibration effects are identified, measures to prevent, reduce, and where possible offset, these adverse effects will be proposed. Measures which may be utilised during construction of the proposed wind farm include:
- restricted hours of infrastructure works to avoid sensitive periods;
 - the fitting of equipment with appropriate noise control measures (e.g. silencers, mufflers and acoustic hoods);
 - the positioning of temporary site compounds as far as practicably possible from neighbouring residential properties;
 - additional good practice measures as set out in BS5228:2009.

Consultation Proposals

- 9.12 **Perth & Kinross Council's Environmental Health Officer will be consulted on the proposed approach for assessing noise and vibration effects of the site.**

10 Cultural Heritage

Introduction

- 10.1 The 'cultural heritage' of an area comprises archaeological sites, historic buildings, historic landscapes and other historic environment features, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may **also be informed by their 'setting' within the wider landscape. The proposed approach to the assessment of effects on cultural heritage is set out below.**
- 10.2 Following the approach set out in **Chapter 2**, the assessment of effects on cultural heritage will be carried out in line with relevant heritage protection legislation and the following standards and guidance:
- Historic Scotland (2011) *Scottish Historic Environment Policy: Scotland's Historic Environment*;
 - Historic Scotland (2009-10) *Managing Change in the Historic Environment Guidance Notes - Setting*;
 - The Scottish Government (2010) *Scottish Planning Policy*;
 - The Institute for Archaeologists (2010) *Code of Conduct*;
 - Historic Scotland (2009) *Guidance on the Scoping of Windfarm Proposals: Assessment of Impact on the Setting of Historic Environment Resources*;
 - The Institute for Field Archaeologists (2009) *Standard and Guidance for Archaeological Desk-Based Assessment*.

Existing Conditions

- 10.3 The study area for the identification and assessment of potential direct effects will comprise the area within the site boundary. Based on an initial desk study, there are no known features recorded in the Perth & Kinross Sites and Monuments Records (SMR) or National Monuments Record of Scotland (NMRS) wholly or partly within the site boundary. There are, however, a few on its periphery.
- 10.4 The study area for the identification and assessment of potential effects on the settings of designated heritage assets will include an area up to 10km from the site boundary. Sites whose settings will be assessed include (where applicable) Scheduled Monuments (SMs), Listed Buildings, Conservation Areas and Gardens and Designed Landscapes (GDLs). **Figure 10.1** shows the location of designated sites within 10km of the Site.
- 10.5 There are no sites designated for their cultural heritage interest within the site. There are 47 SMs within the 10km study area. The closest to the site include the following, which are all under 1.5km from the site:
- Scotston settlement and field system to the north-west;
 - St Luis settlement and field system to the west;
 - Meikle Tombane to the east;
 - Salachill abandoned township.

- 10.6 There are over 270 Listed Buildings within the study area. The closest to the site is the Aldmad Bridge over the River Braan that is located approximately 880m south of the site.
- 10.7 There are three Conservation Areas within the study area. These include Aberfeldy to the north-west (9km), Dunkeld to the east (7.5km) and Birnam to also to the east (8.3km).
- 10.8 There are five GDLs within the study area. Grandtully and Cluny House are approximately 9km and 9.8km north-west of the site respectively. The remaining three are all located to the east. The Hermitage is approximately 5.4km from the site, Dunkeld House is approximately 6.2km away and Murthly Castle is the furthest away, at approximately 9km and only lies partly within study area.
- 10.9 Where access allows, onsite field work will be undertaken to confirm accurate locations for previously unrecorded sites and features; to record their baseline condition; and to identify the presence of any previously undiscovered sites or features in proximity to proposed turbine (and associated infrastructure) locations.

Effects on Cultural Heritage

- 10.10 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects on cultural heritage associated with the construction and/or operation of the wind farm include:
- direct effects on cultural heritage sites or features within the site;
 - physical disturbance of known or hitherto undiscovered sites or features, including unforeseen buried remains of archaeological interest (partial or total removal, including severance of linear features);
 - **effects on the 'settings' of cultural heritage features resulting from intervisibility between the site/feature and the site²;**
 - cumulative effects on setting with other existing or proposed developments.
- 10.11 On the basis of the work undertaken to date, professional judgement and experience from other similar projects, it is not considered that any potential effects can be scoped out at this stage.

Approach to Mitigation

- 10.12 Force 9 Energy is committed to implementing accepted good practice during the design, construction and operation of the wind farm, thereby ensuring that many potential effects on cultural heritage can be avoided or reduced.
- 10.13 Where adverse effects on cultural heritage are identified, measures to prevent, reduce, and/or where possible offset, these effects will be proposed. Measures which may be adopted include:
- the micro-siting of site components away from sensitive locations;
 - the fencing off or marking out of sites or features in proximity to working areas;
 - an archaeological watching brief, if required, during construction activities in, or in proximity to, areas of particular concern;

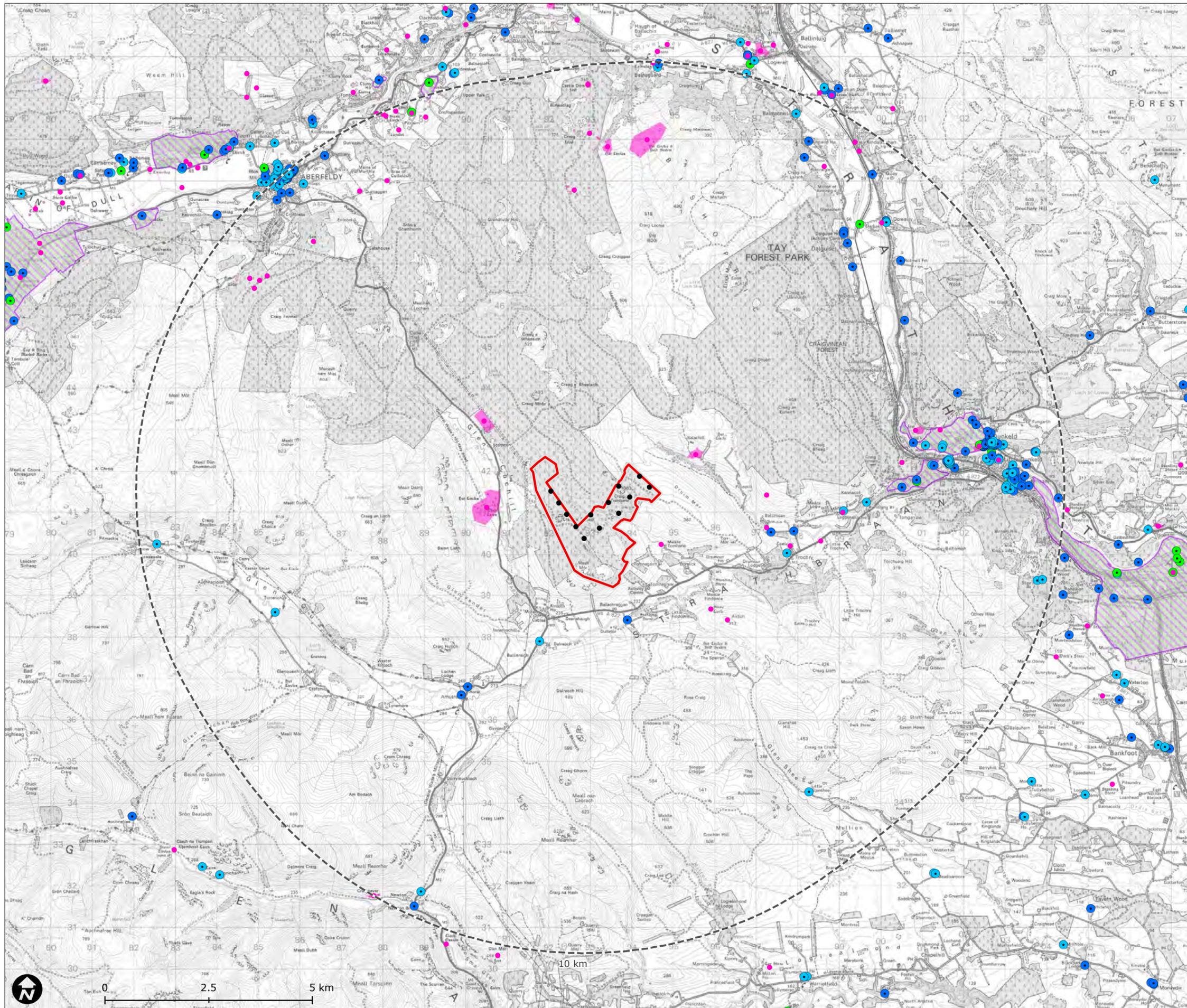
² Guidance issued by Historic Scotland (2009) notes that the setting of a receptor could be affected by the introduction of new development into its surroundings, even if that new development will not be directly visible from the receptor, for example, when both a development and a receptor will be caught in important views, vistas or prospects from somewhere other than the receptor location. This will also be taken into account.

- survey, excavation and recoding of features directly affected by the proposed wind farm;
- a working protocol to be implemented should unrecorded archaeological features be discovered;
- all archaeological fieldwork will be conducted in line with a written scheme of investigation agreed with the local authority archaeologist.

Consultation Proposals

10.14 The consultees below will be approached for information to inform the EIA. A number of these consultees may also be contacted by Perth & Kinross Council regarding the scope of the EIA:

- Historic Scotland;
- Perth & Kinross **Council's** Archaeologists and Conservation Officers;
- local archaeological interest groups (as appropriate).



Cultural Heritage Receptors within 10km of Crag a' Bhàird Wind Farm

- Turbine Location
- ▭ Site Boundary
- - - 10km study area
- Scheduled Monument (point)
- Scheduled Monument (area)
- Listed Building**
- Category A
- Category B
- Category C(S)
- ▨ Garden and Designed Landscape (GDL)

Figure 10.1

Map Scale @ A3:1:90,000

11 Access, Traffic and Transport

Introduction

- 11.1 This assessment will identify the preferred route(s) for access to the site and will consider the potential effects of traffic generated during construction and operation of the proposed wind farm, including identification of possible measures to minimise any disruption to the public (trunk and local) road network.
- 11.2 **It is not anticipated that a formal 'Transport Assessment' (TA)** will be required as TAs are not generally considered necessary for temporary construction works, and the likely traffic movements associated with the operation of the wind farm are not considered high enough to warrant a TA.
- 11.3 Following the approach set out in **Chapter 2**, the assessment of traffic and transport related effects will be carried out in line with relevant legislation and standards, as well as the following guidance:
- Highways Agency/Scottish Government (2010) *The Design Manual for Roads and Bridges, Volume 11, Environmental Assessment*;
 - Scottish Executive (now Scottish Government) (2005) *Transport Assessment & Implementation: A Guide*;
 - Scottish Executive (now Scottish Government) (2005) *PAN 75: Planning for Transport*;
 - Institution of Highways and Transportation (1994) *Guidelines for Traffic Impact Assessment*;
 - Institute of Environmental Assessment (now the Institute of Environmental Management and Assessment) (1993) *Guidelines for the Environmental Assessment of Road Traffic*.

Existing Conditions

- 11.4 The study area for the traffic and transport assessment will effectively be the public road network in the vicinity of the site which will be used during construction and operation of the wind farm. The geographical extent of this will be defined through professional judgment. The main strategic roads in the area are the A822, A826, A827 and A9:
- the A822 runs from near Dunblane, broadly north travelling south of the site to Dunkeld;
 - the A826 runs from Milton to the west of the site to Aberfeldy;
 - to the north of the site, the A827 runs towards Bullinluig, joining the A9. The A827 originates near Killin;
 - the A9 runs east of the site, originating in Perth and travelling broadly north through Inverness towards Tain.
- 11.5 An access study will be undertaken to examine potential site access routes for abnormal load and Heavy Goods Vehicles (HGVs) and to determine the extent of potential alignment constraints. The findings of this access study will be discussed with the relevant roads authorities (anticipated to be Transport Scotland and Perth & Kinross Council).

- 11.6 If available, traffic count data will be sourced from Transport Scotland and local roads authorities as appropriate to further inform the assessment.

Effects on Traffic and Transport

- 11.7 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential environmental effects associated with the construction and/or operation of the proposed wind farm include:
- effects of construction traffic on existing traffic flows and the public road network (which will be quantified through comparison of existing traffic flows and vehicle composition with the forecast construction phase site traffic generation);
 - cumulative effects of construction traffic upon traffic flows (the combined effect of traffic generated by the site and other relevant developments).
- 11.8 On the basis of the work undertaken to date, professional judgement and experience from other similar projects, it is considered likely that the following can be scoped out:
- the effect of operational and maintenance vehicles on existing traffic flows and the local road network.

Approach to Mitigation

- 11.9 Force 9 Energy is committed to implementing accepted good practice during construction and operation of the proposed wind farm, thereby ensuring that many potential traffic and transport related effects can be avoided or reduced.
- 11.10 Where significant effects are identified, measures to prevent, reduce, and where possible offset, these adverse effects will be proposed. Measures likely to be utilised include:
- instructing abnormal loads, HGVs, and site personnel as appropriate, to use only the approved access routes to the site;
 - no parking of construction plant, equipment and vehicles off-site on public roads.

Consultation Proposals

- 11.11 The consultees below will be approached for information to inform the EIA. They may also be contacted by Perth & Kinross Council regarding the scope of the EIA:
- Transport Scotland;
 - Perth & Kinross Council Roads Department.

12 Social and Economic Effects

Introduction

- 12.1 The proposed approach for the assessment of potential social and economic effects is set out below. This will include a consideration of existing land uses and recreational activity within the vicinity of the site, local tourism activity, employment generation and any indirect economic effects arising from the proposed wind farm.
- 12.2 Following the approach set out in **Chapter 2**, the assessment of social and economic effects will be carried out in line with relevant legislation and standards, as well as the following guidance:
- PAN 73 (2005) *Rural Diversification*;
 - Scottish Executive (now Scottish Government) (2002) *Output Income and Employment Multipliers Scotland*;
 - The Scottish Outdoor Access Code.

Existing Conditions

- 12.3 The study area for the assessment will comprise the site and immediate surrounding area in relation to potential direct effects on land use and the wider Perth & Kinross area in relation to potential social and economic effects and effect on tourism.
- 12.4 Dunkeld is the closest settlement to the site and is approximately 7.8km to the east and Aberfeldy is slightly further away at 8.5km to the north-west. There are some scattered dwellings surrounding the site including Kinloch House, Ballachraggan and Tomnagairn. These are all located broadly to the south and south-east of the site. The A822 is a signposted tourist route from the A9 at Braco to Pitlochry.
- 12.5 There are no Rights of Way (RoW) or Core Paths within the site. The closest RoW begins approximately 650m to the south and travels broadly south-east towards and along the side of Glenshee Hill. The closest Core Path (DUNK/120) is over 1km from the site and runs within and along the edges of the forestry to the east, north-east and north of the site.
- 12.6 There is an activity centre based at Tomnagrew Farm which offers off road 4x4 driving and quad bike activities. Nearby, Aberfeldy is a popular base location for outdoor activities such as white water rafting, kayaking, walking and cycling. There is a caravan site there also, as well as other accommodation.
- 12.7 Loch Freuchie, approximately 5.7km to the south-west of the site, is a popular destination for walking and fishing. There is a route that **travels around the Loch, the 'Loch Freuchie Circuit', and parking** available at Amulree for those using the area. Part of the Loch Freuchie walking circuit also forms part of the Rob Roy Way. This long distance route is 127km long in total and starts in Drymen and ends in Pitlochry, incorporating various settlements, hills and lochs along the way which provide a variety of scenery, terrain and accommodation options.
- 12.8 According to the Macaulay Land Use Research Institute Land Capability for Agriculture map (2010) the site lies within land that is **classed as 'suitable' and 'marginally suitable' for agricultural purposes.**

12.9 To obtain more detailed information on existing conditions, a desk based review and analysis of available information and data-sets will be undertaken to confirm the existing social characteristics and economic activity within the study area, including:

- the TAYplan 2012;
- the Highland Area Local Plan 1996;
- the Perth & Kinross Community Plan 2006-2020;
- the Perth & Kinross Core Path Plan 2008;
- tourism statistics (from VisitScotland and specific tourist attractions in the area);
- **census and population information (from 'scrol' Scotland's Census Results OnLine and any relevant local authority publications);**
- tourist and visitor guides, leaflets and information.

Social and Economic Effects

12.10 Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach at this preliminary stage, potential effects associated with the construction and/or operation of the proposed wind farm include:

- effects of noise, dust, and traffic movements on recreational amenity during construction;
- positive effects on the local economy through provision of employment and skills/training opportunities and associated indirect economic benefits such as the provision of accommodation in the local area;
- direct effects during construction and operation on informal outdoor access including Rights of Way and known local footpaths within and near to the site;
- effects of visibility of the wind farm on recreational amenity during construction and operation;
- indirect effects on tourism in the wider study area during construction and operation.

12.11 On the basis of the professional judgement of the EIA team and experience from other similar projects, it is considered likely that the following effects can be scoped out:

- disruption of services such as electricity, gas and water during construction and operation;
- direct effects on formal recreational activities during construction and operation.

Approach to Mitigation

12.12 Force 9 Energy is committed to implementing accepted good practice during construction and operation of the proposed wind farm, thereby ensuring that many potential adverse social and economic effects can be avoided or reduced.

12.13 Where potentially significant social and economic effects are identified, measures to prevent, reduce, and where possible offset, these adverse effects will be proposed. Measures likely to be implemented include:

- adoption of an agreed Construction Code to minimise temporary disturbance to residential properties, recreational users, and existing land uses;

- signage and/or temporary footpath diversions if required (in accordance with The Scottish Outdoor Access Code).
- 12.14 Measures to seek to secure any identified benefits, such as the use of local construction workers, will also be implemented.

Consultation Proposals

12.15 The organisations below will be consulted for information to inform the EIA. A number of these consultees may also be contacted by Perth & Kinross Council regarding the scope of the EIA:

- Perthshire Tourist Board;
- Community Councils (See Appendix 1 for full list);
- SNH;
- The Scottish Rights of Way and Access Society;
- The British Horse Society; and
- Local recreational groups (as appropriate).

13 Other Issues

Introduction

- 13.1 In addition to the assessments outlined above, the ES will include:
- an assessment of the potential effects of the wind farm on aviation, defence, and telecommunication interests;
 - consideration of potential effects associated with shadow flicker;
 - a carbon balance calculation.

Aviation, Defence and telecommunications

- 13.2 Wind turbines produce electromagnetic radiation which can potentially cause interference to telecommunication system signals such as terrestrial fixed microwave links, terrestrial radio telemetry links and television broadcasts. Furthermore, wind turbines can affect navigation and surveillance systems (including RADAR) and other equipment and the use of aerodromes.
- 13.3 An assessment of civil and military aviation, defence and telecommunication issues will be undertaken by appropriate specialists based largely on consultation with the relevant authorities including the following³:
- Highlands & Islands Airports;
 - the Ministry of Defence (MoD) Safeguarding;
 - National Air Traffic Services (NATS);
 - any civil airfields which may be affected by the site;
 - the Joint Radio Company (JRC);
 - the BBC and Arqiva;
 - the UK Office of Communications (Ofcom) (Scotland) and relevant telecommunication operators identified by Ofcom;
 - British Telecom;
 - Atkins Global.
- 13.4 As effects relate to the location of the turbines and their design and only occur during the operational phase of the wind farm due to the movement of the turbine blades, it is proposed to scope out construction effects on aviation, defence and telecommunication.

Shadow Flicker

- 13.5 Under certain combinations of geographical position, time of day, and time of year, the sun may pass behind a turbine and cast a shadow over neighbouring properties. When the

³ As of 24th December 2010, the Civil Aviation Authority (CAA) no longer processes pre-planning enquiries and will therefore not be consulted as part of Scoping.

blades rotate, the shadow flicks on and off, which is known as **'shadow flicker'**. Shadow flicker only has the potential to significantly affect receptors (i.e. residential properties) within a distance of ten times the length of the turbine rotor diameter and within a 130 degree angle either side of north. A **'zone' assessment** based on these parameters would be undertaken to identify any areas within the site where shadow flicker may be a potential issue and in particular, to highlight any properties which could be affected.

Carbon Balance

- 13.6 A carbon balance assessment for the proposed wind farm will be carried out using guidance produced by Aberdeen University and the Macaulay Land Use Research Institute⁴. The main aims of the calculation are: to quantify sources of carbon emissions associated with the site (i.e. from construction, operation and transportation of materials, as well as loss of peat/forestry as relevant); to quantify the carbon emissions which will be saved by constructing the wind farm; and to calculate the length of time for the project to become a **'net avoider'**, rather than a **'net emitter'** of carbon dioxide emissions. The length of time is termed the **'payback time'**.

⁴ *Calculating carbon savings from wind farms on Scottish peat lands - A New Approach* (2008).

APPENDIX 1

List of Consultees

The organisations below will be contacted for information to inform the EIA. A number of these consultees may also be contacted by Perth & Kinross Council regarding the scope of the EIA:

- Perth & Kinross Council:
 - Landscape Architect;
 - Biodiversity Officers
 - Environmental Health Officer
 - Archaeologists and Conservation Officers
- Scottish Natural Heritage (SNH);
- Scottish Environment Protection Agency (SEPA);
- Scottish Water;
- The Scottish Government Internal Teams (Ecology, Research and GIS Unit; the Protected Species Team and Marine Scotland);
- The Scottish Wildlife Trust;
- The Association of Salmon Fishery Boards;
- The Forestry Commission;
- The Tay District Salmon Fishery Board;
- The Royal Society for the Protection of Birds;
- The Tayside Raptor Study Group;
- Historic Scotland;
- local archaeological interest groups (as appropriate);
- Transport Scotland;
- Perth & Kinross Council Roads Departments;
- Perthshire Tourist Board;
- Aberfeldy Community Council
- Auchtergaven Community Council
- Comrie Community Council
- Dunkeld and Birnam Community Council
- East Strathearn Community Council
- Kenmore Community Council
- Methven Community Council
- Mid-Atholl, Strathtay and Grandtully Community Council
- Spittalfield and District Community Council;

- The Scottish Rights of Way and Access Society;
- The British Horse Society;
- Local recreational groups (as appropriate).

APPENDIX 2

Proposed Outline Contents for Creag a' Bhàird Wind Farm Environmental Statement (ES)

PREFACE

NON TECHNICAL SUMMARY

1. INTRODUCTION

Background to the Development

Legislative Requirements for EIA

Responsibilities for the ES

Structure of the ES

2. APPROACH TO THE EIA

Introduction

The EIA Process

Scope of the ES

3. RATIONALE FOR THE DEVELOPMENT AND SITE SELECTION

Introduction

Rationale for the Development

Do-nothing Scenario

Site Selection in Scotland

4. DEVELOPMENT DESCRIPTION

Introduction

Site Description

Description of the Surrounding Area

Development Description

Operational Details

5. PLANNING POLICY

Introduction

Planning Policy Context

Overview of Relevant Policies

6-14. TECHNICAL CHAPTERS

Landscape and Visual Impact Assessment; Ecology; Ornithology; Noise; Geology, Hydrology and Hydrogeology; Archaeology and Cultural Heritage; Transportation and Access; Socio-Economics, Tourism and Land Use; Other Issues.)

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Assessment Methodology

Planning Context
Existing Conditions
Modifications to Development Design
Proposed Good Practice Measures
Assessment of Construction Effects
Assessment of Operational Effects
Mitigation and Future Monitoring
Residual Effects
Summary and Conclusions

15. SUMMARY OF KEY EFFECTS