

Harestanes West

Windfarm

Environmental Impact Assessment
Report

Volume 1

Non-Technical Summary

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Abbreviations

CCP	Climate Change Plan
CP	Compensatory planting
DGC	Dumfries and Galloway Council
EIA Report	Environmental Impact Assessment Report
FLS	Forestry and Land Scotland
GVA	Gigawatts
GWh	Gross Value Added
HGVs	Habitat Management Plan
HMP	Heavy Good Vehicles
km	Kilometres
MOD	Megawatts
MW	Ministry of Defence
NERL	Nation Planning Framework 4
NGR	National Grid Reference
NPF4[CR1] [CR2]	NATS (En Route) plc
NTS	Non-Technical Summary
OHL	Onshore Wind Policy Statement
OWPS	Overhead line
PAC	Power performance assessment
PPA	Pre-Application Consultation
SPR	ScottishPower Renewables

1. Preface

1. This document is the Non-Technical Summary (NTS) of the Environmental Impact assessment Report (EIA Report) and has been prepared to accompany the Section 36 consent application submitted by ScottishPower Renewables (hereafter 'the Applicant') for the proposed Harestanes West Windfarm (hereafter, the 'proposed Development'). The proposed Development is situated approximately 1.3 km north-west of the village of Ae and north of Dumfries within the Dumfries and Galloway planning authority (**Figure 1**).

2. The EIA Report comprises the following:

- **Volume 1:** Non-Technical Summary;
- **Volume 2:** Written Statement;
- **Volume 3:** Figures and Visualisations; and
- **Volume 4:** Technical Appendices.

3. Printed copies of this NTS are available free of charge from:

ScottishPower Renewables
9th Floor, ScottishPower House
320 St Vincent Street
Glasgow
G2 5AD
Email: HarestanesWestWindfarm@scottishpower.com

4. A limited number of hard copies of the EIA Report are available for £1,000 per copy. The price of hard copy reflects the cost of producing the Landscape and Visual visualisations.

5. The NTS and EIA Report (including figures and technical appendices) are also available free of charge in electronic format. These PDF files can also be downloaded for free from the Harestanes West Windfarm project website at:

https://www.scottishpowerrenewables.com/pages/harestanes_west_windfarm.aspx

Alternatively, a USB stick containing PDF files of the EIA Report is available for £15 each.

6. The Applicant has a duty to undertake statutory publication of the EIA Report in accordance with Part 5 of the 2017 EIA Regulations and the Electricity (Applications for Consent) Regulations 1990. The application documents are being made available online via the Energy Consents Unit website as normal, and hard copies are being made available to specific Statutory Consultees.

7. A notice will be published as follows:

- on the Applicant's project website;
- in the Edinburgh Gazette;
- In The Herald;
- Dumfries Courier;



- Annandale Herald & Moffat News; and
- Annandale Observer/Galloway Gazette
- In addition to the formal notification of the application, the Applicant has:
 - made available a Non-Technical Summary of the EIA Report;
 - made available free of charge, further copies of the Non-Technical Summary of the EIA Report;
 - made available hard copies of the application on request (at a cost to cover printing);
 - maintained a dedicated project mailbox (HarestanesWestWindfarm@scottishpower.com) to receive comments relating to the proposed Development; and
 - maintained ongoing contact with local residents and Community Councils on request.
- 8. Comments in relation to the application for consent should be forwarded to the address below:

Energy Consents Unit
Scottish Government
4th Floor
5 Atlantic Quay
150 Broomielaw
Glasgow G2 8LU

Email: representations@gov.scot

2. Introduction

9. This Non-Technical Summary (NTS) summarises the EIA Report for the proposed Harestanes West Windfarm. The EIA Report accompanies an application for consent under Section 36 of the 1989 Electricity Act.
10. Harestanes West Windfarm is referred to in this NTS and EIA Report as 'the proposed Development'. The proposed Development is a windfarm development that intends to make use of the available wind resource to maximise and optimise the renewable energy potential of the Site.
11. The Site (the area within the Application Boundary) is situated north-west of the village of Ae, approximately 1.3 km to the Site and 2.2 km to the nearest proposed turbine, and approximately 13 km north of Dumfries. The Site location is shown in **Figure 1.1** and the application boundary covers the area shown on **Figure 1.2**.
12. The proposed Development comprises up to 12 wind turbines, six with a maximum tip height of 220 metres (m) and six with a maximum tip height of 200 m, with associated ancillary infrastructure with a combined rate output of around 84 megawatts (MW) or approximately 186 gigawatts (GWh) of electricity annually which equates to the annual power consumed by approximately 47,596 households¹. The proposed Development is described in further detail in **Chapter 3: Proposed Development** of the EIA Report.
13. The proposed Development is located north-west of the village of Ae and north of Dumfries, situated wholly in the Dumfries and Galloway Council (DGC) administrative area centred on National Grid Reference (NGR) NX 95993 91814. The nearest turbine is located approximately 2.2 kilometres (km) north-west of the village of Ae. The exact location of the Site is shown in **Figure 2**.
14. Environmental effects of the proposed Development have been considered as part of an iterative design process and included within the EIA. The results of the EIA are presented within the EIA Report and summarised in this NTS. The EIA Report informs readers of the nature of the proposed Development, the baseline environmental conditions, potential significant environmental effects and measures proposed to protect the environment, during site preparation, construction, and the operation of the proposed Development.
15. Assessments as reported in this EIA Report have been informed by work undertaken as part of the EIA process. Further details on the Site history and selection are provide in **Section 4** of this NTS.
16. The Applicant is part of the ScottishPower group of companies operating in the UK under the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. ScottishPower only produces 100% green electricity – focusing on wind energy, smart grids and driving the change to a cleaner, electric future. The company has committed to investing over £8m every working day to make this happen, and to speed

¹ Calculations from the Scottish Government Renewable electricity output and energy conversion calculator's website: <https://www.gov.scot/publications/renewable-and-conversion-calculators/> [accessed September 2024]



up the transition to cleaner electric transport, improving air quality and over time, driving down bills to deliver a better future, quicker for everyone.

17. The Applicant is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation. Its ambitious growth plans include expansion of its existing onshore wind portfolio, investment in new large-scale solar deployment and innovative grid storage systems including batteries. The company is also delivering the Iberdrola Group's offshore windfarms in the Southern North Sea off East Anglia.
18. With over 40 operational windfarms, ScottishPower Renewables manages all its sites through its world leading Control Centre at Whitelee Windfarm, near Glasgow.

3. Legal and Policy Framework

3.1. Legislative Context

19. The proposed Development would have a capacity exceeding 50 MW and so an application under Section 36 of the Electricity Act is being made to the Scottish Government's Energy Consents Unit. Furthermore, the Applicant would also seek that a direction under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 should be granted to provide deemed planning permission.
20. Section 36 applications are also subject to the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations). Under the EIA Regulations, the proposed Development is considered to have the potential, if uncontrolled, for significant effects on the environment and must undergo the process of EIA and an EIA Report must be submitted with the application.

3.2. Environmental Impact Assessment

21. Potential environmental effects have been assessed to measure their significance. Mitigation is proposed where possible to prevent, reduce or offset significant potential effects.
22. In accordance with the EIA Regulations, the assessment has also considered 'cumulative effects'. By definition, these are effects that result from incremental changes in combination with past and reasonably foreseeable developments or different types of impacts on a single receptor.

3.3. Renewable Energy Policy

23. The UK Government and the Scottish Government have both declared a 'climate emergency' and are committed to ensuring that an increased proportion of electricity is generated from renewable energy sources in order to meet carbon emission targets set in 2019.
24. The Climate Change Act 2019 amends the previous Climate Change Act and sets targets to reduce Scotland's emissions of all greenhouse gases to net-zero, which means that Scotland's net carbon emissions will be zero, by 2045 at the latest.



25. On 13th December 2020, the UK Government published its Energy White Paper, 'Powering our Net Zero Future', this document sets out current thinking on the way in which the UK should work towards meeting its Net Zero targets by 2050.
26. In the Onshore Wind Policy Statement (OWPS) 2022, the Scottish Government highlights the importance of onshore wind in achieving 2030 targets, supporting Scotland's energy mix, and advancing renewable electricity generation. It emphasises onshore wind as essential for the transition to net zero and climate change mitigation. The OWPS emphasises the need for rapid deployment of wind energy to meet increasing electricity demand and support Net Zero targets.

3.4. National Planning Policy

27. There is high level support for the promotion of renewable energy developments throughout many parts of National Planning Framework 4 (NPF4), which recognises that planning will play a key role in delivering the Scottish Government commitments. NPF4 advises that, significant progress must be made to achieve Net Zero and the Scottish Government will encourage the expansion of renewable energy generation. NPF4 provides a foundation for national economic, environmental, and social policies which guide local development plans.

3.5. Local Planning Policy

28. Local planning policy supports onshore wind project to meet carbon reduction targets, as outlined in Policy IN1 of the Dumfries and Galloway Local Development Plan 2, which encourages appropriately located and designed renewable energy developments. While Section 36 Applications are not required to align strictly with the Development Plan, the plan remains a relevant consideration.
29. Policy IN2 specifically supports windfarm proposals that avoid significant adverse effects on communities, landscapes, infrastructure, and other factors.
30. Supplementary guidance, such as the Wind Energy Development: Management Consideration, provide criteria to assess developments early, emphasising mitigation to address significant effects sustainability.

4. Site Selection, Alternative and Design Strategy

4.1. Site Selection

31. The site selection process of the Applicant is designed to identify renewable energy sites that are financially and technically viable, environmentally acceptable, most likely to obtain approval, and make meaningful contributions to Scotland's targets for renewable energy generation.
32. The Applicant is committed to avoiding the development of renewable energy projects in areas where there would be an unacceptable effect on environmentally designated sites and where mitigation measures are unlikely to be successful. The Applicant is also committed to not considering sites where developments may have an unacceptable effect on landscape character or amenity of on landscape character and designated landscapes in the wider area.
33. Site selection work by the Applicant is an ongoing process, whereby a list of candidate sites is maintained and updated as new opportunities are identified and candidate sites move into development. Candidate sites are identified initially through a desk-based exercise which includes the consideration of issues such as: site capacity; distance from properties; exposure and topography; site access; and proximity to a potential electricity grid connection point.
34. Forestry and Land Scotland (FLS), who manage the Forest of Ae, assessed their forest and identified potential sites for renewable energy development. The Applicant was awarded the opportunity to further explore the potential for renewable energy to be generated on the FLS estate.
35. The Site was short-listed due to a number of factors, including the following:
 - there are no international or national statutory designations within the area identified for potential development;
 - there are no planning policies which, in principle, preclude wind energy or other renewables development;
 - availability of nearby grid connection with available capacity to accept new renewable energy generation;
 - the Site considers the Wind Energy Development: Development Management Considerations Supplementary Guidance 2020 which forms part of the Dumfries and Galloways Local Development Plan 2. Further information has been provided in **Chapter 4** of the EIA Report;
 - initial desk-based assessments and wind monitoring onsite suggest that there is likely to be a good wind resource and the Site is available for a renewable energy development;



- the Site itself has open and expansive characteristics considered appropriate for renewable energy development;
- the topography of the Site is suitable for the construction of a commercial scale renewable energy development;
- the Site has reasonably good access from the public road network for construction traffic and wind turbine deliveries, particularly for long blades which allows consideration of larger turbines to make the best use of the expected wind resource; and
- the distances from the nearest residential properties are such that undue noise or visual impacts on visual amenity can be avoided.

4.2. Design Approach and Alternatives

36. With respect to the proposed Development the alternatives considered were as follows:
- different turbine and infrastructure layout/locations within the Site;
 - different turbine heights/dimensions; and
 - different routes between the proposed Development's infrastructure within the Site.
37. The renewable energy design and layout was adapted and altered in response to environmental constraints and consultation feedback. The proposed Development went through a series of four broad design iterations. Changes to the layout included decreasing the number of turbines, changing turbine positions, routing of access tracks and the application boundary.
38. The layout and design of the proposed Development follows an iterative design and environmental constraints led process aimed at optimising a renewable energy development that minimises environmental impacts but meets the commercial requirements of the Applicant. An iterative design approach works in tandem with the EIA process, whereby the design process facilitates incremental changes in layout and design resulting from a continually developing understanding of environmental constraints. This iterative approach allows potential environmental constraints, as they are identified, to be avoided or minimised through alterations in design. This approach is referred to within this EIA as mitigation 'embedded' into the proposed Development or simply 'embedded mitigation'. Further information on embedded mitigation is explained within **Chapters 7 to 15** of the EIA Report.
39. As part of the approach, numerous principles and environmental measure have been implemented and incorporated into the proposed Development as standard practice, including the following:
- minimising impacts on peat as far as possible;
 - sensitive siting of the proposed infrastructure incorporating appropriate buffer distances from environmental receptors to avoid or reduce effects on the environment; and
 - minimising removal of plantation/tree cover.
40. Through the design evolution of the proposed Development layout, a key driver was the consideration of potential landscape and visual effects on receptors and how the



proposed Development would relate to the existing landscape character. Importance has been given to the following landscape and visual parameters:

- underlying character and scale of the landscape;
 - layout and spacing of wind turbines relative to key viewpoints;
 - size and scale of proposed Development and proximity to residential areas;
 - setting of cultural heritage assets; and
 - number and size of turbines proposed.
41. Overall, the landscape and visual effects potentially caused by the proposed Development have been considered extensively from key receptors during the design of the proposed Development.
42. At the final stages of the EIA process, following a thorough review of the proposed Development and its potential impact on the setting of cultural heritage assets, the Applicant decided to remove a turbine from the design. The decision was made on the basis that the proposed turbine could have adverse significant landscape and visual impacts. The Applicant decided to revise the final design of the scheme, reduce the number of wind turbines being proposed and change the design of the proposed Development.
43. To further reduce the impacts on nearby residential and landscape receptors, the maximum height of the turbines was also reduced, with turbines 1, 2, 5, 6, 9 and 10 to be a maximum of 200 m to tip, and the remaining turbines at a maximum of 220 m to tip.
44. The combination of environmental, design and technical parameters has resulted in the final layout. It is considered that the proposed Development represents an optimum fit within the technical and environmental parameters of the Site. A range of alternative layout options were refined through an iterative process of design and environmental assessment. Alternative numbers and heights of wind turbines were considered but the final design of turbines at 220 m and 200 m to vertical blade tip, is considered to create the best balance with tall turbines in the landscape, whilst optimising energy yield.

5. Proposed Development

5.1. Description of the Proposed Development

45. The layout of the proposed Development is shown on **Figure 2**. The Applicant intends to make use of available renewable energy technologies to optimise the renewable energy potential of the Site. The proposed Development comprises up to 12 wind turbines, six with a maximum tip height of 220 metres (m) and six with a maximum tip height of 200 m, with a rated output of 84 MW or approximately 186 gigawatts GWh² of electricity annually.

² Calculations from the Scottish Government Renewable electricity output and energy conversion calculator's website: <https://www.gov.scot/publications/renewable-and-conversion-calculators/> [accessed September 2024]



46. The layout of the proposed Development includes:

- 12 wind turbines up six with a maximum tip of 220 m in height, including foundations and aviation lighting;
- hardstanding areas at the base of each turbine, with an approximate total area of 3,856 m²;
- transformer/switchgear housings located adjacent to turbines;
- site entrance from the A701, and 31.5 kilometres (km) of access track with associated watercourse crossings – of which 10.5 km are new access tracks and 21 km are upgrades to existing tracks;
- underground cabling linking the turbines with the substation;
- a permanent lattice meteorological mast, up to 105 m high and associated hardstanding area;
- an operations control building with parking and welfare facilities;
- a substation compound;
- a bellmouth and parking area adjacent to the A701;
- two construction compound areas;
- extraction of material from up to three existing quarries owned and operated by Forestry and Land Scotland to provide suitable rock for access tracks, turbine bases and hardstanding;
- health & safety and other directional site signage; and
- additional development components to improve the overall ecological, environmental and social benefits accruing from the proposed Development, as follows:
 - Ecological and environmental: peatland restoration; habitat improvement; native woodland planting

47. As a result of any possible issues encountered during site construction (e.g. unsuitable ground conditions), it may be necessary to microsite elements of the proposed Development (i.e. revise the location of infrastructure to a more suitable place). It is proposed that a 50 m tolerance from the turbines and other infrastructure would be applied, where possible, to the proposed Development and that within this distance any micrositing would be agreed in advance with specialist advisors such as ecologist or archaeologists.

48. The proposed Development would require 199.2 ha of woodland to be directly felled in order to facilitate wind turbines and associated infrastructure. Forest felling will be required in a keyholed radius from each turbine location within woodland to allow construction, operation and environmental mitigation, including bat habitat standoff distances. The six turbines of up to 220 m in height, the radius of the area to be keyholed around each turbine would be 86 m. For the six turbines of up to 200 m in height, the radius of the area to be keyholed around each turbine would be 98 m. In line with the Scottish



Government's Control of Woodland Removal Policy, compensatory planting (CP) of an area equivalent to the net loss, or habitat restoration would be undertaken.

49. Of 199.2 ha, of forestry to be felled, approximately 149.1 ha could be replanted following completion of the construction phase. Further details are provided in **Technical Appendix 14.1**.
50. The Applicant is committed to the operation of the proposed Development and is therefore seeking consent in perpetuity. This is in response to the ongoing and long-term requirement for renewable energy sources to meet our future energy needs and to meet the carbon dioxide 2050 reduction target of the UK Government and the 2045 target of the Scottish Government.
51. The proposed Development would be connected to the substation and electricity network via an onsite control building. A small car park will also be located adjacent to the control building.
52. The grid connection point and date of connection for the proposed Development is subject to confirmation by the network operator/owner.
53. The precise route of the grid connection cabling has not yet been fully determined; however, it is proposed to connect the proposed Development to the electricity transmission network via a wood pole overhead line (OHL) between the proposed Harestanes West Windfarm substation and the existing transmission steel tower BR61, including a new circuit breaker compound, southeast of Dumfries near Mouswald. The grid connection may require consent under Section 37 of the Electricity 1989, which is the subject of a separate consenting process to this section 36 application. Therefore, as part of a separate application process, all appropriate surveys and assessments would be conducted in line with the specified regulation requirements.

5.2. Proposed Access

54. Technical studies have been undertaken to identify potential access routes to the proposed Development. This has enabled the identification of routes for the road transportation of abnormal loads such as wind turbine components (e.g., tower sections, nacelle, and blades) using specialised heavy transport vehicles as well as Heavy Goods Vehicles (HGVs) and other vehicles.
55. Should consent be granted, a detailed access assessment would be undertaken which would identify the requirements for any road modifications, vegetation or tree trimming required along the access route.
56. For the provision and delivery of construction materials, four different delivery options have been assessed. These are detailed in **Chapter 2: Proposed Development** of the EIA Report.
57. The access option proposed by the Applicant is from the A701 public road at the existing Harestanes Windfarm access point to the east of Ae village, through the operational Harestanes Windfarm, along the existing FLS forestry access track east of Muir Hill, before crossing the Water of Ae, Bran Burn and Capel Water. The proposed access point is shown in **Figure 3.1**.

5.3. Habitat

58. As established in the Habitat Management Plan (HMP) (**Technical Appendix 8.9**), the Applicant is committed to multiple objectives towards habitat restoration and enhancement. The purpose of the bespoke Outline Habitat Management Plan in **Technical Appendix 8.9** is not only to mitigate for the loss of habitat but also to enhance the local area for biodiversity through large scale habitat restoration and native woodland creation.
59. After identifying the potential of restoring priority habitats within the surrounding area and consulting FLS, the Applicant have developed a bespoke HMP, aiming to restore 2.82 ha of peatland habitat. Additionally, in line with the HMP, the Applicant is intending to plant 28.18 ha of native woodland, of which 13.33 ha would be riparian woodland. FLS, who are responsible for one of the HMP areas reviewed and approved the final HMP and habitat restoration programme, which would take place in conjunction with the construction and operation stages of the proposed Development.
60. By implementing positive land management for the benefit of nature conservation and enhancement of priority habitats, adverse impacts imposed from the proposed Development on the surrounding environment would be effectively mitigated.

5.4. Recreation

61. During construction of the proposed Development, where possible, recreational access to the Site would be maintained along publicly accessible paths such as the Romans and Reivers Route. Great consideration was given to recreational users of the Forest Ae during the design phase and informed the design of the access route to minimise impact on biking routes. Where access along the existing route is not possible, a diversion would be agreed and implemented. There may be occasions when access to the Site for members of the public is not possible for short periods during the construction phase for health and safety reasons (e.g., during delivery of certain infrastructure components).
62. Changes to access arrangements within the Site would be detailed in an Access Management Plan prepared in advance of construction commencing. This would include an arrangement for communicating changes in access to relevant stakeholders. The Access Management Plan details will be discussed with DGC's Access Manager and shared with key stakeholders such as Ae Community Council.
63. The proposed Development includes a creative and considered package of enhancement measures to support recreational and tourism uses within the Site during the operation phase based on consultation with stakeholders. Subject to agreement, these would include:
 - Promotion of family friendly biking or horse-riding routes around the proposed windfarm using existing forest tracks;
 - Provision of information boards regarding the proposed windfarm;
 - Support for the employment of a seasonal ranger to assist with the management of core footpaths in the area;
 - Electric vehicle charging points in Ae Forest Carpark;



- Financial support to facilitate the purchase of E-bikes for rental at the 7 Stanes Forest of Ae Mountain Biking Centre; and
- Sponsorship of events in the Forest of Ae.

6. Scoping and Consultation

64. The purpose of scoping and pre-application and consultation is to:

- ensure that statutory consultees and other bodies with a particular interest in the environment are informed of the proposal and provided with an opportunity to comment at an early stage in the EIA process;
- obtain baseline information regarding existing environmental site conditions;
- establish key environmental issues and identify potential effects to be considered during the EIA;
- identify those issues which are likely to require more detailed study and those which can be justifiably excluded from further assessment; and
- provide a means of confirming the most appropriate methods of assessment.

6.1. Scoping

65. As part of the EIA, the proposed Development was subject to a detailed Scoping exercise in March 2023, in order to determine areas that should be addressed. The Scoping exercise involved a review of available documentation related to the form and status of the existing environment, consultation with statutory and non-statutory stakeholders and other environmental bodies with knowledge of the Site and surrounding area; preliminary desk-based and site-based appraisals and surveys, and knowledge of the potential environmental implications of comparable developments (based on direct past project experience and other published experience and guidance).

66. The following considerations were factored into the scoping process:

- the nature of the receiving environment and the type of operations associated with the proposed Development are such that environmental effects could arise during construction and operation of the proposed Development;
- a review of the Site revealed ecological habitats, areas of peat and peatland habitats, and species of potential interest;
- early liaison with stakeholders and consultation bodies e.g., NatureScot, as required, to provide input into the EIA and site design process;
- consideration of cumulative effects that could potentially arise through interaction of the proposed Development with other existing or approved development projects nearby; and
- Following submission of the Scoping Report to the Energy Consents Unit (ECU), key consultees and stakeholders have been consulted and formed their Scoping Opinion.



6.2. Consultation

67. The process of consultation is critical to the development of a comprehensive and balanced EIA Report. Views of the key statutory and non-statutory consultees serve to focus the environmental studies and to identify key specific issues which may require further investigation.
68. A comprehensive understanding of the requirements/views of consultees have been sought throughout the EIA process. This has informed the design of the proposed Development. Consultation comprised of public consultation, undertaken in June 2023 and September 2024 – between a range of statutory bodies, non-statutory bodies, community councils and landowners.
69. Public consultation is seen as a key element of the EIA process. Further information on this is contained in the **Pre-Application Consultation (PAC) Report** in Volume 1 of this EIA Report which is provided alongside this application for consent.

7. EIA Assessments

7.1. Summary of Environmental Effects

70. This Section outlines the predicted environmental effects of the proposed Development. In summary, the EIA assessments show that through careful and iterative design of the proposed Development, through site-specific mitigation measures and the use of good practice methodologies during construction there would be no significant environmental effects, with the exception of some localised significant landscape and visual effects.
71. The following **Sections (7.2 to 7.9)** provide a summary of the effects for each of the EIA assessments, starting landscape and visual assessment.

7.2. Landscape and Visual Impact Assessment

72. The landscape and visual aspects have been key components of the design of the proposed Development and has minimised the impacts through embedded mitigation.
73. The proposed Development would be larger than the adjacent windfarm developments at Harestanes, Minnygap and Dalswinton but the intervening landform and setback into the in foothills and forestry would reduce some of these impacts. With regard to the pattern of windfarm development, the proposed Development would be contained within the existing corridor of development and would read as an intensification of this group.
74. **'Significant'** construction phase visual effects would be limited to those recreational receptors within the Forest of Ae, on the core path between Ae and Gawin Moor and within the Queensberry area of the Southern Uplands.
75. The extent of operational effects on landscape character would be limited by the Site being located within commercial forestry and setback into the upland area. **'Significant'** effects would be contained within the host landscape character type 'Foothills with Forest', adjacent 'Southern Uplands' to the north and 'Upland Fringe' to the southeast. Beyond this the effects would be **'Not Significant'** on other landscape receptors.
76. The nearest visual receptors significantly affected during the operational phase would be those living and visiting Ae, the Forest of Ae, Loch Ettrick and core paths within 5 km, and Queensberry. There would also be **'Significant'** effects for those living to the south and southeast at Ae Bridgend/ Parkgate, Auchencairn and Kirkton, Shieldhill and Templand and using the A701.
77. The effect on private residents at properties within 2 km of the proposed Development was also assessed and whilst the impacts were **'Significant'**, they were not found to be overbearing.
78. There was one **'Significant'** effect identified on a localised part of the nearest Thornhill Uplands Regional Scenic Area, during operation. No other significant effects were reported for other designated landscapes, including any National Scenic Areas or Wild Land Areas.



79. The cumulative assessment considered the impact with the other proposals of the proposed Development, Daer and Rivox. Given the location of the other cumulative proposals and their areas of influence, the main receptors likely to experience cumulative impacts would be located either within the upland landscapes, or to the south and east. The addition of the proposed Development would result in some localised increased cumulative impacts for landscape and visual receptors, but no changes in level of effect were reported.
80. The proposed Development would require visible aviation lighting on the nacelles of 7 of the 12 turbines and no tower lights, having agreed a reduced lighting scheme with the Civil Aviation Authority (CAA). A range of additional embedded mitigation measures have also been committed to in relation to minimising the night-time impacts including a reduced intensity light (from 2000 candela to 200 candela) in good visibility on the nacelle, directional intensity to limit brightness below the turbines and a timer to ensure the impacts only occur at night. With the exception of vertical directional intensity, all embedded mitigation is included in the assessment of night-time impacts. Given the extent of mitigation incorporated into the proposed Development, **'Significant'** impacts on the landscape or visual effects identified at night would be limited to a localised part of the adjacent Southern Uplands LCT, visual receptors in the village of Ae, Ae Bridgend/Parkgate, Auchencairn/Kirkton Shieldhill, and Templand, as well as recreational receptors in the southern Lowther Hills.
81. Overall, the significant impacts are considered to be localised and would be contained within an 7-12 km radius for all landscape and visual impacts. The changes arising from a project may engender positive or negative responses depending on individual perceptions regarding the merits of renewable energy. However, the assessment has taken a precautionary approach in considering that effects on the landscape and on views, which would result from the construction and operation of the proposed Development, would be adverse; however, many people would not consider the effects to be adverse.

7.3. Ecology

82. The ecology and biodiversity assessment considers the potential effects of the proposed Development on ecological receptors such as habitats and protected species.
83. Current survey guidelines were used to determine suitable survey areas for the various receptors to allow an assessment to be made on how these may be affected by the proposed Development. Surveys included vegetation surveys as well as surveys for badgers, bats, fish, otters, red squirrel, pine marten and water voles.
84. In addition to surveys, a desk-based study was undertaken to identify any statutory or non-statutory sites which may be affected by the proposed development. This also included a search for ancient woodlands in close proximity to the Site as well as gathering records of protected species from near to the Site.
85. There are no statutory designated sites within 10 km of the Site. The nearest is Black Loch Site of Special Scientific Interest (SSSI) which lies approximately 2.2 km south east from the Site. The Site is partially located within the outer transition zone of the Galloway and Southern Ayrshire UNESCO Biosphere Reserve but there are no other non-statutory designated sites within 2 km. There are 20 areas of ancient semi-natural woodland within 1 km of the Application Boundary.



86. The majority of the Site comprises of coniferous plantation where a commercial conifer crop, generally Sitka spruce, has been densely planted with little understorey present. There are small pockets of bog habitat present as well as rush pasture, wetland habitats, heathland, deciduous woodland, areas of grassland and scrub.

The surveys determined that there is suitable habitat on the Site to support a range of animals and evidence of amphibians, badger, reptiles, otters and pine marten was found, confirming their presence. The Site was also found to be used by high numbers of foraging and commuting bats although no confirmed roosts were found within disturbance distance of the proposed turbines or infrastructure. Seven species of bats were recorded to be using the Site. The watercourses in the Site were found to contain brown trout and Atlantic salmon.

87. The assessment concluded that no ground water dependent terrestrial ecosystems are present on the Site and areas of peat, which are considered more valuable, have been avoided during the design stages of the project. A Habitat Management Plan will be produced which will detail enhancement and habitat creation measures for the proposed Development.

The assessment concluded that effects on protected species would be minimal due to the incorporation of good practice measures and design considerations which seek to avoid directly killing, injuring or displacing species. Mitigation measures for bats will be detailed in a Bat Mitigation Plan and pre-construction surveys for all species which could be present will be undertaken prior to any works commencing. These surveys will then inform any further actions required to protect species.

88. On adoption of mitigation measures for bats, **no significance** effects are considered likely on any important ecological receptors either alone, or in combination with other projects.

7.4. Ornithology

89. The Ornithology Chapter assesses effects from the proposed Development on ornithological receptors, and in combination with **Chapter 8: Ecology and Biodiversity**, completes the assessment of effects from the proposed Development on biodiversity. The assessment uses data collated from a programme of ornithology surveys undertaken during the period September 2019 to August 2021, supported by desk study and consultation.

90. Two internationally designated sites for birds fall within 20 km of the proposed Development. These sites comprise Castle Loch, Lochmaben Special Protection Area (SPA), which lies approximately 13 km to the southeast and is designated for its non-breeding pink-footed goose population; and Upper Solway Flats and Marshes SPA/Ramsar Site, which lies 17.2 km to the south, which is also designated for its non-breeding pink-footed goose population as well as various other waterbird species. Although pink-footed geese were recorded during the baseline surveys, flight activity was limited to the passage period and involved birds on migration, rather than frequent foraging flights over the Site during the winter period. Studies have identified that the distribution of this species is largely concentrated within farmland habitats within the Nith and Ae valleys to the south of the Site. Consequently, both internationally designated sites were scoped out of the assessment.



91. Following an assessment of the distribution, abundance and frequency of occurrence of target species recorded through the desk study and programme of ornithological surveys, only one species was scoped into the impact assessment: goshawk.
92. The impact assessment identified that the construction of the proposed Development would only result in adverse effects on goshawk, via disturbance-related impacts, albeit they would be '**Not Significant**'. With regards to cumulative effects from the construction of the proposed Development from habitat loss/displacement alongside those of other wind farm developments, were still predicted to be '**Not Significant**'.
93. Regarding the operation of the proposed Development, minor adverse effects on goshawk were predicted, although no effects were considered to be significant. With regards to cumulative effects of the proposed Development from collision risk and/or barrier effects alongside those of other wind farm developments, were predicted to be '**Not Significant**'.
94. Effects related to decommissioning are predicted to be of no greater magnitude than construction related effects, and good practice measures would be implemented in accordance with best practice at that time. Therefore, decommissioning effects were not detailed further within the assessment.
95. Mitigation measures are proposed to minimise the effects of disturbance on goshawk and other Schedule 1 species during the design, pre-construction and construction phases in the interests of good practice and legal compliance. Mitigation would be secured within a Bird Protection Plan as a condition of any consent. Once mitigation measures were considered, it was concluded that there would be '**No Significant**' effects resulting from the proposed Development alone, or cumulatively with other projects.

7.5. Hydrology, Hydrogeology, Geology and Soils

96. The proposed Development has been assessed in relation to the potential impacts on hydrology, hydrogeology, geology and soils during the construction and operational phases.
97. Information on the Study Area was compiled using data gathered within a desk study and verified by an extensive programme of fieldwork. The impact assessment considered the sensitivity of receptors identified during the baseline study, the potential magnitude of effect and the likelihood of that effect occurring and taking into consideration any mitigation measures incorporated as part of the design of the proposed Development.
98. A detailed programme of peat depth and condition surveying has been completed and the results used to inform the site design. A **Peat Slide Risk Assessment and Peat Management Plan Technical Appendix 10.1** have been produced for the proposed Development, which show that areas of deep peat can be avoided and peat resources can be safeguarded.
99. The Site lies outwith any floodplain areas. Some private water supplies have been identified near the Site, but none have a hydrological connection so would not be affected by the proposed Development. Designated sites that are near, or have a hydrological connection to, the Site have been assessed individually and appropriate mitigation measures set out where linkages have been identified.
100. Sustainable Drainage Systems (SuDS) have been proposed to ensure that the rate of runoff from the Site post-development is no greater than that prior to development and



would not therefore increase flood risk downstream. The proposed SuDS allow the quality of water to be managed at source, prior to any discharge, thereby helping to prevent any reduction in water quality downstream of the Site.

101. Potentially groundwater-dependent terrestrial ecosystems have been identified within the proposed Development and assessed on a case-by-case basis to determine their level of groundwater dependency and potential impacts from development. Location-specific mitigation measures are provided to manage potential impacts arising from construction where it has not been possible to avoid these areas.
102. Mitigation measures have been identified for all potential impacts, either through the Site design process or in accordance with good practice guidance.
103. It has been shown, as a consequence of the Site design and embedded mitigation, that '**No Significant**' effects on hydrology, hydrogeology, geology and soils would arise as a result of the proposed Development.

7.6. Archaeology and Cultural Heritage

104. The Archaeology and Cultural Heritage chapter has considered potential physical impacts related to construction of the proposed Development on the fabric of heritage assets and impacts on the setting of heritage assets that could affect their cultural significance. Impacts are considered from direct, indirect and cumulative sources. A desk-based baseline assessment including a 'Stage 1' setting assessment (**Volume 4, Technical Appendix 11.1**) was undertaken to identify known heritage assets and the potential for currently unrecorded assets to be present within the Site, as well as assets in the wider landscape which may be impacted by the proposed Development through changes to their setting. A final list of receptors was agreed with Historic Environment Scotland (HES) and taken forward for assessment as part of this EIA.
105. There are a total of 35 known heritage assets located within the Site as shown on Volume 3a, **Figure 11.11** and the Site is considered to hold negligible to low archaeological potential for hitherto unknown archaeological remains.
106. Within the Site there is potential for direct physical construction phase impacts on three heritage assets: MDG16887, a non-designated unroofed building and two compartment enclosure, MDG9667, a non-designated farmstead, and LB10382, Garvald Churchyard, a Category C Listed Building.
107. Direct physical construction phase impacts as a result of micro-siting or accidental damage on MDG16887 and MDG9667 will in the first instance be avoided by fencing off these heritage assets. Should avoidance not be possible, impacts will be mitigated by a programme of archaeological recording.
108. Listed building (LB10382), Garvald Churchyard, located immediately adjacent to the proposed access track leading to the turbine area, will be fenced off to avoid any direct physical impacts caused through accidental damage and any required micro-siting will be planned to avoid direct impacts on the asset.
109. Impacts on currently undiscovered archaeological remains elsewhere in the Site are unlikely but may occur during the construction phase. Preservation by record through archaeological monitoring (watching brief) is likely to be required over some or all



construction groundworks for the proposed Development. The scope and nature of any mitigation will be agreed with DGC in advance of construction, formalised through a Written Scheme of Investigation (WSI), and this will be secured by condition of consent.

110. Following implementation of the proposed programme of archaeological mitigation of construction phase impacts, there would be **'No Significant'** residual physical effects on these heritage assets.
111. A 'Stage 1' Setting Assessment found the potential for operational effects on the cultural significance of five heritage assets, caused through changes within their settings: three Scheduled Monuments and one Inventory Garden and Designed Landscape (and associated Listed Buildings)/ Category A Listed Building (**Volume 4, Technical Appendix 11.1**) (**Volume 3a, Figures 11.10 and 11.11**). These heritage assets are assessed in detail in this chapter, supported with photomontage, photowire, and/or wireline visualisations as appropriate (**Volume 3a, Figures 11.1-11.8**).
112. In respect of the setting of heritage assets, no additional mitigation beyond that embedded in the design is proposed, and therefore residual adverse operational effects which are negligible and **'Not Significant'** are predicted upon:
 113. SM90221/PiC208 Morton Castle; and
 114. GDL00143/LB3886 Drumlanrig Castle (and associated Listed Buildings).
115. As no effects of greater than negligible significance are predicted, no cumulative effects have been identified.
116. No likely significant residual effects upon cultural heritage have been identified through EIA as presented in this chapter.

7.7. Access, Traffic and Transport

117. The proposed Development would lead to a temporary increase in traffic volumes on the A75 and A701 during the construction phase. Traffic volumes would decrease outside the peak period of construction.
118. The maximum traffic impact associated with the construction is predicted to occur in Months 6-7 of the construction programme. During this month, an average of 292 two-way HGV movements is predicted per day and it is estimated that there would be a further 50 two-way car and light van movements per day to transport construction workers to and from the Site.
119. An assessment of the potential effects using Institute of Environmental Management and Assessment ('IEMA') guidelines has been undertaken. This determined that, prior to the implementation of mitigation, a Moderate adverse effect could be expected on non-motorised amenity for residents in Locharbriggs and Heathhall, relating to the temporary increase in HGV traffic operating on the route. All other indicators indicated a Minor effect on receptors in the study area.
120. Operational and decommissioning effects have been scoped out of the assessment.
121. The assessment has identified no relevant development which would likely lead to cumulative effects.



122. A range of mitigation measures are proposed, including the implementation of a Construction Traffic Management Plan and Abnormal Load Transport Management Plan which would be agreed in advance with Dumfries and Galloway Council and Transport Scotland. The proposed mitigation would reduce the effects of abnormal loads and general construction traffic on the study network to Minor; the effects would be temporary and reversible.

7.8. Noise

123. Noise will be generated during the construction, operation, and decommissioning of the proposed Development, with the potential for adverse effects on noise-sensitive receptors in the vicinity. The potential effects of such noise are assessed in line with relevant legislation, policy, and guidance.

124. Noise-sensitive receptor locations in the vicinity of the proposed Development primarily comprise residential dwellings, but also includes Ae Primary School.

125. Construction activities will primarily take place at the locations of the proposed turbines and substation, as well as at construction compounds. Such locations are far away from receptor locations and are anticipated to result in negligible noise effects.

126. Decommissioning activities are anticipated to result in the same or lower noise levels compared to construction activities. Therefore, the assessment of construction noise effects also applies to decommissioning noise, as a worst-case basis assumption.

127. Access track construction will take place close to some receptors temporarily, but noise levels are predicted to be within acceptable noise limits and will occur on a temporary basis.

128. Construction traffic using access tracks will also generate noise close to receptors, but noise levels are predicted to remain within acceptable noise limits and will occur on a temporary basis.

129. Construction traffic on public roads will occur close to receptors but is predicted to result in negligible increases in road traffic noise levels and will occur on a temporary basis.

130. It is unlikely that multiple developments in the vicinity will be constructed at the same time, such that combined construction noise effects would become significant.

131. Operational noise from the rotation of the turbines has the potential to result in adverse effects, depending on the specific location and the weather conditions. A worst-case situation has been assessed, whereby all receptors are assumed to be downwind from all turbines.

132. Operational noise is assessed against fixed noise limits with no relaxation due to existing background noise levels. Overall noise limits are set based on the context of the wider area, including the number of receptors affected, the power-generation implications of noise limit options, and the consented noise limits of nearby wind farm developments. Noise limits are predicted to be met at all receptor locations.

133. Operational noise from the substation is anticipated to be negligible at receptor locations due to the large separation distances.



134. Cumulative operational noise from the proposed Development and other wind farm developments in the area are anticipated to result in higher overall noise levels than the proposed Development acting alone. However, the applicable noise limits are nonetheless predicted to be able to be met on a cumulative basis.
135. Overall, noise from the proposed Development is predicted to result in non-significant adverse effects at the identified receptor locations.

7.9. Other Issues

7.9.1. Infrastructure

136. Effects are predicted to be **'Not Significant'** on any existing infrastructure as a result of the construction or operation of the proposed Development.

7.9.2. Forestry

137. As a result of the proposed Development, based on the parameters adopted up to 199.19 Ha of forestry would require to be felled, and require compensatory planting. Of this 72.53 Ha to be kept clear of forestry during the operational phase of the proposed Development, approximately 31 Ha will be set aside for habitat improvements. This includes an area of new riparian and native woodland creation on shallow peat/ mineral soils of 28 Ha committed to in the outlined Habitat Management Plan included in **Technical Appendix 8.9**.
138. On this basis, it is anticipated that there will be a requirement for 72.53 ha of compensatory planting to be agreed with Scottish Forestry.

7.9.3. Telecommunications and Television

139. Telecommunications infrastructure (i.e. microwave and ultra-high frequency (UHF) communications links) transmit information between two antennae via radio waves with a particular frequency band.
140. Links between two antennae function best with a clear, unobstructed path between each end. Structures such as wind turbines located between transmitters and receivers have the potential to cause interference to the transmitted signal. The most common interference mechanisms are diffraction and reflection.
141. Diffraction is the partial blocking of the radio signal, thereby reducing the functionality of the link. Both microwave and UHF links can be impacted by diffraction.
142. Reflection is the radio wave being redirected due to reflecting off the obstruction. This is more of a concern for UHF links, as microwaves are highly directional.
143. The link path between transmitter and receiver is safeguarded by the Fresnel Zone, which is the area the radio wave travels in.
144. Consultation is undertaken with the most prevalent link operators in the UK to obtain details of nearby telecommunication infrastructure that could potentially be impacted by the proposed Development. From this, the Fresnel Zones are calculated to determine the Fresnel Zone. In addition to this, a buffer distance is applied to the Fresnel Zone to account



for any inaccuracies such as the coordinates of antennae. The combination of the Fresnel Zone and buffer defines the exclusion zone.

145. There are no link operators with telecommunications infrastructure within vicinity to the proposed Development, except for infrastructure operated by Airwave (Motorola Solutions) and Vodafone.
146. Airwave (Motorola Solutions) have confirmed they have no objection to the turbine layout of the proposed Development.
147. The proposed Development is clear of the Fresnel Zone, but marginally infringes the buffer by 1.4 m for the identified Vodafone infrastructure.
148. Subject to agreement with Vodafone, there are '**No Significant**' impacts predicted upon telecommunications infrastructure.

7.9.4. Shadow Flicker

149. Shadow flicker guidance indicates that shadow flicker can occur at properties within 10 rotor diameters of wind turbines, located 130 degrees either side of north of the proposed wind turbine locations.
150. Based on the 'realistic scenario' approach and assessment the shadow flicker effects anticipated as a result of the proposed Development are '**Not Significant**'.

7.9.5. Air Quality

151. While there are no properties within close proximity to the Site, effects associated with dust or vehicle emissions are possible, but these potential effects would be managed through good practice measures which would form part of the Outline Construction Environmental Management Plan (**Technical Appendix 3.1**).

7.9.6. Climate and Carbon Balance

152. A Greenhouse Gas (GHG) assessment was carried out utilising the Scottish Government's Carbon Calculator Tool in order to assess the GHG emissions and savings associated with the Proposed Development. The data inputs, outputs, and associated methodology are presented in **Technical Appendix 14.2**.
153. No overall adverse net effect related to climate change is predicted as a result of the Proposed Development. Therefore, no additional mitigation measures are proposed.
154. Emissions associated with the construction, operation, and decommissioning of the Proposed Development are projected to be offset 2.2 years after the Proposed Development becomes operational against a fossil fuel mix of electricity (Electricity that is sourced through the combustion of fossil fuels alone), or 3.1 years against a grid-mix of electricity (Electricity of which the main sources of energy are identical to those used for the National Grid (i.e., could include fossil fuels, renewable energy, nuclear, etc)).
155. The Proposed Development is predicted to deliver total emissions savings of 3,224,531 tCO₂e over its 40-year operational lifetime, against a fossil fuel mix electricity generation.
156. The overall impact is considered to represent a '**Significant**' effect.

7.9.7. Aviation and Radar

157. Wind turbines have the potential to cause a variety of adverse effects on aviation interests. They can cause issues for the radars used by civilian and military air traffic controllers because the characteristics of moving turbine blades are similar to those of aircraft, leading to spurious returns, or clutter, on radar displays. This can affect the safe provision of air traffic services. Wind turbines can also present a physical obstruction for aviation activities such as military low flying.
158. A review of aviation interests and operations in the vicinity of the proposed Development was undertaken. This showed that the Site is located within a military low flying area known as Tactical Training Area 20T. Radar line of sight modelling showed that some of the proposed turbines would be detectable by the NATS (En Route) plc (NERL) radar facilities at Lowther Hill and Great Dun Fell, and by the Ministry of Defence (MOD) radar at Deadwater Fell.
159. The NERL Lowther Hill radar has an in-built capability that allows for filtering out wind turbine generated radar clutter, and this may be a feasible mitigation for the predicted effect on Lowther Hill radar. Alternatively, the impacted area of the radar display could be blanked and data from another radar unaffected by wind turbines could be used to infill the blanked area. NERL has not raised any concerns regarding Great Dun Fell radar; however, similar technical mitigation would be available if required.
160. Deadwater Fell radar is used to control aircraft engaged in electronic warfare exercises at Spadeadam Range, approximately 40 km east of the Site. The displacement from the range boundary suggests that the proposed Development location is not in an operationally significant area in terms of required Deadwater Fell radar coverage, and the MOD has not raised any concerns regarding potential impacts on its radar facilities.
161. Before construction of the proposed Development, details of the obstacles including heights and locations would be notified to the Civil Aviation Authority for promulgation of obstacle data in aeronautical publications and for inclusion on civil and military aeronautical charts. The wind turbines would be required to be fitted with suitable visible and infra-red aviation lighting. Notification of obstacle data would ensure pilots know about the wind turbines and the aviation lighting would make the wind turbines more conspicuous. Together, these measures would address MOD concerns regarding military low flying aircraft.
162. Subject to the agreement of proposed mitigation measures with aviation stakeholders, there are '**No Significant**' areas of concern predicted for airspace and airspace users.

7.9.8. Seismic Array

163. The Eskdalemuir Seismic Array is a piece of infrastructure that is the responsibility of the Ministry of Defence. Vibrations caused by onshore wind turbines located within 50 km of the Array is a consideration for the MOD.
164. The Scottish Government and UK Wind Industry are actively supporting an Eskdalemuir Working Group. The group alongside leading seismologist have established the current algorithm for calculating noise vastly overestimates predicted seismological impact.



165. The Scottish Government, Eskdalemuir Working group and the wind industry are now actively engaging with the MOD to approve the findings of technical reports demonstrating the over estimation and to secure a new policy for budget allocation.
166. Given the Array is 32.3 km from the proposed Development's closest turbine, the Applicant is confident the current work on the Eskdalemuir Working Group will result in the release sufficient budget to allow the proposed Development to be constructed.

8. Environmental Management

167. Environmental constraints and considerations have been taken into account in the site layout and the design of the proposed Development to avoid and minimise the potential for significant effects. Further measures to prevent or reduce any remaining significant environmental effects are described within each technical Chapter of the EIA Report (**Chapter 7 to 14**). These measures and commitments are set out in **Chapter 16: Schedule of Commitments** of the EIA Report. Furthermore, the environmental mitigation and commitments would be formalised within a Construction Environmental Management Plan (CEMP). An outline CEMP can be found in **Technical Appendix 3.1**.
168. The Applicant and the Principal Contractor would oversee operations and ensure that mitigation measures are implemented, and activities carried out in such a manner as to minimise or prevent effects on the environment. The Principal Contractor would be supported by specialist, such as an Ecological Clerk of Works to ensure that mitigation measures are implemented effectively.

9. Benefits of the proposed Development

169. The Applicant is committed to providing a variety of other benefits above and beyond the renewable energy infrastructure and habitat enhancements. Thereby, the proposed Development would deliver the following key benefits.

9.1. Renewable Energy Generation and Carbon Dioxide Emissions

170. 186 GWh of electricity annually which equates to the annual power consumed by approximately 47,596 households³ (depending on the actual turbines installed).
171. Savings in CO₂ emissions due to the placement of other electricity sources over the lifetime of the proposed Development and displacement of carbon emitting generation after 40 years of operation.

³ Calculations from the Scottish Government Renewable electricity output and energy conversion calculator's website: <https://www.gov.scot/publications/renewable-and-conversion-calculators/> [accessed September 2024]



9.2. Community and Environmental Benefits

- 172. The opportunity for community benefit, providing long-term, flexible revenue which could be used to support community projects.
- 173. The Habitat Management Plan would restore 2.82 ha of modified and drained blanket peat bog using methods successfully implemented by the Applicant on similar developments, resulting in a likely positive biodiversity net gain.
- 174. The Applicant proposes a tailored package of benefits for the community from the proposed Development, this could equate to a community benefit funding for the local area worth up to £5000/MW contributing to potentially £420,000 annually and equivalent to £15.6 million over the project's lifetime.

9.3. Construction Employment and Economic Benefits

- 175. Opportunities for suppliers of a wide range of goods and services within Dumfries and Galloway, and Scotland as a whole.
- 176. Benefits to local and regional businesses, such as accommodation businesses and shops, that supply goods and services to construction works.
- 177. The total development and construction expenditure estimated at £83.6 million, which would result in an approximately £31.2 million contribution to Scottish economy.
- 178. Support, in net terms, for approximately 120 person-years of wider employment benefiting Dumfries and Galloway.
- 179. Support of approximately 402 person-years of wider employment nationally for Scotland as a whole.

9.4. Operational Employment and Economic Benefits

- 180. £37.4 million contribution to the Scottish economy during the operational phase through direct, indirect and multiplier effect, with around £8.5 million contribution to the Dumfries and Galloway economy.
- 181. The proposed Development would be expected to contribute lifetime gross value added (GVA) of some £8.5 million to the local economy through direct, indirect and multiplier effects, and just around £25.8 Million to the economy of Scotland as a whole.

10. References

- The Electricity Act 1989: Scottish Government: 1989. Available at:
<https://www.legislation.gov.uk/ukpga/1989/29/contents> [Accessed September 2024].
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017: Scottish Government: 2017. Available at:
<https://www.legislation.gov.uk/ssi/2017/101/contents> [Accessed September 2024].
- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Available at:
<https://www.legislation.gov.uk/asp/2019/15> [Accessed September 2024].
- Scottish Government's Control of Woodland Removal Policy: Scottish Government: 2019. Available at: <https://www.forestry.gov.scot/publications/285-the-scottish-government-s-policy-on-control-of-woodland-removal> [Accessed September 2024].
- The Town and Country Planning (Scotland) Act 1997. Available at:
<https://www.legislation.gov.uk/ukpga/1997/8/contents> [Accessed September 2024].
- The Sixth Carbon Budget: The UK's Path to Net Zero: Committee on Climate Change: 2020. Available at: <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf> [Accessed September 2024].
- Wind Energy Development: Development Management Considerations Supplementary Guidance: Dumfries and Galloway Council: 2020. Available at:
https://www.dumgal.gov.uk/media/22639/Wind-Energy-Development-Development-Management-Considerations/pdf/Wind_Energy_SG_Final_PDF_February_2020_Version.pdf?m=1582901680663 [Accessed September 2024].
- Local Development Plan 2: Dumfries and Galloway Council: 2019. Available at:
https://new.dumgal.gov.uk/sites/default/files/2024-07/Adopted_LDP2_OCTOBER_2019_web_version.pdf [Accessed September 2024].
- National Planning Framework 4: Scottish Government: 2024. Available at
<https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf> [Accessed September 2024].