



**Eredine Wind Farm
Section 36 Consent Application
EIA Report – Volume 4: Non-Technical
Summary
October 2024**

Report for

RWE Renewables UK Onshore Wind Limited

Main contributors

Aaron Loman

Issued by

Nicolas Holmberg

Approved by

Glen Robson

WSP

Amber Court, William Armstrong Drive, Newcastle upon Tyne NE4 7YQ, United Kingdom.
Tel: +44 (0)191 226 2000

Doc Ref: 62281580-WSPE-RP-O-00015_P02

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by WSP save to the extent that copyright has been legally assigned by us to another party or is used by WSP under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of WSP. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by WSP at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. WSP excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
1	Draft for comment	17/05/2024
2	Second submission	13/08/2024
3	Final Submission	25/10/2024

Terminology

For the purposes of this Non-Technical Summary (NTS) the following terminology is used:

- The 'Proposed Development' – refers to the proposed 22 wind turbines with an installed generating capacity in excess of 50 Megawatts (MW); access tracks; crane hard standings; battery storage compound; control building and substation compound; one permanent anemometer mast; and a temporary construction compound.
- The 'Development Site' – means the site of the proposed Eredine Wind Farm, located approximately 4.5 kilometres (km) to the west of Inveraray and approximately 17km north-east of Lochgilphead. The majority of the Development Site comprises commercial forestry within Eredine Forest and is centred at coordinates Easting (E)199418, Northing (N) 704212.
- The 'Applicant' is RWE Renewables UK Onshore Wind Limited; and
- 'ABC' is Argyll and Bute Council.
- 'ECU' is the Scottish Government's Energy Consents Unit

Contents

1.	Introduction	6
1.2	The Applicant	8
1.3	Purpose of the NTS	8
1.4	Planning Policy	9
2.	Environmental Impact Assessment	10
2.1	EIA Process	10
2.2	Consultation	11
3.	Scheme Need and Alternatives	12
3.2	Alternatives	12
	No Development	12
	Alternative Sites	12
	Alternative Design and Technology	13
4.	Description of the Proposed Development	15
4.1	Development Site	15
4.2	Proposed Development Components	15
	Construction Process	16
	Operational Process	18
	End Of Life Process	18
5.	Potential Environmental Effects	19
5.2	Renewable Energy, Carbon Balance and Peat	19
	Baseline and Methodology	19
	Environmental Effects and Mitigation	20
5.3	Noise	20
	Baseline and Methodology	20
	Environmental Effects and Mitigation	21
5.4	Landscape and Visual	21
	Baseline and Methodology	21
	Environmental Effects and Mitigation	22
5.5	Historic Environment	25
	Baseline and Methodology	25
	Environmental Effects and Mitigation	25
5.6	Ecology	26
	Baseline and Methodology	26
	Environmental Effects and Mitigation	27
5.7	Ornithology	28
	Baseline and Methodology	28
	Environmental Effects and Mitigation	28
5.8	Geology, Hydrology and Hydrogeology	29
	Baseline and Methodology	29

	Environmental Effects and Mitigation	30
5.9	Traffic and Transport	31
	Baseline and Methodology	31
	Environmental Effects and Mitigation	31
5.10	Socioeconomics	32
	Baseline and Methodology	32
	Environmental Effects and Mitigation	32
5.11	Infrastructure and Other Issues	33
	Health and Safety	33
	Major Accidents and Disasters	33
	Utility Infrastructure and Telecommunications	33
	Population and Human Health	34
5.12	Aviation	34
	Baseline and Methodology	34
	Environmental Effects and Mitigation	35
6.	Conclusion	36

1. Introduction

- 1.1.1 RWE Renewables UK Onshore Wind Limited ('the Applicant') is submitting an application under section 36 of the Electricity Act 1989, as amended, seeking consent to construct and operate a wind farm generating station comprising up to 22 wind turbines and an installed generating capacity in excess of 50MW. The application for consent for the Proposed Development is accompanied by the Environmental Impact Assessment (EIA) Report ("EIA Report"), which has been prepared by WSP UK Ltd ("WSP") on behalf of the Applicant.
- 1.1.2 The Proposed Development is located in Argyll and Bute approximately 4.5km to the west of Inveraray and approximately 17km north-east of Lochgilphead. The majority of the Development Site, which is centred at coordinates (E) 199418, (N) 704212, is located within Eredine Forest and comprises commercial coniferous plantation. **Figure 1** shows a site location map in the wider landscape, while **Figure 2**, shows the Development Site planning application boundary and proposed turbine locations. These figures are replicated in this Non-Technical Summary (NTS).
- 1.1.3 The Proposed Development will exceed the 50MW threshold set by the Development (Hierarchy) Regulations, and would therefore have national development status. National Planning Framework 4 ("NPF4"), published on 13th February 2023, recognises the need for these developments, which are fundamental to the achievement of Scotland's net zero emissions target.

1.2 The Applicant

- 1.2.1 RWE is a leading renewables generator in the UK. Scotland is a key market for RWE, where they are involved in over 585MW of renewable electricity projects in construction and generation. RWE own /operate around 480MW of installed operational renewable capacity across 26 sites, including 15 hydropower, 10 onshore wind and 1 offshore wind projects.

1.3 Purpose of the NTS

- 1.3.1 This document constitutes the NTS and forms part of the EIA Report.
- 1.3.2 The EIA Report provides information relating to the Development Site and its surroundings, reasonable alternatives to the Proposed Development, a description of its key features, and a description of any likely significant effects resulting from its construction, operation and decommissioning. Potential cumulative effects as a result of changes due to the Proposed Development and other identified developments in the area are also considered along with measures to reduce potential significant effects.
- 1.3.3 The EIA comprises the following volumes:
- Volume 1: Main Report;
 - Volume 2: Figures;
 - Volume 3: Technical Appendices;
 - Volume 4: Non-Technical Summary (NTS); and
 - Volume 5: Confidential Annex.
- 1.3.4 The aim of the NTS is to provide an overview of the content and main findings of the EIA Report in non-technical language that is easily understandable by individuals who do not have a technical background in the aspects assessed.
- 1.3.5 Those interested in obtaining more detail about the environmental aspects of the Proposed Development and resulting environmental effects should consult the Main Report in Volume 1.
- 1.3.6 The EIA Report (including summary of significant effects), NTS, Planning Statement, Pre-Application Consultation Report and Design and Access Statement are available to download from the project website: <https://uk.rwe.com/project-proposals/eredine/> and [Scottish Government - Energy Consents Unit](#). Hard copies of these documents will also be placed at the following locations:
- Loch Fyne Hotel - https://www.crerarhotels.com/loch-fyne-hotel-spa/?gad_source=1&gclid=Cj0KCQjw05i4BhDiARIsAB_2wfDBAW8jyHcQOhfhVmlb-NYYG1gtX97nq3III_MbbD6O9Iy-GszqAaArVbEALw_wcB
 - Argyll and Bute Council Customer Service point Lochgilphead - [Lochgilphead Customer Service Point | Argyll and Bute Council \(argyll-bute.gov.uk\)](#)
- 1.3.7 Any comments on the Proposed Development should be directed in writing to the ECU via the public access planning portal at www.energyconsents.scot/Register.aspx, by email to the ECU mailbox at representations@gov.scot or by post to:

Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

1.4 Planning Policy

- 1.4.1 National Policy comprises NPF4 (2023), which provides the spatial strategy for Scotland to 2045 and takes account of the target of net zero emissions by 2045 set by the Scottish Government. It provides a strong framework for the deployment of renewable energy developments and identifies the need for strategic scale renewable energy developments, including onshore wind farms. In addition, subject specific national planning policies, National Planning Advice and Circulars are also included within this chapter.
- 1.4.2 Following adoption of the NPF4, the statutory Development Plan covering the Development Site comprises:
- NPF4 (2023); and
 - Argyll and Bute Local Development Plan 2 (2024).
- 1.4.3 The publication of NPF4 has coincided with the implementation of certain parts of the Planning (Scotland) Act 2019 (the 2019 Act). A key provision is that in the event of any incompatibility between a provision of NPF4 and a provision of a Local Development Plan (LDP), then whichever of them is the later in date will prevail.

2. Environmental Impact Assessment

2.1 EIA Process

- 2.1.1 EIA is a process by which information about the potential environmental effects of a proposed development is collected, evaluated and presented to the consenting authority, consultees and the general public when considering an application. Where appropriate, mitigation measures are proposed to avoid, reduce and, if possible, offset any likely significant adverse environmental effects as result of the Proposed Development. This information is presented in an EIA Report and is used by the determining authority to decide whether or not a project should be granted consent. In the case of the Proposed Development, this will be the Scottish Ministers, since a Section 36 application is required, given the Proposed Development will have a generating capacity of over 50MW.
- 2.1.2 An EIA is required because the Proposed Development falls under Schedule 2 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the "EIA Regulations") as a generating station (Schedule 2(1)) and is likely to have significant effects on the environment by virtue of factors such as its nature, size or location. This EIA Report has been prepared in accordance with the requirements of the EIA Regulations.
- 2.1.3 In general, the EIA process is aligned with the following key steps:
- Screening
 - Screening refers to the decision which determines if an EIA is required. This decision is taken by the determining authority, based on the nature and scale of the development as well as its setting, in relation to sensitive environmental features. However, developers can equally voluntarily undertake an EIA. For most projects, the determining authority is likely to be asked for a screening option by the developer. The determining authorities' decision as to whether an EIA is required is based on criteria set out in Annex 3 of the EIA Directive, and detailed guidance from the European Union, Government and other relevant authorities.
 - Scoping
 - If an EIA is required, the developer may request a scoping opinion from the determining authority. The aim of scoping is to identify the effects which are most likely to be significant, and therefore determine the effects which will be assessed within the EIA Report. Once the request is received, the determining authority will consult relevant agencies and provide their scoping opinion to the developer. Though EIA Scoping is not a mandatory requirement, it helps provide the developer with confidence that the significant effects determined in the EIA are also considered important by the determining authority.
 - Environmental Statement
 - Following the scoping report, an EIA Report is prepared and submitted. An EIA Report presents and assesses the relevant information to determine likely significant environmental effects of a development. The information required is specified in regulation 18(3) of the EIA directive, as well as additional information in Schedule 4.
- 2.1.4 The EIA Report has identified the likely effects of the Proposed Development on the environment (including people) and a determination has been made as to whether any of these could be significant. Mitigation measures to reduce or avoid adverse effects were

incorporated into the design of the Proposed Development and the assessment of residual effects presented in the EIA Report takes these into account.

2.2 Consultation

- 2.2.1 Consultation is a vital aspect of the EIA process, both to agree what work should be carried out to inform the EIA and to seek feedback on the proposals from key stakeholders. Extensive consultation (including public consultation) was undertaken throughout the design evolution of the Proposed Development.
- 2.2.2 An EIA scoping report for the Proposed Development was submitted for comment to the Scottish Ministers in June 2020; this was followed by a further request on 24th June 2022 as a result of the consideration of larger turbines for the Proposed Development. .
- 2.2.3 The Scottish Ministers issued the Scoping Opinion in response to the 2022 EIA Scoping Report on 20th September 2022. At the time of publishing the Scoping Opinion, the consultation response from ABC had not been available to the ECU. A Scoping Opinion Addendum providing ABC's consultation response was therefore subsequently issued by the ECU on 31st May 2023. Together, these responses have informed the scope of the EIA.

3. Scheme Need and Alternatives

- 3.1.1 In order to meet international obligations, both the UK Government and the Scottish Government have adopted legally binding commitments to reduce greenhouse gas emissions in an effort to reduce the level of future climate change. It remains the case that the Scottish Government expect that a significant proportion of the power generation capacity required to replace fossil fuel generation will come from onshore wind generation in Scotland in the short term. As Scotland has one of the windiest climates in Europe, it has great potential to generate electricity from wind power, and, if constructed, the Proposed Development would contribute additional renewable generation capacity.
- 3.1.2 In April 2022, the UK Government published its British Energy Security Strategy. The strategy proposes to accelerate the UK towards a low-carbon, energy independent future. Of relevance to the Proposed Development, it states that there should be an *“approach to reduce global reliance on Russian fossil fuels whilst pivoting towards clean, affordable energy”*. The Proposed Development would generate energy in the UK which would contribute to this approach.
- 3.1.3 A report published by the House of Commons Environmental Audit Committee in February 2021 (*“Growing back better: putting nature and net zero at the heart of the economic recovery”*) recommends that *“the focus must be on how to grow back better, creating a greener, healthier and more resilient economy”* and that *“It is essential that all decisions on infrastructure investment are considered with regard to UK net zero targets, impacts on biodiversity and future projections for changes in climate likely to affect the UK”*. The Proposed Development would contribute to creating a greener, healthier and more resilient economy.

3.2 Alternatives

- 3.2.1 **Chapter 3: Design Evolution and Alternatives** of the EIA Report provides detail on the consideration of alternative options for the Development Site, which include no development, alternative sites, and infrastructure layout designs as summarised in the following sections.

No Development

- 3.2.2 Without the Proposed Development, the current main land use of the Development Site for commercial forest would continue. From an environmental perspective, there would be no contribution towards climate change targets and no reduction in the reliance on fossil fuel use for energy production.

Alternative Sites

- 3.2.3 In 2011, Forest Enterprise Scotland¹ awarded the Applicant the exclusive rights to investigate the potential for new onshore wind energy projects within parts of the Scottish National Forest Estate in Argyll and Bute.

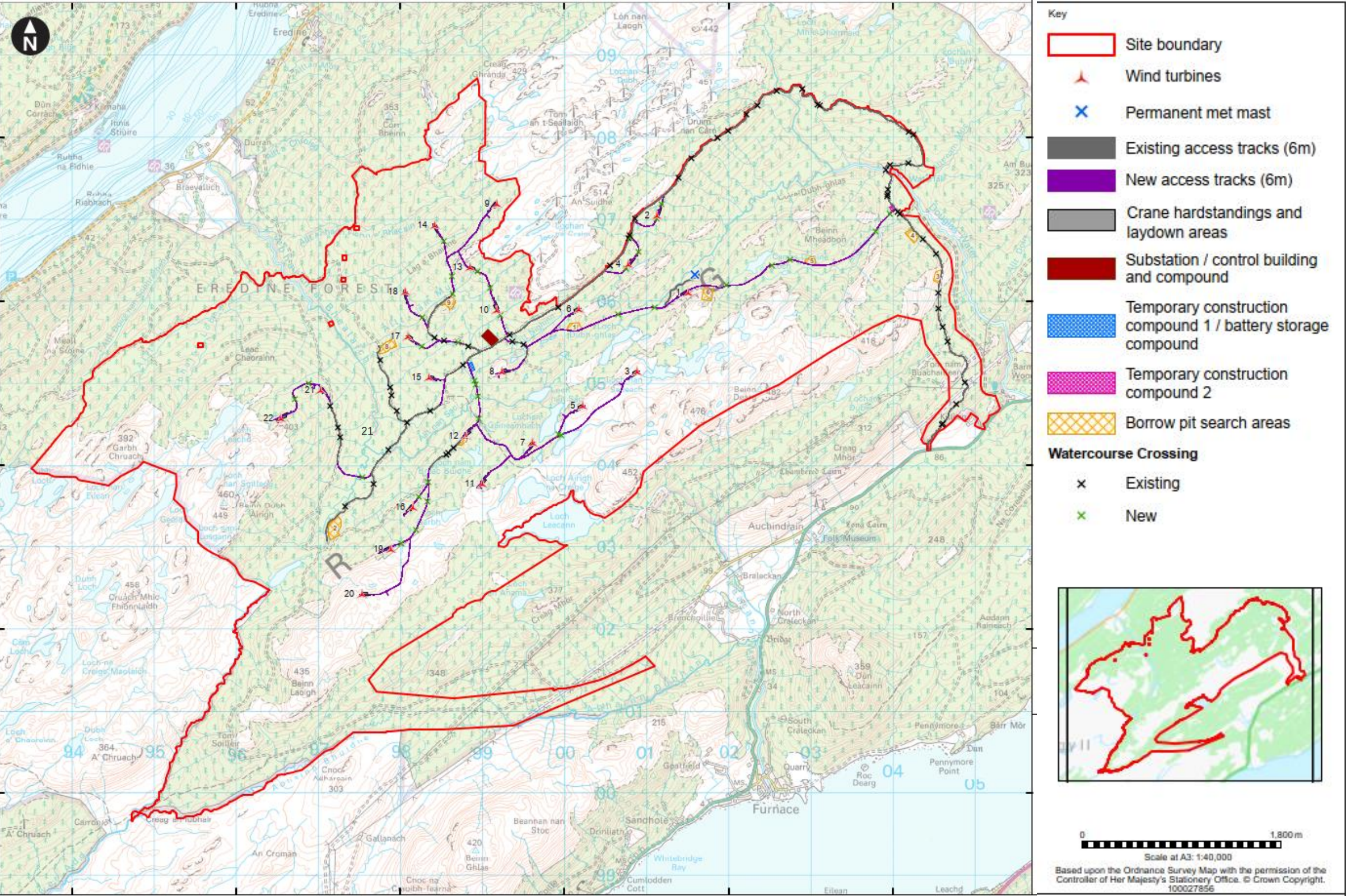
¹ In April 2019, Forestry and Land Scotland (FLS) became the sole Scottish Government Agency responsible for managing and promoting the National Forest Estate in Scotland, taking on the responsibilities of FES, as well as those of Forestry Commission Scotland.

- 3.2.4 While no alternative sites for a development of a 22-turbine wind farm were considered by the Applicant, alternatives in respect of layout, number of turbines and technology were considered as part of the iterative design process.

Alternative Design and Technology

- 3.2.5 The layout of the turbines, battery storage and associated infrastructure has progressed through a number of design iterations and refinements, influenced by the EIA process.
- 3.2.6 The Applicant and its consultants undertook discussions with statutory and non-statutory consultees, the local community and the landowners.
- 3.2.7 The design of the Proposed Development has evolved in response to feedback provided, desk studies and site work/technical appraisals by the project team.
- 3.2.8 Following a desktop-based constraints mapping exercise, an initial 'feasibility' layout of 26 turbines was considered. A detailed, iterative, process of design refinement has been undertaken subsequently, which has resulted in the Proposed Development layout.
- 3.2.9 The final layout of the development (**Figure 2**) was the outcome of balancing the maximum energy yield of the site while minimising the potential effects on the environment. The design took into account offsite and onsite environmental considerations including:
- Landscape and Visual;
 - Peat;
 - Hydrology;
 - Ornithology;
 - Ecological Habitats;
 - Cultural Heritage;
 - Telecommunications; and
 - Engineering.
- 3.2.10 Overall, design features and embedded mitigation measures have been incorporated into the design and construction of the Proposed Development to avoid, prevent or minimise significant adverse environmental effects as far as reasonably practicable and to enhance beneficial effects. For instance, the site infrastructure has been designed to use the minimum possible land take (reusing existing tracks as far as possible), and new access tracks have been designed to be linear, where possible, to avoid habitat fragmentation. The design has located turbines within coniferous forest, as well as surrounding them by low-rise summits to reduce landscape and visual effects. Watercourse buffers of 50m have been applied across the Development Site where possible.
- 3.2.11 Further detail on the design process can be found in **Chapter 3: Design Evolution and Alternatives** of the EIA Report and the Design and Access Statement.

Figure 2 – Site Layout



4. Description of the Proposed Development

4.1 Development Site

- 4.1.1 The Development Site (see **Figure 1**) extends to approximately 4,247 hectares (ha), however the wind farm infrastructure would occupy only a small part of the overall Development Site, approximately 27ha.
- 4.1.2 The nearest residential property is Killean Farmhouse, which is located adjacent to the Development Site boundary where it joins the A83 to the east. Killean Farmhouse is located 3.8 km south-east from the nearest turbine location.

4.2 Proposed Development Components

- 4.2.1 Consent is sought to construct the Proposed Development and operate it for 35 years after which time it is assumed it will be decommissioned. The Proposed Development would comprise the following main elements:
- Up to 22 wind turbines, with tip heights of up to 200m, each with an external transformer and turbine foundation;
 - Access tracks connecting the turbines and other infrastructure elements;
 - Crane hardstanding and blade laydown areas at each turbine location;
 - Battery storage;
 - Control building and substation compound;
 - One permanent anemometer mast;
 - Temporary working areas e.g. construction compounds;
 - 92 watercourse crossings (57 existing and 35 new);
 - Electrical cabling between the control building and turbines;
 - Up to 9 potential borrow pits; and
 - Felling of approximately 198.1 hectares (ha) of commercial forest.
- 4.2.2 The location and layout of site infrastructure is shown on **Figure 2**, this being subject to micrositing during the construction phase to respond to as yet unknown ground conditions.
- 4.2.3 Micrositing refers to the precise locating of wind farm infrastructure following more detailed ground investigations that would be carried out post consent. This allows the location of the turbines, crane hardstanding and the permanent met mast to be revised within a specified distance and up to 50m is proposed for these elements. For all other infrastructure, a micrositing distance of up to 100m is proposed.

Construction Process

- 4.2.4 A Contractor will be appointed to construct the Proposed Development. Felling will be undertaken prior to construction (198.1 ha). Subject to the granting of consent, it is anticipated that the Proposed Development would be constructed over a period of approximately 24 months.
- 4.2.5 Standard construction best practice guidance will be applied to all activities, which will include:
- Upgrading of the existing access to the Development Site from the A83 and the existing tracks leading to the new elements of the Proposed Development, including temporary construction compound No.2;
 - Formation of two temporary construction compounds including hardstanding and temporary site office facilities;
 - Felling of commercial forestry to create areas for wind turbines, access tracks and other associated infrastructure;
 - Construction of on-site access tracks and passing places (as required), inter-linking the turbine locations and control building/substation compound;
 - Construction and upgrade of culverts under roads to facilitate drainage and maintain existing hydrology;
 - Opening and operating site borrow pits, starting during the construction of new tracks, from construction compound No. 2;
 - Operation of on-site concrete batching plant;
 - Construction of crane hard standing areas;
 - Construction of turbine foundations;
 - Construction of on-site control building/substation compound and infrastructure required to provide a connection point to the Network Operator substation;
 - Excavation of trenches and cable laying adjacent to site access tracks;
 - Connection of on-site distribution and signal cables;
 - Delivery and erection of wind turbines;
 - Commissioning of site equipment;
 - Construction of battery compound, which will occupy half of the temporary construction compound;
 - Installation of battery storage equipment and commissioning; and
 - Development Site restoration (e.g., reinstatement of vegetation at track edges, compensatory replanting etc.).

Site Access

- 4.2.6 The Development Site access will be the existing An Suidhe wind farm access, east of the Development Site, then via a new access track through the commercial forest block.
- 4.2.7 Due to the abnormal size and loading of wind turbine delivery vehicles and the crane, it is necessary to review the public roads that will provide access to the Development Site to

ensure they are suitable, and to identify any modifications (e.g., widening) required to facilitate access for delivery vehicles.

- 4.2.8 A Route Survey Report (RSR) (**Appendix 13A** of the EIA Report) has been produced to review potential access routes, including analysis of the space needed to turn for Heavy Goods Vehicles (HGVs) carrying the turbines. The proposed route for abnormal loads is from Campbeltown Harbour. Loads could be offloaded and transported via the access road to and from the quay. From here the access route would join the A83, B8024, rejoin the A83 and turn left into the existing An Suidhe wind farm access.
- 4.2.9 General construction traffic, which would include flatbed trucks and HGVs delivering plant and equipment (e.g., excavators) as well as vans and cars associated with construction staff movement, will also access the Development Site from the east via the A83.
- 4.2.10 A Construction Traffic Management Plan (CTMP) will be developed in discussion with relevant consultees following the grant of planning permission and will set out all traffic management measures including any diversions, programming, stacking areas and vehicle movements on and off-site.
- 4.2.11 Construction activities are assumed to take place only between 07:00 and 19:00 hours on weekday; for Saturdays, assumed hours will be between 07:00 to 19:00 during summer months, and 07:00 to 17:00 in winter months. Permission for work outside of these hours would be obtained from ABC as required.
- 4.2.12 Work outside these hours is not usual, though if required to meet specific demands (e.g., during foundation pours, tower erection and highly weather dependent activities), where possible permission for short term extensions to these hours would be sought from ABC as required.

Environmental Management during Construction

- 4.2.13 The range of measures developed to eliminate or reduce the environmental impacts of construction will be detailed in a Construction Environmental Management Plan (CEMP).
- 4.2.14 The CEMP will, as a minimum, implement all of the mitigation measures required during construction as identified as necessary within this EIA Report, or conditions of consent set by the determining authorities, to mitigate any likely significant adverse effects. This will outline a suite of control measures to manage the potential environmental impacts during this phase (including noise, pollution, surface water run-off and waste). Further details on the standard construction practices can be found in **Chapter 4: Description of the Proposed Development** of the EIA Report.
- 4.2.15 The Contractor will employ an independent and appropriately qualified environmental scientist or ecologist as an Environmental Clerk of Works (ECoW). The ECoW will be employed on a part time basis during the construction phase and will take a key role in the preparation of the CEMP. An ECoW will undertake responsibilities such as:
 - Toolbox talks – for example advising on how to minimise preventable impacts on blanket bog habitats; and
 - Site supervision - responsible for ensuring the successful implementation of any embedded measures, including pollution prevention, monitoring of buffers around construction areas and areas of high ecological sensitivity, and ensuring adherence to current construction best practice;
- 4.2.16 An outline Habitat Management Plan (oHMP) (**Technical Appendix 10H** of the EIA Report) has been prepared, which is expected to be refined and agreed under the conditions of consent. The oHMP sets out proposed habitat management measures to mitigate the

effects on identified features, notably peatland habitats, as well as delivering additional biodiversity improvements to benefit ecological features, across the Development Site, addressing the requirement of National Planning Framework 4 (NPF4)², Policy 3 that *"development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats"*.

Public Site Access

- 4.2.17 Appropriate signage will be provided on the Development Site to highlight any hazards, areas that should be avoided or where unauthorised entry is prohibited. During the construction phase, anticipated to be approximately 24 months, public access on-site will be restricted for health and safety reasons.

Operational Process

- 4.2.18 Long-term land management practises in relation to forestry will continue unaffected during the operation of the Proposed Development.
- 4.2.19 The Proposed Development will be operated in accordance with ISO:14001 environmental management procedures ensuring compliance with applicable environmental legislation and best practice. The turbines would be maintained and serviced at regular intervals in accordance with manufacturer recommendations and industry best practice. Access to all turbines and electrical infrastructure will be controlled to authorised individuals only.
- 4.2.20 Although activity at the Development Site will be limited during the operational period, the measures outlined in site and task specific risk assessments and method statements including control measures in relation to surface water runoff, dust, pollution control and waste will remain in place to cover any maintenance works which may be required.

Community benefit

- 4.2.21 The Proposed Development will adhere to the Scottish Government best practice guidelines in relation to community benefit funds.
- 4.2.22 Although the community benefits are not within the assessment scope, it is worth noting that, as part of the Applicant's agreement with FLS, the Applicant is offering the local community the opportunity to invest into the Proposed Development up to 49%.

End Of Life Process

- 4.2.23 As the Proposed Development nears the end of its operational life, a decision will be taken with regards to the potential options available which could include an extension of the operational period beyond the proposed 35 years, repowering with new turbines or decommissioning.
- 4.2.24 For the purpose of the assessment presented in the EIA Report, it is assumed that the Proposed Development will be decommissioned at the end of its operational life, which will take approximately 12 months. For the decommissioning option, it is generally proposed that above ground structures (wind turbines, kiosks, and control building/battery storage) are removed (per any condition attached to the consent if granted) and the hardstanding areas re-instated where appropriate. Access tracks are left in situ for use by the landowner as the environmental impacts of removal are considered to be greater than leaving in situ.

² <https://www.gov.scot/publications/national-planning-framework-4/>

5. Potential Environmental Effects

- 5.1.1 The emphasis of the EIA Regulations is on the assessment of the likely 'significant' environmental effects which a proposed development is likely to give rise to.
- 5.1.2 The environmental topics considered for the Proposed Development and reported in the EIA Report are:
- Chapter 6 – Renewable Energy, Carbon Balance and Peat;
 - Chapter 7 - Noise;
 - Chapter 8 – Landscape and Visual Impact;
 - Chapter 9 - Historic Environment (including archaeology and cultural heritage);
 - Chapter 10 - Ecology;
 - Chapter 11 - Ornithology;
 - Chapter 12 - Geology, Hydrology and Hydrogeology;
 - Chapter 13 - Traffic and Transport;
 - Chapter 14 - Socio-Economics;
 - Chapter 15 - Aviation; and
 - Chapter 16 – Infrastructure and Other Issues.
- 5.1.3 The potential significant effects identified for the topics listed above have been assessed by a team of qualified experts, using appropriate methodologies which were agreed with ABC and relevant consultees. As part of the assessment, mitigation measures have been identified in order to reduce the residual effects.
- 5.1.4 The key outcomes of the assessment undertaken for each individual environmental topic considered within the EIA has been summarised in the sections below.

5.2 Renewable Energy, Carbon Balance and Peat

Baseline and Methodology

- 5.2.1 The primary purpose of the Proposed Development is to generate renewable energy, thereby assisting in the reduction of greenhouse gas emissions by reducing the need for production of electricity from combustion of fossil fuels.
- 5.2.2 The carbon balance of the Proposed Development is the length of time the Proposed Development would take to offset the carbon emissions from component manufacture, as well as its construction and decommissioning. It also takes into account carbon losses from peat disturbance within development areas. The carbon savings for the Proposed Development are calculated using accepted Scottish Government guidance.
- 5.2.3 An Outline Peat Management Plan has been produced using the results of comprehensive peat probing surveys that have been carried out in accordance with SEPA's peat depth probing survey guidance.

- 5.2.4 The predicted volume of excavated peat is 254,199m³, all of which can be re-used for reinstatement operations within the Development Site.

Environmental Effects and Mitigation

Landslide risk

- 5.2.5 The results of the Peat Landslide Risk Assessment indicate that the Development Site is dominated by areas of Negligible to Low peat landslide risk. However, the assessment indicates that parts of T1, T3, T7, T8, T9, T11, T19, T21, BP2, BP6 and Temporary Construction Compound 1 are within areas of Moderate risk.
- 5.2.6 A detailed ground investigation is recommended, prior to construction, to undertake a detailed assessment of peat slope stability in the most sensitive areas of the Proposed Development. Should this identify features that increase the susceptibility of peat to slide (e.g. peat pipes and flushes), the primary mitigation to be employed will be use of the micro-siting allowance.
- 5.2.7 The mitigation measures employed should also aim to minimise additional loading of susceptible peat covered slopes, maintain the current drainage of the peat, avoid ponding of surface water and, where necessary, redirect drainage to a purpose-built network. In addition, monitoring of slopes is recommended in key areas of the Proposed Development situated within or near susceptible slopes or areas of Moderate peat landslide risk.

Carbon balance

- 5.2.8 It is predicted that the carbon loss in developing the Proposed Development would be paid back in ~3 years (9% of the 35-year operational life) based upon the expected outcome under the fossil fuel mix scenario. Even considering the maximum scenario against the fossil fuel mix, the Proposed Development would have achieved the carbon balance within ~7 years (17% of the 35-year operational life). The payback period could be as low as 1.4 years for the minimum scenario.
- 5.2.9 On the basis of potential annual CO₂ savings of 128,700 tonnes/year (based on figure of 424 tonnes of CO₂ savings per GWh and a capacity factor of 35%), the Proposed Development could result in a total carbon saving of approximately 4.5 Million (M) tonnes over its 35-year operational life and generate electricity to annually supply the equivalent of 98,600 homes.

5.3 Noise

Baseline and Methodology

- 5.3.1 An assessment of the potential significant effects from the Proposed Development with respect to noise has been undertaken. This has included a construction noise assessment, which has taken traffic noise for residences situated along construction traffic routes into account, and an operational noise assessment of the Proposed Development (alone and cumulative with other development).

Environmental Effects and Mitigation

Construction

- 5.3.2 The results of the construction noise assessment show that no exceedances of acceptable noise levels have been predicted. As such, no significant noise effects as a result of the Proposed Development would occur.
- 5.3.3 The nearest noise sensitive receptor (NSR) to the proposed battery storage facility is approximately 3.5 km to the north and significant noise-related effects are therefore unlikely as a result of the distance between these.

Operation

- 5.3.4 Operational turbine noise occurs by movement of the blades through the air as they rotate. At higher wind speeds, the noise is usually masked by the increasing sound of wind blowing through trees and around buildings. The level of masking determines the perceived noise level of the wind farm. An operational noise impact assessment was undertaken in order to predict the potential noise levels emitted by turbines and assess them against established standards (referred to as ETSU-R-97). The results of the assessment show that the ETSU-R-97 noise limit criteria at all NSRs would not be exceeded for the Proposed Development in isolation, and therefore effects are predicted to be not significant.

Cumulative

- 5.3.5 In addition, a cumulative noise assessment has been undertaken, to determine the operational noise effects of the Proposed Development and other wind farm developments. The results show that there are no exceedances of the ETSU-R-97 limit criteria and no significant cumulative effects are predicted.

5.4 Landscape and Visual

Baseline and Methodology

- 5.4.1 A Landscape and Visual Impact Assessment (LVIA) has been undertaken to evaluate the landscape and visual effects of the Proposed Development during its construction, operation and decommissioning phase.
- 5.4.2 The landscape and visual effects are determined by an assessment between the nature of each receptor and the nature of the effect that would result from the Proposed Development. The following landscape and visual receptors have been assessed:
- Landscape character, key characteristics, and elements;
 - Designated landscapes including National Scenic Areas (NSA), Local Landscape Areas (LLA) (which replace Areas of Panoramic Quality (APQ)) and Wild Land Areas; and
 - Views and visual amenity experienced by residents, tourists, visitors, recreational and transport users.
- 5.4.3 The assessment takes account of the value and susceptibility of the receptor to the Proposed Development. This is combined with an assessment which takes account of factors such as the size and scale of the proposed change and the geographical extent.

Other factors such as the duration of change and whether the effect is cumulative are also noted. By combining these assessments, a level of landscape or visual effect can be evaluated and the significance of the effect determined.

- 5.4.4 LVIA unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.
- 5.4.5 Potential effects considered resulting from the Proposed Development include those relating to landscape character, designated and protected landscapes and views / visual amenity experienced by residents, tourists, visitors and road / rail users. A nighttime assessment has been undertaken, as aviation lighting is required for some of the turbines. This is to comply with the Civil Aviation Authority (CAA) requirements for a low flying area, which the Proposed Development occupies. Consideration has also been given to cumulative effects resulting from other wind farm developments in the 30km Study Area.
- 5.4.6 The majority of significant visual effects typically start from none at start of construction to major on completion. Any effects near the end of construction will be consistent with effects during operation. For further information, see **Chapter 8: Landscape and Visual**, of the EIA report.

Environmental Effects and Mitigation

Embedded Mitigation through Design

- The design evolution of the Proposed Development has considered landscape and visual effects and, as such, the Proposed Development design has a range of embedded measures to mitigate against these effects. Some key design features include a reduction in the horizontal and vertical extent of the Proposed Development and a reduction in turbine numbers from 26 to 22 which has reduced the zone of theoretical visibility (ZTV). The vertical turbine height has also reduced from 230m to blade tip at scoping to up to 200m to blade tip.
- The proposed turbines have been located within the central plateaux of the landscape and set within a forested area, surrounded by low-rising summits, that limits their visibility from surrounding areas; and
- The location of the turbines were placed to create a simple and visual composition, reflecting the character of the *Craggy Upland* LCT and the pattern of other existing and consented wind farm development nearby.

Landscape Effects

- 5.4.7 The Proposed Development is not located within any designated landscapes or Wild Land Areas and there would be no significant effects on the special landscape qualities of the Loch Lomond and Trossachs National Park, Knapdale National Scenic Area or the wild land qualities of any Wild Land Areas.
- 5.4.8 However, significant effects resulting from large-scale wind farm development are unavoidable and the Proposed Development would have a significant effect on part of the Craggy Upland and adjacent Loch Fyne Upland Forest Moor Mosaic landscape character types (LCTs), affecting a local area within approximately 2km of the proposed turbines. This level of effect, and geographical extent, is not unusual for wind farm development. There would be no significant effects to the north-east due to the presence of the existing An Suidhe Wind Farm which already has an influence on this part of the Craggy Upland

landscape. Beyond 1-2km to the south-east, significant effects would be limited by the recently constructed Inveraray to Crossaig 275kV Overhead Line that crosses this landscape.

Visual Effects

- 5.4.9 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 10km from the Proposed Development (subject to a clear view of the proposed turbines and screening by landform and / or vegetation), as indicated by viewpoints 1, 2, 3, 4, 5, 8 and 12. A further potentially significant effect at approximately 12km from the nearest turbine is illustrated by Viewpoint 15: Beinn Bhan. Overall the views from the summit of Beinn Bhan would not be significant when considered as part of the wider 360° views and the walker experience. The greatest magnitude of change is visible at Viewpoints 2 and 3. A list of these viewpoints is provided below, with the level of effect in brackets:
- Viewpoint 1 B840 Durran (Moderate);
 - Viewpoint 2 Loch Awe Waters (Substantial to Major);
 - Viewpoint 3 Kilmaha (Substantial to Major);
 - Viewpoint 4 Dalavich (Major);
 - Viewpoint 5 Minor Road between Dalavich and Inverinan (Major to Moderate);
 - Viewpoint 8 Leanach (Moderate);
 - Viewpoint 12 Loch Fyne Waters (Moderate); and
 - Viewpoint 15 Beinn Bhan (Moderate).
- 5.4.10 There would be no significant visual effects from the north-east, east and west of the Proposed Development or beyond the containing slopes and facing edges of the lochs.

Visual Effects from Properties / Settlements

- 5.4.11 There are no residential properties within 2km of the proposed turbines. There would be significant visual effects (day and night) on the views from parts of Dalavich as a result of the Proposed Development. Significant cumulative effects are also predicted from the settlement of Dalavich as a result of Blarghour / Blarghour Variation, An Carr Dubh and the Proposed Development. There would be no significant visual effects on any other settlements within the Study Area.

Visual Effects from Transport Routes

- 5.4.12 The assessment considers the sequential and cumulative visual effects on views of the Proposed Development from selected transport routes within 10km (and 12km south-west) of the Proposed Development.
- 5.4.13 The views from these routes would be experienced transiently by road users (mainly drivers and where appropriate cyclists) who would experience the Proposed Development as part of the changing sequence of views experienced from the road. The assessment has also taken account of other wind farms visible from these routes.
- 5.4.14 In summary, significant effects would be limited to sections of the following transport routes:
- Up to approximately 0.4km of the A886 on the approach to the B8000 at Leanach;

- Up to approximately 1km of the B840 in oblique inland views at Durran;
- Up to approximately 0.7km of the B8000 at Leanach; and
- Minor road along western shore of Loch Awe (C29 and C30) (overlapping with the Caledonia Way and Core Path C173 (a-d) Ford to Annat via Loch Avich and Inverinan) for ~4.6km where there would be glimpsed open views at Kilmun and between Dalavich and Acrihamish (subject to intermittent screening from vegetation and local landform and replanted coniferous forest that would mature to screen the view over time in places reducing to non-significant levels).

5.4.15 There would also be significant night-time visual effects along parts of the minor road along the western shore of Loch Awe (C29 / C30). There would be no significant night-time effects on the remaining transport routes.

Visual Effects from Recreational Routes

5.4.16 The visual assessment has considered the potential visual effects likely to be experienced by people (walkers / cyclists / horse riders / and others) on recreational routes overlapped within the area from which the Proposed Development will likely be visible (also known as the zone of theoretical visibility, or ZTV). The recreational routes include Core Paths, heritage paths and Scottish hill tracks which have been assessed within 10km of the Proposed Development. National recreational routes within 30km of the Proposed Development that are overlapped by the blade tip ZTV are also included in the assessment.

5.4.17 There would be significant visual effects from parts of the following recreational routes:

- Core Path C119 (b-c): Braevallich, Loch Awe to Furnace / Scottish Hill Track 104. This route passes through the Development Site;
- Core Path C305: Dalavich to Barnaline Lodge;
- Core Paths C486 – Dun Dubh, Ford; and
- Scottish Hill Track Right of Way 105 / 106 Furnace to Ford / Kilmichael Glassary.

5.4.18 There would be no significant visual effects on the views from any other recreational routes within the Study Area.

Visual Effects from Recreational and Tourist Destinations

5.4.19 There would be a significant effect on the views from offshore recreational receptors on parts of Loch Awe and Loch Fyne. Whilst there would be a significant effect on the views from these receptors, there would be no significant effects on the overall recreational / visitor experience associated with the lochs. There would also be no significant visual effects on any land-based recreational and tourist destinations including Garden and Designed Landscape (“GDL”) and hill summits.

Visual Effects from Aviation Lighting

5.4.20 An aviation lighting strategy has been prepared to address the potential adverse effects of the Proposed Development’s operation upon aviation interests, such as commercial, private and military aircraft. The lighting arrangement includes CAA approved lighting on thirteen turbines, and MOD infra-red lighting on all turbines.

5.4.21 The night-time assessment concluded that there would be no significant night-time effects on the majority of receptors within the Study Area.

- 5.4.22 When the lights are operating at maximum intensity, during periods when visibility is less than 5km, the receptors which would be significantly affected are as follows:
- Parts of the settlement of Dalavich;
 - A minor road along western shore of Loch Awe (overlapped with the Caledonia Way and Core Path C173 (a-d));
 - Core Path C119 (b-c) / Scottish Hill Track 104;
 - Core Path C305; and
 - Scottish Hill Track Right of Way 106.
- 5.4.23 However, it is unlikely that people would be walking along Core Paths / Rights of Way at night and the scenic views would be limited by darkness. There would also be limited number of residents looking outside their house at night and a smaller number of drivers along the minor road at night.

5.5 Historic Environment

Baseline and Methodology

- 5.5.1 An assessment of the direct effects on historic heritage assets such as physical disturbance and damage, as well as effects through change of setting of off-site heritage features and the wider historic landscape, have been considered in the historic environment assessment.
- 5.5.2 Heritage assets are features created or that have undergone modification by human agency. This includes a wide range of visible and buried archaeological sites and monuments, as well as other historic features or places. Heritage assets comprise World Heritage Sites, Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes (GDL), Battlefields, Conservation Areas, buried archaeological remains, other historic buildings, and earthworks. Data was collected for both designated and non-designated heritage assets, heritage assets of regional or potentially national importance, together with other relevant designated sites. This was undertaken through desk-based research, which included a review of West of Scotland Archaeology Service Historic Environment Record ("HER"). In addition, a site visit was carried to confirm ground conditions and to visit the archaeological features identified as part of the desk-based studies.
- 5.5.3 There are no designated heritage assets within the Development Site boundary, though there are 198 non-designated heritage assets, largely relating to historic agricultural activity, livestock management and potential settlements.
- 5.5.4 There are 269 listed buildings, 143 scheduled monuments, five conservation areas and three designated Garden Design Landscape (GDL)'s within the 15km of the Development Site. There are no Historic Battlefields or World Heritage Sites within 15km of the Development Site.

Environmental Effects and Mitigation

- 5.5.5 It is considered unlikely that previously unrecorded archaeological remains would be significantly affected by the Proposed Development. Effects would be restricted to potential disturbance of previously unrecorded heritage assets and deposits of paleoenvironmental or geoarchaeological interest that may be identified in working areas during the construction phase (where present).

- 5.5.6 There will be an impact on one known heritage asset within the Development Site. The drove road that bisects it will be affected by the construction of the access track to Turbine 7, Turbine 11 and Turbine 12. As a heritage asset of local value, the resulting effect would not be significant.
- 5.5.7 Any potential effects would be mitigated by the adoption of a scheme of archaeological work agreed with the West of Scotland Archaeology Service (WoSAS) Archaeologist.
- 5.5.8 In relation to potential effects through change of setting of designated heritage assets (i.e. visual effects) within the wider area, no significant effects are predicted during construction or operation of the Proposed Development. No significant cumulative effects are predicted either.

5.6 Ecology

Baseline and Methodology

- 5.6.1 The potential effects of the Proposed Development on habitats and animal species (excluding birds which are covered in Section 5.7: Ornithology) during the construction, operation and decommissioning have been assessed in line with best practice guidance from the Chartered Institute of Environmental Management (CIEEM).

The assessment has been based both on the results of the desk study and field surveys, professional knowledge of ecological processes and functions, and relevant published information and legislation. Baseline field surveys commenced in 2020, including Phase 1 Habitat and NVC survey, as well as surveys for peatland condition, otter, water vole, bat, badger, fisheries habitat, electro-fishing, herpetofauna and other protected and notable species.
- 5.6.2 No European or International statutory designated sites are present within 10km of the Development Site, though two statutory designated Sites of Special Scientific Interest (SSSIs) for nature conservation and Loch Lomond National Park are located within 10km. Several non-statutory designated sites in the form of ancient woodland are present within 2km of the Development Site boundary.
- 5.6.3 Habitats within the Study Area comprise a mosaic of coniferous plantation and open moorland formed of wet heath, blanket bog, wet modified bog, and small areas of acid flush.
- 5.6.4 Groundwater Dependant Terrestrial Ecosystems (“GWDTEs”) have been identified within the Development Site. GWDTEs are ecosystems present on land, which predominantly rely on groundwater for their continued survival. Two hundred and twenty-eight GWDTEs were found within the Development Site, of which 200 were scoped out of further assessment.
- 5.6.5 Evidence of otter activity was recorded along most watercourses within the Study Area, including the Abhainn a' Bhealaich and various named and unnamed tributaries, and the Douglas Water and its various named and unnamed tributaries.
- 5.6.6 At least five species (soprano pipistrelle, common pipistrelle, *Pipistrellus* species, brown long-eared bats, and *Myotis* species) of bat were found commuting and/or foraging) at or near proposed turbine locations. Based on levels of activity recorded, the Development Site is considered to support a locally important population of bat species.
- 5.6.7 Records of one confirmed badger sett and one potential sett present within the Development Site boundary were obtained; and two further badger setts within 2km of the

Site boundary. No badger setts were recorded during habitat walkover surveys or protected species surveys.

- 5.6.8 No salmon were found in any of the surveys, which aligns with SEPA's record of impassible natural barriers downstream of the electric-fishing sites. Brown trout were recorded in 13 of 17 electric fishing surveys with a size range of 65-265 mm. This would indicate the presence of suitable habitat for all age classes of trout. Trout populations are likely resident due to the presence of downstream barriers.

Environmental Effects and Mitigation

Embedded Mitigation

- 5.6.9 The layout of the Proposed Development, such as the location of the proposed borrow pit search areas, control building and substation compound, temporary construction compounds and storage/laydown areas have been sited to avoid sensitive vegetation communities.
- 5.6.10 With the exception of work at watercourse crossings, the layout of the Proposed Development has also been designed with a buffer of 50m around watercourses and waterbodies, where possible, in order to minimise construction risks on the aquatic environment.

Construction

- 5.6.11 Based on the existing baseline, development-related construction work will not impact on any known resting area for otter. No resting sites were recorded within a 30m buffer of any proposed construction activities.
- 5.6.12 An overarching CEMP will contain embedded mitigation measures to be implemented during construction, and will also include a PMP and HMP (based on the outline versions submitted with this application). The overarching CEMP will include measures such as ensuring good practice via toolbox talks and monitoring led by an ECoW, pre-construction surveys to check on the presence of local species including otters and red squirrels, as well as implementation of pollution prevention measures.
- 5.6.13 A Species Protection Plan ("SPP") for otter will be prepared to ensure compliance with legislation. It would include details of pre-construction surveys to check on the presence of otters, including a suite of embedded measures that would be implemented across the Development Site to avoid causing harm to, or disturbing this species. These measures include site supervision by an ECoW to ensure successful implementation of pollution prevention, as well as adherence to current construction best practice and monitoring of buffers around construction areas and areas of high ecological sensitivity.
- 5.6.1 During construction, directional lighting and light spill within 50m of watercourses will be avoided during the hours of darkness to reduce disturbance for bats.

Operation

- 5.6.2 To reduce the potential for bat casualties to occur, mitigation in the form of 'feathering' would be implemented. This process involves pitching turbine blades out of the wind to reduce rotation speeds while idling, in turn reducing the risk of bat injury/ mortality. Feathering is considered good practice and is recommended for all turbines.

Conclusion

- 5.6.3 Following the implementation of embedded mitigation measures and measures to be set out in the CEMP, no significant effects to any ecological feature (designated/non-designated sites, bats, mammals or aquatic invertebrates) are predicted during construction and operation of the Proposed Development. Furthermore, no significant cumulative effects would occur.

5.7 Ornithology

Baseline and Methodology

- 5.7.1 **Chapter 11: Ornithology** of the EIA Report (Ornithology) assess the likely significant effects of the Proposed Development on birds.
- 5.7.2 The ornithological baseline was informed by a desk study and field surveys undertaken between March 2019 and April 2022. The desk study identified two European Sites, the Glen Fyne and Glen Etive Special Protection Area (“SPA”) and the Knapdale Lochs SPA, within the 20km search area. Given the low risk of potential connectivity between its qualifying species and the Proposed Development, these SPAs were not taken forward for assessment.
- 5.7.3 Surveys recorded 15 species listed as either:
- Birds of Conservation Concern List;
 - a qualifying feature of the Glen Fyne and Glen Etive SPA or Knapdale Lochs SPA;
 - a species on Annex 1 of the Birds Directive (Annex 1);
 - a Schedule 1 species of the Wildlife and Countryside Act 1981 (as amended) (“WCA”) (Schedule 1); or
 - a species of principal importance on the Scottish Biodiversity list (“SBL”).
- 5.7.4 Of these, seven species (black grouse, black-throated diver, golden eagle, osprey, red-throated diver, white-tailed eagle and whooper swan) were scoped in for further assessment and considers the effects on these species during construction, operation and decommissioning.
- 5.7.5 A full assessment was undertaken following CIEEM (2022) guidance, including collision risk modelling (CRM) of golden eagle, osprey, red-throated diver and white-tailed eagle.

Environmental Effects and Mitigation

- 5.7.6 No significant effects were predicted on the seven species as a result of the Proposed Development itself or in-combination with other wind farms.
- 5.7.7 It was determined that no significant effects would occur as a result of direct habitat loss for Black Grouse and Golden Eagles. This is due to the extensive areas of suitable habitat which will remain for both species, as well as proposed mitigation in the oHMP to increase native woodland coverage for Black Grouse.
- 5.7.8 A range of environmental measures have been embedded into the Proposed Development to minimise any potential impacts on breeding birds, such as:
- avoiding the diver flight corridor and nesting buffer zones;

- removal of two turbines specifically to avoid sensitive areas;
- removal of another two turbines which inherently reduced collision risk to all collision-sensitive species present; and
- implementation of the oHMP and CEMP.

5.7.9 Working practices to minimise effects on ornithological features during construction are to be set out in a Bird Protection Plan. This would form part of an overarching CEMP and would be implemented under the direction/supervision of an ECoW. Taking this and other mitigation measures into account, it was concluded that the Proposed Development would not have a significant effect on birds.

5.8 Geology, Hydrology and Hydrogeology

Baseline and Methodology

- 5.8.1 An assessment of the potential effects of the Proposed Development on geology, hydrology (including flood risk) and hydrogeology has been undertaken.
- 5.8.2 Desk study and survey data have been collated and interpreted with respect to the Development Site and a 2km buffer area immediately beyond it. This has included a number of ecological and peat surveys across the Development Site, and a round of peat depth surveys. Data for beyond the Study Area have also been collected where catchment areas for distant water features may intersect the Study Area, such as for abstractions, properties / infrastructure at risk of flooding and conservation sites.
- 5.8.3 The geology of the Development Site comprises patchy till and hummocky glacial (sand and gravel) superficial deposits and peat over a complex bedrock geology. Exploration for base metals in the Loch Fyne area led to the development of copper / nickel mines at Craignure. The Craignure Mine site is located within the Development Site and has been designated as a SSSI and a Geological Conservation Review site, though as it is located some distance (>2km) from the nearest proposed infrastructure, it was scoped out of the assessment.
- 5.8.4 The higher permeability deposits within the lower elevations and valley bottoms of the Development Site are considered to comprise a moderately to highly productive aquifer, whilst the bedrock is classed as low productivity aquifer, where flow is limited. The associated Water Framework Directive (WFD) groundwater body is classified as having a Good overall status. On this basis, the superficial and bedrock aquifers were taken forward for assessment.
- 5.8.5 The Development Site is drained by two main watercourses, namely the Abhainn a' Bhealaich and the Douglas Water. In addition, there are several other watercourses and lochs that are situated within this Development Site including the River Add, the Leacann Water and Beag an Tunns.
- 5.8.6 All five watercourses and the two receiving lochs (Loch Fyne and Loch Awe) are WFD surface water bodies. All are of Moderate overall or Moderate ecological potential status apart from Loch Fyne, which is of Good overall status. On this basis these surface water bodies were considered for further assessment.
- 5.8.7 Most of the Controlled Activities Regulation (CAR) licensed abstractions are for activities related to the production of hydroelectric power. Other surface water abstractions include Furnace Hatchery from the Leacann Water, Braevallich Nursery from the Abhainn a' Bhealaich, Black and Veatch site offices from Douglas Water and A'Chruach Wind Farm from the River Add. Two reservoirs within the Study Area at Loch Leacann and Loch

Righeachan and two other abstractions on Douglas Water and Allt Garbh were also identified in discussions with Scottish Water. All of these abstractions were considered for further assessment, though the hydroelectric power abstractions were later scoped out because sizeable reductions in flow due to the Proposed Development were not anticipated. The Hatchery and A'Chruach abstractions were also scoped out due to the intervening distance and dilution / attenuation of effects, as were the Loch Righeachan Reservoir and Allt Garbh licensed abstractions as they are located in a separate surface water catchment from the Proposed Development. The remaining abstractions at Braevallich Nursery, Black and Veatch and Scottish Water Douglas Water and Loch Leacann were retained for assessment.

- 5.8.8 There are no private water supplies (PWS) located within the Development Site itself, but there are 15 located within 2km of the Development Site boundary. However, all were scoped out from further assessment apart from two PWS located at Upper Braevallich Cottage and Kilbride Chalet, as all other PWS either source their water from surface water or spring catchments that are out with the catchments of the Proposed Development or are located a considerable distance away.
- 5.8.9 Large numbers of potentially moderate and high GWDTEs exist across the Development Site. An initial screen was undertaken to identify specific habitats at risk from the Proposed Development and this indicated that 28 habitats required further assessment.

Environmental Effects and Mitigation

- 5.8.10 The main potential hydrological / hydrogeological effects associated with the Proposed Development relate to the construction phase, in particular from tracks, watercourse crossings and wind turbine foundations. Other activities of relevance include the establishment of crane pads, control building, substation and borrow pits. These and other construction and operational site activities could potentially result in, for instance, the generation of additional silt-laden run-off, and fuel, oil and chemical spillages, with resulting detrimental water quantity and quality effects on the 'scoped in' receptors.
- 5.8.11 As significant effects are more likely during the construction phase than the decommissioning phase, potential impacts during the latter would be of a similar nature but lower magnitude as the level of site activity will be lower. Therefore, this was not considered further in the assessment.
- 5.8.12 Embedded mitigation would be implemented as part of the Proposed Development to protect the water environment. These include avoidance of deep peat, steep gradients and flood zones, incorporation of buffer zones around the watercourse network and GWDTE, turbine and associated infrastructure micro-siting, adherence to Construction Site Licence requirements and CEMP guidance, as well as adoption of best practice with respect to all aspects of site design, construction and operation, including track / drainage, cable trench, watercourse crossing, excavation / dewatering, peat working and storage, forest felling and site activities.
- 5.8.13 With this mitigation in place, construction and operational effects on receptors were assessed as not significant.
- 5.8.14 The cumulative impact assessment indicated that there would be no significant cumulative water effects with consented developments within the Development Site or wider Study Area or in the same surface catchments.

5.9 Traffic and Transport

Baseline and Methodology

- 5.9.1 An assessment of the traffic levels that would be generated during the construction of the Proposed Development has been carried out.
- 5.9.2 Consideration has been primarily given to Heavy Goods Vehicle ('HGV') and abnormal load movements. Potential effects on users of the road network as a result of operational and decommissioning traffic has been scoped out of the assessment.
- 5.9.3 Estimates of traffic generation associated with the construction phase of the Proposed Development have been based on calculations of vehicle loads of imported materials. As a worst-case scenario, the assessment assumes that all stone for construction would be imported from off-site rather than from borrow pits within the Development Site.
- 5.9.4 The proposed quarries, from which it is assumed the bulk of the construction materials will be sourced, are Clachan Quarry and Achnaba Quarry; the assessment assumes a worst-case scenario of 100% of the construction traffic would be travelling along the northern route, which is between Clachan quarry and the Development Site for the supply of stone. This scenario is unlikely, as nine borrow pit search areas have been proposed to win on-site materials. The use of these borrow pits would reduce the total construction vehicle movements considerably.
- 5.9.5 The route proposed for turbine delivery vehicles is from Campbeltown Harbour moving along the A83 through Tarbet, B8024, the A83 through Lochgilphead before turning left into the Development Site at an existing access.

Environmental Effects and Mitigation

- 5.9.6 The impact of construction-related traffic on the proposed access routes for stone and concrete deliveries has been determined, relative to the background traffic.
- 5.9.7 Based on the construction programme, there would be a peak of 92 HGV movements two-way during a 12-hour weekday. This peak is predicted to occur during months 12 and 13 of an anticipated 24-month construction programme.
- 5.9.8 An assessment of the cumulative transport effects shows that increases in traffic are below the respective thresholds for further assessment. As such, no significant cumulative effects are predicted.
- 5.9.9 The final construction route will be agreed by the relevant local highways authorities as part of a Construction Traffic Management Plan (CTMP) at the detailed design stage. Wherever possible, construction traffic would be scheduled to avoid peak hour travel to ensure minimal disruption. Embedded measures delivered through the CTMP include: wheel washing facilities for vehicles on site to reduce mud and debris transferred onto the carriageway; and, specific travel routes to and from site to be agreed with the relevant local highway authorities.
- 5.9.10 In line with the industry guidance, the following environmental effects have been considered in the assessment: driver delay; pedestrian delay; pedestrian amenity; fear and intimidation; and accident and safety. In respect of these, and with the incorporation of appropriate mitigation measures within a draft CTMP, there are no significant effects predicted.

5.10 Socioeconomics

Baseline and Methodology

- 5.10.1 Potential impacts relating to socioeconomics, tourism and recreation (including access) receptors have been considered within the assessment.
- 5.10.2 A desk-based study was carried out to determine relevant baseline socio-economic, tourism and recreation conditions at the Development Site and within relevant Study Areas including the Argyll and Bute Local Authority for socioeconomics and labour and 10km Study Area for tourism and recreation.
- 5.10.3 There are a number of tourist and visitor destinations within 10km of the Proposed Development, including: Inverary Castle; Dalavich Oakwood Forest; Lachlan Bay and Castle; Minard Castle; Ardcastle Wood; Inveraray Castle Inventory GDL; Ardkinglas and Strone GDL; Nearby Lochs - Loch Awe and Loch Fyne; and the peaks of Beinn Dubh Airigh, Beinn Dearg, Am Buachaille, Beinn Bhreac, Beinn Ghlas and Dun Leacainn.
- 5.10.4 The majority of the Development Site is subject to the 'right to roam' under the Land Reform (Scotland) Act 2003 such that access for recreation is permitted over most of the Development Site. There is one Core Path intersecting the Development Site (Core Path C119 (b-c)), travelling between Braevallich and Furnace, via Loch Leacann. This is identified as a passive recreation receptor, which may be used by walkers. No other recreational receptors are present within the Development Site.
- 5.10.5 In 2021, Argyll and Bute had a total population of approximately 86,200. Overall, the Study Area has a lower percentage share of a working age population and a higher pensionable age when compared to Scotland as whole. The leading employment industry is accommodation and food services. However, construction is also a key business sector in Argyll Bute and construction sector supports some 2,000 jobs.
- 5.10.6 It is identified within the socio-economic assessment that the Proposed Development could generate capital expenditure of around £175m during construction.

Environmental Effects and Mitigation

Construction

- 5.10.7 The construction of the Proposed Development is estimated to support a total 50 FTE jobs in the local economy. It should be noted that the number of construction workers employed would depend on the duration of the construction programme and may vary if the programme is altered.
- 5.10.8 The construction phase of the Proposed Development is likely to increase occupancy of nearby hotels and other suitable short-term accommodation facilities. The increase in localised presence of person through construction, is also likely to increase trade in local hospitality establishments. This is considered to be not significant, due to the short-term nature of the effect.
- 5.10.9 No significant effects are predicted on tourist and visitor destinations as a result of the Proposed Development.
- 5.10.10 An Access Management Plan will be produced (in consultation with ABC), in order to retain public recreational access during construction of the Proposed Development, where possible. If it is agreed that Core Path C119 (b-c) will be temporarily closed or diverted for a short period during construction, this would be discussed and agreed with ABC. Subject

to the Access Management Plan, the construction of the Proposed Development is likely to have no significant effects on recreational users.

Operation

- 5.10.11 No significant effects are predicted for Core Path C119 (b-c), or other recreational routes.
- 5.10.12 It is anticipated that the long-term land management practices in relation to the commercial forest undertaken at the Development Site will continue unaffected by the Proposed Development, with normal practices within retained forest continuing unimpeded after completion of construction.
- 5.10.13 Overall, the operation of the Proposed Development is predicted to have a beneficial (not significant) effect for recreational users of the Development Site as a result of improved access resulting from new and upgraded tracks.

Cumulative

- 5.10.14 All phases of other existing and consented wind farms within the study area, regardless of their visibility, are considered to have the potential to give rise to cumulative socio-economic effects due to their proximity to the Development Site. No significant cumulative effects on the economy are predicted, and no cumulative impacts on users of tourism or recreational resources have been identified.

5.11 Infrastructure and Other Issues

Health and Safety

- 5.11.1 When considering existing infrastructure, telecommunications and safety, appropriate design and management of a wind farm can avoid potential impacts. With regard to safety related issues, the Proposed Development will be constructed and operated in accordance with all relevant UK health and safety legislation, guidance and best practice to ensure the risk to public safety is appropriately managed. The Development Site will be appropriately signed to indicate the presence of construction work. Therefore, no significant effects with regards to Health and Safety are expected.

Major Accidents and Disasters

- 5.11.2 The potential for significant effects as a result of major accidents and disasters has been taken into account for a range of topics, including landslides, severe weather, flooding, industrial and transport accidents and utility system failures. However, it is considered that there would be no significant effects arising from the Proposed Development.

Utility Infrastructure and Telecommunications

- 5.11.3 In respect of existing utility infrastructure and telecommunications, the incorporation of suitable buffer and separation distances from these assets (as specified by the operators) into the layout design is often sufficient to mitigate any possible effects. Alternatively, where siting of turbines, battery storage or associated infrastructure to avoid potential impacts is not feasible, a range of technical solutions can be implemented to mitigate effects.
- 5.11.4 A number of telecommunications and infrastructure consultees indicated that they operate telecommunications links or plant in the vicinity of the Development Site. However, none

of these would be directly affected by the Proposed Development. In addition, construction associated with the Proposed Development is not anticipated to encroach on any existing utility infrastructure and therefore no significant effects are anticipated.

- 5.11.5 It is unlikely that television reception quality will be directly affected by the Proposed Development, partly due to the prevalence of digital television. In the event that television reception is disturbed, this will become most apparent during operation. Additional measures to mitigate this effect are as follows:
- Within 12 months of the first export date, any individual claim regarding TV picture loss or interference shall be investigated by a qualified engineer appointed by the developer;
 - The results shall be submitted to the planning authority; and
 - Should any impairment to the TV or radio signal be attributable to the development, the developer shall remedy such impairment within 3 months.

Population and Human Health

- 5.11.6 The potential for significant effects arising from the Proposed Development in relation to population and human health has been considered in those technical chapters where changes may affect people (**Chapter 7: Noise, Chapter 8: Landscape and Visual, Chapter 13: Traffic and Transport, Chapter 12: Geology, Hydrology and Hydrogeology and Chapter 15: Socio-Economics and Tourism** of the EIA Report).
- 5.11.7 No significant effects in relation to population and human health are predicted.

5.12 Aviation

Baseline and Methodology

- 5.12.1 An assessment of the effects of the Proposed Development on aviation receptors has been undertaken by a qualified aviation expert.
- 5.12.2 The airspace within, above, and surrounding the Development Site is used by both civil and military aircraft. The potential effects of wind turbines on aviation primarily concern the maintenance of safe aviation operations. There are two aspects specifically that can cause impact:
- Physical obstruction: turbines can present a physical obstruction at, or close to, an aerodrome or other aviation activity area; and
 - Radar / Air Traffic Services (“ATS”): turbine clutter appearing on a radar display can affect the safe provision of ATS as it can mask unidentified aircraft from the air traffic controller and / or prevent them from accurately identifying, or maintaining identity of, aircraft under their control. In some cases, radar reflections from the turbines can affect the performance of the radar itself.
- 5.12.3 The Proposed Development is located within Low Flying Area (“LFA”) 14 and is considered by the MOD to be a low priority low flying area, which are less likely to raise concerns.

Environmental Effects and Mitigation

- 5.12.4 The Proposed Development will be fitted with a lighting arrangement combining CAA approved Air Navigation Order visible lighting on 13 turbines and MOD infra-red lighting on all 22 turbines. Embedded mitigation for the operational phase including notification to aviation stakeholders, lighting and marking will result in no significant predicted effects.
- 5.12.5 The Line of Sight (“LoS”) Analysis demonstrated that Turbine 1 (T1) will theoretically be detectable by the Lowther Hill Primary Surveillance Radar (“PSR”), with minor exposure to the radar (less than 2 m) at a distance of approximately 130 km. With a mitigation scheme in place, however, the post-mitigation effects are predicted to be not significant.

6. Conclusion

- 6.1.1 The Proposed Development has been informed by, and builds upon, the comprehensive iterative design process undertaken throughout the EIA process. This has resulted in the elimination or mitigation of potentially significant environmental effects in respect of all environmental topic areas considered in the EIA Report.
- 6.1.2 The predicted residual adverse significant effects are limited to Landscape and Visual Amenity. The landscape effects identified are not unusual for a wind farm development, and are limited by the existing An Suidhe Wind Farm and the recently constructed Inveraray to Crossaig 275kV Overhead Line. The effects are also contained within a local area of 2km from the proposed turbines.
- 6.1.3 The visual effects identified affect a limited number of locations within 9.8km of the Proposed Development, including Loch Fyne and Loch Awe, as well as a select few recreational and transport routes and parts of Dalavich. The Proposed Development has gone through multiple design iterations to ensure embedded measures are as robust as possible to mitigate against these effects.
- 6.1.4 The Proposed Development would provide a number of economic benefits which result from investment into the local and national economy, job creation and benefits in respect of national energy security, as well as the environmental benefits which would arise from the provision of low carbon renewable energy.