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# Craigton & Spittalhill Wind Farm

# Scoping Report

Prepared by LUC and associated Sub Consultants
September 2012

**Project Title**: Craigton & Spittalhill Wind Farm

**Client**: Force 9 Energy

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Planning & EIA
Design
Landscape Planning
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# 1 Introduction

## Background

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 6 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, two are pre-construction and work is ongoing 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 3 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 12km to the south-west of Stirling and 7.5km to the east of Balfron as a potential wind farm site (see **Figure 1.1**). The proposed wind farm will be known as Craigton & Spittalhill Wind Farm.

1.4 The site comprises an area of open moorland and rough grazing and ranges in altitude from 150m AOD, rising to approximately 480m AOD at the highest point. The site is within the Fintry Hills and lies wholly within the Stirling Council area.

1.5 It is likely that the proposed wind farm will comprise up to seven turbines, with a maximum blade tip height of 125m, with a combined installed capacity of up to 21MW. 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 wind farm progresses.

1.6 As the proposal has a generating capacity of under 50MW, Force 9 Energy will submit an application for planning permission to Stirling 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 Report and Design and Access Statement will be produced to accompany the planning application[1].

[1] Should the capacity of the layout reduce below 20MW, the proposal will technically be classed as a 'local development' under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009 and Pre-Application Consultation and provision of a Design and Access Statement will not be required. Irrespective of the final MW output of the proposal, it will be treated as a 'major' application, by the applicant, for the purposes of planning.

1.8 This Scoping Report (the 'Report') forms Force 9 Energy's written request to Stirling 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 development;
- **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 suggested contents of the ES.

# Craigton & Spittalhill Wind Farm

Site Location

Indicative Site Boundary


Figure 1.1

Map Scale @ A3:1:150,000



LUC GLA Fig01-01_5329-0001-r0_A3L_SiteLocation 17/02/2012

# Craigton & Spittalhill Wind Farm

Indicative Turbine Layout

Indicative Turbine Layout

Indicative Site Boundary

Figure 1.2

Map Scale @ A3:1:50,000



LUC GLA Fig01-02_5329-0005-r0_A3L_IndicativeTurbineLayout 23/02/2012

# 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 or height of the turbines, will be adjusted to reduce or avoid 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 March 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, Stirling 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 wind farm 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 wind farm. 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 proposed 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**; additional suggestions of further stakeholders who may have an interest in the proposed development would be welcomed.

### Baseline Conditions

2.9 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

2.10 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.

2.11 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.

2.12 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.

2.13 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

2.14 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.

2.15 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.

2.16 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;
- where possible, avoid locally designated landscapes;
- where possible avoid areas which may be susceptible to radar impact;
- where possible locate close to trunk roads and national grid, but don't discount other areas at this stage on account of access;
- where possible avoid areas where other infrastructure may impact on scheme feasibility (e.g. pipelines or significant levels of telecommunications traffic);
- locate in areas with a wind speed of 6.5ms at hub height or greater;
- 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 Craigton & Spittalhill 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;
- there are no local or Structure Plan policies which, in principle, precluded wind energy development;
- the proposed turbine locations are 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;
- the landscape is in part defined by the existence of the nearby Earlsburn Wind Farm.

## Site Location

3.3 As detailed in **Chapter 1**, the site is located within an area that is predominantly moorland and used for rough grazing. The Site is approximately 12km to the south-west of Stirling and 7.5km to the east of Balfron. The site lies wholly within the boundary of Stirling Council.

## Project Description

3.4 The main elements of the wind farm will comprise:

- up to seven turbines, with a combined installed capacity of up to 3MW, 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.

3.5 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, finished in a light grey/grey semi-matt colour. At this early stage, it is considered that turbines up to 125m high to blade tip may be suitable for the site.

3.6 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

3.7 For the purposes of the ES for the wind farm it will be assumed that an underground cable placed in roadside verges will be used to connect the proposed wind farm to the grid. On the basis of this assumption the ES will consider the environmental impacts of such a proposal. The final design and layout of the proposed grid connection will however be subject to detailed design and assessment under a separate consenting procedure by the local grid operator, ScottishPower Energy Networks, as required.

### Access

3.8 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. Access options remain under review at this stage. Two candidate access options are currently under review. The first option would be to take access via the existing Earlsburn access point to a point just before it crosses the Endrick Water and then build a new track up to the proposed turbine locations. The second option would be to take access from a point on the B818 between Gartcarron Bridge and Spittalhill Farm via a new track which would traverse up through Craigton and Spittalhill Farm holdings over the Fintry Hills to the proposed turbine locations. Indicative mitigation measures currently being considered for the second option could include for native tree planting on the Fintry Hills sides to screen such a track.

3.9 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

3.10 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.

3.11 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

3.12 A traffic management plan will be agreed in consultation with the local highways authorities.

### Construction Details

3.13 It is expected that the construction of the wind farm will be completed over a period of approximately 12 months. The construction phase will consist of the following principal activities:

- 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.

3.14 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

3.15 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

## Policy Context

4.1 Climate change is widely recognised as one of the greatest environmental, social and political challenges facing the world today. One of the principal causes of climate change is a rise in the concentration of atmospheric carbon dioxide ($CO_2$), to which fossil-fuelled electricity generation is a major contributor. Wind power offers the most economical and technically developed source of renewable energy and alternative to fossil fuels currently available, and offers benefits in terms of electricity generation that is free from emissions of carbon dioxide (the main 'greenhouse gas' associated with global warming) and other pollutants.

4.2 The European Union has agreed that by 2020, one-fifth of all Europe's energy should come from renewable sources. In line with this agreement, the UK is required to increase its share of energy supplied from renewable sources to 15%.

4.3 At the national level, the Climate Change (Scotland) Act 2009 sets ambitious targets for cutting carbon dioxide and greenhouse gas emissions. The targets include:

- cutting emissions by at least 80% from 1990 levels by 2050;
- a reduction in greenhouse gas emissions year on year, every year, from 2010 to 2050;
- increasing the rate of reduction from 2020 onwards to at least 3% per year.

4.4 To meet these highly ambitious targets, the Scottish Government Climate Change Delivery Plan has been prepared to target investment and effort across a range of relevant sectors, and renewable energy has a fundamental place in this strategy. Scotland's current renewable energy targets are to deliver the equivalent of 100% gross electricity generation from renewable sources by 2020.

4.5 The wind farm is proposed as part of the response to targets set by the Scottish Government to increase the proportion of electricity generated from renewable sources and hence reduce Scotland's contribution to climate change.

### National Planning Policy

4.6 The National Planning Framework 2 (NPF2) was published in June 2009 and is a strategy for the long term development of Scotland's towns, cities and rural areas. It is very supportive of renewable energy, highlighting the important role that onshore wind farms have played, and will continue to play, in the roll out of renewables across Scotland. It outlines the renewable energy generation targets set by the Scottish Government (which have since been increased further) and acknowledges the importance of onshore wind farms in meeting this and future targets (paragraph 146).

4.7 Scottish Planning Policy (SPP) outlines the Scottish Government's vision of the purpose of planning and reflect the current Scottish Government targets for renewable energy generation. The full series of thematic SPPs were replaced in February 2010 by Scottish Planning Policy, which maintains a strong commitment towards renewable energy generation and supports the use of a mix of renewable energy generating techniques, including onshore wind farms.

### Local Policy Context

4.8 As the proposed wind farm is located within Stirling Council administrative area, the application for planning permission will be made to Stirling Council. As such, the application will be considered within the context of the Stirling Development Plan.

### *Stirling Development Plan*

4.9 The Development Plan for Stirling comprises the adopted Stirling Council Local Plan 1999 and the approved Clackmannanshire and Stirling Structure Plan 2002 and approved alteration (2002).

4.10 In relation to renewable energy, *Structure Plan policy ENV14: Renewable Energy and Energy Efficient Development* from the Structure Plan Alteration[2] states:

*"1. In the interests of sustainable development the Councils and the National Park Authority will, subject to conformity with other relevant Structure and Local Plan policies, support:*

*(i) developments required for the generation of energy from renewable sources and fuels; and*

*(ii) integration of renewable energy generation and utilisation into new developments.*

*2. Development proposals must demonstrate that energy conservation and efficiency are integral to the design, and to the layout of new buildings."*

4.11 Policy POL E10 of the Local Plan supports the development of renewable energy schemes so long as it is proven any such development would avoid adverse effects on the environment. More specific to wind farms, Policy POL E12 states that wind farm developments will be considered where all the following criteria can be met:

*a) "the siting and external appearance of apparatus have been chosen to minimise the impact on amenity, while respecting operational efficiency;*

*b) the development will not result in unacceptable intrusion into the landscape;*

*c) access for construction and maintenance traffic can be achieved without compromising highway safety or causing unacceptable permanent and significant change to the environment;*

*d) the development will have no significant detrimental effect on any designated heritage feature, including Listed buildings, Conservation Areas, Ancient Monuments, Historic Gardens and Designed Landscapes, Areas of Great Landscape Value and National Scenic Areas;*

*e) the development will not affect the amenities of neighbouring occupiers unacceptably by reason of noise, visual dominance, shadow flicker, reflected light or other emission;*

*f) no electromagnetic disturbance is likely to be caused by the proposal to any existing transmitting or receiving system or (where such disturbances may be caused) that measures will be taken to remedy or minimise any such interference;*

*g) a realistic means of achieving the removal of any apparatus when redundant and the restoration of the site are proposed;*

*h) no wind turbines should interfere with authorised aircraft activity or with the known regular flight paths of birds, particularly protected migratory species."*

### *Material Considerations*

4.12 The Supplementary Planning Guidance (SPG) document 'Interim Locational Policy and Guidance for Renewable Energy Developments (wind Turbines) 2007' was prepared to provide a revised planning framework and location guidance for the Council area outside the Loch Lomond & The Trossachs National Park. This will remain an interim policy pending preparation of the Local Development Plan (further detail provided below).

4.13 The SPG contains six policies that require consideration in relation to wind energy developments. It contains proposals maps which indicate 'Areas of Significant Protection' and 'Areas of Search'. According to the Local Plan Proposal Maps, the proposed wind farm is located outwith the identified areas of search and areas of significant protection. Policy 1 of the SPG states that the Council will support proposals located outwith the areas of significant protection where adverse effects on the following will be avoided:

- landscape features of international and national importance;

[2] Alteration No.1: Renewable Energy, 2004. http://www.stirling.gov.uk/__documents/planning/planning/structure-plan/alt-1-renewable-energy.pdf

- wildlife and habitats of international and national importance;
- historic heritage of national importance;
- the water environment;
- nearby residential areas.

4.14 In addition to the specific policies relating to renewable energy and wind farms detailed above, the Structure Plan and Local Plan contain a number of general development control and environmental protection policies (including policies 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.

4.15 Stirling Council is preparing a new Local Development Plan (LDP) which will cover the whole region and will replace the adopted Local Plan. The new LDP is at an early stage of development and it is currently anticipated that the LDP will be adopted in February 2014.

# 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, 2012) Assessing the Cumulative Impacts of Onshore Wind Energy Developments;
- Scottish Natural Heritage (SNH, 2009) Siting and Designing Windfarms in the Landscape;
- SNH (2006) Visual Representation of Windfarms: Good Practice Guidance;
- SNH (2005) Guidance: Cumulative Effects of Windfarms (version 2);
- 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;
- SNH (2002) Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydro Electric Schemes;
- The Countryside Agency and SNH (2002) Landscape Character Assessment: Guidance for England and Scotland;
- SNH (2004) Topic Paper 6. *Techniques and Criteria for Judging Capacity and Sensitivity;*
- SNH (2006) Visual Representation of Windfarms: Good Practice Guidance; and
- Landscape Institute (2011) Practice Advice Note, Photography and Photomontage in Landscape and Visual Impact Assessment. Advice Note 01/11.

## Existing Conditions

5.3 A desk based review of existing information has been undertaken, including Ordnance Survey maps, relevant Local Plans, and the *Central Region Landscape Character Assessment*[3]. The proposed study area for the Landscape and Visual Impact Assessment (LVIA) has a radius of 35km (see **Figure 5.1**).

5.4 The site is located within the *Lowland Landscape Types* as *Lowland Hills (Central)* and is covered by the *Landscape Character Area 10: Fintry, Gargunnock and Touch Hills*, one of four Landscape Character areas within the *Lowland Hills (Central) Landscape Type*.

5.5 The south-eastern boundary of the Loch Lomond and Trossachs National Park lies within the 35km study area, approximately 10km to the north-west of the site. There are three National Scenic Areas (NSAs) within 35km. These include the Trossachs NSA 15km north-west, Loch Lomond NSA 15km to the west and the River Earn NSA (Comrie to St Fillans) 30km north of the site.

5.6 There are several Areas of Great Landscape Value (AGLV) within the study area. The site lies wholly within one of these as identified within the Stirling Council Local Plan.

5.7 Following the production of the preliminary Zone of Theoretical Visibility (ZTV), a preliminary list of 13 viewpoints for the assessment of effects on visual amenity was devised and consultation

[3] *Central Region Landscape Character Assessment, ASH Consulting Group for SNH, 1999*

with regard to the selection of appropriate viewpoints was undertaken with statutory consultees. This initial consultation was undertaken during July and August 2012, with local authorities where theoretical visibility was indicated by the ZTV. A list of these consultees is provided below:

- Stirling Council
- North Lanarkshire Council
- East Dunbartonshire Council
- Falkirk Council
- Perth and Kinross Council
- Clackmannanshire Council
- Scottish Natural Heritage (SNH)
- Loch Lomond and The Trossachs National Park Authority

5.8 Comments and recommendations were received from each of the above consultees and a revised list of 15 proposed assessment viewpoints was finalised. This list of viewpoints is set out in **Table 5.1** below and includes location, approximate grid reference, and the reason for inclusion 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 proposed wind farm in association with other relevant wind farms.

**Table 5.1 Initial Viewpoint List**

| VP No. | Location | Approximate Grid Reference | | Reason for Inclusion |
|---|---|---|---|---|
| | | X | Y | |
| 1 | Minor Road nr. Easter Cringate | 269099 | 686806 | Located close to the development site, on the minor road to the east. Represents views experienced by motorists and nearby residential properties. |
| 2 | Carron Valley, B818 | 269055 | 684622 | Located on B818 within the Carron Valley, representing views of motorists and recreational users within the valley (requested by SNH). |
| 3 | Carleatheran | 268796 | 691797 | Located east of the Spout of Ballochleam on Carleatheran, a popular walking summit within the Fintry Hills |
| 4 | Meikle Bin | 266709 | 682172 | Popular Hill summit on the southern edge of the Carron Valley Forest representing views of recreational users. |
| 5 | B822 at Kippen Muir | 263122 | 692945 | Located alongside B822 between Fintry and Kippen, representing views towards the Spout of Ballochleam, experienced from nearby residential properties and |

| VP No. | Location | Approximate Grid Reference | | Reason for Inclusion |
|---|---|---|---|---|
| | | | | motorists. |
| 6 | Tomtain | 272063 | 681529 | Popular Hill summit on the southern edge of the Carron Valley Forest representing views of recreational users. |
| 7 | B8034 at Arndale Park and Gardens | 260094 | 696902 | Located on the B8034 south of Lake Menteith and close to the Arndale Park and Gardens |
| 8 | A873 nr. Ruskie | 263104 | 700784 | Located on A873 close to outlying residential properties of Ruskie and representative of views experienced by motorists. |
| 9 | Rob Roy Way | 256460 | 703126 | Located within the Loch Lomond and The Trossachs National Park on the route of the Roby Roy Way Long distance walking route, representing views of recreational users |
| 10 | Ben Ledi | 256456 | 709635 | Popular Hill summit within the Loch Lomond and The Trossachs National Park, representing views of recreational users from the National Park |
| 11 | Shield Hill | 289070 | 676565 | Located on the western edge of the Settlement of Shieldhill on Mainstreet, representing long distance views of motorists and views experienced from the north and western edge of Shieldhill. (Requested by Falkirk Council). |
| 12 | Ben Cleuch | 290258 | 700586 | Popular Hill summit within the Ochills, north of Alloa. |
| 13 | Ben Vorlich | 262782 | 718845 | Located on a popular Munro hill summit representing views of recreational users from the Loch Lomond and The Trossachs National Park. |
| 14 | Ben Lomond | 237174 | 702559 | Popular Munro hill summit located within the Loch Lomond and The Trossachs National Park, representing views of recreational users. |
| 15 | Meall an-t Seallaidh | 254218 | 723415 | Summit of Meall an t-Seallaidh (852m AOD), popular hill summit with hill walkers, which lies within a Core Wildness Area (Requested by |

| VP No. | Location | Approximate Grid Reference | | Reason for Inclusion |
|---|---|---|---|---|
| | | | | LLTNP). |

5.9 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.

5.10 To further inform the LVIA, additional 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 *Central Region Landscape Character Assessment* and the landscape character types identified within the 35km study area;
- a detailed review of the Stirling Council Local Plan, and the 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; and
- extensive fieldwork throughout the study area.

## Effects on Landscape and Visual Amenity

5.11 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; and
- key routes (sequential views).

5.12 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.

5.13 The LVIA will also consider cumulative effects arising from the relationship between the proposed wind farm and other wind farms in the surrounding area. LUC propose to include all wind farms and individual wind turbines located within the 35km study area, with a blade tip height of over 50m, within the assessment of landscape and visual and cumulative effects. Consideration of wind turbines located within 5km of the proposed development, with a blade tip height of less than 50m will also be considered within the assessment.

5.14 **Table 5.2** outlines the wind farms within 35km of the site which it is currently proposed will be included within the cumulative landscape and visual impact assessment. This draft list will be reviewed and updated, following further consultation to obtain details of all existing and proposed wind farms within the 35km study area.

**Table 5.2 Draft Cumulative Wind Farm List**

| Wind Farm | Number of Turbines | Current Status |
|---|---|---|
| Fintry Community | 1 | Operational |
| Earlsburn | 14 | Operational |
| Craigengelt | 8 | Operational |
| Braes of Doune | 36 | Operational |
| Greendykeside | 2 | Operational |
| Blantyre Muir | 3 | Operational |
| Burnfoot Hill | 26 | Operational |
| Craigannet Hill | 7 | Under Construction |
| Earlsburn North | 9 | Consented |
| Cathkin Braes | 2 | Consented |
| Greengairs | 9 | Consented |
| Mid Glen House Domestic Turbine | 1 | Consented |
| Blantyre Muir (extension) | 2 | Consented |
| Muirpark | 11 | Refused – potential for appeal |
| Rhodders | 9 | Application Submitted |
| Bracco | 7 | Application Submitted |
| Burnfoot Hill Extension | 2 | Application Submitted |
| Burnhead | 13 | Application Submitted |
| Frandy Hill | 7 | Application Submitted |
| Birnie Hill | 3 | Application Submitted |
| Hartwood | 9 | Application Submitted |
| Black Devon Landfill | 2 | Application Submitted |
| Carron Valley | 15 | Application Submitted |
| Ardchonnel | 20 | Design/Scoping |

| Wind Farm | Number of Turbines | Current Status |
|---|---|---|
| Loaninghead | 3 | Design/Scoping |
| Callendar Estate | 10 | Design/Scoping |
| Merkins | 10 | Design/Scoping |
| Greengairs East | 11 | Design/Scoping |

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 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, any 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, especially in relation to the second access option.

## Consultation Proposals

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

- Stirling Council;
- North Lanarkshire Council
- East Dunbartonshire Council
- Falkirk Council
- Perth and Kinross Council
- Clackmannanshire Council
- Loch Lomond and The Trossachs National Park Authority; and
- Scottish Natural Heritage (SNH).

# Craigton & Spittalhill Wind Farm

## Landscape Designations within 35km of Craigton and Spittalhill Wind Farm

- Indicative Site Boundary
- 35km buffer around Site Boundary
- National Park
- National Scenic Area

Landscape Designations

- Area of Great Landscape Value
- Areas of Special Landscape Control
- Regional Scenic Area
- Scenic Area
- Sensitive Landscape Area
- Gardens and Designed Landscapes
- Regional Park
- Country Park

0 2.5 5 10 15 20 km

Figure 5.1

Map Scale @ A3:1:300,000

LUC

FORCE 9 ENERGY

# Craigton & Spittalhill Wind Farm

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

- Indicative Turbine Layout
- Indicative Site Boundary
- 35km study area around Site Boundary

Potential number of turbines visible:

- 1 turbine visible
- 2 turbines visible
- 3 turbines visible
- 4 turbines visible
- 5 turbines visible
- 6-7 turbines visible

Viewpoint Location

1 - Minor Road nr. Easter Cringate
2 - Carron Valley, B818
3 - Carleatheran
4 - Meikle Bin
5 - B822 at Kippen Muir
6 - Tomtain
7 - B8034 at Arndale Park and Gardens
8 - A873 nr. Ruskie
9 - Rob Roy Way
10 - Ben Ledi
11 - Shield Hill
12 - Ben Cleuch
13 - Ben Vorlich
14 - Ben Lomond
15 - Meall an-tSeallaidh

Notes:

The ZTV is calculated to turbine tip height (125m) 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 @ A3:1:300,000

0 2.5 5 10 15 20 km

# 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 Leven (Loch Lomond) catchment and there are several water courses within the site. Backside Burn flows along the site boundary in the north-east, with an unnamed tributary that flows into the site, south-westwards for approximately 1km. Shelloch Burn flows within the site, in parallel to the boundary in the north-west. Balmenoch Burn and Cammal Burn flow in the south-west of the site, each with associated tributaries, one of which from Balmenoch Burn leads to Loch Walton. This is a relatively small Loch which lies partly within the site in the south-east.

6.4 The smaller burns mentioned above are tributaries of Endrick Water. This river flows to the east of the site, along the site boundary in the south and continues westwards towards Fintry. Endrick Water is classified by SEPA as having as overall 'Moderate' status.

6.5 The underlying groundwater is classified by SEPA as having 'Good' status and is within the Drinking Water Protection Area. Stirling 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.

6.6 An initial review of SEPA's Indicative River and Coastal Flood Map does not identify any particular concerns with regard to flood risk from the watercourses on site although this will be confirmed through consultation with SEPA and Stirling Council.

6.7 There are two Sites of Special Scientific Interest (SSSIs) within the site boundary designated for geological interests, Double Craigs SSSI and Endrick Water SSSI. Double Craig SSSI

comprises a long series of dry, mainly south-facing cliffs, located on the south-west side of the Fintry Hills. Endrick Water SSSI provides a unique example of fluvial geomorphology in Scotland.

6.8 According to the Macaulay Land Use Institute Depth of Peat Map (2010), the site lies in an area where the depth of peat ranges between approximately 0m – 1m however deeper areas of peat may be present onsite. Peat probing will need to be undertaken to determine the presence and depth of peat on the site, including to determine whether a peat slide risk assessment would be required.

## 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 particularly the Backside Burn and Shelloch Burn) and groundwater, including drinking water supplies, through operation of machinery (e.g. spillage of fuels, oils etc.) during site preparation and construction of the wind farm;
- 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 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 wind farm (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, however should be mitigated through appropriate design:

- 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;
- effects on geology during construction particularly in relation to Double Craig SSSI.

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.

## 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 wind farm. 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 Stirling Council regarding the scope of the EIA including:

- Stirling Council (regarding Private Water supplies)
- 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 Double Craigs SSSI lies wholly within the site boundary in the south-west and Endrick Water SSSI creeps into the site in the south-east. Both sites are designated for their geological (as noted in **Chapter 6**) and ecological characteristics. Double Craigs SSSI is important ecologically due to relatively undisturbed, upland grassland vegetation communities present there. Endrick Water SSSI is the largest river that flows into Loch Lomond. It is important, both nationally and internationally, for its populations of river lamprey and brook lamprey. The site also supports the Scottish dock, which is a rare aquatic plant whose only British records are on the shores of Loch Lomond. Endrick Water is also designated as a Special Area of Conservation (SAC), with Atlantic salmon being a qualifying feature for this designation, in addition to the lamprey species listed above.

7.4 In total, there are 15 additional SSSI sites within 10km of the site, four of which are also designated SACs, as shown on **Figure 7.1**. The two closest SSSIs are located within 5km of the Site. Balglass Corries is approximately 3.9km to the south-west and is located within the Campsie Fells. It is designated for the well-developed corrie system present there and the most extensive examples of undisturbed upland plant communities in the Stirling district. Wester Balgair Meadow SSSI, to the north-west is approximately 4.2km away and is designated as it contains good examples of valley fen, neutral grassland, lowland wet heath and lowland dry heath.

7.5 Flanders Moss National Nature Reserve (NNR) is located to the north of the site, approximately 7.3km away. Dumbreck Marsh Local Nature Reserve (LNR) is the only LNR within the 10km study area, located to the south-east of the site near Kilsyth.

### Surveys

7.6 Bat surveys were undertaken on the site during summer 2011, this included dusk transect surveys and ground level static surveys of the site and a 250m buffer around it.

7.7 At least three bat species were confirmed as being present on the site, including common pipistrelle and soprano pipistrelle identified at species level and a Myotis species.

7.8 The species recorded are all considered to be of low population level risk to the effects of a wind farm development. No bat roost sites were identified.

7.9 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.

7.10 It is proposed that the further surveys detailed below will be required and are likely to be carried out from spring 2012 onwards:

- 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, badger and water vole;
- electrofishing surveys;
- National Vegetation Classification (NVC) survey.

7.11 Survey requirements and methods for all outstanding surveys will be agreed with SNH.

## Effects on Ecology

7.12 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 and indirect effects on sites designated for their nature conservation interest (including Double Craigs SSSI and Endrick Water SSSI and SAC which are located within the site);
- 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 activity;
- indirect temporary or permanent loss of/damage to habitats and species through secondary changes to local hydrological conditions as a result of 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.

7.13 On the basis of the work undertaken to date, the professional judgement of the ecology team and experience from other similar projects, it is not proposed to scoped out any potential effects at this stage.

## Approach to Mitigation

7.14 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 ecology can be avoided or reduced.

7.15 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;
- implementation of water quality protection measures ;
- 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

7.16 The consultees below will be approached for information to inform the EIA. Stirling Council may also contact a number of these consultees regarding the scope of the EIA:

- SNH;
- Stirling Council (Biodiversity Officers);
- The Scottish Government Internal Teams (Ecology, Research and GIS Unit; the Protected Species Team and Marine Scotland);
- The Scottish Wildlife Trust;
- The Farming & Wildlife Advisory Group;
- The Association of Salmon Fishery Boards;
- The Forth District Salmon Fishery Board.

# Craigton & Spittalhill Wind Farm

## Nature Conservation Designations within 10km of Craigton and Spittalhill Wind Farm

- Indicative Site Boundary
- 10km buffer around Site Boundary
- Local Nature Reserve (LNR)
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar Site
- National Nature Reserve (NNR)

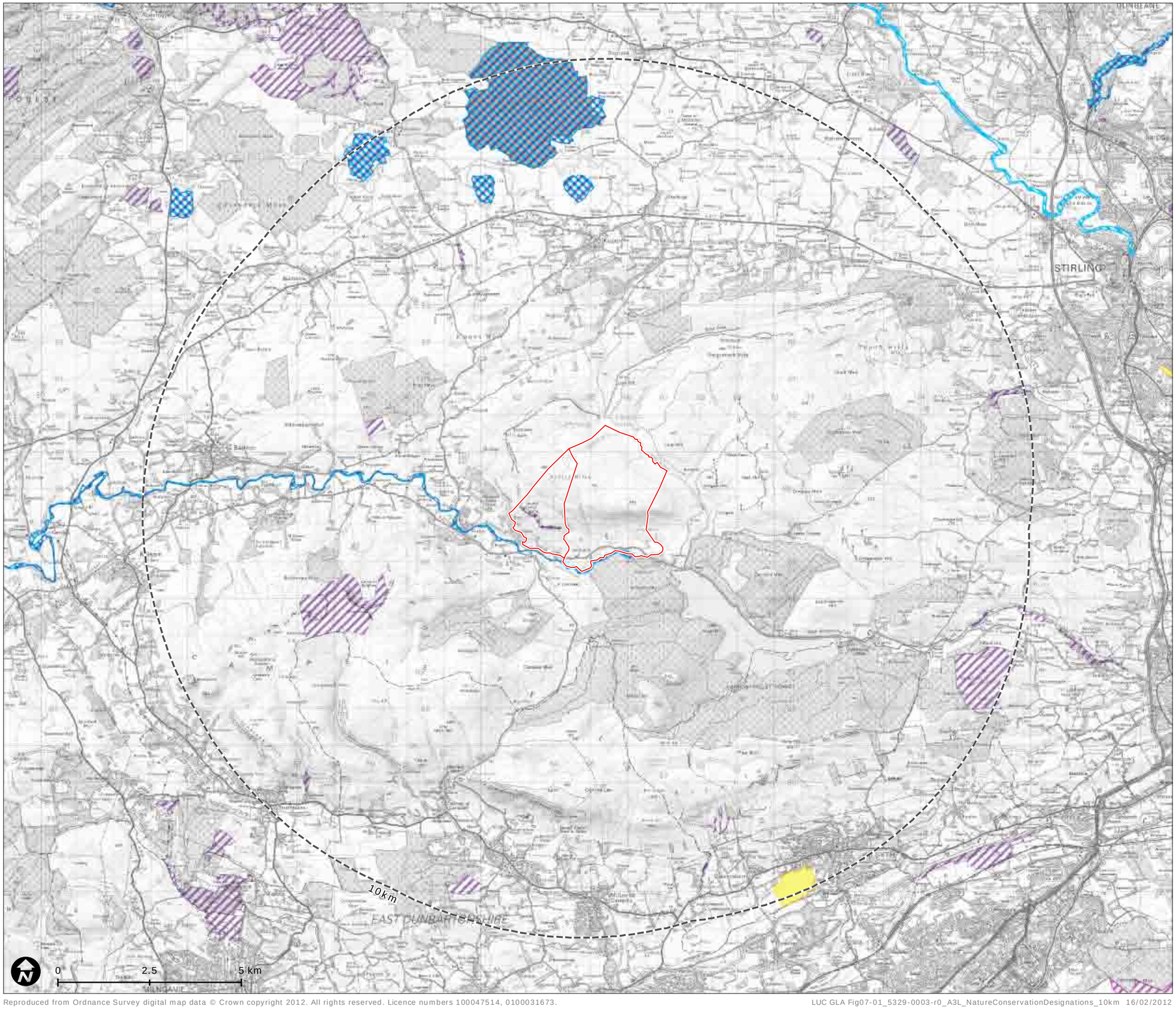


Figure 7.1

Map Scale @ A3:1:100,000

# 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 website[4]).

## Existing Conditions

### Designated Sites

8.3 The site is not covered by any nature designations relevant to birds, and there are none within 10km. The closest SPA, Slamannan Plateau is 16.8km from the site to the south-east which is of value as it regularly supports nationally important numbers of migratory Taiga bean geese.

### Surveys

8.4 Bird surveys have been undertaken since March 2011 and will continue until August 2012. The following surveys have been undertaken/are ongoing:

- vantage point surveys;
- breeding bird surveys;
- breeding Annex 1/raptor surveys;
- black grouse surveys;
- woodland point counts;
- winter walkovers.

8.5 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 will continue until the end of the 2012 breeding season. **Table 8.1** below summarises hours per VP per season up to March 2012.

[4] http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/natura-sites/habitats-regulations-appraisal/

**Table 8.1 VP hours per season**

| Season | VP1 hours |
|---|---|
| Spring 2011 | 36 |
| Breeding 2011 | 54 |
| Non-breeding 2011/2012 | 36 |

8.6 The following target species were recorded on site and at Potential Collision Risk Height (PCH) during the spring and breeding season VP surveys:

- Common Snipe;
- Greylag Goose;
- Hen Harrier;
- Mute Swan;
- Osprey.

8.7 The following Target Species were recorded off site, outwith PCH, or both:

- Red Kite;
- Grey Goose[5].

8.8 The following surveys were completed over three separate visits and findings are provided where appropriate:

- Breeding bird walkover surveys. During these surveys, two Curlew territories and a Snipe territory were recorded;
- Breeding Annex 1/Raptor Species. No target species were recorded to be breeding on site;
- Black Grouse surveys. No Black Grouse were recorded on the Site although they are known to be present close to the Site. Surveys will continue into 2012.

## Effects on Birds

8.9 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;

[5] 'Grey Goose' is a term applied when full identification in the field was not possible (e.g. due to the distance of the sighting; poor visibility etc.)

- 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).

8.10 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

8.11 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.

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

## Consultation Proposals

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

- SNH;
- Stirling Council (Biodiversity Officer);
- The Royal Society for the Protection of Birds;
- The Central Scotland 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 in the vicinity of the proposed site. 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 wind farm. A number of these noise sensitive receptors will be chosen as representative ETSU R 97 background noise survey locations, if required.

9.5 If required the proposed background noise monitoring locations will be agreed with the Environmental Health Officer from Stirling Council. Data obtained from the noise monitoring will be related to wind and rainfall data on the site in accordance with current guidance and accepted best practice.

9.6 In assessing the effect 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 effect 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 wind farm.

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 wind farm 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 Stirling Council's Environmental Health Officer will be consulted on the proposed approach for assessing noise and vibration effects of the wind farm, including the locations for background noise monitoring.

# 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. The proposed approach to the assessment of effects on cultural heritage is set out below.

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 (2010) 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 (2011) Standard and Guidance for Archaeological Desk-Based Assessment.

## Existing Conditions

10.2 The study area for the identification and assessment of potential physical effects will comprise the area within the site boundary. Based on an initial desk study, there are more than 20 known features recorded in the Stirling Council Sites and Monuments Records (SMR), wholly or partly within the site boundary a number of these are also recorded in the National Monuments Record of Scotland (NMRS). There are three Scheduled Monuments (SMs) within the south-west of the site. These include Craigton Dun, Double Craigs hut circle and the remains of Fintry Castle. The potential for previously unrecorded archaeological remains within the study area will also be considered and informed by the above and other designated and undesignated recorded sites within 5km of the site boundary.

10.3 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. Within 5km the effects on all SMs, Conservation Areas and Listed Buildings will be assessed. Any inventory historic battlefields, World Heritage Sites and Historic Gardens and Designed Landscapes (HGDLs) within 10km of the site will also be assessed. **Figure 10.1** shows the location of designated sites within 10km of the site.

10.4 There are 12 SMs within 5km of the study area as well as one Conservation Area. The latter is the Conservation Area of Fintry, approximately 1km to the south-west of the site boundary. There are 13 listed buildings within 5km. Those closest to the site, within 1.5km, are located near and around Fintry to the south-west and include:

- Gonachan Low Bridge (Category B);
- Old Fintry Parish Church (Category B);
- Old Fintry, Dunmore Cottage (Category B);
- Fintry Bridge (Category B);
- Telephone Call Box, Fintry (Category B);
- Culcreuch Castle Hotel (Category A).

10.5 There are three HGDLs within the study area including Caldross House (north-west), Gargunnock House and Touch, both located to the north-east. Several others lie in close proximity to the study area, mainly concentrated to the north-east and east. There are no inventory battlefields or World Heritage Sites.

10.6 The sources of information used to gather baseline information will include:

- Databases of designated assets held by Historic Scotland
- Records held by National Monuments Record of Scotland (NMRS);
- Records held by Stirling Historic Environment Record (HER)
- Aerial photographs held by Royal Commission on the Ancient and Historic Monuments of Scotland; and
- Maps held by the National Library of Scotland.

10.7 Where access allows, onsite field work will be undertaken to confirm accurate locations for previously recorded assets; to record their baseline condition; and to identify the presence of any previously undiscovered upstanding assets in proximity to proposed turbine (and associated infrastructure) locations.

## Effects on Cultural Heritage

10.8 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:

- physical effects on cultural heritage sites or 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 designated cultural heritage assets
- cumulative effects on setting with other existing or proposed developments.

10.9 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

10.10 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.

10.11 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 wind farm components away from sensitive locations;
- the fencing off or marking out of assets in proximity to working areas;
- an archaeological watching brief, if required, during construction activities in, or in proximity to, areas of particular concern;
- 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

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

- Historic Scotland;
- Stirling Council Archaeologist and Conservation Officers;
- local archaeological interest groups (as appropriate).

# Craigton & Spittalhill Wind Farm

Designated Cultural Heritage Features within 10km of Craigton and Spittalhill Wind Farm

- Indicative Site Boundary
- 10km buffer around Site Boundary
- Listed Building
- Scheduled Monument
- Scheduled Monument
- Conservation Area
- Battlefields Inventory Boundary
- Garden and Designed Landscape

10km

0 2.5 5 km

Figure 10.1

Map Scale @ A3:1:100,000

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# 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 M80, M9, A81 and A811:

- The M80 links Cumbernauld to Stirling, merging with the M9 just south of Stirling.
- The M9 originates in Newbridge (South of Queensferry) and runs to Dunblane.
- The A81 runs from Strathblane to Callander.
- The A811 connects Stirling and Balloch.

11.5 In addition to the strategic roads listed above, the B818 runs westwards, through the site, towards Balfron, originating in Denny.

11.6 An access study has been undertaken to examine potential site access routes for abnormal load and Heavy Goods Vehicles (HGVs) and to determine the extent of potential alignment constraints. This access study will be discussed with the relevant roads authorities (anticipated to be Transport Scotland and Stirling Council).

11.7 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

11.8 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 wind farm and other relevant developments).

11.9 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

11.10 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.

11.11 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

11.12 The consultees below will be approached for information to inform the EIA. They may also be contacted by Stirling Council regarding the scope of the EIA:

- Transport Scotland;
- Stirling 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:

- The Scottish Outdoor Access Code;
- Scottish Executive (now Scottish Government) (2002) *Output Income and Employment Multipliers Scotland*;
- PAN 73 (2005) *Rural Diversification*.

12.3 Health and safety issues will be addressed in the ES chapter providing details on construction and operational maintenance.

12.4 Any likely effects on submitted or determined planning applications and on Development Plan proposals ('committed development') will be considered in the planning chapter.

## Existing Conditions

12.5 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 Stirling area in relation to potential social and economic effects and effects on tourism.

12.6 Fintry is the closest settlement to the site and is approximately 1km south-west. There are some scattered dwellings surrounding the site in addition to Spittalhill and Craigton including Todholes, Gartcarron and Bogside.

12.7 There are no Rights of Way (RoW) or Core Paths within the site. The closest RoW is less than 20m from the site boundary south of Craigton and corresponds with Core Path 9078Fy/01. This Core Path links to a network of paths close to and around Fintry. There is also a RoW to the north-east of the site boundary, approximately 200m away at its closest point. This corresponds with Core Path 9078Gg/09. This RoW travels broadly north from near the site boundary towards Kippin, providing a link to the wider route network.

12.8 The site is located in an area that is popular for walking. Popular routes include the summit of Stronend, located to the north-west of the site boundary, and Double Craigs within site. The 'Loup of Fintry' is a waterfall along the section of the Endrick Water that flows along the edge of the forestry that meets the site boundary in the south/south-east. The West Highland Way long distance footpath is approximately 11km from the site to the south-west.

12.9 The wider surrounding area offers a diverse range of attractions for all types of visitor including horse-riding, cycling, golf, fishing and features of archaeological and historic interest.

12.10 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.

12.11 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:

- Stirling and Clackmannanshire Structure Plan 2002;
- Stirling Council Local Plan 1999;
- Stirling Community Planning Partnership Community Plan 2005-2020;
- tourism statistics (from VisitScotland and specific tourist attractions in the area);
- the Stirling Council Core Path Plan 2009;
- 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

12.12 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.

12.13 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

12.14 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.

12.15 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).

12.16 Measures to seek to secure any identified benefits, such as the use of local construction workers, will also be implemented.

## Consultation Proposals

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

- Argyll, the Isles, Loch Lomond, Stirling & the Trossachs Tourist Board;
- Fintry Community Council;
- 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 following[6]:

- Airports likely to be affected by the wind farm;
- the Ministry of Defence (MoD) Safeguarding;
- National Air Traffic Services (NATS);
- any civil airfields which may be affected by the wind farm;
- 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.

## 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 blades rotate, the shadow flicks on and off, which is known as 'shadow flicker'. Shadow flicker only

[6] 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.

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 Institute[7]. The main aims of the calculation are: to quantify sources of carbon emissions associated with the wind farm (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'.

[7] *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 Stirling Council regarding the scope of the EIA:

- Stirling Council:
    - Landscape Architect;
    - Biodiversity Officers;
    - Environmental Health Officer (in respect of noise and private water supplies);
    - Archaeologists and Conservation Officers;
    - Roads Departments.
- The Scottish Government Internal Teams (Ecology, Research and GIS Unit; the Protected Species Team and Marine Scotland);
- North Lanarkshire Council
- East Dunbartonshire Council
- Falkirk Council
- Perth and Kinross Council
- Clackmannanshire Council
- Loch Lomond and The Trossachs National Park Authority;
- Scottish Natural Heritage (SNH);
- Scottish Environment Protection Agency (SEPA);
- Scottish Water;
- The Scottish Wildlife Trust;
- The Association of Salmon Fishery Boards;
- The Forth District Salmon Fishery Board;
- The Royal Society for the Protection of Birds;
- The Central Scotland Raptor Study Group;
- Historic Scotland;
- local archaeological interest groups (as appropriate);
- Transport Scotland;
- Argyll, the Isles, Loch Lomond, Stirling & The Trossachs Tourist Board;
- Fintry 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 Craigton & Spittalhill Wind Farm Environmental Statement

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)

   Introduction

   Assessment Methodology

   Planning Context