January 2025

Clune Wind Farm

Design and Access Masterplan



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1 Introduction

Renewable Energy Solution Limited (RES) ('the Applicant') is proposing to submit an application for consent under Section 36 of the Electricity Act 1989 for a wind farm development of up to 26 turbines of up to 200m to tip (the "Proposed Development"), with associated infrastructure. The application site is approximately 3,300 hectares and comprises predominately managed upland grouse moorland with agricultural fields and mixed woodland in lower altitude areas. Clune Burn and Allt Lathach traverse the Site along with other smaller tributaries running into the River Findhorn that lies to the north-west.

Figure 1.1 of the Environmental Impact Assessment (EIA) Report illustrates the location of the Proposed Development and the theoretical visibility available with the introduction of turbines within this part of the landscape.

The Proposed Development would comprise the construction, 40 year operation and subsequent decommissioning of up to 26 turbines; together with wind turbine foundations, low to medium voltage transformers and related switchgear adjacent to each wind turbine, crane hardstand areas adjacent to each wind turbine, underground electrical and communication cabling, a substation compound containing electrical infrastructure, control building, welfare facilities and a communications mast, a battery energy storage system (BESS) and associated compound, access tracks including watercourse crossings, turning heads and site entrances from the public road network. The purpose of the Proposed Development would be to generate electricity from the 26 proposed wind turbines, giving a total maximum installed capacity from all of the wind turbines of around 187.2 MW.

The purpose of this Design and Access Masterplan is to outline the opportunities, constraints and decisionmaking processes that have led to the design of the Proposed Development. The document accompanies the application for consent for the Proposed Development under Section 36 of the Electricity Act 1989, and describes the iterative design process undertaken for the Proposed Development, including the design principles that were established at the outset of the design process and the alternative turbine layouts that have been considered throughout the process.

It was recognised at the outset of the design process that the key matters being visual impacts on a number of surrounding locations in the landscape. It was also understood however, that it would not be possible to remove all visual impacts on these locations, given the height of modern commercial turbines. Indeed, in many instances the visual effects that would arise may be of a similar nature.

2 Energy Legislation and Policy Context

2.1 Overview

The Planning Statement which accompanies the application provides an assessment of the extent to which the Proposed Development accords with planning policies and other material considerations. The following details the relevant energy legislation and policy considered to be of most relevance to the Proposed Development. Further details of the relevant policies and plans can be viewed in **Section 4 and 5 of the Planning and Energy Statement**.

2.2 The Legislative Context

2.2.1 UK Legislation

- Climate Change Act 2008;
- The Climate Change Act 2008 (2050 Target Amendment) Order 2019; and
- Energy Act 2023.

2.2.2 Scottish Legislation

- The Climate Change (Scotland) Act 2009;
- Climate Change (Emissions Reduction Targets) (Scotland) Act (2019); and
- Climate Change (Emissions Reduction Targets) (Scotland) Act (2024)

2.3 UK Energy Policy

- CCC Progress in Reducing Emissions 2024 Progress Report to Parliament; and
- The 29th UNFCCC conference of the parties (COP29) Baku November 2024.

2.4 Scottish Energy Policy

- Onshore Wind Policy Statement (OWPS) 2022;
- CCC Progress in Reducing Emissions 2023 Report to Parliament;
- Serving Scotland Programme for Government 2024-2025; and
- Draft Energy Strategy and Just Transition Plan (2023).

2.5 Statutory Development Plans

- National Planning Framework 4 (NPF4) (2023);
- Highland-wide Local Development Plan (HwLDP) (2012); and
- Highland Council Supplementary Planning Guidance.

3 Landscape and Visual Context

It is also important to acknowledge that landscape and visual effects arising from a Proposed Development are one factor weighed in the overall planning balance, set against the current renewable energy and planning policy context applicable at the time.

3.1 Overview

The Proposed Development is located on elevated open moorland, located approximately 27km south-east of Inverness, and approximately 5.5km south of the village of Tomatin.

3.2 Landscape Context

The Site is situated to the south of Strathdearn, across some elevated hill ground that forms part of the northeastern Monadhliath Mountains. While slightly lower in elevation than the massif to the south-west, the elevation of the Site varies between approximately 450-650m, and encompasses three notable hilltops: Carn Bad an Daimh (648m AOD), Carn Ruighe Shamhraich (573m AOD), and Carn Coire na Caorach (636m AOD). While the more prominent summit of Carn Dubh (750m AOD) lies to the south of the Site.

The hill ground of the Site is limited in extent by the straths associated with the River Findhorn to the west and north and the River Dulnain to the east and south, with the hill ground to the south-west extending further (over 30km) into the Monadhliath Mountain range. The slight depression in the landscape to the north that accommodates the A9 road corridor is also an important landscape element. These straths are generally sparsely settled, apart from where the villages of Tomatin (~6km) and Carrbridge (~8km) provide more residential housing and services for the local area.

Beyond the local area, the upland landscape of the Monadhliath Mountains stretches further to the south, west and north, with Strathspey, separating these mountains from the even larger Cairngorm Mountain range to the south-east of the Site. This broader landscape is also largely unsettled with the exception of parts of Strathspey and some other smaller straths, where the larger settlements of Aviemore (~10km), Kingussie (~18km) and Grantown on Spey (-~21km) are located.

There are a number of existing and consented wind farms scattered across the Monadhliath Mountains, the closest of which are Farr and Glen Kyllachy, located at distances of over 6km to the north-west of the Site. Conversely, there are no wind farms located to the south and east of the Study Area, due to the protection afforded to the Cairngorms National Park (CNP) by national planning policies in recent years.

3.3 Landscape Planning Designations

The site itself is not subject to any national or local landscape designations intended to protect landscape quality or scenery, but it is located relatively close to some designated areas. Of most relevance to the Proposed Development are the nationally designated Cairngorms National Park (CNP) (~0.9km) and the Monadhliath Wild Land Area (WLA)(~0.1km), and the locally designated Drynachan, Lochindorb and Dava Moors Special Landscape Area (SLA) (~5.2km). Each of these landscapes possesses 'Special Landscape Qualities' (SLQs) that contribute towards the integrity of the designation, and therefore part of the design process focussed on ensuring that mitigation was incorporated into the design to minimise and/ or avoid effects on these SLQs.

3.4 Visual Context

While the Craggy Upland landscape is relatively undeveloped, there are a number of settlements, routes and other locations in the surrounding area from where people may gain views of the Proposed Development. These include:

- long distance walking/recreational routes (e.g. National Cycle Route 7 (NCR7) and Core Paths);
- settlements (e.g. the closer proximity settlements of Tomatin, Carrbridge and Nethy Bridge);
- walking destinations (popular mountains of the Monadhliath and Cairngorm Mountains); and
- visitor attractions (e.g. popular attractions in the CNP and Tomatin Distillery).

3.5 Residential Visual Amenity

Residential properties that lie in the vicinity of the Site are considered to be highly sensitive to visibility of the Proposed Development, and a Residential Visual Amenity Assessment (RVAA) has been undertaken as a specific aspect of the visual context to the Proposed Development. Guidance produced by the Landscape Institute (2019) indicates that it is relevant to consider the effects that the Proposed Development may have on views from residential properties that lie within a 2km radius of the nearest turbine in the Proposed Development.

The relatively undeveloped setting of the Site ensures that there are only two properties within this radius of the Site, situated to the west of the Site.

3.6 Topography

The Site inclines generally in a north-east to south-west direction, reaching the highest point of the Site, 750m, at Carn Dubh'Ic an Deoir. The northern edge is bounded by the River Findhorn and the northeastern boundary by the A9. The Site can be approximately divided by four main watercourses that flow north into the River Findhorn: Allt Phris, Clune Burn, Allt Lathach, and Wester Strathnoon Burn.

3.7 Watercourses and Drainage

Clune Burn, Allt Lathach, Wester Strathnoon Burn, and Allt Phris flow through the Site into the River Findhorn that binds the northern edge. The north-eastern edge of the Site is bound by the A9. From its highest point at 750m at Carn Dubh'lc an Deoir, the Site generally falls away in height in a south-west to north-east direction.

3.8 Built Infrastructure

The majority of site does not feature any built infrastructure, except for the access tracks that cross the upland plateau and a hunting cabin near the centre of the site. The U2856 road passes to the north of the site boundary.

The closest operational wind farm to the site is Farr Wind Farm, located approximately 7km to the north west of the Site. Within the wider landscape there are several consented and operational wind farms.

Settlement close to the site is generally sparse. The closest residential property is Easter Strathnoon, approximately 1.7km west of the Proposed Development with further properties north east up the Strathdearn valley. Within the wider landscape settlement tends to be situated in Tomatin within the lower-lying landscape to the north of the site.

The nearest main transport route is the A9 between Inverness (north) and Perth (south), situated approximately 5km to the north east of the main part of the site.

3.9 Forces for Future Change in the Landscape

The main foreseeable forces for change in the landscape surrounding the site relate to changes to the ongoing regenerative forestry planting around the Kinveachy Forest. Further changes may also occur due to changes in agricultural land use and changes to traditional forms of moorland management, which may over time change such as by introducing longer rotations between burning, or changes to vegetation resulting from re-wetting or rewilding which encourage greater habitat diversity.

Within the wider landscape, there are several commercial wind energy developments, consented, in planning or being considered at scoping which, if consented, would influence the existing character of the wider landscape surrounding the Proposed Development. These include Kyllachy Glen, approx. 5km to the north east and Highland, approximately 10km to the south, both currently in scoping.

In addition to the consented or proposed developments within the vicinity of the site, it is widely recognised that climate change will have an impact on the future character of the Scottish landscape through changes to weather conditions that will in turn result in changes to vegetation that will affect the intrinsic character of the landscape.

4 Design Process

The Proposed Development has taken into consideration a range of technical, environmental, planning and commercial factors. These factors have been considered from the initial site selection of the 2022 scheme through the design process to the final layout of the Proposed Development. This section describes this design process and design considerations applicable to the Proposed Development.

4.1 Site Selection

Feasibility work was undertaken by RES, beginning with the work undertaken for the 2019 scheme, drawing on specialist consultant input. The appraisal work undertaken at the feasibility stage covered a range of different issues, including:

- Wind speed data;
- Distance to private dwellings;
- Natural and built heritage constraints and Archaeology;
- Slope, peat and soil constraints;
- Nearby wind farms;
- Grid connection distances and costs;
- Site access;
- Landscape and visual considerations;
- Ecology and ornithology;
- Local development plan policies;
- Electromagnetic links and utilities;
- Aviation and MOD tactical training areas; and
- local knowledge and other information about surrounding undesignated parks and tourist attractions etc.

The site was progressed to the full EIA and project design stage during the preparation of the 2024 scheme for reasons that included the following:

- Initial desk-based assessments and a review of wind resource suggest that there are high wind speeds;
- There are no planning policies which, in principle, preclude wind farm or renewable energy development;
- Good access to grid infrastructure; and
- The site is not located within any area of national environmental importance, and it was considered that a wind farm could be developed on the site with limited environmental effects.
- The site enables adequate separation to be achieved from the nearest residential properties;
- The site is large enough to accommodate sufficient and viable generating capacity; and
- The topography of the site is compatible with the construction of a commercial scale wind farm.

4.2 Design Approach

4.2.1 Identification of constraints

Constraint information obtained from the baseline survey and extensive field survey and consultation (through the EIA scoping process) was collated and mapped to establish the potentially developable area for the siting of wind turbines within the site. The land within the site covered by the following constraints was taken out of the developable area where turbines could be sited:

- Landscape designations and visual amenity and proximity of residential properties;
- Archaeological and cultural heritage assets;
- Sensitive fauna and habitats;
- Ornithology;
- Peat and soils;
- Watercourses, private water supplies and sensitive surface water features;
- Topography and ground conditions;
- Public road accessibility;
- Recreational and tourist routes;
- Acoustic;
- Shadow flicker;
- Aviation and defence constraints; and
- Presence of utilities.

Each of the on site constraints were combined into a composite map to aid the design process, as shown on Figure 2.1 of the EIA Report.

4.2.2 Consultation

Consultation with key technical stakeholders has been integral to the design and development of the Proposed Development, identification of existing environmental constraints and sensitivities, and the identification and assessment of the likely environmental effects of the Proposed Development.

4.2.3 Technology, Size and Scale

The Scottish Government's Onshore Wind Policy Statement (2022) challenges the industry to develop the first 'subsidy free onshore wind farm' which is only possible if the Levelised Cost of Electricity (LCOE) of any development is low enough. Essentially the LCOE can be established by a number of factors:

- Wind speed and wind flow across the site to determine the capacity factor;
- The cost of turbines;
- The cost of grid connection for the site;
- The potential for the highest wind speeds to be utilised most effectively;
- Improved project economics by creating the opportunity for larger rotor sizes to be delivered to site via main road networks;
- Efficiencies created by utilising existing tracks on site; and
- Close proximity to existing grid infrastructure.

4.2.4 Efficiency Modelling

Efficiency modelling was undertaken at key stages throughout the design evolution process to ensure commercial viability of the scheme. For turbines to work effectively, they must be spaced relative to the expected prevailing wind direction. If they are too close together, the energy will be taken out of the wind at the front edge of the array and will create turbulent air for the next row and so on through the array. This is known as the wake effect.

4.2.5 Public Consultation

Although not a statutory requirement for S36 applications, the Applicant has undertaken two rounds of public consultation in the form of public exhibition events held in the local area. The first event took place at scoping stage in June 2024, with the second event held in September 2024 following the Design Freeze milestone. Both events were held at the Strathdearn Hub in Tomatin, approximately 5.5km south of the Site and Carrbridge Village Hall, approximately 15km east of the Site. Photomontages were presented from a range of local viewpoints and attendees were invited to give verbal and written feedback on the day, or submit comments through the project website. Full details of the consultation events and feedback received can be found in the Pre-Application Consultation (PAC) Report which accompanies the application.

In relation to design, the majority of respondents (58%) were "neutral" towards the preliminary design of the Proposed Development, with a further 14% saying they were "happy" with it. The reduction of the number of turbines from 12 to 10 (subsequently reduced to 26 turbines at design freeze) was welcomed and viewed as a positive. Attendees were pleased that ornithological surveys had been undertaken and influenced the site design and positioning of turbines.

4.2.6 Design Considerations

During the EIA process the following design considerations were determined, in addition to the site based constraints listed at paragraph 3.4 above. This section explains how these considerations have influenced the design through the layout iteration process.

Constraints analysis was undertaken using Geographical Information Systems (GIS). This allowed basemapping to be overlaid with spatial data, such as environmental constraints and protected sites, and projectspecific data to provide the project team with a means of interrogating environmental and project details in a single place at technical meetings and design workshops.

4.3 Technical and Environmental Considerations

4.3.1 Landscape and Visual Considerations

The design strategy has been guided by the following landscape and visual considerations:

- to take account of relevant national, regional and local policy and guidance;
- to respond to the landscape and visual issues identified by statutory consultees through the process of consultation;
- to ensure that the design and layout of the turbines expresses the function of the proposed development as an energy generator as clearly as possible by avoiding complexity and visual confusion (particularly from key viewpoints);
- to ensure the turbine layout relates to the landscape character of the Site and its surroundings;
- to ensure the turbine layout relates to the scale of the landscape in which it is located, and is set back from smaller scale neighbouring landscape character types;

- to ensure a visually balanced composition of turbines is achieved against the landscape, skyline and in association with other cumulative windfarm developments;
- to mitigate effects on the closest national landscape designations, which lie to the south-west, south, and south-east of the Site, and local landscape designations, which lie to the north-east of the Site;
- to mitigate effects on the residential visual amenity of the residents of the area around the Site;
- to explore and identify an aviation lighting scheme which both satisfies the requirements of aviation policy and reduces the visual effects of such lighting at nearby receptors; and
- to respond to the various other environmental and technical constraints identified within the site.

4.3.2 Ecology and Ornithology

Ecological surveys have been carried out across the site and surrounding area from 2021 to 2024, including a Phase 1 and NVC habitat survey, bat surveys, protected species surveys and a fisheries survey. Sensitive and protected ecological features and appropriate buffers have been avoided. Sensitive habitats within the site have been avoided where possible, or where unavoidable the potential impacts reduced as far as practicable. Areas of priority peatland habitat have been avoided where possible, and the recommended habitat standoff distances from blade swept path to key habitat features have been incorporated into the design.

Ornithology surveys have been carried out across the site and surrounding area during 2021 to 2024, including flight activity surveys; breeding bird surveys and wintering bird surveys. Suitable buffers were considered during the design evolution process and areas have been avoided owing to the presence of sensitive bird populations.

Access track layout has been designed to maximise the use of existing tracks. Floating tracks to be used where peat depth > 1m, where appropriate.

New watercourse crossings have been avoided in the design of the access track layout as far as possible.

Minimum 50m buffer will be implemented between turbine blade tip and edge habitats.

4.3.3 Archaeology and Cultural Heritage

The layout design of the Proposed Development has undergone a number of revisions to avoid direct impacts on known heritage assets.

Direct impacts would comprise any groundworks or other ground disturbance undertaken as part of the construction phase of the Proposed Development. Specific activities which have the potential to cause impacts through the construction phase of the Proposed Development include the excavation of wind turbine foundations, substation compounds, crane hardstands, borrow pits and cable trenches. This will also include the construction and maintenance of access tracks, laydown areas and working compounds. Refer to Chapter 3: Proposed Development Description for a more detailed description of the proposed construction activities.

Where ground disturbance takes place, these activities would remove, truncate or change any heritage assets located within the area of ground disturbance. Damage to heritage assets caused in this way would be permanent and irreversible. Throughout the design process the scheduled monuments within the site have had a 250m buffer placed around them to embed the mitigation through design and to ensure no direct physical impacts would occur to these assets.

4.3.4 Hydrology, Hydrogeology, Geology, peat and soils

Consideration has been made to the impacts on watercourses and the necessary 50m buffers have been applied throughout the design process.

Project design has been informed by an understanding of the ground conditions, which has evolved from baseline studies including an engineering site visit and peat depth surveys. The design has been iterated to minimise potential impacts on deep peat and areas of steeper slope to minimise disturbance.

A Phase 2 peat survey was undertaken and has confirmed the presence of localised pockets of deep peat within the western area of the site. The Phase 2 survey data has been used to support extensive design work to avoid areas of deep peat (>1.0m) and peatland in near natural condition. Turbine 26 of the scoping layout was removed was from the finalised design as it was situated in peat over 2m deep and could not be moved to avoid. Further refinements of the turbine locations and orientation of the infrastructure was implemented to avoid peat over 1m deep.

The Proposed Development has been designed to avoid areas of deeper peat reducing the habitat loss of more sensitive, higher quality habitats, such as blanket bog, wherever possible.

The Proposed Development has been designed to avoid any areas of ground that may be subject to peat slide risk where possible. The ground condition factors that were considered in the design of the Proposed Development were:

- identification of peat depths in excess of 0.5m to minimise incursion, protect from physical damage, minimise excavation and transportation of peat, reduce potential for peat instability, and minimise potential soil carbon loss;
- identification of slope angles greater than 4° to minimise soil loss and potential instability; and
- avoidance of areas where initial peat stability concern was identified where possible to avoid areas with possible instability issues and associated indirect effects on surface water.

Proposals for peatland restoration have been included in the outline Habitat Management and Biodiversity Enhancement Plan (Technical Appendix 7.5), seeking to restore areas of degraded peatland habitats.

4.3.5 Traffic and Transport

Construction Traffic Management Plan (CTMP) which identifies measures to potentially reduce number of construction vehicles, consider construction programming, routing and identification of an individual with responsibility for managing traffic and transport effect.

4.3.6 Acoustic

The Proposed Development has been designed to reduce the potential for noise effects by avoiding locating wind turbines within 1.050 m of residential properties or 750 m of financially involved properties.

4.3.7 Aviation and Radar

Consideration has been made to the effects of wind turbine visibility on aviation radars.

4.3.8 Shadow Flicker

With an allowance for 100m micro-siting, there are no inhabited houses within 1,882m (11-rotor diameters $(1,882 = 11 \times 162) + 100m$ as shown in Figure 12.2); and thus, no flicker is predicted.

4.3.9 Utilities

The Proposed Development has been designed taking into consideration the location of all identified utilities.

5 Design Evolution

5.1 Landscape and Visual Design Response

The final design for the Proposed Development seeks to respond to the specific characteristics and qualities of the landscape and how these are experienced.

A key component of the design progression has been the consideration of landscape and visual effects. This process was informed by OPENs' own observations and experience of key landscape and visual issues relating to wind energy development and the pre-application consultation responses.

The output of the landscape and visual review was advice regarding where further design iteration to the scheme could further address the areas of potential landscape and visual concern. This included discussion of the relative merits of both potential turbine deletion and reduction in turbine height from the initial Scoping scheme and through the evolution of the scheme.

A summary of the key findings of the landscape design review, and how the feedback subsequently influenced the development is set out below:

- The removal of wind turbines from north-eastern parts of the Site so that the Proposed Development is set further back from the A9 corridor and Strathdearn, and also to reduce the horizontal extent of the wind farm in views from the CNP;
- The movement of western turbines into more recessed locations beyond the threshold of Strathdearn between Carn Bad an Daimh and An Sochach to moderate effects on the smaller scale strath;
- The movement of turbines north-east beyond the boundary of the Monadhliath WLA to avoid direct impacts on the WLA and reduce indirect impacts upon its wild land qualities; and
- The movement of easternmost turbines in a western direction to increase their separation from the CNP;
- Micrositing the remaining turbines so that they form a coherent design from key locations;
- Limiting turbine heights to 200m blade tip heights to respond to the scale of the underlying landform; and
- A reduced aviation lighting scheme has been agreed with the CAA to reduce the effects of lighting on night-time views from the surrounding area.

5.1.1 Cairngorm National Park

The Proposed Development is located entirely outwith the CNP, with the nearest turbine lying approximately <1km to the west of the CNP boundary. The great majority of the CNP will gain no visibility of the Proposed Development, and where there is theoretical visibility, this is generally contained to the north-western parts of the Park, and at lower elevations often limited in terms of the number of visible turbines.

As a result of the iterative design process, landscape and visual effects of the Proposed Development on the CNP have been reduced for the following reasons:

The Proposed Development lies outwith the CNP and will have no direct effects on its physical attributes, so that all effects would be perceived.

The ZTV indicates that theoretical visibility of the Proposed Development from the CNP is restricted to very limited, and generally peripheral, areas, with the majority of CNP having no visibility of the Proposed

Development. This ensures that effects will be contained and, as a result, very extensive areas will remain unaffected.

The Proposed Development will be seen in a part of the setting to CNP that is already affected by operational wind farms, most notably Glen Kyllachy and Farr, ensuring that the Proposed Development will not introduce a new external influence on the CNP.

The assessment of effects on the Special Landscape Qualities (SLQs) of the CNP in the LVIA has indicated that significant effects will arise on three of the 42 SLQs, with all other SLQs having a not significant effect. This represents a very limited effect upon part of the Park.

5.1.2 Drynachan, Lochindorb and Dava Moors Special Landscape Area

The Drynachan, Lochindorb and Dava Moors SLA is located approximately 5.3km to the north-east of the Proposed Development. Theoretical visibility of the Proposed Development is extremely limited across the majority of the SLA, with only a few areas predicted to experience visibility of the Proposed Development. Importantly, the containing hills (such as Carn Glas-choire and Carn na Tri-yighearnan) provide landform screening to the vast areas of rolling moorland across the interior of the SLA, which lie primarily to the east and west of Dava. As a result, the assessment of effects on the SLQs of the SLA in the LVIA has indicated that significant effects would not arise on any of its SLQs.

5.1.3 Strathdearn

Strathdearn is situated immediately to the west and north-west of the Proposed Development. Its smaller scale relative to the larger rolling hills of the Monadhliath Mountains increase its sensitivity to wind farm development. While its relatively rural character also makes it susceptible to the introduction of smaller scale development, such as the BESS. A key design consideration has therefore been to set back turbines and associated infrastructure from the upper slopes of the strath, so that they are ideally screened by landform, or, if visible, appear recessed beyond its edges. While the BESS has been located on a more visually contained spur of the hills, so that it is afforded considerable landform screening from the strath floor. As a consequence, while the LVIA predicts some localised significant effects to receptors in the strath, visual effects on the closest residential properties have been minimised.

5.1.4 Proximity to Residential Properties

Figure 5.2-1 of the EIA Report shows the location of residential properties covered by the ZTV that lie within a 2km radius of the Application Layout. A RVAA that evaluates the likely effects of the Proposed Development on residential visual amenity on the two relevant properties is included as part of the LVIA.

The purpose of the RVAA is to identify any properties where the magnitude of change could result in an 'overbearing' or 'dominant' visual impact on the amenity of a residential property, referred to in the Landscape Institute Guidance as the 'RVAA threshold'. The 'threshold' infers a level of impact which would become a material planning consideration.

The RVAA indicates that neither property included is likely to experience a significant visual effect as a result of the Proposed Development. Of these two properties, one would have a low magnitude of change, and one would have no change to their views. In accordance with the methodology, a Step 4 Assessment is therefore not required for either property, and effects would not reach the Residential Visual Amenity Threshold.

Design iteration has been instrumental in ensuring that no effects on views from residential properties will cross the threshold such that they would become a material planning consideration.

5.1.5 Aviation lighting

The Civil Aviation Authority (CAA) requires that 'en-route obstacles' at or above 150 m above ground level are lit with visible lighting to assist their detection by aircraft. As the turbines in the Proposed Development are 200m to tip height there is a requirement for the turbines to display medium intensity 'steady' (e.g. not flashing) red aviation lights (emitting 2,000 cd or 200 cd) at night. These would be fitted to the nacelles of the turbines in the Proposed Development and mid- level tower lights would not be required. All nacelles would also be fitted with infra-red lighting, which is not visible to the human eye and is therefore not relevant to visual impact. While the light source on nacelles is steady, the lights may appear to flicker on and off with blade rotation when the turbine blades pass between the lights and the observer, dependent on wind direction and the position of the observer. The impacts of visible aviation lighting of the Proposed Development are assessed and illustrated in the LVIA.

As per the reduced lighting scheme agreed with the CAA, it is proposed that only 10 of the 26 Application Layout turbines will be fitted with lights on their hubs. A lighting scheme was not produced for the Scoping Layout, and it is therefore not possible to draw direct conclusions as to the benefits arising from design iteration. However, it may be assumed that more than 10 of the 27 scoping turbines would have required lighting, and the reduction in turbine numbers to 10 is therefore beneficial.

5.1.6 Landscape and Visual Design Response Illustrations

The design iteration has also made a considerable difference to the appearance of the Proposed Development at a number of key sensitive viewpoints. Examples of this are shown in the illustrations on the following pages. These illustrations include baseline photographs overlain by wirelines of the Initial, Scoping and Final turbine layouts from five of the key design viewpoints, which are considered to be of particular importance in the design process. These are:

- Viewpoint 1 (C1121 Road (near Glenkyllachy Lodge));
- Viewpoint 4 (C1121 Road (near Kyllachy House);
- Viewpoint 5 (A9 (Slochd));
- Viewpoint 7 (Tomatin); and
- Viewpoint 17a (Meall a' Bhauchaille

Viewpoint 1 - C1121 Road (near Glenkyllachy Lodge)







.

Viewpoint 4 - C1121 Road (near Kyllachy House)







Viewpoint 5 - A9 (Slochd)







Viewpoint 7 - Tomatin



Viewpoint 17 - Craiggowrie







5.2 Traffic and Transport

5.2.1 Abnormal Load Route

Due to the abnormal size and loading of wind turbine delivery vehicles, it is necessary to review the public highways that would provide access to the Site to ensure they are suitable and to identify any modifications required to facilitate access. A preliminary abnormal indivisible load (AIL) route survey is included in EIA Chapter 10.

The following abnormal loads delivery route has been identified:

The route commences at Inverness Harbour. This was highlighted by RES at the outset of the project as the preferred Port of Entry (PoE) for deliveries

- Following delivery to the harbour, the turbine components can be stored at until an appropriate delivery time is scheduled to the site.
- From the port the AIL will travel along Stadium Road and onto the A9. From here AIL will travel south along the A9 towards Aviemore. AIL access to the minor road leading to the Site junction will be taken from the A9 turning right onto the U2856 junction. AIL traffic will cross the Highland Mainline railway, before entering the site by means of a new access junction. Figure 3.6 presents this route to Site from Inverness.

Transport Scotland (TS) have confirmed that only the transport of the blade component is required to be assessed at planning stage, but that assessment of the tower and nacelle components will be required prior to any deliveries.

A more detailed study would be carried out by the turbine supplier should the Proposed Development be granted consent. As the turbine delivery vehicles are abnormal indivisible loads, a Special Order is required under The Road Vehicles (Authorisation of Special Types) (General) Order 2003.

5.2.2 Raigbeg Railway Bridge

The proposed abnormal load route will see turbine vehicles having to cross the Raigbeg railway bridge (U 28560010) located on the U2856. Initial discussions have been undertaken with THC and it has been made apparent that this bridge would not be suitable for abnormal vehicles.

There is currently weight restrictions and no recent surveys on the structural integrity of the bridge. Vehicle barriers have been installed as it is assumed that the masonry parapets are ineffective.

From discussions with THC structural engineer, it was advised that if this bridge was to be used, further assessment would be required to ensure the structure has sufficient capacity for the proposed loads.



Figure 1 - Raigbeg Bridge looking north

Given the unknown nature of the bridge and the ongoing discussion within the local community on the future for the bridge, RES began to explore a number of possible options, including:

- 1. Overbridging existing structure;
- 2. Upgrading existing bridge;
- 3. Bridge replacement; and,
- 4. Parallel bridge.

Following continued dialogue with the Council, it is proposed that RES would replace the existing Raigbeg bridge with a new structure should the Proposed Development be granted consent. It is anticipated that the new bridge will be in the same approximate location as the existing bridge but that its alignment will likely be altered to accommodate abnormal construction traffic whilst also removing a liability from the council and Network Rail. Formal approvals/agreements will be obtained in cooperation with THC and other stakeholders should planning permissions for the Clune Wind Farm be granted.

5.2.3 Site Access Junction

All traffic entering the Site would use the proposed Site entrance shown in Figure 3.5 of the EIA Report. The construction method for site entrances would generally be as follows:

- Traffic management to be installed;
- Topsoil shall be removed and carefully stockpiled;
- New drainage shall be installed taking care to ensure that existing drainage will not be compromised;
- Road pavement works to be completed to the design requirements; and
- Line marking, signage, fencing, visibility splay clearance and vehicle restraint systems required as part of the design will be installed.

5.2.4 Internal Access Tracks

Approximately 27.3km of access track will be constructed for the Proposed Development as shown in Figure 1.3. This comprises 20.8km of new track construction and 6.5km of upgrade to an existing access track construction. The access track layout has been designed in order to maximise the use and upgrade of existing tracks as far as reasonably practicable.

For construction of access track, alternative methods would be utilised for different areas of the site, depending on site specific conditions. For each method, the access track running width shall be approximately 5m and will be constructed of compacted crushed stone. Access track widths may also be wider for short sections such as at passing places, at sharp bends or turning heads and junctions. Only one full Abnormal Indivisible Load (AIL) turning head have been proposed as presented on Figure 1.3. Full AIL turning heads are required to facilitate both forward and reverse delivery of wind turbine blades to each wind turbine location. This is required when constructing a rotor at ground level to perform a full rotor lift. Alternatively, wind turbine blades can be lifted individually to the hub, a single blade lift. Should the latter single blade lift be adopted then the full AIL turning heads can be reduced or removed.

It is expected that all access tracks would be excavated whereby overlying soil or peat material would be removed to a suitable formation strata from which the access track would be built in compacted stone.

Where peat depths are greater than 1m deep, it is generally more efficient to "float" the access track over peat using geogrid.

6 Biodiversity

The decline in the populations of important species and habitats around the world and closer to home in Scotland has become a critical issue that is inextricably linked to climate change. The concept of biodiversity enhancements involves improving the resilience of the planet and societies to halt and reverse nature loss. It has become a strong movement in recent years, with leaders from governments, businesses, and civil society committing to action. A nature positive approach can enrich biodiversity, improve landscape character, help tackle climate change through carbon sequestration, purify and protect vital water sources, and provide natural flood management by slowing flood water, drawing on the power of nature itself to provide the solution. By incorporating nature-based solutions into the Proposed Development, these scalable strategies can be utilised to help achieve Scotland's climate and biodiversity targets, while simultaneously enhancing the livelihood of local people and their resilience to the impact of climate change.

The Proposed Development itself will displace hundreds of thousands of tonnes of carbon from the atmosphere each year, helping to tackle climate change. Furthermore, due to the scale of the development and the available land area — of which only a proportionately small amount will be taken up by the construction of wind turbines — there is an opportunity for the project to bring a net-positive impact to the local area's biodiversity by supporting alternative land uses including the existing agricultural uses and habitat creation and enhancements.

This will also sequester carbon from the atmosphere and build resilience into the area to protect against some of the adverse impacts of climate change such as flooding – one of the issues raised during the public consultations.

As stated in Section 9: Hydrology, Hydrogeology and Peat of the EIA Report for the Proposed Development, two new water crossings will be constructed (WX03 and WX10, Figure 9.1) to improve existing structures. These will facilitate the improvement of water quality and flow, and enable the potential upstream migration of fish to areas of previously identified good quality fish habitat and improve foraging opportunities for otter.

The enhancements set out in the Outline Habitat Management and Biodiversity Enhancement Plan (Technical Appendix 7.5) will have wide ranging benefits to the habitats and species recorded both on and off site, as well as more broader ecosystem services such as improving water quality. The proposed peatland restoration measures aimed at regenerating vegetation in degraded and disturbed areas, together with the proposed deer control measures will benefit breeding moorland birds such as red grouse, waders (lapwing, golden plover, curlew, snipe), skylark and meadow pipit through improvements in habitat quality. Reducing the numbers of legally controllable predators such as foxes, stoats, weasels and crows will also benefit these and other wader species in terms of increased breeding productivity both onsite and in the breeding grounds immediately to the north of the Proposed Development, along the River Findhorn.

The planting of native Scots pine woodland has the potential to benefit regionally important bird species such as capercaillie, crested tit and Scottish crossbill. This is particularly significant given the nearby tracts of native Caledonian forest nearby potentially providing connectivity with other populations. The establishment of native broadleaved woodland (birch / rowan / hazel / aspen on the drier slopes and willow / alder woodland in wetter parts of the Site) will provide suitable habitat for a diverse. The proposed regenerative planting aligns the Cairngorms National Park "Capercaillie Emergency Plan" which has set a long-term vision to prioritise the landscape scale restoration of pinewood habitat to safeguard capercaillie. In order to achieve this, the park wants to establish an additional 10,000 hectares of natural regeneration by 2045. The proposed habitat improvements adjacent to the Kinveachy forest associated with the Proposed Development will be of great benefit to this target.

7 Social Wealth Building and the Community

The Proposed Development is seeking to maximise the benefits of renewable energy developments for local people and the local economy, and achieves this through the following:

- community benefit funding, generating funding of around over £0.9 million annually;
- offering a Local Electricity Discount Scheme;
- proposing shared ownership options;
- prioritising local content;
- investing in University of the Highlands and Islands (UHI);
- supporting local estates through rental income arrangements;
- enhancing local tourism assets; and
- delivering green hydrogen for local businesses.

A total project investment of £837.4 million with £458.3 million in the region (60km) and £160.3 million in the Highlands. Over the lifetime of the wind farm, total expenditure associated with these contracts is expected to support:

- £53.1 million GVA and 506 job years in the Highlands
- £85.8 million GVA and 930 job years across Scotland
- £346.6 million GVA and 1,277 job years in Scotland^
- £461 million GVA and 2,468 job years in the UK^

7.1 Other Benefits

Access to green spaces, and to other local areas was raised as an important local issue during community consultation. As such, the proposal includes access to the non-motorised user paths in the Strathdearn region and a limited number of parking facilities located at the proposed new site entrance. The aim of this benefit is to restore and enhance connectivity between and round the Strathdearn valley. In particular, short circular walks and connections linking Moy, Tomatin and Slochd utilising existing footpaths and non-motorised user networks was highlighted as an intervention that would enhance the local area. The plan below shows the local access routes being promoted by the Strathdearn Community Council.



8 Conclusion

This Design and Access Masterplan explains the approach to design of the Proposed Development and illustrates how environmental effects have been avoided or reduced as far as reasonably possible. A detailed explanation of environmental effects resulting from the Proposed Development is set out in the EIA Report that accompanies this application and sets out the mitigation measures to avoid or reduce the effects whilst also introducing a number of environmental, economic and societal improvements as indicated in the masterplan figure included within the appendix.

The design of the Proposed Development is the result of a considered design process that has evolved over the course an iterative design process. The final 26 turbine proposed layout has been designed to respond to character and scale of the landscape, in addition to other environmental and technical constraints. The associated infrastructure has also been sited sympathetically so as to limit its influence on the surrounding landscape.

Appendix

