Chapter 3: Description of the Development

Contents

3 Description of the Development

3.1 Introduction

3.1.1 This Chapter describes the elements that constitute the Proposed Development which is subject to this EIA. It sets out the way in which the Proposed Development would be constructed including a description of the wind farm layout, its proposed scale and the associated infrastructure. It also provides a description of the construction, operation and decommissioning[1] phases and associated main activities.

3.1.2 The layout of the Proposed Development is shown on Figure 3.1, with an off-site turning circle being located at Inchbae Lodge, approximately 5km north of the site shown on Figure 3.2. This will allow Abnormal Indivisible Load (AIL) Vehicles to turn around and approach the site from the north. A number of best practice construction measures are considered to be inherent and 'embedded' in the development and design of the Proposed Development, which are therefore considered present at the outset of the environmental assessment. These measures, as well as further information on construction methods to be employed, are provided in the outline Construction and Environmental Management Plan (CEMP) (Technical Appendix 3.1). The final CEMP would be secured via a planning condition.

3.2 Proposed Development

Scheme Overview

3.2.1 The wind farm site is centred on National Grid Reference (NGR) E-242260, N-862627 and covers an area of approximately 1,003 hectares (ha) in total. The off-site turning circle is centred on NGR E-239892, N-869390 and covers an area of approximately 2ha. The characteristics of the site are described in Chapter 2.

3.2.2 The Proposed Development would comprise of nine three-bladed horizontal axis turbines (of which five are up to 200 m blade tip height, and four are up to 180 m blade tip height) with a combined rated output in the region of 64.8 MW[2].

3.2.3 The key components of the Proposed Development (as shown on Figures 3.1 and 3.2) which would be constructed in accordance with the Construction (Design and Management) Regulations 2015 including detailed design and relevant Health and Safety requirements, comprise the following:

- up to nine variable pitch (three bladed) wind turbines, five with a maximum blade tip height of up to 200 m, the remaining four with a maximum blade tip height of up to 180 m;
- turbine foundations (approximately 25-30 m diameter) and a crane hardstanding area which includes areas for blade, tower and nacelle storage (the hardstanding is approximately split 3,700 m^2 for the crane pad and 3,750 m^2 for the laydown, totalling 7,450 m^2) at each wind turbine;
- on-site signage;
- up to 11.6 km of new on-site access track with a typical running width of 6 m (wider on bends and junctions) and 3.3 km of upgraded existing access track (widened from 4 m to 6 m) and associated drainage and 7 turning heads;
- watercourse crossings;
- small areas of tree felling at the site entrance, temporary construction compound (TCC) 1 and in the sections of track a short distance to the south of TCC1 and from watercourse crossings WX05 to WX16;
- passing places (number and locations to be confirmed as part of detailed design);
- batching plant (to be located in main temporary construction compound);
- underground cabling and electrical infrastructure alongside the access tracks to connect the turbine locations, with the on-site electrical substation;
- one on-site substation compound (up to 150 m x 80 m) which would accommodate a control building and the wind farm substation;

[1] Note whilst decommissioning is explained here, this phase has not been assessed in full as discussed in Chapter 6.
[2] Based the V162 candidate turbine used for technical assessments. A competitive procurement process would be undertaken, should consent be forthcoming and prior to construction, to select the final turbine that would be installed on-site.

- three construction compounds, the main compound (up to 80 m x 65 m) directly beside the substation and 2 smaller compounds located on the initial access track, TCC1 (80 m x 30 m), and across from Turbine 1, TCC2 (60 m x 40 m);
- search areas for up to 3 borrow pits (covering approximately 91,300 m^2); and
- an off-site turning circle for AIL vehicles, located at Inchbae Lodge.

3.2.4 Indicative details of the proposed turbines, foundations, new and upgraded access tracks, hardstandings, watercourse crossings, electrical infrastructure, borrow pits, construction and substation compound are shown on Figures 3.5 to 3.14.

3.2.5 In total, up to 31.9 ha of land would be used permanently for the Proposed Development and upgraded sections of access tracks. The extent of the Proposed Development permanent infrastructure represents approximately 3.18 % of the area of the site.

3.2.6 The Proposed Development has been designed with an operational life of up to 50 years at the end of which it would be decommissioned, or an application may be submitted to repower or extend the life of the site.

3.2.7 As noted in Chapter 2, the Proposed Development has been designed to accommodate as far as possible the existing site characteristics including ground conditions, hydrology, topography, environmental constraints, landscape and visual amenity and technical factors such as telecommunications links.

3.2.8 Each chapter of this EIA Report takes an appropriate and topic specific approach to assessment of the Proposed Development. The EIA Report provides a worst-case assessment for each discipline and presents enough information for consultees and the decision makers to comment on and determine the application. Each technical chapter has set out the degree to which the Proposed Development has been assessed to provide a clear and robust assessment that allows for the necessary flexibility in relation to turbine procurement and detailed design of the Proposed Development, post-consent. Chapter 5 provides further detail on the approach to assessment.

Access to the Site

3.2.9 The proposed abnormal load route required to transport turbine components to the site is shown on Figure 13.1 and is based on an assessment from the Port of Invergordon or Port of Nigg on the Cromarty Firth, via the B817 to the A9 and then along the A835 which is a trunk road, to make a turn at Inchbae Lodge approximately 5 km north of the site. Abnormal loads will then head back along the A835 to the start of the new onsite access track at Black Water Falls northeast of Garve (as set out on Figure 3.1).

3.2.10 The proposed abnormal load route has been assessed and verified, identifying where permanent or temporary road upgrades would be required (Figure 13.1 and Technical Appendix 13.1).

3.2.11 The site would be accessed directly from the A835 via a new access junction as set out in Figure 3.3. The access junction will be designed to accommodate deliveries of AILs and turbine components, as well as being suitable for general construction traffic.

3.2.12 Full detail of the assessment of effects on the road network is provided in Chapter 13.

Off-site Turning Circle

3.2.13 A turning circle would be located off-site at Inchbae Lodge on the A835 approximately 5 km north of the Site shown on Figure 3.2 to allow Abnormal Indivisible Load (AIL) Vehicles to turn round and approach the site from the north.

3.2.14 The layout of the turning circle would comprise of stone tracks of a similar composition to those at the main wind farm (see Section 3.5) along with an asphalt junction (Figure 3.4) and an area for laydown of materials.

Grid Connection

3.2.15 The grid connection point for the Proposed Development has been confirmed by the network operator as being at Scottish and Southern Electricity Networks (SSEN) Corriemoillie substation, located approximately 5.5 km west of the site. An application was submitted in April 2022 to SSEN/National Grid Electricity System Operator (ESO) for the potential grid connection, with an aspired connection date of 2030.

3.2.16 The precise route of the grid connection cabling has not yet been determined by SSEN and its effects are not identifiable/assessable as the design has not yet been confirmed, and is subject to the decision of the network operator.

3.2.17 The grid connection will require separate consent under Section 37 of the Electricity Act 1989 and the grid connection application would be made by SSEN who is responsible for the transmission and distribution of electricity in the north of Scotland.

Operational Life

3.2.18 It is anticipated that the Proposed Development would have an operational life of up to 50 years. At the end of the operational life, the Proposed Development would be decommissioned, or an application may be submitted to repower the site. Details of infrastructure removal and restoration are provided in summary in Table 3.3.

3.3 Embedded Mitigation

3.3.1 A key benefit of the EIA process is the opportunity it gives to integrate environmental considerations into the careful, iterative design of a project. Embedded mitigation proposals are those mitigation measures which are inherent to the Proposed Development and are integral to, and should be included in, consideration of the application.

3.3.2 Throughout the design evolution, embedding mitigation has been a feature of the process that has led to the final layout of the Proposed Development; and this embedded mitigation therefore forms part of the Proposed Development which is assessed.

3.3.3 During the construction phase of the Proposed Development, effects will be further managed in line with the Construction (Design and Management) CDM Regulations 2015 and as part of the detailed design process taking into account the adoption of good practice (including Pollution Prevention Guidelines (PPGs) and replacement Guidance for Pollution Prevention (GPPs), supported by robust project management and an Environmental Clerk of Works (EnvCoW). The role of the EnvCoW is defined in the outline CEMP (Technical Appendix 3.1).

3.3.4 Reference to good practice and standards, guidelines and legislation relied upon in the assessment methodology are referred to within each of the individual specialist topics in Chapters 7 to 16. Such environmental measures are also included in the outline CEMP (Technical Appendix 3.1), the final version of which would be secured via planning condition.

Design Principles

3.3.5 A number of design principles and environmental measures have been implemented and incorporated into the Proposed Development as standard practice as described in Chapter 2.

3.3.6 One of the key approaches to the design has been a desire to maximise the potential energy yield of the site, whilst respecting environmental constraints. Further details are set out in Chapter 2 and the Design Statement (DS) submitted with the application.

Micrositing

3.3.7 During the construction of the Proposed Development, there may be a requirement to microsite elements of the Proposed Development infrastructure. This is an important measure which allows for further minimisation of environmental effects, under the supervision of the Environmental Clerk of Works (EnvCoW) who is responsible for overseeing and managing the implementation of environmental policies and procedures on a construction site, and for ensuring that the construction activities comply with relevant environmental legislation, regulations, and best practices. The EnvCoW would be on-site during construction in certain areas / months to be agreed with The Highland Council (THC) and NatureScot and in line with proposals set out in the outline CEMP (Technical Appendix 3.1).

3.3.8 It is proposed that a 100m micrositing tolerance for turbines and all other infrastructure would be applied to the Proposed Development (so long as infrastructure does not move into the watercourse buffers or other environmental constraints identified on-site, see Figure 2.2). Within this distance, any changes from the consented locations of greater than 50m would be subject to approval of the EnvCoW and other relevant consultees (e.g. THC, SEPA, NatureScot) as required and in consideration of other known constraints. It is anticipated that the agreed micrositing distance is likely to form a planning condition accompanying consent for the Proposed Development. The assessment of the Proposed Development has assumed a 100 m horizontal micrositing allowance.

3.4 Pre-commencement Works

Consent Prior to Commencement of Construction

3.4.1 Prior to commencing construction on the site, it may be necessary for the Applicant to obtain a number of other statutory authorisations and consents to enable the Proposed Development to be implemented. Where relevant, these are covered in the technical chapters of this EIA Report and the outline CEMP (Technical Appendix 3.1).

3.5 Construction Phase

Construction Timetable

3.5.1 It is anticipated that construction of the Proposed Development would commence in 2028 and would last approximately 23 months. Construction would include the principal activities listed within the indicative construction programme as provided in Table 3.1.

Table 3.1 - Construction Programme

Construction Activity	Month Number																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mobilisation & compounds																							
Access & Site Tracks																							
Crane Hardstanding																							
Turbine Foundations																							
On-site Cabling																							
Substation civils work																							
Substation construction																							
Turbine Delivery																							
Turbine Erection																							
Commissioning & Testing																							
Site Reinstatement																							

Construction Employment

3.5.2 The number of people employed during the construction period would vary depending on the stage of construction and the activities ongoing on site. Staff numbers would start relatively low as site enabling works progress. Numbers would ramp up quickly as tracks reach turbine locations and foundations start to get built out. It is anticipated that the peak workforce requirement would be up to 40 construction staff, peaking at up to 90 at a point where the civils and electrical works are overlapping with turbine erection teams. Staff numbers would then drop as civils teams demobilise and turbine erection and testing is completed.

Construction Hours

3.5.3 The construction working hours for the Proposed Development would be 08:00 to 19:00 Monday to Friday and 08:00 to 13:00 on Saturdays. It should be noted that out of necessity some activities, for example abnormal load deliveries, concrete deliveries during foundation pours and also the lifting of the turbine components, may occur outside the specified hours stated. These activities would not be undertaken without prior approval from THC. The principal contractor would keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern, all under the terms of a traffic management plan as set out in Chapter 13.

Construction Environmental Management Plan

3.5.4 An outline CEMP is provided as Technical Appendix 3.1. In acknowledgement that the CEMP is a live document that would evolve throughout the construction phase of the Proposed Development, only the principles of the CEMP are outlined at this stage. It is anticipated that submission and approval of a more detailed CEMP, following site investigation works and further detailed design, would be the subject of a condition should consent for the Proposed Development be forthcoming.

Site Preparation and Establishment

3.5.5 Site preparation works would include the following key tasks, some of which would be undertaken concurrently:

- set up of welfare facilities;
- formation of the construction compound areas;
- establishment of borrow pits; and
- establishment of new section of access tracks and upgrading of existing tracks.

Temporary Construction Compounds

3.5.6 Three temporary construction compounds would be required for the duration of the construction phase as shown on Figure 3.1.

3.5.7 The larger (main) construction compound would have a footprint of up to 80m x 65m (5,200m²) and would likely contain the following:

- temporary modular building(s) to be used as a site office;
- welfare facilities;
- parking for construction staff and visitors;
- reception area;
- fuelling point or mobile fuel bowser;
- secure storage areas for tools; and
- waste storage facilities.

3.5.8 The access track construction compound and northern satellite construction compound would each have a footprint of up to 60m x 40m (2400m²).

3.5.9 Figure 3.5 illustrates a typical construction compound although the layout may differ depending on-site topography and constractor requirements. Crane hardstanding areas, along with the temporary construction compounds would be used for laydown during construction.

3.5.10 The buildings (e.g welfare facilities, storage areas, officed and fuelling point) that form part of the temporary construction compounds would be removed at the end of the construction phase.

Borrow Pits

3.5.11 Three borrow pit search areas have been identified on-site, to provide a total of approximately 147,345 m³ of material to construct the Proposed Development. A Borrow Pit Assessment is included as Technical Appendix 3.2.

3.5.12 Quarrying of these borrow pits to the fullest extent would provide a greater volume of rock than would be needed for the construction of the Proposed Development, but the identified search areas are sized on a precautionary basis so as to allow for the current uncertainty of the quality of the rock at these locations. It is the aim of the Applicant to source as much of the rock as possible from on-site, as this would minimise the need to transport large quantities of aggregate.

3.5.13 For purposes of the traffic and transport assessment, it has been assumed that all aggregate would be imported to site. This will provide a worst-case assessment of traffic movements as a result of the Proposed Development. It is however likely that a high proportion of aggregate would be sourced from the on-site borrow pits.

3.5.14 Further information is provided in Appendix 3.2 Borrow Pit Assessment.

Access Tracks

3.5.15 Approximately 15.0 km of on-site access tracks would be required to provide access to the wind turbines, substation, and construction compound (Figures 3.1 and 3.5). A total of approximately 11.6 km of new track would be created and approximately 3.3 km of existing track would be upgraded.

3.5.16 Existing access tracks on site have been upgraded wherever possible to minimise the amount of new access track required. Figure 3.1 shows which tracks would be new and which would be upgraded.

3.5.17 Tracks would be unpaved and constructed of a graded local stone with a typical running width of 6 m (wider on bends and at junctions). A minimum of five construction traffic passing places would be required, in addition to crane hardstandings. Additionally, seven turning heads would be constructed. It is proposed that the majority of the stone required for the construction of the tracks and hardstanding areas would be won from the identified borrow pits.

3.5.18 Figure 3.6 provides a typical illustration of the design of an on-site track and floating track; the design of tracks would take account of recognised good practice guidance as noted in Technical Appendix 3.1.

3.5.19 Site visits have confirmed that the majority of the site has relatively shallow peat or peaty soils, with isolated deeper pockets of peat present within the site as presented on Figure 10.2.3a-f. Where possible, the turbines and sections of new tracks have been positioned to avoid areas of deepest peat.

3.5.20 It is proposed that track formation would be by cut and fill or by a cut operation where there is a slope. Where the peat layer is more than 1 m in depth and where there is a side slope the peat would be removed

to an appropriate horizon. Any tracks located in deep peat will be 'floated' and constructed to good practice guidance.

3.5.21 The tracks would be left in place following construction to provide access for maintenance, repairs, and eventual decommissioning of the Proposed Development. At the end of the construction period, the edges of all new tracks would be restored using materials stripped from excavations.

3.5.22 There are 16 No. Watercourse crossings to be adopted across the Proposed Development, as shown on Figure 3.1. 11 new watercourse crossings would be required with five existing crossings associated with existing tracks which may need to be upgraded subject to structural analysis at the detailed design stage of the Proposed Development. A typical watercourse crossing is shown on Figure 3.7.

Felling

3.5.23 The Scoping Report identified there were small areas of woodland which may be affected by the proposed main access route into the Proposed Development. The design of the Proposed Development shows access is to be taken along existing and new tracks which will result in very low woodland removal as shown on Figure 3.8. It has been determined that a full analysis of the woodland within the site boundary is not warranted in this instance. Instead, the focus will be on the felling required along the access route and subsequent loss of woodland area.

3.5.24 A 10 m buffer was applied around each item of infrastructure such as the temporary compound TCC1 and an indicative 30 m corridor was applied to relevant sections of access track to be used for component delivery and construction purposes. The woodland was assessed to identify those areas which will require to be felled for the construction and operation of the Proposed Development.

3.5.25 The assessment has identified the area of woodland to be removed for the access is 1.2 ha. There would be no restocking and this therefore represents the net woodland loss for the Proposed Development. In order to comply with the Scottish Government's Control of Woodland Removal Policy, compensatory planting will be required. 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 plans prior to the commencement of operation of the wind farm. An outline Nature Enhancement Management Plan (ONEMP) is provided in Technical Appendix 8.5. This describes areas of native tree planting and riparian planting which exceed the area of felling required for the Proposed Development (see Figure 8.12), and which may therefore be suitable as compensatory planting.

Lighting

3.5.26 Artificial lighting may be required during the construction phase to ensure safe working conditions, during periods of limited natural light. Examples include vehicle and plant headlights, construction compound lighting, floodlights and mobile lighting units, to be used around specific construction activities. It is intended that the type of lighting would be non-intrusive (e.g. directed towards works activity and away from site boundary), to minimise impact on local properties and any other environmental considerations.

3.5.27 Turbines will be fitted with aviation obstacle lighting to meet the requirements of both the Civil Aviation Authority (CAA) and the Ministry of Defence (MOD). As the turbine tip heights exceed 150m they are within the scope of Air Navigation Order 2016 (ANO) Article 222 for aeronautical obstacle lighting.

3.5.28 The Applicant proposes a reduced lighting scheme, in which only the nacelles of four turbines of the Proposed Development would be lit; T1, T4, T7 and T9. Intermediate tower lights will not be required. Turbines of the wind farm would be lit by using 2,000 candela visible red lights. The scheme has been agreed with the Civil Aviation Authority (CAA).

3.5.29 The lights would be capable of being dimmed to 10% of peak intensity when the visibility as measured at the wind farm exceeds 5 km. More information is contained in Appendix 15.1.

Materials Sourcing and Waste Management

3.5.30 For construction, the Proposed Development would require a range of materials (e.g. stone for access tracks, the temporary site compounds and the substation compounds). Excavated material from the turbine bases and access tracks would be used on-site for restoration/reinstatement.

3.5.31 A Site Waste Management Plan (SWMP) would be developed for implementation during construction, as discussed in the outline CEMP (Technical Appendix 3.1). This outlines the material requirements and waste generation during construction and how the Applicant intends to consider the management of these aspects.

3.5.32 Due to the remoteness and access to site, it is intended that a batching plant will be located in the main construction compound.

3.5.33 Water would be required for welfare facilities, construction safety methods and to dampen tracks during dry weather and an abstraction license (which are granted by SEPA under the Water Environment (Controlled Activities (Scotland) Regulations 2011) is not anticipated to be required for the activity.

Wind Turbines

3.5.34 The Proposed Development is for nine three-bladed, horizontal axis wind turbines. The proposed turbine locations are shown on Figure 3.1 and the coordinates for each are provided in Table 3.2.

Table 3.2 - Turbine Coordinates and Specifications

Turbine No	Easting	Northing	Tip Height (m)	AOD (m)*
1	242405	863606	200 m	445.81
2	242635	863089	200 m	430.33
3	242971	862610	200 m	437.21
4	243503	862480	200 m	445.00
5	243545	862021	180 m	404.19
6	242013	863031	180 m	439.96
7	242176	862444	180 m	425.88
8	242610	862159	200 m	432.80
9	242940	861769	180 m	399.53
* subject to micro-siting				

3.5.35 The exact model of the wind turbines to be installed as part of the Proposed Development would be selected through a competitive procurement process and would be dependent upon technology available at that time. This EIA Report has considered the use of an indicative turbine type shown on Figure 3.9 and the technical assessments have been based on the parameters of the Vestas V162.

3.5.36 It is anticipated that the turbines would be rated at approximately 7.2 MW, depending upon the installed capacity of the selected turbines. At present, given the candidate turbine used for assessment for the proposed wind farm, the output would be in the region of 64.8 MW.

3.5.37 The turbines would each incorporate a tapered tubular tower and three blades attached to a nacelle that would house a turbine generator and other operating equipment e.g. a gear box. The turbines would be non-reflective pale grey or white semi-matt or a finish agreed with THC.

3.5.38 For the purposes of the assessment, it is assumed that each turbine would be served by an electrical transformer that would be located internally.

Foundations and Crane Hardstandings

3.5.39 Turbine foundations would be designed to accommodate the final choice of turbines and to suit site specific ground conditions. The final design specification for each foundation would depend on the findings of detailed ground investigation of the land on which each turbine would be located. An illustration of a typical turbine foundation is provided on Figure 3.10.

3.5.40 The turbines are likely to have gravity foundations laid using reinforced concrete to a diameter between 25 and 30 metres.

3.5.41 The depth of the foundation excavation would depend on the need to reach suitable ground. Excavations would be on average approximately 4 - 4.5 metres deep. The sides would be graded back from the foundation and battered to ensure that they remain stable during construction.

3.5.42 The turbines would be erected using mobile cranes brought onto the site for the construction phase. A crane hardstanding would be built adjacent to each wind turbine and is likely to have a footprint of up to 30 m x 80 m and 1 m in depth. The actual crane pad design and layout would be determined by the turbine supplier according to their preferred erection method. An indicative design, considered to be the worst-case in terms of size, has been considered for the purposes of this assessment and is provided on Figure 3.11. The crane hardstanding (permanent) would also be utilised as a laydown area. Additional temporary laydown areas for wind turbine components and crane lifting would be located adjacent to the main hardstanding and would be reinstated post-construction.

3.5.43 Soils that are excavated during construction would be set aside for backfilling and restoring any temporary areas or used during the decommissioning process.

On-site Substation Compound and Electrical Cabling

3.5.44 The Proposed Development would be connected to the electricity network via an on-site substation control building located within the substation compound (up to 150 m x 80 m) at NGR NH418622. The compound would include an area for car parking and High Voltage (HV) equipment, such as transformers and circuit breakers. An indicative on-site substation compound is shown on Figure 3.12.

3.5.45 The main control building would measure up to 31 m x 44 m with a pitched roof which would be up to 12 m high at its tallest point. It is proposed that the buildings would have a cement render with a wet dash finish and the final external finishes would be agreed with THC. A typical control building elevation is shown on Figure 3.13.

3.5.46 Underground power cables would run along the side of the access tracks in trenches from each of the turbines to the substation. Indicative cable trench arrangements are provided on Figure 3.14.

3.6 Site Restoration

3.6.1 Soils would be used for reinstatement works associated with access tracks, cable trenches, turbine foundations, crane hardstandings, borrow pits and the temporary construction areas. The upper vegetated turfs would be used to dress infrastructure edges and to reinstate the surface of restoration areas. It is anticipated that most of the soil resources within areas directly affected by construction activities would be able to be stored and reinstated as close as possible to where they were excavated in accordance with best practice; so that the site would be restored with minimal movement of material from its original location. It is not anticipated that any excavated material would leave the site.

3.6.2 Further detail on site restoration would be provided within the CEMP, an outline of which is provided in Technical Appendix 3.1.

3.7 Operation and Maintenance Phases

Duration

3.7.1 The Proposed Development would have an operational life of up to 50 years from the first commissioning (export to the electrical grid).

Electricity Generation

3.7.2 The turbines would start to generate electricity at wind speeds of around 3 m/s (6.7 mph). Electricity output would increase as the wind speeds increase up to a maximum of around 13 m/s (29.1 mph), when the wind turbines would reach their maximum capacity. The turbines would continue to operate at maximum capacity up to wind speeds of around 19 m/s (42.5 mph). Above 19 m/s the turbines would operate at a reduced output up to wind speeds of around 25 m/s (55.9 mph). Above 25 m/s the turbines would cut-out and automatically stop as a safety precaution.

3.7.3 The Proposed Development would provide enough electricity to power the domestic electricity needs of approximately 56,642 average UK households per annum.

Maintenance

3.7.4 The Proposed Development would largely be controlled and managed remotely, however there would be technicians on site regularly and it would be maintained throughout its operational life via servicing at regular intervals. It is anticipated that there would be approximately four annual service visits per turbine by a service team of up to three people. Inspections of high-voltage equipment and general site safety are expected to be carried out monthly. Faults would be responded to as required, most likely by a team of two technicians.

3.7.5 This team would either likely be employed directly by the developer or by the turbine manufacturer. Management of the Proposed Development would typically include turbine maintenance, health and safety inspections and annual civil maintenance of tracks, drainage and buildings. Turbine maintenance includes the following:

- annual civil maintenance of tracks and drainage;
- scheduled routine maintenance and servicing;
- unplanned maintenance or call outs;
- HV and electrical maintenance; and
- blade inspections.

3.7.6 It is anticipated that the Proposed Development would employ up to three local members of staff during its operational period.

Outline Nature Enhancement Management Plan (NEMP)

3.7.7 An outline NEMP is provided in Technical Appendix 8.5. The outline NEMP identifies opportunities for restoration and enhancement of blanket bog which will enhance the biodiversity, flood storage and carbon sequestration/storage of the site. Further enhancement works are proposed which would include improvement in the quality of a habitats on-site (with subsequent benefits for wildlife like invertebrates), improving opportunities for nesting birds and roosting bats, improving habitat connectivity through the site, and providing benefits to aquatic wildlife through riparian tree planting. These measures would have multi-faceted benefits for biodiversity and would improve habitat connectivity and networks in, and through, the site

Community Benefit and Shared Ownership

3.7.8 Should the Proposed Development gain consent, a Community Benefit Fund would be established for communities in the local area as set out within the PAC Report. This is offered on the basis of an annual, index linked payment per MW of installed capacity at the Scottish Government recommended rate at the time of commissioning the Proposed Development. At present the recommended rate is £5,000 per MW.

3.7.9 Based on the expected output of 64.8MW, the Community Benefit Fund will deliver £324,000 per annum for the local community, or £16.2 million over the 50 year life of the Proposed Development.

3.7.10 The Applicant intends to engage with the local communities regarding the structure and operation of the Community Benefit Fund during (but separate to) the consenting and pre-construction process.

3.7.11 Should there be an interest for local groups or organisations to have a financial interest in the wind farm, the Applicant would be willing to engage locally in order to bring this forward. This would offer local community groups the ability to invest in and acquire a share of the project. The local communities would see a return on investment through profits produced throughout the lifetime of the project. Local Energy Scotland can provide independent advice and support to communities interested in the shared ownership opportunity. Further details of the consultation effort associated with and response from communities is provided in the PAC Report accompanying the application. For more information see Chapter 14 Socio-economics and Appendix 14.1 Socio-economic Benefits Report.

3.8 Decommissioning Phase

3.8.1 At the end of its operational life, which would be defined by condition on the grant of any consent, the Proposed Development would be decommissioned unless an application is submitted to extend the operational period or to repower the site. The decommissioning period would be expected to take up to one year.

3.8.2 The ultimate decommissioning protocol would be agreed with THC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. This would be done through the preparation and agreement of an interim Decommissioning Restoration and Aftercare Strategy (DRAS). Financial provision for the decommissioning would be provided. It is anticipated that the DRAS would be the subject of a planning condition.

3.8.3 The final detailed DRAS would reflect the relevant legislation, and best practice current at the time of decommissioning and restoration.

3.8.4 Table 3.3 sets out the potential decommissioning requirements for each element of the Proposed Development. These would be outlined further in the interim DRAS and then updated in the detailed DRAS.

Table 3.3 - Decommissioning Requirements for Infrastructure

Element	Decommissioning Requirement
Turbines	Turbines would be dismantled and removed from site. Turbine components would be dismantled on-site using standard engineering techniques similar to those used for the original installation. The re-use or recycling of components would be prioritised, this would include exploration of any viable second hand turbine market. Turbine oils or any other oils would be removed from the site and disposed of appropriately.
Turbine Foundations	Top soil material that has revegetated the foundations would be excavated first and temporarily stored for re-use following partial removal of foundations. The top 1m of the turbine foundation would be removed and disposed of appropriately. This is considered preferential to removing all infrastructure, due to the potentially lower environmental impacts associated with excavating, processing and removing concrete from the site. The excavated foundation would be reprofiled with soil and reseeded.
Crane Hardstandings	Top soil material that has revegetated the crane hardstandings would be excavated first and temporarily stored for reuse following partial removal of crane hardstandings. The top 1m of the crane hardstandings would be removed and disposed of appropriately. This is considered preferential to removing all infrastructure, due to the potentially lower environmental impacts associated with excavating, processing and removing aggregate from the site. The excavated hardstandings would be reprofiled with soil and reseeded. Recovered geogrids and geotextiles would be disposed of appropriately. All granular materials would be excavated and removed from the site, for re-use where practicable.
Access Tracks	Access tracks would be left in-situ, which would reduce potential environmental impacts associated with potential sediment migration into watercourses as a result of removing all tracks.
Off-site turning circle	Tracks would be left in situ, however would be top soiled and seeded to reduce visual impacts.
Underground Cabling	These are underground and therefore all cables would be made safe and left in-situ. This is considered preferential to extracting cables from the cable trenches due to the

Element	Decommissioning Requirement
	potentially greater environmental impacts associated with excavating, processing and removing the cable from the site.
Substation compound	All equipment from within the substation compound would be removed from site and either reused, recycled or disposed of appropriately. Oils or lubricants from the compound would be removed and disposed of appropriately. The control building, and related infrastructure, would then be demolished and all materials would be reused, recycled or disposed of appropriately.
Substation compound foundation	The top 1m of the compound foundations would be removed and disposed of appropriately. The excavated hardstandings would be reprofiled with soil and reseeded.

3.9 References

Scottish Government (2023). National Records of Scotland: Mid-Year Household Estimates. Available at: statistics.gov.scot..

UK Government (2015) The Construction (Design and Management) Regulations 2015. Available at: https://www.legislation.gov.uk/uksi/2015/51/contents/made.