Chapter 3: Description of the Proposed Development

Contents

3 Description of the Proposed Development

3.1 Introduction

3.1.1 This chapter describes the elements that constitute the Proposed Development which is subject to this EIA Report. 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 phases and associated main activities.

3.1.2 This chapter is supported by Figure 3.1-3.26 which show the detail of the Proposed Development infrastructure. General arrangment block plans show the design of the Propose Development, including the conceptural drainage design in Figure 3.8-3.16. Figures 3.19-25 show the existing topography, access tracks, watercourses and any other existing infrastructure. The chapter is also supported by the following appendix:

- Technical Appendix 3.1: Construction and Environmental Management Plan (CEMP).

3.1.3 The layout of the Proposed Development is shown on Figure 3.1. A number of best practice construction measures are considered to be inherent and 'embedded' in the design and construction 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 CEMP (Technical Appendix 3.1). The final CEMP would be secured via a planning condition.

3.2 Proposed Development

Overview

3.2.1 The Site is centred on BNG 213806, 678515 and covers an area of approximately 700.6 ha in total. The characteristics of the site are described in Chapter 2.

3.2.2 The Proposed Development would comprise of five three-bladed horizontal axis turbines up to 200 m blade tip height and two three-bladed horizontal axis turbine up to 180 m blade tip height with a combined rated capacity of over 50 MW; and a battery energy storage system (BESS) with a rated power of approximately 23 MW giving a total site capacity of over 73 MW.

3.2.3 The key components of the Proposed Development (as shown on Figure 3.1 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:

- Seven variable pitch (three bladed) wind turbines, five each with a maximum blade tip height of up to 200 m and two up to 180 m;
- It is anticipated that three of the turbines (T1, T3 and T7) will be fitted with visible aviation warning lights;
- turbine foundations (up to 25 m diameter) and a crane hardstanding area and a temporary blade laydown area, tower and nacelle storage (approximately 4,313m^2) at each wind turbine;
- BESS with a rated power of approximately 23 MW and energy storage capacity of 53 MWh
- up to 6.4 km of new on-site access track with a typical running width of 5 m (wider on bends) and 3.8 km of upgraded existing access track (widened from 2.5 m to minimum 5 m & wider on bends) and associated drainage, three turning heads and nine passing places;
- underground cabling and electrical infrastructure along access tracks to connect the turbine locations, and the on-site electrical substation;
- one on-site substation compound (40 m x 25 m) which would accommodate a control building for the Scottish and Southern Energy Networks (SSEN) substation and the wind farm substation;
- one temporary secondary construction compound (50 m x 100 m);
- one main construction compound for the Applicant (50 m x 100 m);
- clearance of 32.94 ha of on-site forest with 21.68 ha to be fell for peatland restoration and restocking of approximately 13.57 ha.

3.2.4 Indicative details of the proposed turbines, foundations, BESS, new and upgraded access tracks, hardstandings, electrical infrastructure, construction compounds and substation compounds are shown on Figures 3.1 to 3.26.

3.2.5 In total, up to 10 ha of land would be used permanently for the Proposed Development including the upgraded sections of access tracks. The extent of the Proposed Development permanent infrastructure represents approximately 1.4 % 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 extend the operational period or repower the Site.

3.2.7 As noted in Chapter 2, the Proposed Development has been designed to reflect the existing site characteristics including ground conditions, hydrology, topography, environmental constraints, heritage assets, landscape and visual amenity and technical factors such as potential noise immisions.

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 4 provides further detail on the approach to assessment.

Forestry

3.2.9 The proposed access track for the Proposed Development is located within privately owned areas of commercial forestry. There are two separate landowners. Landowner 1 has four commercial woodland properties; Ardnadam, Dalinlongart, Dunloskin and Glenkin which make up the Sandbank Long Term Forest Plan (LTFP). Landowner 2 has the Auchamore Forest. Both forests are shown on Figure 12.1. The forest is comprised largely of commercial conifers with small areas of mixed broadleaves and open ground.

3.2.10 A total of 32.94 ha will require to be felled to enable the construction and operation of the Proposed Development. Permanent felling of 3.85 ha is required with a further 21.68 ha proposed for to be felled to restore peatland. The Applicant is proposing to restock approximately 13.57 ha of appropriate compensatory planting and is seeking locations with within and outwith the Site.

Access to the Site

3.2.11 The proposed abnormal load route required to transport turbine components to the Site is shown on Figure 10.1 and is based on an assessment from King George V Docks on the River Clyde via the M8 and M898 to cross the Erskine Bridge where the abnormal load will join the A82 westward to Tarbert. Loads will then join the A83 using a new bypass at Tarbert before joining the A815 to head south towards Dunoon. Loads will turn right onto the B836 and proceed westbound. After approximately 2 km, loads will turn into a new site access junction which is shown on Figure 3.26. Here the route mainly follows an existing forestry track into the Site. The full abnormal load route is shown on Figure 10.1.

3.2.12 Full detail of the assessment of effects on the road network is provided in Chapter 10.

Grid Connection

3.2.13 The grid connection point for the Proposed Development is subject to confirmation by the network operator. It is current anticipated that the Proposed Development will connect to Dunoon substation.

3.2.14 The precise route of the grid connection cabling has not yet been determined and its effects are not identifiable/assessable because it has yet to be designed and an application has not yet been made.

3.2.15 The grid connection application will be made by SSEN who are responsible for the transmission and distribution of electricity in Argyll and Bute.

Operational Life

3.2.16 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 extend the operational period or repower the site. Details of infrastructure removal and restoration are provided in summary in Table 3.3.

3.3 Embedded Mitigation and Good Practice

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) 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/Ecological Clerk of Works (ECoW). The role of the ECoW 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 5-14. 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. 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.

Micrositing

3.3.6 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 ECoW 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 ECoW would be on-site during construction in certain areas / months to be agreed with Argyll and Bute Council and NatureScot and in line with proposals set out in the outline CEMP (Technical Appendix 3.1).

3.3.7 It is proposed that a 100 m micrositing tolerance of 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 (Figure 2.2) or to a location where noise immissions exceed the noise limits at neighbouring receptors stated in Chapter 11). Within this distance, any changes within 50 m from the consented locations would be under the supervision of the ECoW, any changes within 50-100 m of the consented locations will require approval of Argyll and Bute Council in consultation with NatureScot, Scottish Environment Protection Agency (SEPA) and Historic Environment Scotland (HES). It is anticipated that the agreed micrositing distance may 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

Tree Felling

3.4.1 Prior to the construction period, felling of the trees as outlined on Figure 12.3 and paragraph 3.2.10 would be required. Once felling has been undertaken, detailed site ground investigations would inform the final detailed design.

3.4.2 The Proposed Development would require approximately 32.94 ha of forest to be cleared as set out on Figure 12.3 in advance of the construction period. This is to facilitate construction of the turbines and associated infrastructure as well as some additional felling classified as 'advanced felling' which is felling to minimise wind blow by leaving isolated stands of trees. Permanent felling of 3.85 ha is required for the construction and operation of the Proposed Development. A further 21.68 ha would be felled to restore peatland as part of the biodiversity enhancement strategy (BES). A total of approximately 13.57ha of appropriate compensatory planting is proposed. The Applicant is seeking locations both within and outwith the Site. Full details are provided in Chapter 12.

Consent Prior to Commencement of Construction

3.4.3 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

3.5.1 The construction phase for the Proposed Development will consist of the following principal activities:

- construction of temporary security compound and car parking within the construction compound;
- the working of the temporary borrow pits;

- construction of the substation compound;
- the upgrading/creation of the Site access tracks, including passing places, turning heads, junctions and drainage;
- construction of turbine foundations and crane hardstandings at each turbine location;
- excavation of trenches and laying of electrical and control cables adjacent to the Proposed Development tracks connecting the turbines to the control building;
- delivery to Site and erection of turbines (including the installation of aviation warning lighting);
- testing and commissioning of Site equipment including turbines; and
- site restoration and implementation of habitat enhancement and management measures.

Construction Timetable

3.5.2 It is anticipated that construction of the Proposed Development would commence in 2028 and would last approximately 18 months. Construction would include the principal activities listed within the indicative construction programme as provided in Table 3.1.

3.5.3 Many of the Proposed Development's construction operations will be carried out concurrently, although predominantly in the order identified, reducing the overall length of the construction programme. Site restoration will be programmed and carried out to allow the restoration of disturbed areas as early as possible and in a progressive manner. An ECoW will be on-site during construction in certain areas/months as agreed with Argyll and Bute Council.

3.5.4 Anticipated construction traffic deliveries at the Site per month during the construction phase, assuming the principal activities listed above, is set out in Chapter 10. This shows that the peak of construction occurs in Month 4. A Construction Traffic Management Plan (CTMP) will be implemented to minimise disturbance on the local road network during construction.

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
Mobilisation & compounds																		
Access & Site Tracks																		
Crane Hardstanding																		
Turbine Foundations																		
On-site Cabling																		
Substation civils work																		
Substation construction																		
Turbine Delivery																		
Turbine Erection																		
BESS Construction																		
Commissioning & Testing																		
Site Reinstatement																		

Cumulative Wind Farm Construction

3.5.5 Within the vicinity of the Proposed Development, it is noted that the Inverchaolain Wind Farm has been proposed to the west of the Proposed Development and access to this site is proposed via the A83. Other developments located along the A83 may also come forward into the planning system during the consideration of this application.

3.5.6 Should the Proposed Development be undergoing construction at the same time as any other development using the same transport routes, it is acknowledged that this would require coordination between developers and contractors in order to mitigate any transport effects. Mitigation measures for this eventuality would be contained within the Construction Traffic Management Plan (CTMP), expected to be agreed, via condition, with Argyll and Bute Council and Transport Scotland prior to the commencement of construction.

Construction Employment

3.5.7 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. Staff numbers would then drop as civils teams demobilise and turbine erection and testing is completed. As construction of the Proposed Development is only anticipated to take 18 months, employment during construction has been calculated as Person Years of Employment (PYE), which allows a comparison to be made between full time permanent and fixed duration employment and is calculated based on the construction expenditure as evidenced in Renewable UK (2015) and taking into consideration indexation to 2025 prices. The construction of the Proposed Development is therefore anticipated to create up to 482 PYE, 58 of which will be in Argyll and Bute and up to 174 in Scotland as a whole when taking into consideration, induced and indirect effects, this increases to 316 PYE in Scotland of which 90 would be in Argyll and Bute.

3.5.8 In addition to the direct employment opportunities, the construction of the Site will bring benefits to local business such as in the supply of materials or services for construction and in accommodation for workers and catering. Further information on construction employment is provided in the Socio-Economic Benefits Report which accompanies the application.

Construction Hours

3.5.9 The construction working hours for the Proposed Development would be 07:00 to 19:00 Monday to Friday and 07:00 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 Argyll and Bute Council. 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 10.

Construction Environmental Management Plan

3.5.10 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 a condition of the consent for the Proposed Development.

Site Preparation and Establishment

3.5.11 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;; and
- establishment of new section of access tracks and upgrading of existing tracks.

Construction Compounds

3.5.12 Two construction compounds would be required for the duration of the construction phase as shown on Figure 3.1.

3.5.13 The main construction compound will be permanent and after construction will house the BESS. Each construction compound is likely to 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.

3.5.14 Crane hardstanding areas, along with the construction compound, would be used for laydown during construction.

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

Access Tracks

3.5.16 Approximately 10.2 km of on-site access tracks would be required to provide access to the wind turbines, substation, and construction compound. Where possible, the location of the access tracks follows existing forestry tracks. A total of approximately 6.4 km of new track would be created and approximately 3.8 km of existing track would be upgraded.

3.5.17 Tracks would be unpaved and constructed of a graded local stone with a typical running width of 5 m (wider on bends and at junctions). Nine construction traffic passing places would be required, in addition to crane hardstandings. Additionally, three turning heads would be constructed.

3.5.18 Figure 3.5 provides a typical illustration of the design of an on-site track; the design of tracks would take account of recognised good practice guidance as noted in Technical Appendix 3.1.

3.5.19 Where possible, the turbines and sections of new tracks have been positioned to avoid areas of deepest peat. Micrositing will be used to minimise peat excavation during the construction phase.

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' where feasible according 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 five new watercourse crossings and seven existing watercourse crossings which may need to be upgraded subject to structural analysis at the detailed design stage. Locations of watercourse crossings are shown in Figure 3.1.

Lighting

3.5.23 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.

Materials Sourcing and Waste Management

3.5.24 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. This is discussed further in the Peat Management Plans in Appendix 8.1.

3.5.25 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.

3.5.26 It is intended that concrete would be imported to site and that no concrete batching will be undertaken on-site.

3.5.27 Water would be required for welfare facilities and to dampen tracks during dry weather, although this would be minimal, 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

3.5.28 The Proposed Development is for seven 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	214071	677762	200	409
2	214372	678144	200	369
3	214362	678620	200	359
4	214066	678953	200	302
5	214716	678923	180	316
6	214635	679364	180	297
7	214312	679679	200	290

3.5.29 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 3.7.

3.5.30 It is anticipated that the turbines would be rated at approximately 7.2 MW, depending upon the dimensions of the selected turbines. A realistic minimum capacity for electricity generation by the wind turbines would be in the region of 50.4 MW based on current turbine availability.

3.5.31 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 Argyll and Bute Council.

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

Aviation Warning Lighting

3.5.33 As the turbines of the Proposed Development will exceed 150 m maximum blade height tip height, they will need to be lit in accordance with the requirements of the Civil Aviation Authority (CAA) Air Navigation Order (ANO), in addition to meeting the lighting requirements of the Ministry of Defence (MOD). It is proposed that T1, T3 and T7 are provided with 2000 candela (cd) lights at hub height to satisfy the CAA-ANO requirement, with additional infra-red (IR) lighting being provided to satisfy the MOD requirements. Aviation lighting requirements are detailed further in Technical Appendix 13.1.

Foundations and Crane Hardstandings

3.5.34 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 3.3.

3.5.35 The turbines would have gravity foundations laid using reinforced concrete and would have a diameter of approximately 22.65 m.

3.5.36 The depth of the foundation excavation would depend on the need to reach suitable ground. Excavations would be on average approximately 2.7 m deep. The sides would be graded back, from the foundation and battered to ensure that they remain stable during construction.

3.5.37 The turbines would be erected using mobile cranes brought on to 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 approximately 25 m x 42 m and approximately 1 m in depth, depending on ground conditions. 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 3.4. 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.

3.5.38 Soils that are excavated during construction would be set aside for backfilling the batter areas around the turbine bases and hardstandings and use of small bankings either side of access tracks.

Battery Energy Storage System

3.5.39 It is proposed that 2 hr battery storage (rated power of approximately 23 MW and energy storage capacity of 53 MWh) and other electrical equipment would be located within the SSEN construction compound, once the substation construction has been completed. There would be two entrance points to the compound for fire safety and easier BESS installation. The batteries would store excess power generated by the Proposed Development and provide grid support services.

3.5.40 There would be twelve battery containers which would be of steel construction, similar in appearance to shipping containers. The containers would typically measure approximately 9.3 m (l) x 1.7 m (w) x 2.6 m (h) with ancillary equipment such as inverters as shown on Figure 3.14.

3.5.41 The compound would include a water storage tank, welfare and storage buildings, with the MV switchgear housed in the control room building.

On-site Substation Compound and Electrical Cabling

3.5.42 The Proposed Development would be connected to the electricity network via an on-site substation control building located within the substation compound (approximately 50 m x 100 m) at BNG 214577 679150. The compound would include an area for car parking and High Voltage (HV) equipment, such as transformers and circuit breakers. This indicative on-site substation compound is shown on Figure 3.14.

3.5.43 The main control building would be single storey and would measure approximately 6 m x 26 m with a pitched roof which would be 5.9 m high at its tallest point. It is proposed that the buildings would have a cement render with wet dash finish and the final external finishes would be agreed with Argyll and Bute Council. A typical control building elevation is shown on Figure 3.6.

3.5.44 Underground power cables would run along the side of the access tracks in trenches from each of the turbines to the substation.

Access Management

3.5.45 During construction, measures would be required to ensure that the public understand that restricted access to the forestry tracks would be in place throughout the works. Plans for temporary access management, including traffic management and access restrictions, would be communicated with the public prior to taking place, where feasible. The Applicant will aim to keep all access restrictions and limitations to a minimum.

3.5.46 The Applicant is committed to safeguarding the safety of members of the general public, whilst also ensuring that construction progress is not compromised.

3.5.47 An outline Access Management Plan (AMP) is provided in Technical Appendix 10.2 with the final version of the AMP to be agreed with Argyll and Bute Council in advance of construction.

Erection of Turbines

3.5.48 The erection process for each turbine will take approximately 2 to 5 days, although this will depend on weather conditions, as generally, turbines are erected in wind speeds not exceeding 8 to 10 metres per second (m/s) for health and safety reasons. Turbine erection will be undertaken by a specialist contractor and cranes will be used for the off-loading of turbine components from the abnormal load vehicles and to assist in turbine assembly. A 'crawler' or mobile wheeled crane of larger capacity, working in tandem with the main crane, will be used to erect the turbines. The turbine erection contractor will specify the type of cranes used during the erection process. The cranes will be positioned on the hardstanding area adjacent to each turbine and will include outriggers for support.

3.6 Site Restoration

3.6.1 Soils would be used for reinstatement works associated with access tracks, cable trenches, turbine foundations, crane hardstandings 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 under a storm-control mode 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 electricity generation by the Proposed Development would provide enough power for over 58,212[1] average Scottish households.

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

[1] Based on a 50.4 MW installed capacity, wind resource assessment and average Scottish domestic consumption of 3,099 Kwh per year (DESNZ January 2024).

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 Applicant 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.

Biodiversity and Enhancement Strategy

3.7.7 A Biodiversity and Enhancement Strategy (BES) is provided in Appendix 6.5. The BES outlines a multifaceted approach to enhancing biodiversity within the Site and has been designed to tie it to the existing Sandbank Long-Term Forest Plan (LTFP). The BES proposes the following benefits:

- Habitats and Vegetation
    - Peat resource and restoration and enhancement
        - Compensation for impacts to priority peatland habitats through a combination of infilling peat, additional peatland restoration techniques and forestry to bog restoration.
        - Peatland restoration to promote the growth of peatland species to benefit the flora and fauna reliant of a healthy peatland habitat.
    - Tree Planting
        - Creating a more diverse native species mix within the Site
        - Provide additional food sources and cover for uplad birds such as black grouse
        - Riparian tree planting creating new woodland habitats for foraging and sheltering a variety of species including bats, otter, pine marten and birds. Fisheries will also benefite from riparian planting.
    - Regeneration Management
        - Targeted management of blanket bog susceptible to tree encroachment.
    - Protection and Grazing Management
        - Monitoring grazing pressure and implementing interventions to promote the success of other restoration and enhancement measures and ensure the ongoing management of sensitive upland habitats.
- Protected Species
    - Installation of pine marten and red squirrel boxes.
- Ornithology
    - Creation of a mosaic of habitats through forest-to-bog restoration areas and targeted woodland creation will improve the overall quality of the site for black grouse.
    - The structural diversity of habitats will be enhanced through restoration and enhancement of wetland habitat within peatland, tree planting, restructuring of woodland edges, and sustainable management of grazing.
    - The creation and management of peatland and woodland habitats for upland bird assemblages and provide additional cover and foraging habitat for raptors.
    - Monitoring programmes for black grouse and golden eagle to allow for the evaluation of the effectiveness of mitigation and habitat enhancement measures. This will allow for adjustments to habitat enhancement measures to improve their effectiveness if necessary.

Community Benefit and Shared Ownership

3.7.8 Should the Proposed Development gain consent, a Community Benefit Fund would be made available to the community as set out in the Pre-Application Consultation (PAC) Report and Socio-economic Report which accompany this application. This is offered on the basis of a payment per MW of installed electricity generating 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 (index linked) of installed electricity generating capacity of the wind farm. The Proposed Development will also provide a Science, Technology, Engineering and Mathematics (STEM) fund for the locally community of £10,000 per annum during the operational period of the Proposed Development.

3.7.9 Should there be an interest for local groups or organisations to have a financial interest in the Proposed Development, 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 Proposed Development. The local communities would see a return on investment through profits produced throughout the lifetime of the Proposed Development. 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.

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 Argyll and Bute Council 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 a Decommissioning and Restoration Plan (DRP) which would include development and implementation of a Decommissioning Environmental Management Plan in line with current legislation, guidance, policy at that time. Financial provision for the decommissioning would be provided. It is anticipated that the DRP would be the subject of a planning condition.

3.8.3 The final detailed DRP 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 outline DRP and then updated in the detailed DRP.

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 1 m 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 1 m 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.
Upgraded Access Tracks	All access tracks which were in existence before the construction of the Propsoed Development but upgraded as part of construction would be left in-situ for the use of forestry management and extraction.
Underground Cabling	These are underground and therefore all cables would be made safe and left in-situ subject to them being 1 m below ground. This is considered preferential to extracting cables from the cable trenches due to the 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

Element	Decommissioning Requirement
	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 1 m of the compound foundations would be removed and disposed of appropriately. The excavated hardstandings would be reprofiled with soil and reseeded.

3.9 Health and Safety

3.9.1 All construction, operation and decommissioning activities will be managed within the requirements of the Construction (Design and Management) Regulations 2015 and will not conflict with the Health and Safety at Work etc. Act 1974 or appropriate legislation at the time of undertaking the works. The design of the Proposed Development has taken full account of these regulations. To further reduce possible health and safety risks, a Health and Safety Plan for the Proposed Development will also be drawn up. All staff and contractors working on the construction, operation or decommissioning will be required to comply with the safety procedures and work instructions outlined in the Health and Safety Plan at all times.

3.9.2 To ensure that hazards are appropriately managed, risk assessments will be undertaken for all major construction activities, with measures put in place to manage any hazards identified.

3.10 References

UK Government (2015) *The Construction (Design and Management) Regulations 2015.* Available at: https://www.legislation.gov.uk/uksi/2015/51/contents/made {Accessed February 2025}

RenewableUK (2012 and 2015). Onshore Wind: Direct and Wider Economic Impacts. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf [Accessed June 2025]