

RWE

Clachaig Glen Wind Farm

Environmental Impact Assessment Report

Volume 2a

Main Report

Chapter 2: Approach to Environmental Impact Assessment

2. Approach to Environmental Impact Assessment

2.1 Introduction

2.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) describes the approach to, and outlines the scope of, the Environmental Impact Assessment (EIA) of the Proposed Development. It provides general information about the EIA process, including the key steps taken in the approach to EIA and the terminology used; relevant good practice; the definition of significance within the EIA; and the method of assessing environmental and social impacts.

2.2 About Environmental Impact Assessment

2.2.1 EIA is the process of identifying, evaluating and mitigating the likely significant environmental effects of a proposed development. Through the early identification and evaluation of the likely significant environmental effects of a proposed development, EIA enables appropriate mitigation (that is, measures to avoid, reduce or offset significant adverse effects) to be identified. Mitigation is then incorporated into the proposed development's design, or commitments are made to environmentally sensitive construction methods and practices.

2.2.2 The EIA of the Proposed Development has been undertaken in parallel with the design process, thereby maximising opportunities to mitigate likely significant adverse effects as they have been identified. This approach ensures mitigation is embedded in the Proposed Development's design and forms an integral component of it. Embedded mitigation measures are discussed in more detail in Chapter 3 of this EIA Report (EIAR): Project Description, and also within each technical discipline chapter (7 to 18).

2.2.3 The results of the EIA also ensure that the Scottish Ministers as decision makers; statutory consultees such as planning authorities; as well as other interested parties, including local communities, are aware of a development's environmental effects. These are then considered by the decision-maker prior to determination of the Section 36 Application and subsequent deemed planning approval (see Chapter 1 of this EIAR: Introduction, and the Planning Statement, a separate report accompanying the Section 36 Application).

2.2.4 Additional guidance on environmental assessment procedures is provided within good industry practice guidance relevant to each technical discipline and these documents are identified within the relevant technical chapters of this EIAR (7 to 18).

2.2.5 One of the key aims of this EIA has been to integrate environmental considerations into the wind farm design process. An iterative approach has been taken to developing the wind farm design, incorporating consideration of environmental constraints, potential effects and opportunities for mitigation. By embedding EIA within the design process, the likely significant adverse environmental effects of the Proposed Development were identified as the design

progressed and mitigation measures to avoid, reduce or offset adverse environmental effects or maximise environmental benefits were incorporated into the Proposed Development's design. The Design Statement, a separate report accompanying the Section 36 Application, provides further detail on this.

- 2.2.6 The main steps followed in undertaking the EIA for the Proposed Development are listed in Table 2-1.

Table 2-1 Process of Undertaking EIA

Stage Process

1	Baseline surveys were undertaken to identify and describe the existing conditions or environmental character of the area potentially affected by the Proposed Development.
2	Relevant natural and man-made processes that may change the character of the Development Site were identified as part of the baseline surveys.
3	Consideration was given to the possible interactions between the Proposed Development and both existing and future site conditions. These interactions or effects were assessed using stated criteria based on accepted guidance and good practice.
4	The possible environmental effects (direct, indirect and cumulative) were predicted and used to inform the site design process.
5	Recommendations were made to avoid, minimise or mitigate significant adverse effects and, where possible, enhance positive effects.
6	In cases where no practical mitigation measure has been identified, the EIAR has highlighted remaining or 'residual' effects and classified their significance in accordance with a standard set of criteria.
7	The results of the EIA for the final design are reported within this EIAR.

2.3 Overview of EIA Requirements

- 2.3.1 Applications for EIA developments must be accompanied by an EIAR. In order to comply with Schedule 4 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, as amended (hereafter referred to as the '**EIA Regulations**'), an EIAR must contain certain prescribed information. Table 2-2 summarises these requirements and identifies where the relevant information may be found within this EIAR.

Table 2-2 Schedule 4 Requirements

Legislative Requirement

Where Information is Located in the EIAR

A description of the development, including:

1. Description of the location of the development,
2. 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,
3. 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,
4. 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.

These details are set out in Chapter 3 of this EIAR: Project Description.

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.

See Chapter 4 of this EIAR: Reasonable Alternatives.

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.

The results of baseline studies and the environmental factors (referred to as receptors) likely to be significantly affected by the Proposed Development have been identified and are reported in Chapters 7 to 18 of this EIAR.

The baseline in absence of the Proposed Development has been assumed to be Forestry and Land Scotland’s (FLS; *unpublished*) updated Carradale Land Management Plan. Whilst this has not yet been formally adopted, it is in the latter stages of consultation and the Felling Proposals and Restocking Maps are the best indication of the future state of the Development Site’s environment over the next 30+ years in the absence of the Proposed Development.

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

The results of baseline studies and the environmental factors (referred to as receptors) likely to be significantly affected by the Proposed

Legislative Requirement

(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.

A description of the likely significant effects of the development on the environment resulting from, inter alia:

1. the construction and existence of the development, including, where relevant, demolition works,
2. the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,
3. the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,
4. the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),
5. 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,
6. 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,
7. the technologies and the substances used.

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 or Member State level which are relevant to the development including in particular those established under Council Directive 92/43/EEC and Directive 2009/147/EC.

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.

Where Information is Located in the EIAR

Development have been identified and are reported in Chapters 7 to 18 of this EIAR.

Section 2.1 of this chapter identifies those factors which have not been included in the EIA as agreed through the Scoping Opinion.

The likely significant effects resulting from the construction, operation and decommissioning of the Proposed Development as required by Section 5 of the EIA Regulations are assessed and reported in Chapters 7 to 18 of this EIAR, and summarised in Chapter 19: Summary of Effects and Conclusions.

Chapter 11 of this EIAR: Geology, Hydrology and Hydrogeology, and Appendix 11.4: Carbon Balance Assessment (Volume 3), provides the results of the carbon calculations completed to determine the impact of the Proposed Development on climate change.

The Proposed Development's vulnerability to climate change does not form part of this EIA as agreed through the Scoping Opinion (see Section 2.1 below).

Relevant methods and limitations are set out in Chapters 7 to 18 of this EIAR.

Legislative Requirement

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.

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. Relevant information available and obtained through risk assessments pursuant to legislation of the European Union such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

A non-technical summary (NTS) of the information provided under the points above.

A reference list detailing the sources used for the descriptions and assessments included in the EIAR.

Where Information is Located in the EIAR

Embedded mitigation measures are summarised in Chapter 3 of this EIAR: Project Description. Mitigation measures (both embedded and additional) are referenced in Chapters 7 to 18. A summary of all additional mitigation measures can be found in Appendix 19.1: Schedule of Mitigation.

The major accidents and / or disasters associated with the Proposed Development have been identified and are discussed in Section 2.1 of this chapter.

The NTS that sets out the key findings of the EIA is available in Volume 1 of this EIAR.

Where relevant, reference lists are provided at the end of each chapter within this EIAR, relevant Appendices (EIAR Volume 3) and Confidential Annex 10.1 (EIAR Volume 4).

2.4 EIA Scoping

- 2.4.1 Part 1 Section 4(3) of the EIA Regulations sets out the factors that should be identified, described and assessed within an EIAR where there are likely significant effects on the factors listed and / or the interaction between those factors. These factors are:
- Population and human health,
 - Biodiversity (in particular species and habitats protected under relevant conservation legislation),
 - Land, soil, water, air and climate, and
 - Material assets, cultural heritage and the landscape.
- 2.4.2 In addition, an EIAR should include the expected significant adverse effects on the environment derived from the vulnerability of the development to major accidents and disasters.
- 2.4.3 Establishing which aspects of the environment are likely to be significantly affected by a particular project is captured in the EIA scoping process, which aims to identify those aspects of the environment and associated issues that need to be considered when assessing the potential effects resulting from a proposed development. This recognises that there may be some environmental elements for which the project is unlikely to have a significant effect, and hence where there is no need for further investigation to be undertaken as part of the EIA.
- 2.4.4 The Clachaig Glen Wind Farm Section 36 Scoping Report (Appendix 5.1, EIAR Volume 3) gathered existing baseline data and assessment work from the EIA completed for the Consented Development (hereafter referenced as the '**2016 EIA**') to identify where significant effects are likely in terms of each of the relevant environmental topics. This provided a robust process to 'scope in' those environmental receptors where significant effects are likely as a result of the Proposed Development, and to 'scope out' those where significant effects are unlikely.
- 2.4.5 The scope is cognisant of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 which make it clear that account is to be taken of the available results of other relevant assessments in preparing the EIAR to avoid duplication. As the Proposed Development primarily relates to an increase in rotor diameter and maximum blade tip height of turbines and the addition of battery storage, with all other infrastructure, construction programme, decommissioning proposals, etc., all largely remaining unchanged, the EIA has primarily focused on impacts likely to arise from the increased turbine size, with the 2016 EIA referenced where possible to prevent assessment duplication. However, where necessary, updated baselines and impact assessments are provided in Chapters 7 to 18.
- 2.4.6 The EIA Scoping Report was submitted to the Scottish Government Energy Consents Unit (ECU) in July 2020, with the Scoping Opinion received in October 2020 (Appendix 5.2, EIAR Volume 3). The Scoping Opinion provided feedback on the proposed scope of the EIA from the Scottish Ministers and statutory consultees, further information on this is provided in

Chapter 5 of this EIAR: Summary of Consultation. Regulation 5(3) of the EIA Regulations provides that where a scoping opinion has been issued, the EIAR must be based on that scoping opinion.

Environmental Issues ‘Scoped in’

- 2.4.7 Table 2-3, lists the environmental issues identified through the scoping process that require a detailed assessment and have been scoped into this EIA.

Table 2-3 Summary of Factors by Environmental Topic

Chapter Ref.	Environmental Topic	Factors
Chapter 7	Landscape and Visual Assessment	Landscape and visual impact
Chapter 8	Noise	Biodiversity and population
Chapter 9	Ecology	Biodiversity
Chapter 10	Ornithology	Biodiversity
Chapter 11	Geology, Hydrology and Hydrogeology	Land & soil, water and population
Chapter 12	Cultural Heritage	Archaeology and cultural heritage
Chapter 13	Socio-Economics and Tourism	Population and material assets
Chapter 14	Traffic, Transport and Access	Population and material assets
Chapter 15	Infrastructure and Telecommunications	Material assets
Chapter 16	Air Safeguarding	Population and biodiversity
Chapter 17	Forestry	Biodiversity
Chapter 18	Shadow Flicker	Population and biodiversity

‘Scoped Out’: Air Quality and Construction Dusts

- 2.4.8 A detailed assessment of effects on air quality is not included within the scope of the EIA, for the reasons explained below.
- 2.4.9 No local air quality impacts are anticipated during the operational phase of the Proposed Development, as there will be no fuel combustion, dust generation, or odorous activities taking place at the Development Site, other than the movement of occasional and infrequent service vehicles on the access road, which will be negligible.
- 2.4.10 The construction and decommissioning phases will inevitably give rise to vehicle exhaust and site plant emissions, as well as dust generation associated with the excavation and earth moving activities onsite, although these will be temporary and reversible following the end of these project phases.
- 2.4.11 Fugitive dust emissions from construction activities are likely to be variable and would depend upon the type and extent of activity, soil conditions (type and moisture), road surface condition and weather conditions.

- 2.4.12 There are no sensitive receptors (residential dwellings) within the Development Site. The closest properties are located at North and South Beachmore, Crubasdale, Low Clachaig, High Clachaig, The Braids, Aronod and Arnicle. The nearest residential property to a proposed turbine location is High Clachaig, which is located approximately 1.2km from the closest turbine (T14). There are no other infrastructure elements of the Proposed Development which are closer to a residential property than this turbine. It should be noted that under the Consented Development, the residential property of High Clachaig is located approximately 850m from Turbine T12 which has now been removed in the Proposed Development, resulting in an increased distance between residential properties and turbine locations. It is therefore unlikely that any nearby residents would be affected by dust or particulate matter emissions, which tend to only be significant in the initial 30m from dust generating activities (Institute of Air Quality Management (IAQM), 2015).
- 2.4.13 Irrespective of the low magnitude of change associated with dust, appropriate dust control / mitigation measures will be outlined in a Construction Environmental Management Plan (CEMP), which will be prepared following receipt of planning permission and prior to site works.
- 2.4.14 A 12-month construction phase is anticipated to generate approximately 89 Heavy Goods Vehicle (HGV) movements per day, based on worst case assumptions (where all material is imported, which is unlikely to happen as there are plans to use temporary quarries within the Development Site for much of the material, as discussed further in Chapter 3 of this EIAR: Project Description). The use of temporary borrow pits could reduce HGV movements by 69%. An additional 30 light vehicles are also expected to be associated with the transportation of workers to/from site and deliveries. Chapter 14 of this EIAR: Traffic, Transport and Access, provides further detail of estimated traffic movements and likely impacts.
- 2.4.15 The predicted number of HGVs and light vehicle movements associated with the Proposed Development is not expected to lead to any significant effects on air quality. There are no Air Quality Management Areas designated in Argyll and Bute (where standards are currently exceeded) and existing pollution concentrations easily comply with the national air quality standards. A review of the Department for Environment Food and Rural Affairs (Defra) Background Maps (Defra, 2011) and the Argyll and Bute 2013 Monitoring Report (Argyll and Bute Council, 2013) show that the pollutant of most concern, which is nitrogen dioxide, is generally around 2 to 8% of the standard currently (i.e. easily complying with the standard).
- 2.4.16 It was therefore not considered necessary to include air quality in the EIA as the Proposed Development will not create a 'likely significant effect' on air quality (the criterion for assessment outlined in the EIA Regulations) and so is not considered any further in this EIAR. This was agreed through the Scoping Opinion, which references that the potential for dust emissions during construction should be considered through a CEMP, as will be the case (see Paragraph 2.4.13 above).

‘Scoped Out’: Major Accidents and Disasters (including Climate Change)

- 2.4.17 None of the following climate trends identified in UK Climate Projections (UKCP) could affect the Proposed Development with the exception of increased windstorms:
- Increased temperature,
 - Changes in the frequency, intensity and distribution of rainfall events (e.g. an increase in the contribution to winter rainfall from heavy precipitation events and decreases in summer rainfall),
 - Increased windstorms, and
 - Sea level rise.
- 2.4.18 Braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, the turbines would be shut down.
- 2.4.19 Given the elevated location of the project area, flooding will not pose a significant risk to the operation of the wind farm, nor will the construction of the Proposed Development contribute to flooding elsewhere (see Chapter 11 of this EIAR: Hydrology, Geology and Hydrogeology).
- 2.4.20 If a wind turbine were to be shut down during conditions suitable for ice formation, the potential for ice throw to occur after turbine start up would be high without any safety procedures in place. However, suitable conditions for ice formation are estimated to occur only between two to seven days in Scotland (Tammelin et al., 2000), partly as only certain kinds of ice cause safety concerns with wind turbines (Tammelin et al., 2000; Davis, 2014). There are also monitoring systems and protocols in place to ensure that turbines that have been stationary during icing conditions are restarted in a controlled manner to ensure public safety. The risk to public safety is therefore considered to be very low due to the likely small number of occurrences where conditions would be suitable to cause ice throw, because there are safety restarting procedures in place to reduce the impacts, and because of the infrequent use of the Development Site by staff, FLS workers and the public (see Chapter 13 of this EIAR: Socio-Economics and Tourism).
- 2.4.21 It is recognised that the proposal to include battery storage onsite does present a potential risk from fire. From the nearest buildings, the battery compound is approximately 2km from The Braids and more than 3km from cottages associated with the Killean Estate. However, fire risk is considered a Health and Safety risk (due to the risk of fire being included in the Renewable UK Onshore Wind Health and Safety Guidelines (2015)), opposed to environmental. This can be appropriately mitigated through consultation with both the fire brigade and Health and Safety Executive (HSE) and is therefore outside the scope of the EIA process, as established through the Scoping Opinion. Nevertheless, a Fire Safety Plan will be produced prior to the commissioning of the battery storage facility.
- 2.4.22 It is therefore considered unlikely that significant effects relating to major accidents and disasters (including climate change) will arise as a result of the Proposed Development, and

this topic has been scoped out of the further assessment. This is supported through the Scoping Opinion.

2.5 Approach to Assessment

- 2.5.1 The following section describes the general approach to the assessment of effects within this EIA. The approach draws on guidance contained within 'A Handbook on Environmental Impact Assessment' (Scottish Natural Heritage (SNH), 5th edition, 2018) and the Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment, 2004, 2006).
- 2.5.2 The approach is broadly the same for all specialist topic areas with some variation in the sensitivity and magnitude categories, and in the descriptions of assessment criteria. The assessment of significance is generally informed by the sensitivity of the existing or baseline environmental conditions or character, and the magnitude of change (the change to the existing conditions or baseline character which occurs as a result).
- 2.5.3 A number of technical chapters deviate slightly from this general approach to adhere with industry standard guidelines (see Table 2-7).

Sensitivity or Importance of Receptors

- 2.5.4 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.
- 2.5.5 Table 2-4 provides general definitions of the sensitivity criteria used within the EIA. In each of the specialist chapters of the EIAR, specific sensitivity criteria are defined with reference to that particular discipline and therefore may differ from those shown below.

Table 2-4 Sensitivity Criteria

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

Magnitude of Change

- 2.5.6 The magnitude of potential impacts 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.
- 2.5.7 Table 2-5 provides general definitions of the magnitude criteria used in the EIA. In each of the specialist chapters of the EIAR, magnitude criteria are defined with reference to that particular discipline, and therefore may differ from those shown below.

Table 2-5 Magnitude Criteria

Magnitude	Definition
High	Total loss or major alteration to key elements/features of the baseline conditions such that post development character/composition of baseline condition will be fundamentally changed.
Medium	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	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.
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a 'no change' situation.

Significance of Effects

- 2.5.8 The approach to the assessment of significance is outlined in Table 2-6. A combination of the magnitude of the impact under consideration and the sensitivity of the receiving environment (receptor) guides the 'significance of effect'. It should be noted that this general approach is a framework and professional judgement is also applied to the assessment of significance.

Table 2-6 Approach to Assessment of Effects¹

Magnitude of Change	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

¹ Table is derived from Figure 6 of Scottish Natural Heritage and Historic Environment Scotland (2018)

- 2.5.9 For the purposes of this EIA, effects predicted to be '*Minor*' or '*Negligible*' are generally considered to be '*Not Significant*'. Effects assessed as either '*Moderate*' or '*Major*' (shaded grey in Table 2-6) are generally considered to be '*Significant*'.
- 2.5.10 The significance of the effects arising from the Proposed Development will generally be reported using a seven-point scale:
- Major Adverse,
 - Moderate Adverse,
 - Minor Adverse,
 - Negligible,
 - Minor Beneficial,
 - Moderate Beneficial, and
 - Major Beneficial.
- 2.5.11 Some technical chapters have stipulated specific assessment criteria, which differs from the general approach described above to adhere with industry standard guidelines. However, all chapters state whether or not a predicted effect is considered 'Significant' or 'Not Significant'. A summary is provided in Table 2-7 'Specific Assessment Criteria'.

Table 2-7 Specific Assessment Criteria

Chapter Ref.	Chapter Title	Specific Assessment Criteria
Chapter 7	Landscape and Visual Assessment	<p>Guidelines for Landscape and Visual Impact Assessment (GLVIA) are used as a basis for the assessment in the EIAR.</p> <p>The landscape and visual sensitivity criteria are both:</p> <ul style="list-style-type: none"> - High, - Medium, and - Low. <p>The landscape and visual magnitude criteria are both:</p> <ul style="list-style-type: none"> - High, - Medium, - Low, and - Very Low. <p>The landscape and visual significance of effect criteria are both:</p> <ul style="list-style-type: none"> - Major, - Moderate, - Minor, - Negligible, and - No Effect.

Chapter Ref.	Chapter Title	Specific Assessment Criteria
Chapter 8	Noise	<p>For construction and decommissioning noise, the Design Manual for Roads and Bridges (DMRB; Highways Agency, 2020) and British Standard BS 5228 are used. The former is used to establish the magnitude criteria based on noise change bands:</p> <ul style="list-style-type: none"> - No Change, - Negligible, - Minor Adverse, - Moderate Adverse, and - Major Adverse. <p>The latter BS 5228 uses the 'ABC method' to determine significance of effect.</p> <p>For operational noise, the Proposed Development is assessed against its ability to comply with ETSU-R-97 (Department of Trade and Industry, 1996) and as such the magnitude of change is not considered. The effects are therefore either 'Significant' or 'Not Significant' depending on whether these limits are met.</p>
Chapter 9	Ecology	<p>Both of these chapters assess the Proposed Development in accordance with Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines, however translate the CIEEM categories to conform to the EIA terminology defined in this chapter.</p>
Chapter 10	Ornithology	
Chapter 11	Geology, Hydrology and Hydrogeology	<p>Utilises a variation on the assessment approach presented within this chapter, however does not include a 'Negligible' sensitivity rating.</p> <p>The approach to mitigation also differs from the approach set out in this chapter, as mitigation for potential effects to ground conditions and hydrology / hydrogeology must be taken into consideration during the design process (i.e. the embedded mitigation is already part of the design of the Proposed Development). However, in order to demonstrate the likely significant effects of the Proposed Development without these mitigation measures in place, the assessment of potential effects is based on a 'no mitigation scenario'.</p>
Chapter 12	Cultural Heritage	<p>In determining sensitivity of receptor, there is no negligible category and magnitude criteria are:</p> <ul style="list-style-type: none"> - Substantial Adverse or Beneficial, - Moderate Adverse or Beneficial, - Slight Adverse or Beneficial, and - Negligible. <p>The significance of effect is then defined using these sensitivity and magnitude categories, although the criteria remains very similar as this chapter (Major, Moderate, Minor and Negligible / None).</p>
Chapter 15	Infrastructure and Telecommunications	<p>Infrastructure and Telecommunications considers whether an impact is present or absent and therefore either 'Significant' or 'Not Significant'.</p>
Chapter 16	Aviation Safeguarding	<p>Aviation Safeguarding considers whether industry regulations for safe obstacle avoidance or radar separation (from radar clutter) can be maintained (either with or without the need for mitigation) and as such there either is or is not an effect.</p>
Chapter 18	Shadow Flicker	<p>There is no specific standard for the assessment of shadow flicker in the UK and no guidelines on acceptable levels of shadow flicker, and therefore the assessment considers whether an effect is present or absent.</p>

- 2.5.12 'Potential effects' are defined as any effects that may occur as a result of the Proposed Development (with embedded mitigation measures), prior to consideration of additional mitigation measures. The significance of 'residual effects' takes into account additional mitigation, i.e. it is an assessment of the effect that would remain following the implementation of committed mitigation measures.
- 2.5.13 Some variation from this general approach is required for specific environmental concerns, however is summarised in the individual EIAR topic sections and confirmed during the EIA process in discussions with the relevant consultees.

Types of Effect

- 2.5.14 Potential effects have been separated into three types based on the different phases of development which will occur, taking account of potential secondary and cumulative as well as direct effects, as explained below.

Construction Effects

- 2.5.15 Construction effects are those that occur during the construction phase only. This will include effects resulting from construction of the Proposed Development, as well as any effects resulting from other construction works such as temporary compounds. These are typically temporary short-term effects; however, some construction effects may be long-term or permanent if they result in, for example, the damage or removal of a feature.

Operational Effects

- 2.5.16 Operational effects are typically longer-term, and in the worst-case permanent, effects that would occur as a result of the operation of the Proposed Development, such as impacts on setting or ecology, as well as effects such as the land take associated with wind farm infrastructure.

Decommissioning Effects

- 2.5.17 Decommissioning effects are those effects that will occur during the decommissioning and removal of the wind farm infrastructure at the end of its 35-year operational lifetime. These are typically temporary and short-term effects which are similar to construction effects.

Indirect or Secondary Effects

- 2.5.18 For the purposes of the EIA, the potential effects of the Proposed Development are considered in terms of effects on each discrete environmental topic area. However, the result of the inter-relationship between topic areas, such as water quality and ecology, means that effects cannot always be considered in isolation, since changes affecting one factor may often have secondary implications for other areas.
- 2.5.19 For example, if a direct effect is to alter the quality of a watercourse, flora and fauna may be affected as a secondary effect. Under some circumstances, it is possible for the secondary or

indirect effects to be more significant than the changes that triggered them. Where there is the potential for secondary or indirect effects, this is highlighted and assessed in the EIAR.

Cumulative and In-Combination Effects

- 2.5.20 Likely cumulative and in-combination effects on specific resources or receptors are described, where relevant, in each of the specialist chapters of this EIAR. Cumulative effects may occur, for example, where landscape and visual resources, land use or ecological receptors are affected by other developments in addition to the Proposed Development. That is where two effects could combine to result in a potential cumulative effect which is significant (or more significant). Cumulative and in-combination effects have been considered within the EIA and are discussed where relevant within each chapter of the EIAR.
- 2.5.21 The grid connection associated with the Proposed Development will be subject to consideration under a separate consenting process and does not form part of the Section 36 application for the Proposed Development. If required, it will be subject to its own EIA, however it is expected that this connection will be underground and as such will be part of Scottish Hydro Electric Power Distribution's permitted development rights.
- 2.5.22 The cumulative assessment for the Proposed Development largely focuses on other wind farms, although where relevant, technical chapters will consider other development types.
- 2.5.23 For wind farms, an initial cumulative search area of 60km from the Proposed Development has been utilised for the identification of a long list of other existing, consented and application stage wind farms. No technical chapter considers developments beyond this distance (although some use less).
- 2.5.24 It is proposed to exclude developments at scoping stage and those consisting of less than three wind turbines and / or with a tip height of less than 50m. The consented Clachaig Glen Wind Farm will not be included within the cumulative assessment. As with the 2016 EIA, only wind farms with the potential to contribute to significant cumulative effects in combination with the Proposed Development will be considered for the purposes of the cumulative assessment.
- 2.5.25 A list of cumulative wind farms that we propose to include in the assessment is provided in Table 2-8.

Table 2-8 Wind Farms Proposed to be Included in Cumulative Assessment

Name	Status	No. of Turbines	Approximate Distance (km)
Airigh	Consented	14	22.1
Auchadaduie	Operational	3	5.1
Beinn an Tuirc	Operational	46	4.7
Beinn an Tuirc Extension	Operational	19	6.6
Beinn an Tuirc Phase III	Under Construction	16	8.6
Blary Hill	Under Construction	14	3.9

Cour	Operational	10	7.3
Deucheran Hill	Operational	9	2.6
Eascairt	Consented	13	15.5
Freasdail	Operational	11	18.0
Gigha	Operational	3	8.8
High Constellation	Consented	10	8.7
Leim Farm (Gigha)	Operational	1	9.0
Narachan	Planning - Not determined	17	3.8
Sheirdrim	Planning - Not determined	19	15.8
Tangy I & II*	Operational	22	12.7
Tangy IV*	Consented	16	11.7

* If constructed, Tangy IV would replace the existing Tangy I & II schemes and therefore only Tangy IV is considered in the cumulative assessment. Tangy I & II are considered as part of the existing baseline.

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