2 Environmental Impact Assessment

2.1 Introduction

EIAs have been required for certain major developments since the implementation in the UK of the *European Council Directive on Environmental Assessment (EC Directive 85/337/EEC)*. The Directive was implemented in the UK in 1988 and has subsequently been amended by Directives 97/11/EC and 2003/35/EC and consolidated by Directive 2011/92/EU in December 2011. The Directive is implemented principally by the *Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011*, however, since the original implementation of the Directive a wide range of project-specific Regulations have been developed. This includes the *Electricity Works (EIA) (Scotland) Regulations 2000* (hereafter referred to as "the Regulations") which apply in the case of applications under Section 36 of the *Electricity Act 1989*. It is in accordance with the Regulations that the EIA of the proposed High Clachaig Wind farm shall be undertaken and an ES produced.

2.2 Scope of the Environmental Impact Assessment

Unless stated to the contrary in Chapters 5 to 13, the scope of the EIA for each of the environmental topics set out within this Report will include an assessment of the construction, operation and decommissioning phases of the development proposals.

Some topic areas have provided background data; information from publicly available sources and a preliminary environmental assessment which has informed the initial understanding of the land available for the proposed High Clachaig Wind Farm. For other topics, where preliminary data, consultation and information are not available, the proposed methods for collating and assessing data are presented. Potential effects on the commercial forestry operations will also be considered within the ES as appropriate.

2.3 Approach to EIA

The EIA will identify and assess the potential positive and adverse environmental effects of the proposed development. A key aim of EIA is to integrate environmental considerations into the design process and propose suitable mitigation measures to avoid, reduce or offset adverse environmental effects and to identify enhancements measures to maximise positive effects. The main steps to be followed in the EIA are as follows:

- Baseline surveys will be undertaken in order to identify and describe the environmental character of the area potentially affected by the proposed development. This information is provided to the scheme designers at the earliest opportunity;
- Relevant natural and man-made processes that may change the character of the site are identified;
- Consideration is then given to the possible interactions between the proposed development and both existing and future site conditions and are assessed using criteria based on accepted guidance and good practice;
- Using the initial designs of the proposed development, the possible environmental effects, both direct and indirect, are predicted;
- Recommendations are made to avoid, minimise or mitigate adverse effects and enhance positive effects. Any alterations to the final design will be reassessed and the significance of residual environmental effects assessed; and
- The results of the EIA are set out in an ES.

2.4 Approach to Assessment

2.4.1 Terminology

For the purposes of this assessment, the terms 'impact' and 'effect' are not used synonymously and the following definitions apply instead:

- **Impacts**: any changes attributable to the proposed development that have the potential to have environment effects (i.e. Impacts are the cause of Effects);
- **Effects**: the result of the changes for specific environmental resources or receptors (i.e. Effects are the consequence of the Impacts).

2.4.2 Overview

The determination of the significance of the effect arising from the proposed development is a key stage in the EIA process. In order to assess the overall significance of an effect it is necessary to establish the magnitude of the effect occurring (i.e. the change to the existing baseline conditions as a result of the development) and the sensitivity or importance of the receiving environment or receptor. Assessment of significance for environmental topics will combine professional judgement with consideration of a number of factors including:

- The type of effect, i.e. whether it is adverse, beneficial, neutral or uncertain;
- The probability of the effect occurring based on the scale of certain, likely or unlikely;
- The sensitivity of the resource or receptor under consideration;
- The magnitude of the potential effect in relation to the degree of change which occurs as result; and
- Whether the effect is temporary, permanent, and/or reversible.

2.4.3 Sensitivity or Importance of Receptors

The sensitivity of the baseline conditions is assessed according to the relative importance of existing environmental features on or near to the site, or by the sensitivity of receptors which would potentially be affected by the proposed development. Criteria for the determination of sensitivity or of importance or value of receptors are established based on approved guidance, legislation, statutory designation and/or professional judgment.

The following criteria provide a general definition for determining the sensitivity of receptors. In each specialist Chapter of the ES sensitivity criteria will be explained:

- Very High Sensitivity: The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance;
- High Sensitivity: The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance;
- Medium Sensitivity: The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance;
- Low Sensitivity: The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance; and
- Negligible Sensitivity: The receptor is resistant to change and is of little environmental value.

Effects are considered to be of major or minor significance, or not significant. Some variation from this general approach is required for specific environmental concerns but will be summarised in the individual ES topic sections and confirmed during the EIA process in discussions with the relevant consultees.

The final assessment of significance of the full scheme will take into account the mitigation measures (see section 2.4.6) and constraints that have been incorporated into the proposed development.

2.4.4 Magnitude of Effect

The magnitude of potential effects on environmental baseline conditions is identified through consideration of the proposed development taking into account the scale or degree of change from the existing situation as a result of the effect; the duration and reversibility of the effect as well as consideration of relevant legislative or policy standards or guidelines.

The following criteria provide a general definition for determining the magnitude of a particular effect. In each specialist Chapter of the ES effect magnitude criteria will be explained:

- High Magnitude: Total loss or major alternation to key elements/features of the baseline conditions such that post development character/composition of baseline condition will be fundamentally changed;
- Medium Magnitude: Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed;
- Low Magnitude: Minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character /composition of the baseline condition will be similar to the pre-development situation; and
- Negligible Magnitude: Very little change from baseline conditions. Change is barely distinguishable, approximating to a “no change” situation.

2.4.5 Significance of Effect

The significance of the effects arising from the proposed development will be reported using a seven-point scale, as follows:

- Major Adverse;
- Moderate Adverse;
- Minor Adverse;
- Negligible / None;
- Minor Beneficial;
- Moderate Beneficial; and
- Major Beneficial.

Effects predicted to be Minor are considered to be manageable. Such effects are ‘Not Significant’. Effects assessed as Moderate or Major are considered to be 'Significant'. When the significance of effects is assessed this takes into account mitigation, i.e. the assessment applies to the residual impacts of the project, which can be defined as any impact that would remain following the implementation of proposed mitigation measures.

The general approach adopted in the assessment of significance is outlined in Table 2.1. A combination of the magnitude of the effect under consideration and the sensitivity of the receiving environment determines the significance of effect. It should be noted that this general approach is a framework and should not be treated as a matrix.

Table 2.1: Approach to Assessment of Effects					
Magnitude	**Sensitivity**				
	Very High	**High**	**Medium**	**Low**	**Negligible**
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

Note: Shaded boxes indicate a significant effect in terms of EIA.

2.4.6 Mitigation

Some mitigation measures to avoid, reduce or offset the consequences of the development may be included within the scheme design whilst others may require adherence to particular constraints on construction methodology or mode of operation. Enhancement measures will also be incorporated into the design in order to maximise environmental benefits. The final assessment of significance of the full scheme will be based on the residual environmental effects, i.e. those that take into account the mitigation and enhancement measures and constraints that have been incorporated into the development.

2.4.7 Cumulative Effects and Interaction with Other Schemes

The effects of the proposed development will be assessed in combination with other wind farm developments in the vicinity up to 35km from the land available for associated development (i.e. 'cumulative effects'). Cumulative effects will be considered in the appropriate technical chapters of the ES and subject to agreement with the competent authority, and will include:

- Operational wind farm developments;
- Wind farm developments under construction;
- Wind farm planning applications permitted but not yet implemented; and
- Wind farm applications submitted but not yet determined including those at scoping stage.

2.5 Alternatives

The Regulations require that an ES includes '*an outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects'*. Layout options will be considered including candidate wind turbine models, the number of turbines and locations of turbines for the proposed development throughout the EIA process. In addition to the wind turbines themselves the site infrastructure is also subject to the design iteration process, considering alternative locations to reduce the environmental impact, from the following constructed assets:

- Permanent anemometer mast location to monitor turbine performance;
- On-site access (both proposed new forest roads and upgraded existing ones);
- Location of the control building comprising an electrical substation and compound;
- Crane hard standings and switchgear housing locations and design;
- Other infrastructure identified during the design process; and
- Options for the avoidance or mitigation of effects on natural and human environment resources.