

Energyfarm Narachan Ltd

Narachan Wind Farm

**Environmental Impact Assessment Scoping
Report**

January 2026

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1 INTRODUCTION

Introduction

- 1.1 Energyfarm Narachan Ltd (the Applicant), a wholly controlled Special Purpose Vehicle (SPV) of Energiekontor UK Ltd, is evaluating the potential of land located approximately 5.7km east of Tayinloan in Kintyre, Argyll and Bute ("the Site") for the development of a wind farm of up to 15 wind turbines, including associated development such as crane pads, access tracks, borrow pits, a substation and temporary construction compound ("the proposed development").
- 1.2 The site has formerly been promoted for a wind farm by the Applicant's holding company Energiekontor UK Ltd, with an application being submitted for 17 turbines of up to 180m and associated infrastructure in December 2019. This proposal was formally amended to 11 turbines via a submission of Further Environmental Information (FEI) in September 2021, and the application was refused in March 2024.
- 1.3 The Applicant has addressed the narrow and solo reason for refusal; aviation lighting and its impact upon the North Arran National Scenic Area (NSA), by reducing the tip heights to 149.9m, meaning no aviation lighting is required. Based on consultation responses, the Public Local Inquiry (PLI) Report and the Decision Notice, the Applicant believes the reasons for refusal have been addressed.
- 1.4 Based on the extensive history of the site, the Applicant envisages that 15 turbines represents a realistic appraisal of the maximum site capacity which would allow a reasonable and viable scheme. Given what is known about the site in terms of its baseline, and the associated matters to be considered when promoting a wind farm development, this Scoping Report therefore represents what is, at this stage, a realistic maximum estimate of the proposed development as it might be applied for later in the process.

Purpose and Structure of the Scoping Report

- 1.5 The purpose of this Scoping Report is to formally request a Scoping Opinion from Scottish Ministers in accordance with Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations"). Scoping is used to help identify where there are potential interactions between a project and the environment. It allows an Applicant to be clear which of these are considered to be the likely significant effects, upon which an Environmental Impact Assessment (EIA) should focus.
- 1.6 This Scoping Report provides an outline of relevant environmental receptors that may be effected by the proposed development, describes any mitigation available or foreseen at this stage and describes the information that it is envisaged will be submitted as part of a future EIA Report (EIAR). This approach enables consultees to comment upon the appropriateness of the baseline as it is known at this stage, the decision to scope in or out of further assessment, and the methodology used both to do this and the methodology which would be used in any further assessment.

- 1.7 Comments on the scope of the proposed EIA are invited. Should consultees be in a position to identify or provide additional relevant information concerning the existing environment or any specific local issues, this would be welcomed.
- 1.8 By virtue of the nature, size and location of the proposed development, it is anticipated that significant effects upon the receiving environment, particularly if unmitigated, are likely. As such, the Applicant is committed to providing an EIA in line with the guidance outlined within Section 2.
- 1.9 Therefore, this report comprises the following sections:
- Section 1: Introduction;
 - Section 2: EIA Regulatory Framework;
 - Section 3: The Site and its Context;
 - Section 4: The Proposed Development;
 - Section 5: Likely Significant Environment Effects;
 - Section 6 – 14: Subject-specific chapters; and
 - Section 15 Content and Structure of the Proposed EIA Report.

Introduction to the Proposed Development

- 1.10 The proposed development is set out within Section 4 to the extent of project design and known parameters at this stage and broadly comprises 15 turbines of up to 149.9m tip height along with associated infrastructure, on a site of 1275 hectares (ha), approximately 5.7 km east of Tayinloan.
- 1.11 The site has been subject to an extensive planning history. In December 2019, Energiekontor UK Ltd submitted an application to the Energy Consents Unit (ECU) for 17 turbines of up to 180m to blade tip. This application was subsequently amended to comprise 11 turbines at the same height following feedback from consultees, and accordingly a Further Environmental Information (FEI) submission was submitted to the ECU in September 2021.
- 1.12 The information gained throughout this process has been used to inform the proposed development and its initial design.
- 1.13 The Applicant has sought specialist advice and survey up to this stage from competent experts, and will seek to do so throughout the EIA process. The environmental evidence collected to date as provided within the contents of this report, and the proposed methodologies detailed within Sections 6 to 14, have been provided by the following companies:
- Landscape and Visual: Land Use Consulting (LUC); and

- Ecology and Ornithology: Wildlife Consulting.

1.14 All other sections have been completed by Registered EIA practitioners with the Institute of Sustainability and Environmental Professionals (ISEP, formerly IEMA) employed by the Applicant.

Energiekontor UK Ltd

1.15 The Applicant is Energyfarm Narachan Ltd, a Special Purpose Vehicle (SPV) set up and owned by Energiekontor UK Holding Ltd, part of the Energiekontor Group, with the sole purpose of delivering the proposed development.

1.16 Energiekontor UK Holding Ltd is a holding company for projects operated by Energiekontor UK Ltd an experienced renewable energy development company, formed in 1999. It develops small to medium-sized onshore wind and solar farms throughout the United Kingdom. The company operates seven existing wind farms in the UK and has obtained planning consent for several further projects. Energiekontor also has several other wind and solar projects at various stages of the development process throughout the UK.

1.17 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, Portugal, the USA and the UK. The company has obtained consent and built over 170 onshore wind and solar farms in Europe, with a total nominal power of more than 1.5 gigawatts. The company constructed the first 'no-subsidy' wind farm in the UK, Withernwick II in East Riding, Yorkshire.

2 EIA REGULATORY FRAMEWORK

What is EIA?

- 2.1 EIA is a statutory process that is governed by UK and European law. It aims to improve the environmental design of a development proposal and provides decision-makers with sufficient information about the environmental impacts of a proposal.
- 2.2 An Environmental Impact Assessment Report (EIA Report), prepared during the EIA process, provides environmental information about a proposed development, including a description of the proposal, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

The EIA Process

- 2.3 The EIA process usually follows the following stages:
- Screening may be the first stage of the EIA process where the relevant authorities need to decide whether EIA is required.
 - Once it has been agreed that EIA is required, scoping is undertaken to define what should be assessed as part of the EIA and reported in the EIA Report.
 - With the scope set, relevant information on the environmental baseline conditions is collected. This information is then used initially to understand the dynamics of the likely environmental effects and to inform the design of the project to minimise the potential for significant adverse effects.
 - The formal assessment process is then undertaken on the design parameters to define the significant effects of the project.
 - Any significant adverse effects that are identified during the formal assessment process are then reviewed against the design to consider whether alterations could be made to minimise the effect. Should this occur, the formal assessment process is reiterated.
 - Where significant adverse effects cannot be minimised through alterations to the design itself, mitigation measures are considered. Monitoring may also be considered to measure the actual significance of the effect during and post-construction to allow management of mitigation where appropriate.
- 2.4 Once the EIA is completed, the EIA Report is submitted to the planning authority for consideration with the planning application. Therefore, the aim is to assist the Competent Authority (in this case the Scottish Ministers) to form an opinion as to the likely environmental effects of the proposed development. The Scoping process therefore is focused upon assessing the likely significant effects and propose mitigation measures to reduce the residual effects upon the environment where applicable. The Scoping process should also identify those environmental issues which do not require further consideration.

Screening – Is EIA Required?

- 2.5 Development projects that are described within Schedule 1 of the EIA Regulations will always require EIA and are referred to as 'Schedule 1 Developments'. Development projects listed in Schedule 2 that are located in a 'sensitive area', or exceed one of the relevant criteria or thresholds given in Schedule 2 are referred to as 'Schedule 2 Developments'. Not all Schedule 2 Developments will require EIA as only a development project that is likely to have significant environmental effects by virtue of its size, location or nature will require such assessment. A development project that requires EIA is referred to as 'EIA development'.
- 2.6 In this case, the proposed development (as described in Section 4) is of a type described within Schedule 2 as an installation for the harnessing of wind power for energy production. It is not located within a 'sensitive area' as defined by the EIA Regulations; however, the project would exceed both of the applicable thresholds as it involves more than two wind turbines with hub heights of more than fifteen metres. The requirement for EIA is therefore determined on the basis of whether the project would be likely to give rise to significant effects on the environment by virtue of its size, nature or location.
- 2.7 The scale, nature and location of the proposed development are such that, to allow the environmental impacts of the project to be appropriately considered, Energiekontor UK Ltd has taken the decision to voluntarily undertake EIA. Therefore, no Screening Opinion will be sought from the Scottish Ministers.

General Approach to Scoping

- 2.8 Scoping is an exercise conducted at an early stage in the EIA process and is designed to ensure that the environmental studies provide all the relevant information on the impacts of the project, in particular focusing on the significant effects.
- 2.9 The findings of this exercise define the 'scope' of the environmental information to be provided and the terms of reference for the environmental studies to be undertaken. The scope of the work however remains flexible and can be amended should new issues or information arise while undertaking the project.
- 2.10 The project team benefits from significant experience and technical expertise in environmental assessment and development of such projects and will ensure that the EIA will be carried out in accordance with the EIA. The potential environmental impacts during construction, operation and decommissioning will be identified and assessed in the EIA Report, based upon the recommendations of the technical EIA team, consultation with statutory consultees, other interested parties and local communities. Topic assessments will be undertaken using best practice methodology, following industry guidelines whenever appropriate and carried out by specialists with relevant professional experience.
- 2.11 Schedule 4 of the EIA Regulations states the information to be included within the EIA. Each assessment will consider these criteria and assess them whenever appropriate to the proposed development. This also highlights that the emphasis of the EIA process should be

on assessing likely significant effects, rather than every environmental effect associated with a development.

- 2.12 Impartial professional consultants (as set out in Section 6 - 14) will assess the likely significant environmental effects identified. These specialist assessments will generally incorporate:
- Site visits;
 - Collection of baseline data regarding the site and surroundings;
 - Identification of the likely significant effects of the proposed development; and
 - Recommendations on how these effects could be avoided or reduced.
- 2.13 For each topic the proposed methodology to be used within technical topics is set out within Sections 6 to 14 of this Scoping Report. Cumulative effects will be assessed within each EIA Report chapter as appropriate, at a scale appropriate to that subject and in line with best practice guidance currently available. It is essential that the methodology used for assessing the significance of environmental effects is set out clearly and transparently within an EIA Report and is justifiable.
- 2.14 Significance is generally determined through a combination of the sensitivity of a receptor or resource to an effect and the magnitude of the change resulting from the proposed development, however where this differs the full methodology is explained within the relevant section as appropriate.
- 2.15 Significant effects are more likely to be predicted where important resources, or numerous or sensitive receptors, could be subject to impacts of considerable magnitude. Effects are unlikely to be significant where low value or non-sensitive resources, or a small number of receptors, are subject to minor impacts. The assessment of significance of an environmental effect resulting from the proposed development will have regard to the following:
- Sensitivity, importance or value of the resource or receptor;
 - Extent and magnitude of the effect;
 - Duration of the effect;
 - Nature of the effect;
 - Performance against environmental quality standards; and
 - Compatibility with environmental policies.
- 2.16 The methods for predicting the nature and magnitude of any potential impacts vary according to 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. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are used. Such assessments rely on previous experience and professional judgement. The methodologies used for assessing each topic area will be described within the individual chapters of the EIA Report and will follow best practice guidelines where applicable.

2.17 In addition to those items explained above, the EIA Report will either include discussion of, or scope out, the following items:

- A description of the development, including description of the location, its physical characteristics, land-use requirements during construction and operation, a description of characteristics of the operational phase, and an estimate of the types and quantities of expected residues and emissions;
- A description of reasonable alternatives, including development design, size, scale, and a justification of the project choices made;
- A description of the baseline environmental situation and an outline of the likely evolution thereof without implementation of the proposed development;
- An assessment of the environmental baseline for each environmental topic scoped into the EIA, with reference to those items specified within Schedule 4 (5) of the EIA Regulations;
- A description of mitigation and monitoring measures (where applicable); and
- A description of any expected adverse impacts in relation to the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the project.

Consultation and Stakeholders

2.18 The Applicant recognises the importance of consultation and community involvement throughout the project development process in line with "PAN 3/2010 Community Engagement". PAN 1/2017: Environmental Impact Assessment Regulations also reinforces the importance of public involvement in the Scoping process and makes it clear that the EIA process is intended to ensure that consultation bodies and the public have opportunity to express their opinion on both the proposed development and the EIA Report.

2.19 The Applicant has held informal pre-application discussions with the Council and with both West and East Kintyre Community Councils.

2.20 Where applicable, these points have been addressed within the scope of work outlined below, and where the proposed scope varies from what has been suggested by regulators, this has been justified as appropriate.

3 THE SITE AND ITS CONTEXT

The Site and Surroundings

- 3.1 The Site is situated on the spine of the Kintyre peninsula and extends to approximately 1275ha. The surrounding area is sparsely populated, with no residential properties situated within 2.5km of the main wind farm area, with the nearest settlement comprising Tayinloan, approximately 5.7km west of the main wind farm area. Further afield, Campbeltown, the likely port of entry for turbine components, is linked by the A83 approximately 30km to the south, whilst the nearest settlement in East Kintyre, Grogport, is around 6.1km east.
- 3.2 The Site consists predominantly of coniferous plantation at a largely mature stage. There are areas of peat and blanket bog present throughout. The Site is undulating and extends from approximately 302m Above Ordnance Datum (AOD) at its highest point down to 130m AOD at the eastern extremity of the site.
- 3.3 There are a number of water features within the site boundary. Allt Chaltuinn flows in a westerly direction into Loch Ulagadale which in turn is located adjacent to the south west of Loch an Fhraoich (which is outside of the site boundary). Loch Garasdale is located adjacent of the northern access route, approximately 2.5km to the north-east of the main wind farm area. There are several other unnamed watercourses across the site. Loch an Fraoich is also a Special Protection Area (SPA) and comprises a component part of the Kintyre Goose Roosts SPA which is a fragmented series of lochs spanning central Kintyre.
- 3.4 Two potential access routes are highlighted within Figure 3.2. The northern access route exits the A83 north of Tayinloan at Ballochroy, following an existing track adjacent to the Ballachroy Burn until following the existing track south past Loch Garasdale and south through commercial forestry until the wind farm area. The alternative southern access, exits the A83 at Tavantaggart, south of Tayinloan, and follows existing track until the ruined farmsteading at Lagloskine before a new road would be constructed to join the main area of the scoping boundary.
- 3.5 The A83 is the main road that serves Kintyre, linking Campbeltown to Loch Lomond along the western coast of Kintyre. The B842 is a minor road that links Tarbert in the northern to Campbeltown in the south via settlements such as Cour, Grogport, Carradale and Peninver, and enjoys views across the Kilbrannan Sound to the western coast of Arran. .
- 3.6 There are a number of wind farms, either operational or progressing though the consenting and planning system within the surrounding area. Those in proximity to the Site (see Figure 5.5) include Cour Wind Farm (operational), Deucheran Hill Wind Farm (operational), Clachaig Glen Wind Farm (consented), Killeen Wind Farm (application), Deucheran Hill 2 (Scoping), with wind farms further afield including Freasdail (operational), Beinn an Tuirc and extensions (operational) and Blary Hill Wind Farm (operational).

4 THE PROPOSED DEVELOPMENT

Introduction

- 4.1 This section describes the various elements proposed as part of the project and provides details of what processes will take place at the various stages of the project's lifecycle (e.g. construction, operation, decommissioning).

The Proposed Development

- 4.2 Energiekontor UK Ltd is investigating the potential for a wind farm development on the Site, consisting of the erection, 35 year operation and subsequent decommissioning of up to 15 wind turbines, each up to 149.9m in height to blade tip, as shown in Figure 4.1. It is likely that the wind farm would provide up to approximately 72 MW of generating capacity, based on a candidate turbine of up to 4.8MW capacity. The principal elements of the proposed development are described in further detail below.

Wind Turbines

- 4.3 The turbines would be of a typical modern design comprising a three bladed rotor hub mounted on a nacelle (containing a gearbox and a generator), tower and foundation.
- 4.4 Final turbine selection would be made following the grant of planning permission following a tendering and procurement exercise. The EIA will therefore be undertaken on the basis of a candidate turbine design consisting of:
- A horizontal axis type with a rotor consisting of three blades, each up to approximately 66.5m in length (giving a total rotor diameter of up to approximately 133m);
 - A hub height of approximately 83m;
 - A maximum height to vertical blade tip of 149.9m;
- 4.5 It is also assumed that turbines would generate power for all wind speeds between 4m/s and 25m/s; and that at wind speeds greater than 25m/s (gale force), the turbines would shut down for self-protection.

Associated Development

- 4.6 The principal items of associated development include:
- **Site tracks:** to provide access for construction and maintenance vehicles from the site entry point to the substation and wind turbines. These would be installed at the commencement of the construction phase and would remain until the end of the decommissioning phase. They would have a 6.0m running width with local widening on corners and would be surfaced with coarse aggregate. Depending

on localised ground conditions, they would either be cut into, or floated above, the ground.

- **Temporary construction compound/storage area:** to provide a secure area for site office facilities and storage of materials and components. To be constructed adjacent to the site track, surrounded by a security fence and locked gates. The fence and gates would be removed at the end of the construction phase and the hardcore base retained but allowed to re-vegetate.
- **Turbine Foundations and Crane hardstandings:** The foundations of the turbines could be either reinforced concrete gravity structures or piled foundations. This would be dependent on the ground and hydrological conditions at the turbine location which would also determine the overall size of the support structure. The crane hardstanding would provide a level and firm base for the cranes at the location of each turbine. Each would be a maximum of 180m x 70m and surfaced with coarse aggregate.
- **High voltage and control cables:** to form power and control circuits linking each turbine to the on-site substation, cables would be placed in trenches (dimensions to be determined by ground conditions but typically 0.5m wide x 1m deep) routed alongside the tracks.
- **Substation building:** Up to 90m x 90m space would be required for the construction of an up to 132kV substation (with detail to follow within an appropriate condition).

4.7 Access will be provided to the site via one of two methods which is still to be determined at the time of writing. The first option (the 'northern route') accesses the site via the A83 at Ballochroy by using an existing track. It travels adjacent to the Ballochroy Burn for approximately 2.2km before extending south for a further 5km, firstly following contours between Cruach Bhreac and Loch Garasdale, before following the contours around the western side of Cnoc a' Bhraidein to join the Site.

4.8 The second option (the 'southern route') joins the A83 at Tavantaggart and travels east towards the site along an existing track until the ruined farmsteading at Lagloskine, before a new road would be constructed to join the main area of the scoping boundary.

4.9 Both access routes are being considered at the Scoping stage, but as per the previous application, only one will be selected upon construction, if consented. It is likely that the Applicant will seek a condition mechanism to specify which, as was agreed with consultees including the Council and the ECU during the previous application.

Grid Connection

4.10 A grid connection would be required to feed the electricity generated by the wind farm into the distribution network for the operational period of the project. The grid connection would be subject to a separate design and consent process which would be led by the local Distribution Network Operator. It is anticipated the grid connection would be to Carradale. The grid connection will be to Carradale.

Construction Phase

- 4.11 It is estimated that it would take approximately 18 months to construct the proposed development. Construction works would include:
- Temporary and permanent highway modifications to enable vehicles to access the Site from the local and strategic highway network, including a number of watercourse crossings;
 - Construction of permanent new site tracks required to access the wind turbine positions. These would be used by civil engineering plant and construction equipment. The total length of new or upgraded track will be dictated by the access route, as two options are currently being considered. Turning heads will also be required to facilitate the delivery of new turbine components;
 - Construction of a secure site compound/storage area for site office facilities and storage of materials and components. This would be temporary and for the duration of construction;
 - Installation of hardstandings and outrigger pads for the support of the cranes that would be used for the erection of the turbines;
 - Construction of foundations for the support of the turbine structures;
 - Wind turbine delivery and erection;
 - Installation of transformers in separate housings alongside each wind turbine (if required);
 - Installation of on-site high voltage cabling, communication cabling and earthing;
 - Installation of the Supervisory Control and Data Acquisition system;
 - Construction of the site substation;
 - Commissioning of site mechanical and electrical equipment; and
 - Reinstatement and landscaping including the removal of temporary site offices, and the reseeded of verges and areas around turbine bases.
- 4.12 The construction works would mainly follow the order detailed above but many activities may be carried out concurrently to reduce the overall length of the construction programme. There would be construction phasing, with civil engineering works progressing in some areas of the Site whilst turbines were being erected elsewhere. To minimise disruption to land use, site restoration would be undertaken as early as possible in development areas.
- 4.13 A detailed programme of works would be produced by the construction contractor prior to the commencement of works on Site.
- 4.14 Should consent and deemed planning permission be granted, it is likely that construction hours would be restricted by means of a planning condition imposed by the Council.
- 4.15 Construction material would typically be transported by road from source or seaport. Large loads such as wind turbine components (rotor blades, tower sections and nacelles) would be transported to the Site by low loader using a designated route. Loads will exit the port gate to contraflow Hall Street heading northwest and then will continue to

contraflow the Campbeltown Market Cross Roundabout to join Kinloch Road. Loads will then continue on the A83 (T) towards Glencaigs. Loads will then turn left at the junction onto an unnamed road towards West Darlochan and then turn right at the former CS Wind UK junction for temporary storage.

- 4.16 Once the components are ready to be moved to site, loads will return to the A83 (T) junction to turn left heading northwards. If using the southern access route, loads will leave the A83, turning right at the junction towards Tavantaggart, where the load will follow the access track. If using the northern access route, loads will turn right towards Balochroy to leave the A83, where the load will follow the access track.

Decommissioning Phase

- 4.17 At the end of the operational period, the wind farm would be decommissioned. This would involve the complete removal of the wind turbines, transformers, substation, switchgear and other equipment over a period of up to 12 months. The removal of the wind farm components would essentially be the reverse of the construction process.
- 4.18 The Applicant would provide a decommissioning bank guarantee or insurance bond to ensure that sufficient funds are available at any time during the lifetime of the wind farm to enable all decommissioning works to take place.
- 4.19 The removal of the wind turbines at the end of the operational life of the wind farm would be the reverse of the erection process, involving similar cranes and procedures. The components would be removed off-site to be re-used elsewhere, dismantled and recycled or disposed of as appropriate.
- 4.20 The decommissioning of the turbine foundations would involve removing the upper part of the reinforced concrete foundation. This could be achieved by conventional construction equipment (e.g. excavator mounted pneumatic hammers etc.).
- 4.21 To achieve the removal of the upper section, which is up to 1.2 m deep, a 600 mm wide trench would need to be excavated around the approximately 4m diameter upstand to facilitate access for removal of the concrete. All other parts of the foundation would remain in place and no other disturbance of the ground around the turbine would be required.
- 4.22 Once the upstand has been removed, the disturbed area would be reinstated by backfilling with site-derived materials to an agreed method statement, leaving the remaining portion of the foundation approximately 1.2m below ground level.

5 LIKELY SIGNIFICANT EFFECTS

Introduction

- 5.1 The following section discusses potentially significant effects which without mitigation, are likely to result in significant effects and therefore should be subject to EIA. By establishing the extent of potential impact and the likeliness of significant effects, the topic can be scoped into the EIA Report or scoped out as appropriate.
- 5.2 EIA involves the compilation, evaluation and presentation of any likely significant (both positive and negative) environmental effects resulting from a proposed development, to assist the Competent Authority when considering and determining an application. Early identification of potentially adverse environmental effects also leads to the identification and incorporation of appropriate mitigation measures into the project design to avoid, reduce, and if possible, remedy identified significant adverse environmental effects.
- 5.3 The EIA Regulations require consideration, throughout assessments, of all likely significant environmental effects; direct / indirect; secondary; cumulative; positive / negative; short / medium / long-term; or permanent / temporary.
- 5.4 For all environmental topics considered, the Scoping Analysis is split into the following headings:
- Introduction;
 - Baseline Conditions;
 - Likely Significant Effects During Construction;
 - Likely Significant Effects During Operation;
 - Design and Mitigation;
 - Inclusion or Exclusion from the EIA Report; and
 - Proposed Scope of Assessment.
- 5.5 The EIA Regulations have a requirement to discuss likely significant effects in relation to decommissioning. Unless otherwise stated, it is assumed that decommissioning effects would be very similar to the detail included for construction effects.

6 LANDSCAPE AND VISUAL

Introduction

- 6.1 This section discusses the proposed approach to the assessment of potential effects resulting from the introduction of the proposed development upon the landscape and visual amenity of the Site and surrounding area. These are defined respectively within paragraph 3.21 of the Guidelines for Landscape and Visual Assessment 3 (GLVIA3)¹ as “*the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape*”, and “*the people who will be affected by changes in views or visual amenity at different places*”.
- 6.2 A Landscape and Visual Impact Assessment (LVIA) will be undertaken as part of the Environmental Impact Assessment (EIA). The LVIA will accord with GLVIA3. The work undertaken to date has been prepared by a team of Chartered Landscape Architects at LUC (Land Use Consultants Ltd.) who were also involved in the original application on the Site, including viewpoint selection discussed within the proposed scope of the assessment.
- 6.3 This section of the report sets out the proposed approach to the assessment of potential significant effects of the proposed development on landscape and visual amenity including the visual amenity of residents where relevant.

Assessment Methodology

- 6.4 The LVIA will be undertaken following the approach set out in GLVIA3, drawing on subsequent technical clarifications and other current good practice guidance issued by NatureScot² and the Landscape Institute set out below, to produce a robust and reliable assessment.
- 6.5 In accordance with GLVIA3, landscape and visual effects will be considered separately. GLVIA3 states that the nature of landscape and visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to change and the value attached to the existing landscape or views. The nature of the effect should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered, to form a judgement regarding the overall significance of landscape and visual effects.

Approach to assessment and data gathering

- 6.6 The assessment will be undertaken in accordance with the methods outlined in the following best practice guidance documents:

¹ The Landscape Institute & Institute for Environmental Management & Assessment (IEMA) (2013) Guidelines for Landscape and Visual Assessment - Third Edition (GLVIA3)

² Scottish Natural Heritage (SNH) rebranded as NatureScot in August 2020.

- Landscape Institute (LI) and the Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3);
- Landscape Institute (2019) Technical Guidance Note 02/19 Residential Visual Amenity Assessment;
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals;
- Landscape Institute (2021) Technical Guidance Note 02/21 Assessing landscape value outside national designations;
- Landscape Institute (2024) Technical Guidance Note 01/24 Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3);
- NatureScot (2020), revised August 2023) Assessing impacts on Wild Land Areas - technical guidance;
- NatureScot (2021) Assessing the cumulative landscape and visual impact of onshore wind energy developments;
- NatureScot (2024) Pre-application guidance for onshore wind farms;
- NatureScot (2025) Special Landscape Qualities – guidance on assessing effects;
- Scottish Government and NatureScot (2024) Guidance on Aviation Lighting Impact Assessment;
- Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape. Version 3a; and
- Scottish Natural Heritage (2017) Visual Representation of Windfarms (Version 2.2).

Summary Methodology

- 6.7 This section provides a summary of the methodology that would be used to carry out the LVIA to form a chapter in the EIA Report. The full methodology for the LVIA will be included in the EIA Report and agreed through further consultation with Argyll and Bute Council (ABC) and NatureScot.
- 6.8 In accordance with GLVIA3, landscape and visual effects will be considered separately. GLVIA3 states that the nature of landscape and visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to change and the value attached to the existing landscape or views. The nature of the effect should be assessed in terms of the size and scale, geographical extent, duration, and reversibility of the effect. These aspects will all be considered, to form a judgement regarding the overall significance of landscape and visual effects.
- 6.9 The objective of the assessment of the proposed development is to predict the significant effects on the landscape and visual resource. Effects will be assessed as either significant or not significant. The significance of effects is assessed through a combination of two considerations; the sensitivity of the landscape or visual receptor and the magnitude of

change that will result from the proposed development. In accordance with the Landscape Institute's GLVIA3, the methodology requires the application of professional judgement.

- 6.10 The objective of the cumulative LVIA is to describe, visually represent and assess the ways in which the proposed development would have additional effects when considered together with other existing, consented or application stage developments and to identify related significant cumulative effects arising from the proposed development. The guiding principle in preparing the cumulative LVIA is to focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process.
- 6.11 The LVIA will determine whether effects are beneficial, neutral, or adverse in accordance with defined criteria. The effects of the proposed development are of variable duration, and are assessed as short-term or long-term, and permanent or temporary/reversible.

Design and Mitigation

- 6.12 The design of the proposed development will aim to achieve a coherent and structured form, in accordance with guidance provided by NatureScot³. The EIA Report will present the rationale behind the final design strategy and document the iterative design process in response to the technical and environmental constraints identified through the EIA process. The objective in designing the wind farm will be to develop a layout that responds to its setting in terms of landform and pattern, and which presents a simple visual image, avoiding the clustering of turbines and the isolation of outlying turbines in views from key locations and views from sequential routes seen by a range of different receptors (people) of varying sensitivity. It is also recognised that the final layout will need to balance a wide range of technical and environmental considerations.
- 6.13 The design of the proposed development will also consider its interaction in both landscape and visual terms with other existing and proposed wind farms.
- 6.14 All elements of the proposed wind farm infrastructure will be considered in terms of locational and design choice, and the LVIA will set out how the design of ancillary elements has evolved to minimise visual effects, especially from nearby and sensitive visual receptors.
- 6.15 The EIA Report will provide an explanation as to how the design and layout of the proposed development has considered local planning and design guidance, along with any further design changes as a result of further consultation and assessment.

³ SNH (2017), Siting and Designing Wind Farms in the Landscape. Version 3a

Study Area

- 6.16 The study area for the landscape and visual impact assessment will cover a radius of 40km from the nearest turbine, as shown in Figure 6.1, in accordance with guidance set out in NatureScot guidance⁴ in relation to turbines of 131-150m blade tip height.
- 6.17 A Zone of Theoretical Visibility (ZTV) plan will be used to determine the anticipated extents of visibility and identify which landscape and visual receptors require consideration in the assessment, and which can be scoped out because they are unlikely to be significantly affected. While the final design of the proposed development is subject to change, the following figures are provided to illustrate the theoretical visibility of the Scoping Layout:
- Figure 6.1 – Landscape And Visual Impact Assessment (LVIA) Study Area blade tip height (149.9 m) Zone of Theoretical Visibility (ZTV) and Proposed Viewpoint Locations;
 - Figure 6.2 – Comparative Zone of Theoretical Visibility (CZTV) for 2025 Scoping Layout (15T @ 149.9 m) vs 2021 Layout (11T @ 180 m);
 - Figure 6.3 – Landscape Character Types (LCTs) and blade tip height (149.9 m) Zone of Theoretical Visibility (ZTV);
 - Figure 6.4 – Designated landscapes and Wild Land Areas and blade tip height (149.9 m) Zone of Theoretical Visibility (ZTV); and
 - Figure 6.5 – Other wind farm developments (40 km).

Field Survey

- 6.18 Field survey work will be carried out during several visits, and records will be made in the form of field notes and photographs. Field survey work will include visits to the Site, viewpoints, and designated landscapes, and extensive travel around the study area to consider potential effects on landscape character and on experiences of views seen from designated landscapes, settlements, and routes.

Assessment of Effects

Landscape Effects

- 6.19 The LVIA will provide a baseline description of the physical landscape of the Site, relevant Landscape Character Types (LCTs) and their landscape characteristics identified in the (2019) NatureScot LCT descriptions, designated landscapes and wild land areas within the study area and will focus on assessing the likely significant effects of the proposed development, including cumulative effects. The assessment of landscape effects will take account of the sensitivity of the landscape, acknowledging its susceptibility to the change proposed and any value placed on the landscape through formal designation at either a national or local level.

⁴ SNH (2017) Visual Representation of Wind Farm Guidance – Version 2.2

- 6.20 The consideration of landscape sensitivity will also draw reference to the Argyll and Bute Landscape Wind Energy Capacity Study (2017)⁵ (hereafter referred to as the LWECS), which identifies key sensitivities and opportunities for wind farm development within the LCTs.
- 6.21 The assessment of effects on landscape character will focus on LCTs within 15 km of the Proposed Development, where significant landscape effects are considered likely to be contained.

Visual Effects

- 6.22 Visual effects are experienced by people (visual receptors) at different locations across the study area, including at static locations (for example from settlements or promoted viewpoints) and transitional locations (such as sequential views experienced from routes, including roads, footpaths, cycle routes or ferry routes). Visual receptors are the people who will be affected by changes in views at these places, and they are usually grouped by what they are doing at those locations (for example residents, motorists, recreational users etc.)
- 6.23 Visual effects resulting from the proposed development will be considered within the context of the existing baseline conditions, including nearby wind farms such as the Cour and Deucheran Hill (operational), and High Constellation (under construction) Wind Farms.
- 6.24 The assessment of visual effects arising from the introduction of the proposed development will be based on analysis of turbine hub and blade tip height Zone of Theoretical Visibility (ZTVs), field studies and consideration of changes in views from representative viewpoints.

Potential cumulative effects

- 6.25 The cumulative landscape and visual assessment (CLVIA) will be carried out in accordance with the principles outlined in GLVIA3 and SNH/NatureScot guidance⁶.
- 6.26 The LVIA for the proposed development will consider the potential effects of the addition of the proposed development to the existing landscape against a baseline that includes existing wind farms and those under construction. The CLVIA will consider the potential additional effects of the proposed development against a baseline that includes other consented or reasonably foreseeable wind energy developments within the study area. This includes wind farms that are consented but unbuilt and undetermined planning applications (including those which may have been refused and are currently at appeal stage), and in some instances scoping stage schemes where it is deemed appropriate and sufficient information is available in the public domain.
- 6.27 A review of the existing pattern(s) of wind energy development will be undertaken, considering operational, consented, and proposed wind farms which are the subject of a

⁵ Carol Anderson Landscape Associates (2017) Argyll and Bute Landscape Wind Energy Capacity Study

⁶ SNH (2021) Assessing the Cumulative Impact of Onshore Wind Energy Developments guidance

valid planning application, up to a 40km radius from the proposed development, in accordance with current NatureScot guidance

- 6.28 Within this 40km search area, the cumulative LVIA will seek to focus detailed assessment on those wind farms located in the more immediate context of the Site, which in this instance includes those located within an approximate 20km radius of the proposed development. Turbines of less than 50m to blade tip height and single turbines beyond 5km from the Site will not be included in the detailed assessment. Cumulative research will be undertaken and a scope of assessment and 'cumulative cut-off date' agreed prior to submission to ensure the most up to date information available is included.

Residential Visual Amenity

- 6.29 Effects upon residential visual amenity become a matter of public rather than private interest when properties or groups of properties become widely regarded as unattractive places to live. Owing to the remote upland location of the Site, there are no residential properties located within the Site or in closer proximity (2.5km). As such a Residential Visual Amenity Assessment (RVAA) is not considered to be necessary.

Visualisations

- 6.30 Wireline and photomontage visualisations will be used to consider and illustrate changes to views from representative viewpoints. Photomontages will involve overlaying computer-generated perspectives of the proposed development over the photographs of the existing situation to illustrate how the views will change against the current baseline. Other (cumulative) wind farm developments visible from each of the viewpoints will be shown on the wirelines. Visualisations will be prepared in accordance with NatureScot guidance. Ancillary elements such as tree felling, permanent anemometer masts, access tracks and the onsite substation, and any proposal for battery storage systems should these be considered, will be shown in photomontages for viewpoints within 5km when they would be visible. Beyond 5km it is considered unlikely that these ancillary elements would form more than a minor element of the entire development when compared to the turbines.

Assessment of Visible Aviation Lighting Effects

- 6.31 In the interests of aviation safety structures, including wind turbines, of $\geq 150\text{m}$ require visible aviation lighting⁷. The turbines of the proposed development are less than 150m in height, negating the requirement for visible aviation lighting. As such, an aviation lighting assessment will not accompany the LVIA.

⁷ Civil Aviation Authority (2016) CAA Policy and Guidelines on Wind Turbines CAP 764

Baseline Conditions

Site Description

- 6.32 The Site is located within the northern part of the Kintyre peninsula in the ABC local authority area. The Site extends across an area of elevated plateau and low summits with a landcover of conifer forest punctuated by pockets of open elevated moorland and two small lochs. The Site lies within the wider landscape classified as the Plateau Moor and Forest - Argyll LCT (39)⁸, and is accessed via the Rocky Coastland – Argyll LCT (53)⁹.
- 6.33 Landform within the Site is typically undulating and generally rises from west to east, south-east with an elevation range of approximately 130m AOD to 302m AOD. High points include the open moorland summits of Narachan Hill (285m AOD) towards the centre of the Site, and Cnoc a' Mhinisteir (240m AOD) and Malaidh Mora (255m AOD), both on the eastern side of the Site. The southern part of the Site is characterised by the open summit of Cnoc an Daraich (302m AOD), flanked to the north, east and west by conifer forest.
- 6.34 In terms of hydrology Loch Ulagadle and Loch an Fhraoich are located towards the centre of the Site on the western slopes of Narachan Hill. Watercourses include part of Narachan Burn in the north-western part of the Site, Spout Gill to the east and Allt Chaltuinn to the south.
- 6.35 Two existing forestry tracks provide access to and across the Site. To the north, an existing track traverses east from the A83 south of Ballochroy to Ballochroy Burn and along the lower western side of Cnoc a' Bhraidein (240m AOD) and provides access to the northern part of the Site. To the south, an existing track passes east, north of Tayinloan following close to Tayinloan Burn and the lower northern slopes of Cnoc nan Craobh (322m AOD).
- 6.36 There are no residential properties located within the Site, although the derelict Narachan is located within the eastern Site boundary and the ruined Lagloskine is located within less than 0.5km of the western boundary.
- 6.37 Beyond the Site boundary and within 5km of the Site there are a number of additional scattered individual farmsteads and residential properties largely accessed from the A83 to the west and the B842 to the east.
- 6.38 The West Kintyre Coast Local Landscape Area (LLA) is located within 5km west of the Site boundary. A section of the northern access is located within this LLA south of Ballochroy, and a section of the southern access is also located within this locally designated landscape north of Tayinloan. The Kintyre Way, designated as one of Scotland's Great Trails passes in close proximity to the south of the Site (approximately 1.8km at the closest point). A small section of the Kintyre Way follows the same route as the northern access near Ballochroy.

⁸ NatureScot (2019) [Plateau Moor and Forest – Argyll LCT \(39\)](#)

⁹ NatureScot (2019) [Rocky Coastland – Argyll LCT \(53\)](#)

Study Area

- 6.39 The study area, shown in Figure 6.1, extends to a 40km radius from the outermost turbines of the proposed development. The majority of the study area is within the ABC area. The Isle of Arran 10.5km to the east falls within the North Ayrshire Council (NAC) area.
- 6.40 The landscape of the study area is varied covering much of the Kintyre Peninsula, transitional coastal areas, more distant highlands to the north and rugged islands and open waters to the east and west; including the Isle of Arran to the east, and the Isles of Gigha, Islay and Jura to the west.
- 6.41 The highest points in closest proximity to the Site include Beinn an Tuirc (454m AOD) approximately 9.4km to the south and Mullach Buidhe (721m AOD) approximately 13.7km to the east on the Isle of Arran. Mullach Buidhe forms part of the rugged uplands in the northern part of Arran which lies within the North Arran National Scenic Area (NSA), the North Ayrshire Special Landscape Area (SLA) and the North Arran Wild Land Area (WLA 3).
- 6.42 Land use across the study area is equally varied. A mosaic of rolling upland moorland and conifer forest is found at higher elevation along the spine of the Kintyre Peninsula. Transitional coasts are characterised by blocks of conifer forest, smaller pockets of mixed woodland, rough grazing and settled agricultural land at lower elevations.
- 6.43 The study area is relatively sparsely populated, the largest settlements being Campbeltown approximately 22.5km to the south of the proposed development, and Tarbert approximately 22.9km to the north-east. There are also a number of small villages, hamlets and individual farmsteads. The closest settlements to the proposed development are Grogport, Killean and the small village of Tayinloan. Beyond 5km are the villages of Clachan to the north, Ardmish on the Isle of Gigha, Muasdale and Glenbarr to the Southwest, and Carradale on the east coast of Kintyre. At over 10km, settlements include Skipness to the north-east, and to the south Saddell, Peninver, Machrihanish and Drumlemble. To the east, there are a number of villages on the eastern coast of Arran, including Lochranza, Pirmill, and Blackwaterfoot.
- 6.44 Main transport routes include the A83 located adjacent to both potential Site accesses and approximately 5km west of the proposed turbines; this is the major road on the Kintyre peninsula and connects Tarbert on the western shore of Loch Fyne with Campbeltown in the south-east. A number of individual residential properties are located along this main road, which also provides access to Point Sands Holiday Park, south of Rhunahaorine Point. The B8001 (Redhouse to Skipness) links the western A83 to the eastern side of the Kintyre Peninsula providing access to Skipness and the B842 (Claonaig to Southend) which follows the eastern coast through Carradale and Campbeltown. The study area also includes a number of ferry routes including the Gigha Ferry and Islay ferries to the west, and Claonaig to Lochranza, and Tarbert to Lochranza to the east.
- 6.45 Recreational routes located on roads within the study area including National Cycle (NCN) Route 78, Oban to Campbeltown, following the B8024 along the Knapdale coast and the B842 along the eastern coast of Kintyre.

- 6.46 Promoted walking routes within the study area include the Kintyre Way, designated as one of Scotland's Great Trails, which passes along a small section of the northern access, and is within relative close proximity 1.8km to the south of the proposed turbines at the closest point. The Arran Coastal Way is also designated as one of Scotland's Great Trails and passes within 10.3km east of the proposed development. A network of core paths cover eastern parts of Gigha and areas around and to the west of Carradale.
- 6.47 In terms of intervisibility with the wider landscape, the rounded summit of Narachan Hill, and the other smaller summits located within the Site, are visible in views from elevated areas along the Kintyre Peninsula. However, views towards the elevated plateau and summits along the spine of the peninsula are often screened by the steep slopes which rise from the eastern and western coastal fringes of the peninsula. More distant views towards the Site include those from; the Isle of Gigha, the Isle of Arran and elevated ground to the north of West Loch Tarbert and to the southern extent of the Kintyre Peninsula (south of the Links of Machrihanish).

Designated Landscape and Wild Land

- 6.48 The Site is not located in any nationally or locally designated landscapes. However, there are a number of designated landscapes found across the surrounding area including National Scenic Areas (NSAs), Special Landscape Areas (SLAs) and Local Landscape Areas (LLAs)). Designated Landscapes within the 40km study area are shown on Figure 6.4 along with the ZTV indicating the extent of theoretical from these areas, and include:
- North Arran NSA located approximately 10km to the east of the nearest turbine of the proposed development;
 - Knapdale NSA located approximately 25km to the north;
 - Jura NSA located approximately 25km to the north-west;
 - Kyles of Bute NSA located over 30km to the north-east;
 - West Kintyre Coast LLA located approximately 0.2km to the west;
 - East Kintyre Coast LLA located approximately 9km to the south-east
 - Knapdale/Melfort LLA located approximately 10km to the north;
 - South & East Islay LLA located approximately 25km to the west;
 - Mull of Kintyre LLA located approximately 30km to the south;
 - Bute & South Cowal LLA located approximately 30km to the north-east;
 - South Cowal LLA located approximately 35km to the north-east; and
 - North Arran Special Landscape Area (SLA) located 10km to the east.
- 6.49 Scotland's 42 Wild Land Areas (WLA) are areas identified by NatureScot in 2014, where qualities and characteristics of wildness such as remoteness and naturalness are considered to be most extensively expressed.¹⁰ While WLAs are not a statutory designation, NPF4 Policy g) states that any development proposed within a WLA must be accompanied by a wild land impact assessment. With regard to development proposals located outside of WLAs, NPF4 states that “Buffer zones around wild land will not be applied, and effects

¹⁰ NatureScot (2014) Wild Land Areas Map and Descriptions

of development outwith wild land areas will not be a significant consideration." Wild Land Areas within the 40km study area are shown on Figure 6.4.

- 6.50 Wild Land Area (WLA) 03: North Arran is located approximately 11km to the east of the nearest turbine of the proposed development. The turbine blade tip height ZTV on Figure 6.4 indicates theoretical visibility from west-facing slopes, elevated landform and hill summits within the Pirmill Hills at approximately 12km from the nearest turbine.
- 6.51 Wild Land Area 05. Jura, Scarba, Lunga and Garvellachs is located over 30km north-west of the proposed development. Figure 6.4 indicates limited theoretical visibility from this WLA.
- 6.52 Owing to intervening distance and the position of NPF4 described above regarding development outwith WLAs, a standalone wild land impact assessment is not considered necessary.

Landscape Character

- 6.53 NatureScot provides on its website a Landscape Character Assessment (LCA)¹¹ for Scotland which supersedes earlier landscape character descriptions and mapping published in the late 1990s. The LCA divides Scotland into different Landscape Character Types, which are "*areas of consistent and recognisable landscape character*".
- 6.54 The LCTs of the Study Area can be broadly separated into coastal and upland areas. The Site is located within the Plateau Moor and Forest - Argyll Landscape Character Type (LCT) 39¹² as shown on Figure 6.3. Key characteristics of this LCT include:
- "Upland plateau with rounded ridges, craggy outcrops and an irregular slope profile.
 - Upland lochs.
 - Winding narrow glens and wider glens with rivers.
 - Extensive, large-scale mosaic of open moorland and forestry.
 - No field boundaries.
 - Very few buildings; occasional isolated dwellings on edges of moor.
 - Small enclosed pastures and occasional farms and houses on lower hill slopes at the transition with adjacent character types and within the narrow glens which dissect these uplands.
 - Little access; roads follow shorelines."
- 6.55 Other LCTs within 5km of the Site include the Rocky Coastland – Argyll LCT (53)¹³, which is located along relatively narrow extents on the west and east Kintyre coastline and provides access to the Site from the west, and the Coastal Glens LCT (6)¹⁴, which is located

¹¹ Scottish Natural Heritage (2019) Scottish Landscape Character Types Map and Descriptions

¹² Plateau Moor and Forest – Argyll LCT (39)

¹³ NatureScot (2019) Rocky Coastland – Argyll LCT (53)

¹⁴ NatureScot (2019) Coastal Glens LCT (36)

along the Carradale Water to the south-east of the Site. These LCTs are smaller in scale with more complex mixture of textures and landcover.

6.56 The Argyll and Bute LWECS¹⁵ identifies key sensitivities and opportunities for wind farm development, based on the LCTs included in the Landscape Assessment of Argyll and the Firth of Clyde¹⁶. Similarly, the North Ayrshire Landscape Wind Capacity Study¹⁷ (hereafter referred to as the LWCS) identifies key landscape and visual sensitivities of landscape character types to wind farm development, based on landscape character types included in the Ayrshire Landscape Assessment¹⁸. Some revisions were made to the previous landscape assessment LCTs and their classification in the capacity studies.

6.57 Within the Site, the Plateau Moor and Forest - Argyll LCT is identified as the Upland Forest Moor Mosaic LCT (6) in the Argyll and Bute LWECS. This LCT is noted as having *"very limited scope for the Very Large typology (turbines >130m) to be accommodated"* (page 48, paragraph 4.10.6). However, the LWECS also notes that *"Turbines <150m may be able to be accommodated provided they are set well into the centre of the peninsula and occupy more contained sites which would minimise the effects of turbines of this size on the coastal fringes of Kintyre and on views from Arran and Gigha. Many such sites are already occupied and scope for this size of turbine is likely to be restricted to repowering of operational wind farms (page 48, paragraph 4.10.6)"* Key characteristics of the LCT that may reduce sensitivity to wind farm development include the simple land cover and landform, presence of coniferous forestry and sparse population. Development located within the fringes and edge hills of the LCT should be avoided due to visibility of these areas with the smaller scale settled coastal landscapes.

Visual Amenity

6.58 Visual effects occur when the introduction of the proposed development changes or influences the visual amenity and views experienced by people (visual receptors) in the area. Visual receptors to be considered within the assessment include:

- Residents in individual dwellings and settlements;
- People travelling on major roads and ferry routes; and
- Recreational receptors including walkers, cyclists and horse riders on long distance recreational routes and core paths, as well as visitors to outdoor tourist destinations where views form a key element of the visitor experience.

6.59 The representative viewpoints proposed for the visual assessment are identified in Table 6.1, with consideration given to the potential landscape and visual receptors that are described above and shown on the ZTV for the proposed development. The representative viewpoints are based on the 20 LVIA viewpoints for the original LVIA (VP1 – VP20), and the four additional FEI viewpoints (VP21 – VP24). As the scoping layout is based on a smaller turbine size of 149.9m in comparison to the 2021 layout (180m), this list is

¹⁵ Carol Anderson Landscape Associates (2017) Argyll and Bute Landscape Wind Energy Capacity Study

¹⁶ Environmental Resources Management (1996) Landscape assessment of Argyll and the Firth of Clyde

¹⁷ Carol Anderson Landscape Associates (2018) North Ayrshire Landscape Wind Capacity Study

¹⁸ Land Use Consultants (1998) Ayrshire landscape assessment

considered as a starting point only, to be reduced and refined though further consultation with Argyll and Bute Council and NatureScot, to an agreed and proportionate list of viewpoints focused on those where significant visual effects may be anticipated (including viewpoints where wireframe only views are appropriate).

Table 6.1 Representative Assessment Viewpoints

Viewpoint	Easting	Northing	Approximate Distance ¹⁹	Reason for Selection
VP1: Kintyre Way near Loch na Naich	173296	643849	2.6km	Represents views experienced by recreational receptors on the Kintyre Way.
VP2: B842 north of Carradale	179511	641289	6.1km	Represents views experienced by road users.
VP3: Loch Ciaran (Kintyre Way)	177640	654575	6.2km	Represents views experienced by recreational receptors on the Kintyre Way.
VP4: Beinn Bhreac (Kintyre)	175275	638590	7.3km	Represents elevated views experienced by recreational receptors on this hill summit.
VP5: Deer Hill, Carradale	180298	639639	7.8km	Represents elevated views experienced by recreational receptors on this hill summit.
VP6: Dun Skeig hill fort	175768	657189	8.6km	Represents elevated views experienced by recreational receptors on this local hill summit and scheduled monument, within the West Kintyre Coast LLA.
VP7: Kilbrannan Sound (open water non-ferry route)	185993	648068	8.7km	Represents views experienced by recreational receptors and workers on boats in the Kilbrannan Sound.
VP8: A83 north of Clachan	177915	657558	9.2km	Represents views experienced by road users.
VP9: Gigha Jetty	165375	649084	10.1km	Represents views experienced by ferry users and nearby residential receptors on the Isle of Gigha.
VP10: Pirnmill, Arran	187202	644129	10.4km	Represents views experienced by residential receptors, road users and recreational receptors in the North Arran NSA/SLA.
VP11: East Tarbert Bay, Gigha	165533	652262	11.1km	Represents views experienced by recreational receptors and nearby residential receptors on the Isle of Gigha.

¹⁹ Approximate distance as measured from nearest turbine of the Proposed Development

Viewpoint	Easting	Northing	Approximate Distance ¹⁹	Reason for Selection
VP12: B8024 south of Kilberry	171438	661708	13.7km	Represents views experienced by road users within the Knapdale/Melfort LLA.
VP13: Mullach Buidhe, Arran	190192	642772	13.7km	Represents elevated views experienced by recreational receptors on this hill summit within the North Arran NSA/SLA.
VP14: Lochranza Ferry (Lochranza to Claonaig, Kilbrannan Sound)	191277	652114	14.6km	Represents views experienced by ferry users.
VP15: Lochranza, Arran	193132	651542	16.3km	Represents views experienced by residential receptors, road users and recreational receptors in the North Arran NSA/SLA.
VP16: Skipness Castle	190813	657790	16.7km	Represents elevated views experienced by recreational receptors visiting this scheduled monument, and nearby residential receptors.
VP17: A841 (C147) at Machrie Bay Golf Club, Arran	189292	634115	17.8km	Represents views experienced by road users and recreational receptors (golfers and users of the Arran Coastal Way) within the North Arran NSA/SLA.
VP18: Islay to Kennacraig Ferry (travelling towards Kennacraig)	161009	658692	18.1km	Represents views experienced by ferry users travelling from Islay towards Kintyre.
VP19: Tarmore Hill, Bute	205083	658709	29.9km	Represents elevated views experienced by recreational receptors on this hill summit within the Bute & South Cowal LLA.
VP20: Craighouse, Jura	152716	667465	30.1km	Represents views experienced by residential receptors, road users and recreational receptors within the Jura NSA.
VP21: Creag Bhan	164786	650908	11.2km	Represents views experienced by residential receptors from the higher point on the Isle of Gigha.
VP22: Imachar Point	186446	640201	11.9km	Represents views experienced by recreational receptors on the Arran Coastal Way, residential receptors and road users of the minor coastal

Viewpoint	Easting	Northing	Approximate Distance ¹⁹	Reason for Selection
				road within the North Arran NSA and SLA.
VP23: Caisteal Abhail	196788	644266	20km	Represents views experienced by recreational receptors on this hill Corbett summit within the North Arran NSA, SLA and WLA.
VP24: Goat Fell	199141	641528	23km	Represents views experienced by recreational receptors on this hill Corbett summit within the North Arran NSA, SLA and WLA.

Residents

- 6.60 Settlements are those defined as such within the Argyll and Bute Council Local Development Plan 2 Proposals Maps (Adopted February 2024)²⁰ and the North Ayrshire Council Local Development Plan Strategic Policy 1: Spatial Strategy Map (Adopted November 2019).²¹
- 6.61 Settlement within the study area is relatively sparse and generally restricted to the coastal edge of the Kintyre peninsula. A number of scattered residential properties are also located further inland along the A83, B842 and B843. Within 5km of the proposed development, the small settlement of Grogport is located to the south-east. Other settlements located within 10km of the Site include Clachan to the north, Bridgend/Waterfoot and Carradale to the south-east, Killeen and Muasdale to the south-west, and Tayinloan to the west. There are also numerous other settlements within the 40km study area, the largest of which is Campbeltown, approximately 24.5km to the south of the proposed development.
- 6.62 The turbine blade tip ZTV shown on Figure 6.1 indicates no theoretical visibility from most settlements within 30km of the proposed development. The settlements along the east and west coastlines of Kintyre are not within the ZTV, owing to screening by steep landform near the coasts. Theoretical visibility is indicated from Ardmish on Gigha approximately 10.4km west of the proposed development, and from Pirnmill on Arran approximately 10.5km east of the proposed development. Beyond 20km, theoretical visibility is indicated from Torinturk in Knapdale to the north, Shiskine on Arran to the south-east and Craighouse on Jura to the north-west.

Road and Ferry Users

- 6.63 Key transport routes within the study area include the A83, which is the major road on the Kintyre peninsula and connects Tarbert on the western shore of Loch Fyne with

²⁰ Argyll and Bute Council (2024) [Local Development Plan 2](#)

²¹ North Ayrshire Council (2019) [Local Development Plan 2](#)

Campbeltown in the south-east. The B842 follows the eastern Kintyre coast through Carradale and Campbeltown to the southern Kintyre coastline at Southend. The B843 is located north of the Site and connects the B842 at Stewarton with Machrihanish.

6.64 A number of ferry routes are located within the study area, the nearest of which is the Tayinloan – Gigha Ferry approximately 4 km to the west of the Site. Other ferry routes in the study area include Claonaig to Lochranza approximately 13.5km to the north-east of the Site, Tarbert to Lochranza approximately 15.5km to the north-east of the Site; and Kennacraig to Port Ellen and Kennacraig to Port Askaig approximately 7.5km to the north of the Site. Approximately 25km to the south of the Site, the Kintyre Express ferry runs between Campbeltown and Ballycastle (NI), while the Campbeltown to Ardrossan ferry is not currently running (as of summer 2025).

6.65 Lengthy sections of the road network within the study area are not affected by theoretical visibility as indicated by the turbine blade tip ZTV. Roads from which theoretical visibility is indicated include:

- A83: Within 10km visibility limited to Portachollan north of the proposed development. Further visibility indicated near Tarbert 20km north of the proposed development;
- B842: Short sections of the B842 west and north of Carradale 5-10km south-east of the proposed development;
- B8024: Within 15km north of the visibility indicated along the south-facing Knapdale coast;
- B8001: Visibility largely limited to a coastal section of this road between Claonaig and Skipness 12-17km north-east of the proposed development;
- C147 (formerly A841): Visibility indicated between Lochranza and Tormore 10-15km east and south-east of the proposed development and between Kilpatrick and Corriecravie 25km south-east of the proposed development; and
- Minor road on the Isle of Gigha: Visibility indicated 10-15km west of the proposed development.

6.66 The turbine blade tip ZTV indicates theoretical visibility from the following ferry routes, all operated by Caledonian Macbrayne:

- Tayinloan to Gigha: Visibility indicated across majority of route within 10km to the west of the proposed development;
- Claonaig to Lochranza: Visibility indicated across majority of route within 15km north-east of the proposed development;
- Tarbert to Lochranza: Visibility indicated as route passes south of Skipness Point within 15-20km north-east of the proposed development;
- Kennacraig to Port Ellen: Visibility indicated as route passes west of Dunskeig Bay within 10km to the north of the proposed development; and
- Kennacraig to Port Askaig: Visibility indicated as route passes west of Dunskeig Bay, with similar views afforded as the above route.

Recreational Routes

- 6.67 Recreational routes within the study area are shown on Figures 6.1 and 6.2.
- 6.68 National Cycle (NCN) Route 78, Oban to Campbeltown, follows the B8024 along the Knapdale coast and the B842 along the eastern coast of Kintyre and passes within 5km to the north-east of the Site.
- 6.69 The Kintyre Way is a long distance route and one of Scotland's Great Trails. The route extends 161km from Tarbert to Machrihanish, crossing coastal and inland parts of the Kintyre peninsula. It passes within 2km to the south of the proposed development, and also passes to its west and north.
- 6.70 The Arran Coastal Way is a long distance route and one of Scotland's Great Trails. The route follows a circular route of 105km around Arran, and passes approximately 10km to the east of the proposed development at its closest point.
- 6.71 The closest core path to the proposed development is the route taken by the Kintyre Way, approximately 1.8km to the south. Other core paths in Kintyre within the study area are generally clustered near settlements and communities along the coast, with some paths providing linkages to the Kintyre Way and local hill summits.

Other Wind Farm Developments

- 6.72 In terms of other existing wind farm developments and electricity transmission infrastructure, the existing Inveraray - Crossaig 275kV overhead power line runs from Lochgilphead approximately 41km to the north-east of the Site (just outside the study area) to Carradale, approximately 10km to the south-east. A number of overhead wood pole power lines cross the local landscape and telecommunication masts are located on a number of hill tops in close proximity to towns and villages.
- 6.73 Wind farm development within Kintyre is generally located within the central 'spine' of Kintyre within the Plateau Moor and Forest – Argyll LCT, set back from sensitive coastal edges. The proposed development conforms to the existing pattern of wind farm development in Kintyre, with a number of existing commercial scale wind farms located within approximately 15km. The closest operational wind farms include Deucheran Hill Wind Farm 3.1km to the south, Cour Wind Farm 3.2km to the east, Blary Hill Wind Farm 8.1km to the south, Beinn An Tuirc Phase 1, Phase 2 and Phase 3 Wind Farms 11km to the south, Freasdail Wind Farm 13.4km to the north-east, and Tangy I and II Wind Farms 15.9km to the south. Smaller scale developments include the four turbines on the Isle of Gigha, 12.4km to the west. Other elements of infrastructure, such as main roads and minor roads, generally follow close to the coastal edge east and west of the proposed development. Refer to Table 6.2 and Figure 6.5 for further detail of wind farms in the area.
- 6.74 Consented wind farm developments within the study area include Clachaig Glen Wind Farm (12 turbines up to 200m to blade tip height) within 5km to the south-west of the proposed development and closer to the coastal edge of West Kintyre. The consented Tangy IV Wind Farm (16 turbines up to 149.9m blade tip height) would replace Tangy I and

Il Wind Farms, though was recently the subject of a S36c variation scoping request to increase the blade tip height of the turbines to 200m. Eascairt Wind Farm (13 turbines up to 100m to blade tip height) is located within 10km to the north-east of the proposed development, while Airigh Wind Farm (14 turbines up to 149.5m blade tip height) and Rowan Wind Farm (13 turbines up to 200m blade tip height) are located within the uplands of Knapdale between 15km and 20km to the north.

- 6.75 There are several proposed wind farms within 5km and 15km of the proposed development, including Killean Wind Farm (9 turbines up to 180m blade tip height), immediately to the south-west of the Site and immediately north of Clachaig Glen Wind Farm. Other schemes are proposed adjacent to the established Beinn an Tuirc cluster, including Cnoc Buidhe Wind Farm (29 turbines up to 200m to blade tip height), West Torrisdale Wind Farm (9 turbines up to 149.9m to blade tip height), and Allt Domhain Wind Farm (9 turbines at 200m to 230m to blade tip height). Breackerie Wind Farm (13 turbines up to 200m to blade tip height, currently at appeal, is located in South Kintyre beyond 30km to the south-west of the proposed development.
- 6.76 The scoping stage schemes of Coalashee Wind Farm (19 turbines up to 220m blade tip height) and Deucheran Hill 2 Wind Farm (23 turbines up to 220m blade tip height) are located within 5km to the west and south-east of the proposed development respectively, with the former in closer proximity to the coastal edge of west Kintyre to the east of Tayinloan and Rhunahaorine Point. It is understood by the Applicant that Coalashee will not progress. Meall Mor Wind Farm (14 turbines up to 230m to blade tip height) is located in the Mull of Kintyre uplands to the south of Campbeltown, between 25km and 30km to the south of the proposed development.
- 6.77 Table 6.2 below and Figure 6.5 detail the locations of operational, consented, and proposed wind farms (including those at scoping) within 40km²² of the Site.

Table 6.2 Other Wind Farm Developments

Name	Status	Blade Tip Height (m)	Number of Wind Turbines	Distance ²³
Deucheran Hill 2 ²⁴	Design/Scoping	220m	23	0.4km
Deucheran Hill	Operational	93m	9	1.4km
Cour	Operational	111.25m	10	1.4km
High Constellation	Under Construction	149.9m	10	2.1km
Killean	Application Submitted	180m	9	2.1km
Coalashee	Design/Scoping	220m	19	2.6km

²² Excluding single turbines or turbines of <50m blade tip height, with the exception of Gigha and Gigha Extension

²³ Approximate distance between the turbines of the proposed development and the closest turbines of the wind energy development listed

²⁴ Figure 6.5 shows the updated 14 turbine Exhibition Layout

Name	Status	Blade Tip Height (m)	Number of Wind Turbines	Distance ²³
Clachaig Glen	Consented	200m	12	3.6km
Allt Domhain	Application Submitted	200m / 230m	9	8.2km
West Torrisdale	Application Submitted	149.9m	9	8.5km
Beinn An Tuirc Phase 1	Operational	62.5m	45	8.5km
Eascairt	Consented	100m	13	8.8km
Blary Hill	Operational	110m	14	9.0km
Beinn An Tuirc Phase 2	Operational	100m	19	10.8km
Auchadaduie	Operational	100m	3	11.0km
Gigha	Operational	43.5m	3	11.1km
Freasdail	Operational	100m	11	11.2km
Gigha Extension	Operational	54m	1	11.4km
Cnoc Buidhe	Application Submitted	200m	29	12.5km
Beinn An Tuirc Phase 3	Operational	125m	14	13.0km
Airigh	Consented	149.5m	14	16.3km
Tangy IV	Consented	149.9m	16	17.2km
Tangy IV (S36C Variation)	Design/Scoping	200m	1	18.1km
Tangy I	Operational	75m	15	18.4km
Tangy II	Operational	75m	7	18.5km
Rowan	Consented	200m	13	21.6km
Meall Mor	Design/Scoping	230m	14	27.6km
Allt Dearg	Operational	81m	12	28.3km
Srondoire	Operational	110m	3	28.8km
Breackerie	Appeal/Public Inquiry	200m	13	31.8km

Name	Status	Blade Tip Height (m)	Number of Wind Turbines	Distance ²³
High Brenfield	Application Submitted	200m	10	34.8km

Inclusion or Exclusion from EIA

- 6.78 The selection of receptors to include in the assessment is based on the requirement for EIA to consider the likely significant effects. Effects that are not likely to be significant do not require assessment under the EIA Regulations.
- 6.79 The assessment will identify landscape and visual effects separately, as detailed in the approach to the assessment set out above and will set out any implications of these effects on designated landscapes. The assessment will focus on the identification and, wherever appropriate, the mitigation of potential significant landscape and visual effects.
- 6.80 The primary form of mitigation for landscape and visual effects arising from large scale wind farm development is through iterative design of the layout of the turbines and associated infrastructure, with reference to key views, viewpoints, and receptors. Design evolution will be set out in detail in the design strategy that will form part of the EIA Report and will demonstrate how the design of the proposed development has sought to avoid, reduce or minimise landscape and visual effects wherever feasible.
- 6.81 Further mitigation will be considered where relevant and appropriate, and the residual effects taking account of the implementation of this mitigation will be presented in the assessment.

Proposed Scope of Assessment

Potential Effects Scoped In

- 6.82 Based on baseline conditions, it is proposed the following receptors are scoped into the assessment:
- The Plateau Moor and Forest – Argyll LCT and other LCTs within a 15km radius, where there may be potential for significant effects;
 - Potential effects on the North Arran NSA and Knapdale/Melfort LLA;
 - Transient views experienced by road and ferry users travelling through the study area;
 - Views experienced from promoted recreational routes, including the Kintyre Way, NCN Route 78 and the local network of core paths;
 - Views experienced by residential receptors living nearby and travelling in the nearby locality of the Site will be considered in the assessment; and

- Effects upon residential visual amenity in the form of a Residential Visual Amenity Assessment (RVAA) for properties located within 2km of turbines of the final proposed development.

6.83 The assessment will include potential cumulative landscape and visual effects arising through combined, successive, and/or sequential interactions with other existing and proposed wind farms including most notably Cour Wind Farm, Deucheran Hill Wind Farm and High Constellation Wind Farm in closer proximity, as well as other existing and proposed wind farms situated on the Kintyre Peninsula.

Potential Effects Scoped Out

6.84 Based on the baseline conditions recorded, theoretical visibility indicated on the ZTVs (Figures 6.1, 6.2, 6.3, 6.4) and distance from the Site, it is proposed that the following are scoped out:

- Effects on Landscape Character Types (LCTs) beyond a 15km radius of the Site with no intervisibility;
- Effects on all NSAs located within the study area due to intervening distance and limited or absent theoretical visibility, with the exception of North Arran NSA;
- Effects on all LLAs located within the study area due to intervening distance and limited or absent theoretical visibility, with the exception of Knapdale/Melfort LLA; and
- Effects on all WLAs located within the study area due to intervening distance and limited theoretical visibility.

7 NOISE

Introduction

- 7.1 This section of the Scoping Report focuses on the likely direct and indirect effects of noise and vibration associated with the construction, operation and decommissioning phases of the proposed development. It is based upon a desk-based review of potentially noise sensitive receptors (NSRs) and their relationship to the proposed development.

Baseline Conditions

- 7.2 The Site is located within a rural location where background noise levels are anticipated to be relatively low. The closest property to the proposed development is approximately 3.2km from the closest proposed turbine.
- 7.3 The EIA and FEI carried out for previous development on this site determined that there would be no significant effects caused by noise primarily due to the distance to occupied properties.
- 7.4 As there are a number of operational wind farm developments within the vicinity of the proposed development an assessment will be undertaken to consider the potential cumulative noise impacts upon noise-sensitive receptors (NSRs).
- 7.5 Therefore, a simplified ETSU-R-97 assessment will be carried out to capture the noise as a result of the proposed development.
- 7.6 A met mast has been installed in one location within the site boundary for two and a half years, and a LiDAR in two locations within the site boundary over two years in total.

Likely Significant Effects during Construction

- 7.7 Likely significant effects during construction are centred around noisy activities in the vicinity of noise-sensitive receptors. This includes construction or widening of access roads, drilling, or blasting associated with potential rock movement during construction, the formation of borrow pits, and the noise associated with heavy goods vehicles and general construction movements.
- 7.8 Since there may be construction noise associated with heavy goods vehicles passing residential properties, or potential new junction/ road or road widening options when using either of the access routes, noise will be scoped into the EIA.

Likely Significant Effects during Operation

- 7.9 For operational noise, the EIA Report will assess the maximum sound power level for the candidate turbine type in order to assess a worst-case scenario. If the modelling exercise shows that sound power levels will need to be reduced to achieve acceptable noise levels

at sensitive locations, then the EIA Report will examine possible mitigation measures which may include the use of quieter turbines, increasing standoff distances, installing measures to monitor and, if necessary, using noise reduced modes in certain wind conditions.

- 7.10 Like all wind-related noise, operational noise from turbines increases with wind speed. Wind speed and direction also varies with turbine dimensions inclusion rotor diameter and hub height. It is anticipated that as per the previous development and FEI, a simplified assessment would be required under ETSU-R-97 and therefore no background noise monitoring would be required. The wind farm will be designed to fully comply with the requirements of ETSU-R-97 and, whilst noise associated with the operation of the proposed wind turbines may be audible at some locations under certain conditions, the noise generated would likely be within the ETSU-R-97 and is likely to be acceptable.
- 7.11 Given the changes in the cumulative wind farm situation since the original EIA in 2019, the assessment will undertake a cumulative assessment to demonstrate the contribution to noise limits at NSLs within the study area.

Design and Mitigation

- 7.12 For construction noise mitigation measures would be incorporated into site design by avoiding track proximity to residential properties, following good-practice in construction techniques including avoiding work out of normal day-time construction hours wherever possible. Where required, mitigation measures such as shrouding or noise-limited modes could be applied.
- 7.13 Construction noise would also be controlled via condition, and regular communication would be maintained with local groups via the main contractor, whether via the form of social media, newsletters or community liaison groups. The specific format can be agreed.
- 7.14 For operational noise, the proposed turbine layout will be designed to comply with the noise limits established in accordance with ETSU-R-97. A simplified ETSU-R-97 will be carried out to determine the cumulative impact of the proposed development alongside other developments in the surrounding area.
- 7.15 There are a range of turbine makes and models that may be appropriate for the proposed development. The final selection of turbine is likely to follow a competitive tendering exercise once consent for the proposed development has been granted. The final turbine model may therefore differ from that on which the assessment is based. However, the final choice of turbine will be required to comply with the noise limits established in the ETSU-R-97 assessment.

Inclusion or Exclusion from the EIAR

- 7.16 Given the potential for felling, access track works, use of borrow pits and deliveries in relative proximity to residential properties, effects are not currently known and cannot be fully discounted. Therefore, construction noise would be scoped in. A simplified assessment would be provided for operational effects.

Proposed Scope of Assessment

Potential Effects Scoped In

Construction Noise

- 7.17 Noise emitted during the construction and decommissioning phase will be temporary and short-term in nature and can be minimised through careful construction practices. The effective control of these impacts can be achieved by way of a suitable planning condition. Should consent be granted, construction and decommissioning noise can be controlled through the use of two legislative instruments which address the effects of environmental noise with regard to construction noise, vibration and nuisance:
- The Environmental Protection Act 1990 (EPA)²⁵; and
 - The Control of Pollution Act 1974 (CoPA)²⁶.
- 7.18 The CoPA provides two means of controlling construction noise and vibration. Section 60 provides the Local Authority with the power to impose at any time operating conditions on the development site. Section 61 allows the Developer to negotiate a set of operating procedures with the Local Authority prior to commencement of site works.
- 7.19 A construction noise assessment will be undertaken using data provided in British Standard (BS) 5228: Part 1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Noise'²⁷ and the calculation methodology provided in ISO9613-2:1996 'Acoustics - Attenuation of sound during propagation outdoors' -Part 2: General method of calculation'²⁸. Impacts will be assessed using criteria contained within BS5228-1:2009+A1:2014 and, where appropriate, mitigation measures will be proposed.

Operational Noise

- 7.20 The Scottish Government's Planning Advice Note PAN1/2011 'Planning and Noise'²⁹ refers to the 'Onshore Wind Turbines' web-based document which in turn states that ETSU-R-97 'The Assessment of Rating Noise from Windfarms'³⁰ should be used by Planning Authorities 'to assess and rate noise from wind energy developments until such time that an update is available.' The web-based document also refers to the Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'³¹ (IOA GPG) as a source, which provides "significant support on technical

²⁵ Environmental Protection Act 1990

²⁶ Control of Pollution Act 1974

²⁷ British Standard BS5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Noise'

²⁸ International Standards Organisation ISO9613: 1996 'Acoustics – Attenuation of sound during propagation outdoors Part 2: General method of calculation'

²⁹ Scottish Government, Planning Advice Note PAN 1/2011: 'Planning and Noise'

³⁰ ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97)

³¹ Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'

(2013)

issues to all users of the ETSU-R-97 method of rating and assessing wind turbine noise, and should be used by all IOA members and those undertaking assessments to ETSU-R-97". The Scottish Government accepts that the guide represents current industry good practice.

- 7.21 ETSU-R-97 details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. ETSU-R-97 states that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect the variation in both turbine source noise and background noise with wind speed. Separate noise limits apply for quiet daytime and for night-time periods. Quiet daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.
- 7.22 ETSU-R-97 recommends that wind farm noise for the quiet daytime periods should be limited to 5 dB(A) above the prevailing background or a fixed minimum level within the range 35 - 40 dB LA_{90,10min}, whichever is the higher. The precise choice of criterion level within the range 35 – 40 dB(A) depends on a number of factors, including the number of dwellings in the neighbourhood of the wind farm (relatively few dwellings suggest a figure towards the upper end), the effect of noise limits on the number of kWh generated (larger sites tend to suggest a higher figure) and the duration and level of exposure to any noise. These factors will be taken into account with justification for deriving suitable noise limits included in the noise assessment.
- 7.23 An exception to the setting of both the quiet daytime and night time fixed minimum limit occurs where a property occupier has a financial involvement with the proposed development. In that case the fixed minimum limit can be increased to 45 dB LA_{90,10min} or the prevailing background noise LA₉₀ plus 5 dB, whichever is the greater for both the quiet daytime and night-time periods.
- 7.24 A background noise survey may not be required for situations where predicted wind turbine noise levels at the nearest noise sensitive properties is limited to an LA_{90,10min} of 35dB(A) up to wind speeds of 10m/s at 10m, as the protection of the amenity of those properties can be controlled through a simplified noise condition as detailed in ETSU-R-97. ETSU-R-97 states that:
- ‘For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an LA_{90,10min} of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary.’
- 7.25 The approach noted within paragraph 7.20 applies in this instance.
- 7.26 Detailed consultation will be undertaken with the Council's Environmental Health Department (via their consultant, Mott MacDonald) prior to the commencement of the noise assessment in order to agree the overall assessment methodology.
- 7.27 The assessment will include predictions of likely wind turbine noise levels, based on a candidate turbine, across a range of speeds to demonstrate compliance with the noise limits.

Matters to be Scoped Out

Decommissioning Noise

- 7.28 Noise associated with decommissioning cannot be accurately determined at this stage given decommissioning technology may be very different in 35 years' time. In addition, should the proposed development be consented, there is the possibility that an extension of consent may be granted to operate the proposed development for longer.

Vibration

- 7.29 Given the nature of construction activities proposed and the relative distances from residential receptors, the risk of ground-borne vibration impacting on residential receptors is considered very low. As such, a vibration assessment will not be undertaken.

Low-Frequency Noise

- 7.30 A study³² published in 2006 by acoustic consultants Hayes McKenzie on the behalf of the Department of Trade and Industry (DTI), investigated low frequency noise from wind farms. This study concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines.
- 7.31 In February 2013, the Environmental Protection Authority of South Australia published the results of a study into infrasound levels near wind farms³³. This study measured infrasound levels at urban locations and rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shutdowns of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive.
- 7.32 Bowdler et al., (2009)³⁴ concluded that:
- "...there is no robust evidence that low frequency noise (including 'infrasound') or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours".
- 7.33 During a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5 km south-west of Fairlie, 9 Jan 2018), the health impacts related to low frequency noise associated with wind turbines were considered at length by the appointed Reporter. The Reporter considered evidence from Health Protection Scotland and the National Health Service. In addition, he also considered low frequency noise surveys undertaken by the Appellant and the Local Authority both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the

³² Hayes McKenzie (2006). 'The measurement of low frequency noise at three UK windfarms', Hayes Mckenzie, The Department for Trade and Industry, URN 06/1412, 2006.

³³ Environment Protection Authority (2013). 'Infrasound levels near windfarms and in other environments'. Available Online At: http://www.epa.sa.gov.au/xstd_files/Noise/Report/infrasound.pdf

³⁴ Bowdler et al (2009). 'Prediction and Assessment of Wind Turbine Noise: Agreement about relevant factors for noise assessment from wind energy projects'. Acoustics Bulletin, Vol 34 No2 March/April 2009, Institute of Acoustics.

turbine operations; some periods with highest levels of low frequency noise were recorded when the turbines were not operating.

7.34 The Reporter concluded that:

- The literature reviews by bodies with very significant responsibilities for the health of local people found insufficient evidence to confirm a causal relationship between wind turbine noise and the type of health complaints cited by some local residents.
- The NHS's assessment is that concerns about health impact are not supported by good quality research.
- Although given the opportunity, the Community Council failed to provide evidence that can properly be set against the general tenor of the scientific evidence.

7.35 It is therefore not considered necessary to carry out specific assessments of low frequency noise and it should be scoped out.

Amplitude Modulation

7.36 In its simplest form, Amplitude Modulation (AM), by definition, is the regular variation in noise level of a given noise source. This variation (the modulation) occurs at a specific frequency, which, in the case of wind turbines, is defined by the rotational speed of the blades, i.e. it occurs at the rate at which the blades pass a fixed point (e.g. the tower), known as Blade Passing Frequency.

7.37 A study³⁵ was carried out in 2007 on behalf of the Department for Business, Enterprise and Regulatory Reform (BERR) by the University of Salford, which investigated the incidence of noise complaints associated with wind farms and whether these were associated with AM. The study defined AM as aerodynamic noise from wind turbines with a greater degree of fluctuation than normal at blade passing frequency. Its aims were to ascertain the prevalence of AM on UK wind farm sites, to try to gain a better understanding of the likely causes, and to establish whether further research into AM is required.

7.38 The study concluded that AM had occurred at only a small number (4 of 133) of wind farms in the UK, and only for between 7% and 15% of the time. It also stated that, the causes of AM are not well understood and that prediction of the effect was not currently possible.

7.39 This research was updated in 2013 by an in-depth study undertaken by Renewable UK³⁶, which has identified that many of the previously suggested causes of AM have little or no association to the occurrence of AM in practice. The generation of AM is based upon the interaction of a number of factors, the combination and contributions of which are unique to each site. With the current state of knowledge, it is not possible to predict whether any

³⁵ University of Salford (2007). 'Research into aerodynamic modulation of wind turbine noise'. Report by University of Salford, The Department for Business, Enterprise and Regulatory Reform, URN 07/1235, July 2007.

³⁶ Renewable UK (2013). 'Wind Turbine Amplitude Modulation: Research to improve understanding as to its Cause and effects', Renewable UK, 2013.

particular site is more or less likely to give rise to AM, and the incidence of AM occurring at any particular site remains low, as identified in the University of Salford study. The report includes a sample planning condition to address AM, however that has not yet been validated or endorsed by UK Government.

7.40 In 2016, the IOA proposed a measurement technique to quantify the level of AM present in any particular sample of windfarm noise³⁷. In August 2016 a report written by WSP/Parsons Brinkerhoff was published by the Department of Business, Energy & Industrial Strategy (BEIS, formerly The Department of Energy & Climate Change) who have published guidance³⁸. The report sought to build on the conclusions of the IOA study in order to define an appropriate assessment method for AM, including a penalty scheme and an outline planning condition.

7.41 In November 2017, an article entitled 'A planning condition for wind farms' was published in Vol 42 No 6 of the Acoustics Bulletin magazine. The article was written collaboratively by a number of noise consultants and suggested a noise planning condition which included consideration of AM. The authors noted in the article that:

'Whilst local authorities and developers have waited for a planning condition that could be applied to newly consented wind farms, or to those already consented but with a suspensive condition, the report Wind Turbine AM Review (WTAMR) by WSP/Parsons Brinckerhoff for DECC arguably did not provide that. In addition there have been a number of comments on WTAMR that we consider should be addressed.

7.42 The article then went on to propose a draft condition but noted that: 'This approach is proposed based on the current state of understanding but may be subject to modification in light of new research and further robust information.' And 'As various people before us have discovered, the derivation of a penalty is not easy. There is not sufficient reliable research to be confident that a penalty system would always provide a fair indication of the impact of AM.'

7.43 At the time of writing there has been no official response to those recommendations from the IOA Noise Working Group and, as yet, no endorsement from any Scottish Government Minister or Department. The recommendation to impose a planning condition and the associated penalty scheme is at odds with the advice from the IOA GPG which currently states (paragraph 7.2.10):

- 'The evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM.'

7.44 There are several Ministerial decisions which opt to not provide a condition for AM. On that basis it is considered therefore that amplitude modulation should be scoped out.

7.45 Once the potential noise effects of the proposed development operating on its own have been determined, it will be necessary to evaluate the cumulative effect when considered

³⁷ Institute of Acoustics, (2016) A Method for Rating Amplitude Modulation in Wind Turbine Noise

³⁸ BEIS, (2016), Review of the evidence on the response to amplitude modulation from wind turbines

alongside the existing operational, consented and proposed sites. Critical to this cumulative assessment is the amount of noise which the proposed development would add to that from such sites. It is proposed that only locations where the proposed development makes a significant contribution ($>1\text{dB}$) need to be assessed in terms of cumulative noise impact. Once this proposed screening factor is taken into account, cumulative impact will be evaluated by comparing the overall cumulative wind farm noise level with limits agreed with the Council.

8 ECOLOGY

Introduction

- 8.1 This section presents the approach to be used in assessing the potential effects of the surveys being employed to define the ecological baseline conditions on the site and adjacent areas in order to allow a robust assessment of potential effects from the proposed development on ecological features.
- 8.2 It describes the methods of assessments and indicates any areas which are to be scoped out of that assessment. It also reviews the designated sites in proximity to the site and addresses what impacts will be considered for those sites.
- 8.3 The fundamental approach to the ecology assessment detailed within the EIA Report for the proposed development will be to:
- Identify the ecological baseline of the proposed development and adjacent areas;
 - Evaluate the nature conservation value and/or the legal or planning status of identified receptors;
 - Assess the risk of the proposed development to adversely impact upon features assessed as being above a threshold; and to
 - Present appropriate mitigation or compensation strategies, if required.

Survey Methodology

Survey Area

- 8.4 The ecology survey area is based on the Developable Area (including both access track options) and comprises all land within this area plus an additional 250m buffer zone as illustrated on Figure 8.1.

Desk Study

Designated Sites

- 8.5 Information about statutory and non-statutory sites will be sought during the desk study undertaken as part of the ecological assessment and internationally designated nature conservation sites (Special Areas of Conservation; SACs; and Ramsar sites) and nationally designated sites (Special Site of Scientific Interest (SSSIs) within 5 km of the site identified. Special Protection Areas (SPAs) and sites that are designated for their ornithological interest and are included in section 9 of this Scoping Report.
- 8.6 Data relating to non-statutory sites designated for ecology within 2 km of the site will be considered for the assessment. These include:
- Woodland listed on the Ancient Woodland Inventory (AWI);

- Local Wildlife Sites (LWS)³⁹; and
- Scottish Wildlife Trust (SWT) reserves.

Table 8-1: Ecologically Designated Sites

Site Name	Distance from Site	Qualifying Features
Inner Hebrides and the Minches SAC	50m west from the northern access option. 3km northwest of the developable area.	Designated on account of its Harbour porpoise <i>Phocoena Phocoena</i> population.

- 8.7 To date no known non-statutory sites designated for their ecological interest located within 2 km of the Developable area. There are some areas of woodland listed on the AWI that lie within 2km of the developable area. The nearest, overlies part of the southern access option of the developable area and is listed as being of 'Long-established and of plantation origin'. There are no AWI listed woodlands within the developable area. Figure 8.2 illustrates the locations of the ecologically designated sites.

Background Records

- 8.8 Background records of non-avian protected species shall be obtained from the Argyll Biological Records Centre.
- 8.9 These searches will be limited to legally protected animals considered to be potentially sensitive to onshore windfarm developments, as well as local conservation priorities, and therefore will include:
- Conservation of Habitats and Species Regulations 2010 – Schedule 2 'European Protected Species';
 - Wildlife and Countryside Act 1981 (as amended) (WCA) – Schedule 5 animals⁴⁰ and Schedule 8 plants; and
 - Protection of Badgers Act 1992 – Badgers.

Baseline Survey Methodology

Phase 1 Habitat Survey and National Vegetation Classification

- 8.10 All land within 250m of the Developable Area has been mapped in the field using Phase 1 Habitat Survey and the National Vegetation Classification (NVC) system. The NVC will be used to identify habitats of high conservation value and ground water dependent terrestrial ecosystems (GWDTEs).
- 8.11 Target notes will also provided where appropriate.

³⁹ Local Wildlife Site is a generic name for a variety of non-statutory designated sites; other common examples include: Sites of Importance for Nature Conservation (SINCs); Sites of Scientific Interest (SSI); Biological Heritage Sites (BHSs).

⁴⁰ excluding those only protected from sale and possession under Parts 5(a) and 5(b)

Bats

- 8.12 All bat species found in the UK are legally protected under 'The Conservation (Natural Habitats &c.) Regulations 1994' (as amended 2007 and 2009), which transposes the 'EC Habitats Directive 1992' into UK legislation. Bat species are listed on Annex IV of the Directive (bat species appearing in Annex II and afforded greater protection are not present within Scotland).
- 8.13 Any features with the potential to support roosting, foraging and commuting bats will be recorded during the protected species survey.
- 8.14 The following surveys will be undertaken to assess bats at Narachan:
- Roost potential: visual assessment of the potential of features to support roosting bats; and
 - Remote monitoring: full spectrum bat detector units will be deployed for a minimum of ten consecutive nights on three occasions between May to September 2025. Remote monitoring has been designed in accordance with current best practice guidance^{41, 42}.

Otter

- 8.15 Otter are European Protected Species and the places which they use for shelter/rest are offered European level protection under Annex IV of the Habitats Directive. Recent amendments to the Habitats Directive (Amendment No. 2 (Scotland) Regulations 2007 – S.I. 2007/80) strengthened the legal protection and effectively removed otter from the provisions of the WCA and the Nature Conservation Scotland Act (2004) (NCSA). Protection therefore rests with the amended Habitats Regulations, removing many of the defences previously available under the WCA and making non-compliance with a derogation licence a criminal offence.
- 8.16 The survey area for the otter survey is defined with regard to specified standards, which are set out within the Scottish Natural Heritage (SNH) publication; Otters and Development⁴³. The survey area comprises all suitable habitat within the Developable Area and an additional buffer of 250m upstream and downstream of any crossing where access allows.
- 8.17 In the present study, all water bodies, and watercourses, including field drains and ditches, will be surveyed for signs indicative of the presence of otter, including:
- Otter spraint;
 - Footprints;

⁴¹ Collins, 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition. Bat Conservation Trust.

⁴² NatureScot et al. 2019. Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation.

⁴³ Scottish Natural Heritage (Undated). Otters and Development. Scottish Wildlife Series.
<http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp>.

- Potential resting areas - namely underground holts (e.g. beneath the roots of bankside trees) or above ground couches (e.g. in reedbeds);
- Slides or other well-used access points to watercourses;
- Feeding remains e.g. fish carcasses; and
- Otter sightings.

Water Vole

- 8.18 The Water Vole survey area mirrors that described for otter above.
- 8.19 The survey methodology adopted follows that described in the Water Vole Conservation Handbook (Strachan and Moorhouse 2006)⁴⁴. All watercourses and standing waterbodies in the survey area are identified using an Ordnance Survey (OS) map, aerial photography and field survey. All riparian zones, watercourses and standing waterbodies within the survey area are surveyed for evidence of water vole. Where possible, all bodies of water are surveyed from the channel/bed to give the best possible view of any potential bankside habitat. The survey comprises searching for field signs as described in Strachan and Moorhouse (2006), and this includes burrows, latrines, footprints and feeding stations.
- 8.20 American mink are well known as predators of water vole. As such, presence of this species is also recorded in conjunction with the water vole survey.

Pine Marten

- 8.21 The pine marten receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
- 8.22 Certain methods of killing or taking pine martens are illegal under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).
- 8.23 It is an offence to intentionally or recklessly:
- kill, injure or take a pine marten;
 - damage, destroy or obstruct access to a nest or den – i.e. any structure or place which such an animal uses for shelter or protection; and
 - disturb such an animal when it is occupying a nest or den for shelter or protection (except when this is inside a dwelling house).
- 8.24 Searches for pine marten dens and other evidence of the presence of this species (such as scats), will be searched for during the protected species survey. The survey area for this species will comprise all accessible land within 250m of the development area and access options.

⁴⁴ Strachan, R. and Moorhouse, T. (2006). Water Vole Conservation Handbook. Second Edition. Wildlife Conservation Research Unit, University of Oxford.

Wildcat

- 8.25 The wildcat is a European protected species and is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).
- 8.26 It is an offence to deliberately or recklessly:
- capture, injure, kill or harass a wildcat
 - disturb a wildcat in a den or any other structure or place it uses for shelter or protection
 - disturb a wildcat while it is rearing or otherwise caring for its young
 - obstruct access to a den or other structure or place wildcats use for shelter or protection or otherwise deny the animal use of that place
 - disturb a wildcat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species
 - disturb a wildcat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- 8.27 It is also an offence to:
- damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly);
 - keep, transport, sell or exchange, or offer for sale or exchange any wildcat (or any part or derivative of one) obtained after 10 June 1994.
- 8.28 Searches for wildcat dens and other evidence of the presence of this species (such as scats), will be searched for during the protected species survey. The survey area for this species will comprise all accessible land within 250m of the development area and access options.

Badger

- 8.29 Badgers are legally protected from intentional cruelty, such as badger-baiting and from the results of lawful human activities, including housing, road or other developments, under the Protection of Badgers Act 1992 (PBA), which was amended by the Nature Conservation (Scotland) Act 2004. The PBA consolidates all previous legislation including the Badgers Act 1973 (as amended) and the Badgers (Further Protection) Act 1991.
- 8.30 Badgers are afforded full protection from wilful or attempted killing, injuring and interference with the badger's sett. The PBA defines a badger sett as: 'any structure or place, which displays signs indicating current use by a badger'. Badgers are also given protection from killing or taking by certain means under Schedule 6 of the WCA.
- 8.31 The badger survey area comprises all suitable habitat within the Site. Within this area field signs including badger setts, badger paths, latrine sites, evidence of foraging and dung

pits are searched for, and this approach was based on methodologies described by Harris, et al. (1989)⁴⁵ and is summarised as follows:

- All hedgerows, field boundaries, paths and other linear features within the survey area are walked to locate badger field signs. In addition, all areas of woodland and scrub are systematically searched for evidence of badger activity;
- Badger paths are identified through the observation of field signs including prints, badger hairs on barbed wire or vegetation, dung pits and scratching posts;
- The interiors of fields are surveyed in addition to their boundaries, where they exhibit evidence of badger foraging or where badger paths pass through them; and
- Other areas offering the potential to contain badger setts (identified during survey, from Ordinance Survey (OS) maps, aerial photography and Phase 1 Habitat maps) are actively searched where practicable.

8.32 The survey area for this species will comprise all accessible land within 250m of the development area and access options.

Amphibians and Reptiles

8.33 Amphibians and reptiles receive varying degrees of protection under UK legislation. Great-crested newts are listed on Annexes II and IV ('European Protected Species') of the EC Habitats Directive and Appendix II of the Bern Convention. The directive is transposed into UK law through the 'Conservation (Natural Habitats, &c.) Regulations 1994', which lists great-crested newts under Schedule 2, and the WCA, however the land at the Narachan site is located outwith (north of) the known distribution of great-crested newt.

8.34 No specific surveys are planned for reptile species. However, a 'watching brief' will be maintained during other surveys and any reptile sightings will be recorded.

Assessment Methodology

8.35 The approach taken to assess ecological effects follows the guidance document produced by the Institute of Ecology and Environmental Management (CIEEM)⁴⁶. These guidelines set out the process for assessment through the following stages:

- Describing the ecological baseline in the zone of influence through survey and desk study;
- Assigning a value to "Valued Ecological Receptors" (VERs) - these are the designated sites, habitats and species of highest ecological value present;
- Identifying and characterising the potential effects on these VERs based on the nature of construction, operation and decommissioning activities associated with the proposed development;

⁴⁵ Harris, S., Cresswell, P. & Jeffries, D. (1991) Surveying for Badgers. Mammal Society.

⁴⁶ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

- Describing any mitigation, compensation and/or enhancement measures associated with the Development and assessing residual significance; and
- Identification of any monitoring requirements.

Evaluating Features of Ecological Interest

- 8.36 Value is defined on the basis of the geographic scale given in Table 8-2. Attributing a value to a receptor is generally straightforward in the case of designated sites, as the designations themselves are normally indicative of a value level. For example, a Special Area of Conservation (SAC) designated under the Habitats Directive is explicitly of European (International) importance. For non-designated receptors, the use of guidelines such as the national guidelines for the selection of Sites of Special Scientific Interest (SSSI) can be helpful in attributing a value to a receptor.
- 8.37 Note that some receptors, such as legally protected species, may be of insufficient ecological value to warrant consideration within the ecological impact assessment, but are instead considered in the context of legal and policy implications.

Table 8-2: Approach to Valuing Ecological Receptors

Level of Value	Examples
International	An internationally designated site (e.g. SAC), or site meeting criteria for international designations. Species present in internationally important numbers (>1% of biogeographic populations).
National	A nationally designated site (SSSI, or a National Nature Reserve (NNR)), or sites meeting the criteria for national designation. Species present in nationally important numbers (>1% UK population). Large areas of priority habitat listed on Annex I of the EC Habitats Directive and smaller areas of such habitat that are essential to maintain the viability of that ecological resource.
Regional	Species present in regionally important numbers (>1% of the Natural Heritage Zone population). Sites falling short of criteria for selection as a SSSI, but of greater than the local criteria below.
Local	Scottish Wildlife Trust Reserves, Local Nature Reserves that do not include features as described above. Areas of semi-natural ancient woodland smaller than 0.25 ha. Areas of habitat or species considered to appreciably enrich the ecological resource within the local context, e.g. species-rich flushes or hedgerows.
Negligible	Usually widespread and common habitats and species. Receptors falling below local value are not normally considered in detail in the assessment process.

- 8.38 Part of the process of attributing value to species involves defining the population to be valued and requires professional judgment in order to identify an ecologically coherent population against which effects on integrity can be assessed. For example, for wide-ranging species such as otter, it may be more appropriate to value the otter population in a whole catchment, whereas for more localised species, such as water vole, value may be attributed to groups of related colonies which function as a meta-population.
- 8.39 Socio-economic, cultural, and secondary/supporting values may be considered, where appropriate, but do probability changes that affect the receptor's population or extent. Low magnitude effects would typically be small in scale or possibly temporary in their effect. The criteria used in this assessment for describing the overall magnitude of a potential effect are summarised in Table 8-3.

Table 8-3: Effect Magnitude

Effect Magnitude	Description
Very high negative	Very high effects would result in total or almost complete loss of a population/habitat and would result in a permanent adverse effect on the integrity of the population. The conservation status of the receptor would be affected.
High negative	High effects may include those that result in large-scale, permanent changes in a receptor, and likely to change its ecological integrity. These effects are therefore likely to result in overall changes in the conservation status of a species population/habitat.
Moderate negative	Medium effects may include moderate-scale permanent changes in a receptor, or larger-scale temporary changes, but the integrity of the population/habitat is not likely to be affected. This may mean that there are temporary changes in the conservation status of the population/habitat, but these are reversible and unlikely to be long-term.
Low negative	Low effects may include those that are small in magnitude, have small-scale temporary changes, and where integrity is not affected. These effects are unlikely to result in overall changes in the conservation status of a population/habitat.
Negligible	No perceptible change in the ecological receptor.
Positive	The changes in the ecological receptor are considered to be beneficial.

- 8.40 The assessment also takes into account whether the effect is positive or negative, short term (for example only during construction) or long term (throughout the lifetime of the development), reversible or permanent.
- 8.41 It is also important to consider the degree of confidence in the assessment and to quantify the certainty of the effects on the ecological resource. The following categories are used in this assessment:
- Certain/near certain: probability estimated at 95% or higher;

- Probable: probability estimated above 50% but below 95%;
- Unlikely: probability estimated at above 5% but less than 50%; and
- Extremely unlikely: probability estimated at less than 5%.
- Determining Significance of Potential Ecological Effects

8.42 Having followed this process, the significance of an effect is then determined. The CIEEM Guidelines use only two categories: "significant" or "not significant". A significant effect is defined in ecological terms as an effect on the integrity or conservation status of a defined site, habitat or species. The significance of an effect is determined by considering the value of the receptor and the magnitude of the effect and applying professional judgement as to whether the integrity of the receptor will be affected. This concept can be applied to both designated sites (for example, a SSSI) and to defined populations (for example a regional breeding population).

8.43 The term integrity is used here in accordance with the definition adopted by the ODPM Circular 06/2005 on Biodiversity and Geological Conservation⁴⁷ whereby designated site integrity refers to "...coherence of ecological structure and function...that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified". Integrity therefore refers to the maintenance of the conservation status of a habitat or species population at a specific location or geographical scale.

8.44 Effects are more likely to be considered significant where they affect receptors of higher conservation value or where the magnitude of the effect is high. Effects not considered to be significant would be those where the integrity of the receptor is not threatened, effects on receptors of lower conservation value, or where the magnitude of the effect is low.

8.45 In this assessment, an effect that threatens the integrity of a receptor is considered to be significant in terms of the EIA Regulations. Effects assessed as not significant should be considered as not significant in terms of the EIA Regulations. It should be noted that, alongside the criteria provided, professional judgement is applied in determining the significance of potential effect. Mitigation measures and detailed design work avoid and reduce potentially significant effects, but it is also best practice to propose mitigation measures to reduce negative effects that are not significant.

Mitigation, Compensation and Enhancement

8.46 Mitigation, compensation and enhancement measures should be presented in terms of the integrity/conservation status of the ecological resource to which it applies.

8.47 Mitigation measures should be developed during the design process where possible and aim to:

⁴⁷ ODPM Circular 06/2005 provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. However, this definition of integrity is equally applicable in Scotland for the purposes of ecological impact assessment.

- Avoid negative ecological effects – especially those that could be significant; and
- Reduce negative effects that cannot be avoided.

8.48 Compensation seeks to minimise any remaining significant negative ecological effects that cannot be avoided by a mitigation strategy. Compensation measures often carry a degree of uncertainty and there may also be a time lag between damage and compensation.

8.49 Ideally enhancement measures should also be implemented where possible to achieve net ecological gain.

8.50 Potential significant cumulative effects on any valued ecological receptors identified within the assessment and nearby schemes within 10 km of the Development site will also be addressed.

8.51 The Ecology Chapter will also be accompanied by an outline Habitat Management Plan (HMP), which will be designed in consultation with stakeholders to mitigate any significant effects arising from the development and, where possible, provide ecological enhancement.

9 ORNITHOLOGY

Introduction

- 9.1 This section of the report sets out the proposed approach to the assessment of potential effects on birds and evaluates the ornithological interest of the site.
- 9.2 Ornithology surveys were undertaken to inform a previous wind farm proposal at Narachan, but this dataset is now between five and seven years old having been collected between October 2017 and August 2019 (with further work undertaken for white-tailed eagle during the 2021 breeding season). NatureScot consider that ornithology field survey data generally remains current for approximately five years.
- 9.3 Accordingly, consultation was undertaken with NatureScot in September 2024, to summarise the existing ornithological baseline collected by a previous consultant and the proposed ornithology survey approach at the site, which, given the existing data for the site, was based on undertaking. NatureScot responded in October 2024 to confirm that they were in agreement with this approach, so long as baseline conditions had not materially altered over the intervening period. Should the baseline have altered significantly or should any new key ornithological species be encountered NatureScot indicated further survey would likely be required.

Desk Study

Designated Sites

- 9.4 Information about statutory and non-statutory sites designated for ornithology will be sought during the desk study undertaken as part of this assessment. In terms of ornithology, internationally designated nature conservation sites (Special Protected Areas (SPAs) and Ramsar sites) within 20km of the Development and nationally designated sites (SSSIs and National Nature Reserves; NNRs) within 5km of the Development will be identified.
- 9.5 Data relating to non-statutory sites designated for ornithology within 2km of the Development site will be considered for the assessment.
- 9.6 A summary of known ornithologically designated sites is presented on Table 9-1 below.

Table 9-1: Ornithologically Designated Sites

Site name	Designation	Distance from site (km)	Reason for designation
Rhunahaorine Point	SSSI	600m West of the southern access option. 2.1km west of the developable area.	Notified for its wintering Greenland white-fronted geese, breeding little terns and

Site name	Designation	Distance from site (km)	Reason for designation
			its coastal shingle habitat.
Kintyre Goose Roosts	SSSI	Adjacent to the site	Designated on account of its wintering Greenland white-fronted goose population.
Kintyre Goose Roosts	SPA and Ramsar	Adjacent to the site	Designated on account of its wintering Greenland white-fronted goose population.
Knapdale Lochs	SPA	15.8km north of the northern access option and 18.4km north of the developable area.	Designated on account of its breeding black-throated diver population.
Arran Moors	SPA	18.8km southeast of the developable area.	Designated on account of its breeding hen harrier population.

- 9.7 No non-statutory sites designated for ornithology have been identified within 2km of the Development.

Background Records

- 9.8 Background bird species of conservation concern (Birds Directive Annex 1, WCA Schedule 1, red and amber listed species) shall be requested from:

- The Royal Society for the Protection of Birds (RSPB); and
- The Argyll Raptor Study Group (RSG).

Baseline Survey Methodology

Breeding Bird Survey

- 9.9 The Breeding Bird Survey (BBS) follows the Brown and Shepherd methodology⁴⁸. This methodology is used to census upland breeding waders and will be adapted to record all other breeding bird species within the survey area. The survey area comprises the Developable Area, the access route (open ground only) plus all accessible land within a 500 m buffer zone (Figure 9.1). Surveys take place between 08:00 and 18:00 hours. Four BBS visits were undertaken between April – mid July 2025 breeding season.

- 9.10 The surveyors walk a predetermined transect through 500m × 500m grid squares ensuring that all points within the survey area are approached to within 100m. Surveyors spend 20-

⁴⁸ Brown, A.F. and Shepherd, K.B. (1993). "A method for censusing upland breeding waders". Bird Study 40: 189-195.

25 minutes surveying each 500m × 500m grid square. All species seen or heard will be recorded accurately onto large-scale field maps, using standard British Trust for Ornithology (BTO) Common Bird Census (CBC) notation. This allows for a distinction between different species and between different behaviours – particularly between behaviours indicative of breeding (e.g. singing, alarm calling, aggressive interactions, distraction displays etc.) and those not related to breeding. The breeding bird survey results will be supplemented by records of breeding birds noted during other surveys carried out in the breeding season. If a singing or displaying bird was recorded at a particular location within the survey area on at least one of the four visits, it can be assumed to be holding a territory and/or breeding.

9.11 Criteria used to classify territorial behaviour includes:

- Presence of nest, eggs and/or chicks;
- Alarm calling indicative of nest, young or territory;
- Singing males;
- Displaying or song-fighting;
- Distraction display;
- Birds aggressively defending territories;
- Birds are seen carrying food to nest or young; and
- Birds carrying faecal sacs away from active nests.

Key Breeding Bird Survey Results to Date

9.12 During the 2017-2019 surveys common sandpiper was the only wading bird considered to be breeding within the survey area. Passerine species not considered to be sensitive to wind farms such as cuckoo, song thrush, grey wagtail were noted in the original report, as were low numbers of red grouse.

9.13 Across the 2025 breeding season the following key species were recorded within the survey area.

- Curlew (possibly one pair);
- Little grebe (one pair);
- Common sandpiper (one – two pairs);
- Teal (one pair); and
- Ringed plover possibly (one pair).

- 9.14 Territory mapping is yet to be undertaken for the 2025 data, but preliminary analysis indicates that the survey area continues to be of low sensitivity for breeding waders and wildfowl, which is in line with the original survey findings.

Breeding Raptor and Diver Survey

- 9.15 In addition to the BBS, walkovers and short Vantage Point (VP) watches of all accessible areas of habitat within 2 km of the Developable Area (Figure 9.1) have been carried out on a regular basis between to establish whether or not raptors of conservation concern are breeding within or close to the site, following methodologies detailed in Hardey et al. (2006)⁴⁹. Target species include Birds Directive Annex and WCA Schedule 1 listed raptor species, as well as diver species and Slavonian grebe. This area is extended to 6km for eagle species. Observations of common raptor species buzzard, sparrowhawk and kestrel are also noted.

Key Breeding Raptor and Diver Survey Results to Date

- 9.16 Red-throated divers successfully bred within the survey area in 2018 and attempted to breed in 2019, but no young were recorded during this year. Black-throated divers (four birds) were recorded on a single occasion in August 2019 and are no considered to have bred in the original survey area. In 2025 a pair of red-throated diver successfully bred on a waterbody within the survey area.
- 9.17 A summary of the Schedule 1 and Annex 1 listed raptor species were recorded within the raptor survey area during the 2018-2019 and 2025 breeding seasons is given below.
- 9.18 There are two known golden eagle territories within 6km of the site and both pairs failed to produce young during the 2018 and 2019 breeding seasons.
- 9.19 White-tailed eagle was only recorded once during 2017-2019 surveys. Latterly in April 2021, there was a report of possibly breeding white-tailed eagle within the survey area, but, following subsequent survey work undertaken in the 2021 breeding season, no nest was located.
- 9.20 Hen harrier bred within the survey area in 2018 and attempted to breed in 2019. In 2025 a single hen harrier territory was recorded north of the northern access option, but outwith the 750m potential disturbance range for this species⁵⁰. Birds were also recorded in the south of the survey area, but no evidence of breeding was recorded there.
- 9.21 Osprey overflew the site occasionally during the 2017-2019 surveys and again occasionally during the update 2024-2025 surveys. Peregrine also overflew the site occasionally in 2017-2019, but this species was not recorded during the update survey work.

⁴⁹ Hardey, J., Crick, H., Werham, C., Riley, H., Etheridge, B., Thompson, D. 2006. Raptors: a field guide to survey and monitoring. SNH, Inverness.

⁵⁰ Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283

- 9.22 Honey buzzard were confirmed using the survey area during the 2018-2019 breeding seasons, and were also present during the 2025 breeding season. No nest has been found, but this species is known to be very secretive and it is considered that this species does breed in the area. Consultation is on-going to determine whether any nest location is known by the Argyll Raptor Study Group.
- 9.23 A single barn owl flight was recorded in 2018 and a dead barn owl was found also in 2018. No evidence of breeding was recorded. This species was not recorded during the update 2024-2025 survey work.
- 9.24 Short-eared owl was not recorded during the original 2017-2019 surveys. This species was present in the 2025 breeding season and a territory was confirmed in the north of the raptor survey area, although well outwith the upper 500m disturbance limit for this species⁵⁰.

Flight Activity Surveys

- 9.25 Vantage point (VP) watches are on-going using the standard NatureScot methodology⁵¹, providing data for the assessment of the flight activity and collision risk of target species: Annex 1/Schedule 1 raptors and owls, wildfowl, waders, grebes, herons, divers, terns and black grouse. Secondary species included all other raptors, all gull species and raven.
- 9.26 A minimum of 36 hours observation has been carried out from three vantage points for each season (breeding and non-breeding). Vantage point locations and viewsheds are illustrated on Figure 9.2. In April 2025 a forth vantage point (VP4) was introduced in the south of the site, as it is understood landowner discussion and design evolution concluded there is a possibility of placing turbines in this area of the site. As the area covered by this VP largely lies over afforested ground and that separate surveys were undertaken for Greenland white-fronted geese in the 2024-2025 winter season (October to March inclusive), it is considered that no further wider wintering surveys are necessary. Having said that a full year of flight activity survey will be conducted from this VP and is due to conclude in March 2026.
- 9.27 For each target species flight the following details are being recorded:
- Number of birds;
 - Time;
 - Duration of flight within the survey area;
 - Species, age and sex (when identification of age/sex was possible); and
 - Flying height in three height bands (<30m, 30-150m and >150m) corresponding approximately to below, at or above Rotor Swept Height (RSH) on detection and at 15 second intervals thereafter.

⁵¹ SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. SNH. Battleby.

- 9.28 The flight path of each target species recorded was drawn as accurately as possible onto a large scale map in the field. Each recorded flight path was numbered and cross-referenced to the flight data.
- 9.29 Secondary species were recorded in 5-minute summaries. During each 5-minute period of the watch, the minimum number of each species attributable to the flight activity observed was recorded, including details of the height band and location of the birds relative to the proposed turbine layout.

Flight Activity Results Summary

- 9.30 To date nine target species have been recorded during the current flight activity surveys. The most frequently recorded species was golden eagle with 33 flights. Secondary species flights are limited to low numbers records of raven and buzzard. Target species flights to date are summarised in Table 9-2 below and are broadly in line with the species assemblage of birds overflying the site in the 2017-2019 flight activity surveys.

Table 9-2: Target Species Flights

Species	Number of Flights
Red-throated diver	Five flights
Golden eagle	30 flights
Greylag goose	One flight
Grey heron	One flight
Hen harrier	Eight flights
Honey buzzard	Two flights
Marsh harrier	One flight
Osprey	Three flights
White-tailed eagle	11 flights

Black Grouse Lek Surveys

- 9.31 Black Grouse Lek surveys were conducted using the methods outlined in Gilbert et al. (1998). An initial visit (late-March-April 2025) was undertaken to identify and map suitable habitat, followed by a second visit (during April -mid May 2025) to search for leks within those areas already identified. A third visit (during April -mid May 2025) was then undertaken to count the number of birds present at any lek sites. The black grouse survey area comprises 1.5km from the developable area (Figure 9.1).

Key Black Grouse Survey Results

- 9.32 Low numbers of lekking black grouse (largely single bird leks, with a peak of one three bird lek) were recorded during the 2018, 2019 and 2025 breeding seasons.

Greenland white-fronted goose surveys

- 9.33 In the 2024-2025 wintering season (October to March inclusive) a peak of 277 Greenland white-fronted geese were recorded foraging in fields around Rhunahaorine Point. In terms of roosting birds peaks of 510 Greenland white-fronts roosting on Loch an Fhraoich and 220 on roosting on Loch Ulagadale were recorded. This is concurrent with previously known feeding and roosting locations for this species. Flight activity from this species was associated with either movements between these foraging and roosting areas, or confined to inter-loch movements on roosting these lochs, rather than flight activity over the turbine layout.

Assessment Methodology

- 9.34 Ecological Impact Assessment (EclA) is based on a number of factors, primarily consideration of the value of a site or feature being assessed, and the anticipated magnitude of the potential effect. SNH and the Institute of Ecological and Environmental Management (CIEEM) have produced guidelines to assist with ecological evaluation and effect assessment (SNH⁵¹, 2006⁵²; CIEEM 2018⁴⁶). The assessment of the potential effects of the proposed development on bird interests is a staged process that involves:
- Determining the nature conservation value of the bird interests present within the survey area that may be affected by the proposed development;
 - Identifying potential effects based on the nature of the construction, operation and decommissioning of the proposed development;
 - Determining the character and magnitude of the potential effects i.e. the size of the change in the population of the receptor as a result of the proposed development. This includes consideration of the behavioural sensitivity of the receptor and the duration and reversibility of the potential effect;
 - Determining the significance of the effects based on the interaction between the magnitude of the effect and the nature conservation value of the bird interests likely to be affected. Ultimately, this is a consideration of the effects of the proposed development on the integrity of a defined population;
 - Identifying mitigation measures proposed to avoid, reduce or remedy significant adverse effects; and
 - Determining the residual effect significance after the proposed mitigation measures have been implemented, including a description of any legal and policy consequences.
- 9.35 CIEEM guidance emphasises that quantitative effect descriptions should be used wherever possible. For this reason a series of tables are reproduced below to define categories of receptor value and sensitivity, effect magnitude and duration. These can then be used to consistently describe potential effects.

⁵² SNH (2006). Guidance: Assessing the significance of impacts from onshore windfarms on birds outwith designated areas. SNH, Battleby.

Nature Conservation Value

- 9.36 The nature conservation value of the bird interests present at the Site are defined according to (adapted from Percival 2007)⁵³ and set out on Table 9-3 below.

Table 9-3: Value of Ornithological Receptors

Effect magnitude	Description
Very high negative	Very high magnitude effects would result in total or almost complete loss of a population and would result in a permanent adverse effect on the integrity of the population. The conservation status of the receptor would be affected. Guide >80% population affected
High negative	High magnitude effects may include those that result in large-scale, permanent changes in an ornithological receptor, and likely to change its ecological integrity. These effects are therefore likely to result in overall changes in the conservation status of a species population at the location(s) under consideration. Guide 21-80% population affected
Moderate negative	Medium magnitude effects may include moderate-scale permanent changes in an ornithological receptor, or larger-scale temporary changes, but the integrity of the population is not likely to be affected. This may mean that there are temporary changes in the conservation status of a species-population at the location(s) under consideration, but these are reversible and unlikely to be long-term. Guide 6-20% population affected
Low negative	Low magnitude effects may include those that are small in nature, have small-scale temporary changes, and where integrity is not affected. These effects are unlikely to result in overall changes in the conservation status of a species population at the location(s) under consideration, but it does not exclude the possibility that mitigation or compensation will be required. Guide 1-5% population affected
Negligible	There is no perceptible change in the ornithological receptor. Guide: <1% population affected
Positive	The changes in the ornithological receptor are considered to be beneficial.

- 9.37 In the case of SPAs / SSSIs, magnitude is assessed in respect of the size of the cited population. For non-designated sites, magnitude is assessed in respect of an appropriate scale: the Peatlands of Caithness and Sutherland Natural Heritage Zone in the case of resident breeding or wintering populations, or the national (UK) population in the case of migratory wintering populations. The difference in assessing the significance of effects on birds from protected sites and birds from populations without specific designation or protection is one of scale. Designated populations receive stronger protection because threats to the integrity of the designated population are considered significant. Effects on bird populations in the wider countryside are considered significant if they threaten the integrity of the regional or national populations.

⁵³ Percival, S.M. (2007). Predicting the effects of wind farms on birds in the UK: the development of an objective assessment method. In de Lucas, M., Janss, G. & Ferrer, M. (eds.) Birds and Wind Power. Lynx Edicions, Barcelona.

Significance

- 9.38 A significant effect is defined in ecological terms as an effect on the integrity or conservation status of a defined site, habitat or species. The significance of an effect is determined by considering the combination of the nature conservation value of the receptor and the magnitude of the effect and applying professional judgement as to whether the integrity of the receptor will be affected. This concept can be applied to both designated sites (for example, a SSSI) and to defined populations (for example a regional curlew population).
- 9.39 The term integrity is used here in accordance with the definition adopted by the Circular 06/2005 on Biodiversity and Geological Conservation whereby designated site integrity refers to "...coherence of ecological structure and function...that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified". For non-designated sites/species this can be amended to "the coherence of ecological structure and function, that enables it (in this case, the area being considered, e.g. natural heritage zone) to maintain the levels of populations of species in its/their pre-development condition". Integrity therefore refers to the maintenance of the conservation status of a species population at a specific location or geographical scale.
- 9.40 Effects are more likely to be considered significant where they affect receptors of higher conservation value or where the magnitude of the effect is high. Effects not considered to be significant would be those where the integrity of the receptor is not threatened and are likely to involve effects on receptors of lower conservation value or where the magnitude of the effect is low. Clearly, effects of negligible magnitude, or effects on receptors of negligible conservation value are not considered to be significant.
- 9.41 Mitigation measures and detailed design work are required to reduce potentially significant effects, but it is also best practice to propose mitigation measures to reduce negative effects that are not significant. In this assessment, an effect that threatens the integrity of a receptor is considered to be significant in terms of the EIA Regulations. Effects assessed as not significant should be considered as not significant in terms of the EIA Regulations. It should be noted that, alongside the criteria provided, professional judgment is applied in determining the significance of potential effect.
- 9.42 An assessment will be made of the potential for cumulative effects on any valued ornithological receptors identified in the assessment in combination with other similar developments within 10 km of the Site.
- 9.43 Alternative solutions and mitigation will be identified where the assessment indicates that there is a potential significant effect upon important bird species as a consequence of the development. In addition, opportunities to enhance habitats for the benefit of birds will be explored and implemented as part of the development.
- 9.44 In addition to the above a key focus of the EIA Report reporting for ornithology will be the inclusion of a Habitats Regulations Appraisal (HRA) in respect of the SPAs within the 20km search area. The screening of each SPA will be based on the results of the field surveys

and background data and the core ranges for SPA species as set out in NatureScot guidance.⁵⁴

⁵⁴ SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs): Guidance. SNH. Battleby.

10 TRAFFIC AND TRANSPORT

Introduction

- 10.1 This chapter of the EIA Report will consider the potential effects associated with increased road traffic generated during the construction phase of the proposed development, including access route(s) and measures to minimise disruption to the local road network and receptors along it.

Baseline Conditions

- 10.2 It is anticipated that turbine loads will arrive at Campbeltown Harbour by ship and would be transported to the site via the main 60mph A83 trunk road, travelling northwest until the left-hand turn towards the MACC base, where turbine components may be stored prior to construction. Proceeding to the Site, loads would turn left from the same junction onto the A83 and continue north, along the western coast of Kintyre. If the Southern access route is to be used, loads will leave the A83, turning right on a newly constructed road near Tavantaggart, to follow the constructed track east to the site. If the Northern access route is to be used, then loads will leave the A83, turning right after Ballochroy and looping onto the track that follows the Ballochroy Burn east, via a new junction and road alignment to bypass the properties at Ballochroy. The loads then turn right at Minen to follow the track south to the site.
- 10.3 The closest publicly available traffic count data, from a review of Transport Scotland's records, is from a location on the A83 trunk road just north of Campbeltown at 170600, 622100, which lies on the proposed transportation route for turbine components.
- 10.4 The most recent manual count data from this location is from 2019, at which time there were an estimated 2,813 Annual Average Daily Vehicle movements, of which 133 were HGVs. HGVs therefore account for approximately 5% of total traffic flow estimates at this location.

Likely Significant Effects during Construction

- 10.5 The most identifiable traffic and transport characteristic associated with wind farm developments is the need to transport the wind turbine components to the site. Turbine components would be transported by sea to a defined Port of Entry (expected to be Campbeltown Harbour).
- 10.6 The turbine components would then be brought to site by abnormal loads vehicles northwards via the A83 with police escort.
- 10.7 There is also a need to transport general construction material to the site, such as cabling, aggregates, concrete, pipes, etc these materials will be transported in standard HGVs, dependent on the scale of the proposed development, final material requirements, final sourcing of materials and final construction phasing plan, all of which are unknown at this

time. A small quantity of traffic would also be generated via workers travelling to site throughout the construction period.

- 10.8 Guidance for the assessment of environmental effects associated with traffic is presented within 'Guidelines for the Environmental Assessment of Road Traffic' (IEMA, 1993). This document sets out a methodology for identifying significant environmental effects where a proposed development is likely to give rise to changes in traffic flows.
- 10.9 The guidance also states that in order to determine the scale and extent of potential impacts, the following two rules should be used to identify road links within the study area where a full assessment will be required:
- Rule One: include highway links where flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%;
 - Rule Two: include any other specifically sensitive area where traffic flows are predicted to increase by 10% or more.
- 10.10 The Study Area to predicate these rules within can broadly be defined as the A83 between Campbeltown and Tayinloan/Ballochroy. The access tracks leading off the A83 at these points are rural in nature.

Likely Significant Effects during Operation

- 10.11 Aside from occasional maintenance visits to service the wind farm, the operational phase is not considered to introduce a significant increase in traffic.
- 10.12 It is therefore likely that no significant effect will occur during the operational phase, and for this reason, operational traffic is scoped out of the EIA report.

Design and Mitigation

- 10.13 It is sometimes possible to mitigate likely significant effects, in this case, construction effects. With regards to traffic and transport, this mitigation equates to suitable phrasing of the proposed development. Whilst the construction phase is yet to be determined, in any event suitable construction phasing will be considered and proposed subject to a Construction Environment Management Plan (CEMP), whilst vehicle movements to and from the site would be controlled via a Construction Traffic Management Plan (TMP). The steps are summarised below:
- Agree AIL route modifications and improvements with the Council, Transport Scotland and other relevant stakeholders. Works which will be required to facilitate turbine deliveries are outlined in the AIL RSR, which will be included as a Technical Appendix;
 - Where possible, the detailed design process will minimise the volume of material to be imported to site to help reduce HGV numbers;
 - A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);

- A Transport Management Plan for AIL deliveries;
- Normal site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1300 on Saturdays, although component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available; and
- Provide construction updates on the project website, social media feeds and a newsletter to be distributed to residents within an agreed distance of the Site.

Inclusion or Exclusion from the EIAR

- 10.14 Based on the above, construction traffic will be scoped into the EIA Report, whilst operational traffic is scoped out.

Proposed Scope of Assessment

- 10.15 It is proposed to discuss the detailed scope of the transport assessment directly with the Council Roads Officer for the area and with Transport Scotland in relation to the route. It is currently proposed that the assessment would include the following key elements:
- Preparation of an Abnormal Loads Assessment to confirm the proposed route to site from Campbeltown Port to the site;
 - Calculation of increased traffic generation on the surrounding road network during construction of the wind farm based on material and staffing requirements;
 - Assessment of the environmental effects of increased traffic generation on the surrounding road network that is likely to be used during construction; and
 - Assessment of the effects associated with increased traffic through local small settlements including the residential properties along [road name] and the settlements either side of the [road name] corridor.
- 10.16 It is considered that the effects of operational traffic on existing traffic flows following can be scoped out of the EIA.
- 10.17 The traffic and transport section of the EIA Report will consider baseline conditions, the transport and traffic impacts and proposed mitigation measures as appropriate. The work will be undertaken in accordance with relevant transportation guidelines and standards, including:
- Institute of Environmental Assessment (now IEMA) (1993) Guidelines for the Environmental Assessment of Road Traffic.
 - Institute of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment.
- 10.18 It is not anticipated that a formal Transport Assessment (TA) will be required as TAs are not generally considered necessary for temporary construction works. The likely traffic movements associated with the operation of the wind farm are also not considered high enough to warrant a TA.

- 10.19 Any significant cumulative traffic impacts associated with other developments commencing in tandem with the proposed development would also be considered.
- 10.20 Where significant effects are identified, measures to prevent, reduce and, where possible, offset those adverse effects will be proposed. Measures likely to be utilised include:
- Instructing abnormal loads and HGVs, including site personnel as appropriate, to use only the approved access route(s) to the Site.
 - No parking of construction plant, equipment and vehicles off-site on public highways.
 - Establishing a construction traffic management plan for the development which could be secured via a suitably worded planning condition.

11 HYDROLOGY, GEOLOGY AND PEAT

Introduction

- 11.1 This section sets out the proposed approach to the assessment of the potential impacts of the proposed development on soils, geology and the water environment during construction, operation and decommissioning of the proposed development.
- 11.2 This section should be read alongside the ecological section and is influenced by previous and ongoing surveys.

Baseline Conditions

Geology

- 11.3 A review of the British Geological Survey (BGS) online 'Geology of Britain Viewer' demonstrates that:
- The eastern half of the Site is underlain by metamorphic bedrock of the Beinn Bheula Schist Formation, which comprises gritty psammite and pelite formed approximately 541 to 1,000 million years ago. This rock was originally sedimentary in origin, forming in deep seas, and has subsequently undergone metamorphic change.
 - The western half of the Site is underlain by metamorphic bedrock of the Green Beds Formation which comprises metavolcaniclastic sedimentary rock. This metamorphic bedrock formed approximately 541 to ,000 years ago.
 - Superficial deposits in the west of the Site comprises sedimentary Devensian Till and Diamicton of glacial origin, which were deposited via ice and meltwater in the Quaternary Period approximately 11.8 to 116 thousand years ago.
- 11.4 Both Peat Phase 1 and Peat Phase 2 surveys have already been undertaken for this site, due to the previous application for the wind farm. Additional peat probing will be carried out to infill further gaps as the design is refined.
- 11.5 Previously, soil and peat depths were sampled at representative locations across the Site, with detailed focus on infrastructure locations. Peat is present across large parts of the Site, but the majority is less than 2m deep. Peat depths in excess of 2m were generally well-defined and restricted to low-gradient areas, with more extensive deposits found on the level-ground southwest of Cnoc a Mhinisteir and east and south of Narachan Hill.
- 11.6 Of the measured peat depths, 31.1% of the points probed had a peat depth result of less than 0.5m, with 61.3% of the results less than 1.0m.
- 11.7 The majority of the site falls within a negligible or unlikely risk of peat slide according to a peat slide risk assessment undertaken by consultants Green Cat Renewables during the previous application.

Hydrogeology

- 11.8 The varying metamorphic geology of the Argyll and Southern Upland Groups found across the Site are classified as low productivity aquifers. Groundwater may be present in the near surface and secondary weathered zone, fractures and low superficial geology cover. Springs typically have small yields and groundwater infiltration is estimated to be less than 100mm/year.
- 11.9 There is one groundwater body within the Site: Oban and Kintyre (ID: 150698). This waterbody is classified as having a Good overall status by SEPA in 2017, with no identified pressures.
- 11.10 Groundwater vulnerability across the Site is in vulnerability classes 5 and 4a which are defined as “*vulnerable to most pollutants, with rapid impact in many scenarios*” and “*vulnerable to those pollutants not readily absorbed or transformed*” respectively (BGS, 2011). This vulnerability is likely to be influenced by the generally decreasing depth of superficial material protecting the underlying bedrock
- 11.11 A National Vegetation Classification (NVC) survey was previously conducted by Land Use Consultants (LUC). This was reviewed against the SEPA (2017b) guidance to determine which NVC habitats within the Site could potentially be highly groundwater dependent. The findings were as follows:
- M6 Carex echinate-Sphagnum recurvum/auriculatum is the major soligenous community of peats and peaty gleys irrigated by rather base-poor waters in the submontane zone of northern and western Britain (Elkington et al., 2001). This was defined as a potential highly Groundwater Dependent NVC Community.
 - M15 Scirpus cespitosus – Erica tetralix wet heath community is characteristic of moist and generally acid and oligotrophic peats and peaty mineral soils in the wetter western and northern parts of Britain. The community is particularly well represented in the west and south west of Scotland (Elkington et al., 2001). This was defined as a potential moderately Groundwater Dependent NVC Community.
 - M25 Molinia caerulea-Potentilla erecta mire is a community of moist, but well aerated, acid to neutral peats and peaty mineral soils in the wet and cool western lowlands of Britain. It occurs over gently-sloping ground, marking out seepage zones and flushed margins of sluggish streams, water-tracks and topogenous mires, but also extends onto the fringes of ombrogenous mires. It is especially frequent in southern Scotland (Elkington et al., 2001). This was defined as a potential moderately Groundwater Dependent NVC Community.

Hydrology

- 11.12 There are a number of watercourses within the site boundary. The Site is in proximity to three lochs: Loch an Fhraoich, which is completely enclosed by the site, Loch Ulagadale, and Loch na Boglaich. There is also a small unnamed lochan within the site. The Site is the source for a number of watercourses of which three are named: Spout Gill, Narachan Burn and Allt Chatuinn.

- 11.13 The Site is located across multiple sub catchments of the Kintyre Coastal catchment including the Ballochroy Burn, the Carradale Water/Narachan Burn and the Tayinloan Burn.
- The majority of the northern access route is located within the Ballochroy Burn catchment, which includes Loch Garasdale and Loch a' Gatha. The Ballochroy Burn and its tributaries, including Allt Bhile, flow towards the Burn which then flows to the west where it enters the Sound of Gigha Coastal water body.
 - The main development area where infrastructure is proposed is located across several tributaries of the Narachan Burn catchment. The Narachan Burn runs adjacent to the Site and flows in a south-easterly direction before joining the Carradale Water. A number of small tributaries east of Narachan Hill flow in a south-easterly direction, draining this hillside.
 - The area within the southern access is drained by the Tayinloan Burn and its tributaries, and an unnamed watercourse catchment which flow towards the west before flowing into the Sound of Gigha Coastal water body.
- 11.14 SEPA Flood Risk Management mapping (2019) shows that river flood risk is limited to the immediate area adjacent to water bodies, including the Ballochroy Burn, Loch Garasdale, Narachan Burn and Tayinloan Burn.
- 11.15 Surface water flooding is limited to discrete locations, mainly adjacent to small tributaries of the Narachan Burn, north of Narachan Hill, in areas of current and recently felled forestry.
- 11.16 Coastal water flooding risk is noted within 20m of the northern extent of the Site, where the proposed northern access track is located.
- 11.17 Under the Water Framework Directive (WFD), SEPA has classified the status of the following waterbodies. Loch Garasdale (SEPA ID 100303) has been classified as having a Moderate status for 2017, with 'unknown pressure on water quality'. The Ballochroy Burn downstream from Loch Garasdale (SEPA ID 10244), the Ballochroy Burn upstream from Loch Garasdale (SEPA ID 10245), and the Carradale Water/Narachan Burn (SEPA ID 10241) are all classified as having a good status for 2017, and have 'no existing pressures'.
- 11.18 There are no public water supplies present within the Site. However, consultation with Scottish Water during the original application confirmed there are Scottish Water assets in the vicinity of the Site anticipated to be associated with water assets within Tayinloan near the southern access.
- 11.19 Previous consultation with SEPA confirmed there are 190 licenced discharges within 10km of the proposed development. Of these 190 licences, 123 relate to private sewage discharges; 3 relate to public sewage discharges; 5 relate to abstractions; 41 relate to engineering works; 6 relate to fish farm activities and 12 relate to sheep dip disposal.
- 11.20 Due to the lack of catch data, habitat suitability and species range, fisheries will be scoped out of the EIA. This was previously agreed through consultation with NatureScot and Argyll District Salmon Fishery Board.

Likely Significant Effects During Construction

- 11.21 Potential significant effects on geology, hydrology, and hydrogeology will be assessed as part of the EIA process.
- 11.22 Potential significant effects upon the geological resource during construction are likely to be confined to impacts on peat, both as soil and a carbon resource. Effects may relate to excavation and reuse of peat and changes to the hydrological function of the peatland, both in relation to the peat soils and in relation to drainage from the site (runoff rates and volumes). Excavation of peat may be required for construction of tracks, hardstandings and borrow pits. As such, there is potential for construction-induced peat landslides and mineral soil slides with associated sediment release to watercourses.
- 11.23 Potential significant effects on hydrology may occur in association with increases to sediment, suspended solids, and/or pollutants entering surface water flow paths, and potential alterations of flow of watercourses such as the Carradale Water/Narachan Burn and the Ballochroy Burn, causing increased downstream impact via water quality and/or flood risk.
- 11.24 Potential impacts upon hydrogeology include pollution of groundwater via spillages or accidental releases during construction, and temporary alteration to the groundwater regime including potentially adverse effects upon GWDTEs.
- 11.25 A future Construction Environmental Management Plan (CEMP) to be conditioned as part of the application and fully detailed prior to commencement of construction, would tie down mitigation measures.

Likely Significant Effects During Operation

- 11.26 Potential significant effect related to the geological resource during operation include long-term loss of bedrock or superficial geology due to excavation for the footprint of the proposed development, or peat landslides following peat works and reinstatement.
- 11.27 Potential significant effects could occur in the absence of mitigation upon surface water hydrology given potential amendments to the catchment via watercourse crossings or other infrastructure.
- 11.28 Potential significant effects related to hydrogeology during operation include potential localised alteration to groundwater flow due to turbine base structures and wind farm infrastructure, via reduced groundwater flow to the vegetation. Significant effects may also arise via potential contamination of groundwater by leachable contamination from imported fill materials, or a reduction in infiltration caused by increased hardstanding.

Design and Mitigation

The majority of mitigation measures for potential effects on geology, hydrology and hydrogeology will be embedded into the design process. The preliminary turbine layout has already been optimised to minimise overlap with the deepest peat recorded in the

Phase 1 peat survey while maintaining distance from watercourses and avoiding steep topography. Other sensitive receptors, including peatland habitat will be mapped in more detail as part of the EIA in order to minimise overlap with the most sensitive habitats.

- 11.29 Design measures such as a 50m buffer from the centre of each watercourse aims to minimise impacts during both construction and operation. Therefore, any significant effects as a result of flood risk have been designed out. Watercourse crossings will be designed as bottomless culverts and in accordance with good practice.
- 11.30 The deepest peat on the site has been avoided by way of embedded design. Floating roads will be employed where beneficial and where safe to do so. Borrow pits would be designed in the least intrusive areas, otherwise all materials would be imported to site.
- 11.31 Most impacts upon surface water hydrology can be minimised through effective management and careful design of infrastructure such as turbines, crossing points and access points.
- 11.32 Mitigation and monitoring measures will be put in place to ensure that water quality within the specified watercourses is not compromised as part of the proposed development.
- 11.33 A Construction Environment Management Plan (CEMP) would be put in place to control construction techniques and reduce the likelihood of pollution events; this would include an Ecological/Environmental Clerk of Works role whereby construction would be overseen by a qualified professional.
- 11.34 An outline Peat Management Plan (PMP) would also be prepared as part of the application and put in place post-consent to control the management and re-use of peat on site.
- 11.35 Opportunities to undertake ditch blocking and site restoration will be considered within the Outline Habitat Management Plan or by enhancement of the PMP. Mitigation strategies outlined in Policy 5 of the National Planning Framework 4 (NPF4) will be followed as far as practicable.
- 11.36 The EIA Report will consider, where appropriate, sustainable drainage principles with a view to minimising the potential risk of flooding at the Site and preventing the Proposed Development from causing flooding, groundwater or watercourse pollution

Inclusion or Exclusion from the EIAR

- 11.37 Given the known baseline at this stage and likely residual significant effect when considering embedded mitigation and good practice mitigation, it is proposed that the following is scoped in and out of the EIA Report.
- 11.38 Consideration of peat, including Phase 1 and Phase 2 peat probing, a Peat Management Plan, a Peat Landslide Risk Assessment and incorporation of peat information in a Carbon Balance Assessment will be scoped into the EIA. Therefore, superficial geology is scoped into the EIA Report.

- 11.39 Significant adverse effects upon bedrock geology are not expected but given the potential requirement for on-site borrow pits, bedrock geology is scoped into the EIA.
- 11.40 Effect related to flood risk are unlikely to be significant as the proposed development and its infrastructure are unlikely to impact upon flood risk during construction, provided appropriate construction techniques are put in place and suitable watercourse crossings are provided.
- 11.41 Provided best practice measures are adhered to and controlled via a CEMP, water quality would be scoped out by virtue of adverse significant effects being unlikely. Water quality is unlikely to be adversely affected during operation.

Proposed Scope of Assessment

- 11.42 The baseline section above will be expanded following hydrological site visit to validate baseline characteristics through the review of relevant and available information relating to soil, geology and water. This will include the review of information held by SEPA, NatureScot, Scottish Water and Argyll and Bute Council, such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, and water quality and soil data. The desk study will identify sensitive features which may potentially be affected by the proposed development. An additional review of published geological maps, OS maps, aerial photographs and Site-specific data such as site investigation data, geological and hydrological reports, digital terrain models (slope plans) and geological literature will also be carried out.
- 11.43 A walkover site visit will also be undertaken to identify site constraints and verify the presence or absence of receptors. Detailed site observations will be recorded.
- 11.44 Further peat probing will inform the assessment of potential effects and more detailed design work. The investigation will look at potential locations for turbines, access routes and borrow pits for signs of existing or potential peat instability. Outputs from the walkovers and site visits will comprise a record of investigation locations and summary of peat depths recorded.
- 11.45 When the design layout has been finalised, further peat probing will be carried out along infrastructure and at turbine locations. The further peat probing will ensure that all infrastructure locations and routes have sufficient peat depth information to support related studies on peat instability and peat excavation and re-use
- 11.46 The scope of assessment will also cover requirements from regulatory bodies such as SEPA which require proposed and existing watercourse crossings to be documented and photographed.
- 11.47 The information obtained from the review of existing data, site surveys and guidance documentation will inform the assessment of any potential effects associated with the proposed development. In the event that likely significant effects are identified, mitigation measures will be proposed.

- 11.48 Liaison would be undertaken between team members to identify interactions between surface and ground water at the site and also any potential interactions between peat distribution at the site and hydrology. Discussions would also be undertaken with team members involved in the ecology assessment to identify potential impacts on groundwater dependent terrestrial ecosystems (GWDTEs). If significant areas of moderate or high GWDTEs are located in proximity to proposed infrastructure, additional studies would be undertaken to define whether these are truly groundwater dependent, refine their extent, conceptualise the hydrogeology and assess if there are any potential effects on them.
- 11.49 It is not expected that detailed runoff or flood modelling for catchments downstream of the site will be required. However, standard runoff calculations would be carried out to show the potential impact of increases in hardstanding on downstream flows.
- 11.50 A peat landslide hazard and risk assessment (PLHRA) will be carried out in accordance with the Scottish Government Peat Landslide Hazard & Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government, 2017). The PLHRA will be informed by information gathered from peat depth models, site walkovers and detailed geomorphological mapping and terrain classification. The assessment will utilise a combined qualitative (contributory factor) and quantitative (factor of safety) approach to assess the likelihood of peat landslides, the consequences should peat landslide occur and appropriate mitigation measures based on calculated risk levels.
- 11.51 An outline peat management plan (PMP) will be prepared in accordance with 'Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables, SEPA, 2012). The PMP will be informed by peat depth probing as described above, and by a full site appraisal of potential re-use opportunities (e.g. mapping of drainage ditches, informal and industrial peat turbary, and landscaping requirements associated with infrastructure). Where opportunities are identified to integrate the PMP with wider environmental enhancement measures, for example for peat restoration, the PMP will indicate the volume and type of peat (acrotelm/catotelm) to be used for this activity.

12 CULTURAL HERITAGE

Introduction

- 12.1 This section of the Scoping Report will assess the likely direct and indirect impacts on both designated and non-designated heritage assets within the Site boundary and within the surrounding area.

Baseline Conditions

- 12.2 An initial assessment indicates that there are no significant on-site constraints to the proposed development, and the area has low archaeological potential. There are three recorded heritage assets within the site:
- 10279 & 10280: a group of shieling huts. They are not shown on any historic Ordnance Survey maps (Argyllshire 1870, sheet ccxxxvi) and may well be of 18th century date. The shieling huts survive within an unplanted corridor along the Allt Chaltuinn and are visible on modern aerial photography within 50m of the watercourse and over a length of approximately 250m. The shielings are of low sensitivity and of local heritage importance.
 - 26656: an enclosure and a large field depicted on the first edition of the OS 6-inch map (Argyllshire 1870, sheet ccxxxvi). The enclosure and field are shown on later map editions, including the 1924 edition. The site is not marked on modern maps and is in an area ploughed for commercial forestry. It is of negligible sensitivity and of no heritage importance.
- 12.3 There are very few heritage assets in proximity to the Site, other than An Dunan dun Scheduled Monument (SM3184) which is located approximately 3.6km to the north of Loch Garasdale and beyond higher ground to the north of the Site, and Ballochroy standing stones and cist (SM175) situated approximately 550m north east of the proposed northern access route.

Likely Significant Effects During Construction

- 12.4 Construction work has the potential to damage or destroy heritage assets. This may occur either as a result of the design of the proposed development, or as an accidental consequence of construction plant movement. The impacts may be direct, for instance, where an archaeological deposit is removed or damaged during ground-breaking works. Alternatively, the impact may be indirect, for example where changes in hydrology may lead to waterlogged archaeological deposits becoming desiccated and degraded. There is also the potential for the operational phase of this development to have an impact on the setting of heritage assets which are present within the surrounding area.
- 12.5 Nonetheless, there are no significant on-site constraints as the site is entirely covered by commercial forestry.

Likely Significant Effects During Operation

- 12.6 There were five cultural heritage viewpoints assessed as part of the previous EIA Report: Carragh An Talaidh, Chambered Carin, Barckley (SM189); Talatoll, Shielings 1400m SE of Kintyre (SM3817); Achamore House (LB11449)/Achamore GDL00005; Loch Dirigadale cup markings (HER 3470) and Dun Skeig, Duns and Fort (SM2491).
- 12.7 The indirect effect on setting of these viewpoints was assessed as being of either minor adverse significance or of negligible adverse significance.

Design and Mitigation

- 12.8 Inbuilt design mitigation includes the inherent distances from cultural heritage receptors, as demonstrated within Figure 12.1. The design of the proposed development has aimed to place turbines as sensitively as possible, using topography to assist in screening operational effects.
- 12.9 Construction impacts on undesignated or unscheduled heritage assets will be eliminated or reduced where possible through design and adopting preventative measures such as fencing off assets during construction. Where this is not practicable, impacts will be mitigated by an appropriate level of survey, excavation, recording, analysis, and publication of the results.
- 12.10 During construction, the Construction Environmental Management Plan would contain provision for protocols should unscheduled remains be found.

Inclusion or Exclusion from the EIAR

- 12.11 Despite the previous development at Narachan having no significant effects predicted, and also despite the distances involved to the nearest scheduled cultural heritage receptors, cultural heritage is scoped in, due to the potential for cumulative effects with other wind farm developments.

Proposed Scope of Assessment

- 12.12 The scope of assessment will consider setting effects during operation.
- 12.13 A desk-based assessment (DBA) would expand upon the initial baseline section and would identify and describe all cultural heritage assets within a 10km radius of the site. The DBA would be based on study of all available document sources following principles set out in the Chartered Institute for Archaeologists (CifA) Standards and Guidance for Historic Environment Desk-Based Assessments (2020), and follow the methodology contained within the Environmental Impact Assessment Handbook (2018) published by Scottish Natural Heritage (now NatureScot) and Historic Environment Scotland (HES).
- 12.14 The proposed scope of the assessment will consider:

- Direct effects: Potential physical effects on all heritage assets, including buried archaeological remains and other historic structures, within the footprint of the Proposed Development including associated services, construction compound, electrical cable connections and on-site access tracks; and
- Indirect effects setting: Potential effects on the setting of the designated heritage assets within 10km of the proposed turbines.

Methodology

- 12.15 Consultation with HES and WoSAS will be undertaken to agree the assessment methodology and visualisation viewpoints for the setting assessment.
- 12.16 A further detailed desk-based assessment (DBA) to identify potential constraints and to assess the potential cultural heritage sensitivity of the proposed development site will be conducted to establish the baseline condition.
- 12.17 The DBA would aim to identify any impacts which will affect the cultural significance of an asset, particularly where key characteristics will be affected. It would make use of all available document sources and follow CifA Standards and Guidance 2014. The DBA would also identify any areas of uncertainty where potential effects cannot be predicted; under these circumstances, further works would be proposed that may assist in resolving such uncertainty. A Zone of Theoretical Visibility (ZTV) model would be used to determine which assets would have potential visibility to and from the final proposed development, and this may potentially give a view on intervisibility between assets and the turbines.
- 12.18 Field surveys to identify and record the baseline character and condition of any heritage assets within the proposed site will be undertaken in addition to site visits to heritage assets in the wider landscape for the purpose of assessing potential impacts on their settings including cumulative impacts.
- 12.19 Heritage assets are assessed in terms of their cultural significance and importance. The importance of heritage asset is the overall value assigned to it based on its cultural significance, reflecting its statutory designation or in the case of undesignated assets, the professional judgement of the assessor.
- 12.20 The EIA methodology would follow the outline methodology below:
- Desk-based study leading to the identification of heritage assets potentially affected by the proposed development;
 - Definition of baseline conditions based on results of the desk-based study and site visits;
 - Assessment of the importance of heritage assets potentially affected by the proposed development;
 - Identification of potential impacts upon heritage assets, informed by baseline information, site visits, ZTV mapping, wireframes and photomontages;
 - Proposal of mitigation measures to eliminate, offset or reduce adverse effects;
 - Assessment of the magnitude of residual effects;

- Assessment of the significance of residual effects, broadly a product of the asset's importance and the magnitude of the impacts; and
- Assessment of cumulative effects.

13 POPULATION AND HUMAN HEALTH

Introduction

- 13.1 The requirement to assess population and human health arose from the reform to EIA Regulations in 2017. Relevant to wind farms, the potential effects upon population and human health can be considered in the following terms:
- Impact of the proposed development upon population trends in the area;
 - Impact of the proposed development upon wealth and prosperity in the area, including job creation and/or loss;
 - Impact of the proposed development upon recreational pursuits;
 - Impact of the proposed development upon human health in terms of pollution, amenity and direct impacts.

Baseline Conditions

- 13.2 The 2022 Census enumerated the population of Argyll and Bute as a Local Authority at 85,935 with the National Records for Scotland (NRS) 2024 to be higher at 87,690 (NRS Mid-Year Estimate, 2024). As a Local Authority, it has the fifth sparsest population of the 32 Scottish local authorities, with an average population density of 13 persons per hectare. Over 47% of the population live in areas defined as 'rural' by the Scottish Government's 6-fold Urban-Rural Classification (2020), 43% live in 'remote rural' areas and 4.2% live in 'accessible rural' areas.
- 13.3 At the sub-Local Authority level, the Mid-Argyll, Kintyre and the Islands group had a population of 20,564 when counted at the 2022 Census, with the nearest settlement of Campbeltown having 4,500 inhabitants (2020-based Settlement Estimates).
- 13.4 In terms of employment, the economic sectors in which the local population are overrepresented relative to the national distribution include agriculture, forestry, fishing and tourism. According to the NOMIS 2018 statistics, Argyll and Bute has a lower than average economically active population of 75.3% compared with the Scottish average of 77.9%.
- 13.5 The life expectancy at birth for 2021-23 was 78.3 years for males and 81.8 years for females. This is higher than the life expectancy at the national level.
- 13.6 There are eleven data zones in Argyll and Bute within the lowest 20% of areas in the Index of Multiple Deprivation, all of which are located in settlements. The proposed development is located in the 'Kintyre Trail' data zone, which spans from the north of Campbeltown to the south of Crossaig, for which there is a population of 677. The Kintyre Trail data zone has a deprivation index score of 5 (on a scale of 1 to 10), suggesting that it is approximately average in national terms when considering its indices (income, employment, health, education, crime, housing, geographic access).

- 13.7 In terms of tourism, Kintyre has several points of interest, with the Mull of Kintyre, the Isle of Gigha, Westport beach and several golfing destinations. The Applicant is aware that tourism is an essential contributor to local economy.
- 13.8 The Kintyre 66 is an emerging project which aims to encourage more visitors to the area by highlighting places to visit along the A83 and B834. There is a range of tourist accommodation in the area.

Likely Significant Effects During Construction

- 13.9 Significant effects during construction would be related to economic benefits associated with local contracts in the construction of the wind farm. Where possible, the applicant tenders and award contract to local companies across elements of construction and local services.
- 13.10 It is not anticipated there would be any significant effects upon recreation via construction, as typically these would be associated with temporary closures. Construction traffic would be controlled via a Traffic Management Plan.

Likely Significant Effects During Operation

- 13.11 Likely significant effects during operation include proceeds from community benefit, which has the potential to greatly aid local causes such as community schemes, facilities, sports clubs, arts, culture and recreational pursuits.
- 13.12 Socio-economic impacts associated with wind farm developments primarily relate to job creation, use of local services and income spent in the locality of a project. This section of the EIA Report will consider and assess the likely impacts of the proposed development on the economic profile of the area, including short-term job opportunities, and outline these accordingly.
- 13.13 Impacts upon tourism will be explored and form part of the EIA Report, given the proximity of the Kintyre Way and local aspirations of maintaining and growing tourism.

Inclusion or Exclusion from the EIAR

- 13.14 It is considered that significant impacts upon recreation are unlikely during construction given the location and the nature of the proposed development.
- 13.15 However, there is potential for significant effects in relation to tourism and recreation during operation of the proposed development and so both will be scoped into the assessment.
- 13.16 There is potential for significant socio-economic effects both in construction and operation. A socio-economic assessment would be included.
- 13.17 Human health would not be directly affected by the proposed development during construction or operation due to its location and nature. Factors indirectly associated with

human health such as visual impact or noise would be dealt with in the respective chapters as already outlined.

Proposed Scope of Assessment

- 13.18 The EIA will consider the effects of the proposed development on employment and the economy. This will include the employment opportunities for local suppliers with relevant construction and maintenance experience during the construction and operational phases of the development. The EIA Report will focus on short and long term employment opportunities and input from the proposed development into the local economy (expenditure in shops / local services etc.).
- 13.19 Potential effects upon tourism and recreation would be considered as would potential effects on land management practices.
- 13.20 There is no established guidance for conducting a socio-economic assessment as part of the EIA process. It is therefore proposed that the assessment uses desk-based information sources to assess the likely scale of effects, supplemented by consultation with local stakeholders.
- 13.21 Cross reference would be made to other technical assessments to consider potential effects on recreational assets and other leisure and tourism attractions in the surrounding area, for example due to visual impact, traffic, and noise.

14 FORESTRY

Introduction

- 14.1 With forestry present throughout the Site, it will be necessary for the EIA Report to assess the impacts of the construction and operation of the proposed development on forestry assets, in order to derive felling and compensatory planting quantities for use in planning conditions, and also for other assessments to understand the environmental impact of forestry losses in terms of ecological or hydrological factors.

Baseline Conditions

- 14.2 The Site is located within a large woodland block, comprising entirely of commercial forestry. There is no Ancient Woodland Inventory within the site boundary, according to available records.
- 14.3 Existing forestry records and long term forestry plans will be analysed and augmented as required through further survey and assessment to document the full detail of existing and proposed forestry across the Site. A forestry baseline survey will be prepared to describe the crops existing at the time the EIA Report is prepared, including information on species, planting year and restocking design proposals within any existing and agreed forestry plans.

Likely Significant Effects During Construction and Operation

- 14.4 Areas of woodland will need to be felled for the construction and operation of the wind farm, including access tracks, turbine locations and other infrastructure. This will require to respect wind-firm edges whilst providing a sufficient area for technically and commercially viable wind yield.
- 14.5 The structure of the woodlands may therefore change, resulting in a loss of woodland area. This will be addressed through the redesign of the existing forest including, for example, the use of designed open space or alternative woodland types or the provision of compensatory woodland planting on an alternative site.
- 14.6 It is currently anticipated that bespoke felling will be undertaken around the necessary turbine foundations, and existing access tracks will be utilised where possible to reduce the volume of felling.

Design and Mitigation

- 14.7 There is a presumption against permanent woodland removal within the UK unless it addresses other environmental concerns or delivers additional and clearly defined public benefits. The Scottish Government's "Control of Woodland Removal Policy" records the assessment requirements and compensatory measures which should be considered when

removing woodland cover and the requirements under this policy will be addressed within the EIA Report.

Proposed Scope of Assessment

- 14.8 The purpose of the assessment will be to:
- Confirm the present age and species structure of the forestry crops;
 - Analyse the impact on existing and proposed Forestry Plans of any necessary tree removal to facilitate the proposed development;
 - Identify any measures necessary to mitigate the impact of the proposed development on existing forestry crops.
- 14.9 Scottish Forestry will be consulted on the development of the proposals relating to the restructuring of the forestry cover as a consequence of the development to ensure that the proposed changes to the existing forestry crops are appropriate and suitably address the requirements of the Control of Woodland Removal Policy.
- 14.10 The forestry proposals will be prepared in accordance with the current industry best practice and guidance.
- 14.11 The forestry report will be presented within a chapter of the EIA Report documenting the timing and extent of area of woodland to be felled during the life of the proposed development and an overview on forestry waste. It will also include restocking proposals to illustrate areas which would be replanted during the life of the wind farm.
- 14.12 The changes to the woodland structure will be analysed and described in relation to species composition, age class structure, commercial timber production etc. with supporting text, tables, diagrams and maps as necessary.
- 14.13 Any wider effects of forest felling and restocking will be assessed in the relevant chapters of the EIA Report as described in the other sections of this document, for example in relation to the treatment of brash, or the visual impact of forestry felling.

15 OTHER ISSUES

15.1 This section of the EIA Report will consider the following topics:

- Climate Change;
- Air Quality;
- Major Accidents and Disasters;
- Radio-Communications and Television;
- Aviation; and
- Shadow Flicker.

Climate Change

15.2 By its very nature, the proposed development will reduce demand for fossil fuel electricity generation and therefore provide a benefit to the Scottish Government's carbon reduction targets. This positive effect will be given further consideration in the EIA.

15.3 With respect to climate adaptation, consideration will also be given to the resilience of the wind farm to projected climate change and to the likely consequences of climate change for baseline conditions/assessment findings, and the resilience of proposed mitigation measures to any projected changes.

15.4 National planning policy requires proposed wind farm developments to consider potential impacts on carbon rich soils utilising the carbon calculator tool, and it is suggested that this tool will be used as part of the EIA Report to fully assess any potential impacts that may occur as a result of the proposed development.

Air Quality

15.5 There are no monitoring sites for air quality in Argyll and Bute given its predominantly rural nature and therefore no Air Quality Monitoring Areas (AQMAs) to consider.

15.6 A review of the 2020 Air Quality Annual Progress Report for Argyll and Bute Council suggests the air quality is considered to be generally very good and complies with all relevant air quality objectives. The Council has not identified any areas where air quality objectives may be under threat.

15.7 The potential effects associated with air quality during construction and decommissioning are the effects of dust associated with construction and decommissioning activities and the effects of emissions arising from construction traffic on local air quality.

15.8 No adverse air quality impacts are anticipated from the operation of the proposed development given the rural nature of the site and the distance from sources of air pollution. Additionally, due to the short term, temporary nature of the construction and

decommissioning phases, it is proposed that air quality (with the potential exception of dust) is scoped out of the EIA Report.

- 15.9 Potential impacts on air quality from dust during the construction and decommissioning phases will be addressed through standard mitigation techniques to be agreed as part of a Construction Environmental Management Plan (CEMP). No further specific assessment is proposed

Major Accidents and Disasters

- 15.10 The proposed development is not located in an area with a history of natural disasters such as extreme weather events, and the construction and operation of the proposed Development would be managed within the requirements of a number of health and safety related Regulations, including the Construction (Design and Management) Regulations 2015 and the Health and Safety at Work etc. Act 1974.
- 15.11 As the development is not considered vulnerable to any major accidents or disasters that could result in likely significant environmental effects, it is proposed that this topic is scoped out from further assessment within the EIA Report.

Radio-communications and Television

- 15.12 Wind turbines can cause electromagnetic interference through physical and electrical interference. Physical interference can cut across electromagnetic signals resulting in a 'ghosting' effect which largely affects television signals and radar. Electrical interference arises as a result of the operation of the generator within the nacelle of the turbine and can also affect communication equipment in proximity to the turbines. Where possible, any potential effects on radio-communication links and television will be mitigated at the turbine layout design stage by the use of exclusion zones around any link paths.
- 15.13 The Office of Communications (Ofcom) is responsible for the licensing of two-way radio transmitters. It holds a register of most microwave links and will therefore be consulted in order to establish baseline conditions. However, because not all microwave links are published, system operators will also be individually consulted on the proposed development's potential to cause electromagnetic interference. The outcome of this consultation process, including any mitigation actions taken, will be detailed in the EIA Report.

Aviation

- 15.14 The EIA Report will include a description of military and civilian aeronautical and radar issues relating to the proposed development. Consultation will be undertaken once the locations of the turbines have been finalised with appropriate interested parties. The EIA Report will present the findings of these consultations and all responses received, as well as any predicted impacts on aviation and mitigation required.
- 15.15 Since the proposed development is within 30 Nautical Miles of Campbeltown Airport, an Instrument Flight Procedure (IFP) Assessment will be required. There were no aviation based

objections to the previous application, however the appropriate stakeholders will be consulted.

- 15.16 The UK Air Navigation Order (ANO) 2016, Article 222, sets out the statutory requirement for the lighting on en-route obstacles, which applies to structures 150m or more above ground level. As the proposed turbines do not exceed 150m, aviation lighting will not be required.

Shadow Flicker

- 15.17 Shadow flicker is a phenomenon where, under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off. It only occurs inside buildings where the flicker appears through a narrow window opening.
- 15.18 A shadow flicker assessment is generally required if any properties lie within 10x rotor diameter of the wind farm and within 130 degrees either side of north. This is in line with Scottish Government online renewables planning advice on 'onshore wind turbines' which states that *"where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), 'shadow flicker' should not be a problem."*
- 15.19 Rotor diameter is expected to be 133m. Applying a 10x rotor diameter distance within a 130 degree arc of north from each turbine gives an allowance of 1330m where effects may occur.
- 15.20 Since there are no residential properties within 1330m of the turbines, shadow flicker is unlikely to be a significant effect of the proposed development and is therefore scoped out of further assessment.

16 CONTENT AND STRUCTURE OF THE EIAR

16.1 Following the rationale set out in the above sections, it is proposed that the final EIA Report contains the following chapters:

- Chapter 5: Landscape and Visual;
- Chapter 6: Noise;
- Chapter 7: Ecology;
- Chapter 8: Ornithology;
- Chapter 9: Traffic and Transport;
- Chapter 10: Hydrology, Geology and Peat;
- Chapter 11: Cultural Heritage;
- Chapter 12: Socio-Economics;
- Chapter 13: Forestry
- Chapter 14: Other Issues; and
- Chapter 15: Schedule of Mitigation.

16.2 These chapters will be supported by supplementary volumes containing all relevant figures, technical appendices and visualisations. A standalone Non-Technical Summary (NTS) will also be provided. These will be structured as follows:

- Volume 1: Written Statement;
- Volume 2: Figures;
- Volume 3: Visualisations; and
- Volume 4: Technical Appendices.

16.3 For the benefit of doubt, the environmental topics highlighted above are those which to be scoped into the EIA Report. Those which will be scoped out of full assessment are:

- Shadow Flicker;
- Natural Disasters;
- Air Quality;
- Operational traffic;
- Vibration;
- Infra-sound / Low frequency noise;
- Amplitude Modulation; and
- Fisheries.

16.4 We would welcome comment on the proposed scope and methodologies contained within this Scoping Report from all consultees and look forward to a collaborative EIA process. If you wish to discuss any aspect of this Scoping Report, please contact:

- Craig Potter, Project Manager, Energiekontor UK Ltd,
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FIGURES