Lorg Wind Farm Grid Connection

Environmental Impact Assessment Report

Chapter 4: EIA Process and Methodology

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Land & Planning

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4 EIA PROCESS AND METHODOLOGY

4.1 Introduction

4.1.1 The principal aim of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations')[1] is to ensure that the authority granting consent (the 'competent authority') for a particular project makes its decision in full knowledge of any likely significant effects on the environment. The EIA Regulations, therefore, set out a procedure that must be followed for certain types of projects before they can be given 'development consent'. This procedure, known as Environmental Impact Assessment (EIA), is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This also helps to ensure that the public and consultees understand the significance of the predicted effects and the scope for reducing any adverse effects before a decision is made. Early identification of likely adverse environmental effects also leads to the identification and incorporation of appropriate mitigation measures into the design of the project.

4.1.2 This Chapter sets out the broad approach that has been used in the EIA for the Proposed Development. It provides an overview of the key stages that have been followed in line with EIA best practice.

4.2 The EIA Regulations

4.2.1 The EIA Regulations set out the types of development that are always subject to an EIA (Schedule 1 developments) and other developments which may require an EIA if they exceed certain thresholds and are likely to give rise to likely significant environmental effects (Schedule 2 developments). The Proposed Development falls under the following Schedule 2 definition:

"(2) an electric line installed above ground -

(a) with a voltage of 132 kilovolts or more;

(b) in a sensitive area; or

(c) the purpose of which installation is to connect the electric line to a generating station the construction or operation of which requires consent under section 36 of the Electricity Act".

4.2.2 A formal screening opinion was not sought from the Scottish Ministers. The Applicant acknowledges that the Proposed Development has the potential to have significant environmental effects and has therefore voluntarily undertaken an EIA.

4.2.3 Schedule 4 of the EIA Regulations provides details of the information required for inclusion in the Environmental Impact Assessment Report (EIAR). **Table 4.1** provides a summarised breakdown of this information and where it can be located in this EIAR.

Table 4.1 Location of Required Information Within this EIA Report

	Required Information	Location within the EIAR
1	A description of the development, including in particular: (a) a description of the location of the development;	Chapter 1: Introduction
	(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 phases	Chapter 3: Proposed Development
	(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and	Chapter 3: Proposed Development

[1] Scottish Government (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available online at: https://www.legislation.gov.uk/ssi/2017/101/contents.

	Required Information	Location within the EIAR
	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, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.	Chapter 3: Proposed Development and Technical Chapters 6-10
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.	Chapter 2: Route Selection and Alternatives
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.	Technical Chapters 6-10
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 land take), soil (for example organic matter, erosion, compaction, sealing), water (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.	Technical Chapters 6-10
5	A description of the likely significant effects of the development on the environment resulting from, inter alia: (a) the construction and existence of the development, including, where relevant, demolition works;	Technical Chapters 6-10
	(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;	Technical Chapters 6-10
	(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;	Technical Chapters 6-10
	(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	Technical Chapters 6-10
	(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;	Technical Chapters 6-10 and Chapter 11: Cumulative Assessment
	(f) the impact of the development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and	Technical Chapters 6-10
	(g) the technologies and the substances used.	Technical Chapters 6-10
	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 at Union level (as they had effect immediately before IP completion day) or United Kingdom level which are relevant to the development including in particular those established under the law of any part of the United Kingdom that implemented Council Directive 92/43/EEC and Directive 2009/147/EC.	Technical Chapters 6-10 and Chapter 11: Cumulative Assessment
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 Chapters 6-10

	Required Information	Location within the EIAR
	technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	
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	Technical Chapters 6-10 and Appendix 12.1: Schedule of Commitments
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.	Technical Chapters 6-10
9	A Non-Technical Summary of the information provided under paragraphs 1 to 8.	Volume 1: Non-Technical Summary
10	A reference list detailing the sources used for the descriptions and assessments included in the EIAR.	All chapters and footnotes

4.3 The EIA Process

Legislation and Good Practice Guidance

4.3.1 In addition to the EIA Regulations, the following planning policy and best practice guidance have been referred to:

- National Planning Framework (NPR) 4 (2023- last updated on 9 October 2024)[2];
- Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment (Scottish Government, 2017c)[3];
- Guidelines for Environmental Impact Assessment[4], Institute of Environmental Management and Assessment (IEMA, 2004);
- IEMA's guidance documents on EIA practice, including Delivering Proportionate EIA[5]; Environmental Impact Assessment Guide to Shaping Quality Development[6] and Environmental Impact Assessment Guide to Delivering Quality Development[7];
- A Handbook on Environmental Impact Assessment (V5) (Scottish Natural Heritage and Historic Environment Scotland, 2018)[8].

[2] The Scottish Government, (2024). National Planning Framework 4. [Online] Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed: April 2025].

[3] Scottish Government (2017c). Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment. Available online at: http://www.gov.scot/Resource/0052/00521028.pdf.

[4] IEMA (2004). Guidelines for Environmental Impact Assessment. Lincoln: IEMA

[5] IEMA (2017). Delivering Proportionate EIA. Lincoln: IEMA.

[6] IEMA (2015). Environmental Impact Assessment Guide to Shaping Quality Development. Lincoln: IEMA

[7] IEMA (2016). Environmental Impact Assessment Guide to Delivering Quality Development. Lincoln: IEMA

[8] SNH and HES (2018). Environmental Impact Assessment Handbook. Available online at: https://www.nature.scot/handbook-environmental-impact-assessment-guidance-competent-authorities-consultees-and-others.

Scoping

4.3.2 An EIA Scoping Report[9] was submitted to the Energy Consents Unit (ECU) in February 2019 to accompany a request to Scottish Ministers to adopt a Scoping Opinion under Regulation 12 of the EIA Regulations.

4.3.3 A Scoping Opinion was received from the ECU on 26 April 2019[10]. Where relevant, the Scoping Opinion is detailed in the consultation tables contained within **Chapters 6 to 10**, with reference to how the comments have been addressed in the EIAR. A complete table of Scoping comments and responses is provided as **Appendix 4.1 Scoping Comments and Responses**. The list of the organisations consulted and whether they responded is shown in **Table 4.2.**

Table 4.2 Scoping Consultees

Consultee	Response Received	Consultee	Response Received
Energy Consents Unit	Yes	National Farmers Union	No
Dumfries and Galloway Council (Various Departments)	Yes	National Trust for Scotland	No
Scottish Environment Protection Agency	Yes	NATS Safeguarding	Yes
Scottish Natural Heritage (now NatureScot)	Yes	Nuclear Safety Directorate (HSE)	No
Historic Environment Scotland	Yes	Office of Communications (OFCOM)	Yes[11]
Association of Salmon Fishery Board	No	Royal Air Force (RAF)	Yes
British Horse Society	No	Ramblers Association (Scotland)	No
British Trust for Ornithology Scotland (BTO)	No	Red Squirrels in Scotland (South-west Scotland)	No
BT Openreach	Yes	Royal Society for the Protection of Birds (RSPB) Scotland	Yes
Civil Aviation Authority - Airspace	No	Scottish Badgers	Yes
Defence Infrastructure Organisation	Yes[12]	Scottish Outdoor Access Network (SOAN)	No
Dumfries and Galloway Bat Group	No	Scottish Rights of Way and Access Society (ScotWays)	Yes
Dumfries and Galloway Raptor Study Group	No	Scottish Water	Yes
East Ayrshire Council	Yes	Scottish Wildlife Trust	No
Forestry Commission Scotland	Yes	Sustrans Scotland	No
Galloway Fisheries Trust and Dee District Salmon Fishery Board[13]	Yes	The Coal Authority	Yes
Game and Wildlife Conservation Trust	No	The Crown Estate Scotland	No
Glasgow Airport	Yes	The Woodland Trust	No
Glasgow Prestwick Airport	Yes	Transport Scotland	Yes

[9] Lorg and Longburn Wind Farms Grid Connection Scoping Report, February 2019 available at: https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00001789

[10] Available to view on the Energy Consents Unit website under ECU Reference ECU00003283

[11] A scoping response was received from OFCOM after the ECU Scoping Opinion had been issued and therefore is not included in the ECU Scoping Opinion.

[12] A scoping response was received from Defence Infrastructure Organisation after the ECU Scoping Opinion had been issued and therefore is not included in the ECU Scoping Opinion.

[13] Galloway Fisheries Trust commented on behalf of the Dee District Salmon Fishery Board.

Consultee	Response Received	Consultee	Response Received
Health and Safety Executive	No	Visit Scotland	Yes
JNCC (for Geological Conservation Review)	No	Carsphairn Community Council	Yes
John Muir Trust	No	Dalry Community Council	No
Joint Radio Company (JRC)	Yes	Glencairn / Moniave Community Council	No
Marine Scotland Science	Yes	Tynron Community Council	No
Mountaineering Scotland	Yes	Penpont Community Council	No

4.3.4 Due to the following minor changes to the Proposed Development, a subsequent EIA Scoping update was provided in May 2022:

- the spur to Longburn Wind Farm was no longer required and was removed;
- the Holm Hill switching station was replaced with Holm Hill substation at a location slightly further east, and therefore the western end of the Proposed Route extended approximately 150 m in this direction; and
- the central and eastern sections of the Proposed Route deviate slightly when compared to those at the EIA Scoping stage due to changes made to accommodate other development proposals and landowner requests, including forestry management.

4.3.5 No new sensitive receptors were identified with the potential for likely significant effects, nor did the design or construction methods materially change from the 2019 Scoping Report. Therefore, it was proposed that the EIA Scope as set out in the EIA Scoping Report, February 2019, would remain generally unchanged, although the addition of a standalone Forestry chapter was proposed and some updates to relevant legislation and planning policy were noted.

4.3.6 Further consultation was undertaken in July 2024 due to the length of time which had elapsed since the previous scoping consultation with the ECU was undertaken. The letter summarised the validity of the Environmental Baseline for each of the technical topics. It concluded that, as there had been no substantive change to the environmental baseline, the Scoping Opinion obtained in 2019 and updated in 2022 was still valid. Following consultation, the ECU confirmed that they were content with this approach.

4.3.7 The topics scoped in and out of this EIAR are summarised in **Table 4.3** below.

Table 4.3 Topics Scoped in and out of this EIA Report

Topic	Scoped In / Out
Landscape and visual	Scoped in
Biodiversity and Ornithology	Scoped in
Cultural Heritage and Archaeology	Scoped in
Hydrology, Hydrogeology, Geology and Soils	Scoped in
Forestry	Scoped in
Traffic and Transport	Scoped Out[14]
Noise and Vibration	Scoped Out

[14] Additional consultation will be undertaken with Dumfries and Galloway Council roads officer and Ayrshire Roads Alliance by the Principal Contractor when detailed construction traffic information is known and prior to construction, as outlined in **Appendix 3.1: Framework Construction Traffic Management Plan.**

Topic	Scoped In / Out
Land Use	Scoped Out
Recreation and Tourism	Scoped Out
Major Accidents and Disasters	Scoped Out
Climate Change	Scoped Out
Air Quality	Scoped Out
Population and Human Health	Scoped Out
Material Assets	Scoped Out
Electric and Magnetic Fields	Scoped Out
Radio and TV Interference	Scoped Out
Waste	Scoped Out

Identification of Baseline

4.3.8 To identify the scale of likely significant effects as a result of the Proposed Development, it is necessary to establish the existing baseline environmental conditions at the Site and the surrounding area. The baseline scenario was established through the following methods, where relevant:

- site visits and surveys;
- desk-based studies;
- review of existing information;
- modelling;
- review of relevant national and local planning policies;
- consultation with the relevant statutory consultees; and
- identification of sensitive receptors.

4.3.9 The assessment has also taken into consideration how the current baseline conditions may change going forward at the point of construction. Due to the limitations, necessary assumptions and lack of evidence associated with the future baseline (i.e. it cannot be accurately measured), a detailed consideration of the effects of the Proposed Development against the future baseline would generally not result in a robust assessment depending on the length of future prediction.

Assessment of Effects

4.3.10 For the purposes of this EIAR, the applicable assessment periods of the Proposed Development lifecycle are as follows:

- construction period: this covers the effects arising from the enabling works, construction works, commissioning and reinstatement; and
- operational period: this covers the effects arising from the existence of the line from commissioning to its eventual decommissioning, along with any effects arising specifically from its operation, including routine maintenance activities.

4.3.11 When the operational life of the Proposed Development comes to an end, it is possible that the proposed Overhead Line (OHL) is reequipped with new conductors and insulators and the wood poles replaced. Alternatively, the OHL may be decommissioned fully, with the method of removal assumed to be as per the construction methods in reverse.

4.3.12 For the purposes of this EIAR, it is assumed the Proposed Development and associated operational environmental effects will be in perpetuity. Decommissioning is not proposed as part of the Proposed Development.

4.3.13 If the Proposed Development is decommissioned or refurbished, a further EIA may be required to assess the environmental impacts associated with decommissioning or refurbishment as part of the consenting requirements at that time.

4.3.14 The characteristics of an effect will vary depending on the duration of the activity causing the effect, the sensitivity of the receptor and the resultant change. It is therefore necessary to assess whether the effect is temporary or permanent; beneficial or adverse, and indirect or direct. Effects that are temporary are usually reversible and generally confined to the construction period. For the purposes of this EIAR, the terms used in the assessment of effects are generally defined as follows:

- temporary - where the effect occurs for a limited period of time and the change at a defined receptor can be reversed;
- permanent - where the effect represents a long-lasting change at a defined receptor;
- direct - where the effect is a direct result (or primary effect) of the Proposed Development;
- indirect - a knock-on (or secondary) effect which occurs within or between environmental components, may include effects on the environment which are not a direct result of the Proposed Development, often occurring away from the proposals or as a result of a complex biological or chemical pathway; and
- cumulative - these effects may arise when more than one development of a similar scale and nature combine to create a potentially greater impact than would result from the Proposed Development alone (see below).

4.3.15 Where a more appropriate effect duration scale or definition of the above terms applies to a technical discipline, this is clearly outlined in the technical chapters (**Chapters 6-10**).

Significance Criteria

4.3.16 The general approach for the assessment of significance considers the magnitude of change (from the baseline conditions), the sensitivity of the affected environment/receptors and (in terms of determining residual effects) the extent to which mitigation and enhancement will reduce or reverse adverse effects. In addition, further influences such as those listed below have been factored into the assessment using professional judgement:

- likelihood of occurrence;
- geographical extent;
- the value of the affected resource;
- adherence of the proposals to legislation and planning policy; and
- reversibility and duration of the effect.

4.3.17 The magnitude of change for each effect has been identified and predicted as a deviation from the established baseline conditions, using a scale of high, medium, low, and negligible. Each technical topic has defined what constitutes a particular level of magnitude.

4.3.18 The sensitivity of the receptor / receiving environment to change has been determined using professional judgement, consideration of existing designations (such as Sites of Special Scientific Interest (SSSIs)) and quantifiable data, where possible; using a scale of high, medium, low, and negligible. Each technical topic has defined what constitutes a particular level of sensitivity.

4.3.19 Each effect has been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor. **Table 4.4** is used as a guide to determine an overall significance of effects using the relationship between the sensitivity of the identified receptor and the anticipated magnitude of an impact/change.

4.3.20 Professional judgement is, however, equally important in establishing the suitability of this guiding ‘formula’ to the assessment of the significance of each individual effect.

Table 4.4 Matrix for Determining the Significance of Effects

		Sensitivity of Receptor/Receiving Environment to Change/Effect			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change/Effect	**High**	**Major**	**Major**	**Moderate**	Negligible
	Medium	**Major**	**Moderate**	Minor	Negligible
	Low	**Moderate**	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

4.3.21 Using professional judgement and with reference to the Guidelines for Environmental Impact Assessment (IEMA, 2004), the assessments within this EIAR consider the effects of major and moderate to be significant in the context of EIA Regulations. Minor and Negligible effects are not considered significant. Where there are deviations from this, these will be clearly stated within the individual technical chapters.

4.3.22 Summary tables that outline the predicted effects associated with an environmental topic, the appropriate mitigation measures required to address those effects, and subsequent overall residual effects are provided at the end of each technical chapter of the EIAR.

Mitigation Measures

4.3.23 Schedule 4 (paragraph 7) of the EIA Regulations requires the EIA to present a description of the measures proposed "to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects…and…of any proposed monitoring arrangements". There are different types of mitigation used in this report: embedded mitigation and additional mitigation.

4.3.24 'Embedded mitigation' comprises both design features and construction good practice. These measures are assumed to be in place prior to impact assessment and effectively form part of the Proposed Development.

- Design Mitigation: the layout and design of the Proposed Development have specifically considered the potential impacts on sensitive receptors and features of the surrounding environment. The iterative design process has sought to minimise the potential permanent effects of the Proposed Development; more detail is provided in **Chapter 2: Route Selection and Alternatives**; and
- Construction Good Practice: this includes tried and tested mitigation measures, which it is reasonable to assume are being implemented and standard construction practices or legislative requirements, including recommended published guidance from statutory bodies.

4.3.25 The Outline Construction Environmental Management Plan (CEMP) (SPT-ENV-FR-0006) submitted as part of the Section 37 Application describes the embedded construction good practice measures which are assumed to be in place prior to the assessment of effects reported in this EIAR.

4.3.26 Wherever reasonably practicable, additional mitigation measures are proposed for each significant environmental effect predicted, and can take various forms, including:

- physical measures applied on-site; and
- measures to control particular aspects of the construction or operation of the Proposed Development.

4.3.27 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.

4.3.28 A schedule of all the mitigation measures proposed in this EIAR is presented within **Appendix 12.1: Schedule of Commitments**.

Enhancement

4.3.29 Similar to the reporting of mitigation measures, where opportunities for environmental enhancement are proposed, these have been included in the summary of environmental commitments reported at the end of each technical chapter and within **Appendix 12.1: Schedule of Commitments**.

Monitoring

4.3.30 Where monitoring has been proposed for the operational phase of the Proposed Development, this is included in the summary of environmental commitments reported at the end of each technical chapter and within **Appendix 12.1: Schedule of Commitments**.

4.4 Assumptions, Limitations and Uncertainty

4.4.1 The EIA process is designed to enable informed decision-making based on the best available information about the environmental implications of a proposed development. However, there will always be some uncertainty inherent in the scale and nature of the predicted environmental effects because of the level of detailed information available at the time of assessment. The EIA has therefore been conducted on a reasonable worst-case scenario, taking account of the assumptions outlined below and the parameters for the development set out in **Chapter 3: Proposed Development**.

4.4.2 A number of assumptions were made during the EIA process and are described below:

- elements of the Proposed Development may be micro-sited within the 25 m Infrastructure Location Allowance (ILA), via the process detailed in the Outline CEMP (submitted as part of the Section 37 Application), whereby any changes from the consented pole locations would be subject to approval of the Environmental Clerk of Works (ECoW) in consideration of other known constraints. The assessment has therefore considered a reasonable worst case within the ILA to allow for micro-siting without materially changing the likely significant effects reported within this EIAR;
- the principal land uses adjacent to the Site remain unchanged during the course of the Proposed Development's lifetime; and
- information provided by third parties, including publicly available information and databases are correct at the time of submission.

4.4.3 Specific assumptions may also have been made with regard to the individual technical disciplines, which are described within each chapter, together with the means proposed to mitigate these.

4.4.4 The main limitation has been that while baseline conditions are accurate at the time of surveying, due to the dynamic nature of the environment, these conditions could change during Site preparation, construction and operation.

4.4.5 Figures for land take should be considered approximate and could vary slightly, as a result of the micrositing process once a final design has been developed. Regarding habitat loss, an ECoW should be consulted should any micrositing cause additional habitat loss, to ensure that the conclusions outlined within this EIAR are still upheld.

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