

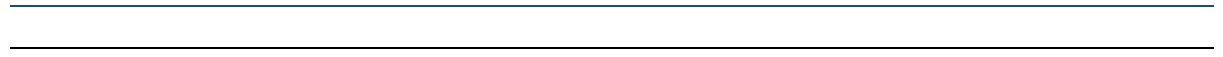


# Environmental Impact Assessment – Non- Technical Summary

Ladyfield Renewable Energy Park

October 2023

Project No.: 0669622



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# 1 INTRODUCTION

Chapter 1 of the EIA Report provides an introduction to the Proposed Development.

This Non-Technical Summary (NTS) is a summary of the Environmental Impact Assessment (EIA) Report which accompanies an application made by Ladyfield Renewable Energy Park Ltd (the Applicant) to the Scottish Ministers, via the Scottish Governments Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989, as amended (the Application), to install, operate and decommission the Ladyfield Renewable Energy Park (the Proposed Development). The Proposed Development comprises up to 13 turbines with a height of up to 180 metres (m) (with a capacity of up to 58.5 Megawatts (MW)), a Battery Energy Storage System (BESS) (with a capacity of up to 41.4 MW), and associated infrastructure, which have a total combined capacity up to 99.9MW. The Proposed Development covers an area of approximately 790 hectares and is located approximately 4.7 kilometres (km) north of Inveraray within the Argyll and Bute Council Area (the Council).

The Proposed Development would be operational for up to 40 years, with decommissioning undertaken thereafter. This NTS is intended to be read alongside the EIA Report (Volume 1, Volume 2(a-c) and Volume 3), and associated application documents for the Proposed Development.

## 1.1 The Applicant

The Applicant is Ladyfield Renewable Energy Park Ltd, a wholly owned subsidiary of Ridge Clean Energy Ltd (RCE), a well-funded, UK-based clean energy company whose team have developed, constructed and operated clean energy projects in the UK since 2003.

Working in partnership with landowners and local communities, RCE's team identifies and develops new projects to supply clean energy to UK homes, businesses, and other power consumers. The RCE team have a wealth of experience with community engagement support and have created a range of local initiatives in small towns and villages that focus on improving community value.

## 1.2 Site Context

The Site containing the Proposed Development comprises an area of approximately 790 hectares (ha) and is centred at National Grid Reference (NGR) 210197, 715498. The Site lies wholly within the administrative boundary of the Council.

The elevation of the Site ranges from 470 metres (m) Above Ordnance Datum (AOD) in the east of the Site and falls to around 100 m AOD in the west of the Site. There are a number of notable hilltops and ridges within and surrounding the Site with the ridge Ceann Chreagan located in the south of the Site. Hills in the vicinity of the Site include Stuc Scardan (487 m AOD) directly east of the Site, and Tom an Fheidh (237 m AOD) directly north to the Site.

Five watercourses traverse the Site, including the River Aray, as well as numerous unnamed tributaries draining into the River Aray. Additionally, a number of small lochans can be found within and surrounding the Site.

The predominant land use within the Site consists of private forestry plantation used for commercial purposes with areas of upland moorland also present in the south and east of the Site.

No public roads are located within the Site. Nearby major roads include the A819 directly to the West of the Site and the A83 to the south. The B840 also joins the A819 approximately 4.9 km to the north of the Site.

The path C201 – Dun Na Cuaiche is the nearest Core Path to the Site and is located approximately 2.7 km to the south.

As noted above, the nearest settlement is Inveraray, approximately 4.7 km to the south. While there are a number of dispersed residential properties surrounding the Site, there are no residential properties within the Site and no properties within 1 km of the proposed turbine locations. The

closest residential property to the proposed turbine locations is Ladyfield Farm, which lies 1.1 km north west of the nearest turbine (Turbine 11).

## 2 DEVELOPMENT DESCRIPTION

Chapter 2 of the EIA Report provides a description of the Proposed Development.

The layout of the Proposed Development is shown in Volume 2a Chapter 2 Figure 2.1.

### 2.1 Development Components

The Proposed Development is expected to comprise 13 three-bladed horizontal axis turbines with a maximum tip height of up to 180 m, with a generation capacity up to 99.9 MW, including BESS.

Detail on the Proposed Development components is provided in Table 2.1 below.

**Table 2.1: Key Parameters of the Proposed Development**

Element	Details
<b>Turbines</b>	13 turbines, each with a tip height of up to 180 m, as detailed in Figure 2.2, with a capacity up to 58.5 MW. Each turbine may require a small transformer located at its base. Each turbine will have a foundation with an approximate diameter of 25 m as detailed in Figure 2.3, with the exact size and nature of foundations being subject to detailed design following post consent intrusive Site Investigation studies.
<b>Access Track</b>	Access track to serve the construction and operation of the windfarm with width approximately 5.5 m as detailed in Figure 2.10, this will consist of a combination of upgraded track and newly constructed track. New tracks will be constructed of a graded stone or floated, as appropriate for the ground conditions.
<b>Electrical Infrastructure</b>	A substation and control building will be located approximately 0.86km west of turbine 6. The substation and control building will be located within a compound, shared with the Battery Energy Storage System (see below), measuring just under 1 hectare (ha), which will also include any external electrical infrastructure and vehicle parking. Substation and control building elevations are shown in Figure 2.8 Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to the onsite substation. Details of cable trenches to be used can be seen in figure 2.5.
<b>Battery Energy Storage System</b>	The project will have a battery energy storage system with a capacity up to 41.4 MW located adjacent to the on-site substation on the same compound which is just under 1 ha, and approximately 0.66km west of turbine 6. Figure 2.9 shows the BESS elevations.
<b>Crane Hardstanding</b>	Crane hardstandings will be required adjacent to each turbine, this will consist of an area of approximately 3,450 m <sup>2</sup> at each turbine. In addition to the main hardstanding area, there will be additional flattened areas for crane assembly; however, these will be temporary and not constitute hardstanding. The Crane hardstanding can be seen in Figure 2.4
<b>Temporary Construction Compound</b>	Two temporary construction compounds (TCCs) will be required during the construction of the Proposed Development, forming an area of hardstanding providing space for temporary welfare, parking, lay down areas and potentially concrete batching. These both will measure approximately 45 m x 30 m. One TCC is located in the north of the Site, adjacent to the north of the compound housing the Substation and BESS. The other TCC is located in the south of the Site, adjacent to the existing MoD kiosk and Quarry. Figure 2.6 shows the Indicative TCC layout.
<b>Existing Quarry</b>	The project will include a 50m x 40m extension to the existing quarry located at NGR 209387, 714173, as seen in Figure 12.13.

Element	Details
<p><b>Forestry Felling</b></p>	<p>Argyll Estates (the 'Landowner') is currently undertaking felling operations within the Site under their approved Long Term Felling Plan (LTFP) and irrespective of the Proposed Development intends to fell areas within the Site in accordance with their LTFP.</p> <p>The Proposed Development is not considered likely to start construction earlier than 2025. Therefore, for future baselines within assessments in this EIA Report, felling scheduled for 2025 or earlier has been assumed to have been undertaken and completed. Any forestry compartments scheduled for felling beyond 2025, are assumed (within future baselines) to be existing at the point of construction and thus could be affected by the Proposed Development.</p> <p>As the precise timescale for felling is not within the control of the Applicant, this approach is considered a worst-case scenario. The Applicant would have been content with a targeted approach of differential or 'keyhole' felling to facilitate the Proposed Development but given the intentions of the Landowner, this worst-case scenario has been adopted for all assessments.</p> <p>The Proposed Development will require the felling of approximately 48.7 ha of stocked woodland, with the total felling to accommodate construction of the Proposed Development 79.3 hectares (ha) of existing forestry. There will be replanting on-site, however off-site compensatory planting of 48.7 ha will be required.</p> <p>In accordance the Landowner's LTFP, restocking will take place within areas felled under their LTFP, whilst taking account of the wind turbine keyhole areas, tracks and associated infrastructure undertaken as part of the Proposed Development. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with Scottish Forestry, taking into account any revision to the felling and restocking plans prior to the commencement of construction of the proposed development</p>

### 2.1.1 Grid Connection

The grid connection would be routed through existing forest tracks and within the A819, to a new substation on the transmission system located at Creag Dubh, approximately 3km to the north of the site's northern boundary, on the western side of the A819. The grid connection for the Proposed Development would be the subject of further appraisal work and a separate planning application.

## 2.2 Construction Phase

The construction period for the Proposed Development is expected to be approximately 24 working months in duration. The starting date for construction activities will largely be dependent upon the date that consent might be granted and grid availability.

It is proposed that construction activities would be limited to between 07:00 and 19:00 Monday to Saturday, with no construction work expected on Sundays or Bank Holidays. Any works out-with these hours will need to be approved in writing by the Council.

Construction noise will be managed via a site-specific Noise Management Plan (NMP) provided to the Council. The embedded mitigation contained in the NMP will include the commitment to liaise directly with local residents, and the wider community via a Community Liaison Group. Where practicable, night-time working will not be carried out. Local residents shall be notified in advance of any night-time construction activities likely to generate significant noise levels, e.g., abnormal load movement.

## 2.3 Operational Phase

During operation, general servicing will be required. Each turbine manufacturer has specific maintenance requirements, however it is proposed that operational site inspections will be

undertaken on a weekly basis and the servicing of turbines will be undertaken as per the turbine manufacturer requirements, usually once per year.

## 2.4 Decommissioning Phase

The Proposed Development would have an operational life of up to 40 years. At the end of the operational period, it would be decommissioned and the turbines and electrical equipment dismantled and removed. Any alternative to this action would be subject to a further consenting process.

## 3 SITE SELECTION AND DESIGN

Chapter 3 of the EIA Report provides explanation on how the site of the Proposed Development was selected and its design evolution.

The Applicant uses a range of criteria to select sites for the development of renewable energy projects. As part of the growth plans for the development of renewable energy projects, the Applicant is continually assessing potential sites. For obvious reasons, the pipeline of available opportunities is confidential but such sites are not to be considered as alternatives to the Proposed Development. Alternative sites are not considered further in the EIA Report. However, in accordance with Schedule 4(2) of the EIA Regulations, reasonable alternatives in terms of development design, technology, location, size and scale of the Proposed Development have been considered.

- The Site was considered to be a suitable location for windfarm development by the Applicant as it met the following criteria: There are no international or national ecological, ornithological, landscape or cultural heritage designations within the Site;
- The Site has a viable grid connection (less than 5 km to the Point of Connection from the Site);
- The Site has suitable road access on the public road networks from the Port of Entry at Corpach, near Fort William, to the Proposed Development;
- The Site has an existing quarry on site which can be utilised for material to construct or upgrade tracks to minimise construction traffic;
- The Site has a suitable wind yield;
- The Site has a limited Zone of Theoretical Visibility (ZTV), especially to populated areas and restricted views on transport routes and recreational routes;
- The Site is currently a working timber landscape with limited development opportunity due to known Unexploded Ordnance on Site;
- The landowner is willing to host the windfarm Proposed Development; and
- The Site is sufficiently distant from the nearest residential properties to ensure compliance with ETSU-R-97 noise limits.

## 4 RENEWABLE ENERGY AND PLANNING POLICY

Chapter 4 of the EIA Report outlines the planning legislative context for the Proposed Development as well as identifying any key policy documents to be considered throughout the EIA Report.

The identified legislation documents have been considered in greater detail in the Planning Statement and the Design and Access Statement accompanying the Application. The Proposed Development is subject to a consenting procedure under Section 36 of the Electricity Act 1989, which is determined by the Scottish Ministers.

The following summary lists identified relevant national and local legislation which may have a bearing on the assessment of the Proposed Development.



#### 4.1 International Policy Context:

- UN Framework Convention on Climate Change, Paris Agreement (December 2015)<sup>1</sup>; and
- UN Climate Change Conference of the Parties (COP 26), Glasgow Climate Pact (November 2021).

#### 4.2 UK Legislative and Policy Context:

- The Electricity Act 1989<sup>2</sup>;
- Net Zero – The UK's Contribution to Stopping Global Warming (May 2019)<sup>3</sup>;
- The Climate Change Act 2008 (amended June 2019)<sup>4</sup>; and
- The Committee on Climate Change (the CCC) Reducing UK emissions: 2020 Progress Report to Parliament (June 2020)<sup>5</sup>.

#### 4.3 Scotland Legislative and Policy Context:

- Town and Country Planning (Scotland) Act 1997<sup>6</sup>;
- Climate Change (Scotland) Act 2009, as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019<sup>7</sup>;
- Low Carbon Scotland: Climate Change Plan – Third Report on Proposals and Policies 2018-2032 (RPP3)<sup>8</sup>;
- Electricity Generation Policy Statement (the EGPS) (June 2013)<sup>9</sup>;
- National Audit Office – Achieving Net Zero (December 2020)<sup>10</sup>;
- Update to the Climate Change Plan 2018 – 2032 – Securing a Green Recovery on a Path to Net Zero (December 2020)<sup>11</sup>;
- Climate Change Plan Monitoring Report (June 2021)<sup>12</sup>;

<sup>1</sup> UNFCCC 2018 Paris Agreement Overview [online] Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement> (Accessed 26/09/2023)

<sup>2</sup> Electricity Act 1989 [Online] Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents> Date Accessed (26/09/2023)

<sup>3</sup> Climate Change Committee (2019). Net Zero – The UK's contribution to stopping global warming [Online]. Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/> (Accessed 26/09/2023).

<sup>4</sup> UK Government (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019 (2019 No. 1056) [Online] Available at: <http://www.legislation.gov.uk/uksi/2019/1056/made> (Accessed 26/09/2023)

<sup>5</sup> The CCC (2020) Reducing UK emissions: 2020 Progress Report to Parliament [online] Available at: <https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/#key-findings> (Accessed 26/06/2023)

<sup>6</sup> The Scottish Government (1997) Town and Country Planning (Scotland) Act 1997 [Online] Available at: [http://www.legislation.gov.uk/ukpga/1997/8/pdfs/ukpga\\_19970008\\_en.pdf](http://www.legislation.gov.uk/ukpga/1997/8/pdfs/ukpga_19970008_en.pdf) (Accessed 26/09/2023)

<sup>7</sup> The Scottish Government (2009) Climate Change (Scotland) Act 2009 [Online] Available at: <https://www.legislation.gov.uk/asp/2009/12/contents> (Accessed 26/09/2023)

<sup>8</sup> Scottish Government (2018). Low Carbon Scotland: Climate Change Plan 2018 – 2032 [Online] Available at: <http://www.low-carbonscotland.scot/wp-content/uploads/2018/11/Climate-Change-Plan-Scotland.pdfhttps://digitalpublications.parliament.scot/ResearchBriefings/Report/2021/1/12/afbd2373-a14f-4a78-af9c-4fc5c775b23d> (Accessed 26/09/2023).

<sup>9</sup> The Scottish Government, (2013). "Electricity Generation Policy Statement – 2013" [Online]. Available at: <http://www.scotland.gov.uk/Topics/Business-Industry/Energy/EGPSMain> (Accessed 26/09/2023).

<sup>9</sup> Scottish Energy Statistics Hub [online] Available at: <https://www.gov.scot/publications/scottish-energy-statistics-hub-index/> (Accessed 26/09/2023)

<sup>10</sup> National Audit Office (2020) Achieving Net Zero [Online] Available at: <https://www.nao.org.uk/wp-content/uploads/2020/12/Achieving-net-zero.pdf> (Accessed 26/09/2023)

<sup>11</sup> Scottish Government (2020). Update to the Climate Change Plan 2018 – 2032 Securing a Green Recovery on a path to net zero. [Online] Available at <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/> (Accessed 26/09/2023)

<sup>12</sup> Climate Change Committee (2021). 2021 Progress Report to Parliament [Online]. Available at: <https://www.theccc.org.uk/publication/2021-progress-report-to-parliament/> (Accessed 26/09/2023).

- Climate Change Plan Monitoring Report (May 2021)<sup>13</sup>;
- Reducing emissions in Scotland – 2021 Progress Report to Parliament (December 2021)<sup>14</sup>;
- Scotland 2045 - fourth National Planning Framework (NPF4)<sup>15</sup>;
- Scottish Government - Draft Energy Strategy and Just Transition Plan (January 2023)<sup>16</sup>;
- 
- Energy Strategy: Position Statement (March 2021)<sup>17</sup>;
- Scottish Onshore Wind Policy Statement (December 2022)<sup>18</sup>; and

#### 4.4 Local Planning Policy Context:

- The Argyll and Bute Local Development Plan ('the ABLDP'), Written Statement and Proposals Mapping, adopted 2015;
- Argyll and Bute Council Supplementary Planning Guidance ('SPG') adopted 2016;
- Argyll and Bute Council SPG 2, adopted 2016.
- Assessing the Cumulative Impact of Onshore Wind Energy Proposed Developments (2012)<sup>19</sup>;
- Siting and Designing Wind Farms in the Landscape (2017)<sup>20</sup>; and
- Landscape Character Assessment – Guidance for England and Scotland (2002)<sup>21</sup>.

The policies and plans listed above reflect the current direction of the UK and Scottish Governments, and the Argyll and Bute Council relating to onshore wind farm development and energy storage. Overall, these documents indicate continuous support for the onshore wind and sustainable growth of the industry.

The EIA Chapters on individual topics will provide the assessment effects in accordance with the EIA Regulations. A separate Planning Statement, and Design and Access Statement, which does not form part of this EIA Report, discusses, and assesses the Proposed Development in greater detail and provides a conclusion on the acceptability of the Proposed Development.

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<sup>13</sup> Scottish Government (2021). Climate Change Plan: monitoring reports – 2021 compendium [Online]. Available from: <https://www.gov.scot/publications/climate-change-plan-monitoring-reports-2021-compendium/pages/2/> (Accessed 26/09/2023).

<sup>14</sup> Climate Change Committee (2021). Progress reducing emissions in Scotland – 2021 Report to Parliament [Online]. Available from: <https://www.theccc.org.uk/publication/progress-reducing-emissions-in-scotland-2021-report-to-parliament/> (Accessed 26/09/2023).

<sup>15</sup> Scottish Government (2023) *National Planning Framework 4* [Online] Available at: <https://www.gov.scot/publications/national-planning-framework-4/pages/1> (Accessed 26/09/2023)

<sup>16</sup> Scottish Government (2021) - Draft Energy Strategy and Just Transition Plan [Online]. Available at: <https://www.gov.scot/publications/draft-energy-strategy-transition-plan/> (Accessed 13/06/2023)

<sup>17</sup> Scottish Government (2021). Energy strategy: position statement [Online]. Available at: <https://www.gov.scot/publications/scotlands-energy-strategy-position-statement/documents/> (Accessed 26/09/2023).

<sup>18</sup> Scottish Government (2022). Onshore Wind Policy Statement. [Online]. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/#:~:text=Sets%20out%20our%20ambition%20to,an%20onshore%20wind%20sector%20deal./> (Accessed 26/09/2023).

<sup>19</sup> Scottish Natural Heritage (2012) Assessing the Cumulative Impact of Onshore Wind Energy Proposed Developments [Online] Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> (Accessed 26/09/2023)

<sup>20</sup> Scottish Natural Heritage, 2017, Siting and Designing Wind Farms in the Landscape [Online] Available at: <https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf> Accessed 26/09/2023)

<sup>21</sup> Scottish Natural Heritage and The Countryside Agency, 2002, Landscape Character Assessment – Guidance for England and Scotland [Online] Available at: <https://digital.nls.uk/pubs/e-monographs/2020/216649977.23.pdf> (Accessed 26/09/2023)

## 5 EIA METHODOLOGY

Chapter 5 of the EIA Report surmises the methodology with which the EIA Report was conducted.

EIA is a process that aims to ensure that permissions for developments with any potentially significant effects on the environment are granted only after assessment of the likely significant environmental effects has been undertaken. The assessment must be carried out following consultation with statutory consultees, other interested bodies, and members of the public.

EIA is an iterative process of assessment and design whereby prediction and assessment of effects inform the design of the Proposed Development. The Proposed Development would avoid or reduce any potential environmental effects, where necessary, through the use of mitigation measures.

The EIA Report has been prepared following a systematic approach to EIA and project design. The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. The key elements in an EIA are:

- Iterative project design, taking feedback from consultation and applying it to the Proposed Development design process on an ongoing basis throughout the EIA process;
- Scoping and ongoing consultation, including consideration of responses and how these should be addressed as part of the EIA;
- Technical environmental impact assessments; and
- Preparation and submission of the EIA Report.

The aim of the scoping process is to identify key environmental issues at an early stage, to determine which elements of the Proposed Development are likely to result in significant effects on the environment and to establish the extent of survey and assessment required for the EIA.

The initial request for a Scoping Opinion was submitted to the Scottish Ministers in June 2021, with an initial design consisting of up to 22 turbines and a likely maximum generating capacity exceeding 50 MW. The Scoping Report described the Proposed Development, the proposed EIA methodology, and the key issues to be addressed. The Scoping Report was sent to a range of consultees as agreed in advance with the Council. The Scottish Ministers adopted their Scoping Opinion in March 2022. Following this, the size of the Site decreased to its current size and therefore the design was altered to consist of 13 turbines.

In February 2023, a Gatecheck report was issued to the ECU and statutory consultees, in line with the ECU Gatechecking procedure for Section 36 Developments. The Gatecheck report described how the design of the Proposed Development had evolved since the scoping stage, highlighting influencing factors on the design either as a response to environmental constraints identified during the EIA process or through consultation feedback from statutory or non-statutory consultees.

The Applicant consulted the members of the local community through attendance at local public exhibitions:

- Dalmally Community Centre and Inveraray Inn in February 2022; and
- Another round of public exhibitions at Inveraray Inn in October 2022.

In addition, one online public exhibition was held prior to the in-person exhibitions, due to the Scottish Government's COVID-19 advice and guidelines.

Further meetings were completed with the local Community Councils, and local properties within the glen were written to regularly.

A number of environmental disciplines have been used to identify any effects that may be significant in the context of the Electricity Works (Environmental Impact Assessment (EIA)) (Scotland) Regulations 2017. These assessments involve a description of the baseline (current) conditions of the Site, the assessment of potential effects, and the use of suitable criteria to

determine whether the potential effects are significant. Mitigation is proposed where possible to prevent significant effects.

In accordance with the EIA Regulations, the assessment has also considered 'cumulative effects'. Consideration of inter-project cumulative effects have been undertaken for all relevant technical assessments and are included in the relevant chapters. Where no cumulative effects are likely, this is stated. Operational wind farms are considered as part of the baseline in the majority of assessments. In relation to some of the technical chapters, specific guidance and policy exists advising that effects associated with existing wind farm developments should be considered as cumulative effects. Where relevant, these are noted within each chapter. Consideration of any intra-cumulative effects has also been undertaken, with findings presented within Chapter 18: Intra-Project Cumulative Effects Assessment. This Chapter presents any effects on receptors that may be exposed to multiple residual effects between aspects of this project or considering the wider developments in the landscape.

## 6 LANDSCAPE AND VISUAL

Chapter 6 of the EIA Report evaluates the effects of the Proposed Development on the landscape and visual receptors.

The potential effects on the landscape and visual receptors that would arise as a result of the Proposed Development have been assessed in the Landscape and Visual Impact Assessment (LVIA). The process has involved identifying those receptors with the potential to be significantly affected and assessing the potential effects that the construction and operation of the Proposed Development would give rise to. The significance of these effects has been assessed through combining the sensitivity of each receptor with a prediction of the magnitude of change that would occur as a result of the Proposed Development.

The Proposed Development comprises the construction of the 13 proposed turbines each 180 m to blade tip, associated infrastructure, including access tracks, control building, battery storage, substation and meteorological mast, as well as the removal of forestry and excavation of borrow pits.

The Study Area for the Proposed Development covers a radius of 45 km and within this area, those receptors with the potential to be significantly affected have been assessed in detail. This has included two landscape elements, 13 Landscape Character Types (LCTs) / Landscape Character Units (LCUs), two designated landscape areas, a wild land area and 19 viewpoints.

In respect of the physical effects on landscape elements, the assessment found no significant effects will arise in relation to the loss of the coniferous forestry or the rough grass moorland as a result of the construction of the Proposed Development. The losses will comprise only a small proportion of a much wider landscape resource and both forestry and rough grass moorland will be relatively easy to re-establish either post-construction or post-decommissioning, depending on the short, or long-term use of the area.

The assessment of effects on landscape character found that significant effects, during the construction and operational phases will arise as a result of the Proposed Development within parts of five of the LCTs / LCUs that occur in the Study Area. These significant effects will extend out to a radius of approximately 4 km to the west, 4 km to the north, 9 km to the east, 3 km to the south east and 9 km to the south west. The effect of the Proposed Development on all other LCTs and LCUs during construction and operation will be **Not Significant**.

The Proposed Development will have a significant effect on the corresponding parts of the regional designation of the North Argyll Area of Panoramic Quality (APQ), with effects extending approximately 4 km to the north and 9 km to the east. A detailed assessment of the effects on the special qualities of the Loch Lomond and The Trossachs National Park (LLTTNP) found that the Proposed Development will not give rise to any significant effects. Similarly, the detailed assessment of the effects on the perceptual responses experienced in the Ben Lui Wild Land Area (WLA) also found that there will be no significant effects.

The assessment of the effects of the Proposed Development has found that significant effects would occur during the construction and operational phases at six of the 19 viewpoints. The viewpoints significantly affected during the construction and operational phases all lie within a 10 km radius of the Proposed Development and will mostly be affected owing to either their close proximity to the construction works and operation of the Proposed Development, or their greater sensitivity. There are a number of viewpoints within the 10 km which will not be significantly affected and all viewpoints beyond this range will also not be significantly affected as a result of the Proposed Development.

In respect of the principal visual receptors, road-users of the A819 will be significantly affected during the construction and operational phases. This effect will extend along an approximate 3 km section of the road that lies closest to the Proposed Development, at a minimum range of approximately 1.5 km. There will also be significant effects from some localised parts of the settlement of Loch Awe where views over the loch occur (this will not be significant where views are partly screened and have no effect where views are fully screened) and certain sections of the Inveraray core paths where open and full views of the Proposed Development occur.

The Site will be subject to ongoing forestry felling and restocking as part of Argyll Estates (the 'Landowner') approved LTFP, as well as further felling required for the construction of the Proposed Development. While the combination of these plans and their implementation over time presents a complicated pattern of forestry felling and restocking, consideration has been made in the assessment to a worst-case scenario in which areas currently afforested are felled. This assessment has highlighted that only three of the 19 viewpoints will be affected by the forestry felling, owing to the screening effect of intervening landform which prevents visibility from the majority of the viewpoints. From those viewpoints where the forestry removals will be visible, the assessment will not be affected by this additional change, although the clear felling will detract from the scenic quality of the views.

The assessment of cumulative effects on landscape character has found that the effect of the Proposed Development on all LCTs and LCUs that occur in the Study Area will be **Not Significant** in respect of Cumulative Scenario 1 and significant in respect of Cumulative Scenario 2 in the localised parts of three LCUs. The assessment of the cumulative effects on visual amenity has found that significant cumulative effects will occur at two of the 19 viewpoints in respect of Scenario 1, which assesses the effects of adding the Proposed Development to a cumulative situation comprising all operational, under construction and consented wind farms, and in respect of Scenario 2, which also considers application stage wind farms. The viewpoints which will undergo significant cumulative effects lie within 5 to 9 km of the Proposed Development, making the effects relatively localised.

A detailed assessment of the effects of the Proposed Development on the visual amenity of residents has been carried out and is presented in Appendix A6.4. The Residential Visual Amenity Assessment (RVAA) considers whether the visual effects likely to be experienced at a given property approach or surpass the 'Residential Visual Amenity Threshold' - the point at which visual effects may become matters relevant to Residential Amenity and which are to be weighed in the overall planning balance. The RVAA has assessed 12 existing and consented residential properties between 1 and 2 km of the Proposed Development, albeit with two sets of three properties grouped together and within single ownership. The assessment found all properties will undergo significant visual effects, with the Proposed Development resulting in the potential for 'Residential Visual Amenity Threshold' to be reached in respect of four especially close-range properties. The full assessment of effects on residential amenity also considers such matters as the effects of noise, shadow flicker and other disturbance and this is presented in the Planning Statement.

A detailed assessment of the night-time effects of the aviation lighting associated with the Proposed Development has been carried out and is presented in Appendix A6.5. Of the four representative night-time viewpoints assessed, two were found to undergo significant effects as a result of the aviation lighting on night-time view. It should be noted that this assessment has been based on a lighting intensity of 2,000 cd and 200 cd and does not take into account the notable reductions

that would occur were directional hub lights implemented. This assessment, therefore, represents a pronounced worst case scenario. The visual effects of the Proposed Development at night will be limited by the activity of receptors at night. Receptors that experience views at night are generally limited to residents on the closest edge or elevated parts of settlements, residents of rural properties, and road-users. Views from within properties are likely to be restricted by the use of window coverings, particularly in winter. Views from remote uplands and hills, rural farmland and footpaths are visited infrequently at night, therefore, the number of associated visual receptors affected will be low.

In summary, the Proposed Development will give rise to significant effects on landscape character during the construction and operation of the Proposed Development, albeit contained within the localised extent of approximately 9 km. It will give rise to significant effects on visual amenity out to approximately 10 km during the construction and operation of the Proposed Development. While landscape and visual receptors beyond these ranges may be affected by the influence of the Proposed Development, these effects will not be significant. Furthermore, not all landscape and visual receptors within these ranges will be significantly affected, for example tracts of landscape enclosed by forest cover or where screening by landform occurs. Significant cumulative effects will arise in localised and close-range viewpoints where the Proposed Development will be seen in conjunction with proximate operational and consented wind farms.

All effects during the construction of the Proposed Development will be short-term and reversible and all effects during the operation of the Proposed Development will be long-term and reversible. All effects will be adverse in nature.

## 7 ORNITHOLOGY

Chapter 7 of the EIA Report evaluates the effects of the Proposed Development on ornithology.

Following a desk-based collation of existing bird records, and along with consultation with NatureScot to determine the scope of the survey programme, ornithology field surveys were undertaken between March 2020 and March 2022.

Based on baseline survey results and historic data, four Important Ornithological Features (IOFs) were taken forward for assessment, due to identified potential for significant effects from the Proposed Development: black grouse, golden eagle, merlin and greenshank. It was also concluded that prior to further assessment as part of the Habitats Regulations Appraisal (HRA) process, a Likely Significant Effect could not be discounted for the Glen Etive & Glen Fyne Special Protection Area (SPA), designated for its breeding population of golden eagle, which is adjacent to the east and north Site boundaries.

Ornithological interests were taken into consideration during the iterative design process. The following embedded mitigation is integral to the final layout:

- Wherever possible, locating wind turbines and other infrastructure in areas where habitat types are currently of low value for IOFs (i.e., conifer plantation or recent clearfell) and utilising existing forestry infrastructure;
- Locating infrastructure at least 350 m from any known nest site of a Schedule 1 breeding species;
- Locating wind turbines at least c.300 m from the Glen Etive & Glen Fyne SPA boundary, in order to avoid any direct habitat loss for golden eagles, or effective habitat loss within the SPA due to displacement; and
- Locating wind turbines at least 300 m from any known black grouse lekking location.

Construction, operational and decommissioning effects were considered for each IOF. Construction effects included temporary and long-term habitat loss, and disturbance over a short-term construction period.

The Proposed Development's design iteration process identified at an early stage the potential for IOFs to be disturbed during construction, and so efforts were made to avoid locating infrastructure

close to important habitats. This means that the likelihood of disturbance to nest sites of Schedule 1 species in particular is low.

Unmitigated, a disturbance effect of moderate significance was predicted for the black grouse and greenshank Natural Heritage Zone (NHZ) 14 populations. A Breeding Bird Protection Plan is proposed which would ensure reasonable measures are taken to avoid the destruction or disturbance of nest sites, with additional species-specific temporal and spatial restrictions around black grouse leks and feeding greenshank lochs required to reduce the level of significance to minor adverse.

Operational effects (displacement, collision risk and lighting) were considered for each IOF. Again, the design iteration process took these into consideration, thereby minimising risks. Unmitigated, a displacement effect of moderate adverse significance was predicted for the NHZ 14 populations of black grouse and greenshank. Non-significant unmitigated effects were predicted for all other IOFs and effects. With habitat management as part of a Biodiversity Enhancement Management Plan offering improvements to breeding and foraging habitats away from wind turbines for all IOFs, the residual effects were reduced to no more than minor adverse and Not Significant.

Decommissioning effects were considered to be similar to those predicted for construction effects and were no more than minor adverse and Not Significant for each IOF when mitigation is considered.

No adverse effects on the integrity of the Glen Etive & Glen Fyne SPA were predicted as a result of the Proposed Development, when mitigation measures were taken into consideration.

Cumulative operational effects on black grouse and golden eagle were assessed for other projects at an NHZ 14 level. For golden eagle collisions, the cumulative level of significance was determined to be no more than minor adverse and Not Significant. There are no adverse effects on the integrity of the Glen Etive & Glen Fyne SPA predicted as a result of in-combination effects. For black grouse, a worst-case cumulative displacement scenario (assuming all projects become fully operational) would lead to a moderate adverse effect, but this is considered unlikely, particularly if habitat management and other forms of mitigation are implemented for other projects. The contribution of the Proposed Development towards the cumulative effect would be negligible, when habitat management is considered.

## 8 ECOLOGY

Chapter 8 of the EIA Report evaluates the effects of the Proposed Development on ecology.

Following a desk-based collation of existing ecological records, various habitat and protected species field surveys were undertaken on Site in 2021 and 2022.

Based on baseline survey results and historic data, the Important Ecological Features (IEFs) taken forward for assessment, due to identified potential for significant effects from the Proposed Development were: blanket bog (including wet modified bog), wet heath, semi-natural broadleaved woodland and common and soprano pipistrelle bats. All designated sites were scoped out of the assessment due to a lack of potential connectivity with the Site.

Ecological interests were taken into consideration during the iterative design process. The following embedded mitigation was integral to the final layout:

- Wherever possible, locating wind turbines and other infrastructure in areas where habitat types are currently of low conservation value (i.e., conifer plantation or recent clearfell) and utilising existing forestry infrastructure;
- Where possible, applying a minimum 50 m buffer for any infrastructure or construction activity around all watercourses, except where a minimum number of watercourse crossings are required. This will minimise effects on associated habitats and protected species;
- The track length and alignment has been designed to reduce the extent of new track required where feasible considering the topography of the Site; and

- Avoidance of deeper peatland (>1 m), blanket bog and wet modified bog, and potential high groundwater dependent ecosystems, for the location of wind turbines and other infrastructure as far as practicable.

Construction, operational and decommissioning effects were assessed for IEFs, where relevant.

During construction, the likelihood of a significant effect on habitats or protected species would be significantly reduced by the embedded mitigation, in the form of a Construction Environmental Management Plan, Species Protection Plan, Ecological Clerk of Works and a monitoring programme. Assessed construction effects were therefore restricted to temporary and long-term loss of habitat only. For each habitat IEF, the extent of direct and indirect loss due to permanent and temporary infrastructure was considered to be no more than minor adverse and **Not Significant** at a local level. With Technical Appendix A8.4: outline Biodiversity Enhancement Management Plan (oBEMP) offering enhancement of bog, wet heath and semi-natural woodland habitats, the residual effects were considered to be minor beneficial for bog and wet heath, and negligible for semi-natural broadleaved woodland.

Operational effects were limited to impacts of potential collisions of pipistrelle bats with wind turbine blades. The risk of a significant effect was greatly reduced by the embedded mitigation in the form of a minimum 80 m buffer from wind turbine blade tip to conifer plantation edge being applied; and feathering of wind turbines during the bat active period (April to October). Overall, a worst-case minor adverse effect on the common and soprano pipistrelle populations was predicted, which can be reduced to negligible due to the oBEMP providing enhanced roost opportunities in the form of bat boxes and woodland planting.

Cumulative construction and operational effects on all IEFs were considered to be no more than minor adverse and **Not Significant**, particularly if habitat management and other forms of mitigation are implemented for the Proposed Development and other projects. The contribution of the Proposed Development towards the cumulative effects would be negligible, particularly when habitat management is considered.

## 9 ARCHAEOLOGY AND CULTURAL HERITAGE

Chapter 9 of the EIA Report evaluates the effects of the Proposed Development on archaeology and cultural heritage.

The Archaeology and Cultural Heritage assessment has been carried out in accordance with national and local planning policy including the National Planning Framework 4 and the Argyll and Bute Local Development Plan, alongside industry best practice and guidelines.

The baseline was informed by two technical appendixes (an Archaeological Desk-based Assessment and a Historic Environment Settings Assessment) which indicated the Site has generally been part of an upland rural landscape since the prehistoric period. The site and the surrounding area are characteristic of the Highland landscape comprising dispersed settlements and associated areas used for agriculture. The castle at Inveraray and its surrounding designed landscape is a focus for the immediate area which was established in the late 18th and early 19th centuries and was a centre of power and influence for the Earls and Dukes of Argyll. The adjacent town is one of the best examples of a planned, model settlement in Scotland.

Using the baseline information and industry standard methodologies, the assessment identified the potential for as yet unknown buried archaeological remains (i.e. loss of the archaeological resource) to be located within the Site. Using the Proposed Development information there is a potential for those remains to be directly impacted during construction and therefore there is a potential for a minor to major adverse effect, which is significant for the purposes of EIA, on as yet unknown archaeological remains as their extent and cultural significance is currently unknown.

Following the application of an appropriate scheme of archaeological mitigation (scope to be agreed), the residual effect of these direct impacts would be reduced to negligible to minor adverse which is **Not Significant** for the purposes of EIA.



The settings assessment considered the possible effects of the Proposed Development on the cultural significance of heritage assets outside of the Site boundary through a change in setting where that setting contributes to the asset's cultural significance.

Using a staged refinement process based on the tests set out within the appropriate legislation and in line with policy and industry guidance, an initial list of 263 heritage assets was reduced to ten where a potentially likely significant effect was possible.

These ten assets comprised:

- the Inveraray Castle Garden and Designed Landscape;
- the Category A listed Inveraray Castle;
- a group of Category B and C listed buildings within the Inveraray Castle Policies;
- the Category A listed Carloon, Doocot;
- the Category A listed Watch Tower, Dun Na Cuaiche;
- the Category A listed St Conan's Church of Scotland;
- the Category B listed Society School, Glen Aray;
- the Category A listed Duncan Ban McIntyre Monument, Beacon Hill;
- the Ardanaiseig House Garden and Designed Landscape; and
- the Scheduled Caisteal Suidhe Cheannaidh, dun 470m NW of Achnacraobh.

Of these assets, the assessment identified a minor adverse effect on the cultural significance of the Inveraray Castle Garden and Designed Landscape; the Watch Tower, Dun Na Cuaiche; and Society School, Glen Aray, all of which are **Not Significant** for the purposes of the EIA regulations.

All other assets were assessed as either receiving a negligible or no effect to their cultural significance from the Proposed Development.

## 10 HYDROLOGY AND HYDROGEOLOGY

Chapter 10 of the EIA Report evaluates the effects of the Proposed Development on hydrology and hydrogeology.

A desk-based study and site walkover have been conducted to inform the hydrology and hydrogeology assessment and layout of the Proposed Development. The Proposed Development is situated predominantly within the River Aray catchment, with numerous watercourses and waterbodies situated through the Site. Water at the Site is anticipated to drain towards the various watercourses situated throughout the Core Study Area. The Core Study Area is defined by the Proposed Development Boundary and is showing in Figure 10.1 of the main Report.

To the north and north west of the Proposed Development, many tributaries which drain from the slope of Beinn Ghlas flow in the Allt Sheileachan which flows through the northern aspect of the Core Study Area. Across the northern section of the Core Study Area is a collection of unnamed watercourses which flow from east to west and ultimately drain into the River Aray. West of the central section of the Core Study Area lies Lochan à Mhadaidh within an area of flat terrain located north of Stùc Scardan. Two unnamed watercourses are situated to the south of the Core Study Area which south west of Stùc Scardan and flow south west, through the Proposed Development.

The hydrogeology at the Site comprises the Oban and Kintyre groundwater body and the bedrock aquifer underlying the majority of the Core Study Area consists of Argyll Group – psammite, semipelite and pelite which dominates the central and northern area of the Core Study Area.

Private Water Supplies have been identified in this assessment with one Private Water Supply assessed to be hydrologically connected to the Proposed Development. Through the implementation of appropriate mitigation measures there will be no adverse impact to the Private Water Supply. To monitor and prevent any potential adverse impacts on Private Water Supplies a Private Water Supply Risk Assessment has been conducted which details the implementation of specific mitigation measures such as a water quality monitoring programme and a watching brief when working within the catchment.

Mitigation measures comprise embedded mitigation which will be incorporated as part of the design and construction of the Proposed Development. Works within 50 m of watercourses identified on 1:50,000 OS mapping have been avoided where possible, excluding access track crossings. Good practice measures in accordance with industry standards will be implemented during the construction phase to minimise the potential for groundwater and surface water contamination and a water quality monitoring programme will be implemented to ensure there is no adverse impacts on water quality during the construction phase.

This assessment concludes that the Proposed Development has been assessed as having the potential to result in effects of minor to negligible significance and as only effects of moderate significance or greater are considered significant in the terms of the EIA Regulations, the potential effects on hydrology and hydrogeology are **Not Significant**.

## 11 GEOLOGY, SOILS AND PEAT

Chapter 11 of the EIA Report evaluates the effects of the Proposed Development arising from the construction, operational and decommissioning phases on the geology and peat resource.

The assessment for the Proposed Development was based on a desk study and site surveys. Deep peat was identified as a sensitive receptor following peat probing surveys with approximately 90% of probes recording peat depths at 1.0 m or less. One of the key design objectives was to ensure that infrastructure was located in areas with no greater than 1.0 m of peat and where active peat is not present, which was largely achieved although encroachment by infrastructure into deeper areas was not totally avoided in the case of the access tracks. In areas where access tracks encroached on deeper peat, floating tracks are proposed to minimise the effects on deep peat.

The assessment analysed the risk of peat slide, which indicated that most of the survey area is generally of low and negligible risk although there are four medium risk areas, with no infrastructure located in these medium risk areas. All of the Site Infrastructure is located in areas of low or negligible risk. With the mitigation measures proposed all of the zones have been lowered to be of negligible and low risk. Notwithstanding this, all infrastructure locations and existing site conditions should be checked at the time of construction and micro-siting adopted if required in order to maintain the design objective of avoiding any potential deep peat to minimise peat slide risk.

Construction mitigation would allow for the micro-siting of infrastructure by up to 50 m to avoid areas of deep peat. The adoption of best practice for storage and re-use of peat on site as well as drainage measures will be developed throughout the construction period to include robust peat management and a monitoring programme.

In addition to best practice mitigation and other specific mitigation included in the Technical Appendices, peatland restoration is proposed with details included in the Technical Appendix A8.4: oBEMP and Technical Appendix A11.2: Outline Peat Management Plan (oPMP).

The Development has been assessed as having the potential to result in an effect of moderate significance in relation to peat stability and effects of minor or negligible significance for all other potential effects.

Following the implementation of proposed mitigation measures, the residual effects relating to peat stability are predicted to be of minor significance, while all other residual effects are predicted to be of negligible significance.

Given that only effects of moderate significance or greater are considered significant in terms of the EIA Regulations, the potential effects on Geology, Soils and Peat are **Not Significant**.

## 12 NOISE

Chapter 12 of the EIA Report evaluates the effects of the Proposed Development on noise.

During the construction phase, noise may result from traffic and the use of plant and machinery to carry out construction activities. However, provided that mitigation options outlined in the chapter are implemented significant effects can be reduced to acceptable levels of the relevant standard. Furthermore, best practice mitigation measures will also be adopted to minimise noise emissions, including restrictions on working hours during this phase of the Proposed Development.

During operation, wind turbines can generate noise from the machinery housed within the turbine and from the movement of blades through the air. Modern turbines are designed to minimise noise and planning conditions are used to ensure compliance with specified noise limits. The assessment has been undertaken in accordance with the recommendations of ETSU R-97, the method of assessing wind turbine noise recommended by Government guidance and following the current best practice methods described in the Good Practice Guide (GPG), as endorsed by the Department of the Environment. It has been shown that noise due to the Proposed Development, in conjunction with surrounding cumulative developments, would comply with the requirements of ETSU-R-97 and the GPG at all receptor locations.

Noise produced during decommissioning of the Proposed Development is likely to be of a similar nature to that during construction, although the duration of decommissioning will be shorter than that of construction. Any legislation, guidance or best practice relevant at the time of decommissioning would be complied with.

The only significant noise effects associated with the Proposed Development relate to road traffic noise at the A85 at Clifton and A819 (North & South) during concrete delivery days, and construction activity at the south access without mitigation. With mitigation measures in place, construction activity at the south access along with road traffic noise during non-concrete delivery days, operational noise, cumulative operational noise and decommissioning noise are considered **Not Significant** according to the EIA Regulations.

## 13 TRAFFIC AND TRANSPORT

Chapter 13 of the EIA Report identifies the potential effects of changes to road traffic expected as a result of the Proposed Development.

Most traffic generated by the Proposed Development is associated with the construction phase which is anticipated to last up to 24 months. The main approach considered in this assessment assumes that wind turbine components will be transported as abnormal loads from Corpach Harbour, near Fort William. The majority of materials required for construction will be transported via the General Construction Traffic corridor for which the study area can be defined as:

- A85(T) between Taynuilt and Clifton, Crianlarich
- A83(T) near Inveraray; and
- A819

Baseline traffic flow information was obtained from data published by the Department of Transport (DfT) located on the construction traffic route. Traffic growth factors were applied to the baseline traffic flow between the date of survey and the anticipated date at which construction will commence, 2026.

It is assumed that most construction traffic will approach the Site from either the north or south of the A819 via the A85(T) and the A83(T) as detailed above. The main potential transportation impacts would be associated with the movement of heavy goods vehicles (HGVs), light goods vehicles (LGVs), and cars to and from the Site during the construction phase. In addition, abnormal load vehicles (ALVs) will use the preferred route from the Port of Entry via the A82(T) southbound and the A85(T) westbound towards the Site, however the number of vehicles using this route is significantly lower than the general traffic.

It is estimated that a total up to 64,222 two-way vehicle movements would be associated with the construction phase of the Proposed Development. This figure includes 8,714 HGV and abnormal load delivery movements and 55,508 light vehicle (car and van) movements.

Over the construction period, the total daily vehicle movement numbers peak during month eleven is 145 vehicle movements per day during non-concrete delivery days rising to 395 vehicle movements per day on concrete delivery days. This is principally due to the deliveries of concrete and stone for the access tracks, crane hardstandings and turbine foundations. The assessment assumes that 100% of the concrete required for use in construction the site is to be imported. This approach is very robust and likely to be an overestimate, given that on-site borrow pit search areas have been identified and sized to allow for on-site concrete batching.

The increase in overall traffic flow and HGV flow has not identified any potential significant effects on sensitive receptors along the access route. That notwithstanding mitigation measures are proposed in relation to pedestrian amenity and severance in order to ensure and potential disruption to these effects is sufficiently minimised. Mitigation measures to be adopted in the Traffic Management Plan include:

- As far as reasonably possible, deliveries should be scheduled outside of school opening and closing times;
- Drivers of all delivery vehicles to be made aware during induction of the presence of schools and other amenities within these settlements;
- Drivers to be reminded of the presence of 20 mph temporary speed restrictions on the main roads outside of these schools and that a strict adherence to these speed limits is expected of all wind farm personnel;
- Delivery times will be scheduled to ensure that deliveries do not arrive in a convoy;
- Under no circumstances will HGVs be allowed to lay-up in surrounding roads;
- Timing of the deliveries will be outlined within the Construction Traffic Management Plan (CTMP) to ensure construction vehicles avoid potentially congested networks at peak hours; and
- Communications with local communities should be undertaken for planned activities such as turbine deliveries and concrete delivery days.

With the implementation of the above measure the residual effect on pedestrian amenity and severance is **Not Significant** in terms of the EIA Regulations. The traffic management plan will be developed in agreement with Council and Transport Scotland detailing the exact measures to be implemented during construction of the Proposed Development.

During operation traffic generation would be minimal and within the residual capacity of the road network and no significant effects were identified.

Prior to decommissioning of the Proposed Development, a traffic assessment would be undertaken with the relevant consultees to agree the mitigation implemented via a Decommissioning Traffic Management Plan.

Cumulative effects were assessed and there is sufficient residual capacity on each of the roads within the study to accommodate the predicted increase in traffic which may occur in the cumulative scenario.

All effects on receptors identified within the Study Area have been assessed as minor, save one receptor (effects on road accidents and safety) assessed as negligible, however further mitigation has been provided to ensure the safe usage of the road network throughout construction. The residual effects following implementation of these mitigation measures are predicted to be negligible and thus **Not Significant** in terms of the EIA regulations.

## 14 FORESTRY

Chapter 14 of the EIA Report evaluates the effects of the Proposed Development on forestry.

The Forestry Study Area (FSA) extends to approximately 890ha and consists of privately owned and managed woodlands. The main species are commercial conifers, principally Sitka spruce, which in pure or mixed stands, accounts for approximately 63.8% of the total FSA. Mixed

woodlands account for 1.8% and broadleaf woodland 1.9%. Open ground accounts for approximately 29.9%, with approximately 2.6% of the area felled trees awaiting restock.

A total of 79.3 ha will require to be felled to enable the construction and operation of the Proposed Development. Of this, 71.4 ha will be advanced felling, while the remaining balance is felling which would take place within its planned felling phase.

Replanting will take place in areas not required for the Proposed Development infrastructure. 49.5 ha of forest will be occupied by the Proposed Development permanent infrastructure and associated buffer zones.

As a result of the Proposed Development therefore there would be a net loss of stocked forest area within the FSA of 49.3 ha. Compensatory planting therefore would be required on 48.7 ha in order to comply with the Scottish Government's Control of Woodland Removal Policy. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting is to be agreed with Scottish Forestry (SF), taking into account any revision to the felling and restocking plans prior to the commencement of construction of the Proposed Development.

## **15 SOCIO-ECONOMICS, TOURISM, RECREATION & LAND USE**

Chapter 15 of the EIA Report evaluates the effects of the Proposed Development on socio-economics, land-use, recreation, and tourism.

The assessment considered the potential effects arising from the construction and operational phases of the Proposed Development on the socio-economic, land use, recreation and tourism resources. Existing baseline conditions have been identified from through a desk-based assessment and consultation with relevant stakeholders. This chapter was prepared in consultation with Argyll and Bute Council.

### **15.1 Socio-Economics**

The socio-economic assessment involved a quantitative desk-based assessment to determine the economic and employment effects that the Proposed Development is likely to create within the local, regional and Scottish socio-economic study areas. These effects are defined in terms of:

- Local employment opportunities;
- Skill development and indirect employment opportunities; and
- Regional and Scottish economic opportunities.

During the construction phase, there is anticipated to be a moderate (beneficial) effect on the regional and Scottish economy as a result of capital expenditure in the local area from the Proposed Development; however, as the predicted effects are of a beneficial nature, no mitigation is proposed. Further, a minor (beneficial) effect is predicted for local employment, as well as a negligible effect on skill development and indirect employment.

During the operational phase, a minor (beneficial) effect is anticipated for the local and regional economy, as well as a negligible effect on local employment opportunities.

The Applicant is also committed to the Scottish Government Community Benefit offering of £5,000 per installed megawatt of wind energy per annum, index linked for the operational lifetime of the project, to a Community Benefit Fund. Based on an assumed installed wind energy capacity of 58.5 MW, this will result in an annual value of approximately £292,500 per year. With a 40-year operational per, this will provide approximately £11.7 million in community benefit.

The Applicant has also been involved in a number of community initiatives, including:

- Working closely with Inspire Inveraray and Inveraray Community Council, to successfully facilitate a purchase agreement and fundraise over £240,000 for Inspire Inveraray to buy-out and restore Inveraray Pier; and

- Supporting Inveraray Senior Citizens, initiating and providing financial support to the 'Warm Spaces' project in partnership with Inveraray Community Council and The George Hotel.

While no significant effects are anticipated on socio-economics as a result of the Proposed Development according to the EIA Regulation, the Proposed Development will further contribute to the beneficial economic effect of renewable energy, and associated skills base within Scotland.

## 15.2 Tourism And Recreation

The Site is located within a rural setting with tourism and recreational opportunities based around the natural environment. Within 10km of the Proposed Development, there are 11 core paths, one national cycle network route and 6 recreational/tourist receptors with the potential to experience impacts from the Proposed Development. There are also roughly 69 local accommodation providers within 10km of the Proposed Development.

No other significant effects are anticipated to impact the other tourist and recreational receptors within 10km of the Proposed Development.

## 15.3 Land Use

The predominant land use within the Site consists of private forestry plantation used for commercial purposes with areas of upland moorland also present in the south and east of the Site. There are no core paths within the Site boundary.

The total, permanent, land take of the Proposed Development, consisting of the turbine infrastructure (wind turbine foundations, crane hardstandings, access tracks, substation and battery storage unit) equates to approximately 49.6 ha; however an extra 29.5 ha will be temporarily required during the construction phase which includes the borrow pit, crane assembly areas, turbine blade storage areas and two TCCs which will be reinstated following the construction works. This equates to approximately 2.1% of the total land of the site.

The Site is currently predominantly commercial forestry with areas of rough upland moorland located across the Site and felling will occur irrespective of the Proposed Development. Of the 79.3 ha of felling required for the construction of the Proposed Development, 71.4 ha would be advanced from later phases of the Long-Term Felling Plan.

Of the 29.5 ha of forestry removed as part of the construction, all will be replanted on-site as part of the forest design plan (the majority of which is associated with the habitat management plan). Compensatory planting of 48.7 ha will offset the loss of woodland caused by the Proposed Development infrastructure.

No significant effects are anticipated on land use as a result of the Proposed Development.

## 16 CLIMATE CHANGE AND CARBON BALANCE

Chapter 16 of the EIA Report evaluates the effects of the Proposed Development on climate change and carbon balance resource and presents a Climate Change Impact Assessment. The following assessments are considered in terms of the Proposed Development:

- The influence of the Proposed Development on climate change; and
- A summary of effects on environmental receptors sensitive to climate change.

Following consultation with the Council, vulnerability of the Proposed Development to climate change was scoped out of the EIA as predicted future baseline conditions and identified climate change trends are highly unlikely to affect the operation of the Proposed Development through its lifetime.

Climate projections show that the trends over the 21st Century in the UK are towards warmer and wetter winters, and hotter and drier summers, with an increase in frequency and intensity of extreme weather events. Wind speed, temperature, and precipitation were deemed to be the climate parameters most relevant to the assessment and were summarised in more detail. A

literature review of current greenhouse gas emissions targets and renewable energy strategies was also completed, with Scottish policy highlighting onshore wind as a major focus in meeting the national emissions goals of net zero by 2045, with interim goals of cutting emissions by 75% and 90% by 2030 and 2040 respectively in relation to 1990 levels.

The Scottish Government Carbon Calculator was used to assess the carbon balance of the Proposed Development, and the full results can be seen on the tool's website (<https://informatics.sepa.org.uk/CarbonCalculator/>) using the Reference Number MV20-EO4E-BHQ1.

Overall, the Proposed Development would contribute in up to 58.5 MW of installed wind capacity, as well as including up to 41.4 MW of storage capacity with a Battery Energy Storage System (BESS), which would contribute to the increasing renewable energy generation capacity within Scotland and the UK. The Proposed Development would result in the production of approximately 6,641,482 MWh over its operational lifetime (40 years), displacing approximately 2,869,120 tonnes of fossil-fuel mix generation equivalent carbon dioxide (CO<sub>2</sub>) emissions, and therefore causing a positive environmental effect. Balancing this with the carbon losses associated with the Proposed Development (from turbine manufacture, forestry felling, peatland disturbance, for example), the estimated payback period for the Proposed Development is approximately 4.7 years if it displaces energy generated from grid-mix electricity generation (plus an additional 0.52 years if the BESS capacity is included in the calculations). Over this time, the carbon dioxide emissions of the Proposed Development are cancelled out by the carbon savings, and through the rest of the operational period the Proposed Development would result in a net saving of carbon dioxide emissions, thereby mitigating climate change.

On an individual scale, the Proposed Development alone would have a low magnitude of effect on greenhouse gas emissions and climate change. Given the challenge and international urgency of climate change, climate is considered to have a very high sensitivity to changes in greenhouse gas emissions and therefore the Proposed Development would contribute a moderate positive environmental impact, which is significant under the EIA Regulations. Cumulatively, when considered with the other renewable energy developments currently in Scotland's energy generation pipeline, the magnitude of effect becomes high, and together the developments would have a major positive effect on greenhouse gas emissions and climate change - a significant effect under the EIA Regulations.

A desk-top assessment was also completed to determine the effects of future climate change scenarios on environmental receptors sensitive to climate change over the lifetime of the Proposed Development. Particular focus was given to baseline receptors detailed in the ecology, ornithology, and hydrology Chapters of the EIA Report as they are most sensitive to climate change. Given the relatively limited magnitude of change in climate parameters predicted over the operation of the Proposed Development, there are no anticipated impacts due to climate change on ecological, ornithological, and hydrological baseline receptors predicted over the lifetime of the Proposed Development.

No adverse significant effects are predicted with relation to climate change, and therefore no mitigation beyond that already embedded into the Proposed Development design is proposed. The Proposed Development will have a positive effect on carbon savings, especially when considered with other renewable energy developments, and would contribute to the mitigation of climate change and current greenhouse gas emissions targets for Scotland and the UK to limit temperature rise to 1.5°C.

## 17 OTHER ISSUES

Chapter 17 of the EIA Report evaluates the effects of the Proposed Development on other issues such as shadow flicker, aviation and telecommunication and utilities.

## 17.1 Shadow Flicker

Shadow flicker is an effect that can occur when, at certain locations and times of day, the sun can pass behind the rotors of a wind turbine and cast a shadow. When this shadow, which moves with the rotors, passes over an opening such as a window it can create a flickering effect within the room the window looks into, though this only occurs inside buildings where the rotors are able to cast a shadow across the entire window.

The likelihood and severity of shadow flicker effects depends on a range of factors including the direction, distance and aspect of the building in relation to the turbine, the turbine's height and rotor diameter, and the time of day, local topography and weather conditions. However, it is generally accepted that shadow flicker effects are unlikely to occur at distances greater than 10 rotor diameter from the given wind turbine.

This chapter has, in accordance with national planning policy and consultation with Argyll and Bute Council, identified nearby properties to the Proposed Development where shadow flicker effects might arise. A shadow flicker modelling software package was then used to calculate which properties might be affected by shadow flicker under a worst-case scenario (e.g., clear conditions, no intervening visual screening, and constant turbine rotation). 10 potential receptor properties were identified as being in a location where shadow flicker effects could arise. Four of these were identified as actually experiencing shadow flicker effects, with three of these being classed as significant; Ladyfield Farm, Ladyfield Replacement Dwelling and Ladyfield Barn Conversion.

As significant effects have been identified for 3 properties, Control at Source mitigation measures have been identified in the event that shadow flicker effects are found to be occurring following startup of the turbines. These will likely involve the use of an automated monitoring programme incorporated into the turbines Supervisory Control and Data Acquisition system to shut off the relevant turbine(s) at times and conditions where shadow flicker effects could arise, preventing any potentially significant effects.

No other windfarms have been identified in any locations where their presence could lead to cumulative shadow flicker effects from multiple windfarms.

## 17.2 Aviation

Wind turbines have the ability to reflect radio waves and can therefore potentially interfere with radar systems. Wind turbines can also potentially act as a physical obstruction to aviation activity such a slow- flying aircraft. As such, windfarms are subject to various policy, guidance and regulations designed to avoid or mitigate interference with radar- based air traffic control systems and protect against physical collision with aircraft.

This chapter has, in accordance with the appropriate legislation and policy, considered the potential for these risks to arise, consulted with the relevant bodies, and identified mitigation measures to control these risks. This mitigation consists of ensuring that the appropriate aviation lighting is fitted to the turbines. A search of all the aviation assets, e.g. airfields across Scotland, was undertaken and assets considered likely to be at risk of effects were consulted, among other stakeholders. Consultees included the Energy Consents Unit, Argyll and Bute Council, NatureScot, Highlands and Islands Airports Ltd., National Air Traffic Services Safeguarding, Glasgow Airport, Glasgow Prestwick Airport, and the Defence Infrastructure Organisation/Ministry of Defence. These consultations informed the scope of the aviation lighting assessment, confirmed which aviation assets were not an issue, and confirmed the need for aviation lighting due to the presence of an MOD low-flying area. Following consultation with the relevant stakeholders and the addition of aviation lighting to the design, it has been determined that the windfarm will not create any significant effects for aviation receptors. Since no significant effects have been identified, there are also not expected to be any cumulative effects from multiple windfarms.



### 17.3 Telecommunication And Utilities

Wind turbines have the potential to interfere with electromagnetic signals, such as telecommunications, microwave links and television reception, during their operation as the rotors spin. The degree of interference depends on several factors such as the position of the wind turbines relative to the transmitter and receiver, the size of the turbine and blades, and local atmospheric conditions.

This chapter has, in accordance with the appropriate guidance, consulted with relevant stakeholders to identify where utilities and telecommunications links could potentially be affected by the Proposed Development. These included British Telecom (BT) and the Joint Radio Company (JRC). BT raised no issues with the windfarm layout, and while the JRC initially opposed the original locations of 8, 19, and 22, the design was revised to remove and/ or relocate several turbines, and the JRC confirmed there was no longer any issue.

As such, no significant effects on telecommunications are anticipated. Should any effects arise, this chapter has outlined a procedure for establishing if the Proposed Development is responsible and some potential solutions. Significant effects on utilities have also been identified as unlikely, as these have been accounted for during the site design.

## 18 INTRA-PROJECT CUMULATIVE EFFECTS

Chapter 18 of the EIA Report considers any 'cumulative effects' of the Proposed Development with other developments in the area. The Institute of Environmental Management and Assessment (IEMA) recognises two types of cumulative assessment<sup>22</sup>, which are:

- Intra-project effects - These effects occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. An example of an intra-project effect would be where a local resident is affected by dust, noise and traffic disruption during the construction of a scheme, with the combined result being the potential for a greater impact than each individual effect alone; and
- Inter-project effects – These effects occur as a result of a number of developments, which individually might not be significant, but when considered together could create a significant cumulative effect on a shared receptor and will include developments separate from and related to the project.

Detailed consideration of inter-project effects has been undertaken for all relevant technical assessments and are included in the relevant chapters (Chapters 6 to 17). This Chapter provides an assessment of the potential intra-project effects arising from the Proposed Development.

The methodology for assessing intra-project effects involves the identification of impact interactions associated with the construction, operation and decommissioning phases of the Proposed Development upon one or more receptor. This is undertaken using a qualitative appraisal process.

A receptor with multiple effects which have been individually assessed as being above the level of perceptibility (i.e. minor or above), could still be affected significantly due to the combination of one or more other perceptible effects. The intra-project assessment considers all effects (adverse and beneficial) which have been assessed as minor (which, taken individually, is **Not Significant** in EIA terms), moderate, or major.

The stage 1 assessment presents the perceptible residual effect for each individual receptor. The Stage 2 assessment presents the intra-project cumulative effect for each individual receptor. Topics considered to have the potential for intra-project effects are:

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<sup>22</sup> Institute of Environmental Management and Assessment, 2020. Impact Assessment Outlook Journal Volume 7: Demystifying Cumulative Effects. Thought pieces from UK practice. Available at: <https://www.iema.net/resources/reading-room/2020/07/17/impact-assessment-outlook-journal-volume-7-demystifying-cumulative-effects-july-2020> (Accessed 01/09/2023)

- Chapter 6 – LVIA;
- Chapter 7 – Ornithology;
- Chapter 8 – Ecology;
- Chapter 9 – Archaeology and Cultural Heritage;
- Chapter 10 – Hydrology and Hydrogeology;
- Chapter 11 – Geology, Soils and Peat;
- Chapter 13 – Traffic and Transport;
- Chapter 15 - Land Use, Socio-Economics, Tourism & Recreation; and
- Chapter 16 – Climate Change and Carbon Balance.

Following the consideration of the potential for intra-project effects to arise, no new or different likely significant intra-project effects have been identified above those reported in Chapters 6 to 17.

## 19 SUMMARY

An EIA for the Proposed Development has been carried out in accordance with the regulatory requirements and relevant good practice guidance, which involves the compilation, evaluation and presentation of any potentially significantly environmental effects resulting from the Proposed Development.

The design strategy has created a windfarm development that represents optimum fit within the technical and environmental parameters of the Site. Throughout this process, an iterative approach has allowed the findings of the public consultation exercises, along with the EIA, to guide the evolution of the Proposed Development allowing the design to be modified in order to avoid significant environment effects where possible.

As discussed in the EIA Report, access to the Site will be from the A819. Through embedded design and proposed mitigation, major and significant adverse effects as a result of the construction, operation and decommissioning of the Proposed Development have been avoided; however, some significant landscape and visual effects remain. Given the nature of the Proposed Development, these effects cannot be avoided in their entirety.

The Proposed Development presents an important environmental benefit as a renewable energy generator contributing to Scotland's ambitious renewable energy targets and offsetting fossil fuel energy sources which produce CO<sub>2</sub> and contribute to climate change. In terms of payback periods for the Proposed Development, this equates to approximately between 4.9 years if it displaces energy generated from grid-mix electricity generation (plus an additional 0.51 years if the BESS capacity is included in the calculations). Beyond the payback periods, the Proposed Development will make a positive net contribution to CO<sub>2</sub> emissions savings for the remainder of its operational period.

The renewable industry is an important economic asset to the UK and Scotland and supports a substantial and growing number of employment opportunities. The Proposed Development will further contribute to the positive effects of renewable energy, and associated skills base within the UK and Scotland, and the spend and employment is positive for the local area.

Overall, this EIA shows that, given the iterative design process, and with the committed good practice measures and proposed further site-specific mitigation in place, most significant potential environmental effects associated with the construction and operation of the Proposed Development can be avoided or minimised.

