

EIA Report Chapter 3: EIA Methodology

Monan Repower

Client: Constantine Wind Energy (UK) Ltd

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Constantine Wind Energy (UK) Ltd

Author:

Green Cat Renewables Ltd

Checked by	Isla Ferguson	Date	05/01/2024
Approved by	Rob Collin	Date	10/01/2024

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3 EIA Methodology

3.1 Introduction

This chapter describes the methodology and approach applied to the Environmental Impact Assessment (EIA) Report chapters for Monan Repower (Proposed Development).

This EIA has been carried out in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as the EIA Regulations).

The approach to the EIA also follows the requirements of guidance including:

- Institute of Environmental Management and Assessment (IEMA) Environmental Impact Assessment Guide to Shaping Quality Development (IEMA, 2015).
- Environmental Impact Assessment Handbook; guidance for competent authorities, consultation bodies and other involved in the Environmental Impact Assessment process for Scotland (NatureScot and Historic Environment Scotland, 2018);
- Relevant guidance issued by other government and non-governmental organisations; and
- Receptor-specific guidance documents. Where specific guidance has been used it has been identified in the Legislation, Policy and Guidance section of each technical chapter within the EIA Report (EIAR).

EIA is a statutory process governed by UK and European law. It is a means of drawing together in a systematic way, an assessment of the likely significant environmental effects arising from a proposed development. In Scotland, the relevant regulations are provided in The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. This section presents an overview of the methodology to be utilised for the production of the EIAR. It outlines the methodology for the identification and evaluation of likely significant environmental effects, both for the Proposed Development itself and cumulatively with other developments.

3.2 Requirement for EIA

The EIA Regulations are specifically relevant to the Proposed Development. The need for an EIA was confirmed by the Scoping Direction received from Comhairle nan Eilean Siar (CnES) in December 2023, however, a number of assessments were scoped out. These are outlined in **Section 1.7.4**.

Table 3.1 below sets out how the ‘Information for Inclusion in Environmental Impact Assessment Reports’ required under Schedule 4 of the EIA Regulations has been provided within this EIAR.

Required Information (EIA Regulations)	Location of Information within the EIAR
1. A description of the development, including in particular: (a) a description of the location of the development; (b) a description of the physical characteristics of the whole development, including where relevant, requisite demolition works, and the land-use requirements during the construction and operational phase; (c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; (d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise,	The Proposed Development is described in Chapter 2: Proposed Development and Design Evolution . This includes a description of construction activities and associated works, and the operational phase, including maintenance. The Site Location is shown in Planning Drawing C5507-GCR-WF-GA-DR-P-0001 and the Site layout/Proposed Development is illustrated in Planning Drawing C5507-GCR-WF-GA-DR-P-0002 . Expected residues and emissions are addressed in Chapter 5: Carbon Balance .

Required Information (EIA Regulations)	Location of Information within the EIAR
vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases).	
2. A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Section 2.2 describes the design process by which the final turbine layout and infrastructure design has been chosen to become the final Proposed Development. The chapter also discusses the various alternatives considered and why they were discounted.
3. A description of the relevant aspects of the current state of the environment (the “baseline” scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of relevant information and scientific knowledge.	A description of the current environment and the baseline is provided within each technical chapter of the EIAR (Chapters 5 to 12).
4. A description of the factors specified in regulation 4(3) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	The receptors likely to be significantly affected by the Proposed Development are provided in each of the technical chapters of the Onshore EIAR (Chapters 5 to 12). This is informed by the Scoping Opinion and consultation feedback.
<p>5. A description of the likely significant effects of the development on the environment resulting from, inter alia:</p> <p>(a) The construction and existence of the development, including, where relevant, demolition, including, where relevant, demolition works;</p> <p>(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>(f) the impact of the development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the development to climate change; and</p> <p>(g) the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in regulation 4(3) should cover the direct effects and any indirect, secondary, cumulative transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established as Union or Member State level which are relevant to</p>	<p>The potential likely significant effects arising from the construction and operation of the Proposed Development, along with the measures required to mitigate these, and the predicted significant residual effects are provided in each of the technical chapters of the EIAR (Chapters 5 to 12). This includes detailing the nature and duration of the potential likely significant effects.</p> <p>Chapter 2: Proposed Development and Design Evolution provides details relating to 5. (a).</p> <p>Chapter 8: Ecology, Chapter 9: Ornithology, Chapter 7: Hydrology provide details relating to 5 (b).</p> <p>Chapter 5: Carbon Balance provide details relating to 5 (c). Noise has been scoped out of the EIAR.</p> <p>Chapter 5 to 12 provide details relating to 5 (d).</p> <p>Chapters 5 to 12 each provide an assessment of cumulative effects.</p> <p>Chapter 5: Carbon Balance provides details relating to 5 (f).</p> <p>Chapter 2: Proposed Development and Design Evolution provides details relating to the technologies and substances used.</p> <p>Cumulative effects are provided in each technical chapter of the EIAR.</p> <p>The overall approach and methods used for the EIA are provided in this Chapter 3: EIA Methodology. The specific approaches and methods used for each technical assessment are included within the relevant technical chapters of the EIAR. (Chapters 5 to 12).</p>

Required Information (EIA Regulations)	Location of Information within the EIAR
the development including in particular those established under Council Directive 92/43/EEC and Directive 2009/147/EC.	
6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	The general approach to the EIA is described in this Chapter 3: EIA Methodology . The methods used for each technical assessment are included within the relevant technical chapter of the EIAR (Chapters 5 to 12) .
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	The overall approach to mitigation is included within Section 3.6 - Mitigation of this chapter. Specific mitigation measures are included within each technical chapter of the EIAR (Chapters 5 to 12) and the committed mitigation measures are detailed in Chapter 13: Summary of Mitigation .
8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned.	Chapter 12 deals with issues relating to this requirement.
9. A non-technical summary of the information provided under paragraphs 1 to 8.	The NTS is provided as a stand-alone document as part of the planning application.
10. A reference list detailing the sources used for the descriptions and assessments included within the EIAR.	References are provided in each chapter of the EIAR .

3.3 Consultation

Consultation is a key component of the EIA process, and continues throughout the lifecycle of a development, from its initial stages through to consent, construction, operation, and de-commissioning. This section details the consultation process undertaken during the design and EIA process.

3.3.1 Scoping

A **Scoping Report** was submitted to CnES in September 2023 and a Scoping Opinion was received in December 2023. A summary of key issues raised during consultation as part of the Scoping Opinion has been included in each technical chapter of the **EIAR (Chapters: 5-12)** as applicable.

The EIA for the Proposed Development has been informed by the Scoping Direction provided by the CnES, ongoing consultation with statutory bodies and other stakeholders as well as consultation with local communities.

3.3.1.1 Pre-application Engagement Meeting

A pre-application engagement meeting took place over Microsoft Teams on 14 March 2023 between the CnES, CWE the Applicant and GCR as the planning agent.

It was agreed between all attending that there are two main issues to be assessed:

Ornithology – the presence of eagles in the locality is a serious consideration. Appropriate monthly surveys will be undertaken for a minimum of 12 months. Correspondence with NatureScot prior to this meeting and through Scoping has confirmed this as an appropriate scope. It was highlighted by NatureScot that this survey would ideally follow a calendar year, starting in January. This was endeavoured to be the schedule, however due to weather restricting travel, the surveys were undertaken from February 2023 to January 2024.

Landscape and Visual Impact – the LVIA will focus on the Special Qualities of the NSA; will include wild land assessment; and look at the difference in impact, with regard to the existing turbines.

It was also agreed that ahead of the scoping report the MOD would be contacted by GCR to discuss their expected lighting requirements.

Issues agreed at pre-application engagement to be scoped in or out, are listed in **Table 3.1** below:

Table 3.1 - Issues Agreed to be scoped in or out of EIA during the pre-application meeting

Issues scoped in	Issues scoped out
LVIA	Cultural Heritage and Archaeology
Ornithology	Shadow Flicker
Ecology	Noise
Hydrology	Socio-economics
Traffic and Transport	
Carbon Balance	
Decommissioning of Existing Turbines	

3.3.2 Pre-application Public Consultation events

The Applicant undertook consultation with the local community which entailed establishing a public engagement event held on the 6th November at the Harris Hotel in Tarbert, the nearest village to the Proposed Development.

Prior to this The Applicant distributed leaflets to all properties within 3km of the Site to advertise the engagement event as well as publicising the event in the local newspaper distribution, De Tha Dol, which circulates to the local community.

3.4 Requirements for Competent Experts

Green Cat Renewables (GCR) is a renewable energy consultancy focused on all aspects of development support, primarily based in Scotland but with extensive UK wide experience and a growing presence in North America.

GCR offer the full range of support and services, tailored to the Client’s needs, to economically deliver any scale of renewable energy project, from initial feasibility and planning to construction and commissioning.

With a team of over 80 staff, the company’s multi-disciplinary resource base spans all stages of project delivery from site searching, feasibility and concept development, through to planning, engineering, project management and operational asset management. The company’s experience profile includes 500MW+ of wind, 200MW+ of solar, and 20MW+ of hydro projects, totalling over 120 consented projects.

The team undertaking the EIA for the Proposed Development are predominantly GCR professional consultants. The team is comprised of an EIA professional who takes the lead role in the co-ordination and management of the EIA. The EIA lead is supported by a wider team of technical specialists taking responsibility for the data collection data analysis and technical impact assessments.

The technical assessments are led by a lead technical author who is a recognised expert in their field and has significant experience in the preparation of impact assessments. The lead author takes responsibility for the quality of the data gathered; the assessment methodology to be undertaken, the impact assessments made and any proposed mitigation measures. The lead author is usually supported by a team of consultants and their work is subject to both technical and consistency review by a Project Director and the EIA lead.

Some of the technical assessments and/or associated EIA chapters are undertaken by specialist technical consultancies outside of GCR. Authorship of each chapter is detailed in **Table 1.1** of **Chapter 1 - Introduction**, with technical support and chapters being originated by external authors being summarised below.

- IMTeco Ltd- Author: **Chapter 8- Ecology**
- GLM Ecology- Author: **Chapter 9- Ornithology**

3.5 Assessment Methodology

The individual methodologies for assessing each EIA topic are described in more detail in each of the topic chapters within the EIAR. The following sections briefly outline the overarching assessment methodology to be undertaken.

The main steps in the EIA assessment process for the Proposed Development have been:

- Summary of the relevant legislation, policy and guidance documents used to inform the assessment;
- Discussion of the results of consultation for each technical chapter;
- Identification of the chapter specific assessment methodology;
- Identification of the existing baseline conditions at the Site and surroundings area;
- Prediction of the likely environmental impacts (both adverse and beneficial) associated with the construction, operation and decommissioning of the Proposed Development;
- Identification of mitigation to avoid, prevent or reduce or, if possible, offset adverse effects;
- Assessment of the significance of any residual effects after mitigation, in relation to the sensitivity of the feature impacted upon and the magnitude of the effect predicted, in line with the methodology identified in **Section 3.6.2**;
- Summary of potential significant effects.

3.5.1 Identification of Environmental Baseline

A review of the current environmental conditions was undertaken to determine the appropriate baseline for assessment. In the majority of assessments this involved the following;

- Determining the realistic worst-case parameters for each assessment receptor;
- Definition of an appropriate study area, based on guidance and best practice;
- A review of currently available information relating to the development study area;
- Identification of potential impacts;
- Outline further data/survey/monitoring undertaken to obtain relevant information if required to support assessment;
- Review information to ensure sufficient data is available to provide a robust assessment.

3.5.2 Assessment of Effects

The methods for predicting the nature and magnitude of any potential impacts vary dependent on the subject area. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in Government guidance and standards. Where it is not possible to use a quantitative method, a qualitative assessment method was utilised, these assessments rely on the experience and professional judgement of the technical specialist.

The factors specified in Regulation 3A (3) have been considered in the EIA including:

The magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected);

- The nature of the impact;
- The intensity and complexity of the impact;
- The probability of the impact;
- The expected onset, duration, frequency and reversibility of the impact;
- Cumulative impacts with the impact of other existing and/or approved development(s); and
- The possibility of effectively reducing the impact.

Effects have been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor. **Table 3.2** - Matrix for evaluating significance of an effect is used as a guide to determine an overall significance of effect using the relationship between the sensitivity of the identified receptor and the anticipated magnitude of an impact/change. The magnitude of impact/change for each effect has been identified and predicted as a deviation from the established baseline conditions. The sensitivity of the receptor/receiving environment to change has been determined using professional judgement, consideration of existing designations and quantifiable data, where possible. Each technical chapter has defined what constitutes a particular level of magnitude of change and sensitivity of receptor. In some instances, professional judgement has been used to inform the assessment based on previous experience.

Table 3.2 - Matrix for evaluating significance of an effect

Sensitivity	Magnitude of Change			
	High	Medium	Low	Negligible
High	Major	Major/Moderate	Moderate/Minor	Negligible
Medium	Major/Moderate	Moderate	Minor	Negligible
Low	Moderate/Minor	Minor	Minor/Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

The following terms are used in the EIAR, unless otherwise stated, to determine the level of effects predicted to occur:

- Major beneficial or adverse effect – where the Proposed Development would result in a significant improvement (or deterioration) of the existing environment;
- Moderate beneficial or adverse effect – where the Proposed Development would result in a noticeable improvement (or deterioration) of the existing environment;
- Minor beneficial or adverse effect- where the Proposed Development would result in a small improvement (or deterioration) of the existing environment; and
- Negligible – where the Proposed Development would result in no discernible improvement (or deterioration) of the existing environment.

Using professional judgement and with reference to the Guidelines for EIA (IEMA, 2004), the assessments within this EIAR consider effects of moderate and greater to be significant, while those of minor significance and less to be not significant. Where there are deviations from this criterion these will be clearly stated within the individual technical chapters.

Overall residual effects which account for any mitigation measures are provided at the end of each technical chapter of the EIAR. Distinction has also been made between direct and indirect, short and long term, permanent and temporary, beneficial and adverse effects.

3.6 Mitigation

The aim of proposing mitigation measures is to avoid, reduce and offset any significant adverse environmental effects arising from the Proposed Development, as identified throughout this EIAR. There are different types of mitigation used in this EIAR, embedded mitigation and additional mitigation.

3.6.1 Embedded Mitigation

Embedded mitigation comprises both design features and construction good practice. These measures are assumed to be in place prior to undertaking the EIA and for part of the Proposed Development. Embedded mitigation can include:

- Minimising potential permanent effects of the Proposed Development through design
- Construction good practice, such as those measures identified in a construction environmental management plan (CEMP)

Any further details of embedded mitigation for the Proposed Development are included in the technical appropriate technical assessment chapters.

3.6.2 Additional Mitigation Measures

Where possible, reasonable steps will be taken during the design process to avoid the creation of significant adverse effects. Where these cannot be avoided completely, appropriate mitigation will be proposed to avoid or reduce the impacts to acceptable levels. This mitigation can include:

- Changes to the Proposed Development design;
- Physical measures applied on Site; and
- Measures to control particular aspects of the construction or operation phases.

Mitigation measures are presented as commitments in order to ensure a level of certainty as to the environmental effects of the Proposed Development. There are various ways in which a level of certainty can be ensured, such as through the use of planning conditions.

A schedule of all of the mitigation measures proposed within this EIAR is presented within **Chapter 13 - Summary of Mitigation**.

3.7 Cumulative Effects

Cumulative effects are those which result from incremental changes caused by past, present or reasonably foreseeable future actions resulting from the introduction of the Proposed Development in-combination with other developments.

Development proposals which have been included in the cumulative assessment are listed in **Table 3.3** below and illustrated on **Figure 3.1**. The requirements will differ for different technical assessments and may include existing as well as proposed wind farm developments. The criteria for developments being included are those which are classified as EIA development which have planning applications submitted, approved, are under construction, or are operational and are located within 20km of the Proposed Development.

Cumulative effects have been considered in detail and in accordance with guidance related to each topic within each chapter. The cumulative situation changes frequently as applications are made or withdrawn, and the layouts

of submitted applications are changed. It is therefore necessary to decide on a cut-off date when the sites and layouts to be included are fixed. The EIAR includes operational, consented and application stage wind energy developments above 50m in height as of 06 December 2023. It also includes an in planning overhead line (OHL) as requested by CnES in their Scoping Opinion. The specific methodologies and developments included are detailed within each of the technical assessments within **Chapters 5 – 12**.

Table 3.3 - Development to be considered in Cumulative Assessment

Cumulative Development	Distance from the Closest Turbine
Consented Developments	
SSEN 132kv HV Connection Harris to Stornoway (Replacement) ¹	0.3km
In Planning Developments	
Usensis Wind Farm ²	16.0km

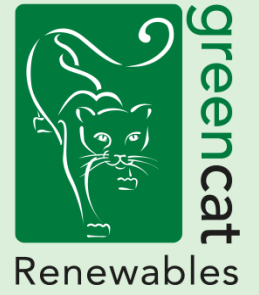
3.7.1 Effect Interactions

Effect interactions are the combined or synergistic effects as a result of the Proposed Development on a particular receptor which may collectively cause a more significant effect than individually. A theoretical example is the culmination of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna adjacent to a construction site.

The cumulative effect interactions assessment is presented within each individual technical chapter (**Chapters: 5 -12**).

¹ <https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004490> (Accessed 04/03/2024)

² <https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004568> (Accessed 04/03/2024)



Registered Office

Green Cat Renewables
Stobo House
Roslin
Midlothian
EH25 9RE

+44 (0) 131 541 0060

info@greencatrenewables.co.uk
www.greencatrenewables.co.uk