Statkraft

Giant's Burn

Volume 1
Non-Technical Summary

July 2025

Preface

This Environmental Impact Assessment (EIA) Report has been prepared in support of an application by GB Wind Farm Limited (Ltd) (a company wholly owned by Statkraft UK Limited) ('the Applicant') to the Scottish Government Energy Consents Unit (ECU) for Section 36 consent to construct and operate Giant's Burn Wind Farm ('the Proposed Development') in the Argyll and Bute Council (ABC) administrative area.

The Proposed Development is located approximately 1.3 km north-west of Dunoon. The Proposed Development will comprise up to seven wind turbines, a battery energy storage system (BESS) and other associated infrastructure.

The EIA Report comprises the following volumes:

- Volume 1: EIA Report Non-Technical Summary (NTS) (this document);
- Volume 2: EIA Report Written Statement;
- Volume 3a-b: EIA Report Figures and Visualisations; and
- Volume 4-ab: EIA Report Technical Appendices.

In addition to the above, the application is accompanied by a Planning Statement, a Pre-Application Consultation (PAC) Report, a Socio-Economic Benefits Report, a Marine Science Scotlad (MSS) Checklist, a covering letter, and a revised version of the The Standard Onshore Wind Conditions – Section 36 consent and deemed planning permission.

A hard copy of the EIA Report will be available for public viewing during the application consultation period at the following addresses:

- Dunoon Library, Queen's Hall, 9 Argyll Street, Dunoon, PA23 7HH
- Rothesay Library, Stuart Street, Isle of Bute, PA20 0BX

A copy of the EIA Report Volumes will be made available for download from the project website at

- www.giants-burn.co.uk

Paper copies of the NTS are available free of charge from:

- Address: Freepost Statkraft
- Tel: 0800 7720668
- Email: ukprojects@statkraft.com

Paper copies of the EIA Report may be purchased by arrangement from the above address for £1,500 per copy, or £15 per USB memory stick copy. The price of the paper copy reflects the cost of producing the Landscape and Visual photographs at the recommended size. As such, USB memory stick version is recommended.

Any public representations to the application may be submitted via the ECU website at www.energyconsents.scot/Register.aspx; by email to the Scottish Government, Energy Consents Unit mailbox at representations@gov.scot; or by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal (reference ECU00004851) and specifying the grounds for representation.

The Applicant will advertise the submission of the Section 36 application in the local and national press (as per Table 1 below) and on the dedicated project website at www.giants-burn.co.uk.

Contents

1. Introduction

1.1 Overview

1.1.1 This document is a Non-Technical Summary (NTS) of the Environmental Impact Assessment (EIA) Report for Giants Burn Wind Farm which accompanies an application for development consent made by GB Wind Farm Limited (hereafter referred to as 'the Applicant').

1.1.2 The NTS summarises the findings of the EIA which has been undertaken to assess the potential impacts from the construction, operation and decommissioning of Giants Burn Wind Farm (hereafter referred to as the 'Proposed Development').

1.1.3 The Proposed Development is located on the west coast of Scotland, within the Argyll and Bute Council area (within the Kilmun, Dunoon and Sandbank Community Council areas), approximately 1.3 km north-west of Dunoon and 1.5 km south-west of Sandbank centred on BNG 213806, 678515. The Site Boundary is shown in Figure 1.

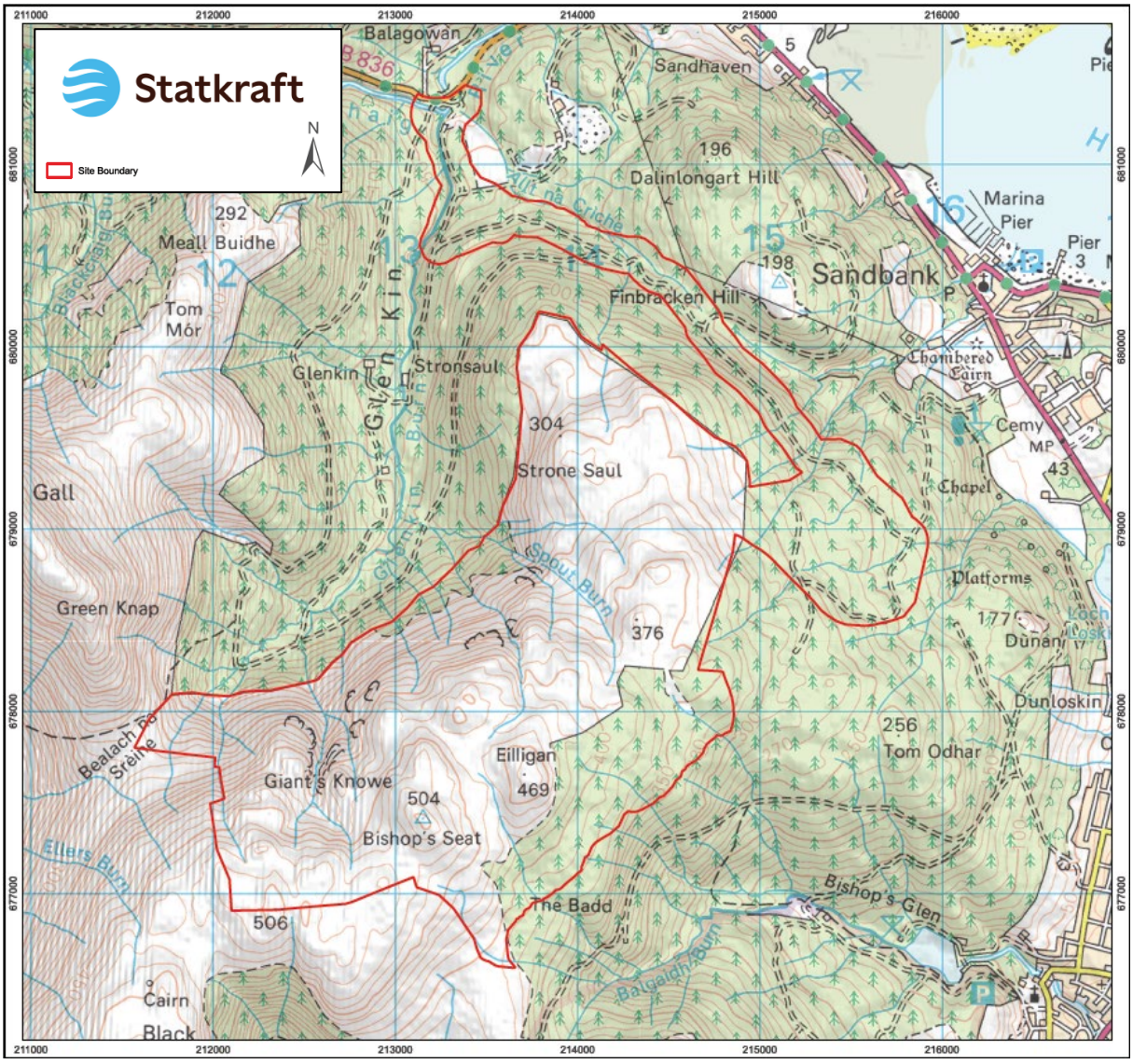

Figure 1 – Site Location

1.1.4 The Proposed Development consists of up to seven wind turbines, a battery energy storage system (BESS) and associated ancillary infrastructure. Five of the turbines have been assessed with a maximum tip height of 200 m, and the remaining two turbines with a maximum tip height of 180 m.

1.1.5 As the Proposed Development would have a generating capacity in excess of 50 MW, an application is being submitted for consent under Section 36 of the Electricity Act 1989 to the Scottish Government

Energy Consents Unit (ECU), with the Applicant also seeking a direction that deemed planning permission is granted under the Town and Country Planning (Scotland) Act 1997.

1.2 The Applicant

1.2.1 The Applicant, GB Wind Farm Limited, is a wholly owned subsidiary of Statkraft UK Limited (Statkraft).

1.2.2 Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power and solar power, generating 62 TWh of renewable electricity in 2024. Statkraft also provides energy storage and grid stability services and is a global company in energy market operations. The company has 7,000 employees in over 20 countries.

1.2.3 Statkraft is at the heart of the UK's energy transition. Since 2006, Statkraft has gone from strength to strength in the UK, building experience across wind, solar, hydro, storage, grid stability, EV charging, green hydrogen and a thriving markets business. Statkraft has invested over £1.3 billion into the UK's renewable energy infrastructure and facilitated over 4GW of new-build renewable energy generation through Power Purchase Agreements (PPA). Statkraft develops, constructs, owns and operates renewable facilities across the UK and employs over 600 people in offices across Scotland, England and Wales.

1.2.4 Further information about Statkraft can be found at www.statkraft.co.uk.

1.3 Environmental Impact Assessment

1.3.1 An EIA is carried out where a proposed development has the potential to result in significant environmental effects. As it is considered possible that the Proposed Development may result in significant environmental effects, an EIA has been undertaken to accompany the application for Section 36 consent.

1.3.2 EIA is an iterative process whereby the identification and assessment of effects can also inform the design of a proposed development so that potentially significant adverse environmental effects can be avoided, reduced and, if possible, removed. A proposed development can then be refined to avoid or reduce potential environmental effects where necessary, through the use of mitigation measures.

1.3.3 The EIA Report presents information on the identification and assessment of the likely significant environmental effects resulting from the Proposed Development across a number of environmental topics. The significance of these effects has been assessed using criteria defined in the topic chapters of the EIA Report. Where appropriate, or as otherwise defined, the significance of effects has been categorised as major, moderate, minor or negligible. In the context of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as the 'EIA Regulations') likely effects assessed as being of 'major' or 'moderate' significance are considered to be significant effects.

1.3.4 The scope of the EIA was informed by an EIA Scoping Opinion provided by the Scottish Government ECU in consultation with consultees including ABC, NatureScot, Scottish Environment Protection Agency (SEPA), and Historic Environment Scotland (HES).

2. The Proposed Development

2.1 Design Evolution

2.1.1 A number of parameters and considerations informed the site selection and design of the Proposed Development, which are described in full in Chapter 2 of the EIA Report.

2.1.2 The initial input to the design process for the Proposed Development was the desk-based identification of constraints including: topography and ground conditions (including peat), environmental designations, identified landscape and visual constraints, proximity to residential receptors (with regards to visual amenity, shadow flicker and noise), presence of protected habitats and species, presence of watercourses, private water supplies and related infrastructure (none within the Site), presence of cultural heritage features, aviation and radar constraints, recreation resource, and fixed communications links (no Fixed Links cross the Site).

2.1.3 This was augmented with field-based survey work including ornithological surveys, habitat and protected species surveys, a Phase 1 peat probing exercise, a baseline noise survey, a hydrological walkover and a cultural heritage visit of the Site and surrounding area.

2.1.4 Following an initial round of public consultation and the receipt of the EIA Scoping Opinion the key design changes were:

- reduction from nine to eight turbines;
- two turbines moved into additional land available for development; and
- turbines relocated to reduce impact on landscape and visual receptors.

2.1.5 Following the second round of public exhibitions, and further detailed surveys and assessments, the key design changes were:

- Reduction from eight to seven turbines; and
- Tip height of two turbines reduced to 180m.

2.1.6 Additional considerations which influenced changes to the location and number of turbines include:

- Hydrological constraints;
- Ecological constraints;
- Topography of the Site; and
- Phase 2 peat probing survey findings.

2.1.7 Potential impacts from the ancillary infrastructure, including the access tracks, were minimised by using the existing site access tracks where possible.

2.2 The Proposed Development

2.2.1 The Proposed Development is described in detail in Chapter 3 of the EIA Report. The layout of the Proposed Development is shown on Figure 2. In summary, the Proposed Development would comprise:

- 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 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); and
- clearance of 32.94 ha of on-site forest with 21.68 ha to be felled for peatland restoration and restocking of approximately 13.57 ha.

2.2.2 An Outline Construction Environmental Management Plan (OCEMP) is contained in the EIA Report as Technical Appendix 3.1 which describes the measures which would be employed during the construction of the Proposed Development in order to protect the environment.

Operational Life

2.2.3 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 or extend the life of the site.

Access

2.2.4 Access to the Proposed Development site would be directly from a new site entrance off the B836 as shown in Figure 3.26 of the EIA Report. It is anticipated that the Abnormal Indivisible Loads (AIL) (i.e. the turbine components) will travel to the Site from the Port of King George V Docks on the River Clyde, then along the M8 and M898 to cross the Erskine Bridge. From there, they will follow the A82 west toward Tarbert, then switch onto the A83 using a new bypass around Tarbert. After that, the

delivery will continue on the A815 heading south toward Dunoon. Finally, it will turn right onto the B836, travel about 2 km, and then enter the new site entrance. Full details of the transport route and access to the Site are provided in Chapter 10 of the EIA Report.

Grid Connection

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

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

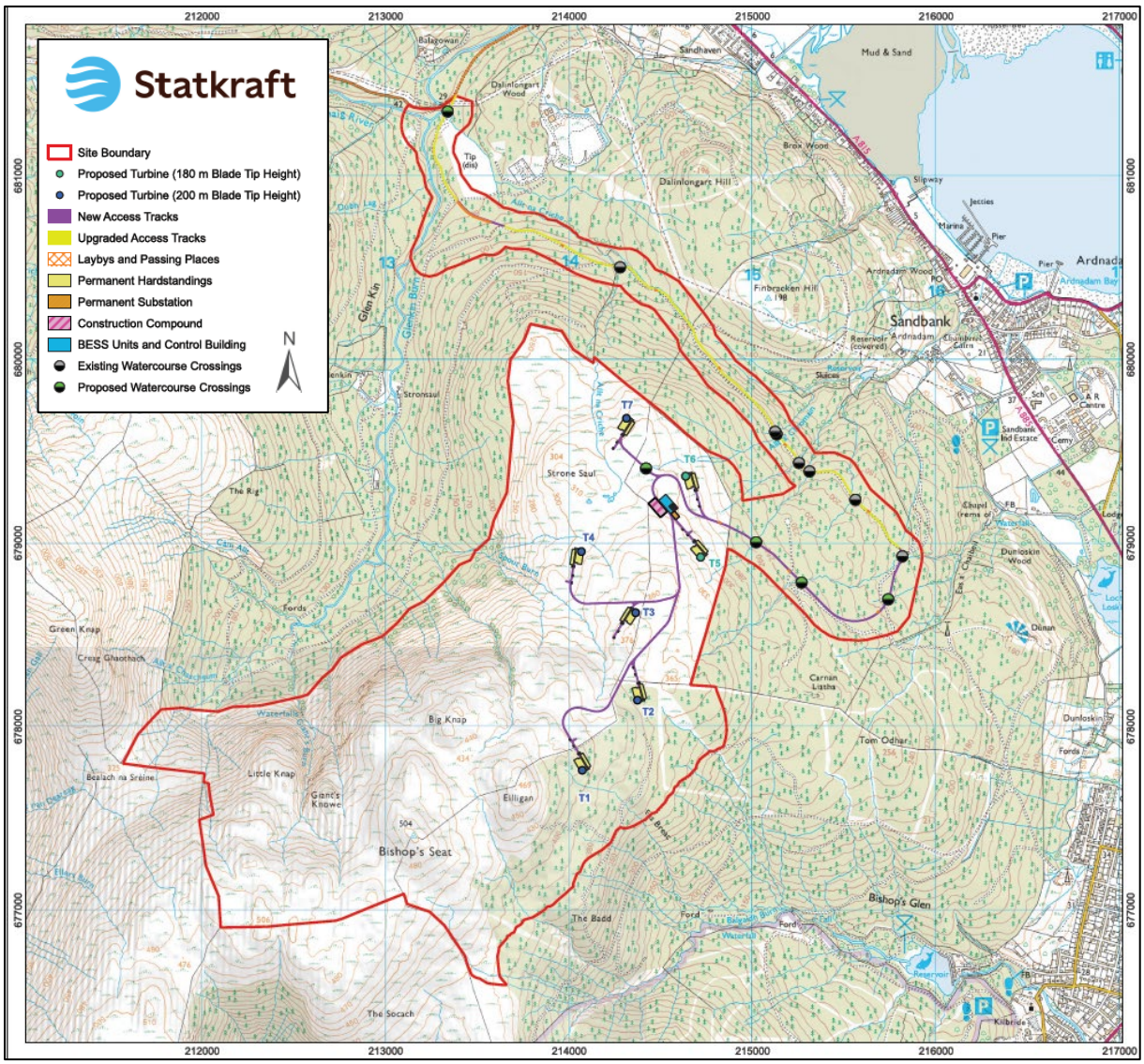

Figure 2 – The Site Layout

3. Benefits of the Proposed Development

3.1 Contribution Towards Government Targets

3.1.1 The Proposed Development would:

- make a meaningful contribution, of over 50 MW of installed onshore wind capacity, towards meeting the renewable energy generation targets set out by the Scottish Government, such as the goal for Scotland to have a fully decarbonised energy system by 2045;

- make a valuable contribution towards UK generation targets and the reduction in emissions of greenhouse gases, principally carbon dioxide, in becoming carbon neutral in approximately 1.2 years (against a Fossil Fuel mix) as demonstrated in Chapter 14; and
- make Scotland, and therefore the UK, less reliant on imported and price-volatile fossil fuels by generating the equivalent energy to supply the approximate domestic needs of 58,212 average Scottish households.

3.2 Community Benefit and Shared Ownership

3.2.1 Should the Proposed Development gain consent, a Community Benefit Fund would be made available to the community as set out within the Socio-Economic Benefits 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.

3.2.2 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 the Proposed Development. Local Energy Scotland and other agencies 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 Pre-application Consultation (PAC) Report accompanying the application.

3.3 Other Economic Benefits

3.3.1 It is anticipated that Giant's Burn Wind Farm will contribute £39 million in direct GVA through its construction, while supporting up to 482 direct and indirect Person Years of Employment. Through the promotion of its local supplier register and funding specifically allocated to supporting education in Science, Technology, Engineering and Mathematics (STEM), Giant's Burn Wind Farm will be able to support the development of both skills and businesses in the renewable industry. Giant's Burn Wind Farm will provide a community benefit fund of approximately £250,000 per annum, totalling around £12.5 million over the 50 years of operation, as well as a Biodiversity Enhancement Strategy (BES) aiming to create long-lasting improvements and opportunities for biodiversity across the Site.

3.4 Biodiversity Enhancement Strategy

3.4.1 A BES is provided as Technical Appendix 6.5. It is anticipated that the document would be further developed, following the granting of consent, in discussion with ABC and NatureScot. The aim of the BES is to establish the key objectives and principles by which parts of the Site would be enhanced for the benefit of biodiversity, which would then form the basis for the more detailed BES. A Steering Group and Review Committee (SGRC) comprising of NatureScot, ABC and the Operator of the Proposed Development (and others) would be set up to oversee the effectiveness of the BES.

3.4.2 The BES includes three key aims to improve and enhance biodiversity at the Site:

- Peatland Restoration;
- Ecological Compensation and Enhancement; and
- Enhancement of Habitat for Bird Species.

Peatland Restoration

3.4.3 Impacts to priority peatland habitats are calculated to be 14.34 ha, and guidance recommends compensation in the form of peatland restoration at a rate of 1:10 (lost: restored). The combination of infilling peat (approximately 13.15 ha), additional peatland restoration techniques (reprofiling of eroded peat and drain blocking, approximately 46.59 ha) and forest to bog restoration (approximately 21.60 ha), represents a total of approximately 81.34 ha, representing a ratio of 1:5.7. These measures ensure delivery of compensation for priority peatland habitats.

Ecological Compensation and Enhancement

3.4.4 This is comprised of methods such as tree planting including riparian and non-riparian, pine marten denning opportunities, pine marten and red squirrel boxes and grazing management.

Enhancement of Habitat for Birds

3.4.5 Including methods to enhance habitat for Golden Eagle and Black Grouse.

Monitoring

3.4.6 Monitoring is proposed as part of the BES in operational years one, two, three and five of the Proposed Development and would consist of checks of the habitat enhancement measures. The Applicant would provide a summary of the BES activities and monitoring results to the SGRC each year of monitoring. The frequency of monitoring and reporting thereafter would be agreed with the SGRC.

4. Landscape and Visual

4.1 Baseline

4.1.1 The Proposed Development is located approximately 1.3 km north-west of Dunoon in an upland landscape of rugged ridges, steep slopes, forestry, and open moorland that descends toward the coastal settlements of Holy Loch and the Firth of Clyde. The area forms part of a well-recognised upland landscape type known as Steep Ridgeland and Mountains, with dramatic landforms and expansive views. Nearby settlements including Dunoon, Sandbank, Kilmun, and Strone are important for visual assessment because they host many people who could see the turbines.

4.1.2 A detailed Zone of Theoretical Visibility (ZTV) study and viewpoint analysis were used to understand where the turbines would be seen. The baseline also considered designated landscapes, including the Loch Lomond and The Trossachs National Park (2.7 km away) and the Bute and South Cowal Local Landscape Area. While there are other existing wind farms in the wider region, none are immediately adjacent to the Proposed Development site.

4.2 Predicted Effects

Construction Phase

4.2.1 Construction would last around 18 months. Short-term effects on the landscape would arise from temporary felling, track construction, and equipment movements. Views of construction would be noticeable from local communities and popular roads, especially from Dunoon, Sandbank, and parts of Holy Loch, but these effects would be temporary.

Operational Phase

4.2.2 The presence of turbines would permanently alter views within about 5–7 km of the Site. The Proposed Development would become a prominent feature in the upland landscape south of Glen Lean, with significant visual effects in Dunoon, Sandbank, Kilmun, Strone, and for ferry passengers on routes across the Firth of Clyde. These turbines would be visible from streets, public open spaces, and coastal areas, changing the character of local views.

4.2.3 Three landscape character areas are predicted to experience significant long-term effects: Steep Ridgeland and Mountains, the Mountain Glens around Holy Loch, and the Inner Firth of Clyde Seascape Character Area. In these locations, the turbines would become a new element on the skyline with major effects. Other landscape areas farther away would experience minor or no significant effects due to screening and distance.

4.2.4 At night, red aviation safety lights will be mounted on three of the turbines. These would mostly blend with existing lights in well-lit coastal areas but may be noticeable in darker areas around Glen Lean and Loch Eck.

Cumulative and Designated Areas

4.2.5 There would be no significant effects on the special qualities of designated landscapes, including the Loch Lomond and The Trossachs National Park. Cumulative effects with other existing and planned wind farms are also judged not to be significant, since the Proposed Development would remain visually separate from other large turbine clusters.

4.2.6 Overall, the Proposed Development has been designed to minimise impacts, for example by reducing the number of turbines and reducing aviation lighting. While the change to the local landscape will be significant for some nearby receptors, particularly in Dunoon, Sandbank, and ferry routes, there will be no unacceptable effects on protected or highly valued landscapes.

5. Ecology

5.1 Baseline

5.1.1 A series of detailed ecological surveys were undertaken in 2024 and 2025 to assess the habitats, species, and ecological conditions across the Site. The Site includes a mixture of commercial forestry plantations, patches of native broadleaved woodland, peatland habitats, wet and dry heath, and acid grassland. Several areas of ancient woodland are mapped within the Site Boundary, though these are largely classed as Plantation on Ancient Woodland Sites (PAWS), with conifers replacing the original broadleaf cover over time. Despite this modification, these areas still retain soils of ecological interest.

5.1.2 Blanket bog habitats are a prominent feature, covering roughly a third of the area surveyed, although their condition is mostly degraded due to drainage, grazing, and past management. Within these peatlands, the moss layer (sphagnum) is generally sparse, with only occasional wetter spots showing more natural features. Other habitats recorded include dry heath, which typically occurs on shallower peat, as well as bracken-dominated slopes, and patches of acid grassland.

5.1.3 The nearest statutory ecological designation is Holy Loch Local Nature Reserve (LNR) and Local Nature Conservation Site (LNCS), located approximately 1.3 km to the north-east of the Proposed Development. Although there is no physical connection, the Holy Loch is linked hydrologically through the Little Eachaig River, meaning careful water management is needed to protect water quality. There are other designated nature conservation sites within a wider area, but these have no direct functional links to the Proposed Development and were therefore scoped out.

5.1.4 Surveys for protected species, including otter, water vole, pine marten, red squirrel, badger, and other mammals found no evidence of these species on the Site, though occasional amphibians and reptiles were noted. Bat surveys found relatively low activity levels, mainly from common pipistrelle species, with no roosts recorded on the Site. The presence of watercourses and cleared forest rides offered some limited commuting routes for bats, but overall, the Site is considered low risk for bat populations.

5.2 Predicted Effects

Construction Phase

5.2.1 Construction of the Proposed Development will create temporary and permanent effects on ecological features. Approximately 40 hectares of habitat will be affected, with about 18.5 hectares directly lost to turbine foundations, tracks, and infrastructure, and a further 21.7 hectares indirectly affected by changes in hydrology and habitat fragmentation. About 7.4 hectares of priority blanket bog will be directly lost, with a further 6.7 hectares indirectly impacted. This represents a small proportion of the blanket bog resource within the overall survey area, which has already been heavily modified by drainage and grazing.

5.2.2 To reduce these effects, the project design has carefully avoided the deepest peat where possible, and where possible, floating tracks will be used to minimise damage. Construction will include strict pollution prevention and watercourse protection measures, following best practice guidelines within a Construction Environmental Management Plan (CEMP). An Environmental Clerk of Works (ECoW) will be appointed to monitor compliance and respond quickly to any ecological concerns during construction.

5.2.3 Holy Loch LNR/LNCS is considered at low risk of any indirect impact, as it is more than a kilometre downstream, and robust measures will manage run-off, fuel handling, and sediment control to avoid any pollution reaching the reserve.

Operational Phase

5.2.4 During operation, there will be no significant new effects on ecological receptors beyond what was assessed for the construction phase. Turbines, tracks, and other infrastructure will not create major new barriers to wildlife movement. Vegetation within temporarily disturbed areas will be allowed to recover, and native planting will be carried out in targeted areas to increase biodiversity. The Site will be managed to minimise any long-term negative effects, including careful maintenance of watercourses and habitat buffers.

Enhancement and Restoration

5.2.5 To offset habitat losses, the Proposed Development includes a comprehensive BES. This will deliver more than 80 hectares of habitat restoration, including large-scale peatland restoration projects to improve carbon storage and support biodiversity. Forest-to-bog restoration techniques will be used to remove unproductive conifer plantations from deep peat areas, block drains to rewet the bog, and restore native peat-forming vegetation.

5.2.6 Other enhancements will include planting native broadleaved woodland (avoiding deeper peat), controlling grazing to allow recovery of sensitive habitats, and installing nest boxes or other structures to encourage birds and mammals such as pine marten and red squirrel. Measures to benefit upland birds, including golden eagle and black grouse, are also planned, with habitat management encouraging better prey and shelter conditions.

Residual and Cumulative Effects

5.2.7 After mitigation and enhancement measures are applied, no significant residual ecological effects are predicted from the Proposed Development. Although a small proportion of modified peatland and other habitats will be lost, this will be more than offset by restoration and enhancement activities.

5.2.8 Cumulative effects were considered in relation to other wind energy proposals in the surrounding area. However, no significant cumulative impacts were identified because of limited habitat overlap and the generally modified nature of the Site's habitats. Overall, the Proposed Development is judged to have a low risk of long-term ecological harm, with positive gains for biodiversity expected from restoration and enhancement efforts.

6. Ornithology

6.1 Baseline

6.1.1 Bird surveys took place between 2021 and 2024. These studies looked at breeding and non-breeding birds, including flight activity and wintering patterns, over a broad survey area up to 6 km from the proposed turbines. The surveys focused particularly on golden eagle, given its high conservation status and its known presence in the wider area.

6.1.2 A pair of golden eagles was recorded using a territory within the survey area, with nesting attempts occurring in different years. While other species of high or moderate conservation importance (such as hen harrier, osprey, or goshawk) were observed occasionally, their numbers and activity were low, and no nesting was confirmed within areas likely to be affected by the Proposed Development. Therefore, no other species were taken forward for detailed assessment.

6.1.3 There are no designated bird protection sites, such as Special Protection Areas (SPA), directly within the Site Boundary, and distances to nearby SPA mean that impacts on these sites are highly unlikely. Overall, the baseline shows the Site supports a fairly typical upland bird community with golden eagle being the main species of concern.

6.2 Predicted Effects

Construction Phase

6.2.1 During construction, the greatest risk to golden eagle would be temporary disturbance or displacement from foraging areas or nesting sites. However, the turbines and infrastructure are positioned more than 1.4 km from any known golden eagle nests, and the construction phase will be managed under a Bird Protection Plan (BPP), including timing restrictions and monitoring by a qualified ecologist. Given the small area of foraging habitat likely to be disturbed, and the precautions built into the project, no significant negative effects are predicted on golden eagle breeding or survival.

Operational Phase

6.2.2 When operating, the turbines might reduce the golden eagle's access to parts of its foraging range (a "barrier effect") or slightly change its patterns of movement. Golden eagles generally avoid turbines, so indirect habitat loss was estimated using a 300 m buffer around turbines, equating to roughly 117 hectares of potential eagle foraging habitat affected. Surveys showed that golden eagles use this part of their range only occasionally, with most activity focused elsewhere, so this loss is considered minor and unlikely to affect the local eagle population's breeding success or survival.

6.2.3 The risk of collisions with turbine blades is judged to be very low. No golden eagle flights were recorded within 500 m of the turbine locations during nearly 280 hours of vantage point observations, and existing research suggests territorial golden eagles usually avoid entering turbine arrays. Therefore, collision risk is considered negligible.

Decommissioning Phase

6.2.4 Decommissioning of turbines is expected to create effects similar to construction but on a smaller scale and shorter time frame. Standard safeguards would again be used, and no significant impacts are predicted.

Cumulative Effects

6.2.5 No significant cumulative impacts were identified when the Proposed Development was considered alongside other wind farms in the region.

Enhancements and Mitigation

6.2.6 Although no significant impacts were found, the project includes habitat improvements through a BES. This will restore peatland and create new woodlands, benefiting prey species and indirectly supporting golden eagle populations. Satellite tagging and monitoring of golden eagles will also continue before, during, and after construction to track any unexpected changes and guide further action if needed.

6.2.7 Overall, the ornithology assessment concludes there will be no significant effects on golden eagle or other birds during construction, operation, or decommissioning of the Proposed Development

7. Geology, Hydrology and Peat

7.1 Baseline

7.1.1 The Proposed Development is located 1.3 km north-west of Dunoon across a landscape of hills, ridges, and valleys, featuring rough grassland, heath, commercial forestry, and areas of peatland. Numerous burns and rivers, such as Glenkin Burn and Allt na Criche, drain the area and flow toward the Holy Loch and the Firth of Clyde. The underlying geology is mainly schist, with pockets of glacial and river deposits overlying the bedrock.

7.1.2 Peat is a prominent feature of the Site, with large areas of carbon-rich Class 1 and Class 2 peat identified, and peat depths recorded at more than one metre in certain turbine locations. Surveys confirmed there are no protected ecological or geological designations within the Site Boundary itself, though the Holy Loch Local Nature Reserve lies downstream and could be indirectly influenced by changes in water quality or flows. Four private water supplies were identified near the Site, with some potentially connected to watercourses passing through or near the Proposed Development. Habitats with potential groundwater dependency (GWDTEs) were also mapped across parts of the Site. Local flood risk mapping showed some small areas with potential flooding along watercourses, though the wider Site is not considered highly vulnerable to flooding. Overall, the baseline describes a modified upland setting with extensive peat resources, existing forestry, and water features that support both human and ecological receptors.

7.2 Predicted Effects

Construction Phase

7.2.1 During the construction phase, the Proposed Development will temporarily disturb soil and peat, replacing natural vegetation with turbine foundations, new and upgraded access tracks, and working areas. This will increase surface water runoff, alter the flow of water across slopes, and could create sediment and erosion issues, particularly near watercourses. Pollution risks from fuels, oils, and concrete exist, but will be reduced by measures including cut-off ditches, sediment traps, and spill controls as described in the OCEMP.

7.2.2 Some excavation will require temporary dewatering, which may locally lower the water table and could affect wetland areas or GWDTEs. However, strict water quality monitoring, setbacks from watercourses, and micro-siting of turbines and tracks will reduce the likelihood of serious disruption. The risk of peat slides has been assessed and is considered low if mitigation, including the use of floating roads in deeper peat and peat storage guidelines, is followed.

7.2.3 Twelve watercourse crossings will be needed (five new, seven upgrades), designed to manage large flood events while allowing fish passage and keeping banks intact. Water crossings will use best-practice structures such as bottomless arch culverts wherever feasible.

Operation Phase

7.2.4 During operation, the infrastructure will continue to alter drainage patterns slightly, though these changes are not expected to be significant. Maintenance activities will involve small volumes of chemicals and oils, but safety procedures will limit any pollution risks.

Decommissioning Phase

7.2.5 At decommissioning, turbines and equipment will be removed, and the overall hard surface area will be reduced. Although temporary disturbance similar to construction may occur, it will be at a smaller scale. Restoration of peatland and natural surfaces will help stabilise water runoff and encourage natural vegetation regrowth.

Cumulative Effects

7.2.6 Cumulative effects were considered alongside other proposed projects, including Inverchaolain Wind Farm, but no significant combined impacts are predicted because of distance and separate catchment systems.

Enhancements and Mitigation

7.2.7 Embedded mitigation measures have been built into the project, such as 50-metre watercourse buffers, floating track designs where peat is deepest, and a robust peat management and restoration plan has been prepared. A BES will restore peatland following forestry removal, promoting better habitat and improved water regulation. Monitoring of private water supplies will be carried out before, during, and after construction, with contingency plans if any issues arise. An ECoW will oversee the works, ensuring that protective measures are correctly applied if required.

7.2.8 Overall, with these measures in place, no significant long-term impacts on water resources, peat, or geology are predicted during the construction, operation, or decommissioning phases of the Proposed Development.

8. Cultural Heritage

8.1 Baseline

8.1.1 A detailed cultural heritage assessment identified numerous archaeological sites and historic assets surrounding the Proposed Development area. Within the Site, nine non-designated heritage assets were recorded, including old field boundaries, a possible cairn, and a historic track. In the wider study areas (up to 10 km), a range of designated heritage sites exist, such as Scheduled Monuments, listed buildings, and conservation areas. Key designated sites include Dunoon Castle, Kilmun Collegiate Church, Adam's Cave Chambered Cairn, and the Dunoon Conservation Area, all with high cultural value.

8.1.2 Desk-based studies, consultations, and on-site walkover surveys helped build an understanding of known and potential buried archaeology and identified several un-designated heritage assets. There is a medium likelihood of prehistoric to post-medieval remains within some parts of the Site, particularly near slopes and former settlement areas, though a low potential for Roman or modern remains. Areas with forestry operations or steeper slopes are considered to have low potential for buried archaeology.

8.2 Predicted Effects

Construction Phase

8.2.1 During construction, groundworks for access tracks, turbine foundations, and infrastructure could directly disturb a number of non-designated heritage assets such as the possible cairn and field boundaries. The overall significance of these effects is minor, as these features are of low archaeological importance, and mitigation will include archaeological monitoring. There is also a chance that unknown buried remains could be uncovered during excavation. As such, an archaeological watching brief by a qualified archaeologist is proposed.

Operational Phase

8.2.2 Once operational, moderate adverse effects are predicted for Dunoon Castle, Adam's Cave Chambered Cairn, and the Dunoon Conservation Area, where turbine visibility may have an effect on how these sites are experienced, though their core cultural value will remain intact. Other designated heritage assets, such as Kilmun Collegiate Church and various listed buildings, are expected to experience only minor changes to their settings, meaning the turbines would be noticeable but would not significantly disrupt appreciation of their historic character.

Decommissioning Phase

8.2.3 It is anticipated that direct physical impacts during the decommissioning phase would be contained within the construction footprint and as such no significant direct effects are expected to arise from the decommissioning phase of the Proposed Development.

Cumulative

8.2.4 When considered together with other wind farms in the wider area, the cumulative effects on cultural heritage assets are considered to be minimal.

Mitigation Measures and Summary

8.2.5 The Proposed Development was designed to avoid known heritage assets as far as possible, and to limit visual effects as much as possible. Any effects that cannot be avoided will be managed through archaeological surveys, recording, and protective measures during construction.

8.2.6 In summary, while the Proposed Development will introduce noticeable modern features into parts of a historically valued landscape, no heritage assets will be lost or permanently damaged, and key cultural values will be preserved with appropriate mitigation.

9. Traffic and Transport

9.1 Baseline

9.1.1 The Proposed Development is located near a well-connected network of roads, walking routes, and cycle paths. The main access to the Site is via the B836, which is part of the National Cycle Route 75, a popular route for cyclists.

9.1.2 A number of well-used walking, cycling, and recreational paths are located near the Site, including core paths, heritage paths, and hill tracks. These include routes such as the Ardnadam Heritage Trail, Dunans Loop, and links to the Loch Lomond & The Trossachs National Park. Some of these routes may be used to access the Proposed Development, and there is potential for interaction between recreational users and traffic during construction.

9.1.3 In terms of road access, the area is connected to major transport routes including the M8, M74, and A83, providing links to Glasgow, Edinburgh, and other key locations. Local access is primarily via the B836, which runs along the northern edge of Loch Striven.

9.1.4 In order to assess the impact of construction traffic on the study area, existing traffic data was obtained from the Transport Scotland and the Department for Transport (DfT) databases.

9.2 Predicted Effects

Construction Traffic

9.2.1 The Proposed Development would lead to increased traffic volumes on a number of roads in the vicinity of the Site during the 18-month construction phase.

9.2.2 The traffic assessment assumes all construction vehicles will use local roads, without factoring in possible on-site material sources or concrete production, which could reduce traffic. At peak construction (month 4), around 1,950 HGV movements are expected. During construction, HGV traffic could increase by over 90% on the A815 and 70% on the B836. With the implementation of a Construction Traffic Management Plan (CTMP), no significant effects are anticipated in respect of traffic and transport issues on the A815 and B836.

Operation

9.2.3 Transport demand during operation would be much lower than during construction, since during operation there would be only occasional visits from maintenance or inspection vehicles. These would be unlikely to amount to more than a handful of trips per day and would therefore not be significant. The transport impacts of the Proposed Development during operation have therefore been scoped out of assessment.

Decommissioning

9.2.4 The number of vehicle movements generated during decommissioning would likely be lower than the number generated during construction. Mitigation measures which may need to be implemented during decommissioning would be agreed with the key stakeholders in line with best practice measures at that time.

Cumulative Effects

9.2.5 A nearby wind farm, Inverchaolain, is proposed to the west of the Site, with access via the A83. Other developments along the A83 may also come forward. If construction overlaps, developers will need to coordinate to reduce traffic impacts.

10. Noise

10.1 Baseline

10.1.1 Onshore wind turbines generate sound primarily from their blades passing through the air. This sound varies with wind speed and is typically most noticeable at moderate wind conditions before natural wind masking increases. Modern turbines, including the turbines for the Proposed Development incorporate noise-reduction technologies like trailing edge serrations, and regulatory standards ensure that operational noise remains within safe and acceptable thresholds at nearby dwellings.

10.1.2 As part of the noise baseline study, background sound levels were measured at two nearby residential properties: Stronsaul Cottages and Glenkin Cottage. These locations were selected because of their proximity to the proposed turbines and their potential sensitivity to sound. The data collected established prevailing noise conditions in both quiet daytime and night-time periods under various wind speeds. This information was used to define allowable operational noise limits in accordance with industry guidance (ETSU-R-97).

10.2 Predicted Effects

Construction Noise

10.2.1 The construction phase includes building the access tracks, laying cables, and installing the turbines and battery storage system. Noise predictions were made based on standard equipment sound levels and assumed that all machines would be running at the same time in the worst-case scenario. Even using this very cautious approach, the study found that noise levels would remain below the recommended 65 dB(A) daytime limit at the nearest homes.

10.2.2 If construction activities needed to happen outside normal working hours (for example, due to weather delays), noise levels would still stay below stricter evening limits. Therefore, construction noise is predicted to have a minor effect, and no mitigation beyond normal good practice is required.

Operational Noise

10.2.3 Noise modelling results showed that even under high wind conditions, turbine noise would remain below the maximum allowed levels at nearest receptors, as set by ETSU-R-97. These limits are designed to protect local residents and are based either on background noise plus 5 dB or a fixed cap of 35 or 43 dB(A), depending on the time of day.

10.2.4 The highest predicted noise level was 36.3 dB(A), which still falls below the acceptable limits at all assessed receptors. The turbines will use blades with edge serrations that are designed to reduce noise. No additional mitigation measures are required.

Cumulative Effects

10.2.5 No other wind farms were found close enough to require a combined (cumulative) noise assessment. Although another wind farm (Inverchaolain) is in the early design stage, it is more than 3 km away and unlikely to add any noticeable noise at the same locations. As a result, no cumulative impacts were identified.

Residual Effects and Mitigation

10.2.6 After considering both construction and operation, the study concluded that the overall noise impact from the wind farm would be low. All predicted levels are within accepted standards, and no further mitigation is required. Best practice measures will still be followed during construction, such as limiting activities to daytime hours and using well-maintained machinery.

11. Forestry

11.1 Baseline

11.1.1 The Proposed Development covers areas within two forest ownerships: parts of the Sandbank Long Term Forest Plan area and part of Auchamore Forest. The forests include commercial conifer plantations with species such as Sitka spruce, Scots pine, and larch, along with pockets of broadleaved woodland containing birch, oak, alder, willow, and hazel, especially along watercourses.

11.1.2 Some areas are designated as ancient woodland on the Ancient Woodland Inventory (AWI) or classified as Plantation on Ancient Woodland Sites (PAWS). These woodlands include semi-natural features of ecological and soil importance, despite much of the tree crop being commercial conifers planted in the mid-to-late 20th century.

11.1.3 Overall, the Site represents a working forest environment that is actively managed for timber, with periodic felling, restocking, and management against pests, windblow, and disease.

11.2 Predicted Effects

Construction Phase

11.2.1 Tree felling will be needed for access roads, turbine sites, and environmental buffers. In total, about 32.94 hectares will be felled, including 3.85 hectares of permanent felling, 7.39 hectares of temporary felling, and 21.68 hectares for peatland restoration as part of a Biodiversity Enhancement Strategy.

11.2.2 Permanent woodland loss includes around 1.08 hectares within areas recorded as AWI or PAWS. Although these trees themselves are plantation species, their soils have ancient woodland qualities, requiring compensatory planting at a 10-to-1 ratio.

11.2.3 Timber will be partly marketed and partly left to recycle nutrients. Temporarily felled areas will be replanted after construction, including 0.74 hectares with native broadleaved trees, providing an ecological improvement over the conifer crop. Overall, construction will affect a small portion of the forest, with no significant adverse effects expected beyond those areas addressed by compensatory planting.

Operational Phase

11.2.4 During operation, no further felling is planned beyond that during construction. Temporarily felled areas will be restocked and maintained to maturity, expected within about seven years. There are no additional significant forestry effects predicted during the operation phase.

Decommissioning Phase

11.2.5 No new felling would be required during decommissioning. Forestry effects at this stage would be negligible, with standard regrading of disturbed areas if necessary.

Cumulative Effects

11.2.6 Plantation forests are managed through periodic felling and replanting under long-term plans therefore no cumulative negative effects are predicted from combining the Proposed Development with other regional projects.

Enhancements and Mitigation

11.2.7 The Proposed Development includes enhancement measures, such as peatland restoration by removing poorly performing plantations. This will return approximately 21.68 hectares to functioning peatland, improving carbon storage, water management, and biodiversity. In addition, 13.57 hectares of compensatory planting off-site will help ensure no long-term net woodland loss.

11.2.8 All felling, replanting, and restoration will follow UK Forestry Standard guidelines and the Scottish Government's Policy on Control of Woodland Removal. These measures will protect sensitive soils, manage forestry waste responsibly, and maintain the wider forest landscape as a sustainable resource.

11.2.9 Overall, the assessment concludes that forestry effects from the Proposed Development will be managed through best practice and compensation, resulting in no significant long-term impacts on Scotland's forest resources.

12. Aviation

12.1 Baseline

12.1.1 The Proposed Development is located approximately 35 km north-west of Glasgow Airport, within unregulated Class G airspace. It lies outside any designated obstacle zones for major airports and is remote from military airspace or facilities. The nearest aviation constraints include Glasgow Airport's radar safeguarding zone and the NATS radar at Lowther Hill. The turbines, reaching a tip height of 200 metres, exceed the threshold requiring aviation lighting under Civil Aviation Authority (CAA) rules.

12.1.2 Consultation with key stakeholders—including Glasgow Airport, the Ministry of Defence (MOD), and NATS En Route Ltd (NERL)—formed a core part of the baseline assessment. The MOD requested standard aviation lighting due to potential low flying military operations, while Glasgow Prestwick Airport confirmed that it had no objections due to terrain shielding. There are no known unlicensed aerodromes, gliding, or microlight sites within relevant consultation distances.

12.2 Predicted Effects

Operational Phase

12.2.1 The turbines will be visible to two radar systems: Glasgow Airport's Primary Surveillance Radar (PSR) and the NATS radar at Lowther Hill. While the turbines do not physically obstruct air routes or flight paths, their presence may generate radar "clutter"—unwanted reflections that interfere with radar displays.

12.2.2 For Glasgow Airport, radar modelling showed partial visibility of six turbines to the PSR and five turbines to the Terma Scanter radar system. Although no impact on flight safety or navigation procedures was identified, the presence of turbine signals on radar displays requires technical mitigation. Glasgow Airport has confirmed that configuring the Terma radar appropriately can address this issue. An agreement between the developer and the airport is in progress and will be secured via planning conditions.

12.2.3 NATS similarly identified that all seven turbines would be visible to the Lowther Hill radar. This could result in radar clutter; however, because the national radar network includes overlapping coverage—particularly from the Tiree radar—NERL supports a mitigation strategy that involves 'blanking' the radar clutter from the affected zone. Discussions between the developer and NATS have led to an agreed mitigation approach, also to be formalised through planning conditions.

12.2.4 The MOD raised concerns about potential interference with military low-flying operations. To address this, three turbines will be equipped with both visible and infra-red aviation lights. The visible lights, required by CAA guidance, will be medium-intensity red lights mounted on the turbine hubs and will include dimming features to reduce light pollution. The infra-red lights will be invisible to the naked eye but detectable by military night vision equipment, ensuring air safety without significantly affecting visual character. The lighting mitigation scheme has been approved by the CAA and will be secured by planning condition.

Construction and Decommissioning Phase

12.2.5 There are no significant aviation concerns related to construction or decommissioning.

13. Other Considerations

13.1 Introduction

13.1.1 Chapter 14 assesses the potential effects of the Proposed Development in relation to:

- Shadow Flicker;
- Carbon Balance;
- Major Accidents and Disasters;
- Population and Human Health;
- Air Quality; and
- Television and Telecommunications.

13.2 Shadow Flicker

13.2.1 Tall structures such as wind turbines cast shadows. The shadows vary in length according to the sun's altitude and azimuthal position. Under certain combinations of geographical position and time of day, the sun may pass behind the rotor of a wind turbine and cast a moving shadow over neighbouring properties. Where this shadow passes over a narrow opening such as a window, the light levels within the room affected will decrease and increase as the blades rotate, hence the shadow causes light levels to 'flicker' - an effect commonly known as 'shadow flicker'.

13.2.2 The shadow flicker study area is defined as 10 rotor diameters plus 100 m micrositing, which equates to 1,720 m. Four properties were identified and assessed for shadow flicker: Stronsaul Cottage, Glenkin Cottage, Chromain Cottage, and Altinev.

13.2.3 The assessment considered a worst-case scenario where the sun is always shining and turbines are always turning, which is unlikely in practice. It then adjusted the results based on real weather conditions and turbine operations. Under these realistic conditions, all four properties are expected to receive less than 10 hours of flicker per annum. This falls considerably below the threshold of 30 hours of significance. Therefore, the overall impact due to shadow flicker is considered to be low.

13.2.4 Shadow flicker is not a concern during construction or decommissioning.

13.2.5 No significant effects are expected, and no mitigation is proposed since predicted shadow flicker is minimal. However, the turbines can be programmed to temporarily shut down if shadow flicker becomes a problem after installation, and a planning condition could be used to manage any complaints if they arise.

13.3 Carbon Balance

13.3.1 The 'Carbon Calculator' is a tool provided by the Scottish Government to help measure both the positive and negative carbon impacts of wind farm projects in Scotland which in turn helps to understand their overall effect on climate. This chapter includes a Greenhouse Gas (GHG) Impact Assessment which provides an estimate of the GHG emissions associated with the manufacture, construction and decommissioning of the Proposed Development. The chapter also calculates the contribution towards Carbon Dioxide emission savings. These two elements showcase a whole life cycle 'carbon balance' of the Proposed Development.

13.3.2 The Proposed Development is expected to produce GHG emissions due to manufacture, construction and decommissioning activities but these emissions to be offset in approximately 1.2 years which is equivalent to 2.4% of its 50-year operational lifespan against a fossil fuel-mix counterfactual of electricity. Thereafter the Proposed Development will contribute to national reduction CO_2 targets for the remainder of its operational lifetime.

13.4 Major Accidents and Disasters

13.4.1 The Proposed Development is judged to have a low vulnerability to major accidents or natural disasters, thanks to its location and design. Risks from flooding, sea level rise, or earthquakes are minimal. The Site is located away from major population centres, has a low local population density, and has been designed with suitable safety clearances around turbines. As such, effects on people, biodiversity, land, soil, water, air, or cultural heritage would be negligible even in the highly unlikely event of a turbine failure.

13.4.2 Specific measures will also be included for the proposed Battery Energy Storage System (BESS) on Site. The BESS compound will have an impermeable lining and stormwater storage, along with automatic fire suppression systems and shut-off controls to contain any spillage or contaminated water. In the event of a fire or leak, captured water and waste would be removed by tanker to an approved disposal facility.

13.4.3 Overall, the Proposed Development is considered to have very low risk from major accidents and disasters, and all safety procedures will comply with relevant health and safety legislation. The Health and Safety Executive (HSE) will continue to regulate site safety under standard regulations.

13.5 Population and Human Health

13.5.1 The Proposed Development has been assessed in relation to health and wellbeing of local people across various chapters, showing no significant health effects. Construction will temporarily increase HGV traffic, but this will remain well within local road capacities. Health and safety risks during construction will be managed under UK legislation including the Health and Safety at Work Act and Construction (Design and Management) Regulations.

13.5.2 During operation, site security will ensure public safety, with warning signs and secure areas around electrical equipment, substations, and the BESS. Underground cabling will further reduce risk.

13.5.3 Other hazards, such as blade throw, ice shedding, or lightning strikes, are extremely rare and accounted for through turbine design standards and automatic shutdown systems. The likelihood of earthquakes in the area is very low, and any such event would not significantly impact the Proposed Development or public safety.

13.5.4 Although access restrictions on local forest tracks will be required during construction, these will be communicated and kept to a minimum. Long-term, the public will have access to most of the Site except for fenced operational areas. Overall, no major effects on public health are expected during the construction, operation, or decommissioning phases of the Proposed Development.

13.6 Air Quality

13.6.1 Construction of the Proposed Development could create dust and minor air quality impacts, mainly from vehicle movements and earthworks. However, the nearest property is more than 500 metres away from the main construction areas, meaning any effects on residents from dust or vehicle emissions are unlikely. As such, significant impacts on local air quality are not anticipated, and no detailed air quality modelling was required.

13.6.2 A Dust Management Plan will be implemented as part of the CEMP. This will include measures to reduce dust, such as dampening surfaces, managing vehicle speeds, and regular site monitoring to make sure any dust is controlled effectively.

13.7 Television and Telecommunications

13.7.1 The purpose of the Television and Telecommunication section is to assess any potential impact of the Proposed Development on television and telecommunications infrastructure. Potential impacts can take the form of physical obstructions, adverse effects on the overall performance of communications, navigation and surveillance (CNS) equipment, and interference with electromagnetic signals and potentially affecting television reception and fixed telecommunication links.

13.7.2 The assessment of this is initially conducted by identification of fixed links which run through the Site, which is done by consultation with the Ofcom Spectrum Information Portal, and relevant fixed link operators.

13.7.3 In the case of the Proposed Development, no fixed links were identified. As no residual effects on fixed links are anticipated.

14. Summary of Significant Effects

14.1.1 The EIA for the Proposed Development has been carried out in accordance with regulatory requirements and guidance on good practice. The findings of the surveys undertaken, in addition to consultation, have informed the design process and assessment. Design modifications and pre-construction, construction and operational mitigation have been implemented to remove and reduce significant adverse effects.

14.1.2 Some significant adverse effects remain on the landscape and visual resource as these effects cannot be mitigated further given the inherent nature of the Proposed Development, however they have been reduced to the lowest practical level through the iterative design process. It is important to note, however, that landscape and visual assessments tend to focus on those locations and receptors where significant effects may arise. There are large parts of the 45 km study area where there will be no visibility of the Proposed Development at all or very limited visibility.

14.1.3 Significant operational effects on the settings of Adam's Cave, Dunoon Castle and Dunoon Conservation Area are also predicted. Effects upon the setting of these heritage assets have been minimised insofar as possible through the design process. Whilst there would be a moderate adverse effect, which is considered significant in EIA terms, upon the setting of the heritage assets as noted above, they key characteristics of setting would not be materially adversely affected; there would be no significant adverse impact upon the integrity of the heritage assets' setting in terms of NPF4. Significant cumulative setting effects are also predicted upon the Scheduled Dunoon Castle and the Dunoon Conservation Area.

15. Next Steps

15.1.1 The ECU will consider the Section 36 application and the findings of the EIA. Before making a decision on the application, the ECU will consult a number of consultees including ABC, NatureScot, HES and SEPA, and will consider all representations received from other parties including members of the public.

15.1.2 Any public representations to the application may be submitted via the ECU website at www.energyconsents.scot/Register.aspx; by email to the Scottish Government, Energy Consents Unit mailbox at representations_mailbox@gov.scot; or by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal (reference ECU00004851) and specifying the grounds for representation.