

# Whitelee Windfarm Repowering

## Scoping Report

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## Abbreviations

|                       |                                                                 |
|-----------------------|-----------------------------------------------------------------|
| <b>AC</b>             | Alternating Current                                             |
| <b>AEnvCoW</b>        | Association of Environmental Clerks of Works                    |
| <b>AGL</b>            | Above Ground Level                                              |
| <b>AGLV</b>           | Area of Great Landscape Value                                   |
| <b>AILV</b>           | Abnormal Indivisible Load Vehicle                               |
| <b>AM</b>             | Amplitude Modulation                                            |
| <b>AOD</b>            | Above Ordnance Datum                                            |
| <b>ARC</b>            | Anti-Reflective Coating                                         |
| <b>ARP</b>            | Aerodrome Reference Point                                       |
| <b>ARWTN</b>          | Assessment and Rating of Wind Turbine Noise                     |
| <b>ATC</b>            | Air Traffic Control                                             |
| <b>BEMP</b>           | Biodiversity Enhancement and Management Plan                    |
| <b>BESS</b>           | Battery Energy Storage System                                   |
| <b>BGS</b>            | British Geological Survey                                       |
| <b>BoCC</b>           | Birds of Conservation Concern                                   |
| <b>BPP</b>            | Bird Protection Plan                                            |
| <b>BRE</b>            | Building Research Establishment                                 |
| <b>CAA</b>            | Civil Aviation Authority                                        |
| <b>CEMP</b>           | Construction Environmental Management Plan                      |
| <b>CIEEM</b>          | Chartered Institute of Ecology and Environmental Management     |
| <b>CIRIA</b>          | Construction Industry Research and Information Association      |
| <b>CMS</b>            | Construction Method Statement                                   |
| <b>CO<sub>2</sub></b> | Carbon Dioxide                                                  |
| <b>CoWR</b>           | Control of Woodland Removal                                     |
| <b>CRA</b>            | Collision Risk Analyses                                         |
| <b>CTA</b>            | Glasgow Control Area                                            |
| <b>CTMP</b>           | Construction Traffic Management Plan                            |
| <b>CTR</b>            | Glasgow Control Zone                                            |
| <b>dB</b>             | Decibel                                                         |
| <b>DC</b>             | Direct Current                                                  |
| <b>DECC</b>           | Department for Energy and Climate Change                        |
| <b>DNA</b>            | Deoxyribonucleic Acid                                           |
| <b>DPEA</b>           | Scottish Government Planning and Environmental Appeals Division |
| <b>DWPA</b>           | Drinking Water Protected Area                                   |
| <b>EAC</b>            | East Ayrshire Council                                           |
| <b>EciA</b>           | Ecological Impact Assessment                                    |
| <b>ECow</b>           | Ecological Clerk of Works                                       |
| <b>ECU</b>            | Energy Consents Unit                                            |
| <b>eDNA</b>           | Environmental Deoxyribonucleic Acid                             |

|                |                                                       |
|----------------|-------------------------------------------------------|
| <b>EIA</b>     | Environmental Impact Assessment                       |
| <b>EMI</b>     | Electromagnetic Interference                          |
| <b>EnvCoW</b>  | Environmental Clerk of Works                          |
| <b>ERC</b>     | East Renfrewshire Council                             |
| <b>ES</b>      | Environmental Statement                               |
| <b>FHS</b>     | Fish Habitat Surveys                                  |
| <b>ft amsl</b> | Feet Above Mean Sea Level                             |
| <b>GCN</b>     | Great Crested Newt                                    |
| <b>GCR</b>     | Geological Conservation Review                        |
| <b>GDL</b>     | Gardens and Designed Landscapes                       |
| <b>GLVIA</b>   | Guidelines for Landscape and Visual Impact Assessment |
| <b>GMBRC</b>   | Glasgow Museums Biological Records Centre             |
| <b>GPA</b>     | Glasgow Prestwick Airport                             |
| <b>GPG</b>     | Good Practice Guide                                   |
| <b>GW</b>      | Gigawatt                                              |
| <b>GWDTE</b>   | Groundwater Dependent Terrestrial Ecosystems          |
| <b>ha</b>      | Hectares                                              |
| <b>HER</b>     | Historic Environment Records                          |
| <b>HES</b>     | Historic Environment Scotland                         |
| <b>HGV</b>     | Heavy Goods Vehicle                                   |
| <b>HMA</b>     | Habitat Management Area                               |
| <b>HMP</b>     | Habitat Management Plan                               |
| <b>HSE</b>     | Health and Safety Executive                           |
| <b>HSI</b>     | Habitat Suitability Index                             |
| <b>ICAO</b>    | International Civil Aviation Organisation             |
| <b>IEF</b>     | Important Ecological Feature                          |
| <b>IEMA</b>    | Institute of Environmental Management and Assessment  |
| <b>IFP</b>     | Instrument Flight Procedures                          |
| <b>IOA</b>     | Institute of Acoustics                                |
| <b>IOF</b>     | Important Ornithological Features                     |
| <b>JNCC</b>    | Joint Nature Conservation Committee                   |
| <b>JRC</b>     | Joint Radio Company                                   |
| <b>km</b>      | Kilometre                                             |
| <b>kV</b>      | Kilovolt                                              |
| <b>kW</b>      | Kilowatt                                              |
| <b>LCT</b>     | Landscape Character Types                             |
| <b>LDP</b>     | Local Development Plan                                |
| <b>LGV</b>     | Light Goods Vehicle                                   |
| <b>LLA</b>     | Local Landscape Area                                  |
| <b>LMP</b>     | Land Management Plan                                  |
| <b>LVIA</b>    | Landscape and Visual Impact Assessment                |

|                   |                                                      |
|-------------------|------------------------------------------------------|
| <b>MW</b>         | Megawatt                                             |
| <b>NATS</b>       | National Air Traffic Services                        |
| <b>NBN</b>        | National Biodiversity Network                        |
| <b>ND3</b>        | National Development 3                               |
| <b>NHZ</b>        | Natural Heritage Zone                                |
| <b>nm</b>         | Nautical Miles                                       |
| <b>NPF4</b>       | National Planning Framework 4                        |
| <b>NRTF</b>       | National Road Traffic Forecasts                      |
| <b>NTS</b>        | Non-Technical Summary                                |
| <b>NVC</b>        | National Vegetation Classification                   |
| <b>OBEMP</b>      | Outline Biodiversity Enhancement and Management Plan |
| <b>OMP</b>        | Operational Management Plan                          |
| <b>OWPS</b>       | Onshore Wind Policy Statement                        |
| <b>PAC Report</b> | Pre-Application Consultation Report                  |
| <b>PAN</b>        | Planning Advice Note                                 |
| <b>PCA</b>        | Peatland Condition Assessment                        |
| <b>PLHRA</b>      | Peat Landslide Hazard and Risk Assessment            |
| <b>PMP</b>        | Peat Management Plan                                 |
| <b>PSR</b>        | Primary Surveillance Radars                          |
| <b>PV</b>         | Photovoltaic                                         |
| <b>PWS</b>        | Private Water Supply                                 |
| <b>RVAA</b>       | Residential Visual Amenity Assessment                |
| <b>SBL</b>        | Scottish Biodiversity List                           |
| <b>SEPA</b>       | Scottish Environment Protection Agency               |
| <b>SFS</b>        | Scotland's Forestry Strategy                         |
| <b>SLA</b>        | Special Landscape Area                               |
| <b>SLC</b>        | South Lanarkshire Council                            |
| <b>SLUS</b>       | Scottish Land Use Strategy                           |
| <b>SNH</b>        | Scottish Natural Heritage                            |
| <b>SPA</b>        | Special Protection Area                              |
| <b>SPG</b>        | Supplementary Planning Guidance                      |
| <b>SPHN</b>       | Statutory Plant Health Notices                       |
| <b>SPP</b>        | Species Protection Plans                             |
| <b>SPR</b>        | ScottishPower Renewables (UK) Limited                |
| <b>SWSEIC</b>     | South West Scotland Environmental Information Centre |
| <b>TMA</b>        | Terminal Control Area                                |
| <b>TNAC</b>       | Total Noise Assessment Criteria                      |
| <b>UKFS</b>       | UK Forest Standard                                   |
| <b>VP</b>         | Vantage Point                                        |
| <b>WCA</b>        | Wildlife and Countryside Act                         |
| <b>WFD</b>        | Water Framework Directive                            |

|              |                                      |
|--------------|--------------------------------------|
| <b>WLA</b>   | Wild Land Area                       |
| <b>WoSAS</b> | West of Scotland Archaeology Service |
| <b>Zol</b>   | Zone of Influence                    |
| <b>ZTV</b>   | Zone of Theoretical Visibility       |

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# 1. Introduction

## 1.1. Background and Context

This Scoping Report has been prepared by SLR Consulting Limited (SLR) on behalf of ScottishPower Renewables (UK) Limited (SPR) (herein referred to as the 'Applicant') in anticipation of an application under Section 36 of the Electricity Act 1989 for Whitelee Windfarm Repowering (herein referred to as the 'proposed Development').

The boundary of the proposed Development (hereafter referred to as the 'Site') comprises the operational Whitelee Windfarm, which straddles the administrative boundaries of East Ayrshire Council (EAC), East Renfrewshire Council (ERC) and South Lanarkshire Council (SLC). The Site also includes some additional areas of land on the margins of the operational Whitelee Windfarm site, where the Applicant has identified there could be potential for appropriate siting of turbines. Those relatively minor areas of land within the Site boundary but outside the operational Whitelee Windfarm site are hereafter referred to as the 'New Extension Areas'.

Whitelee Windfarm comprises the existing Whitelee Windfarm, Whitelee Phase 1 Extension and Whitelee Phase 2 Extension sites, as described further below:

- Whitelee (322 megawatts (MW)) was consented by Scottish Ministers in 2006 and became operational in May 2009; it comprises 140 wind turbines, with tip heights up to 110 m.
- Whitelee Phase 1 Extension (108 MW) was consented by Scottish Ministers in May 2009 and became operational in 2013; it comprises 36 wind turbines with tip heights up to 140 m.
- Whitelee Phase 2 Extension (109 MW) was consented by Scottish Ministers in December 2009 and became operational in 2013; it comprises 39 turbines with tip heights up to 140 m.

The other operational and consented energy infrastructure at Whitelee includes:

- Operational – 50 MW Battery Energy Storage System (BESS) – consented in 2019 by Scottish Ministers and commissioned in 2022, associated with the existing windfarm. The BESS compound is located near Ardochrig close to the eastern boundary of the Site.
- Consented – Whitelee Solar, Hydrogen and Battery – applications submitted in 2025 to Scottish Ministers for 40 MW solar and 50 MW BESS, and to East Ayrshire Council for an associated green hydrogen facility. Section 36 consent and planning permission have been granted. The infrastructure is located in the north west area of the Site, near Kingswells.

**Figure 1.1** shows the Site location and **Figure 1.2** shows the as-built operational Whitelee Windfarm development as well as the associated operational and consented energy projects.

The proposed Development will comprise decommissioning and removal of the operational Whitelee Windfarm turbines, and installation of around 124 new turbines with a maximum tip height of 250 m. The proposed Development design will include measures for biodiversity and recreational enhancement, the details of which will evolve through the EIA stage, as baseline surveys, assessments, and consultations progress. Ancillary infrastructure, including access tracks, hardstandings, temporary construction compounds and borrow pits, will also be

included in the proposed Development, although efforts will be made to re-use existing infrastructure where possible and practical.

The total generating capacity will be dependent on the rated power of the final turbine selected, but will be greater than 50 MW, meaning that an application will be submitted to Scottish Ministers for consent under the terms of Section 36 of the Electricity Act 1989 (hereafter referred to as a 'Section 36 application') and deemed planning permission under the terms of the Town and Country Planning (Scotland) Act 1997.

Under the provisions set out in the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations), it is proposed that any such application is accompanied by an Environmental Impact Assessment Report (EIA Report). Under regulation 12 of the EIA Regulations, a formal opinion of the information to be included within the scope of the EIA Report is sought from the Scottish Ministers. In addition to the EIA Report, the Planning and Renewable Energy Policy Statement will include a section on the preservation of amenity and fisheries in accordance with Schedule 9 of the Electricity Act 1989. The statement will set out how SPR has carried out its duties under paragraphs 3(1) and 3(3) of Schedule 9 of the Electricity Act 1989.

The purpose of this Scoping Report is to provide information to the Scottish Ministers and statutory consultees for determining the scope of the EIA and EIA Report. Where the Applicant is proposing to 'scope out' particular elements from the EIA Report, sufficient information and justification has been provided within this Scoping Report. The intention is to ensure the focus within the EIA Report is on any receptors impacted by the proposed Development that may experience significant effects.

Consultees will note that the Scoping Report contains a number of questions, for which it would be useful to receive feedback on. Not all questions will be relevant to all consultees, therefore we request that consultees provide feedback only on those questions appropriate to them. The questions should not be considered an exhaustive list, and consequently feedback is welcome on any issue considered relevant to the proposed Development. If consultees elect not to respond, the Applicant will assume that consultees are satisfied with the approach adopted or proposed. Further consultation will take place with relevant stakeholders throughout the EIA and application process, including with local communities.

The current indicative design of the proposed Development is a result of maximising the potential wind resource onsite whilst recognising site-specific and broader constraints, as they are understood at the date of submitting this Scoping Report. The layout of the proposed Development presented in the Scoping Report is expected to be further refined during the EIA process and through further consultation with consultees and stakeholders. Should any changes occur that are likely to result in a significant or unknown effect on an important feature or impact previously scoped out, then this will be scoped back into the EIA process and the appropriate scope agreed with the Scottish Government Energy Consents Unit (ECU) and relevant statutory consultees.

## 1.2.Purpose of this Scoping Report

This Scoping Report is submitted with a formal request to the Scottish Ministers to adopt a Scoping Opinion and is submitted in accordance with the EIA Regulations.

For this application, it is proposed to begin stakeholder consultation at the scoping stage, in order to provide information on the baseline conditions of the Site and the possible impacts

from the proposed Development. Therefore, this Scoping Report utilises the existing available information in respect of the Site and data gathered to date in relation to the operational Whitelee Windfarm, to focus on key areas and likely significant effects in agreement with consultees. Potential minor and non-significant issues are proposed to be scoped out.

As a consequence of the extensive existing data available for the Site, this Scoping Report provides an in-depth understanding of the baseline position and provides evidence to enable consultees to focus on key areas, likely significant effects and to 'scope out' minor and not significant issues.

Whilst this Scoping Report will inevitably require more engagement from key consultees at an early stage, the eventual EIA Report submitted should be more streamlined and focus on only likely significant effects.

This approach is supported by the EIA Regulations and by the ECU. The Applicant will ensure that regular and continued liaisons with key stakeholders (including the community) are carried out and documented to agree the assessment baseline, methodology and therefore ensuring the EIA process and final EIA Report documents will be more efficient and streamlined.

### 1.3. Structure of the EIA Scoping Report

The structure and sections of the EIA Scoping Report are briefly described below.

- **Section 1:** Introduction.
- **Section 2:** Introduction to and background on the Applicant.
- **Section 3:** Description of the proposed Development including the Site location and context as well as design and layout considerations to date.
- **Section 4:** Approach to the EIA including prediction of impacts, evaluation of effects, determining significance, and consideration of mitigation.
- **Section 5:** Planning and renewable energy context including identification of the development plan and information on policy and guidance considered.
- **Sections 6 to 18:** Environmental topics to be considered within the EIA Report including the environmental surveys and studies undertaken to date and proposed, assessment methodologies, potential significant effects of the proposed Development and potential mitigation and enhancement measures, as well as aspects to be scoped out of the EIA Report.
- **Section 19:** Other environmental issues including those considered to not have significant effects and proposed to be scoped out of the EIA.
- **Section 20:** Sets out how the key findings from each EIA Report chapter will be summarised, including residual effects, potential synergistic effects that may occur in combination, and committed mitigation and enhancement measures.
- **Section 21:** Other documents, in addition to the EIA Report, that will be submitted with the Section 36 application.
- **Section 22:** Conclusion.
- **Section 23:** Information on how to respond to the Scoping Report.

Technical experts who have provided inputs to the EIA Scoping Report are presented in Table 1.1.

**Table 1.1 EIA Technical Experts**

| TECHNICAL EXPERT             | COMPANY             | RELEVANT SECTION                           |
|------------------------------|---------------------|--------------------------------------------|
| David Bell                   | David Bell Planning | Policy and Climate Change Context          |
| Kelly Anderson               | Stephenson Halliday | Landscape and Visual                       |
| Alison Hood                  | SLR                 | Ecology                                    |
| Iain Gilmore                 | WSP                 | Ornithology                                |
| David Nisbet                 | SLR                 | Hydrology, Hydrogeology, Geology and Soils |
| Beth Gray, Elise Christensen | SLR                 | Cultural Heritage                          |
| Iain Lamb                    | SLR                 | Traffic and Transport                      |
| Malcolm Spaven               | Aviatica            | Aviation and Existing Infrastructure       |
| Mark Jiggins                 | Hoare Lea           | Noise                                      |
| Tim Barratt                  | Bidwells            | Forestry                                   |
| Simon Cleary                 | BiGGAR Economics    | Socio-economics                            |

## 1.4. References

Scottish Government. (1997.) Town and Country Planning (Scotland) Act 1997. Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents>

Scottish Government. (2017.) Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents>

UK Government. (1989.) Electricity Act 1989. Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents>

## 2. The Applicant

The Applicant, ScottishPower Renewables (UK) Limited (SPR), 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 now 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 £18 million every working day to make this happen and is committed to speeding up the transition to cleaner electric transport and improving air quality to deliver a better future, quicker for everyone.

SPR is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation, and already has over 40 operational windfarms managed from its world-leading Control Centre at Whitelee Windfarm – where Iberdrola's Saint Brieuc Wind farm in France and Wikinger Windfarm in Germany are also monitored from. SPR stands as a distinguished innovator, industry leader, and environmental investor. As one of the largest privately funded peatland restoration entities in the UK, SPR has successfully restored over 1,000 hectares (ha) of peatland, with the capacity to sequester approximately 3.6 million tonnes of carbon dioxide. Repowering allows SPR to reuse existing site infrastructure and take advantage of new technologies resulting in increased electricity generation and ultimately, increased security of supply. It can create jobs and supply chain opportunities, unlocks more community benefit funding and further investment in ecology and the local environment. Old assets can also become sustainable resources for research and training, recycling and restoration.

## 3. The Proposed Development

### 3.1. Site Description

The Site is located on Eaglesham Moor, a moorland plateau approximately 15 km south of Glasgow and 6 km south west of East Kilbride. The village of Eaglesham is approximately 1.5 km north of the Site boundary at its nearest point, and Darvel is a similar distance from the Site boundary to the south.

The Site covers an area of approximately 82 km<sup>2</sup> and straddles three local authority areas: East Ayrshire, East Renfrewshire, and South Lanarkshire.

The Site topography is largely quite gentle, with elevations ranging from approximately 220 m above Ordnance Datum (AOD) in the south and west, to a high point of 376 m AOD at Corse Hill in the north east site area. There are several other hills and high points within the Site boundary, the highest generally being in the north and east.

The proposed Development Site comprises the existing Whitelee Windfarm (including extensions as described in **Section 1.1**). The overall operational Whitelee Windfarm comprises 215 wind turbines with tip heights ranging from 100 m to 140 m. Consents for the existing Whitelee Windfarm turbines were granted in 2006 and 2009.

In addition to the operational Whitelee Windfarm turbines, the proposed Development Site includes a BESS facility associated with the operational windfarm. It is intended that the BESS facility will remain and will be incorporated into the repowered windfarm. A development in the west of the Site comprising solar photovoltaic (PV), BESS and a green hydrogen facility has also been recently consented. For the purposes of developing an appropriate proposed Development layout, it has been assumed that the proposed solar/BESS/hydrogen facility will be constructed.

The proposed Development Site boundary has been devised to include the operational Whitelee Windfarm turbines, with some additional land areas at the outer margins of the operational development (the New Extension Areas, as described in **Section 1.1**), to allow flexibility in the location of proposed repower turbines, tracks and other infrastructure, as well as habitat management and biodiversity enhancement. It is expected that the turbine layout will evolve post-scoping as a result of design iteration. However, it is not expected that the Site boundary will materially change.

**Figure 1.1** shows the location of the proposed Development, and **Figure 1.2** shows the as-built operational Whitelee Windfarm development as well as the associated energy projects (operational and consented). **Figure 3.1** illustrates the currently proposed layout for the repowering of the windfarm, i.e. the proposed Development layout, including indicative turbine positions.

## 3.2. The Proposed Development

The proposed Development has already been through a number of design iterations during an initial feasibility stage and will continue to evolve as the EIA progresses.

At time of writing, the proposed Development comprises:

- 124 turbines with tip heights indicatively up to 250 m, hub heights approximately 164 m and rotor diameters approximately 172 m (all dimensions being preliminary and subject to change as design iteration progresses, and subject to the final selected turbine model). Turbine heights in different areas of the Site will appropriately respond to topography, as well as the proximity and sensitivity of relevant receptors.
- Turbine foundations and hardstandings;
- External transformer housing adjacent to each turbine;
- Crane pads;
- Access tracks;
- Water crossings (upgraded and/or new, as required);
- Underground electricity cables;
- Temporary borrow pits;
- Potentially one or more permanent anemometry masts;
- Potentially one or more power performance masts;
- Temporary construction and storage compounds and ancillary infrastructure;
- Site signage and snow poles;
- New onsite substation (noting that the existing two onsite substations will be retained as part of the repower project);
- New onsite control building; and
- Waste water and drainage attenuation measures (as required).

Access to the proposed Development is expected to remain as at present, taken from Moor Road on the northern Site boundary, south west of Eaglesham. The existing access into the Site is considered likely to be suitable for re-use, although some upgrading of the access junction may be necessary to facilitate delivery of larger turbine components. This will be described in full within the Section 36 application materials.

The proposed Development location has a good wind resource, evidenced by the successful operation of the existing Whitelee Windfarm. Consequently, the proposed repowering project will significantly contribute to the UK and the Scottish Government's renewable energy targets. Windfarm design with turbines up to 250 m tip height is considered reflective of Scottish Government aspirations for demonstrably better energy yields from sites optimised with higher tip heights. As far as possible, the proposed Development will also utilise and upgrade existing tracks and infrastructure such as borrow pits where possible, which will further minimise potential effects on the local environment.

### 3.2.1. Proposed Development Life and Decommissioning

Consent will be sought for an operational life of at least 50 years from the date of final commissioning, after which the proposed Development would be appropriately decommissioned. If, after the operational lifespan of the proposed Development has expired, there is potential for repowering, this would be subject to a new and separate application. The EIA Report will consider the effects arising during the construction and operation phases. Decommissioning effects would be similar or less than those arising from construction. As such, it is proposed that a separate assessment of decommissioning effects is not included in the EIA Report.

## 3.3. Project Design

The current proposed Development design, as presented in this Scoping Report, is preliminary and indicative, and it is anticipated that further design iteration will be undertaken throughout the EIA process, as updated baseline data is gathered and assessments progress.

### 3.3.1. Current Indicative Layout

The current proposed Development layout, which will be subject to ongoing iteration, has been devised following completion of early stage feasibility workstreams. Key considerations taken into account in determining the current indicative layout include:

- Available development area with reference to the operational Whitelee Windfarm and, where considered appropriate, additional undeveloped land parcels in some perimeter areas (the New Extension Areas);
- The aim of maximising energy yield, within the context of good practice in design, and identified environmental sensitivities and constraints (see below);
- Relationship to the surrounding landscape and visual receptors; and
- Technical and environmental constraints (including biodiversity and opportunities for enhancement), identified through review of background information, mapping of onsite constraints, and completion of a high-level Site walkover by Ecology and Hydrology technical specialists.

As part of the process of preparing this Scoping Report, additional consideration of proposed Development layout and design has been undertaken, including a reconnaissance visit to the Site and surrounding area by the EIA project management team and landscape architect, and an updated Ecology walkover survey.

Coordinates for the current, indicative proposed turbine locations are given in **Table 3.1**.

**Table 3.1 Proposed Turbine Coordinates**

| TURBINE | EASTING | NORTHING | TURBINE | EASTING | NORTHING |
|---------|---------|----------|---------|---------|----------|
| 1       | 252176  | 648480   | 63      | 255829  | 644401   |
| 2       | 253396  | 649153   | 64      | 254983  | 644379   |
| 3       | 252096  | 647897   | 65      | 255569  | 644933   |
| 4       | 252859  | 648363   | 66      | 256450  | 644895   |
| 5       | 253725  | 648694   | 67      | 256229  | 645499   |

| TURBINE | EASTING | NORTHING | TURBINE | EASTING | NORTHING |
|---------|---------|----------|---------|---------|----------|
| 6       | 254504  | 648857   | 68      | 256977  | 645467   |
| 7       | 254819  | 648403   | 69      | 257621  | 645968   |
| 8       | 254076  | 647927   | 70      | 257983  | 645473   |
| 9       | 253351  | 648020   | 71      | 257145  | 644849   |
| 10      | 252016  | 647250   | 72      | 257328  | 644293   |
| 11      | 251056  | 646840   | 73      | 257956  | 644818   |
| 12      | 251618  | 646589   | 74      | 258106  | 644222   |
| 13      | 252056  | 646170   | 75      | 258913  | 644282   |
| 14      | 252129  | 645605   | 76      | 259183  | 643723   |
| 15      | 252690  | 645314   | 77      | 259088  | 643051   |
| 16      | 252209  | 644682   | 78      | 259055  | 642388   |
| 17      | 252495  | 644179   | 79      | 259295  | 641834   |
| 18      | 253267  | 644346   | 80      | 259212  | 641183   |
| 19      | 253075  | 644913   | 81      | 259649  | 640330   |
| 20      | 253884  | 644926   | 82      | 259978  | 639841   |
| 21      | 253641  | 645461   | 83      | 259913  | 641021   |
| 22      | 253622  | 646023   | 84      | 259999  | 641650   |
| 23      | 254425  | 646190   | 85      | 260012  | 642307   |
| 24      | 254176  | 646687   | 86      | 259818  | 642893   |
| 25      | 254265  | 647359   | 87      | 260624  | 643278   |
| 26      | 255075  | 647688   | 88      | 259864  | 643541   |
| 27      | 255549  | 648352   | 89      | 260107  | 644208   |
| 28      | 255832  | 647865   | 90      | 259560  | 644762   |
| 29      | 256510  | 647742   | 91      | 258774  | 644798   |
| 30      | 255760  | 647238   | 92      | 258717  | 645388   |
| 31      | 254969  | 647049   | 93      | 258701  | 646039   |
| 32      | 255193  | 646524   | 94      | 258289  | 646472   |
| 33      | 255477  | 645900   | 95      | 257679  | 646720   |
| 34      | 254627  | 645462   | 96      | 258977  | 646889   |
| 35      | 254609  | 644819   | 97      | 259201  | 647545   |
| 36      | 254042  | 644204   | 98      | 259322  | 648199   |
| 37      | 254369  | 643748   | 99      | 260085  | 647877   |
| 38      | 253754  | 643213   | 100     | 259784  | 647240   |
| 39      | 253734  | 642611   | 101     | 259500  | 646576   |
| 40      | 253939  | 642065   | 102     | 259393  | 645957   |
| 41      | 253714  | 641409   | 103     | 259627  | 645375   |
| 42      | 252967  | 641267   | 104     | 260514  | 644897   |
| 43      | 253557  | 640747   | 105     | 260397  | 645500   |
| 44      | 253806  | 640214   | 106     | 260240  | 646070   |

| TURBINE | EASTING | NORTHING | TURBINE | EASTING | NORTHING |
|---------|---------|----------|---------|---------|----------|
| 45      | 254450  | 640028   | 107     | 260431  | 646791   |
| 46      | 255111  | 639855   | 108     | 260702  | 647481   |
| 47      | 254459  | 640748   | 109     | 261498  | 647852   |
| 48      | 254308  | 641246   | 110     | 261254  | 647128   |
| 49      | 254633  | 642018   | 111     | 261028  | 646442   |
| 50      | 254549  | 642602   | 112     | 261194  | 645826   |
| 51      | 254448  | 643170   | 113     | 261345  | 645219   |
| 52      | 255283  | 643078   | 114     | 262144  | 645563   |
| 53      | 255425  | 642460   | 115     | 261995  | 646204   |
| 54      | 256249  | 642230   | 116     | 261827  | 646820   |
| 55      | 257476  | 642217   | 117     | 261997  | 647481   |
| 56      | 256960  | 642447   | 118     | 262549  | 647227   |
| 57      | 256857  | 643015   | 119     | 262899  | 646788   |
| 58      | 256078  | 642960   | 120     | 262768  | 646152   |
| 59      | 255078  | 643695   | 121     | 262767  | 645359   |
| 60      | 255848  | 643663   | 122     | 262277  | 644795   |
| 61      | 256660  | 643624   | 123     | 262595  | 644272   |
| 62      | 256504  | 644180   | 124     | 263275  | 644542   |

As noted in **Section 3.2**, it is proposed that turbine tip heights will be up to 250 m. Specific tip heights of individual turbines are not presented within this Scoping Report. However, as design iteration work and assessments progress, turbine tip heights will respond appropriately to Site topography, as well as the proximity and sensitivity of relevant receptors.

The layout presented for scoping, as presented in **Figure 3.1**, is considered to be appropriate for suitably considering the scope of the EIA. The layout design will continue to evolve throughout the EIA process, taking account of updated baseline data, assessment of environmental impacts, the established design principles, and wind yield analysis.

A micro-siting allowance of 50 m is proposed for all turbines and 100 m for all other infrastructure from final design, which would allow maximum flexibility to deploy the most efficient layout possible and to minimise environmental effects.

### 3.4. Phasing of Development

The proposed Development comprises the repowering of a very large operational windfarm. As described above, the operational Whitelee Windfarm has been constructed in several phases (original development plus two phases of extension), over a period of several years.

Construction of the proposed Development would be similarly phased, broadly as outlined below, noting that the phases would be consecutive:

#### *Phase 1*

- Decommissioning and removal of approximately half the spatial area of the original Whitelee Windfarm turbines, erecting 'repower' turbines across that area (and New

Extension Areas, as applicable), and connecting them into the onsite substation that currently serves the original Whitelee Windfarm development.

#### *Phase 2*

- Decommissioning and removal of the remainder of the turbines in the original Whitelee Windfarm area, erecting 'repower' turbines across that area (and New Extension Areas, as applicable), constructing a new repower substation and connecting the repower turbines into the new substation. The specific location and design of the new repower substation has not yet been determined; however it is expected to be located in the north west of the Site, near the entrance into the operational development.

#### *Phase 3*

- Decommissioning and removal of the Whitelee Windfarm Extension turbines (both extension phases), erecting 'repower' turbines across that area (and New Extension Areas, as applicable), and connecting them into the existing onsite substation that currently serves the Whitelee Windfarm Extension development.

The above phasing strategy is broadly displayed on **Figure 3.2**, noting that it is illustrative only at this stage and subject to change during the EIA process as the proposed Development design and construction strategy progress. Details of proposed phasing, timing of each phase, and approach to decommissioning and construction will be provided in the EIA Report.

It is acknowledged that the scale and phasing of the proposed Development means that the overall construction phase will be longer and more complex than for a typical windfarm development. There will be periods during which Proposed Development turbines will be operational alongside the remaining, smaller Whitelee Windfarm turbines, however these periods will be temporary and will form part of the overall construction phase. This will be appropriately considered in the assessment of construction phase effects for each of the technical topics in the EIA.

### **3.5. Wind Turbines, Foundations, Transformers and Crane Pads**

It is anticipated that there will be a variation in turbine tip heights across the Site up to 250 m. The indicative rotor diameter, based on typical available models at the appropriate scale, is approximately 170 m, although this will be subject to review as design iteration progresses.

A specific turbine model has not yet been selected, but it is expected to be a horizontal axis machine with three rotor blades. Current models have approximately 7 MW generating capacity and by the time the project is constructed, such wind turbine models may be capable of generating more. Any turbines selected are also likely to have external transformers placed adjacent to each turbine. A relevant candidate turbine model will be selected for assessment, and this will be described within the EIA Report.

The turbines will be fixed to reinforced concrete foundations, formed in excavations approximately 5 m deep, depending upon ground conditions. Detailed design specifications for each foundation will depend on site-specific ground conditions to be determined during pre-construction ground investigations, as well as the specific turbine model selected, and various other engineering considerations.

Crane pads would be left in-situ following erection of turbines, to allow for maintenance and replacement of parts as necessary during the lifetime of the Development.

### 3.6. Access Tracks

As a repowering of an existing windfarm site, it is considered that the requirement for new site tracks will be considerably less than would be the case for a new greenfield development. However, given that proposed Development turbines will be much larger than the operational turbines, spacings between turbines will be much greater, and access track geometry will need to appropriately support the delivery of large turbine blades and other components. It will therefore be necessary to upgrade existing tracks in some areas and construct new tracks in other areas.

The routes for the tracks will be chosen to minimise potential impacts on the environment, while taking account of other site-specific constraints. The EIA Report will include a rationale for their final location.

Site tracks may comprise 'cut' or 'floating' track construction, as described below:

- 'Cut' track – superficial soils and soft subsoils are excavated, to reach a competent bearing layer, which can be used as a formation level using methods including blasting of rock.
- 'Floating' track – superficial soils and subsoils are left in-situ with the track built on top of the existing ground level, utilising geotextiles, and geogrids to reinforce the track materials. This technique is generally used where there are deep soft underlying materials, for example deep peat which cannot be avoided in site design.

Watercourse crossings will be minimised as far as possible and where these cannot be avoided then suitable water crossings will be identified within the EIA Report and assessed.

### 3.7. Substation, External Transformer & Grid Connection

The wind turbines would produce electricity at 660 – 1,000 Volts. The electricity would then be transformed to 33,000 Volts (33 Kilovolts (kV)) via a transformer which is likely to be located within the turbine or alternatively immediately adjacent to the tower of each turbine. The transformers would be linked to onsite substations via high voltage underground cables placed in trenches which would generally follow the route of the onsite tracks (dimensions to be determined by the ground conditions but typically 1.5 - 2 m x 1 m deep).

Where trenching alongside onsite tracks is not feasible, the transformers would connect to the substation via underground cables across open ground with electrical marker posts used to identify their locations.

The exact location of the transformers may differ depending on the final turbine model used, however most modern turbines have the transformer located within the nacelle.

The underground 33 kV cables routed from the turbines would be brought together at onsite substations. Current proposals are to retain the existing two onsite substations, and construct a third substation at a location within the Site boundary, likely in the north west Site area. The two existing substations are: the original Whitelee Windfarm substation near Ardochrig at the eastern edge of the Site; and the Whitelee Extension substation in the northern Site area.

(serving both the Phase 1 and Phase 2 Extensions). These substations are intended to be retained for use as part of the repowered development, although there may be a requirement to construct additional buildings alongside these substations to house associated equipment, subject to the results of further investigation and design work.

The detailed construction methods, layout of cables and contents of the new and retained onsite substation compounds would be provided within the outline Construction Environmental Management Plan (CEMP) which would form part of the EIA Report.

Connection of the proposed Development to the national grid will be the responsibility of the network operator, and the new infrastructure required to facilitate the additional grid connection will be subject to a separate design and consenting process, including public consultation. However, it may be considered appropriate to include an assessment/appraisal of the likely significant effects of the proposed Development with its grid connection if they are considered to constitute a 'single project' for the purposes of EIA. The specific approach to this assessment/appraisal will be dependent on the status of the grid connection routeing, design and consenting process, and available technical and environmental information at the time of preparation of the proposed Development EIA Report. Given these uncertainties, sufficient information may not be available to support a full assessment prior to submission of the Section 36 planning application. The EIA Report will therefore present available information and include an assessment/appraisal where possible.

### 3.8. Borrow Pits

The proposed Development would require crushed stone to upgrade existing tracks, construct new tracks, create or extend crane hardstanding areas, and potentially to construct other infrastructure such as temporary construction compounds. It is anticipated that suitable stone and aggregate can be sourced from onsite borrow pits, which would avoid or minimise traffic associated with bringing in such materials from off-site sources. Borrow pit areas of search will be identified within the EIA Report, taking account of geological conditions, environmental sensitivities, and technical requirements. The borrow pits will be temporary in nature and restored following use.

### 3.9. Temporary Construction and Storage Compounds, and Ancillary Infrastructure

Temporary construction compounds will be required during the construction phase, to provide secure office facilities, and secure areas for storage of materials and components. Compounds will be appropriately sized and sited strategically across the Site, likely adjacent to Site access tracks. They would be surrounded by security fencing with locked gates. Following the construction phase, fencing and gates would be removed. It is proposed that the hardcore base would be retained, but allowed to re-vegetate.

Infrastructure ancillary to the construction and operation of the proposed Development, for example drainage and surface water management infrastructure, will be required. This would be constructed in accordance with best practice and relevant guidelines, to minimise environmental impact.

### 3.10. Outline Construction Environmental Management Plan

An outline CEMP would be prepared as part of the EIA Report. The outline CEMP would set out the method statements for constructing site infrastructure, and measures that would be undertaken by contractors to ensure good site practice with regards to construction practices and environmental management. Such measures would include, for example, the transport and storage of potentially polluting substances such as oils and lubricants, as well as waste management.

It is expected that should consent be granted, a condition would be attached to the deemed planning permission, requiring the submission of a final CEMP and agreement of it with Local Planning Authorities (EAC, ERC and SLC), prior to construction commencing.

It is expected that no development would commence until the role, responsibilities, and operations to be overseen by an appropriately competent Environmental Manager and Environmental Clerk of Works (EnvCoW) have been submitted to, and approved in writing by, the relevant Local Planning Authority. In line with recent guidance set out by the Association of Environmental Clerks of Works (AEnvCoW), the Environmental Manager would be responsible for working with the appointed contractors to ensure that all activities and works are carried out in accordance with the committed environmental mitigation measures and approved management plans. The Environmental Manager will ensure that impacts to ecological features during the construction phase are minimised through implementation of best practice measures, including ensuring that water quality is maintained and the potential for disturbance or risk of injury/death is minimised for protected species which may be using the Site on an occasional basis.

The EnvCoW will be appointed as an independent environmental professional, whose role will be to impartially assess compliance against the committed mitigation measures and approved management plans.

### 3.11. References

Association of Environmental Clerks of Works. (Undated.) Position Statement – The Role of an Environmental Clerk of Works. Available at: <https://associationofenvcows.org/the-role-of-an-environmental-clerks-of-works/download/6-the-role-of-an-environmental-clerks-of-works> [Accessed September 2024]

### 3.12. Scoping Question to Consultees

The following questions are directed to consultees:

- **Question 1:** Do consultees agree a micro-siting allowance of 50 m for turbines and 100 m for all other infrastructure, to allow flexibility within the project design?
- **Question 2:** Do consultees agree that it is appropriate to not include a dedicated assessment of decommissioning effects?

## 4. Approach to Environmental Impact Assessment

### 4.1. Approach to Environmental Impact Assessment

The EIA Regulations require that before consent is granted for certain types of development, the EIA process must be undertaken and an EIA Report produced. The EIA Regulations set out the types of development which must always be subject to an EIA (Schedule 1 development) and other developments which may require an EIA Report if there is the potential for significant environmental effects as a result of the development (Schedule 2 development).

The proposed Development falls within Schedule 2 of the EIA Regulations and has the potential to have some significant environmental effects. Therefore, it is the opinion of the Applicant that the proposed Development qualifies as ‘EIA Development’ and therefore the Applicant will voluntarily submit an EIA Report as part of a Section 36 application and has not requested an EIA Screening Opinion.

EIA is a process which includes the requirement for the preparation of an EIA Report by the developer. This, amongst other matters is required to provide a description of the potential significant environmental effects of the development proposed. The work involved in this process informs the eventual design of the proposals. The final design will seek to avoid, reduce, offset and minimise any adverse environmental effects through mitigation.

The EIA Report will consider the effects arising during the construction and operational phases. As noted in **Section 3.2.1**, it is not proposed to include a separate, detailed assessment of decommissioning effects in the EIA process.

### 4.2. Gathering Baseline Information

The baseline conditions currently present at the Site comprise the operational Whitelee Windfarm. The assessment of environmental effects will be undertaken in the context of this baseline. It is acknowledged that relevant guidance for repowering projects, for certain technical environmental topics, recommends consideration of a theoretical future baseline which assumes removal of the operational windfarm and restoration of the site. This theoretical ‘restored’ baseline would also need to consider the substantial habitat management measures associated with Whitelee Windfarm, which would cease if it was to be decommissioned. This is discussed further within each of the topic chapters as appropriate.

The collection of the baseline data for much of the Site has been completed as a result of the prior construction, monitoring and surveys that have been undertaken in relation to the existing wind turbines that have been operational on the Site over the last 15 years, as well as more recent consents for solar, BESS and hydrogen developments at the Site. The Applicant has a comprehensive understanding of the Site and the local vicinity. This, together with early stage development workstreams, has allowed for the indicative design identified within the Scoping Report to have ‘designed out’ some impacts to the environment already.

The assessment team has undertaken a detailed review of existing baseline data from previous development and monitoring at the Site. This has helped to determine a suitable approach to gathering additional data as required to enable a robust assessment, appropriate to the nature

and scale of the proposed Development. The approach to, and extent of baseline data gathering will be determined using both professional judgement and industry best practice. The EIA will also identify areas where the baseline may change, prior to the construction and operational phases of the proposed Development from current conditions.

Baseline data gathering will consist of desk study assessments (including the review and use of data, as appropriate, gathered for the previous and proposed developments in the Site area), consultation, field survey and monitoring. Findings from the desk study and field survey work will be clearly reported in the EIA Report, setting out baseline conditions including evaluation of the sensitivity of identified receptors. In line with the EIA Regulations, the EIA Report will also indicate any difficulties encountered in compiling environmental baseline conditions, such as not being granted permission to access areas where surveys were required. Commentary will be provided as to any resultant uncertainties and limitations, and implications for the assessments.

### 4.3. Prediction of Impacts and Evaluation of Effects

The assessment of effects for each environmental topic will consider the environmental impacts of both the construction and operational phases of the proposed Development and the environmental impacts should the proposed Development not be consented (the do-nothing scenario).

As noted in Section 3.4, the assessment of construction phase effects will appropriately consider the extended duration and phased approach to the construction process.

To determine whether the potential effects of the proposed Development are likely to be 'significant', several criteria will be used. The significance criteria vary between topics but generally will consider the following:

- International, national and local designations or standards;
- Relationship with planning policy;
- Sensitivity of the receiving environment;
- Magnitude of impact;
- Reversibility and duration of the effect; and
- Inter-relationship between effects.

The following terms will be used in the EIA Report, unless otherwise stated, to determine the level of effects predicted to occur:

- Major beneficial or adverse effect – where the proposed Development would result in a substantial improvement (or deterioration) to the existing environment;
- Moderate beneficial or adverse effect – where the proposed Development would result in a noticeable improvement (or deterioration) to the existing environment;
- Minor beneficial or adverse effect – where the proposed Development would result in a small improvement (or deterioration) to the existing environment; and
- Negligible – where the proposed Development would result in no discernible improvement (or deterioration) to the existing environment.

Effects that are likely to be significant, prior to mitigation, will be identified within the EIA Report. The significance attributed to the resultant effect is informed by professional judgement, as to the sensitivity of the affected receptor(s) and the nature and magnitude of the predicted changes/impacts. For example, a major adverse change/impact on a feature or site of low importance will have an effect of lesser significance than the same impact on a feature or site of high importance.

Using professional judgement and with reference to the relevant guidance, the majority of the assessments within the EIA Report will consider effects of moderate and greater significance to be significant, while those of minor significance and less to be non-significant. If there are deviations from this these will be clearly stated within the individual EIA Report technical chapters.

Potentially significant environmental effects, identified from background review and studies undertaken to date, are outlined in the relevant technical sections of this Scoping Report.

#### 4.3.1. Cumulative Effects

Part 5 of Schedule 4 of The EIA Regulations sets out the matters that require to be incorporated within EIA Reports. The EIA Regulations state that EIA Reports should include an assessment of *“the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”*.

Cumulative effects are those which result from incremental changes caused by past, present or reasonably foreseeable future actions resulting from the introduction of the Proposed Development. These cumulative effects cover the combined effect of individual impacts from the proposed Development and combined impacts of several developments.

Cumulative effects will be considered in detail within relevant technical assessments as part of the EIA. The cumulative assessments will consider all relevant wind energy and, where appropriate, other major infrastructure developments that are operational, under construction, consented or at planning application stage. The cumulative situation changes frequently as applications are made or withdrawn, and the layouts of proposed developments in the surrounding area are changed. It is therefore necessary to decide on a cut-off date when the sites and layouts to be included are fixed. The EIA Report will clearly state the cut-off date and rationale for its selection.

## 4.4. Mitigation of Environmental Effects

Schedule 4 (paragraph 7) of The EIA Regulations requires the EIA Report to present a description of the measures proposed *“to avoid, reduce and, if possible, offset significant adverse effects...and...of any proposed monitoring arrangements”* (Scottish Government, 2017). Wherever reasonably practicable, mitigation measures will be proposed for each significant environmental effect predicted, and can take various forms including:

- Changes to the proposed Development design;
- Physical measures applied onsite; and
- Measures to control particular aspects of the construction or operation of the Development.

Where none of the above are deemed practicable, the detailed proposed Development design will be required to include measures to offset any significant adverse effects.

Mitigation measures considered likely to be appropriate at this stage are outlined in the relevant technical sections of this Scoping Report. Details of mitigation measures and implementation mechanisms will be further explored during the EIA process, and will be presented in the EIA Report as commitments, in order to ensure a level of certainty as to the environmental effects of the proposed Development. There are various ways in which a level of certainty can be ensured, such as through the use of planning conditions.

#### 4.4.1. Enhancement

Opportunities for environmental enhancement will be explored as part of ongoing design iteration, with full consideration of the proposed Development's local, regional and national nature context. Enhancement opportunities will be discussed and designed holistically with inputs from across the design and assessment team, recognising the cross-discipline nature of enhancements that can be made (e.g. ecology, ornithology, hydrology, landscape, and heritage). Enhancement commitments will be clearly described in the relevant technical chapters of the EIA Report.

Enhancement measures considered likely to be appropriate at this stage are outlined in the relevant technical sections of this Scoping Report.

### 4.5. References

Scottish Government. (2017.) Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at:  
<https://www.legislation.gov.uk/ssi/2017/101/contents>

### 4.6. Scoping Question to Consultees

The following question is directed to consultees:

- **Question 3:** Do consultees agree with the approach to the EIA?

## 5. Consultation

### 5.1. Community Consultation

The Applicant recognises that consultation with the community is a crucial part of the development design process. Having operated the Whitelee Windfarm for over 15 years, the Applicant has an established understanding of the local area and community and is committed to positive engagement throughout the repowering application process and beyond.

As this is a Section 36 application, there is currently no formal requirement to follow the pre-application consultation procedures for major developments under the Town and Country Planning (Scotland) Act 1997, (Scottish Government, 1997) as amended, however this application will follow the processes and standards set by the legislation and best practice guidelines. A Pre-Application Consultation Report (PAC Report) will be submitted with the application. SPR will continue to monitor whether a statutory process is introduced through the amendments made to the Electricity Act 1989 by the Planning and Infrastructure Act 2025.

As part of the iterative design process and best practice, the Applicant will engage with local communities close to the proposed Development to gather their views, so these can, where possible, inform the ongoing proposed Development design process.

Liaison with key stakeholders and local communities will be undertaken at appropriate milestones throughout the EIA process. The engagement strategy is expected to include a range of communication methods and feedback mechanisms, including face-to-face meetings and exhibitions, online information and feedback gathering, newsletters and press releases.

### 5.2. Technical Stakeholder Consultation

Consultation with statutory and non-statutory consultees (e.g. NatureScot, Historic Environment Scotland (HES), Scottish Environment Protection Agency (SEPA), EAC, ERC, SLC, Community Councils, etc.) will be an integral part of the iterative EIA process. The Applicant recognises the benefit of carrying out early consultation with all relevant parties. The consultation will progress with the circulation of this Scoping Report and will continue for the duration of the EIA process.

**Table 5.1 Proposed Scoping Consultees**

|                               |                                             |
|-------------------------------|---------------------------------------------|
| East Ayrshire Council         | East Renfrewshire Council                   |
| South Lanarkshire Council     | South Ayrshire Council                      |
| North Ayrshire Council        | Glasgow City Council                        |
| Renfrewshire Council          | North Lanarkshire Council                   |
| East Dunbartonshire Council   | West Dunbartonshire Council                 |
| Inverclyde Council            | Loch Lomond and the Trossachs National Park |
| Dumfries and Galloway Council | NatureScot                                  |
| SEPA                          | HES                                         |

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| RSPB Scotland                        | Fisheries Management Scotland       |
| Scottish Forestry                    | Scottish Water                      |
| Transport Scotland                   | ScotWays                            |
| British Horse Society                | The Crown Estate                    |
| Glasgow Airport                      | Glasgow Prestwick Airport           |
| Edinburgh Airport                    | Defence Infrastructure Organisation |
| Civil Aviation Authority             | NATS Safeguarding                   |
| British Telecommunications Plc       | Joint Radio Company Ltd             |
| Strathaven Airfield                  | Clyde River Foundation              |
| West of Scotland Archaeology Service | Scottish Canals                     |
| Airwave Solutions Ltd                | Arqiva Ltd                          |
| Atkins Realis                        | Vodafone                            |
| EE                                   | Scottish Fire and Rescue Service    |
| Spectrum Licensing (Ofcom)           | Mountaineering Scotland             |
| The Coal Authority                   | National Gas Transmission           |
| National Grid                        | National Rail                       |
| ScottishPower Energy Networks        | Scottish Gas Networks               |
| Visit Scotland                       | Woodland Trust                      |
| Ayrshire Rivers Trust                | John Muir Trust                     |
| Office for Nuclear Regulation        | Scottish Wild Land Group            |
| Scottish Wildlife Trust              |                                     |
| <b>Community Councils</b>            |                                     |
| Eaglesham and Waterfoot              | Auldhouse and Chapelton             |
| Fenwick                              | Moscow and Waterside                |
| Newmilns and Greenholm               | Darvel and District                 |
| Sandford and Upper Avondale          | Strathaven and Glassford            |

## 5.3. References

Scottish Government. (1997.) Town and Country Planning (Scotland) Act 1997. Available at: <https://www.legislation.gov.uk/ukpga/1997/8/contents>

Scottish Government. (2010.) Planning Advice Note 3/2010 - Community Engagement. Available at: <https://www.gov.scot/publications/pan-3-2010-community-engagement/> (withdrawn but still provides useful guidance)

Scottish Government. (2024.) Effective Community Engagement in Local Development Planning: Guidance. Available at: <https://www.gov.scot/publications/guidance-effective-community-engagement-local-development-planning-guidance/>

## 6. Policy and Climate Change Context

### 6.1. Introduction

This Section describes the statutory framework within which the application will be submitted and outlines relevant policy and guidance documents that will be taken into consideration to help inform the design of the proposed Development.

The EIA Report will set out the relevant policies that have been considered as part of the assessments undertaken throughout the EIA. A separate Planning Statement will provide a detailed appraisal of the proposed Development against the relevant Development Plan policies, national planning and energy policy and other material considerations.

### 6.2. Legislative Context

The proposed Development will have an installed capacity of over 50 MW. In Scotland, onshore renewable energy developments that have capacity to generate over 50 MW require consent from the Scottish Ministers under the Electricity Act 1989 (the 'Electricity Act'). In such cases the Planning Authority is a statutory consultee in the development management process and procedures. In the case of the proposed Development, all three Planning Authorities (SLC, ERC and EAC) will be statutory consultees.

In an application under Section 36 of the Electricity Act the Development Plan does not have primacy in the decision-making process. The provisions of Schedule 9(3) of the Electricity Act are relevant to the design of the proposed Development. The provisions of Schedule 9 of the Electricity Act set out a number of features to which regard must be had by the Scottish Ministers or a Licence Holder, and such features will be addressed in the EIA process, as summarised below:

- Preservation of natural beauty – to be addressed in Chapter 9 Landscape and Visual Impact Assessment;
- Conservation of flora, fauna and geological or physiographical features of special interest – to be addressed in Chapter 10 Ecology, Chapter 11 Ornithology, and Chapter 12 Hydrology, Hydrogeology, Geology and Soils;
- Protection of sites, buildings and objects of architectural, historic or archaeological interest – to be addressed in Chapter 13 Cultural Heritage; and
- Avoidance, so far as possible, of causing injury to fisheries or to the stock of fish in any waters – to be addressed in Chapter 10 Ecology.

As part of the decision making process, the Scottish Ministers will have to ensure that the Applicant (as a Licence Holder) has had regard to the matters identified in Schedule 9(3) of the Electricity Act and consider whether the Applicant has done what it reasonably can to mitigate effects on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects as noted above.

### 6.3. Renewable Energy Policy Overview

In recent years UK and Scottish Government policies have focused increasingly on concerns about climate change and the nature crisis. Each tier of Government has developed targets, policies and actions to achieve targets to deal with the climate crisis and generate more renewable energy and electricity. In Scotland in particular, this is reflected in Policy 1 of National Planning Framework 4 (NPF4) which is entitled 'Tackling the climate and nature crises' and which requires that when considering all development proposals that significant weight is given to the global climate and nature crises. Scottish Ministers have set a target to have a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030.

Whilst the legislative framework for energy consents remains a reserved matter, the Scottish Government in response to climate change have set a clear strategic direction for the deployment of renewable energy through policy and additional legislative provisions. The following documents and legislative provisions are relevant considerations:

The UK Government retains responsibility for the overall direction of energy policy, although some elements are devolved to the Scottish Government. The UK Government has published a series of policy documents setting out how targets can be achieved.

Onshore wind generation, located in Scotland, is identified as an important technology to achieve these various goals as set out in the Scottish Government's Onshore Wind Policy Statement (2022) which clearly outlines the socio-economic and environmental benefits of onshore wind and its integral role in tackling climate change. Moreover, it states that "*deployment of onshore wind is mission-critical for meeting our climate targets.*".

The Scottish Government has published a number of policy documents and has set its own targets. The most relevant policy, legislative documents and more recent policy statements published by the Scottish Government include:

- The Scottish Energy Strategy (Scottish Government, 2017);
- The Scottish Government's declaration of a Climate Emergency (Scottish Government, 2019);
- The Scottish Climate Change Plan Update (Scottish Government, 2020a);
- The Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and the legally binding net zero target for 2045 (Scottish Government, 2020b);
- The Onshore Wind Policy Statement (OWPS) (Scottish Government, 2022);
- The Draft Energy Strategy and Just Transition Plan (Scottish Government, 2023a); and
- The Green Industrial Strategy

The proposed Development relates to the generation of electricity from renewable energy sources and comes forward as a direct response to national planning and energy policy objectives which seek to encourage, promote and facilitate all forms of renewable energy. The proposed development would be consistent with national policy and guidance.

The proposed Development would make a very substantial contribution to the attainment of emissions reduction and renewable energy and electricity targets at both the Scottish and UK

levels. The development will also support Scotland to realise the economic benefits of the global transition to net zero as outlined with the Green Industrial Strategy. The proposed Development seeks to repower an existing windfarm to utilise more efficient turbines, and generate increased power from larger wind turbines. All of the above documents provide a positive and facilitative framework for the development of renewable energy. The 2022 OWPS also provides clear support for repowering and recognises the benefits thereof (Section 5.3: Repowering), noting that generally community support for repowering existing sites and increasing the contribution of existing generation projects to the grid is strong.

## 6.4. National Planning Policy and Guidance

### 6.4.1. National Planning Framework 4

NPF4 (Scottish Government, 2023b) forms part of the statutory Development Plan and is a significant consideration in decision making for applications under s.36 of the 1989 Act.

NPF4 introduced national level development management policies which are to be applied Scotland wide, and also provides guidance to Planning Authorities with regard to the content and preparation of Local Development Plans (LDPs).

NPF4 identifies National Developments which are central to the delivery of the national Spatial Strategy. Proposed National Development 3 (ND3) is entitled 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. The proposed Development would therefore have national development status as per these provisions of NPF4.

The most relevant development management policies in NPF4 include the following:

- Policy 1: Tackling the Climate and Nature Crises;
- Policy 3: Biodiversity;
- Policy 4: Natural Places;
- Policy 5: Soils;
- Policy 6: Forestry, Woodland and Trees;
- Policy 7: Historic Assets and Places;
- Policy 11: Energy; and
- Policy 22: Flood Risk and water Management.

For the consideration of onshore wind energy development, Policy 11 is the most relevant policy. NPF4 will be the key policy consideration for the determination of the proposed Development as part of the statutory Development Plan.

### 6.4.2. National Planning Guidance

National planning guidance and advice are material considerations, which are relevant to the proposed Development and will be considered in the EIA Report. These include, but are not limited to, the following documents (noting that the Scottish Government withdrew a wide range of Planning Advice Notes and other guidance in December 2025):

- Planning Advice Note (PAN) 1/2011 Planning and Noise (Scottish Government, 2011a); and

- PAN 1/2013 Environmental Impact Assessment (Scottish Government, 2013);
- Biodiversity: Planning Guidance (Scottish Government, 2025)

## 6.5. Local Development Plans

### 6.5.1. Overview

The local planning policy context applicable to the proposed Development will be taken into account and will be described in the EIA Report. The proposed Development Site is located within the administrative areas of South Lanarkshire, East Ayrshire and East Renfrewshire. Relevant policy provisions from the relevant LDPs for the three local planning authorities are set out below.

### 6.5.2. South Lanarkshire

The LDP for South Lanarkshire is the South Lanarkshire Local Development Plan 2 (known as 'LDP2') (adopted 09 April 2021) (SLC, 2021a) and associated non statutory Supporting Planning Guidance (SPG). The South Lanarkshire LDP2 documentation includes two Volumes as follows:

- LDP2 Volume 1: which contains a Vision and Strategy and development management policies; and
- LDP2 Volume 2: which contains additional policies and furthermore detailed criteria against which development proposals are to be considered.

The relevant policies from LDP2 will be addressed in the Planning and Renewable Energy Policy Statement.

### 6.5.3. East Ayrshire

The East Ayrshire LDP (known as 'LDP2') was adopted on 08 April 2024.

The relevant policies of relevance in the East Ayrshire LDP2 will be addressed in the Planning and Renewable Energy Policy Statement.:

### 6.5.4. East Renfrewshire

The East Renfrewshire LDP (known as 'LDP2') was adopted on 31 March 2022. The key relevant policies of relevance in the East Renfrewshire LDP2 will be addressed in the Planning and Renewable Energy Policy Statement:

## 6.6. References

East Ayrshire Council. (2024.) Adopted Local Development Plan 2. Available at: <https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2.aspx>

East Renfrewshire Council. (2022.) Local Development Plan 2. Available at: <https://www.eastrenfrewshire.gov.uk/article/1173/Local-Development-Plan-2>

Scottish Government. (2011a.) Planning Advice Note 1/2011 Planning and Noise.

Scottish Government. (2013.) Planning Advice Note 1/2013 Environmental Impact Assessment.

Scottish Government. (2017.) Scottish Energy Strategy. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2017/12/scottish-energy-strategy-future-energy-scotland-9781788515276/documents/00529523-pdf/00529523-pdf/govscot%3Adocument/00529523.pdf>

Scottish Government. (2019.) The Global Climate Emergency – Scotland’s Response: Climate Change Secretary Roseanna Cunningham’s Statement. Available at: <https://www.gov.scot/publications/global-climate-emergency-scotlands-response-climate-change-secretary-roseanna-cunninghams-statement/>

Scottish Government. (2023.) National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

Scottish Government. (2025.) Planning Guidance: Biodiversity. Available at: <https://www.gov.scot/publications/scottish-government-planning-guidance-biodiversity/>

## 7. Environmental Impact Assessment Report (EIA Report)

The findings of the EIA will be reported in an EIA Report. The EIA Report will identify the features/receptors that have been agreed with the ECU and its advisers as features that have the potential to experience significant effects from the proposed Development.

It will focus on each of the broad topics identified within this Scoping Report, the Scoping Opinion, plus any other topics that develop throughout the remainder of the EIA process, to the point of submission of the Section 36 application.

For each technical topic, the assessment methodology will be outlined, and the baseline conditions will be described. For all relevant features/receptors, the results of the assessment will be detailed, including description of the potential impacts and their magnitudes, receptor sensitivity, resulting significance of effects, committed mitigation and/or enhancement measures (if applicable), and significance of residual effects following application of mitigation and/or enhancement.

The EIA Report will include a Non-Technical Summary (NTS) and Technical Appendices.

The EIA Report is likely to follow the structure below:

**Chapter 1:** Introduction

**Chapter 2:** Legal and Policy Context

**Chapter 3:** Approach to EIA

**Chapter 4:** Site Selection and Design Evolution

**Chapter 5:** Project Description

**Chapter 6:** Landscape and Visual

**Chapter 7:** Ecology

**Chapter 8:** Ornithology

**Chapter 9:** Hydrology, Hydrogeology, Geology and Soils

**Chapter 10:** Cultural Heritage

**Chapter 11:** Traffic and Transport

**Chapter 12:** Aviation and Existing Infrastructure

**Chapter 13:** Noise

**Chapter 14:** Forestry

**Chapter 15:** Other Issues

**Chapter 16:** Residual, Synergist Effects & Mitigation and Conclusions

The EIA Report will be produced both in a hard copy print and electronically. For the majority of consultees, unless otherwise requested, the EIA Report will be provided electronically. Upon submission of the application, these documents will be made available for public inspection at appropriate locations to be agreed with EAC, ERC, SLC and the ECU, and will be distributed to the relevant consultees. An NTS will be submitted alongside the EIA Report, which will provide a summary of the main findings and will be written in a non-technical language to help enable clear understanding and overview of the assessments.

A Pre-Application Consultation (PAC) Report, Planning and Renewable Energy Policy Statement and a standalone Socio-economic and Tourism Appraisal document will also be submitted along with the EIA Report as a part of the Section 36 application.

## 7.1.Scoping Question to Consultees

The following question is directed to consultees:

- **Question 4:** Do consultees agree with the proposed indicative structure of the EIA Report?

## 8. Embedded Mitigation and Further Layout Iterations

To date, the layout and design of the proposed Development has been developed iteratively, taking account of the following key factors:

- The available land area;
- The existing windfarm layout and infrastructure;
- The additional energy developments currently consented onsite;
- The wind resource and opportunities for maximising renewable energy generation; and
- The landscape character and visual receptors in the area.

The layout presented in this Scoping Report has been devised to avoid environmental and physical constraints as far as possible (embedded mitigation). It will continue to evolve during the EIA process, taking account of survey and early assessment findings as well as consultation feedback, until the design will be 'frozen' to allow final assessment.

In the following sections, the subject areas to be covered in the Scoping Report and EIA Report are discussed in turn. Where it is considered that certain subjects or particular aspects within subjects can be scoped out of the EIA process, evidence and a rationale are provided.

## 9. Landscape and Visual

### 9.1. Introduction

The Landscape and Visual Impact Assessment (LVIA) will consider direct and indirect effects on landscape resources, landscape character and designated landscapes. It will examine the nature and extent of effects on existing views and visual amenity. The effects of the proposed Development, including the ancillary infrastructure (access track, masts, , transformers etc.), will be assessed during the construction and operational phases. The LVIA will also consider cumulative effects i.e., the incremental effects of the addition of the proposed Development to other windfarm developments.

The LVIA will be iterative informing modifications and refinements to the layout design and will be undertaken following the approach set out in Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3). The assessment will also draw upon current good practice guidance published by NatureScot.

### 9.2. Legislation and Guidance

The national policy framework is provided in National Planning Framework 4 (NPF4) which states that “...*project design and mitigation will demonstrate how the following impacts are addressed: significant landscape and visual impacts, recognising that such impacts are expected for some forms of renewable energy.*” (Policy 11e Energy).

Policy 11 Energy of NPF4 supersedes wind energy spatial strategies set out in Local Development Plan supplementary guidance. However, supplementary guidance remains a useful source of information on potential landscape sensitivities. The following supplementary planning guidance will be referred to:

- East Renfrewshire Local Development Plan Supplementary Planning Guidance Renewable Energy (ERC, 2017); and
- East Ayrshire Local Development Plan Supplementary Guidance Planning for Energy and EV Charging (EAC, 2024).

In addition, the Local Development Plans and associated guidance of the three ‘host’ local authorities will be reviewed and considered in the LVIA.

Other industry guidance that will be used in the LVIA is listed in **Section 9.6**.

### 9.3. Existing Conditions

#### 9.3.1. The Proposed Development Site

The Site of the proposed Development (**Figure 1.1**) coincides with gently rolling moorland plateau with large areas of commercial forestry. The Site is to the north of the Irvine valley and north west of the Avon valley. The Irvine valley is a shallow U-shaped valley that is well settled and includes the villages of Darvel, Newmilns and Galston. The Avon valley is shallow valley that extends north east from the watershed between the river Avon and the river Irvine to its confluence with the river Clyde to the north east. There are several smaller valleys that dissect

the southern part of the site and adjacent land. These include the Glen Water which is a steep V-shaped valley that joins the Irvine valley to the east of Darvel.

To the north of the Site the land slopes down towards the southern edges of East Kilbride and the village of Eaglesham to the west. The western part of the Site includes several waterbodies, the largest of which are Lochgoin reservoir and Dunwan Dam. To the north west of the Site the rolling moorland extends to the south western fringes of Glasgow and the pattern of large waterbodies continues.

The existing turbines of Whitelee, Whitelee Phase 1 Extension and Whitelee Phase 2 Extension are situated on the central part of the plateau and on broad ridges that extend south towards the Irvine valley. The steep plateau edge screens most of the turbines in views from nearby communities to the west, south and east while views are more open from the elevated plateau to the north. A greater number of turbines are visible in more distant views from the wider area.

The proposed Development turbine area includes the whole of the existing operational windfarm site with small additional areas to the west of Lochgoin and to the south at Darvel Moss, Bradley Moss and Calder Moss to the north of Darvel.

There are several existing and consented windfarms around the Whitelee site, as listed in **Tables 9.1** and **9.2** below and on **Figure 9.4**. The closest to the site are Calder Water and West Browncastle to the south east and Sneddon Law to the south west.

**Table 9.1 Operational Windfarms within 10 km of Whitelee**

| WINDFARM                             | NUMBER OF TURBINES | MAXIMUM TIP HEIGHT | DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT (KM) |
|--------------------------------------|--------------------|--------------------|-------------------------------------------------------|
| Calder Water                         | 13                 | 145 m              | Adjacent                                              |
| Myres Hill                           | 2                  | 76 m               | Adjacent                                              |
| Sneddon Law                          | 15                 | 130 m              | Adjacent                                              |
| West Browncastle                     | 12                 | 136.5 m            | Adjacent                                              |
| Ardoch                               | 3                  | 110 m              | 0.6 km, north west                                    |
| Over Enoch                           | 2                  | 110 m              | 0.6 km, north east                                    |
| Bankend Rig                          | 11                 | 76 m               | 8 km, south east                                      |
| Dungavel                             | 13                 | 101 m              | 6.5 km, south east                                    |
| Kype Muir                            | 26                 | 132 m              | 10 km, east south east                                |
| Kype Muir Extension                  | 15                 | 220 m              | 10 km, east south east                                |
| Blantyre Muir, Extension and Rigmuir | 9                  | 115 m to 149.9 m   | 6.4 km, north east                                    |
| Middleton                            | 6                  | 105 m              | 5.5 km, north west                                    |
| Neilston Community                   | 4                  | 120 m              | 8.7 km, north west                                    |

*Source: EnergyPulse Data, ECU, East Ayrshire, East Renfrewshire and South Lanarkshire planning portals*

**Table 9.2 Consented Windfarms within 10 km of Whitelee**

| WINDFARM        | NUMBER OF TURBINES | MAXIMUM TIP HEIGHT | DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT (KM) |
|-----------------|--------------------|--------------------|-------------------------------------------------------|
| Low Drumclog    | 3                  | 180 m              | 2.7 km, south east                                    |
| Mill Rig        | 6                  | 250 m              | 8 km, south east                                      |
| Bankend Rig II  | 3                  | 126.5 m            | 7 km, south east                                      |
| Bankend Rig III | 10                 | 180 m to 250 m     | 9.8 km, south east                                    |
| Moorshield      | 3                  | 149.9 m            | 0.6 km, north west                                    |

*Source: EnergyPulse Data, ECU, East Ayrshire, East Renfrewshire and South Lanarkshire planning portals*

**Table 9.3 Proposed Windfarms within 10 km of Whitelee**

| WINDFARM        | NUMBER OF TURBINES | MAXIMUM TIP HEIGHT | DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT (KM) |
|-----------------|--------------------|--------------------|-------------------------------------------------------|
| South Brownhill | 3                  | 180 m              | 2.1 km, south east                                    |
| Mossmulloch     | 5                  | 200 m              | 2.3 km, south east                                    |
| Hallsburn       | 3                  | 149.9 m            | 7 km, south east                                      |
| East Merkland   | 3                  | 149.9 m            | 8.3 km, south east                                    |
| Dunwan Dam      | 5                  | 200 m              | Adjacent                                              |

*Source: EnergyPulse Data, ECU, East Ayrshire, East Renfrewshire and South Lanarkshire planning portals*

### 9.3.2. Visual Amenity

#### Zone of Theoretical Visibility (ZTV)

ZTV maps (**Figures 9.1, 9.2 and 9.3**) have been generated using GIS to assist in identifying areas where visibility would and would not occur. They have also been used for viewpoint selection and to illustrate areas from where part or all of the proposed Development may be visible.

The visibility maps present the extent of potential visibility on the basis of a 'bare ground' scenario. They do not account for the effects of screening and filtering of views as a result of intervening features (e.g. buildings, forestry, trees, hedgerows, etc.) and so over-estimate visibility, both in terms of the area from which the proposed Development may potentially be seen and in terms of the extent of the Development visible from a particular location. Despite these caveats, ZTVs are a useful tool to identify areas from which the proposed Development may be visible.

The ZTV analysis on **Figures 9.1** and **9.2** indicates that the proposed Development will theoretically be visible from:

- All parts of the Site;
- North of the Site to East Kilbride, Newton Mearns, Paisley, Glasgow and beyond to the Campsie Fells and Kilsyth Hills;
- East of the Site to Larkhall and the M74 corridor and further east beyond Wishaw and to the boundary of the Scottish Borders;
- South of the Site in the Irvine valley and the uplands that lie between the Irvine valley and the Ayr valley extending south beyond Cumnock to Nithsdale; and
- West of the Site from the rolling farmland around Kilmarnock, Stewarton and Irvine with theoretical visibility from east facing slopes of the uplands between Greenock and Dalry.

The proposed Development would not be visible in its entirety from any visual receptor or viewpoint. From any one location only a part of the proposed Development would be seen.

### **Visual Receptors**

Visual effects relate to changes to the composition of available views as a result of changes to the landscape, to peoples' responses to the changes, and to the overall effects with respect to visual amenity arising from the introduction of the proposed Development. Visual receptors include:

- Residents in individual dwellings and settlements;
- Visitors to the local and wider area;
- Road and railway users; and
- Recreational receptors including walkers on recreational routes and Core Paths, and visitors to outdoor tourist destinations where the visitor experience incorporates a focus on the surrounding landscape.

### Residents

The ZTV shown on **Figures 9.1** and **9.2** indicates theoretical visibility from settlements around the Site. These include Newton Mearns, Eaglesham, East Kilbride, Strathaven, Darvel, Newmilns, Galston, Kilmarnock and Stewarton within 15 km, with more distant views from the greater Glasgow area, Irvine, Kilwinning and Stevenston. The ZTV indicates limited or no visibility from Hamilton, Lesmahagow, the Clyde valley, Cumnock, Mauchline and Lochwinnoch.

There are a number of residential properties within 2 km of the Site mainly in the settled farmland to the west, south and east, the Irvine valley to the south and at the southern fringes of Eaglesham and East Kilbride to the north.

### Road and Rail Users

Most of the key transport routes are within valleys with a network of minor roads in the lower slopes of the plateau edge or in the adjacent settled farmland.

The A77 passes within 1.5 km of the Site to the west and runs between Ayr in the south and Glasgow in the north. The northern part of the A77 between Fenwick and Glasgow follows a similar alignment to the M77. The A71 passes within 2.2 km to the south of the Site within the Irvine valley. It runs between Irvine and Edinburgh, passing through Galston, Newmilns, Darvel, and Strathaven. The A726 passes to the north of Eaglesham running between Junction 5 of the M77 and the A725 in the western part of East Kilbride then running south east to Strathaven passing within 4.2 km of the Site. The A719 connects Galston and the Irvine valley with the A77/M77 corridor and passes within 1.2 km of the Site to the west. The B764 runs between East Kilbride and Junction 6 of the M77 passing immediately to the north of the Site and provides access to Whitelee Visitor Centre.

Rail routes tend to be concentrated to the north of the Site in the Glasgow conurbation with links to Kilmarnock west of the Site.

Routes from where theoretical visibility is identified (see **Figure 9.1**) include:

- Routes within the A77/M77 corridor;
- Routes between Kilmarnock, Stewarton and Paisley;
- Routes in the Irvine valley and to the south of Kilmarnock;
- Routes within the Avon valley and around Strathaven;
- Routes around Cumnock including the B741 and minor roads; and
- Some of the network of roads further north-east around Wishaw.

#### Recreational Routes

There are various public footpaths, including Core Paths, Rights of Way and long distance paths, within the study area as well as established routes to popular hill summits.

The River Ayr Way passes approximately 20 km to the south of the Site and the ZTV shown on **Figure 9.1** indicates very limited or no visibility from the route due to its position within the Ayr valley. The Southern Upland Way is approximately 35 km to the south east of the Site. The ZTV shown in **Figure 9.1** indicates very limited theoretical visibility from the route to the south of Sanquhar and to the west of Wanlockhead. The Ayrshire Coastal Path passes 21 km to the west and the ZTV indicates visibility between Prestwick and Ardrossan.

Within the Site there is a network of Core Paths and informal routes used for walking and cycling that use the existing Whitelee windfarm tracks. These Core Paths connect to the wider Core Path network of the South Lanarkshire, East Ayrshire and East Renfrewshire. There are Core Paths linking Strathaven and East Kilbride with the windfarm Site and Core Paths linking Eaglesham and uplands to the north west of the Site with those routes at the Site. In East Ayrshire there are Core Paths linking the Irvine valley, including Newmilns and Darvel, with routes within the Site.

### 9.3.3. Designated Landscapes

As illustrated in **Figures 9.1 and 9.2**, there is a North Lanarkshire Area of Great Landscape Value (AGLV) 4.5 km to the north east of the Site which follows the Clyde valley and in South Lanarkshire extends to the Middle Clyde Valley. There is an East Ayrshire Local Landscape Area (LLA) 3.5 km to the south of the Site that coincides with upland areas and includes

windfarm development in the south. Other designated landscapes within approximately 25 km include:

- Further South Lanarkshire SLAs to the south east of Lanark and at Douglas;
- Three East Dunbartonshire LLAs;
- A West Dunbartonshire LLA;
- Two North Ayrshire SLAs;
- A South Ayrshire LLA; and
- Clyde Muirshiel Regional Park.

Wild Land Area (WLA) 04 Waterhead Moor – Muirshiel is within 25 km of the proposed Development.

The ZTV analysis on **Figure 9.1** indicates that the proposed Development would be visible from the designated landscapes within 25 km listed above and from WLA 04.

There are no National Scenic Areas within 25 km of the proposed Development.

#### 9.3.4. Landscape Character

The landscape character of the Site and the study area is described in the 2019 NatureScot review of the landscape character of Scotland.

The proposed Development Site comprises moorland plateau with forestry and existing windfarms and coincides with two Landscape Character Types (LCT):

- Plateau Moorland with Windfarms – Glasgow and Clyde Valley (LCT 214) over the northern and eastern part of the Site; and
- Plateau Moorland with Windfarms – Ayrshire (LCT 79) over the western and central part of the Site.

Other LCTs within 20 km of the proposed Development are shown on **Figure 9.5**.

## 9.4. Proposed Survey and Assessment Methodologies

### 9.4.1. Overview

The LVIA will inform modifications and refinements to the layout design and will be undertaken following the approach set out in current guidance i.e. GLVIA3.

The construction phase is likely to be longer and more complex than new windfarm developments or smaller repowering developments. The assessment of the construction phase will include an assessment of the impact of the phased approach to construction.

The approach to the assessment of the operational phase will also follow NatureScot's advice regarding the assessment of repowering sites outlined in NatureScot Pre-application Guidance for Onshore Wind Farms published in October 2025. The guidance refers to the Windy Standard I Repower application (ref. ECU00003324) which assessed two different

baseline scenarios. The LVIA baseline assessment for Whitelee Windfarm Repowering will also include the following two scenarios:

- Comparative Baseline Scenario whereby it is assumed that the current baseline of Whitelee (all 3 phases) is considered as a baseline feature in the landscape and views. The assessment of effects will compare the effects arising from the proposed Development (Whitelee Windfarm Repowering) with those of operational Whitelee; and
- Restored Baseline Scenario whereby it is assumed that the operational Whitelee (all three phases) is decommissioned and the Site restored. The assessment would consider effects arising from the addition of the proposed Development (Whitelee Windfarm Repowering) to a fully restored baseline (i.e. no wind turbines).

### 9.4.2. Assessment of Effects

#### Sensitivity

Sensitivity is judged taking into account the component judgments about the value and susceptibility of the receptor.

#### Magnitude

Scale of effect is the primary factor in determining magnitude; which may be higher if the effect is particularly widespread and/or long lasting, or lower if it is constrained in geographic extent and/or timescale.

#### Significance of Effect

The significance of any identified landscape or visual effect will be assessed as '**Major**', '**Major/Moderate**', '**Moderate**', '**Moderate/Minor**', '**Minor**' or '**Negligible**'. These categories are based on the consideration of sensitivity with the predicted magnitude of change. Where the effect is classified as '**Major**' or '**Major/Moderate**' this is considered to be equivalent to likely significant effects referred to in the EIA Regulations. Where '**Moderate**' effects are predicted, professional judgement will be applied to ensure that the potential for significant effects arising has been thoroughly considered. The conclusion that some effects are 'significant' should not be taken to imply that they should warrant refusal in any decision making process.

#### Beneficial/Adverse

Landscape and visual effects can be beneficial or adverse and, in some instances, may be considered neutral. Neutral effects are those which overall are neither adverse nor positive but may incorporate a combination of both.

Taking a precautionary stance, changes to rural landscapes involving construction of man-made objects of a large scale can potentially be considered as adverse.

### 9.4.3. Landscape Character Assessment

Given the varied information sources available it is proposed that the character areas included within the National Landscape Character Map of Scotland (NatureScot, 2019) are treated as the landscape character receptors, supplemented with information from survey observations.

It is proposed that the scope of assessment focuses only on those effects likely to be significant. Clear and transparent justification will be provided for those receptors scoped out i.e. non-significant effects.

#### 9.4.4. Visual Assessment

The assessment will include potential effects on settlements and routes, including roads, railway lines, walking and cycle routes within the detailed study area where potential visibility is indicated by the ZTVs (see **Figures 9.1 – 9.3**).

The assessment will focus on those receptors where there may be the potential for significant effects, which is likely to be those within the detailed study area, though outlying receptors may be selected due to their importance or sensitivity.

##### Viewpoints

The assessment will be supported by a number of representative viewpoints. The list of viewpoint locations proposed to be included are detailed in **Table 9.4** below and illustrated on **Figures 9.1 to 9.5**. Grid references are approximate, and locations may be micrositied to obtain the most representative view or greatest extent of views.

Following scoping and agreement with consultees regarding the final selection of viewpoints, further surveys will be undertaken within the detailed study area and any locations in the wider search area where significant landscape and visual effects may occur.

Viewpoint photography will be undertaken to record the baseline landscape and views towards the Site. A 360-degree sweep of photography will be taken at each viewpoint location.

**Table 9.4 Proposed LVIA Viewpoints**

| VP NUMBER | VP LOCATION                   | GRID REFERENCE | DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT (KM) | REASON FOR SELECTION                                        |
|-----------|-------------------------------|----------------|-------------------------------------------------------|-------------------------------------------------------------|
| 1         | Queenseat Hill                | 252667, 649211 | Adjacent                                              | Local road and access to Whitelee Visitor Centre and trails |
| 2         | Eaglesham, Strathaven Road    | 257703, 651583 | 3 km, north                                           | Nearby settlement                                           |
| 3         | Flenders                      | 256616, 659097 | 7km, north                                            | Nearby settlement and recreational area                     |
| 4         | East Kilbride, Jackton Road   | 259902, 651935 | 4.5 km, north east                                    | Nearby settlement                                           |
| 5         | Ardochrig Road near Auldhouse | 263778, 649351 | 2.5 km, north east                                    | Nearby community                                            |
| 6         | East Kilbride, Lodge Hill     | 265898, 653390 | 7 km, north east                                      | Nearby settlement and recreational area                     |

| VP NUMBER | VP LOCATION                     | GRID REFERENCE | DISTANCE AND DIRECTION FROM PROPOSED DEVELOPMENT (KM) | REASON FOR SELECTION                          |
|-----------|---------------------------------|----------------|-------------------------------------------------------|-----------------------------------------------|
| 7         | Cathkin Braes                   | 260214, 658102 | 9 km, north                                           | Recreational area                             |
| 8         | B769 near Dunlop                | 244017, 647968 | 8 km, west                                            | Settlements and communities to the west       |
| 9         | A77/A719 Junction               | 247748, 645701 | 3.5 km, west                                          | Key route                                     |
| 10        | Fenwick, Maunsheugh Road        | 246463, 643185 | 6 km, south west                                      | Nearby settlement                             |
| 11        | A719 near Raithmuir             | 248760, 641565 | 4.5 km, west                                          | Nearby community                              |
| 12        | A719 near Galston               | 248748, 635630 | 6.5 km, south west                                    | Key route                                     |
| 13        | Galston, Maxwood Road           | 250884, 636563 | 4.5 km, south west                                    | Nearby settlement                             |
| 14        | Newmilns, Borebrae Crescent     | 253280, 637677 | 2.5 km, south                                         | Nearby settlement                             |
| 15        | Darvel, Morton Park             | 256246, 637157 | 3 km, south                                           | Nearby settlement                             |
| 16        | Minor road north of Darvel      | 257958, 639814 | 1.5 km, west                                          | Nearby community                              |
| 17        | Loudon Hill                     | 260875, 637894 | 2 km, south                                           | Recreational area                             |
| 18        | Minor road west of Strathaven   | 265813, 643730 | 2.5 km, east                                          | Nearby community                              |
| 19        | A726 north of Strathaven        | 269453, 646351 | 6.5 km, east                                          | Key route                                     |
| 20        | Distinkhorn (hilltop 386 m AOD) | 258683, 632925 | 7 km, south                                           | Recreational area                             |
| 21        | Blacklaw (hilltop 466 m AOD)    | 227462, 659436 | 25 km, north west                                     | Recreational area                             |
| 22        | A721 east of Waterloo           | 281455, 653634 | 20 km, north east                                     | Settlements and communities to the north east |
| 23        | B7046 Skares Road               | 254159, 617668 | 22 km, south                                          | Distant illustrative viewpoint                |

## Visualisations

The assessment will be supported by a series of photomontages and wirelines from agreed viewpoint locations. Visualisations from each viewpoint will be prepared in accordance with NatureScot guidance Visual Representation of Windfarms: Version 2.2 (NatureScot, 2017) and NatureScot Pre-application Guidance for Onshore Wind Farms (NatureScot, 2025).

The baseline panorama and matching wireline will show operational Whitelee turbines in the baseline photograph and the matched wireline. The matched wireline will distinguish between the operational Whitelee turbines and those of the proposed Development.

The 'single page' (multiple single pages may be required for some viewpoints) wireline will show the proposed Development without the operational Whitelee turbines. The matching photomontage will show a photomontage of the proposed Development with the operational Whitelee turbines omitted.

Photomontages will be prepared for viewpoints mainly within a 25 km radius or further if it is necessary to include a notable recognised viewpoint. Ancillary elements such as tracks, sub-station and control buildings will only be shown from close viewpoints where these will be discernible and have a bearing on the assessment of effects. From more distant viewpoints, these aspects are likely to have less of an influence and ancillary elements are likely to be visible as minor elements.

#### 9.4.5. Cumulative Assessment

In line with the EIA Regulations and NatureScot guidance Assessing the Cumulative Impact of Onshore Wind Energy Developments (NatureScot, 2021) the assessment will consider other windfarms within the LVIA study area including those which are operational, consented and those for which a planning application has been submitted but which are yet to be determined. Schemes that have submitted an EIA Scoping Report will not generally be considered in detail within the assessment due to often limited details available at scoping stage and because a scoping layout is likely to change prior to submission. If there are sites nearby at scoping, and which may have a bearing on design or impacts of the proposed Development, these may be considered in the cumulative assessment.

An initial cumulative search has been undertaken for a 45 km study area and all other windfarm developments within this area identified, as shown on **Figure 9.4**. Turbines under 50 m in height will only be included where they lie within 5 km of the proposed Development turbines. The proposed scope of the cumulative assessment will focus on likely significant effects which may influence the outcome of the consenting process. It is therefore likely that the cumulative assessment will focus on sites within 15 to 20 km of the proposed Development as these will either have more influence on design and/or potentially may give rise to significant cumulative effects.

The assessment will consider the effects arising from the addition of the proposed Development in the following scenarios:

- LVIA Baseline - Scenario 1: the addition of the proposed Development to operational windfarms and those under construction;
- Cumulative Assessment - Scenario 2: the addition of the proposed Development to operational, under construction and consented sites; and
- Cumulative Assessment - Scenario 3: the addition of the proposed Development to operational, under construction, consented and sites in planning.

#### 9.4.6. Night-time Assessment

Windfarm developments that include turbines of 150 m or greater tip height would require visible aviation lighting. An agreed lighting strategy with mitigation will form the basis of the assessment and visual material presented in the LVIA. The assessment of night-time impacts on landscape and visual receptors will be described in the LVIA and will follow NatureScot's published guidance regarding this aspect of the assessment.

The proposed study area for night-time effects is 15 km from the outermost turbines. The assessment will be supported by a ZTV study illustrating the extent of visibility of the lights and the number of lights visible. The consideration of night-time effects on receptors will be informed by 'in the field' assessment and any qualities or characteristics that may be susceptible to lighting. Visualisations will consist of wireline diagrams for all viewpoints indicating the number of lights likely to be visible. As advised by NatureScot guidance, two to three dawn/dusk photomontages/night-time viewpoints will be selected to represent receptor groups most likely to be affected at night. These are considered to be areas where people are likely to be active during hours of darkness (typically around settlements) and represent a range of receptors potentially affected. Proposed night-time viewpoints include:

- VP2: Eaglesham, Strathaven Road; and
- VP15 Darvel, Morton Park.

#### 9.4.7. Residential Visual Amenity Assessment

There are residential properties within 2 km of the proposed Development and therefore a separate residential visual amenity assessment (RVAA) is proposed. The RVAA will be undertaken in accordance with Landscape Institute Guidance Technical Guidance Note 2/19 Residential Visual Amenity Assessment (Landscape Institute, 2019b) and GLVIA3. The RVAA will assess the potential impacts on all residential properties within 2 km of the outermost turbines of the proposed Development. The RVAA will be presented as a Technical Appendix to the LVIA EIA Report Chapter and will include ZTV maps, location plans and other graphics as required.

### 9.5. Potential Significant Effects

#### 9.5.1. Potential Significant Effects during Construction

Potential effects on landscape and visual receptors arising from construction impacts would occur on the Site and surrounding area for part or all of the duration of the construction phase.

Effects would vary during construction and there would be phases of the construction programme when smaller turbines of the operational Whitelee Windfarm would be seen in combination with larger turbines of the proposed Development. The duration of construction would be longer than that of a typical windfarm or smaller repowering project, although the effects would be temporary.

Construction phase effects on landscape character would arise as a result of the phased installation of wind turbines during construction. There would also be direct effects on landscape fabric at the Site due to the installation of ground level structures including tracks and cable installation which would also affect landscape character of the Site. There would

be temporary, indirect effects on the perceptual aspect of landscape character of adjacent areas as a result of the construction phase.

There would also be temporary effects on views and visual amenity experienced by people at and around the Site during the phased construction. Effects would arise from construction activity which would be primarily at ground level but also from the phased nature of the construction, arising from visibility of smaller and larger wind turbines.

### 9.5.2. Potential Significant Effects during Operation

The assessment of operational effects of the proposed Development will be based on a 'dual assessment' approach. The following potentially significant effects on landscape and visual receptors could arise from the proposed Development during operation.

- Long-term effects on landscape character, as a result of ground level structures and wind turbine operation, either affecting the pattern of elements that define the character or affecting the visual/perceptual characteristics of landscape character;
- Long-term effects on views and visual amenity as a result of the proposed Development experienced by people at places where different elements of the proposed Development would be visible. This includes mainly effects on views and visual amenity in nearby areas but also the wider area. It also includes effects on the visual amenity of nearby settlements;
- Cumulative effects arising from the addition of the proposed Development to existing, consented and in-planning windfarms across the wider area, including combined, successive and sequential visibility; and
- Effects on the special landscape qualities of designated landscapes.

Desk based studies, including a preliminary ZTV, have been used to identify proposed representative viewpoints which will assist in assessing effects on receptor groups in the LVIA. The proposed representative viewpoints are listed in **Table 9.4** and shown on **Figures 9.1 – 9.5**. The initial assessment has identified the landscape receptors listed below that will be included for detailed assessment.

- Landscape Character Types within 15 km:
  - LCT 66 Agricultural Lowlands - Ayrshire
  - LCT 69 Upland River Valleys Ayrshire
  - LCT 79 Plateau Moorland with Windfarms - Ayrshire
  - LCT 201 Plateau Farmland – Glasgow and Clyde Valley
  - LCT 202 Rugged Upland Farmland
  - LCT 213 Plateau Moorlands – Glasgow and Clyde Valley
  - LCT 214 Plateau Moorland with Windfarms – Glasgow and Clyde Valley
  - LCT 219 Broad River Valley
- Local landscape designations within 15 km:

- East Ayrshire LLA: Uplands and Moorlands
- North Lanarkshire AGLV: Clyde Valley
- South Lanarkshire SLA: Middle Clyde Valley
- The following settlements within 10 km:
  - Chapelton
  - Darvel
  - East Kilbride
  - Galston
  - Glassford
  - Kilmarnock
  - Kilmaurs
  - Laigh Fenwick
  - Newmilns
  - Newton Mearns
  - Stewarton
  - Strathaven
- Core Paths and other local recreational routes within 5km
- Key routes:
  - A71
  - A77 and M77
  - A719
  - A723
  - A726
  - B743
  - B751
  - B764
  - B769
  - B778

### 9.5.3. Effects Scoped Out

The focus of the LVIA will be on likely significant effects. Where significant effects are unlikely, receptors will be scoped out of the detailed assessment in the LVIA. An initial review of the study area and receptors indicates that those listed below could be scoped out due to having little or no theoretical visibility, being distant from the proposed Development or by being strongly influenced by existing windfarm development.

It is proposed to scope out the receptors listed in **Table 9.5** that lie within the 45 km study area, from the detailed assessment.

**Table 9.5 Receptors to be Scoped Out of the LVIA**

| RECEPTOR(S)                                                                                                                                                                           | JUSTIFICATION                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loch Lomond and the Trossachs National Park                                                                                                                                           | The ZTV shown on <b>Figure 9.1</b> indicates limited theoretical visibility from the National Park. The designated area is distant from the proposed Development.                                                                                                                                                         |
| Loch Lomond NSA                                                                                                                                                                       | The ZTV shown on <b>Figure 9.1</b> indicates limited theoretical visibility from the NSA. The designated area is distant from the proposed Development.                                                                                                                                                                   |
| WLA04 Waterhead Moor - Muirshiel                                                                                                                                                      | The Proposed Development is not located in WLA 04. NPF4 advises that the effects of development outside Wild Land Areas is not a significant consideration. A Wild Land assessment is therefore not proposed for WLA 04.                                                                                                  |
| Clyde Muirshiel Regional Park                                                                                                                                                         | The designated area is distant from the proposed Development.                                                                                                                                                                                                                                                             |
| Local landscape designations beyond 15 km                                                                                                                                             | In the south, west and east of the study area local landscape designations are distant from the proposed Development and the ZTV indicates limited theoretical visibility.<br><br>To the north the local landscape designations are distant with the Glasgow conurbation lying between them and the proposed Development. |
| Landscape Character Types beyond 15 km                                                                                                                                                | Indirect effects on landscape character are unlikely to be significant beyond 15 km.                                                                                                                                                                                                                                      |
| Settlements beyond 10 km including: <ul style="list-style-type: none"> <li>Airdrie</li> <li>Carluke</li> <li>Coatbridge</li> <li>Dunlop</li> <li>Glasgow</li> <li>Hamilton</li> </ul> | Visibility of the proposed Development from settlements beyond 10 km is likely to be limited due to intervening buildings with views influenced by urban development.                                                                                                                                                     |

| RECEPTOR(S)                                                                                                                                       | JUSTIFICATION                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Irvine</li> <li>Kilwinning</li> <li>Lanark</li> <li>Paisley</li> <li>Stevenston</li> <li>Wishaw</li> </ul> |                                                                                             |
| The Southern Upland Way                                                                                                                           | The ZTV shown on <b>Figure 9.1</b> indicates limited and or distant theoretical visibility. |
| The River Ayr Way                                                                                                                                 | The ZTV shown on <b>Figure 9.1</b> indicates limited and or distant theoretical visibility. |
| The Ayrshire Coastal Path                                                                                                                         | The ZTV shown on <b>Figure 9.1</b> indicates limited and or distant theoretical visibility. |

These distances are indicative and further baseline and assessment may indicate important receptors that require consideration in detail. Most of the viewpoints identified in **Table 9.4** are within 15 km of the outermost turbines of the proposed Development. Viewpoints beyond 15 km in the wider area are proposed to illustrate likely visibility of the proposed wind turbines and this does not indicate likely significant effects.

## 9.6. Indicative Mitigation and Enhancement

The primary means of landscape and visual mitigation is in the iterative design of the turbine layout. In addition, the alignment of tracks, location of the substation/control building and ancillary development will be a consideration in design. Mitigation will respond to key design considerations identified during initial survey work at the Site.

## 9.7. References

Forestry Commission. (2024.) The UK Forestry Standard.

Landscape Institute. (2021.) Technical Guidance Note 02/21 Assessing landscape value outside national designations.

Landscape Institute. (2019a.) Technical Guidance Note 6/19 Visual Representation of Development Proposals.

Landscape Institute. (2019b.) Technical Guidance Note 2/19 Residential Visual Amenity Assessment.

Landscape Institute and the Institute for Environmental Management and Assessment. (2013.) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3).

NatureScot. (2024a.) Guidance on the Assessment of Effects on Special Landscape Qualities (AESLQ) – Consultation.

NatureScot. (2024b.) General pre-application and scoping advice for onshore wind farms.

NatureScot. (2023.) Assessing Impacts on Wild Land Areas – Technical Guidance.

NatureScot. (2022.) Landscape Sensitivity Assessment.

NatureScot. (2021.) Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments.

NatureScot. (2019.) Landscape Character Map of Scotland (available online only).

Scottish Natural Heritage. (2017a.) Siting and Designing Wind Farms in the Landscape (Version 3).

Scottish Natural Heritage. (2017b.) Visual Representation of Wind Farms (Version 2.2).

Scottish Natural Heritage. (2015.) Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations.

Scottish Natural Heritage. (2010.) The Special Qualities of the National Scenic Areas. Scottish Natural Heritage Commissioned Report No. 374 (iBids and Project no 648).

## 9.8. Scoping Questions to Consultees

- **Question 5:** Are consultees content with the proposed methodology for the LVIA including the construction phase and operational phase dual baseline for repowering assessment?
- **Question 6:** Are consultees in agreement with the proposed study areas, focus, and source data for the assessment of landscape effects, including night-time and RVAA?
- **Question 7:** Are consultees in agreement with matters that are proposed to be scoped out of the detailed assessment?
- **Question 8:** Are consultees content that the LVIA scope has identified the most important receptors to be assessed?
- **Question 9:** Are consultees content with the proposed viewpoints identified, including suggested night-time viewpoints, and could they advise of any additional viewpoints they consider necessary to assess the effects of the proposed Development?
- **Question 10:** Are consultees content with the proposed approach to the cumulative assessment and could they advise of any specific cumulative sites they consider should be included in the assessment?

## 10. Ecology

### 10.1. Introduction

This Section of the Scoping Report sets out the proposed approach to assessing potential effects resulting from the proposed Development on important ecological features (IEFs). IEFs are species and habitats that are protected by legislation, which are of conservation importance or are particularly sensitive to impacts. Important ornithological features (IOFs) are discussed separately in **Section 11**.

A high-level desk study and review of previous data have been undertaken, and an ecology walkover was conducted at the proposed Development Site in September 2024 to inform this Scoping Report. This report provides results of the ecology walkover survey, data review and high-level desk study undertaken, along with the proposed scope for baseline and EIA assessment methods.

### 10.1. Legislation and Guidance

The proposed ecological baseline survey and preliminary assessment presented in this Scoping Report has been prepared with reference to a number of national and international legislation, policy and guidance documents. Key documents with relevance to ecology are listed below:

#### 10.1.1. Legislation

- The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) (UK Government, 2017), which transposed the Habitats Directive into UK law;
- Wildlife and Countryside Act (WCA) 1981 (as amended) (UK Government, 1981)
- The Nature Conservation (Scotland) Act 2004 (Scottish Government, 2004);
- The Wildlife and Natural Environment (Scotland) Act 2011 (Scottish Government, 2011); and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (Scottish Government, 2017).

#### 10.1.2. National Policy Guidance

- Planning Advice Note (PAN) 51: Planning, Environmental Protection and Regulation (Scottish Government, 2006);
- PAN 60: Planning for Natural Heritage (Scottish Government, 2000);
- PAN 1/2013: Environmental Impact Assessment (Scottish Government, 2013);
- National Planning Framework 4 (NPF4) (Scottish Government, 2023)
- Onshore Wind: Policy Statement 2022 (OWPS) (Scottish Government, 2022); and
- Nature Conservation: Implementation in Scotland of the Habitats and Birds Directives: Scottish Executive Circular 6/1995 as amended (Scottish Executive, 1995).

### 10.1.3. Other Guidance

Reference or cognisance has been made to guidance documents through this Scoping Report Section, where relevant, including the following:

- European Protected Species, Development Sites and the Planning System: Interim guidance for local authorities on licensing arrangements (Scottish Executive, 2001);
- Assessing the impact of repowered windfarms on nature (NatureScot, 2018);
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018);
- Guidance on Assessing the Impacts on Developments on Groundwater Dependent Terrestrial Ecosystems (SEPA, 2024);
- Good Practice during Windfarm Construction (Scottish Renewables et al., 2024);
- Bats and Onshore Wind Turbines (NatureScot, 2021);
- Advising on Peatland Habitats and Carbon-Rich Soils in Development Management (NatureScot, 2026);
- Biodiversity: Planning Guidance (Scottish Government, 2025); and
- Scottish Biodiversity List (NatureScot, undated).

## 10.2. Existing Conditions

### 10.2.1. Baseline Description

The Site is currently an existing operational windfarm development with areas of restored peatland, forestry plantation, in addition to areas of felled and replanted plantation, scrub, blanket bog, acid grassland, dry heath and marshy grassland habitats. A number of burns run throughout the Site. Two large waterbodies (Craigendunton Reservoir and Lochgoin Reservoir) are located in the north of the Site. Structures present on Site include the wind turbines, control buildings and substations, met masts, farm buildings and the Whitelee Windfarm visitor centre.

The baseline ecological conditions have been established from the following sources:

- Whitelee Windfarm Repower Walkover, completed by ITP Energised (part of SLR) (September 2024);
- information from the National Biodiversity Network (NBN) Atlas (National Biodiversity Network Atlas Scotland, 2022) on ecological records within 5 km of the Site within the last 10 years;
- a desk study using the NatureScot Sitelink database to confirm the location and qualifying features of designated sites within potential zones of influence of the proposed Development (NatureScot, 2024);
- Whitelee Windfarm Environmental Statements (ES) (Cre Energy, 2001) to provide additional background information, although noting there will have been changes to the Site condition since these documents were produced; and

- Bog monitoring results that demonstrate progress towards meeting the aims and objectives of the Whitelee Habitat Management Plan (HMP) (Strath Caulaidh Limited, 2024).

Given the proposed Development is a repowering scheme, the assessment of biodiversity losses and gains will also give consideration to a theoretical ‘restored’ baseline which takes account of areas that would have been restored to an assumed baseline condition if the operational windfarm was decommissioned. Consideration of a ‘restored’ baseline would also take account of habitat management measures that would cease if the operational windfarm was to be decommissioned.

As advocated within the NatureScot pre-application guidance for onshore windfarms (NatureScot, 2025), the proposed Development will be designed to avoid undoing previous restoration, compensation or enhancement work where possible, and new habitat management proposals for the proposed Development will be designed to build on existing management.:

### 10.2.2. Current Habitat Management Plan

A Habitat Management Plan (HMP) was prepared for the original Whitelee Windfarm development, and subsequently updated (the current version (version 2) was produced in 2018 (SPR, 2018)). The HMP is focussed on enhancement of peatland habitats within the Habitat Management Area (HMA) on the Site. The main aims of the current HMP include:

- Aim 1: Restore conditions for deforested blanket mire habitat.
- Aim 2: Restore conditions for unplanted blanket mire habitat.
- Aim 3: Improve quality of blanket mire habitat.
- Aim 4: Restore conditions for deforested heath / grassland / regenerating native woodland habitat.

The above-noted bog monitoring report (Strath Caulaidh Ltd, 2024) provides information on monitoring of mire conditions before and after the implementation of HMP actions, at initial ‘Cohort 1’ land areas subject to deforestation and drain blocking.

### 10.2.3. Statutory Conservation Designations

The results of the high-level desk study have identified statutory nature conservation sites within the 5 km Study Area, shown in **Figure 10.1** (ecological designations only are relevant) and summarised in **Table 10.1**.

**Table 10.1: Statutory Designated Sites**

| SITE NAME             | DISTANCE FROM PROPOSED DEVELOPMENT | DESIGNATION REASONS                                                                           |
|-----------------------|------------------------------------|-----------------------------------------------------------------------------------------------|
| Langlands Moss LNR    | 3.06 km north east                 | Lowland raised bog, other habitats include woodland, grassland, marsh, scrub, and open water. |
| Muirkirk Uplands SSSI | 3.5 km south                       | Mixed; upland habitat, low lying blanket bog and breeding birds                               |

| SITE NAME                     | DISTANCE FROM PROPOSED DEVELOPMENT | DESIGNATION REASONS                                                                                               |
|-------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Brother and Little Lochs SSSI | 3.5 km north                       | Freshwater habitats: Oligotrophic loch<br>Non-vascular plants: Varnished hook-moss <i>Hamatocaulis vernicosus</i> |
| Mossneuk LNR                  | 4 km north east                    | Broadleaved birch woodland on the remnants of a raised bog,                                                       |

Source: NatureScot Data Services

## 10.3. Proposed Survey and Assessment Methodologies

### 10.3.1. Detailed Desk Study

In addition to the identification of statutory designated sites, a comprehensive desk study will be undertaken to collate existing information on non-statutory nature conservation designations listed for non-avian biological features within 2 km of the proposed Development. It will also include collation of records of protected or otherwise notable species dating from within the last 10 years. As part of this exercise, Bat Conservation Trust (Ayrshire and Arran Bat group), South West Scotland Environmental Information Centre (SWSEIC) and Scottish Badgers will be consulted; and information will be reviewed from online databases, EIA Reports for other developments in the local area, and relevant monitoring reports for the Whitelee site itself. Part of the Site crosses into the boundary of Glasgow Museums Biological Records Centre (GMBRC), however this is currently closed for data requests at the time of writing. Data will be sourced from this organisation if it re-opens ahead of the application submission.

### 10.3.1. Field Survey

The following section outlines the proposed updated field studies required for the proposed Development, which involves repowering of Whitelee Windfarm. The Study Areas for each of the field surveys varies depending on the specific survey type and the buffer required for specific infrastructure. **Table 10.2** presents each of the different survey areas applied to each of the field studies to be undertaken.

**Table 10.2: Survey Type and Buffer**

| SURVEY TYPE                        |                     | BUFFER DISTANCE BY INFRASTRUCTURE TYPE |                   |
|------------------------------------|---------------------|----------------------------------------|-------------------|
|                                    |                     | TURBINE INFRASTRUCTURE AREA            | ACCESS TRACK AREA |
| National Vegetation Classification |                     | 250 m                                  | 150 m             |
| Bat Surveys                        |                     | 250 m                                  | 50 m              |
| Protected Mammals                  | Water Vole          | 250 m                                  | 100 m             |
|                                    | Badger              | 250 m                                  | 50 m              |
|                                    | Pine Marten         | 250 m                                  | 100 m             |
|                                    | Red Squirrel        | 250 m                                  | 50 m              |
|                                    | Otter               | 250 m                                  | 250 m             |
| Great Crested Newts                |                     | 500 m                                  | 500 m             |
| Aquatic                            | Fish habitat survey | As appropriate                         | As appropriate    |

### National Vegetation Classification Survey

An update National Vegetation Classification (NVC) survey will be completed of the vegetative communities within the Site and appropriate survey buffer, depending on infrastructure type and access permitting. The survey will follow the standard methodology set out in the NVC Users' Handbook (Rodwell, 2006) and plant communities will be identified by eye, where possible, or from representative quadrat samples with reference to the standard community descriptions and constancy tables in Rodwell (1991 *et seq.*). The survey will exclude any highly modified habitats, such as conifer plantations and agricultural areas, which will be mapped using the UKHab (UKHab Ltd, 2023) or Joint Nature Conservation Committee (JNCC) Phase 1 habitat (JNCC, 2010) classifications. Floral nomenclature will follow that of Stace (2019). Areas of vegetative communities will also be presented as their UKHab/Phase 1 habitat equivalents for the purposes and ease of reference within the EIA Report. Some peatland habitats that have been restored back to functioning blanket bog as part of the current HMP, are likely to be transitional in nature, and this will be considered during the update NVC survey.

The vegetative communities (and respective habitats) will be evaluated in terms of their nature conservation interest, e.g. through inclusion on the Scottish Biodiversity List (SBL) or relevant Biodiversity Action Plans, as well as in terms of potential for groundwater dependence (SEPA, 2024). Detail on the condition of distinct areas of vegetative communities will also be provided, where appropriate. Such detail will also help when designing areas with potential for habitat restoration and/or enhancement measures.

If the layout of the proposed Development results in excavations greater than 1 m in depth being proposed within 250 m of potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs), or other shallower development infrastructure (i.e. excavations less than 1 m in depth) being proposed within 100 m of a potential GWDTE, then further assessment will be undertaken by the appointed hydrologist / hydrogeologist to assess if the area is truly groundwater fed or otherwise, and whether design amendments or additional mitigation measures would be appropriate.

### Bat Surveys

Based on knowledge of the local environs, an assessment of the habitat types attained from the 2024 walkover survey, and results of previous surveys for the existing windfarm, the level of bat activity within this region is expected to be moderate. In line with current guidance

(NatureScot *et al.*, 2021) effort should be undertaken to ensure a robust assessment of the potential risks presented to bats from the proposed Development. The bat baseline assessment consists of three stages of assessment: a dedicated bat-specific desk study, a habitat assessment and preliminary walkover of the Site, and static activity surveys coupled with bat carcass surveys.

### Static Bat Detector Deployment

Full spectrum static acoustic bat detectors shall be deployed at 40 proposed turbine locations across the Site for three survey periods of 30 nights each, covering spring (April to early June), summer (late June to early August) and autumn (late August to September), with at least 10 days of the autumn survey taking place between mid-August and mid-September as per best practice guidance (NatureScot *et al.*, 2021).

As the current layout proposes 124 turbines, surveys would require 40 detectors, which is the maximum required for larger developments.

The bat detectors will be placed as close as possible to proposed turbine locations, as well as aiming to cover all representative habitats in the Site where turbines may be deployed. A proportion of detectors will be paired with carcass surveys at existing operational turbines as detailed below. Weather data including wind speed, temperature and rainfall will be recorded nightly during deployments.

### Bat Carcass Surveys

Bat carcass surveys will be undertaken by trained sniffer dogs with a proven searcher efficiency rate of at least 80%. Searches will take place between mid-June and the end of September with six visits evenly spread over this period, ensuring that mid-August to mid-September is sampled. The exact number of turbines to be searched will be confirmed as this is dependent on searcher team availability.

This survey specification requires fewer visits than is currently recommended in the NatureScot guidance. This approach reflects the uncertainty regarding the impact of larger repowered turbines (usually with larger ground clearance, rotor swept area and blade tip speed) on bats and has been agreed with NatureScot<sup>1</sup>. Resources will instead be spent collecting robust post-construction carcass monitoring data to ensure that curtailment measures (if required) are proportionate, justified and effective in conserving bat populations whilst maintaining operational viability.

Searches for bat carcasses will comprise the entire area within a 100 m x 100 m square centred on each of the selected turbine locations. In the event that bat carcasses cannot be identified to species or genus level in the field, DNA sampling may be required. An assessment of searcher efficiency will be undertaken by blinding the dogs and handlers to the locations of a randomised number of carcasses at each turbine location and recording whether or not they are recorded during the subsequent fatality search. Carcass persistence trials will also be completed.

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<sup>1</sup> SPR meeting with NatureScot Mammal Specialist Rob Raynor and Casework Manager Mike Shepherd, date 11/11/2025.

## Assessment of Bat Survey Data

The results of the acoustic and carcass surveys will be analysed using the Applicant's internal bat activity database to determine if curtailment or any other mitigation to reduce harm to bats is likely to be required. This database currently holds over 714,000 records of bat activity in Scotland and has been successfully used to predict curtailment requirements at other Scottish windfarms in consultation with NatureScot staff. However full confirmation of curtailment requirements will be determined post-construction when a robust carcass monitoring programme on the operational repowered turbines has been undertaken, as agreed with NatureScot.

## Preliminary Roost Assessments

In addition to activity surveys, preliminary roost assessment for bats will be undertaken. Structures and trees within the Site may provide suitable locations for roosting or hibernating bats and will require a roost assessment survey to determine their suitability and any evidence of occupation, within 250 m of turbines and infrastructure.

Surveys will follow methods set out in Collins (2023), to assess structures and trees that have potential for roosting. Preliminary roost assessments can be undertaken at any time of year, however trees are easier to assess in the autumn-winter when they have no leaves.

## Protected Mammals Survey

A combined survey investigating for signs of protected mammals will be undertaken. This includes for signs of species including, but not restricted to, badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola amphibius*), pine marten (*Martes martes*) and red squirrel (*Sciurus vulgaris*). For all survey buffers please refer to **Table 10.2**.

The surveys will be based on the standard methods described in each target species survey guidance, i.e.: Scottish Badgers (2018), Chanin (2003), Sargent & Morris (2003), Strachan *et al.* (2011) Creswell *et al.* (2012). The methods involve searching for field evidence of activity for target species, such as dens, feeding signs, latrines and individual droppings, burrows/resting places, footprints, runways in vegetation and sightings of the animals themselves.

## Great Crested Newt Surveys

Several ponds were recorded during the walkover survey and high-level desk study of the Site which could be suitable for great crested newts (GCN) (*Triturus cristatus*). It is therefore proposed that a Habitat Suitability Index (HSI) assessment for GCN is undertaken (as per ARG UK 2010) and if any waterbodies score high enough an eDNA survey will be undertaken between April to end of June.

If eDNA analyses confirm the presence of GCN, full population assessment surveys will be conducted following survey methodology set out in the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

## Aquatic Surveys

Fish habitat surveys (FHS) will be required to determine habitat suitability for juvenile salmon and trout for connected watercourses. A FHS will be undertaken during the summer months and would comprise a walkover survey of all mapped watercourses within the proposed Development Area. Methodology for this survey will follow that of the Scottish Fisheries Co-

ordination Centre's Habitat Surveys Training Course Manual (SFCC 2007), although other guidance may be referred to depending on suitability. Follow-up quantitative assessment of fish populations (i.e. electrofishing) may be required, and this will be confirmed following the FHS.

Additional macro-invertebrate surveys may also be required, and early consultation will be undertaken with the regional Fisheries Trust in order to consider this requirement.

### 10.3.2. Ecological Impact Assessment

In accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) guidelines, the ecology Chapter for the proposed Development EIA Report will summarise the non-avian ecology baseline, with the findings of the survey work detailed in technical reports which will be appended to the EIA Report. Features will then be evaluated using the CIEEM (2018) criteria, and features of local or higher value that may be susceptible to development at the Site will be brought forward for an assessment of impacts during the construction and operational phases, assuming the presence of standard mitigation measures. Additional mitigation may then be identified where any significant effects are predicted. Any significant (beneficial or adverse) residual effects will be clearly presented and discussed appropriately.

### 10.3.3. Cumulative Assessment

The potential for cumulative ecological effects will be assessed, which will include other windfarm and other relevant developments within 10 km of the proposed Development, including those schemes that have already obtained planning approval as well as those that are operational. It is expected that a full list of those developments considered appropriate to include for the ecological cumulative assessment will be agreed with NatureScot prior to a full Section 36 application being submitted.

## 10.4. Potential Significant Effects

### 10.4.1. Potential Significant Effects during Construction and Operation

The key ecology and nature conservation issues to be considered with respect to the proposed Development are likely to include the following:

- Habitat loss through land-take;
- Fragmentation of existing habitats;
- Direct mortality of fauna during construction, operation and decommissioning;
- Behavioural changes of fauna during operation;
- Disturbance of habitats and fauna during construction, including decommissioning and removal of existing turbines and infrastructure;
- Pollution via road drainage and runoff during all development phases; and
- Cumulative/in-combination impacts with similar developments in the wider area.

Additionally, for species relying on aquatic resources potentially affected by watercourse crossings and surface water runoff, the following potential significant effects are also considered:

- Point source and diffuse pollution;
- Increased sediment loading;
- Decreased habitat complexity;
- Habitat fragmentation; and
- Changes to the discharge regime.

## 10.5. Receptors and Impacts Scoped In and Out of Assessment

Scoping in/out of assessment will be determined through the EclA process, following standard guidance (CIEEM, 2018), and will be confirmed following completion of all baseline assessments. However, due to their locations, existing operational barriers, distance from Site, the limited level of habitat connectivity and their qualifying features, it is considered appropriate to scope out assessment of impacts on the following:

- Langlands Moss LNR;
- Muirkirk Uplands SSSI;
- Brother and Little Lochs SSSI; and
- Mossneuk LNR.

On the basis of the results of the desk-based work undertaken to date, the professional judgement of the Ecology assessment team, experience from other relevant projects and policy guidance or standards, generally common and widely distributed habitats or species which are not protected will be scoped out of the assessment. Cognisance will, however, be made for wider biodiversity policy and aims and so features that are not of individual or isolated ecological value that may form future safeguarding, refuge or contingency (in terms of expanding habitats or habitat connectivity, for example) will also be considered.

Consideration of the potential impacts will receive an appropriate level of consideration within the assessment and all reasoning will be presented clearly and concisely. However, a range of Method Statements and standard good practices, to be detailed within and controlled by the Construction Environmental Management Plan (CEMP), should be able to minimise impacts such as direct faunal mortality during the construction and operation phases and habitat disturbance during the operational phase.

## 10.6. Indicative Mitigation and Enhancement

If it is considered that mitigation is necessary to reduce any adverse ecological effects, then an integrated mitigation and enhancement package will be proposed which will address ecological effects and which will reflect local objectives in terms of biodiversity and the enhancement of environmental character. During the proposed Development design and EIA process, mitigation measures will follow the recognised hierarchy of avoidance, reduction, enhancement, and compensation.

All terrestrial ecological mitigation will be incorporated into a CEMP. The CEMP will outline all required mitigation and will provide details on timelines for undertaking mitigation for each identified terrestrial receptor. The CEMP will also outline a timetable of actions and form part of the contract documents to ensure delivery of mitigation specified in the Chapter. In addition, the CEMP should incorporate the provision of an Environmental Manager and/or Ecological Clerk of Works (EcoW), who would oversee the implementation of recommended mitigation and any safeguarding of any areas or species assessed as being particularly sensitive. Refer to **Section 3.7** for more information on the proposed roles relating to overseeing the implementation of, and impartial assessment of compliance with, relevant ecological and environmental mitigation commitments.

### 10.6.1. Embedded Mitigation

To ensure compliance with legislation, and to follow good practice guidance, a number of standard best practice measures will be implemented should the application be consented. The standard measures which are relevant to avoiding and reducing impacts on IEFs include:

- During a suitable and seasonally appropriate period prior to commencement of each phase of construction works, pre-construction ecology walkover surveys will be carried out of the relevant construction phase area, including surveys for protected species. This will enable any refinements to be made, if necessary, to mitigation, micro-siting and/or the construction programme to take account of any updated distribution or presence of protected species, with a suitable mitigation plan adopted on a case-by-case basis.
- Prior to commencement of development (including demolition, ground works, vegetation clearance), an outline CEMP, incorporating a Construction Method Statement (CMS), will be submitted to and approved in writing by the local planning authority. It is expected that the outline CEMP will include the following:
  - Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements), including a Pollution Prevention Plan outlining measures to control pollution and a Drainage Management Plan outlining measures for management of surface and groundwater;
  - The location and timing of sensitive works to avoid harm to ecological features;
  - The times during construction when specialist ecologists need to be present onsite to oversee works;
  - Species Protection Plans (SPPs) outlining specific measures to avoid and reduce impacts on protected species;
  - Responsible persons and lines of communication; and
  - The role and responsibilities on the proposed Development of an Environmental Manager or similarly competent person.

Details of the role and responsibilities, and the operations to be overseen, by an appropriately competent Environmental Manager will be submitted to and approved in writing by the Local Planning Authority prior to commencement of development. The appointed person would be required to undertake all activities, and works shall be carried out, in accordance with the approved details. The Environmental Manager would monitor and advise on potential effects

on ecological features during construction in order that impacts are avoided or minimised through best practice. This includes maintaining water quality and minimising the potential for disturbance or risk of injury/death for protected species which may be using the proposed Development Site.

### 10.6.2. Enhancements

In line with requirements outlined in NPF4 (Policy 3. Biodiversity) (Scottish Government, 2023), habitat and species enhancements will be outlined within an Outline Biodiversity Enhancement and Management Plan (OBEMP) that will be submitted as a Technical Appendix to the EIA Report. All enhancements proposed within the OBEMP will be additional to any residual mitigation and/or compensation required for features once the impact assessment has been completed. The aim of the recommended enhancements will be to provide a significant gain for biodiversity. It is considered that if the original Whitelee Windfarm was decommissioned, the associated current HMP actions and monitoring would cease. Therefore, maintaining and updating the existing HMP is likely to deliver significant biodiversity enhancement. The OBEMP will take account of the current HMP for the existing windfarm and incorporate measures currently in place. Analysis of the effectiveness of the current HMP will be undertaken, to identify measures that should be retained, amended or enhanced to deliver increased biodiversity enhancement as far as is practicable. Consideration of how the proposed Development may affect aspects or areas of the current HMP will also be taken into account, with identification of additional enhancements that may therefore be required and appropriate. The scope of any subsequent BEMP and required SPPs will be defined once baseline surveys are fully completed and the EclA has been undertaken.

## 10.7. References

ARG UK. (2010.) Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom. ARG UK Advice Note 5. Available at: <https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file>

Chanin, P. (2003.) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers: Monitoring Series No. 10. English Nature, Peterborough.

CIEEM. (2018.) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 Updated 2024. Chartered Institute of Ecology and Environmental Management, Winchester. Available at: <https://cieem.net/wp-content/uploads/2018/08/EclA-Guidelines-v1.3-Sept-2024.pdf>

Collins, J. (ed.) (2016.) Bat Surveys for Professional Ecologists. Good practice Guidelines (4<sup>th</sup> edition). The Bat Conservation Trust, London.

Cre Energy. (2001.) Whitelee Windfarm Environmental Statement.

Cresswell, W., Birks, J., Dean, M. D., Pacheco, M., Trehwella, W., Wells, D., & Wray, S. (Eds.). (2012.) UK BAP Mammals; Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society.

English Nature. (2001.) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Joint Nature Conservation Committee. (2010.) Handbook for Phase 1 habitat survey. Revised reprint. Joint Nature Conservation Committee, Peterborough.

NatureScot. (2018.) Assessing the impact of repowered windfarms on nature. Available at: <https://www.nature.scot/sites/default/files/2018-06/Guidance%20-%20Assessing%20the%20impact%20of%20repowered%20wind%20farms%20on%20nature%20-%20consultation%20draft%20-%20June%202018.pdf>

NatureScot, Natural England, Natural Resources Wales, RenewableUK, ScottishPower Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT). (2021.) Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation. Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation> [Accessed September 2024]

NatureScot. (Undated.) Data Services. Available at: <https://www.nature.scot/information-hub/naturescot-data-services>

NatureScot. (2025). General Pre-application and scoping advice for onshore wind farms. Available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms>

NatureScot (2026). Advising on Peatland Habitats and Carbon-Rich Soils in Development Management. Available at: <https://www.nature.scot/doc/advising-peatland-habitats-and-carbon-rich-soils-development-management#montane-bogs-potentially-priority-peatland-which-should-be-avoided>

NatureScot. (Undated.) Scottish Biodiversity List: <https://www.nature.scot/doc/scottish-biodiversity-list>. Available at: <https://www.nature.scot/doc/scottish-biodiversity-list>

Rodwell J.S. (ed.) (1991 et seq.) British Plant Communities. 5 volumes: Vol. 1 (1991) - Woodlands and Scrub; Vol. 2 (1991) - Mires and Heaths; Vol. 3 (1992) - Grasslands and Montane Communities; Vol. 4 (1995) - Aquatic Communities, Swamps and Tallherb Fens; Vol. 5 (2000) - Maritime Cliffs, Sand Dunes, Saltmarshes and Other Vegetation. Cambridge University Press, Cambridge.

Rodwell J.S. (2006.) NVC Users' Handbook. Peterborough, Joint Nature Conservation Committee.

Sargent, G. & Morris, P. (2003.) How to Find & Identify Mammals. The Mammal Society, London.

Scottish Badgers. (2018.) Surveying for Badgers: Good Practice Guidelines. Version 1. Available at: [https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines\\_V1-2020-2455979.pdf](https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf) [Accessed September 2024]

Scottish Government. (2004.) Nature Conservation (Scotland) Act 2004. Available at: <https://www.legislation.gov.uk/asp/2004/6/contents>

Scottish Government. (2011.) The Wildlife and Natural Environment (Scotland) Act 2011. Available at: <https://www.legislation.gov.uk/asp/2011/6/contents>

Scottish Government. (2013.) PAN 1/2013: Environmental Impact Assessment. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/>

Scottish Government. (2017.) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents>

Scottish Government. (2022.) Onshore Wind: Policy Statement 2022. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/>

Scottish Government. (2023.) National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>.

Scottish Government. (2025.) Biodiversity: Planning Guidance. Available at: <https://www.gov.scot/publications/scottish-government-planning-guidance-biodiversity/>

ScottishPower Renewables. (2018.) Whitelee Windfarm Habitat Management Plan. Version 2.0.

Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AEECoW. (2024.) Good practice during wind farm construction. Available at: <https://www.nature.scot/doc/good-practice-during-wind-farm-construction>

SEPA. (2024.) Guidance on Assessing the Impacts on Developments on Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/alyh0blq/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx>

SFCC. (2007.) Habitat Surveys Manual. Scottish Fisheries Co-ordination Centre.

Stace C.A. (2019.) New Flora of the British Isles. 4th ed. C & M Floristics.

Strachan R., Moorhouse.T., & Gelling M. (2011.) Water Conservation Handbook. 3rd Edition. Wildlife Conservation and Research Unit. Oxon.

Strath Caulaidh Ltd. (2024.) Bog Monitoring Protocol Assessment – Whitelee.

UK Government. (1981.) Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69>

UK Government. (2017.) The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents>

UKHab Ltd. (2023.) UK Habitat Classification Version 2.0. Available at: <https://ukhab.org/> [Accessed September 2024]

WSP. (2023.) Whitelee Windfarm Extension Project. Habitat Management Plan.

## 10.8. Scoping Questions to Consultees

- **Question 11:** Do consultees agree with the proposed ecological survey scope and methodology?
- **Question 12:** Do consultees agree with the receptors and impacts scoped out of the EIA?

# 11. Ornithology

## 11.1. Introduction

The Ornithology Chapter of the EIA Report will set out the desk study and survey work undertaken to define the baseline of the proposed Development and the surrounding area. The results of this work will be summarised (with details presented in baseline reports appended to the EIA Report) and will provide the basis for the determination of potential effects on any ornithological features that are considered to be important.

The Ornithology Chapter will also contain:

- Collision Risk Analyses (CRA) based NatureScot (2025) guidance; and
- A cumulative assessment, carried out in accordance with recent guidance, which states that such assessments are required at the Natural Heritage Zone (NHZ) scale (with the proposed Development included in the West Central Belt NHZ [NHZ17]) (Wilson *et al.*, 2015). This will include windfarm developments in NHZ17.

## 11.2. Legislation and Guidance

The ornithology assessment will be completed in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) guidance. Relevant legislation and policy will also be set out. Additional guidance that will be applied to support the assessment includes (but is not limited to):

- The Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') (UK Government, 2017);
- The Wildlife & Countryside Act 1981 (as amended) (UK Government, 1981);
- The Nature Conservation (Scotland) Act (2004) (Scottish Government, 2004);
- The Wildlife and Natural Environment (Scotland) Act 2011 (Scottish Government, 2011);
- Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot, 2017 (updated 2025));
- Assessing significance of impacts on bird populations from onshore wind farms that do not affect protected areas (NatureScot, 2025a);
- Guidance on using updated collision risk model to assess bird collision risk at onshore wind farms (NatureScot, 2025b);
- Avoidance Rates for the onshore Scottish Natural Heritage (SNH) Wind Farm Collision Risk Model (NatureScot, 2018a (updated 2025));
- Assessing the cumulative impacts of onshore wind farms on birds (NatureScot, 2018b); and
- Consultation draft guidance Assessing the impact of repowered wind farms on nature (NatureScot, 2018c).

## 11.3. Existing Conditions

### 11.3.1. Desk Study

#### Data Searches

The following data sources will be consulted as part of the desk-study undertaken to inform the assessment:

- NatureScot SiteLink Information Service (<https://sitelink.nature.scot>) for designated sites within 10km of the Site (or 20 km with reference to European sites with goose qualifying interests).
- Ornithological data will be sought from the relevant regional branch of the Scottish Raptor Study Group, the Royal Society for the Protection of Birds (RSPB) and the local biological records centre. Data obtained from these wildlife interest groups will supplement that collected through the operational monitoring and dedicated surveys in informing the baseline ornithological conditions associated with the proposed Development.
- Any other relevant Environmental Statements/EIA Reports or technical reports from the operational Whitelee Windfarm, other developments or proposed developments in the local area.

#### Designated Sites

From initial review of relevant designated sites there is one statutory international/European designated site for ornithological features located within 10 km of the Site: Muirkirk and North Lowther Uplands Special Protection Area (SPA), details of which are summarised in Table 11.1. There are no other European sites between 10-20 km with potential connectivity with the Proposed Development (i.e. with goose qualifying interests)<sup>2</sup>. The location of this designated site is shown in **Figure 11.1**.

**Table 11.1 Summary of Statutory Sites Designated for Ornithological Interest Within 20km of the Site**

| SITE NAME                          | DESIGNATION | APPROXIMATE DISTANCE AND DIRECTION FROM THE SITE | NOTIFIED FEATURES                                                                                                                                                                                                                                                                                                       |
|------------------------------------|-------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Muirkirk and North Lowther Uplands | SPA         | 3.5 km south                                     | This site qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species hen harrier <i>Circus cyaneus</i> , short-eared owl <i>Asio flammeus</i> , merlin <i>Falco columbarius</i> , peregrine <i>Falco peregrinus</i> , and golden plover <i>Pluvialis apricaria</i> . |

<sup>2</sup> Black Cart SPA and Inner Clyde SPA and Ramsar Site all fall within 20km but qualifying features are limited to non-breeding whooper swan (core range <5km) and non-breeding redshank (core range likely to be restricted to the wider estuary) respectively.

## Summary of Operational Whitelee Windfarm Monitoring

The Applicant has been undertaking operational phase bird monitoring at Whitelee Windfarm annually since 2006 (with the exception of 2019). Initially this involved scarce moorland breeding raptor surveys (focussing on hen harrier, merlin and short-eared owl) and black grouse surveys but from 2008 was extended to include moorland breeding bird and raptor prey surveys as well. Surveys have focussed on the Site's Habitat Management Area (HMA) which covers the predominantly open moorland habitat as well as some clear-felled forestry in the northern half of the Site (see **Figure 11.2**).

A review of available data covering the period of 2006 to 2025 (but excluding years 2010 and 2011) relating to the operational Whitelee Windfarm has been undertaken and is summarised below.

These surveys have demonstrated that the HMA supports a breeding bird assemblage that's typical of the open moorland and forest edge habitats which it comprises. In the initial years of the windfarm's operation the HMA supported breeding hen harrier, merlin and short-eared owl, as well as lekking black grouse. Three of these species are on the British Birds of Conservation Concern 5 (BoCC5) (Stanbury et al., 2021) Red List, which is a scientifically curated list of birds at greatest risk of continued decline, with only short-eared owl on the Amber List. In more recent years however, there have been no nesting attempts by these species, and even sightings have been very rare, confirming their presence is scarce. Throughout the years there have also been occasional records of osprey, peregrine, goshawk, hobby, and red kite, although there has been no evidence of nesting by these species. Similarly, black grouse numbers have declined throughout the monitoring programme and there have been no sightings of this species since 2017. Meanwhile the moorland breeding bird surveys have shown that the HMA supports breeding curlew, cuckoo, lesser redpoll, linnet, grasshopper warbler, and house martin (BoCC Red List species) as well as small numbers of other breeding waders, typically oystercatcher and snipe.

As a result of this monitoring, comprehensive data on the baseline ornithological conditions associated with the HMA is available. This data provides an accurate representation of the breeding bird assemblage associated with the HMA and is considered to be sufficient to adequately inform any potential constraints which the proposed Development may pose to legally protected or notable species of conservation concern ('target species') within that part of the existing windfarm site.

Operational staff at Whitelee Windfarm are trained to find and report to SPR's ecology team any dead and injured animals found within the vicinity of turbines. On average each turbine is checked by operational staff once a week. SPR have undertaken blind testing of SPR operational staff and have found their searcher efficiency rate is >80%. This data will also be used to inform the ornithological impact assessment.

### 11.3.2. Field Surveys

#### Background

The current consultation draft guidance on windfarm repowering (NatureScot, 2018d) states that standard bird surveys typically carried out to inform impact assessments for new onshore windfarm developments will not normally be required for repowering projects. This is because those surveys would record bird activity which was influenced by the presence of the existing windfarm. Instead, it is recommended that assessments should be based on desk-based

studies, original baseline data, post-construction monitoring data and information obtained from third party consultees. The draft guidance does however state that if proposals extend outside the footprint of the existing windfarm, then new surveys (according to NatureScot 2017 guidance) are likely to be required in those areas, as they would for any normal windfarm extension.

As outlined in **Section 11.3.1**, the Applicant has been undertaking operational phase bird monitoring at Whitelee Windfarm annually since 2006. While the operational phase bird monitoring conducted to date has covered an extensive area and timeframe, it has only included the breeding season and has focussed on the HMA. The forested parts of the operational Whitelee Windfarm site, which account for more than two-thirds of the existing operational windfarm, have not been extensively covered by the operational phase monitoring surveys, nor have any surveys been conducted over the winter months to identify the non-breeding bird assemblage, including presence of target species. There is, however, potential for the habitats across the existing windfarm site to support target species such as goshawk and golden plover.

As a result of the limitations to the operational monitoring outlined above, a programme of monthly bird surveys has been carried out over a two-year period, from September 2023 to August 2025, inclusive, to establish the non-breeding and breeding bird assemblage associated with the existing windfarm site. These surveys of the operational Whitelee Windfarm area, which were carried out in support of the proposed Development, were in addition to extra surveys to cover any areas of land outside the operational Whitelee Windfarm site boundary, where the Applicant was considering the potential for siting turbines. These field survey methods and results are detailed in following sections.

### Field Survey Methods

Ornithological surveys to inform the EIA for the proposed Development commenced in September 2023.

Surveys of areas within the current operational Whitelee Windfarm site (with the exception of the HMA) comprised:

- A combination of walked and driven transects and short vantage point watches overlooking broad areas to locate any target species within the current operational array on a monthly basis between September 2023 and February 2024, and between September 2024 and February 2025. These surveys were intended to be a reduced scale substitute for flight activity surveys which would otherwise capture the presence of key species over the Site.
- Within the 2024 and 2025 breeding seasons, an increased scope of moorland breeding bird and scarce moorland raptor monitoring surveys were extended outwith the HMA to include open areas within the wider Site boundary. These were further extended to include the forested habitats as well, thereby achieving similar coverage to the winter surveys. Additionally black grouse surveys were undertaken in areas of suitable habitat throughout the Whitelee Windfarm site Boundary.

Based on the baseline ornithological conditions of the existing Whitelee Windfarm's HMA, as informed through the operational phase monitoring, the general consistency of the habitats in the wider surrounding area and the geographic location of the Site, it is not anticipated that the habitats associated with the New Extension Areas will support important populations of

target species. However, with regard to those areas of the proposed Development Site, it is recognised that a programme of novel surveys was required in order to establish the baseline ornithological conditions. These surveys were undertaken in line with NatureScot (2017) guidance, covering proposed turbine locations within the New Extension Areas being considered at the time of survey. The survey areas are shown on **Figures 11.3** and **11.4** and are described below:

- Flight Activity Surveys (September 2023 to February 2024; April to August 2024; September 2024 to February 2025; and March to August 2025): these surveys were conducted from nine Vantage Point locations (VPs) overlooking the New Extension Areas and surrounding buffers of 500m, as far as was practicably achievable taking account of topography and forestry cover. The VP locations and viewshed analysis are illustrated in **Figure 11.4**. A minimum of 36 hours of survey effort was completed from each VP in each of the non-breeding and breeding seasons. The data collected from these surveys will be used to inform the presence and activity hotspots by species of conservation concern and ultimately inform collision risk.
- Breeding Raptor Surveys (2024 and 2025 breeding seasons): these surveys covered the New Extension Areas plus a surrounding buffer of 2km (not including the existing windfarm site). These surveys covered those parts of the existing windfarm site, predominantly comprising commercial forestry plantation, which are not covered by the Site's HMA and are therefore not covered by ongoing ornithological monitoring surveys as described in Section 11.3.1. The surveys followed methods outlined in Hardey *et al.* (2013) and involved a combination of walkover surveys and fixed-point watches aimed at detecting the presence, breeding activity and nest sites of scarce raptors. The surveys included early season watches over forested areas specifically for goshawk activity.
- Moorland Breeding Bird Surveys (2024 and 2025 breeding seasons): these surveys covered open moorland habitats within the New Extension Areas plus a surrounding buffer of 500m (not including the existing windfarm site). These surveys followed the methods detailed in Brown and Shepherd (1993) but involved four (rather than three) visits undertaken monthly between April and July, as per NatureScot (2017) guidance. The data collected from these surveys will be used to inform the presence and locations of breeding territories held by species of conservation concern, and in particular breeding waders.
- Black Grouse Surveys (2024 and 2025 breeding seasons (late March to mid-May)): lekking black grouse surveys following the methods outlined in Gilbert *et al.* (1998) were carried out in areas of suitable habitat within the New Extension Areas plus a surrounding buffer of 1.5km (not including the existing windfarm site).

### Field Survey Results

Key results from the surveys conducted over the above-noted survey programme are outlined in **Table 11.2**. Surveys to date have recorded an assemblage of birds which are typical of similar habitats in southern Scotland, with low overall flight activity and limited use of the Site by sensitive species.

**Table 11.2 Summary of Key Results from Baseline Ornithology Surveys 2023-25**

| SURVEY                             | KEY RESULTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operational Monitoring Area</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Winter walkover(s)                 | <b>Non-breeding season 2023/24 (September 2023 to February 2024)</b><br><br>There were records of the following target species: goshawk (one), hen harrier (one), merlin (one), and teal (two records, totalling seven individuals).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Breeding Raptor Surveys            | <b>Breeding season 2024 (April to July)</b><br><br>No Schedule 1 species were recorded breeding within the survey area between April and July, although merlin was recorded in April.<br><br><b>Breeding season 2025 (April to July)</b><br><br>No Schedule 1 species were recorded breeding within the survey area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Moorland Breeding Bird Surveys     | <b>Breeding season 2024 (April to July)</b><br><br>Several wader and wildfowl territories were identified including greylag goose, curlew, snipe, lapwing, common sandpiper and oystercatcher. Additionally red kite and goshawk were also recorded.<br><br><b>Breeding season 2025 (April to July)</b><br><br>Several wader and wildfowl territories were identified including lesser redpoll, cuckoo, linnet, grasshopper warbler, curlew, house martin, and oystercatcher.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Black Grouse Surveys               | <b>Breeding seasons 2024 and 2025 (April to July)</b><br><br>No black grouse were recorded during the species-specific surveys in 2024 or 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>New Extension Area(s)</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Flight Activity Surveys            | <b>Non-breeding season 2023/24 (September 2023 to February 2024)</b><br><br>These surveys recorded low levels of flight activity of 11 target species, comprising: hen harrier (six flights), goosander (one flight, totalling four individuals), goshawk (seven flights), goldeneye (ten flights, totalling 19 individuals), lapwing (four flights, totalling 105 individuals), merlin (one flight), pink-footed goose (13 flights, totalling 536 individuals), short-eared owl (one flight), teal (22 flights, totalling 202 individuals), woodcock (one flight), and wigeon (one flight, two individuals).<br><br><b>Breeding season 2024 (April to August)</b><br><br>These surveys also recorded low levels of flight activity of eight target species, comprising: common sandpiper (four flights, totalling six individuals), curlew (three flights), goshawk (one flight), goldeneye (two flights), marsh harrier (two flights), oystercatcher (one flight, two individuals), pink-footed goose (one flight, 15 individuals), and snipe (one flight).<br><br><b>Non-breeding season 2024/25 (September 2024 to February 2025)</b><br><br>These surveys recorded 12 target species, with generally low levels of flight activity observed, except for hen harrier and goshawk. Recorded flights from target species comprised: hen harrier (13 flights), goosander (three flights involving six individuals), goshawk (29 flights), lapwing (four flights, totalling 111 individuals), merlin (one flight), teal (three flights, totalling 22 individuals), woodcock (two flights), ringed plover (two |

## SURVEY

## KEY RESULTS

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | <p>flights of two birds), snipe (two flights), greylag goose (one flight of a pair of individuals), pink-footed goose (ten flights totalling 618 individuals), and whooper swan (one flight of four individuals).</p> <p><b>Breeding season 2025 (April to August)</b></p> <p>These surveys also recorded generally low levels of flight activity, except for lesser black-backed gull and goshawk. Flights of 16 target species were recorded, comprising: goshawk (26 flights); hen harrier (two flights); merlin (one flight); peregrine falcon (four flights); tawny owl (one flight); barnacle goose (one flight of 24 individuals); greylag goose (one flights of 18 individuals); pink-footed goose (six flights totalling 333 individuals); curlew (five flights totalling seven individuals); lapwing (one flight); oystercatcher (five flights totalling nine individuals); snipe (two flights totalling three individuals); common gull (two flights); great black-backed gull (eight flights totalling 12 individuals); herring gull (13 flights totalling 20 individuals); and lesser black-backed gull (152 flights totalling 572 individuals).</p> |
| Breeding Raptor Surveys        | <p><b>Breeding season 2024 (April to July)</b></p> <p>No Schedule 1 species were recorded breeding within the survey area, although goshawk, peregrine, osprey, and merlin were recorded over the breeding season. There was a single incidental record of short-eared owl during a black-grouse survey.</p> <p><b>Breeding season 2025 (April to July)</b></p> <p>No Schedule 1 species were confirmed or suspected to be breeding within the Site, although goshawk, hen harrier, osprey, peregrine and red kite were recorded over the breeding season.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Moorland Breeding Bird Surveys | <p><b>Breeding season 2024 (April to July)</b></p> <p>Several wader territories were identified including curlew, snipe, ringed plover, common sandpiper and oystercatcher. Goshawk was also recorded.</p> <p><b>Breeding season 2025 (April to July)</b></p> <p>Several wader territories were identified including curlew, golden plover, oystercatcher and snipe. Greylag goose was also recorded.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Black Grouse Surveys           | <p><b>Breeding season 2024 (April to May)</b></p> <p>No black grouse were recorded during the species-specific surveys.</p> <p><b>Breeding season 2025 (April to May)</b></p> <p>No black grouse were recorded during the species-specific surveys.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 11.4. Proposed Survey and Assessment Methodologies

### 11.4.1. Study Area

The Study Area comprises the Site, plus the relevant survey and designated site search areas, as detailed in this Section. The Site boundary encompasses the proposed wind turbine locations and associated infrastructure as part of the proposed Development.

### 11.4.2. Scope of Assessment

The assessment of ornithological effects associated with the proposed Development, including cumulative effects, will be undertaken in accordance with guidelines published by NatureScot (2018) and CIEEM (2018). It will be informed by legislation, national and local policy, and guidance which is set out further within the **Section 11.2**.

The assessment will focus on Important Ornithological Features (IOFs) that could be affected by the construction and operation of the proposed Development. The IOFs will be identified by reviewing all baseline information and identifying which occur within the proposed Development's Zone of Influence (Zol). A geographic level of importance to each receptor within the Zol will be assigned based on its conservation status, population/ assemblage trends and other relevant criteria (including size, naturalness, rarity, and diversity). An IOF would be a receptor within the Zol which meets a threshold of at least local level importance.

Details of the proposed Development will be used to assess the potential impacts to each IOF and what level of effect each IOF is likely to receive. Effects will be characterised as beneficial, adverse or neutral; significant or non-significant; and temporary or permanent. The significance of an effect will be determined using professional judgement, considering the relationship between two factors:

- the value, importance or sensitivity of the IOF that might be impacted; and
- the magnitude of the impact on that IOF (i.e., the actual change taking place).

Where appropriate, additional mitigation measures will be identified to reduce the magnitude of potentially significant adverse effects. An assessment of residual effects will be undertaken after the application of additional mitigation measures. Where residual effects remain potentially significant, compensation required to offset this will be identified. For any high value IOFs (e.g., protected areas), the residual effects which remain following consideration of both mitigation and compensation measures would be reported as 'net effects'. Additionally, any opportunities for enhancement will also be identified and detailed within any Habitat Management Plan (HMP) (see **Section 11.6**).

In addition, it is important to assess the cumulative impacts of the Proposed Development and other relevant proposed, consented and operational developments that may affect the wider populations of those bird species identified as IOFs that will be taken forward for assessment. NatureScot maintains a database of proposed developments within each NHZ and the most recent version of this database will be requested prior to submission to assist with the cumulative assessment that will focus on NHZ17.

## 11.5. Potential Significant Effects

### 11.5.1. Potential Significant Effects during Construction

During the construction phase, there is potential for significant adverse effects on protected areas which partially overlap and surround the Site boundary and protected and conservation priority species which may occur within the proposed Development's ZOI and meet the IOF threshold. Potential significant effects that will be considered are set out below:

- Disturbance, displacement, and harm to qualifying species designated under Muirkirk and North Lowther Uplands SPA (i.e. hen harrier, short-eared owl, merlin, peregrine, and golden plover); as well as other target species (e.g. goshawk).
- Temporary or permanent loss and/or degradation of habitat and features which support all bird species including target and secondary species.

### 11.5.2. Potential Significant Effects during Operation

During the operational phase, there is potential for significant adverse effects on a reduced number of receptors, which are considered below:

- Disturbance, displacement, and harm (collision-related deaths) to qualifying species designated under Muirkirk and North Lowther Uplands SPA; as well as other target species potentially affected by operational windfarms (e.g. pink-footed goose, goshawk, golden plover etc).

### 11.5.3. Effects Scoped Out

It is proposed that the following receptors are scoped out of the EIA:

- Species not recorded during the field surveys to inform the proposed Development or those undertaken for other developments in the immediately surrounding area will be scoped out of the EIA in accordance with NatureScot (2019) guidance, unless otherwise informed by consultation.

## 11.6. Indicative Mitigation and Enhancement

Significant effects upon ornithological receptors will be avoided/minimised where possible through the design process. Good practice during construction (Scottish Renewables *et al*, 2024) and operation of the proposed Development will also be implemented (for example through the sensitive timing of works and pre-construction checks for nesting birds).

Where significant effects on IOFs are identified, measures to prevent, reduce, and where possible offset these adverse effects will be investigated and proposed. A Bird Protection Plan (BPP) will be produced to ensure that all reasonable precautions are taken to protect ornithological features of interest associated with the proposed Development.

Potential enhancements for ornithological receptors and wider biodiversity could include riparian planting of hardwood species and also along plantation edges; rewetting and/or provision of wader scrapes outside of the proposed Development; grazing reduction; and the installation of nest boxes.

## 11.7. References

- CIEEM. (2018.) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 (updated 2024). Chartered Institute of Ecology and Environmental Management, Winchester.
- Brown, A.F. and Shepherd, K, B. (1993.) A method for censusing upland breeding waders. *Bird Study*, 40: 189-195.
- Gilbert, G., Gibbons D.W., and Evans, J. (1998.) *Bird Monitoring Methods*. RSPB, Sandy.
- Hardy, J., Crick, H.Q.P., Wernham, C.V., Riley, H., Etheridge, B. & Thompson, D.B.A. (2013.) *Raptors: a field guide for surveys and monitoring*. 3<sup>rd</sup> Edition.
- NatureScot. (2016.) Assessing Connectivity with Special Protection Areas (SPAs) Guidance. Version 3. Available at: <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed September 2024]
- NatureScot. (2017.) Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017 – Updated March 2025.
- NatureScot. (2018a.) Wind farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model. Updated September 2025. Available at: <https://www.nature.scot/doc/wind-farm-impacts-birds-use-avoidance-rates-naturescot-wind-farm-collision-risk-model> [Accessed April 2026]
- NatureScot. (2025a.) Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas. Available at: <https://www.nature.scot/doc/guidance-note-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect> [Accessed April 2026]
- NatureScot. (2025b.) Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. Available at: <https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms>
- NatureScot. (2018b.) Assessing the cumulative impacts of onshore wind farms on birds. See: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds> [Accessed September 2024]
- NatureScot. (2018c.) Assessing the impact of repowered windfarms on nature.
- Scottish Government. (2011.) The Wildlife and Natural Environment (Scotland) Act 2011.
- Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AEECoW. (2024.) Good practice during wind farm construction. Available at: <https://www.nature.scot/doc/good-practice-during-wind-farm-construction>
- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021.) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747. Available at: <https://britishbirds.co.uk/content/status-our-bird-populations> [Accessed September 2024]

UK Government. (1981.) The Wildlife & Countryside Act 1981 (as amended).

UK Government. (2017.) The Conservation of Habitats and Species Regulations 2017 (as amended).

Wilson, M., Austin, G., Gillings, S. and Wernham, C. (2015.) Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG\_1504. pp72. Available at: [www.swbsg.org](http://www.swbsg.org) [Accessed September 2024]

## 11.8. Scoping Questions to Consultees

- **Question 13:** Do consultees agree that the range of ornithological surveys proposed or undertaken are sufficient and proportionate to inform the design and assessment of the proposed Development?
- **Question 14:** Do consultees agree with the assessment approach proposed?
- **Question 15:** Do consultees agree with the ornithological receptors upon which the proposed Development may potentially pose significant effects?
- **Question 16:** Do consultees hold any existing information that may be considered relevant to the assessment?

# 12. Hydrology, Hydrogeology, Geology and Soils

## 12.1. Introduction

This Section outlines the proposed scope of works of the EIA to assess the significant effects from the proposed Development on hydrology, hydrogeology, geology and soils (including peat).

## 12.2. Legislation and Guidance

The Hydrology, Hydrogeology, Geology and Soils EIA Report chapter will be prepared with reference to best practice guidance, relevant policy and legislation, including (but not limited to):

### 12.2.1. Legislation

- EC Water Framework Directive (2000/60/EC) (EU, 2000).
- A Water Environment and Water Services (Scotland) Act 2003 (Scottish Government, 2003).
- Environmental Authorisation (Scotland) Regulations 2018 (Scottish Government, 2018).
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 (Scottish Government, 2017).

### 12.2.2. Policy

- National Planning Framework 4 (NPF4) (Scottish Government, 2023).
- South Lanarkshire Council Local Development Plan 2 (2021) (South Lanarkshire Council, 2021).
- East Ayrshire Council Local Development Plan 2 (2024) (East Ayrshire Council, 2024).
- East Renfrewshire Council Local Development Plan 2 (2022) (East Renfrewshire Council, 2022).

### 12.2.3. Guidance

- Good Practice during Windfarm Construction (Scottish Renewables, Scottish Natural Heritage (now NatureScot), Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and AEECoW, 2024).
- Guidance on Assessing the Impacts on Developments on Groundwater Dependent Terrestrial Ecosystems (SEPA, 2024);
- Guidance on Assessing the Impacts on Development on Groundwater Abstractions (SEPA, 2024);

- The SuDS Manual C753 (CIRIA, 2015).
- Environmental Good Practice on Site C811 (CIRIA, 2023).
- NetRegs, Guidance for Pollution Prevention (GPP – various).
- Developments on Peat and Offsite Uses of Waste Peat (Scottish Environment Protection Agency, 2017).
- Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government, 2017).
- Developments on Peatland - Guidance on the assessment of peat volumes, re-use of excavated peat and the minimisation of waste (Scottish Renewables & SEPA, 2012).
- Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads on Peat with particular reference to Wind Farm Developments in Scotland (Forestry Commission Scotland & Scottish Natural Heritage, 2010).
- Advising on Peatland Habitats and Carbon-Rich Soils in Development Management (NatureScot, 2026).
- Managing Geotechnical Risk: Improving Productivity in UK Building and Construction (Institution of Civil Engineers, 2001).
- Scottish Roads Network Landslides Study Summary Report (Scottish Executive, 2005).
- Guidelines for the Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads on Peat (Forestry Commission, 2006).
- Technical Compendium: Good Practice for Peatland Restoration Techniques (NatureScot, Peatland Action, 2022).
- Peatland Survey. Guidance on Developments on Peatland. (Scottish Government, SNH, SEPA, 2017).

## 12.3. Existing Conditions

### 12.3.1. Surface Hydrology

The Site lies within the wider surface water catchments of the River Irvine to the west, White Cart Water to the north and River Clyde to the east. The Site predominantly lies within the River Irvine catchment as seen in **Figure 12.2**. An overview of the catchments, watercourses and waterbodies, and their classification under the Water Framework Directive (WFD) are provided in **Table 12.1**.

**Table 12.1 Hydrological Features**

| CATCHMENT    | WFD WATERCOURSES AND WATERBODIES | WFD CLASSIFICATION (FOR 2024 AS PER SEPA CLASSIFICATION HUB) |
|--------------|----------------------------------|--------------------------------------------------------------|
| River Irvine | Glen Water (ID 10406)            | Good                                                         |

| CATCHMENT        | WFD WATERCOURSES AND WATERBODIES                                     | WFD CLASSIFICATION (FOR 2024 AS PER SEPA CLASSIFICATION HUB) |
|------------------|----------------------------------------------------------------------|--------------------------------------------------------------|
| River Irvine     | Hareshawmuir Water/Gawkshaw Burn (ID: 10402)                         | Good                                                         |
| River Irvine     | Craufurdland Water/Dunton Water (u/s Hareshawmuir Water) (ID: 10401) | Good                                                         |
| River Irvine     | Kingswell Burn/Fenwick Water/Kilmarnock Water (ID 10399)             | Moderate                                                     |
| River Irvine     | Lochgoin Reservoir (100305)                                          | Good                                                         |
| White Cart Water | Dunwan Burn (u/s Dunwan Dam) (ID: 10010)                             | Good                                                         |
| White Cart Water | White Cart Water (above Kittoch conf) (ID: 10001)                    | Moderate                                                     |
| River Clyde      | Calder Water (ID: 10403)                                             | Poor                                                         |
| River Clyde      | Rotten Calder Water (ID 10052)                                       | Moderate                                                     |

The watercourses in the south and west of the Site are located within the River Irvine catchment. The River Irvine rises within the south east of the Site, within forestry to the south of Mill Rig, before flowing west. Onsite tributaries of the River Irvine include the Glen Water which rises within the north of the Site, before flowing south where it confluences with the River Irvine at NGR 651333, 266091, approximately 2 km south of the Site. The Birk Burn rises within the centre of the Site before flowing west to Craigendunton Reservoir, which discharges to the Dunton Water at the western Site boundary. Gowkshaw Burn rises within the centre of the Site to the south of Birk Burn, flowing west before becoming Hareshawmuir Water where it confluences with Dunton Water to become Craufurdland Water. Craufurdland Water discharges to Fenwick Water, which becomes Kilmarnock Water before discharging to the River Irvine, downstream of Glen Water.

The north west of the Site is located within the sub-catchment of the Kingswell Burn, with its tributaries Drumtee Water and Greenfield Burn located within the Site. The Kingswell Burn flows south before becoming the Fenwick Water. The Lochgoin Reservoir is also located in the north west of the Site within the River Irvine catchment.

The north of the Site is within the White Cart Water catchment. The western part of that area is located with the sub-catchment of the Dunwan Burn, which flows north east via the Dunwan Dam, a reservoir located to the north of the Site. The north of the Site is also within the sub-catchment of the Ardoch Burn, which flows north to confluence with Dunwan Burn. The White Cart Water rises within the north east of the Site and confluences with Dunwan Burn/Polnoon Water at NGR 652703, 269297, approximately 3 km north of the Site.

The east of the Site is located within the River Clyde catchment, largely within the sub-catchment of the Calder Water, which flows east before it confluences with the Avon Water at NGR 644291, 273701, approximately 4 km east of the Site. The north east of the Site is also located within a sub-catchment of the River Clyde, as the Rotten Calder Water rises within the Site, east of Ardochrig Hill, before flowing north.

### 12.3.2. Superficial Geology

British Geological Survey (BGS) Onshore GeoIndex Mapping indicates that superficial deposits are predominantly peat, which is widespread across the Site. There are deposits of Devensian Till in the north and south of the Site. Alluvium (clay, silt, sand and gravel) deposits are associated with surface watercourses, particularly in the east and west of the Site. There are small, isolated areas of glaciofluvial deposits (gravel, sand and silt) in the north and south of the Site. An extract of published superficial geology is shown in **Figure 12.3**.

### 12.3.3. Soils and Peat

The National Soil Map of Scotland indicates that the soils underlying the Site comprise primarily dystrophic blanket peat and noncalcareous gleys, with smaller areas of peaty gleys and peaty gleyed podzols across the Site.

NatureScot's Priority peatland mapping, Carbon and Peatland Map 2016, indicates that the Site primarily comprises Class 5 peatland with areas of Class 1 peatland in the centre and north west of the Site. There are small areas of Class 1 peatland also located in the south of the Site. There are small, isolated areas of Class 3 and Class 4 present, predominantly in the north and south of the Site (**Figure 12.4**). Class 5 peatlands are defined as having no peatland habitats recorded but may include areas of bare soil, carbon-rich soils and deep peat. Class 4 peatlands are areas unlikely to be associated with peatland habitats and/or include carbon-rich soils. Class 3 peatlands exhibit dominant vegetation cover and are not priority peatland habitats, although they are associated with wet and acidic soil environments where "*occasional peatland habitats can be found*". Class 1 peatlands are areas of "*nationally important carbon-rich soils, deep peat and priority peatland habitat*".

Numerous phases of peat surveys and investigation have been carried out between 2001 and 2012 to inform the design and development of the currently operational Whitelee Windfarm. These surveys recorded variable peat depths across the Site, with the thickest deposits exceeding 5 m depth in parts of the Site. Peat stability assessments have also been undertaken at the Site previously. Approximately 1,318 ha of peatland restoration has been undertaken across the Site, primarily forest to bog restoration (**Figure 12.7**).

### 12.3.4. Bedrock Geology

BGS Onshore GeoIndex Mapping indicates that the underlying bedrock geology of the Site is predominantly Dinantian age extrusive lava members of the Clyde Plateau Volcanic Formation. This includes the Flow Moss Member, Dumdruff Hill Lava and Eaglesham Lava Member. Pyroclastic rock of the Gowk Stane Volcaniclastic Member is present in the north of the Site. The Limestone Coal Formation and Kirkwood Formation of the Clackmannan Group are mapped in the south west of the Site. An area (<7 ha) on the southern boundary of the Site, within the Limestone Coal Formation, is mapped by the Coal Authority as a Development High Risk Area indicating potential shallow mine workings. There are no existing turbines within this area, and there are no current proposals to include infrastructure in this location. Should

development be proposed within this area, a Coal Mining Risk Assessment would be undertaken to ensure any potential mining related instability was appropriately considered.

There are several inferred faults across the Site with most trending in a south east to north west direction. In the north west and east of the Site there are inferred faults present trending in a south west to north east direction (as seen in **Figure 12.5a** and **Figure 12.5b**).

### 12.3.5. Hydrogeology

The Site is primarily underlain by the bedrock aquifer of “*unnamed extrusive igneous rocks*” which are characterised as being of low productivity with limited groundwater present in near surface weathered zones or secondary fractures, with rare springs. Small areas in the south west of the Site are underlain by the Strathclyde Group and Clackmannan Group, which are both classified as moderately productive multi-layered aquifers (**Figure 12.6**). The Clackmannan Group aquifer exhibits low yields, except where there is mining disturbance, whereas the Strathclyde Group aquifer exhibits fracture flow and “*yields up to 10 L/s locally*”.

### 12.3.6. Flooding

SEPA flood mapping confirms that fluvial flood risk is largely confined to larger surface watercourses and waterbodies present particularly in the west and north west of the Site. Located onsite, Greenfield Burn, Hareshawmuir Water, Dunton Water, Dunwan Burn, Lochgoin Reservoir, and Craigendunton Reservoir are identified as having a high likelihood of flooding, meaning there is a 10% chance of flooding each year for these areas. Glen Water in the south and Calder Water in the south east of the Site also have a high likelihood of fluvial flooding.

The SEPA flood mapping also confirms that medium and high likelihood of pluvial (surface water) flooding is present along the surface watercourses and waterbodies onsite. In addition to this, widespread across the Site, small, isolated areas of pluvial flooding are identified within areas of forestry.

There is no risk of flooding from coastal waters within the Site.

### 12.3.7. Private and Public Water Supplies

There are two surface water catchments identified as Drinking Water Protected Areas (DWPA) located in the west of the Site; Craufurdland Water/Dunton Water (ID 10401) and Kingswell Burn/Fenwick Water/Kilmarnock Water (ID 10399). The Lochgoin Reservoir DWPA and catchment of the Dunwan Dam DWPA are located in the north west of the Site. The proposed Development is also located within the Scotland groundwater DWPA.

There were 22 Private Water Supplies (PWS) identified from previous assessments to be within the study area. Of these PWS, five are within 500 m of the Site and are situated immediately to the west of the Site boundary. Consultation with SLC, EAC and ERC will be carried out during the EIA to account for any new PWS or changes to existing PWS.

### 12.3.8. Designated Sites

Within the wider study area of 10 km, the following designated sites with geological or hydrological qualifying features have been identified, as shown in **Table 12.2**. There are no designated sites located within the Site, including Geological Conservation Review (GCR) sites.

**Table 12.2 Designated Sites and Hydrological Connectivity**

| SITE                     | DESIGNATION  | DISTANCE FROM SITE | HYDROLOGICALLY CONNECTED?                                                                                                                                                      |
|--------------------------|--------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Muirkirk Uplands         | SPA and SSSI | 3.5 km             | No, south of Site, upslope of River Irvine.                                                                                                                                    |
| Brother and Little Lochs | SSSI         | 3.5 km             | No, separated from Site by Earn Water at confluence with White Cart Water catchment to the north west of the Site                                                              |
| Blantyre Muir            | SSSI         | 5.2 km             | No, upslope of Calder Water to the north east of the Site.                                                                                                                     |
| Waukenwae Moss Special   | SAC and SSSI | 5.4 km             | No, upslope of Calder Water and Avon Water to the north east of the Site.                                                                                                      |
| Cart and Kittoch Valleys | SSSI         | 7.2 km             | Yes, hydrologically connected by tributaries of White Cart Water.                                                                                                              |
| Rouken Glen              | SSSI and GCR | 8.0 km             | No, separated from Site by Earn Water at confluence with White Cart Water catchment to the north of the Site.                                                                  |
| Waulkmill Glen           | SSSI and GCR | 8.4 km             | No, separated from Site by Earn Water at confluence with White Cart Water catchment and Auldhouse Burn at confluence with White Cart Water catchment to the north of the Site. |
| Calder Glen              | SSSI and GCR | 8.5 km             | Yes, located along Rotten Calder.                                                                                                                                              |
| Blood Moss and Slot Burn | SPA, SSSI    | 9.9 km             | No, located upslope of Avon Water, separated by Glengavel Water at Confluence with Avon Water catchment.                                                                       |

## 12.4. Proposed Survey and Assessment Methodologies

### 12.4.1. Study Area

The study area will include the area within the proposed Site boundary and extending beyond this to a 2 km study area for consultation and assessment of PWS, and a 10 km study area for assessment of hydrological effects, as shown in **Figure 12.1**. The effects on geological receptors will be assessed within the Site boundary.

The impact assessment will consider potential cumulative effects, or in-combination effects associated with other developments in the same hydrological catchments and within 10 km of the proposed Development.

### 12.4.2. Desk Study

An initial desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to soils and peat, geology, hydrology, and hydrogeology such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include review of published geological maps, Ordnance Survey maps, aerial photographs, and site-specific data such as site investigation data and survey data from previous developments, geological and hydrogeological reports, digital terrain models (slope plans), Lidar and geological literature.

The desk study will identify sensitive features which may potentially be affected by the proposed Development and will confirm the geological, hydrogeological, and hydrological environment.

### 12.4.3. Field Surveys

The project geologists and hydrologists will liaise closely with the project ecology and engineering/geotechnical specialists to ensure that appropriate information is gathered to allow a comprehensive impact assessment to be completed.

A detailed Site visit and walkover survey will be undertaken, to:

- verify the information collected during the desk and baseline study;
- undertake a visual assessment of the main surface waters and identify PWS;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified GWDTEs (in consultation with the project ecologists);
- visit PWS and DWPA that might be affected by the proposed Development to confirm details of the location of the abstraction, its type and use, as required;
- prepare a schedule of potential watercourse crossings;
- assess the Site geomorphology and conduct peat depth probing as required;
- inspect rock exposures, establish by probing an estimate overburden thicknesses (a probe is pushed vertically into the ground to refusal and the depth is recorded); and
- Assess the condition of peatland at the Site.

The desk study and field surveys will be used to identify potential development constraints and be used as part of the Site design iteration process.

### 12.4.4. Assessment of Effects

Once the desk study is completed and sensitive soil and peat, geological and water features are confirmed, an impact assessment will be undertaken to assess the potential effects on soils and peat, geology, and the water environment resulting from construction and operation of the proposed Development.

The purpose of this assessment will be to:

- identify any areas susceptible to peat slide, using peat thickness and DTM data to analyse slopes;
- assist in the micro-siting of turbines and tracks in areas of no peat or shallow and least geologically and hydrologically sensitive areas by applying buffer zones around watercourses and other hydrological features;
- assess potential effects on soils, peat and geology;
- determine what the likely effects of the proposed Development are on the hydrological regime, including water quality, flow, and drainage;
- allow an assessment of potential effects on identified licensed and private water supplies;
- assess potential effects on water (including groundwater) dependent habitats;
- determine suitable mitigation measures to prevent significant hydrological and hydrogeological effects; and
- develop an acceptable code for working on the Site that will adopt best practice procedures, effective management, and control of onsite activities to reduce or offset any detrimental effects on the geological, hydrogeological and hydrological environment.

It is anticipated that the impact assessment will include the following technical appendices:

- Peat Landslide Hazard and Risk Assessment (PLHRA);
- Outline Peat Management Plan (PMP);
- Peatland Condition Assessment (PCA);
- Watercourse Crossings Schedule;
- Private Water Supply Risk Assessment; and
- GWDTE Risk Assessment.

A qualitative risk assessment methodology will be used to assess the significance of the potential effects. Two factors will be considered: the magnitude of potential impact; and the sensitivity of the receiving environment.

This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the proposed Development. This approach also allows effort to be focused on reducing risk where the greatest benefit may result.

The sensitivity of the receiving environment (i.e., the baseline quality of the receiving environment as well as its ability to absorb the impact without perceptible change) and the magnitude of impacts will each be considered through a set of pre-defined criteria.

The sensitivity of the receiving environment together with the magnitude of the impact defines the significance of the effect, which will be categorised into level of significance.

A review of previous assessments of the Site and other existing and proposed developments near the proposed Development will be undertaken and potential impacts on hydrology, hydrogeology and geology will be assessed to identify cumulative impacts. With regard to the proposed Development, it is likely that mitigation measures will be proposed that will have

a neutral effect or provide betterment compared to baseline conditions. It is considered unlikely that there will be any significant residual or cumulative impact to report.

#### 12.4.5. Peat Management Plan and Peat Landslide Hazard and Risk Assessment

A Phase I peat depth survey consisting of a 100 m grid across the entire Site will be completed (supplemented by existing data collected as part of the previous assessment and ongoing monitoring and restoration activities at the Site) to indicate the peat depth and coverage on the Site. This will inform the emerging Site design and impact assessment as required by current best practice. As part of the programme of field work the following will be undertaken:

- a geomorphological mapping exercise to link the topographic features with the underlying geology and to visit those areas of the Site that may be identified as potentially 'at risk from peat slide';
- the thickness of the peat will be established by probing and the underlying sub-strata confirmed by inspections of watercourses; and
- signs of existing or potential peat instability will be recorded.

Dependent on Phase I survey findings, a Phase II peat depth survey may be required to be undertaken as part of the Site design in accordance with best practice. If required and appropriate, this will include peat probing along linear infrastructure (tracks) at 50 m centres and at up to 10 m density across other infrastructure locations including turbines and substation compound.

Output from the field surveys will comprise a record of investigation locations and summary of peat depths recorded.

The survey data collected will be used to inform a preliminary PLHRA where areas that may be impacted by a peat slide will be identified, such that appropriate mitigation measures can be identified and included in the Site design.

Should the design cross areas of peat (>0.5 m) then an outline PMP will be prepared. This is considered to be likely based on information available from previous site surveys. In preparing the outline PMP, the volume of peat soils to be excavated as part of the proposed Development will be quantified, and appropriate reuse methodologies proposed. The outline PMP will also consider peat condition at the Site and habitat management proposals. Areas of the Site which have undergone peatland restoration, would be assessed in terms of condition and success of restoration works, and would be avoided by design if considered appropriate.

### 12.5. Potential Significant Effects

Without mitigation or adherence to best practice, effects on soils and peat, geology, hydrology, and hydrogeology could occur during construction and operation. However, application of embedded mitigation (i.e. mitigation by design) and standard good practice, as outlined in **Section 12.6**, is anticipated to ensure that significant effects on hydrology, hydrogeology, geology and soils can be avoided.

Although considered unlikely to be assessed as 'significant' when taking account of embedded and standard mitigation, a summary of the potential effects on ground conditions and the

water environment resulting from construction, and operation of the proposed Development is provided below. These will be considered in the EIA Report.

### 12.5.1. Potential Effects During Construction

The following are potential effects that could arise from construction of the proposed Development:

- disturbance and loss of peat deposits and peatland habitat;
- ground instability (inc. peat slide risk);
- effects on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment-laden runoff to drainage system and watercourses;
- increased flood risk to areas downstream of the Site during construction through increased surface run-off;
- potential change of groundwater flow paths and contribution to areas of peat and GWDTEs;
- disturbance of watercourse bed and banks from the construction of culverts;
- potential pollution impacts to public and private water supplies;
- potential pollution of ground and surface DWPA; and
- disturbance and or pollution resulting from borrow pit formation and use.

### 12.5.2. Potential Effects During Operation

The following potential effects could arise during operation of the proposed Development:

- increased runoff rates and flood risks, resulting from increases in areas of tracks and hardstanding at turbines;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement;
- longer term impacts on abstraction for water supplies, particularly any supplies dependent on groundwater; and
- pollution effects on surface water quality from maintenance work.

### 12.5.3. Effects Scoped Out

At this stage, it is proposed that the following can be scoped out of detailed assessment:

- It is proposed to scope out effects on geology. Effects on geology during both the construction, operation or decommissioning phases of the proposed Development are not anticipated. While there will be effects arising from rock extraction for borrow pits, and for turbine and crane pad areas, these are limited in area and do not extend beyond the

immediate development footprint. No particularly sensitive geological features have been identified within the Study Area.

- Flood Risk Assessment is proposed to be scoped out, as flood mapping confirms that flooding is mostly confined to watercourse channels and is not widespread across the Site. Suitable 50 m watercourse buffers are proposed to be implemented as part of embedded mitigation, and any infrastructure within the buffered areas will have a watercourse crossing which will be designed to accommodate potential flood risk and appropriately convey flows.

## 12.6. Indicative Mitigation and Enhancement

### 12.6.1. Mitigation

As outlined in **Section 8**, the proposed Development will undergo design iterations and evolution in response to constraints identified as part of the baseline studies and field studies to avoid and/or minimise potential effects on receptors where possible (embedded mitigation).

It is expected that the following embedded mitigation and standard good-practice measures will be included in the design of the proposed Development:

- a buffer of up to 50 m will be applied to watercourses;
- site-specific peat probing will be used to identify areas of potential deep peat and these will be avoided where practicable;
- site-specific peat condition mapping will identify areas of near natural peatland (where present) and these will be avoided where practicable;
- a site-specific PLHRA will be prepared and areas of potential increased peat slide risk will be avoided;
- if required, an outline PMP will be prepared to show how the integrity of peat will be safeguarded; and
- impacts on Private Water Supplies and areas of GWDTE will be avoided.

There is much best practice guidance available to assist developers in minimising the risks associated with windfarm construction and operation, and this will be used to develop site-specific mitigation measures. Measures will be proposed to control and mitigate, for example, pollution risk (from anthropogenic and geogenic sources), flood risk, watercourse crossings, impacts on surface and groundwater flow paths, and management of peat soils.

Good practice measures will be applied in relation to pollution risk, and management of surface run-off rates and volumes. This will form part of the final CEMP to be implemented for the proposed Development.

### 12.6.2. Enhancement

As discussed in **Section 10.6.2**, an Outline Biodiversity Enhancement and Management Plan (OBEMP) will be prepared, setting out enhancement proposals which are likely to include measures to restore and/or maintain ongoing restoration and monitoring of peatland habitats onsite. The hydrology and geology specialists will work collaboratively with the ecology team

to develop a suitable OBEMP. The strategy will take account of the current HMP for the existing windfarm and incorporate measures currently in place. The potential for the proposed Development to affect aspects or areas of the current HMP and previously restored areas of peatland will be considered, and additional enhancements will be identified as required.

## 12.7. References

CIRIA. (2023.) Environmental Good Practice on Site C811.

CIRIA. (2015.) The SuDS Manual C753.

East Ayrshire Council. (2024.) East Ayrshire Council Local Development Plan 2. Available at: <https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2-information.aspx>

East Renfrewshire Council. (2022.) East Renfrewshire Council Local Development Plan 2 (2022). Available at: <https://www.eastrenfrewshire.gov.uk/article/1173/Local-Development-Plan-2>

European Union. (2000.) Water Framework Directive. Available at: <https://eur-lex.europa.eu/eli/dir/2000/60/oj>

Forestry Commission. (2006.) Guidelines for the Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads on Peat.

Forestry Commission and SNH. (2010.) Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads on Peat with particular reference to Wind Farm Developments in Scotland.

Institute of Civil Engineers. (2001.) Managing Geotechnical Risk: Improving Productivity in UK Building and Construction.

NatureScot (2026). Advising on Peatland Habitats and Carbon-Rich Soils in Development Management. Available at: <https://www.nature.scot/doc/advising-peatland-habitats-and-carbon-rich-soils-development-management#montane-bogs-potentially-priority-peatland-which-should-be-avoided>

NatureScot, Peatland Action. (2022.) Technical Compendium: Good Practice for Peatland Restoration Techniques. Available at: <https://www.nature.scot/doc/peatland-action-technical-compendium>

NetRegs. (Various.) Guidance for Pollution Prevention. Available at: [https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/#:~:text=Guidance%20for%20Pollution%20Prevention%22%20\(GPPs\)%20are%20the%20documents](https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/#:~:text=Guidance%20for%20Pollution%20Prevention%22%20(GPPs)%20are%20the%20documents)

Scottish Executive. (2005.) Scottish Roads Network Landslides Study Summary Report.

Scottish Government. (2003.) A Water Environment and Water Services (Scotland) Act 2003. Available at: <https://www.legislation.gov.uk/asp/2003/3/contents>

Scottish Government. (2017.) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments.

Scottish Government. (2017.) The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/282/contents/made>

Scottish Government, Scottish Natural Heritage, SEPA. (2017.) Peatland Survey. Guidance on Developments on Peatland. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot%3Adocument/Guidance%2Bon%2Bdevelopments%2Bon%2Bpeatland%2B-%2Bpeatland%2Bsurvey%2B-%2B2017.pdf>

Scottish Government. (2018.) The Environmental Authorisations (Scotland) Regulations 2018. Available at: <https://www.legislation.gov.uk/ssi/2018/219/contents/made>

Scottish Government. (2023.) National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

Scottish Renewables and SEPA. (2012.) Developments on Peatland: Developments on Peatland - Guidance on the assessment of peat volumes, re-use of excavated peat and the minimisation of waste. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2014/07/assessment-of-peat-volumes-reuse-of-excavated-peat-and-minimisation-of-waste-guidance/documents/guidance-on-the-assessment-of-peat-volumes-reuse-of-excavated-peat-and-the-minimisation-of-waste/govscot%3Adocument/Guidance%2Bon%2Bthe%2Bassessment%2Bof%2Bpeat%2Bvolumes%252C%2Breuse%2Bof%2Bexcavated%2Bpeat%252C%2Band%2Bthe%2Bminimisation%2Bof%2Bwaste.pdf>

Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AEECoW. (2024.) Good practice during wind farm construction. Available at: <https://www.nature.scot/doc/good-practice-during-wind-farm-construction>

SEPA. (2017.) Developments on Peat and Off-Site Uses of Waste Peat. Available at: <https://www.sepa.org.uk/media/287064/wst-g-052-developments-on-peat-and-off-site-uses-of-waste-peat.pdf>

SEPA. (2024.) Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/alyh0blq/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx>

SEPA. (2024.) Guidance on Assessing the Impacts of Development on Groundwater Abstractions. Available at: <https://www.sepa.org.uk/media/mfzpnjwb/guidance-on-assessing-the-impacts-of-developments-on-groundwater-abstractions.docx>

South Lanarkshire Council. (2021.) South Lanarkshire Council Local Development Plan (2021). Available at: [https://www.southlanarkshire.gov.uk/info/200145/planning\\_and\\_building\\_standards/39/development\\_plans/2](https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2)

## 12.8. Scoping Questions to Consultees

- **Question 17:** Do the consultees agree that the impacts described in **Section 12.5.3** can be scoped out?
- **Question 18:** It is not proposed to prepare a detailed drainage design. Rather measures that would be used to control the rate and quality of runoff will be specified in the EIA Report, if acceptable?
- **Question 19:** Site investigations, including detailed peat depth and condition survey and private water survey, will be undertaken as part of the proposed assessment. Should any additional investigation be considered when assessing baseline conditions?
- **Question 20:** Please advise if there is any specific information or methodology that should be used / followed as part of the PWS risk assessment.
- **Question 21:** Do consultees agree that the scope of the proposed assessment, including proposed field surveys, assessment methodology and study areas, is appropriate?

## 13. Cultural Heritage

### 13.1. Introduction

The ‘cultural heritage’ of an area comprises archaeological sites, historic buildings, Inventoried Gardens and Designed Landscapes (GDLs), Inventoried Battlefields and other historic environment features. Alongside its inherent values, the ‘setting’ of an asset may also contribute to its cultural heritage significance.

The cultural heritage impact assessment will: identify cultural heritage assets that may be subject to significant effects, both within the limits of the proposed Development and within a surrounding radius of 10 km (the ‘Study Area’); establish the potential for currently unknown archaeological assets to survive buried within the Site; assess the predicted effects on these assets; and propose a programme of mitigation where appropriate. It will consider direct effects (such as physical disturbance or effects through setting change), indirect effects (such as might result from dewatering), and cumulative effects (where assets affected by the proposed Development are also likely to be affected by other unrelated development proposals).

The proposed approach to the assessment of effects on cultural heritage is set out within this Scoping Report Section.

### 13.2. Legislation and Guidance

The assessment will be undertaken in accordance with the following principal relevant documents:

#### 13.2.1. Legislation

- The Ancient Monuments and Archaeological Areas Act 1979 (UK Government, 1979);
- The Planning (Listed Buildings and Conservations Areas (Scotland) Act 1997 (UK Government, 1997);
- The Historic Environment (Amendment) (Scotland) Act 2014 (Scottish Government, 2014); and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations (Scottish Government, 2017).

#### 13.2.2. Planning Policy

The Scottish Government, Historic Environment Scotland and the relevant local authorities have issued a number of statements of policy with respect to dealing with the historic environment in the planning system:

- National Planning Framework 4 (Scottish Government, 2023);
- Historic Environment Policy for Scotland (HEPS) (HES, 2019a);
- East Renfrewshire Local Development Plan 2 (2022) (East Renfrewshire Council, 2022);

- South Lanarkshire Local Development Plan 2 (2021) (South Lanarkshire Council, 2021); and
- East Ayrshire Local Development Plan 2 (2024) (East Ayrshire Council, 2024).

### 13.2.3. Guidelines and Technical Standards

Relevant guidance and technical standard documents comprise:

- Historic Environment Scotland Guidance on Managing Change in the Historic Environment: Setting (HES, 2020);
- Our Past, Our Future: The Strategy for Scotland's Historic Environment (HES, 2023);
- A Guide to Climate Change Impact: On Scotland's Historic Environment (HES, 2019c);
- Scottish National Heritage (now NatureScot) and Historic Environment Scotland Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland (NatureScot and HES 2018); and
- Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Desk Based Assessment (CIfA, 2014, updated 2020).

## 13.3. Existing Conditions

### 13.3.1. Overview

A high-level review of the baseline conditions has been undertaken with reference to the available EIA Report documents for the original Whitelee Windfarm and subsequent extension projects, early stage feasibility workstreams, and the Scoping layout described in **Section 3** of this Scoping Report. This is subject to change according to subsequent design iterations.

### 13.3.2. Assets within the Site Boundary

There is a single Scheduled Monument within the Site boundary – Dunwan Hill, fort (SM12882). This asset comprises the remains of a prehistoric hillfort of Late Bronze Age or Iron Age date. The asset occupies the prominent hilltop of Dunwan Hill, in the north west portion of the Site and overlooks Dunwan Reservoir to the north east. The nearest operational turbine is approximately 280 m to the south west of the Scheduled Monument. The nearest proposed turbine would decrease this distance to 115 m to the west.

There is a single Listed Building within the Site boundary – Category B listed Lochgoin Monument (LB12509), which comprises a memorial obelisk to John Howie, author of *The Scots Worthies*. The Listed Building is now a prominent monument to the Covenanters and includes the names of other noteworthy Covenanters inscribed on the rocks at the bottom of the monument. The monument is within the north west portion of the Site. The nearest operational turbine is approximately 660 m to the north west of the monument. The nearest proposed turbine would be 860 m to the north west of the monument.

There are 204 recorded non-designated heritage assets listed on Canmore within the Site boundary. Most of these were identified during three walkover surveys conducted in 2006 (West of Scotland Archaeological Service (WoSAS) ID 3709), 2007 (WoSAS ID 3998), and

2008 (WoSAS ID 4130), related to the original Whitelee Windfarm. These non-designated assets are largely concentrated to the northern portions of the Site boundary and comprise a wide variety of archaeological features which range in date from the prehistoric to the modern period. The presence of early field systems and enclosures, medieval rig and furrow, post-medieval farmsteads, stone dykes, and clearance cairns suggest the area was continually utilised for agricultural practices throughout these periods. Extensive quarrying took place during the post-medieval and modern periods, clustered in the hills in the north western portion of the Site. Other activity within the area is likely related to early and continued settlement from the prehistoric period, with assets comprising series of banks, ditches, and earthworks. These assets can be seen on **Figure 13.2**.

### 13.3.3. Assets outwith the Site Boundary

Within 10 km of the proposed Development turbines there are a total of 695 designated heritage assets; comprising 645 Listed Buildings, 22 Scheduled Monuments, six Inventory Gardens and Designed Landscapes, two Inventory Battlefields and 20 Conservation Areas. Of the Listed Buildings, there are 29 Category A Listed Buildings.

The designated heritage assets that are considered for assessment have been defined in **Section 13.5.2** and included in **Technical Appendix 13.1: Cultural Heritage Appraisal**.

## 13.4. Proposed Survey and Assessment Methodologies

### 13.4.1. Scope

#### Assets within the Site

Designated and non-designated assets within the Site will be assessed to determine any direct (physical and setting) and indirect impacts. Should WoSAS identify any non-designated assets that they consider to be of national/regional significance, and which they consider derive significance from their settings, these should be made known to the Applicant via consultation. Nationally significant designated assets within the Site will be subject to setting assessment as below.

#### Assets outwith the Site

All nationally significant designated assets (**Technical Appendix 13.1**) within the aforementioned 10 km Study Area will be subject to setting assessment in order to determine any impacts.

#### Consultation

Based on the results of the baseline study, constraint mapping will be generated using GIS software to show mapped heritage assets in relation to a Zone of Theoretical Visibility (ZTV). This will filter out those assets that do not require further assessment. It will also be used to identify and agree on the most potentially sensitive assets; these may then require computer-generated visualisations to be produced as part of their assessment, in liaison with consultees.

Consultation will be undertaken with HES in relation to the method of assessment employed in assessing those heritage assets within their remit; these include: Scheduled Monuments, Category A Listed Buildings, GDLs, and Inventoried Battlefields. WoSAS will be consulted in

relation to the local historic environment record (HER) which includes non-designated heritage assets and designated heritage assets of regional significance, and any non-designated assets they consider to be of higher significance.

### Field Surveys

A targeted Site inspection will be carried out in relation to all recorded assets within the Site boundary of the proposed Development; the aim of this would be to establish the condition of any recorded assets and identify the potential for any additional presently unrecorded assets.

### 13.4.2. Assessment and Types of Impact

The proposed Development has the potential to result in impacts upon the significance of heritage assets where it changes their baseline condition and/or their setting.

In accordance with the EIA Regulations, the assessment will identify any development effects as either direct or indirect, adverse or beneficial, and short-term, long-term or permanent.

Assessment will be undertaken separately for direct impact and indirect impact. Direct impacts are those which would change the heritage significance of an asset through physical alteration or changes to their setting; indirect impacts are those which would affect the heritage significance of an asset by causing change to its fabric indirectly, such as dewatering.

Direct impacts upon the significance of heritage assets will consider the level of their heritage significance (where known) and the magnitude (extent) of the identified impacts.

Where direct impacts on an asset's setting are concerned, the sensitivity of an asset's setting to change will also be considered and will be carried out following the three-stage approach outlined in HES's Managing Change in the Historic Environment: Setting (2020). The three-step approach is as follows:

- Stage 1: identify the historic assets that might be affected by the proposed Development;
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated and experienced; and
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

### 13.4.3. Phased Approach Methodology

As noted in **Section 3.4** of this report, the proposed Development will be constructed in a phased approach. This will be appropriately considered in assessing construction phase effects and identifying suitable mitigation measures, where applicable.

With regards to the February 2024 guidance from NatureScot (NatureScot, 2024) and HES's response to the Hare Hill Windfarm Repowering (ECU00004967) Scoping Report<sup>3</sup>, the

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<sup>3</sup> The NatureScot Scoping response to the ECU for the Hare Hill Windfarm project is available on the ECU website at: <https://www.energyconsents.scot/ApplicationDetails.aspx?cr=ECU00004967>

potential for operational impacts of the proposed Development would be assessed against two different baseline scenarios.

A ‘comparative baseline’ would assume the presence of the existing windfarm (including turbines and infrastructure) as a baseline feature. A theoretical ‘restored baseline’ would assume the decommissioning of the existing windfarm and site restoration, assuming that the proposed Development will be added to the Site without considering the presence of the existing turbines.

#### 13.4.4. Zone of Theoretical Visibility

The settings assessment will be assisted by a ZTV calculation, presented in **Figure 13.1**. A ZTV calculation maps the predicted degree of visibility of a proposed development from all points within a proportionate, defined study area around the site, as would be seen from an average observer’s eye level (two metres above ground level). The ZTV model presented in **Figure 13.1** based upon the maximum level of theoretical visibility, i.e., the maximum height of the turbine blade tips.

#### 13.4.5. Cultural Heritage Significance

The categories of cultural heritage significance to be referred to are presented in **Table 13.1**, which will act as an aid to consistency in the exercise of professional judgement and provide a degree of transparency for others in evaluating the conclusions drawn.

The significance categories consider factors such as: designation, status and grading. For non-designated assets, consideration will be given to their inherent heritage interests, intrinsic, contextual, and associative characteristics. In relation to these assets, the assessment will focus on an evaluation of the assets’ inherent capability to contribute to our understanding of the past; the character of their structural, decorative and field characteristics as informed by the HER and Canmore records and / or site visit observations; the contribution of an asset to their class of monument, or the diminution of that class should an asset be lost; and how a site relates to people, practices, events, and/or historical or social movements. Assessments of the cultural significance of specific assets, where recorded within the HER, will be considered where appropriate.

**Table 13.1 Cultural Heritage Significance**

| HERITAGE VALUE | EXPLANATION                                                                                                                                                                                                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Highest        | Sites of international importance, including: <ul style="list-style-type: none"> <li>- World Heritage Sites</li> </ul>                                                                                                                                                                                                                        |
| High           | Sites of national importance, including: <ul style="list-style-type: none"> <li>- Scheduled Monuments;</li> <li>- Category A Listed Buildings;</li> <li>- Gardens and Designed Landscapes included on the national inventory;</li> <li>- Designated Battlefields; and</li> <li>- Non-designated assets of equivalent significance.</li> </ul> |
| Medium         | Sites of regional/local importance, including: <ul style="list-style-type: none"> <li>- Category B and C Listed Buildings;</li> <li>- Some Conservation Areas;</li> <li>- Non-designated assets of equivalent significance.</li> </ul>                                                                                                        |

| HERITAGE VALUE | EXPLANATION                                                                                    |
|----------------|------------------------------------------------------------------------------------------------|
| Low            | Sites of minor importance or with little of the asset remaining to justify a higher importance |
| None           | Sites that are of no heritage significance                                                     |
| Unknown        | Further information is required to assess the significance of these assets                     |

The factors contributing to cultural significance extend beyond their designation status and are subject to more individual nuance based on the asset's type, function, and preservation. The assessment takes into account the factors contributing to an asset's cultural significance as well as the sensitivity of the heritage asset to change. Each element of an asset's setting may make a positive, neutral, or negative contribution to the cultural significance of an asset.

An asset's sensitivity to change refers to the capacity of the asset's setting to retain its ability to contribute to the understanding, appreciation, and experience of the asset and its cultural significance despite the introduction of changes caused by the proposed Development to the asset's baseline environment.

The contribution of the asset's setting to its cultural significance, and sensitivity thereof, varies based on the type of asset, its preservation, and its current setting. As part of the assessment, the contribution of the asset's setting and relative sensitivity to change will be presented with relevant justification, utilising the results of desk-based research, a field visit, and professional judgement.

Due to the unique qualities of each heritage asset, this will be determined on a case-by-case basis for each receptor, in line with HES's Managing Change in the Historic Environment: Setting guidance and the EIA Handbook as per the above methodology.

### 13.4.6. Magnitude of Impact

Determining the magnitude of any likely impacts includes consideration of the nature of the activities proposed during the construction and operational phases of the proposed Development.

Changes could potentially include ground disturbance and changes to setting. The latter might include visual change, as well as noise, vibration, smell, dust, traffic movements etc. Effects may be beneficial or adverse, and may be short-term, long-term or permanent.

Where adverse effects on cultural heritage assets are possible, the magnitude of impact can be reduced through measures to prevent, reduce and/or, where possible, offset these effects. Refer to **Section 13.6** for information on mitigation measures that may be considered suitable, if required.

Considering all embedded mitigation measures, the magnitude of any impacts will be assessed using professional judgment, with reference to the criteria set out in **Table 13.2**.

**Table 13.2 Cultural Heritage Magnitude of Impact**

| MAGNITUDE OF IMPACT | EXPLANATORY CRITERIA                                                                                                                                                                                                                                                                           |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High Beneficial     | The proposed Development would considerably enhance the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.                                                                                                                      |
| Medium Beneficial   | The proposed Development would enhance, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.                                                                                                 |
| Low Beneficial      | The proposed Development would enhance, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.                                                                                                               |
| Very Low Beneficial | The proposed Development would enhance, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.                                                                                                          |
| Neutral/None        | The proposed Development would not affect the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.                                                                                                                                |
| Very Low Adverse    | The proposed Development would erode, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would not be considered to affect the integrity of the asset's setting.      |
| Low Adverse         | The proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would rarely be considered to affect the integrity of the asset's setting.        |
| Medium Adverse      | The proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect might be considered to affect the integrity of the asset's setting. |
| High Adverse        | The proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would probably be considered to affect the integrity of the asset's setting.             |

**Table 13.3** provides a matrix that relates the cultural heritage significance of the asset to the magnitude of impact on its significance, to produce an overall anticipated level of effect.

**Table 13.3 Significance of Effect**

| MAGNITUDE OF IMPACT | SENSITIVITY OF ASSET |             |             |             |
|---------------------|----------------------|-------------|-------------|-------------|
|                     | HIGHEST              | HIGH        | MEDIUM      | LOW         |
| High Beneficial     | Major                | Major       | Moderate    | Minor       |
| Medium Beneficial   | Major                | Moderate    | Minor       | Very Minor  |
| Low Beneficial      | Moderate             | Minor       | Very Minor  | Very Minor  |
| Very Low Beneficial | Minor                | Very Minor  | Negligible  | Negligible  |
| Neutral/None        | Neutral/Nil          | Neutral/Nil | Neutral/Nil | Neutral/Nil |
| Very Low Adverse    | Minor                | Very Minor  | Negligible  | Negligible  |
| Low Adverse         | Moderate             | Minor       | Very Minor  | Very Minor  |
| Medium Adverse      | Major                | Moderate    | Minor       | Very Minor  |
| High Adverse        | Major                | Major       | Moderate    | Minor       |

#### 13.4.7. Residual Effects

Residual effects are those that remain even after the implementation of suitable mitigation measures. Residual effects will be identified, and the level of those residual effects defined with reference to **Tables 13.2** and **13.3**.

#### 13.4.8. Significance and Integrity

##### Significance

Once the anticipated effects of the proposed Development upon cultural heritage assets are defined, professional judgment will be used to determine whether those effects would be either 'Significant' or 'Not Significant' for the purposes of EIA. As part of this determination process, regard will be given to any relevant guidance.

With reference to the matrix presented in **Table 13.3**.

- Any effects identified as ‘Major’ would most probably be considered ‘Significant’;
- Any effects identified as ‘Moderate’ might also be considered ‘Significant’, though professional judgment may determine otherwise on the basis of the associated site-/asset-specific detail; and
- Any effects identified as ‘Minor’ or less are unlikely to be considered ‘Significant’, though again, professional judgment will be exercised.

A clear statement will be made in relation to all affected assets as to whether the identified effects upon them are ‘Significant’ or ‘Not Significant’ for purposes of EIA.

### Integrity

NPF4 indicates that development proposals affecting Scheduled Monuments will only be supported where; *“significant adverse impacts on the integrity of the setting of a scheduled monument are avoided.”*

A significant effect in EIA terms does not necessarily equate to a significant impact upon the integrity of setting. Where significant effects are found, a detailed assessment of adverse impacts upon the integrity of the setting is made. Changes to factors of setting that contribute to cultural significance, such that the understanding, appreciation and experience of an asset are not adequately retained will have a significant adverse impact on the integrity of its setting (defined and agreed in the Hill of Fare Wind Farm Cultural Heritage Statement of Agreed Matters (June 2025)<sup>4</sup>). This is most likely to occur where the sensitivity of setting is deemed to be highly sensitive to change.

### 13.4.9. Cumulative Effects

A cumulative effect is considered to occur when there is a combination of:

- An impact on an asset or group of assets due to changes resulting from the development subject of assessment; and
- An impact on the same asset or group of assets resulting from other development (consented or proposed) within the surrounding landscape.

Consideration of other developments will be limited to:

- Windfarm planning applications that have been submitted and have a decision pending
- Windfarm planning applications that have been granted permission but not yet constructed; and
- Operational windfarms will be dealt with as baseline considerations for setting impacts.

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<sup>4</sup> Scottish Government Planning and Environmental Appeals Division (DPEA) Case Ref. WIN 110-4 (Hill of Fare Wind Farm). Statement of Agreement between Renewable Energy Systems Ltd and Historic Environment Scotland in respect of Cultural Heritage Matters. <https://www.dpea.scotland.gov.uk/CaseDetails.aspx?ID=125889>

Any effect resulting from operational windfarms will be considered as part of the baseline impact assessment. Cumulative impact will be considered in two stages:

- Assessment of the combined impact of the developments, including the proposed Development; and
- Assessment of the extent to which the proposed Development contributes to the combined impact.

## 13.5. Potential Significant Effects

### 13.5.1. Potential Sources of Impact within the Site Boundary

As stated, there are a large number of individually recorded heritage assets within the Site boundary. Whilst positioned outside of the current placement of the turbines, these known cultural heritage assets may be susceptible to a significant level of direct or indirect impact as a result of the construction of the associated infrastructure (e.g., access tracks) and the dismantling of the current operational Whitelee Windfarm turbines, which will be a phased approach. In addition, any design changes for the placement of the turbines may incur potential direct impacts on the heritage assets. Potential mitigation is discussed in **Section 13.6**.

With the current layout, T28 is within 120 m of a scheduled monument, Dunwan Hill, fort (SM12882), which is 150 m closer to this asset than the nearest existing turbine. The proximity of the turbine has the potential for setting impacts, which could result in a significant effect. This potential effect will be further assessed and carefully considered in ongoing design iteration work, seeking to reduce the magnitude of impact, for example by increasing the distance between the asset and the nearest proposed turbine.

There is the potential for direct impact on any unrecorded cultural heritage assets within the Site as a result of the construction and dismantling process. However, it must be noted that the presence of commercial forestry within portions of the Site and the construction of the original Whitelee Windfarm has likely removed some, if not all, of these assets in the affected areas. Relevant mitigation measures will be embedded within the design of the proposed Development as design progresses.

If there are any further ground-breaking works undertaken during operation of the proposed Development (e.g., track widening), then there is the potential for further impact on recorded or unrecorded heritage assets. If this is the case, then further mitigation methods, such as a watching brief or design changes to proposed infrastructure, may be required.

### 13.5.2. Assets outwith the Site Boundary

Settings impacts are most likely to occur as part of the construction and operational phases of development - these will be considered as part of the EIA.

To provide a preliminary list of assets that will be subject to a detailed assessment, all assets that were considered for assessment have been subject to an appraisal found in **Technical Appendix 13.1**. This Technical Appendix has aimed to create a proportionate scope for the assessment and will be an evolving document throughout the EIA process. Assets that fall out of the proposed Study Area, the ZTV, and that do not have a third viewpoint that contributes to the significance of the monument, have been scoped out of assessment. Assets that have

been scoped in may be scoped out and vice versa, dependent on the final layout as a result of consultee comments.

Fifteen designated cultural heritage assets within 10 km of the proposed turbine locations will be subject to detailed settings assessment within the EIA, as there is the potential for the proposed Development to have a significant effect upon them.

Scheduled Monuments, Category A Listed Buildings, GDLs within 10 km and Conservation Areas and Category B Listed Buildings within 5 km, along with the ZTV indicating their visibility of the proposed turbines, are depicted on **Figures 13.a-d**.

The assets scoped in for further assessment within the EIA process, after the initial heritage appraisal, are as follows:

- Dunwan Hill, fort (SM12882)
- East Revoch, cairn 420m N of and cup-marked stone 485m N of (SM12804)
- North Kirktonmoor, cairn 330m SW of (SM5645)
- Polnoon Castle (SM5259)
- Deils Wood, cairn 350m E of Bonnyton (SM12805)
- Bannerbank, hut circle 965m WNW of (SM12815)
- Moyne, cairn 930m E of (SM12856)
- Duncarnock, fort (SM4339)
- Loudoun Castle (LB12536)
- St Sophia's Roman Catholic Church (LB32010)
- Cessnock Castle (LB12562)
- Lanfine (GDL00252)
- Loudoun Castle (GDL00269)
- Lochgoin Monument (LB12509)
- Kingswell (LB12508)

### 13.5.3. Proposed Visualisations

**Table 13.4** lists the proposed visualisations to be prepared during the EIA stage.

**Table 13.4 Proposed Cultural Heritage Visualisations**

| ASSET                       | VISUALISATION TYPE | PROPOSED LOCATION<br>(EASTING, NORTHING) |
|-----------------------------|--------------------|------------------------------------------|
| Polnoon Castle (SM5259)     | Wireline           | 258499, 651312                           |
| Dunwan Hill, fort (SM12882) | Photomontage       | 254676, 648940                           |

| ASSET                                        | VISUALISATION TYPE | PROPOSED LOCATION<br>(EASTING, NORTHING) |
|----------------------------------------------|--------------------|------------------------------------------|
| East Revoch, cairn (SM12804)                 | Wireline           | 256709, 650748                           |
| North Kirktonmoor, cairn (SM5645)            | Wireline           | 255400, 651400                           |
| Deils Wood, cairn (SM12805)                  | Photomontage       | 255759.3, 653577.7                       |
| Bannerbank, hut circle 965m WNW of (SM12815) | Photomontage       | 248695.0, 653053.0                       |
| Moyne, cairn 930m E of (SM12856)             | Photomontage       | 247982.3, 653244.5                       |
| Duncarnock, fort (SM4339)                    | Photomontage       | 250178, 655915                           |
| Loudoun Castle (LB12536)                     | Photomontage       | 250653, 637774                           |
| St Sophia's Roman Catholic Church (LB32010)  | Site Photography   | N/A                                      |
| Cessnock Castle (LB12562)                    | Site Photography   | N/A                                      |
| Loudoun Castle (GDL00269)                    | Site Photography   | N/A                                      |
| Lochgoyne Monument (LB12509)                 | Site Photography   | N/A                                      |
| Lanfine (GDL00252)                           | Photomontage       | 254909, 636289                           |
| Kingswell (LB12508)                          | Photomontage       | 250041, 647753                           |

#### 13.5.4. Effects Scoped Out

On the basis of the work undertaken to date, the professional judgement of the cultural heritage team, and experience of other comparable projects, it is considered that indirect and cumulative impacts of the proposed Development on Category C Listed Buildings can be scoped out of the EIA in relation to cultural heritage. As per Best Practice Guidance within EIA Handbook (NatureScot, 2019), Category C Listed Buildings are of local rather than national or regional importance, unless in the opinion of an assessor the designation should be higher.

Category B Listed Buildings within 10 km of the proposed turbines have been scoped out of any further assessment, with the exception of those wherein specific views are considered to

contribute to their significance and/or to the ability to understand, appreciate and experience them. Those scoped in are Kingswell (LB12508) and Lochgoin Monument (LB12509).

The significance of a Conservation Area derives from its local heritage and the assets that it contains, rather than the wider landscape. As such, assessment of effects on Conservation Areas has been scoped out, with the justification that, even if visibility between the proposed Development and the Conservation Areas may occur, the Conservation Areas' significance would not be diminished.

It is also considered that any assets that fall outwith the ZTV (and where those assets' approaches also fall outwith the ZTV) can be scoped out of the EIA in relation to cultural heritage.

## 13.6. Indicative Mitigation and Enhancement

### 13.6.1. Mitigation

There are multiple methods of mitigation that may be employed to reduce the potential for impact as a result of the proposed Development.

Suitable measures for minimising impacts through ground disturbance might include:

- The micro-siting of proposed Development infrastructure away from sensitive locations;
- The fencing off or marking out of heritage assets or features in proximity to construction activity in order to avoid disturbance where possible;
- A programme of archaeological work where required, such as an archaeological watching brief during construction activities in or in proximity to areas of archaeological sensitivity, or excavation and recording where impact is unavoidable; and/or
- A working protocol to be implemented should unrecorded archaeological features be discovered.

Potential setting impacts will be considered as part of the design iteration process for the proposed Development, with the layout and design developed through careful consultation with the relevant statutory consultees.

### 13.6.2. Enhancement

In addition to the embedded mitigation noted above, the assessment will consider opportunities for enhancement where appropriate. A full enhancement proposal will be included as part of the EIA.

## 13.7. References

Chartered Institute for Archaeologists. (2014, updated 2020.) Standard and Guidance for Historic Environment Desk Based Assessment.

East Ayrshire Council. (2024.) Local Development Plan 2.

East Renfrewshire Council. (2022.) Local Development Plan 2.

Historic Environment Scotland. (Undated.) Pastmap. Available at: <https://pastmap.org.uk/> [Accessed September 2024]

- Historic Environment Scotland. (2016a.) Scotland's Listed Buildings 2016.
- Historic Environment Scotland. (2016b.) Scotland's Scheduled Monuments 2016.
- Historic Environment Scotland. (2019a.) Historic Environment Policy for Scotland May 2019.
- Historic Environment Scotland. (2019b.) Designation Policy and Selection Criteria.
- Historic Environment Scotland. (2019c.) A Guide to Climate Change Impact: On Scotland's Historic Environment.
- Historic Environment Scotland. (2020.) Managing Change in the Historic Environment.
- Historic Environment Scotland. (2023.) Our Past, Our Future: The Strategy for Scotland's Historic Environment.
- NatureScot. (2024.) General pre-application and scoping advice for onshore wind farms.
- NatureScot and HES. (2019.) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland.
- Scottish Government. (2014.) The Historic Environment (Amendment) (Scotland) Act 2014. Available at: <https://www.legislation.gov.uk/asp/2014/19/contents>
- Scottish Government. (2017.) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents>
- Scottish Government. (2023.) National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>
- Scottish National Heritage and Historic Environment Scotland. (2018.) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland.
- South Lanarkshire Council. (2021.) Local Development Plan 2.
- UK Government. (1979.) Ancient Monuments and Archaeological Areas Act 1979. Available at: <https://www.legislation.gov.uk/ukpga/1979/46>
- UK Government. (1997.) The Planning (Listed Buildings and Conservations Areas (Scotland) Act 1997. Available at: <https://www.legislation.gov.uk/ukpga/1997/9/contents>
- West of Scotland Archaeological Service. (2020). Online search resources. Available at: <https://www.wosas.net/search.php> [Accessed September 2024]

## 13.8. Scoping Questions to Consultees

- **Question 22:** Do consultees agree with the proposed scope of the assessment, including the proposed Study Areas?
- **Question 23:** Do consultees agree with the proposed assessment methodology?
- **Question 24:** Are consultees satisfied with the mitigation measures proposed?

- **Question 25:** Do consultees have any feedback or comments at this stage on the outline enhancement proposals?
- **Question 26:** Are consultees satisfied with the locations and types of visualisations proposed?

## 14. Traffic and Transport

### 14.1. Introduction

This Section of the Scoping Report outlines the proposed method to assess the potential significant effects associated with access, traffic and transport during the construction and operational phases of the proposed Development. These are described in more detail below.

### 14.2. Legislation and Guidance

The method will follow the guidance in the Institute of Environmental Management and Assessment (IEMA) (now Institute of Sustainability and Environmental Professionals (ISEP)) Guidelines: Environmental Assessment of Traffic and Movement, July 2023. The method will involve:

- Establishing the environmental baseline;
- Identifying potential sources of impact;
- Quantifying impacts;
- Assessing effects;
- Identifying mitigation;
- Assessing cumulative impacts; and
- Identifying residual impacts.

### 14.3. Existing Conditions

The baseline for the transport network around the proposed Development will be established via a combination of site visits, collation of existing data and collection of new data. The study area for assessment will comprise the public road network likely to be used by traffic generated by the proposed Development. The extent of the study area will be determined through the assessment, but it is likely to comprise the B764, the A77 and the M77.

The existing Whitelee Windfarm is accessed from the B764 within ERC's area (the border with EAC is around 50 m westwards along the B764) and from Ardochrig Road in SLC's area. The EIA Reports for the Whitelee Windfarm Extension stated that "*SLC indicated that they didn't want the route to Ardochrig to be used again for any further major developments*".

The EIA Reports for the operational Whitelee Windfarm and Extensions stated that no Heavy Goods Vehicles (HGVs) nor any Abnormal Indivisible Load Vehicles (AILVs) would travel along the B764 through Eaglesham. It is envisaged that the same restrictions (on the use of the B764 through Eaglesham and of Ardochrig Road) would apply to the proposed Development, applicable both to decommissioning/removal of the operational turbines, and delivery of components and materials for construction of the repower turbines and associated infrastructure.

### 14.3.1. Site Visit

The transport network around the proposed Development will be visited by members of the project team to record their nature, noting characteristics such as their configuration, presence of footways, speed limits, any restrictions on the passage of vehicles, and to identify any sensitive receptors. The IEMA Guidelines identify such receptors as:

- People At Home;
- People At Work;
- Sensitive And/Or Vulnerable Groups (Including Young Age, Older Age, Income, Health Status, Social Disadvantage And Access And Geographic Factors);
- Locations With Concentrations Of Vulnerable Users (E.G. Hospitals, Places Of Worship, Schools);
- Retail Areas;
- Recreational Areas;
- Tourist Attractions;
- Collision Clusters And Routes With Road Safety Concerns; And
- Junctions And Highway Links At (Or Over) Capacity.

### 14.3.2. Data Collation

Data on accidents on the roads within the study area will be collated from the Crashmap website. The roads authorities for the roads in the study area will be consulted to understand if there are any locations on the road network within the study area where there have been atypically-high accident rates and if there are any plans for remedial works or improvements at those locations.

Traffic data will be extracted from Transport Scotland's traffic survey database for the following locations:

- CTC01014 and CTC01015 on the M77 between junctions 6 and 5.
- JTC00153 on the A77 north of its junction with the B764.
- CTC01020 and CTC01021 on the M77 between junctions 6 and 7.
- JTC00241 on the A77 between its junction with the A719 Junction 6 of the M77.

Traffic data will be extracted from the database for the above locations for the weekday 0700 – 1900 period, as that is likely to be the period when traffic to and from the proposed Development would be generated.

Any potential changes to the baseline will be identified. Such changes may include development proposals (which may add traffic to the network or alter infrastructure) and these will be identified via a review of relevant planning applications and Local Development Plans.

### 14.3.3. Data Collection

Additional traffic data will likely need to be collected to inform the baseline. The data will be collected by Automatic Traffic Counter which will be installed continuously for a week outwith school holidays. It is currently envisaged that an Automatic Traffic Counter would be located on the B764 between the access to the proposed Development and its junction with the A77.

The section of the A77 within the study area has a shared foot and cycleway alongside the carriageway. A survey of non-motorised users would be carried out on this section and the section of the B764 between the access to the proposed development and the A77.

Again, baseline traffic data will be extracted from these surveys for the weekday 0700 – 1900 period. Additional locations may be identified following the site visit.

## 14.4. Proposed Survey and Assessment Methodologies

### 14.4.1. Potential Sources of Impact

The proposed Development would generate demand for transport during its construction and operation, and this demand would have the potential to impact on users of the transport network and potentially have an effect on those users. Transport demand would be generated during construction by staff traveling to and from the proposed Development and plant, components, materials and supplies being delivered to or removed from the proposed Development. This transport demand would lead to additional cars, vans, Light Goods Vehicles (LGVs) and HGVs on the road network.

The delivery of the turbine components during construction would require AILV movements as some of the vehicles carrying the components will have at least one dimension that does not comply with the maxima in The Road Vehicles (Construction and Use) Regulations 1986. A Route Access Survey report was prepared for the Applicant (Collett & Sons, 2024), which reviewed the feasibility of delivering the turbine components to the proposed Development.

The removal of the existing turbine components may require AILV movements if the components are to be removed intact. However, it is possible that the components would be dismantled onsite in which case the components may be able to be transported from the Site on a standard HGV. A Route Access Survey report will be prepared for the removal of the existing turbine components should they be removed by AILVs.

The Route Access Survey report considered routes for AILVs to the proposed Development from King George V Dock in Glasgow, Inchgreen Marine Park in Greenock, the Port of Ayr and Port of Grangemouth. The routes from these points would approach the proposed Development from the M77, A77 and B764. This report will be included in an Appendix to the EIA Report.

Transport demand during operation would likely be the same as the operational Whitelee Windfarm. That demand would be much lower than during construction, since during operation there would be only limited visits from maintenance or inspection vehicles. It is proposed, therefore, that the transport impacts of the proposed Development once it is fully operational are scoped out of the assessment.

#### 14.4.2. Quantification of Impacts

The Applicant and their engineering advisors will provide estimates of the typical daily construction-related vehicles that will be generated during each week or month of the construction programme. These estimates will reflect the activities that would take place during the various phases of the construction programme and the amount of materials and number of items of equipment that would need to be delivered to or removed from the proposed Development. The number of staff likely to be present during each week or month of the construction programme will be estimated based on the Applicant's experience of other similar developments, and the phasing plan for the proposed Development.

Professional judgment will be applied to estimate the routes taken by vehicles travelling to and from the proposed Development. It is likely, for example, that most LGVs and HGVs accessing the proposed Development from the B764 would route to and from the north via the M77 and have origins and destinations towards Glasgow. Vehicle routing estimates will, however, be reviewed further in consultation with the Applicant.

A 'central' growth factor from the National Road Traffic Forecasts (NRTF) dataset will be applied to the observed traffic flows to make them representative of traffic flows that could be expected during the year when construction of the proposed Development could be expected to commence.

The additional traffic expected to be generated by the proposed Development will then be compared to the baseline traffic flows and the percentage increase in all vehicles and in HGVs only will be calculated. These increases will then be reviewed against the IEMA Guidelines, which state:

*"Following the determination of a study area, it is recommended the competent traffic and movement expert applies two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment:*

*Rule 1 Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)*

*Rule 2 Include highway links of high sensitivity where traffic flows have increased by 10% or more."*

The baseline study work referred to in **Section 14.3** will have established which sections of road within the study area could be classified as being of "high sensitivity" and hence should be subject to the threshold in Rule 2. All others would be subject to the threshold in Rule 1.

Where the estimated increase in traffic arising from the proposed Development does not breach the relevant threshold for any section of road, the significance of any effects could be considered to be low and not significant in EIA terms. No further assessment work would be undertaken on such sections.

Where the estimated increase in traffic arising from the proposed Development breaches the relevant threshold for any section of road, assessment of the potential effects would be undertaken as described in the following section.

## 14.5. Potential Significant Effects

### 14.5.1. Potential Significant Effects during Construction

Where the appropriate threshold is breached for a section of road, the effects of the traffic estimated to be generated during the construction of the proposed Development will be considered on the issues noted below.

#### Severance

Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure and the separation of people from places and other people. The IEMA Guidelines state that *“Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively”* and *“caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.”*

#### Road Vehicle Driver and Passenger Delay

The IEMA Guidelines state that *“Traffic delays to non-development traffic can occur at several points on the network surrounding a development site.”* Regarding the significance of effects, the Guidelines state that *“These delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.”*

No detailed traffic modelling (which would quantify delays to drivers) is proposed given the predominately rural nature of the road network around the proposed Development and the likelihood, based on professional judgment, that there is substantial spare capacity on that network.

#### Non-Motorised User Delay

The IEMA Guidelines state that *“Pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site.”*

Regarding the significance of effects, the Guidelines state that *“Given the range of local factors and conditions that can influence pedestrian delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect.”*

#### Non-Motorised User Amenity

The IEMA Guidelines define this as *“the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.”* The IEMA Guidelines also suggest that *“A tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled”* and that *“Thresholds are expressed as a starting point for any assessment and typically have been derived from studies of major changes in traffic flow and therefore should*

*be used cautiously in any assessment. The assessment of amenity should pay full regard to specific local conditions."*

### **Fear and Intimidation of and by Road Users**

This considers the effects that moving vehicles have on people. It considers matters such as the volume of traffic, the proportion of heavy vehicles, the speed of vehicles and the proximity of traffic to people. The IEMA Guidelines set out a means to calculate a 'Degree of hazard score' based on the amount, composition and speed of traffic. This score is then used to identify a 'Level of fear and intimidation'; the degree of change in that level compared to the baseline is then used to categorise the magnitude of impact.

### **Road User and Pedestrian Safety**

The assessment of accidents relates to the potential for the traffic generated by a development to change accident rates on the road network. The IEMA Guidelines discuss a 'Safe System' approach but also state *"It is recommended that the traffic and movement expert engages with the relevant authorities to determine the best approach for determining the significance of road safety effects."*

As mentioned above, the roads authorities will be consulted to determine if there are any locations on any of the roads within the study area which have atypically high accident rates and, if so, what plans the road authority has to address those rates (as per their duties under Section 39 of the Road Traffic Act 1988).

### **Hazardous / Large Loads**

As mentioned above, the proposed Development will require some AILV movements to deliver some turbine components and a report on the feasibility of delivering those components will be included as an appendix to the EIA Report. There may also be AILV movements generated by the removal existing turbine components. Reports on the feasibility of removing or delivering these components will also be included.

The number of such movements will be determined, and their potential significance will be considered based on the extent of works, if any, required to accommodate the vehicles, their number and the sections of road that they will use. There are, however, established procedures in place to manage such movements and it is considered that a risk or catastrophe analysis as described in paragraph 3.50 of the IEMA Guidelines is not required.

### **Significance Criteria**

The application of Rule 2 in the IEMA Guidelines requires the identification of highway (or road) links of high sensitivity. It is proposed that sections of road will be identified as being of high sensitivity if they are subject to substantial use by sensitive groups (e.g. children, elderly or mobility impaired) or they are at sensitive locations (e.g. fronted by schools, hospitals or care homes). Pedestrians and cyclists will be considered receptors of medium sensitivity while vehicle drivers will be considered receptors of low sensitivity.

The magnitude of impact for each of the effects be considered listed above will be considered on a scale of high, medium, low and negligible. The suggested application of that scale to each of the effects to be considered is shown in **Table 14.1** below.

**Table 14.1 Suggested Categorisation of Impact Magnitude by Potential Effect**

| EFFECT                                            | IMPACT MAGNITUDE                                                                                                                                                                                             |                                                                                                                                                                        |                                                                                                                                                       |                                                              |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                                                   | HIGH                                                                                                                                                                                                         | MEDIUM                                                                                                                                                                 | LOW                                                                                                                                                   | NEGLIGIBLE                                                   |
| <b>Severance</b>                                  | Change in road link traffic flow of over 90%                                                                                                                                                                 | Change in road link traffic flow of 60% to less than 90%                                                                                                               | Change in road link traffic flow of 30% to less than 60%                                                                                              | Change in road link traffic flow of less than 30%            |
| <b>Road Vehicle Driver and Passenger Delay</b>    | Judgement based on the individual characteristics of sections of road                                                                                                                                        |                                                                                                                                                                        |                                                                                                                                                       |                                                              |
| <b>Non-Motorised User Delay</b>                   | Judgement based on the individual characteristics of sections of road                                                                                                                                        |                                                                                                                                                                        |                                                                                                                                                       |                                                              |
| <b>Non-Motorised User Amenity</b>                 | Judgement based on the individual characteristics of sections of road with change in total traffic flows or HGV flows of more than 100%                                                                      |                                                                                                                                                                        |                                                                                                                                                       | Change in total traffic flows or HGV flows of less than 100% |
| <b>Fear and Intimidation of and by Road Users</b> | Two changes in level of fear and intimidation                                                                                                                                                                | One change in level of fear and intimidation with >400 vehicle increase in average 18 hour vehicle flow or >500 Heavy Vehicles (HV) increase in total 18 hour HV flows | One change in level of fear and intimidation with <400 vehicle increase in average 18 hour vehicle flow or <500 HV increase in total 18 hour HV flows | No change in Level of fear and intimidation                  |
| <b>Road User and Pedestrian Safety</b>            | Judgement based on accident data. Low or negligible impact likely if section of road under consideration has not been identified by the relevant roads authority as having an atypically-high accident rate. |                                                                                                                                                                        |                                                                                                                                                       |                                                              |
| <b>Hazardous / Large Loads</b>                    | Judgement based on number of such movements and nature of affected road network                                                                                                                              |                                                                                                                                                                        |                                                                                                                                                       |                                                              |

A suggested effect significance matrix based on the impact magnitude and receptor sensitivity is set out in **Table 14.2** below. Taking severance as an example, a change of traffic classified as being low on the impact magnitude scale would have a different impact on individual receptors i.e. negligible on drivers as they are classified as low sensitivity receptors but would result in minor to moderate effects on pedestrians as they are medium sensitivity receptors.

**Table 14.2 Suggested Effect Significance Matrix Based on Impact Magnitude and Receptor Sensitivity**

| EFFECT     | IMPACT MAGNITUDE |                   |                   |            |
|------------|------------------|-------------------|-------------------|------------|
|            | HIGH             | MEDIUM            | LOW               | NEGLIGIBLE |
| High       | Major            | Major             | Moderate          | Negligible |
| Medium     | Major            | Moderate          | Minor to Moderate | Negligible |
| Low        | Moderate         | Minor to Moderate | Negligible        | Negligible |
| Negligible | Negligible       | Negligible        | Negligible        | Negligible |

### 14.5.2. Potential Significant Effects during Operation

As stated above, no significant effects are anticipated once the proposed Development is fully operational. As this is a repowering project, it is expected that there will be no increase in operational traffic levels compared to the existing operation of the Whitelee Windfarm and Extension. Hence, assessment operational effects is proposed to be scoped out of the EIA.

### 14.5.3. Effects Scoped Out

Assessment of effects during operation are proposed to be scoped out.

## 14.6. Indicative Mitigation and Enhancement

Primary mitigation could be provided by reusing as many materials as possible from the operational Whitelee Windfarm. Examples of such mitigation would be reusing access track materials in the construction of the access tracks for the proposed Development. Other examples of primary mitigation would be using onsite borrow pits and batching plants. These examples are primary mitigation as they would generate fewer vehicle movements on the public road network than would be generated if all materials were imported to the proposed Development. The options to embed primary mitigation in the design of the proposed Development will be considered throughout the design process.

Secondary mitigation measures will be suggested to avoid any potential significant effects. An example of such a measure would be stipulating that HGVs to and from the proposed Development should avoid a specific route (e.g. avoid using the B764 through Eaglesham) or avoid passing by a sensitive receptor at specific times (e.g. avoid passing a primary school at school start and finish times).

Tertiary mitigation measures would include standard practices that are commonly implemented by contractors. Examples of such mitigation would be sheeting of loads (to prevent dust) and wheel washes (to prevent mud and debris being deposited on the public road).

## 14.7. Cumulative Impacts

A cumulative assessment will be undertaken which will establish the cumulative increase in traffic arising from the proposed Development and any other developments which are consented but not yet implemented and which would increase traffic on the same sections of the road network as the proposed Development.

The significance of predicted cumulative effects will be assessed using the same process as described above. Any further mitigation measures that may be required to address these cumulative effects will be identified.

## 14.8. Residual Effects

Once secondary mitigation measures have been considered, an assessment of residual effects will be undertaken and a statement of overall significance made.

## 14.9. References

Collett & Sons Ltd. (2024.) Whitelee Wind Farm North East of Kilmarnock – Route Access Survey.

Davis, S., Hoare, D., Howard, R., Ross, A. (2023.) Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Road Traffic and Movement.

## 14.10. Scoping Questions to Consultees

- **Question 27:** Can you please advise of any developments that should be considered as part of the cumulative assessment?
- **Question 28:** Can you please advise of any upcoming changes you are aware of to the transport network surrounding the proposed Development?
- **Question 29:** Can you please advise of any comments you may have on the suggested scope?

## 15. Aviation and Existing Infrastructure

### 15.1. Introduction

This Section sets out the proposed approach to the assessment of potential effects of the proposed Development on aviation and radar infrastructure.

Wind turbines have the potential to affect the performance of radars used for air traffic control, air defence and meteorological forecasting. They can also present an obstacle hazard to aircraft flying at low altitude and may affect the specified minimum altitudes for aircraft flying instrument approach and departure procedures at airports.

### 15.2. Legislation and Guidance

The aviation assessment will be informed by the following legislation and guidance:

- The Air Navigation Order 2016 (UK Government, 2016);
- The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2016 (Scottish Government, 2016);
- Scottish Government Onshore Wind Policy Statement 2022 (Scottish Government, 2022);
- Civil Aviation Authority (CAA), CAA Policy and Guidelines on Wind Turbines (CAP 764), Seventh Edition 2025 (CAA, 2025);
- CAA Policy Statement: Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150 m Above Ground Level (CAA, 2017);
- CAA Air Traffic Services Safety Requirements (CAP 670 as amended by Supplementary Amendment SA 2023-01) (CAA, 2019);
- CAA Licensing of Aerodromes, Edition 13 (CAP 168) (CAA, 2025);
- CAA Safeguarding of Aerodromes (CAP 738) (CAA, 2020);
- International Civil Aviation Organisation (ICAO), Annex 14 to the Chicago Convention, Vol.1, Ninth Edition (2022) (ICAO, 2022);
- ICAO Doc 8168: Procedures for Air Navigation Services: Aircraft Operations, Volume II, Construction of Visual and Instrument Flight Procedures, Seventh Edition (2020) (ICAO, 2020); and
- ICAO EUR Doc 015: European Guidance Material on Managing Building Restricted Areas (2015) (ICAO, 2015).

## 15.3. Existing Conditions

### 15.3.1. Airspace

The Site is located some 10 nautical miles (nm) (19 km) south of Glasgow Airport. It is predominantly located in or under airspace under the control of air traffic control (ATC) at Glasgow Airport. The northern parts of the Site are within the Glasgow Control Zone (CTR), which is Class D controlled airspace extending from ground level to 6000 feet above mean sea level (ft amsl). The main central parts of the Site are located in Class G (uncontrolled) airspace from ground level to 3500 ft amsl, above which is the Class D controlled airspace of the Glasgow Control Area (CTA). The southern parts of the Site are in uncontrolled airspace extending from ground level to 4500 ft amsl, above which is the Class D controlled airspace of the Scottish Terminal Control Area (TMA).

### 15.3.2. Radar Services

ATC radar services in the airspace overhead the Site are provided by Glasgow Airport, NATS En Route and Glasgow Prestwick Airport (GPA). Mitigation of the effects of the existing Whitelee Windfarm on the primary surveillance radars (PSRs) at Glasgow Airport and Lowther Hill is provided by data from a special purpose radar installed at Kincardine.

### 15.3.3. Instrument Flight Procedures

The Site is within the instrument flight procedure (IFP) assessment areas for Glasgow Airport and GPA.

### 15.3.4. Other Aviation Stakeholders

The eastern boundary of the Site is 2.4 km from Strathaven airfield, an unlicensed aerodrome used by microlight and other light aircraft.

## 15.4. Proposed Survey and Assessment Methodologies

### 15.4.1. Feasibility Studies

A recent aviation feasibility exercise for repowering Whitelee Windfarm was carried out on behalf of the Applicant<sup>5</sup>. This found that:

- The NATS Lowther Hill, NATS Cumbernauld and Glasgow Airport PSRs will have line of sight to the proposed Development;
- The Kincardine PSR will have no line of sight to turbines on the Site up to 250 m in height and therefore could continue to be viable as the means of mitigating effects on the Glasgow, Lowther Hill and (if required) Cumbernauld PSRs;
- The Prestwick Airport PSR has line of sight to the north western parts of the Site at 250 m agl;

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<sup>5</sup> Cyrrus Ltd. have prepared an aviation feasibility study for ScottishPower Renewables in 2024.

- The proposed Development has the potential to affect the IFPs for Glasgow Airport and GPA; and
- Potential effects of downwind turbulence on aircraft operating from Strathaven airfield may require consideration.
- It should be noted that NATS Cumbernauld radar is another special purpose radar that was installed specifically for the purpose of windfarm mitigation.

#### 15.4.2. Assessment Methodology

The aviation assessment methodology will follow the guidance provided by the CAA in CAP 764: CAA Policy and Guidelines on Wind Turbines.

### 15.5. Potential Significant Effects

#### 15.5.1. Potential Significant Effects during Construction

Potential significant aviation effects during construction are the effects on the Glasgow Airport and GPA IFPs.

#### 15.5.2. Potential Significant Effects during Operation

Potential significant aviation effects during operation include:

- Effects on the PSRs at Glasgow Airport, GPA, NATS Lowther Hill and (if applicable) NATS Cumbernauld;
- Effects on the Glasgow Airport and GPA IFPs; and
- Effects of downwind turbulence on aircraft operating from Strathaven airfield.

#### 15.5.3. Effects Scoped Out

Potential effects on Meteorological Office radars and aeronautical radio navigation aids are proposed to be scoped out since the Site is not within the safeguarding area for any of these facilities. Potential effects on military low flying are proposed to be scoped out since the Site is wholly contained within the Glasgow-Prestwick Avoidance Area where military low flying does not normally take place.

### 15.6. Indicative Mitigation and Enhancement

Mitigation of the effects of the proposed Development on the Glasgow Airport, NATS Lowther Hill and (if required) NATS Cumbernauld PSRs could continue to be provided through use of the Kincardine PSR.

Since Whitelee has been constructed, Glasgow Airport has installed an additional radar. The Terma radar that is installed has the capability of mitigating the effects of wind turbines. Similar to the data from Kincardine radar, the data from the Terma radar is also provided to NATS.

Both options would have to be assessed to ascertain which would provide the overall best solution.

Where assessed as acceptable, mitigation of the effects of the proposed Development on Glasgow Airport and GPA IFPs will be provided through Airspace Change Proposals to the CAA to re-design IFPs as required.

Aviation lighting will be provided on the turbines in accordance with Article 222 of the Air Navigation Order. Mitigation schemes to reduce the impact of such lighting on non-aviation receptors will be fully assessed, including consideration of reduced lighting schemes.

## 15.7. References

Civil Aviation Authority. (2017.) CAA Policy Statement: Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level.

Civil Aviation Authority. (2019.) CAA Air Traffic Services Safety Requirements (CAP 670) (as amended by Supplementary Amendment SA 2021-01).

Civil Aviation Authority. (2025.) CAA Licensing of Aerodromes (CAP 168) Edition 13.

Civil Aviation Authority. (2020.) CAA Safeguarding of Aerodromes (CAP 738).

Civil Aviation Authority. (2025.) CAA Policy and Guidelines on Wind Turbines (CAP 764), Seventh Edition.

International Civil Aviation Organisation. (2015.) EUR Doc 015: European Guidance Material on Managing Building Restricted Areas

International Civil Aviation Organisation. (2022.) Annex 14 to the Chicago Convention, Vol.1, Ninth Edition.

International Civil Aviation Organisation. (2020.) Doc 8168: Procedures for Air Navigation Services: Aircraft Operations, Volume II, Construction of Visual and Instrument Flight Procedures, Seventh Edition.

Scottish Government. (2016.) The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2016.

Scottish Government. (2022.) Onshore Wind Policy Statement 2022.

UK Government. (2016.) The Air Navigation Order 2016 (as amended).

## 15.8. Scoping Questions to Consultees

- **Question 30:** Does the proposed scope of the aviation assessment cover all potential effects?
- **Question 31:** Are consultees content with the proposed methods of assessment?

## 16. Noise

### 16.1. Introduction

This Section sets out the proposed approach to the assessment of potential effects of noise and vibration on noise sensitive receptors. This Section has been prepared by Hoare Lea.

During construction, noise and vibration could arise from both onsite activities, such as construction of onsite access tracks, turbine foundations and ancillary infrastructure, as well as removal of the existing wind turbines, and from the movement of construction related traffic both onsite and travelling on public roads to and from the proposed Development.

During their operation, windfarms have the potential to create noise effects through both aerodynamic noise and mechanical noise. Aerodynamic noise would be caused by the interaction of the turbine blades with the air. Mechanically generated noise would be caused by the operation of internal components, such as the gearbox and generator, which are housed within the nacelle of the turbine. However, modern wind turbine models are generally engineered to minimise the level of noise from these sources. Other infrastructure, such as electrical or mechanical plant associated with the substation, would also represent a potential source of operational noise.

### 16.2. Legislation and Guidance

Planning Advice Note (PAN) PAN1/2011 (Scottish Government, 2011) provides general advice on preventing and limiting the adverse effects of noise without prejudicing economic development. It makes reference to noise associated with both construction activities and operational windfarms.

The Scottish Government's Onshore Wind Policy Statement 2022 (OWPS) advises at paragraph 3.7.1 that the guidance of 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97) *"provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments"*. The OWPS goes on to say (paragraphs 3.7.3 and 3.7.4):

*"The Scottish Government is aware that the UK Government has been considering the extent to which ETSU-R-97 may require updating to ensure it is aligned with the potential effects from more modern turbines. The Scottish Government supports this work and we anticipate the results of a short-term review project in due course.*

*Until such time as new guidance is produced, ETSU-R-97 should continue to be followed by applicants and used to assess and rate noise from wind energy developments."*

On 19 June 2026, the UK Government Department for Energy Security and Net Zero published a replacement for ETSU-R-97: the 'Assessment and Rating of Wind Turbine Noise' (ARWTN). The statement accompanying the release clarifies how this document is to be used and the guidance which it provides:

*"It should be used by developers of onshore wind planning applications and planning authorities across the UK when making and considering wind turbine noise assessments. It*

*provides technical guidance for assessing and controlling operational noise from wind turbines in the planning context. It provides guidelines for the control of wind turbine noise, such that wind farm neighbours receive a reasonable degree of protection without placing unreasonable restrictions on wind farm development.”*

The recommendations contained in ARWTN provide a robust basis for assessing the noise implications of a windfarm. Guidance on good practice on the application of ETSU-R-97 has been provided by the Institute of Acoustics (IOA Good Practice Guide or GPG). The IOA GPG was subsequently endorsed by the Scottish Government, as confirmed in the Onshore Wind Policy Statement 2022. ARWTN also references throughout good practice guidance published by the IOA when completing an assessment, accordingly the IOA GPG will also be referenced for the assessment. .

Operational noise from fixed plant other than wind turbines, such as that associated with the substation, will be assessed using BS 4142 as referenced in PAN1/2011.

PAN1/2011 and the Technical Advice Note accompanying PAN1/2011 provide further advice on construction noise and make reference in particular to British Standard BS 5228 (see below). Furthermore, the Control of Pollution Act 1974 provides different means for local authorities of controlling construction noise and vibration.

### 16.3. Existing Conditions

The proposed Development is located in an area of generally low population density, however there are several individual noise sensitive receptors located around the proposed Development. The nearest settlements with corresponding higher density of noise sensitive receptors are at further distances, such as Darvel, Newmilns, Moscow, Waterside, Kingswell and Eaglesham.

For noise sensitive receptors located closest to the proposed Development, the ambient noise environment will be influenced by natural noise sources such as wind-disturbed vegetation, watercourses and birdsong, localised activities such as forestry or farming operations, with a varying influence from operating wind turbines, such as those already operating within the proposed Development Site (Whitelee Windfarm and Whitelee Windfarm Extension). The noise environment in the higher density nearby settlements will also be influenced by road traffic noise, particularly those to the west of the proposed Development closer to the M77 and to the south nearer to the A71.

In addition to the existing wind turbines on the proposed Development, there are a number of other operational and proposed windfarms which will also have a varying influence on the existing ambient noise environment. Closest to the proposed Development are the proposed Moorshield Windfarm to the north west, the proposed Dunwan Dam Windfarm to the north, the operating Over Enoch and Ardoch turbines to the north, the operating Myers Hill Testing Station turbines to the north, the operating West Browncastle Windfarm and Calder Water Windfarm, both to the south east, as well as the consented and recently constructed Sneddon Law Windfarm to the west.

## 16.4. Proposed Survey and Assessment Methodologies

### 16.4.1. Proposed Study Area

The assessment will consider residential noise sensitive receptor locations in the vicinity of the proposed Development which could potentially be affected by construction or operational noise. Specifically in the case of operational wind turbine noise, ARWTN clarifies that noise levels will be considered acceptable, even in the absence of measured baseline data, if predicted noise levels (including cumulative contributions from all windfarms) do not exceed the ‘simplified total noise assessment criteria’ (TNAC) of 35 decibels (dB)  $L_{A90}$ .

Therefore, the assessment will consider noise sensitive receptors where predicted levels approach or are likely to approach this threshold, whilst also including receptors located further from the proposed Development which could be influenced by other windfarms, provided the specific contribution of the proposed Development is not negligible relative to that of the other schemes considered<sup>6</sup>.

The assessment will consider noise sensitive receptors which could potentially be affected by operational noise from the substations.

Noise sensitive receptors will also be considered which could potentially be affected by noise or vibration effects from the construction of the proposed Development infrastructure. In addition, noise sensitive receptors located along the site access track or route will also be considered in relation to construction traffic.

### 16.4.2. Desk and Field Survey Methods

ARWTN generally requires the background sound environment at nearby noise sensitive receptors to be characterised by measuring background sound levels as a function of site wind speed at the nearest neighbours (or, at a representative sample of the nearest neighbours). ARWTN also requires that any such measurements are not significantly influenced by existing operational turbines, to prevent unreasonable cumulative increases.

An initial review of the background sound data which was surveyed for the operational wind turbines on the proposed Development Site as well as other adjacent windfarm schemes (and which are publicly available in the EIA Reports for those schemes), suggests that existing background sound levels have been sufficiently defined for the purposes of an assessment of operational noise in accordance with ARWTN<sup>7</sup> and best practice. The approach in ARWTN to

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<sup>6</sup> ARWTN clarifies that it is appropriate to include within the assessment those noise sensitive receptors where predicted noise levels from the proposed Development are within 10 dB of the TNAC, and that other windfarms be included within the assessment (at each relevant noise sensitive receptor) where their individual predicted noise levels are within 10 dB of the TNAC. The existing site-specific consent noise limits applying to Whitelee Windfarm and Whitelee Windfarm Extension have as a minimum a fixed threshold set at 40 dB(A), referred to as the day LLV in ARWTN. Given the scale of the proposed Development together with other windfarms nearby, the extant cumulative consent noise limits for Whitelee windfarms and these other nearby schemes being based on a noise limit having a minimum of 40 dB(A), it can be concluded that the appropriate choice of day LLV would be 40 dB(A). Accordingly, relevant noise sensitive receptors which should be included within the assessment would be those where proposed Development predicted noise levels are 30 dB(A) or greater. Similarly, relevant windfarms which should be included within the assessment (at corresponding noise sensitive receptors) would be those where their individual predicted noise levels are 30 dB(A) or greater (whilst accounting appropriately for potential increases above those predicted levels that may be permitted by their individual site-specific noise limits).

<sup>7</sup> ARWTN allows assessment of windfarms without requiring determination of background sound levels: an optional approach which can be agreed through consultation with the local council. In the case of the proposed Development, suitable and sufficient background sound survey data are already available and it is proposed to continue to derive total noise assessment criteria based upon the LLV and 5 dB above representative background sound levels, based on the historical data, consistent with the form of the extant site specific noise limits.

background sound levels is broadly similar to ETSU-R-97. Accordingly, background sound data gathered for an ETSU-R-97 assessment would fulfil the requirements of ARWTN. Background sound surveys were completed at 15 locations for Whitelee Windfarm, a further seven locations for the Whitelee Windfarm Extension as well as a number of additional locations surveyed for adjacent windfarms. These locations are likely to be sufficiently representative of the noise sensitive receptors around the proposed Development, therefore undertaking additional background sound monitoring is not anticipated to be necessary.

New measurements would in any case involve considerable practical difficulties, given that these should not be influenced by operational wind turbines according to the requirements of ARWTN. Aside from the influence of operational windfarms, the background sound environment at the relevant noise sensitive receptors is unlikely to have substantially changed since the previous surveys were undertaken.

The potential implication of wind shear effects due to the heights of the turbines to be considered for the proposed Development would be taken into account in line with best practice. The relevant wind speed references used for existing background sound surveys and site-specific noise limits would be reviewed, with the application of correction factors where necessary. A further review would be completed to ascertain whether correction factors are required and whether these can be derived from site-specific data from the Whitelee meteorological masts.

The approach to the derivation of background sound levels, relevant noise limits and total assessment criteria would be discussed in consultation with the Environmental Health Departments of EAC, ERC and SLC. The assessment methodology, in particular with regards to cumulative impacts, will also be discussed.

### 16.4.3. Assessment Method

The methodology for the assessment of operational noise from windfarms in Scotland recommended in planning guidance is that documented in ARWTN. In summary, the assessment shall:

- Identify the nearest noise sensitive receptors;
- Determine the quiet day-time and night-time total noise assessment criteria derived from typical background sound levels at representative noise sensitive receptors (see above);
- Specify the type and noise emission characteristics of the wind turbines proposed for the Site;
- Calculate noise levels which would be due to the operation of the wind turbines as a function of Site wind speeds at the nearest neighbours, including the cumulative effect of all acoustically relevant wind turbines and consideration of the phased approach to the proposed Development; and
- Compare the calculated windfarm noise levels with the derived noise limits.

The good practice guidance referenced above (IOA GPG) will be taken into account, including advice on background sound survey data, wind shear and noise prediction methodology.

The calculated windfarm noise levels will be compared with the total noise assessment criteria (TNAC) derived in accordance with ARWTN. These TNAC, for each noise sensitive receptor,

apply to the total noise produced by all windfarms. Therefore, potential cumulative operational noise levels, including existing, consented and application wind turbines in the area, will be assessed relative to these limits. Based on previous experience, windfarm proposals located more than 5 km from the proposed Development are unlikely to represent an acoustically relevant contribution to cumulative noise levels. It is proposed to exclude the smaller turbines in the area, with a capacity of less than 50 kW, in accordance with ARWTN. Turbines of slightly larger capacity may also be excluded in some cases where their impacts are localised and would result in disproportionate constraints on the proposed Development.

When considering neighbouring cumulative windfarm noise, the potential noise emissions from adjacent windfarms will be considered by examining the levels of noise allowed under the respective consent site specific noise limits for each of the windfarms, in line with current best practice (see guidance referenced above). The assessment will include consideration of the wind turbines already operating within the proposed Development Site, the contribution to total cumulative noise levels due to operation of these wind turbines which has been assumed, as well as the previous apportionment of the TNAC, when consents were granted for neighbouring windfarms which post-date the consents for Whitelee Windfarm and Whitelee Windfarm Extension.

Noise resulting from operation of Whitelee Windfarm and Whitelee Extension Windfarm when operating together effectively define an existing 'noise budget' and share of the ARWTN TNAC, which was assigned to Whitelee Windfarm and Whitelee Extension Windfarm in their consent site specific noise limits. This would normally be available to the proposed Development, as neighbouring windfarms were consented on this basis. At several receptor locations near to the proposed Development, over a range of wind speeds, this assigned share will likely be equal to the ARWTN TNAC, given that Whitelee Windfarm and Whitelee Windfarm Extension pre-date other adjacent windfarm developments. The applicable TNAC and site specific noise limits applicable to assessing the proposed Development will be considered in detail based on a review of potential cumulative noise levels, in consultation with the Environmental Health Departments of EAC, ERC and SLC as required.

If the proposed new substation is located at a substantial distance from the nearest noise-sensitive receptors, e.g. one kilometre or more, it may be possible to conclude that the associated noise effects are likely to be negligible based on experience of similar developments. If not, a more detailed study in line with BS 4142 would be undertaken, based on representative noise data for the electrical/mechanical plant units which may be installed, on a worst-case basis. The predicted levels at neighbouring receptors would be assessed relative to the existing baseline background noise levels at the relevant receptors, accounting for the potential character of the noise, in accordance with BS 4142. The greater the difference between predicted operational noise levels and baseline levels, the greater the impact, subject to also accounting for several contextual factors. As part of the contextual analysis, it is relevant to consider the absolute noise levels which, if sufficiently low, may be considered acceptable regardless of background levels.

In assessing the impact of noise and vibration from the construction activities, it is usual to accept that the associated works are of a temporary nature, although given the scale and phased approach to construction of the proposed Development, the construction programme will be of longer duration than a typical windfarm development. The assessment of potential effects due to noise emissions during construction will be undertaken in accordance with the BS 5228 British Standard guidance 'Code of practice for noise and vibration control on

construction and open sites'. Predictions of construction noise will be made referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the methodology set out in BS 5228 Part 1. This standard is referenced in Technical Advice Note to PAN 1/2011: Planning and Noise and can be used to predict noise levels associated with the different construction activities used throughout the construction programme. Part 2 of the BS 5228 standard considers construction vibration and this will also be referenced.

Any blasting if used for rock extraction at borrow pits may also create vibration and air overpressure which may require assessment. This will be appropriately considered once borrow pit locations have been confirmed and the requirement or otherwise for blasting is better understood.

Consideration will also be given to the potential effects of construction traffic on sensitive receptors in the area. Depending upon the outcome of the assessment of traffic (See Chapter 14: Traffic and Transport), the effects of traffic along the access route will be assessed on the basis of the methodology within BS 5228-1, and the 'Calculation of Road Traffic Noise' (DoT, 1988), where appropriate.

The assessment of the temporary effects of construction noise is primarily aimed at understanding the need for dedicated management measures and, if so, the types of measures that are required. In this respect, relevant working practices, traffic routes, and proposed working hours will be considered in the assessment.

The assessment of construction noise and vibration will identify if and when predicted noise levels may be above standard guideline limits, taking into account the rural character of the area. For construction traffic, the criteria set out in the Design Manual for Roads and Bridges (National Highways, 2020) will also be referenced. Construction noise management procedures will also be determined.

## 16.5. Potential Significant Effects

### 16.5.1. Potential Significant Effects during Construction

- Noise and vibration associated with the construction activities and associated traffic and blasting activities.

### 16.5.2. Potential Significant Effects during Operation

- Noise during operation of the proposed Development from wind turbines and substations.
- Cumulative wind turbine noise during operation with other nearby windfarms.

### 16.5.3. Effects Scoped Out

It is recognised in ARWTN that vibration, infrasound and low frequency sound do not require assessment, because their effects on humans can be considered negligible or suitably controlled by the ARWTN assessment criteria. It is therefore not proposed to undertake assessments of vibration, infrasound and low frequency sound.

Consistent with the advice in ARWTN, the assessment of amplitude modulation (AM), should it occur, would be controlled by suitable planning conditions. Accordingly, it is not proposed to include assessment of AM.

Maintenance activities during operation would be associated with sporadic works and limited traffic of light vehicles, and the associated noise and vibration effects would be negligible and do not require further consideration.

## 16.6. Indicative Mitigation and Enhancement

Mitigation of operational noise will be achieved through evolution of the design of the proposed Development, such that the relevant ETSU-R-97 noise limits can be achieved at the surrounding properties with commercially available wind turbines, taking into account the noise emissions from other windfarms in the area.

Regarding construction noise, relevant working practices, traffic routes, management procedures and proposed working hours will be set out within an outline CEMP.

## 16.7. References

BS 5228-1:2009. (2014.) 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'.

BS 5228-2:2009. (2014.) 'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'.

Cand, M., Davis, R., Jordan, C., Hayes, M. and Perkins, R. (2013.) A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. Institute of Acoustics.

Department of Transport. (1988.) Calculation of Road Traffic Noise, HMSO.

National Highways. (2020.) Design Manual for Roads and Bridges.

Scottish Government. (2011.) Planning Advice Note 1/2011: Planning and Noise. Published 3 March 2011. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2011/planning-noise/>

Scottish Government (2022) - Onshore Wind - Policy Statement 2022, December 2022. Available at <https://www.gov.scot/publications/onshore-wind-policy-statement-2022>.

The Working Group on Noise from Wind Turbines. (1996.) ETSU-R-97, The Assessment and Rating of Noise from Windfarms. Final Report for the Department of Trade & Industry.

Department for Energy Security and Net Zero (2026). Assessment and Rating of Wind Turbine Noise. <https://www.gov.uk/government/publications/assessment-and-rating-of-noise-from-wind-turbines-guidance>

## 16.8. Scoping Questions to Consultees

- **Question 32:** Are the consultees happy with the suggested approach for the noise assessment, including elements scoped in and out?
- **Question 33:** Do the consultees have any concerns regarding the use of historical background noise data as the basis for the operational noise assessment?

# 17. Forestry

## 17.1. Introduction

This Section outlines the assessment of the potential environmental impacts and issues relating to forestry within the proposed Development, and considers the relevant legislation, policy and guidance outlined below.

In line with key national policy, the objective of this assessment will be to avoid or otherwise minimise potential impacts on the forest environment arising from the proposed Development.

## 17.2. Legislation and Guidance

All forestry proposals will be prepared in accordance with The UK Forestry Standard, the national technical standard for sustainable forest management, whilst considering and where appropriate incorporating, the following associated legislation, policy and guidance documents:

- The UK Forestry Standard 5<sup>th</sup> Edition (UKFS), (UK Government, 2023);
- Scotland's Forestry Strategy 2019-2029 (SFS), (Scottish Government, 2019);
- Scottish Land Use Strategy (SLUS), (Scottish Government, 2021);
- The Forestry and Land Management (Scotland) Act, 2018 (Scottish Government, 2018);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations (Scottish Government, 2017);
- National Planning Framework 4 (NPF4), (Scottish Government, 2023);
- The Scottish Government's Policy on Control of Woodland Removal (CoWR), 2009 (Scottish Government, 2025);
- Supplementary Guidance on Forests and Peatland Habitats Note, 2025 (Scottish Forestry, 2025);
- Management of Forestry Waste, (SEPA, 2017);
- Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Position Statement and Guidance, (SEPA 2014);
- South Lanarkshire Local Development Plan 2, 2021 (South Lanarkshire Council, 2021);
- East Ayrshire Local Development Plan 2, 2024 (East Ayrshire Council, 2024);
- East Renfrewshire Local Development, 2022 (East Renfrewshire Council, 2022);
- Clydeplan Forest & Woodland Strategy for the Glasgow City Region, 2020 (Clydeplan, 2020); and
- Ayrshire & Arran Forestry & Woodland Strategy, (North Ayrshire Council, 2014).

## 17.3. Existing Conditions

### 17.3.1. Ownership

The ownership of forests within the Site is split over several landowners, the largest being the Scottish Ministers who own Whitelee Forest, which is managed by Forestry and Land Scotland. Whitelee Forest covers the majority of the Site, and is managed under the Whitelee Forest Land Management Plan (LMP), 2019 -2029 which details the 20 year management, felling and replanting strategy for the forest.

### 17.3.2. Baseline Description

The Site mainly comprises upland commercial conifer plantations into which the existing Whitelee Windfarm has been integrated, along with associated tree free areas required for wind resource protection. Crops are established on soils consisting of carbon-rich peat, mineral gleys and peaty gleys (Scottish Environment Protection Agency, 2024).

Whitelee Forest LMP, which covers the majority of the Site, extends to approximately 3,000 ha (Forestry & Land Scotland, 2019, p. 38). The commercial conifer plantations are being actively managed for the production of timber as well as other social and environmental benefits, through long term progressive restructuring in accordance with the UKFS. The plantations contain fragmented pockets of native woodland, ranging in size from 0.5 ha to 2 ha but with the majority being <1 ha (Forestry Commission Scotland, 2014). These native woodland areas are predominantly young, regenerating areas which are likely lower in biodiversity value due to a range of factors including their size, age, a generally low semi-natural status and fragmentation.

The Site has been subject to several Statutory Plant Health Notices (SPHN), to control the spread of *Phytophthora ramorum* (*P. ramorum*). *P. ramorum* primarily affects Larch (*Larix sp.*). These outbreaks are mainly within the Whitelee LMP area, where Larch comprises approximately 2 % of the forest area.

## 17.4. Proposed Survey and Assessment Methodologies

### 17.4.1. Proposed Survey Methodology

The proposed survey methodology will include interrogating a range of documents and publications including the current approved forest management plans, local development plans, national and local forest strategies, Scottish Forestry and other publicly available databases and current forestry policy, legislation and guidance. Aerial photography, and field survey will be used to assess the baseline forest condition. The field surveys will consist of site walkovers, to verify and update baseline crop data, crops assessment to determine accuracy of growth rates and current and forecast tree heights.

This data will be used as assess the integration of the development infrastructure into the forest to minimise impacts on the forestry and woodland resource. Particular attention will be focused on areas previously deforested for the operational Whitelee Windfarm, to maximise opportunities for delivering onsite compensatory planting and woodland-related biodiversity enhancement.

#### 17.4.2. Proposed Assessment Methodology

The assessment methodology set out in the *Scottish Government's Policy on Control of Woodland Removal* will form the basis of the approach to be adopted, while drawing on the principles set out in *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulation 2017* in assessing the overall significance of environmental effects.

This will involve a detailed approach to forestry and windfarm development planning being undertaken to assess the impacts of the proposed Development, through an iterative design process in consultation with Scottish Forestry and other stakeholders.

This process will require the production of windfarm development specific forestry proposals, detailing areas of tree felling and replanting associated with the construction of the proposed Development. The Development specific forestry proposals will be compared against any existing, approved forest management plans as a benchmark against which the impacts of the proposed Development can be quantitatively assessed, and the area of woodland removal quantified.

In accordance with established best practice, the assessment will seek to both minimise the impact on the forest environment and the area of forestry included in the application. This is achieved by avoiding, where possible, areas of higher value (social, economic or environmental) woodland and constraining the proposed Development to those areas of forestry directly required. The wider forestry resource would remain under the authority of the forestry regulator, Scottish Forestry. This approach not only helps to minimise woodland impacts but also the production of non-forestry residues, which will be considered as part of the assessment through the production of a Forest Residues Management Plan.

The total area of woodland removal arising from the proposed Development will be identified, quantified, and detailed as part of the assessment, along with details of how any compensatory planting will be addressed. As a substantial repowering project within a commercial forest with a varied age structure, scope exists to minimise the need for extensive felling and associated woodland removal. The use of modern, larger turbines significantly reduces the requirement for woodland removal compared to the existing windfarm. Opportunities to maximise the use of existing open ground and replanting of areas previously cleared of trees, will be assessed, with the expectation that no net removal of woodland will be required, nor the associated requirement for off-site compensatory planting.

### 17.5. Potential Effects

#### 17.5.1. Potential Effects during Construction

Forestry plays an important role in Scotland, providing social, economic and environmental benefits through the production of sustainable timber, habitat networks and a recreational resource. Scotland's woodlands are considered a vital national resource, and the Scottish Government outlines a strong presumption against woodland removal within the Control of Woodland Removal Policy.

Much of the proposed Development is located within an operational commercial forest, and as is subject to ongoing extensive commercial forestry operations including active timber harvesting and replanting programmes, and attendant road building and crop management operations. The forestry assessment will make an objective assessment, quantifying the

changes to the physical forest structure and timber production arising from the proposed Development by comparing these with the existing approved forest management plans.

These changes may arise from areas of forestry required to be felled for the construction of access tracks, wind turbine locations and other infrastructure, which may result in a loss of woodland area. As this proposal involves removing existing turbines and infrastructure, this assessment will also consider the effect of potential reinstatement and replanting of these features and their associated tree free areas, i.e. the ability to expand the woodland area.

The synthesis of this assessment will identify any net gain or loss in woodland area, with any net loss quantified and addressed in line with the Control of Woodland Removal Policy. Routine forestry operations in line with existing forest management plans, such as phased felling and replanting, will remain the responsibility of the forest owners as part of their normal routine management, and subject to standard statutory approval from the regulatory authorities.

### 17.5.2. Potential Effects during Operation

The potential effects on forestry during operation are relatively limited, with the potential for crops which are currently young to mid-rotation requiring harvesting if crops heights approach the bat protection buffer zones applied to each turbine, limiting the proximity and terminal height of tree crops. Cumulatively, across the Site this area will have an effect on the timing and quantum of sustainable timber production, although this will be minimised through the use of modern, taller turbines and as such this is unlikely to result in a significant impact especially compared to that of the original development.

### 17.5.3. Effects Scoped Out

As noted in Section 3.2.1, it is acknowledged that decommissioning effects would likely be similar to, or less than those arising from construction, and a separate assessment of decommissioning stage effects will therefore not be undertaken. Apart from this, there are no known effects on forestry which have been scoped out.

## 17.6. Indicative Mitigation and Enhancement

The potential impacts on forestry can be mitigated through the formation of windfarm development specific forestry proposals. These can then be considered in comparison to the baseline data, to determine the woodland type and area impacted by the proposed Development. This would facilitate the formation of a compensatory planting plan, which mitigates impacts arising from the woodland removal required to facilitate construction.

The production of development specific forestry proposals will also serve to mitigate potential impacts on the local forestry environment through careful micro siting of the proposed Development. This includes keyholing windfarm development infrastructure into the existing forest to minimise impacts to areas essential for the construction of the proposed Development only and by carefully designing forest management proposals to avoid or reduce potential impacts on neighbouring trees and the wider forest.

The scale of the Site and the large extents of woodland removal associated with the development of the operational Whitelee Windfarm, mean there is significant scope to not only deliver all necessary compensatory planting onsite, but to explore replanting substantial

areas of ground previously cleared. This has the potential to deliver a net gain in woodland cover, both native and commercial.

## 17.7. References

North Ayrshire Council. (2014.) Ayrshire & Arran Forestry & Woodland Strategy: Tree and woodland management policy. Available at: <https://www.north-ayrshire.gov.uk>

Clydeplan. (2020.) Forest & Woodland Strategy for the Glasgow City Region. Available at: <https://www.storyblok.com>

East Ayrshire Council. (2024.) East Ayrshire Local Development Plan 2. Available at: <https://www.east-ayrshire.gov.uk>

East Renfrewshire Council. (2022.) East Renfrewshire Local Development (LDP2). Available at: <https://www.eastrenfrewshire.gov.uk>

Forestry & Land Scotland. (2019.) Whitelee Forest Land Management Plan (LMP). Available at: <https://www.forestry.gov.scot>

Forestry Commission Scotland. (2014.) Native Woodland Survey of Scotland (NWSS). Available at: <https://data.gov.uk>

Scottish Environment Protection Agency. (2014.) Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Position Statement and Guidance. Available at: <https://www.sepa.org.uk>

Scottish Environment Protection Agency. (2017.) Management of Forestry Waste. Available at: <https://www.sepa.org.uk>

Scottish Environment Protection Agency. (2024.) Scotland's Soils. Available at: <https://www.environment.gov.scot>

Scottish Forestry. (2025.) Supplementary Guidance on Forests and Peatland Habitats Note. Available at: <https://www.forestry.gov.scot>

Scottish Government. (2009.) Scottish Government's Policy on Control of Woodland Removal (CoWR). Available at: <https://www.forestry.gov.scot>

Scottish Government. (2017.) The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk>

Scottish Government. (2018.) Forestry and Land Management (Scotland) Act 2018. Available at: <https://www.legislation.gov.uk>

Scottish Government. (2019.) Scotland's Forestry Strategy 2019-2029 (SFS). Available at: <https://www.gov.scot>

Scottish Government. (2021.) Scottish Land Use Strategy (SLUS). Available at: <https://www.gov.scot>

Scottish Government. (2023.) National Planning Framework 4 (NPF4). Available at: <https://www.gov.scot>

South Lanarkshire Council. (2021.) South Lanarkshire Local Development Plan 2. Available at: <https://www.southlanarkshire.gov.uk>

UK Government. (2023.) The UK Forestry Standard 5th Edition (UKFS). Available at: <https://www.gov.uk>

## 17.8. Scoping Questions to Consultees

- **Question 34:** Are consultees content with the proposed scope and methodology for the assessment of forestry impacts?
- **Question 35:** Are there any new or proposed policies or guidance that consultees feel should be taken into consideration?

## 18. Socio-Economics

### 18.1. Introduction

BiGGAR Economics has been commissioned to undertake an appraisal considering the socio-economics, recreation and tourism elements of the proposed Development. Socio-economic and tourism assessments of onshore windfarms over the last decade have found no adverse effects assessed as significant in terms of the EIA Regulations and there is no reason to expect significant adverse effects for the proposed Development. It is therefore proposed to scope socio-economics, tourism and recreation out of the EIA process.

Nevertheless, it is recognised that socio-economic and tourism issues will be of interest to stakeholders and local authorities. Notably, the existing tourism and recreational resources offered by Whitelee Windfarm itself represent a major attraction for outdoor and eco-tourism pursuits. Consideration of how this resource may be affected, and opportunities for it to be enhanced by the proposed Development will be discussed alongside other socio-economic factors in a standalone report on socio-economics, tourism, recreation and land use. This Section describes what will be considered in the separate socio-economic, tourism, recreation and land use report and the approach that will be taken.

### 18.2. Legislation and Guidance

There is no specific legislation or guidance on the methods that should be used to assess the socio-economic impacts of a proposed onshore windfarm development. The proposed method has however been based on established best practice, including that used in the UK Government and industry reports on the sector. In particular, this assessment will draw from two studies by BiGGAR Economics on the UK onshore wind energy sector: a report published by RenewableUK and the Department for Energy and Climate Change (DECC) in 2012 on the direct and wider economic benefits of the onshore wind sector to the UK economy and a subsequent update to this report published by RenewableUK in 2015.

There is also no formal legislation or guidance on the methods that should be used to assess the effects that windfarm developments may have on general tourism and recreation interests. The proposed method will consider specific attractions or tourism facilities to assess if there could be any effects from the development.

The proposed method to assess the effects on recreational assets will follow the guidance provided by NatureScot (NatureScot, 2018). This approach takes into consideration a number of potential effects, including direct effect on facilities, such as limitation or restrictions on access, and effects on the intrinsic quality of the resources enjoyed by people. In general, this guidance would consider recreational and access impacts to potentially be significant if:

- permanent or long-term effects on the resources on which enjoyment of the natural heritage depends, in particular where facilities have been provided by NatureScot or others under statutory powers;
- permanent or long-term change that would affect the integrity and long-term sustainable management of facilities which were provided by NatureScot or others under statutory powers;

- where there are recreational resources for open air recreation pursuits affected by the proposal which have more than local use or importance, especially if that importance is national in significance;
- major constraints on or improvements for access or accessibility to designated natural heritage sites; and
- where mitigation and/or compensatory or alternative recreational provision is considered to be inadequate.

The socio-economic and tourism assessment will take into account the relevant local and national policy objectives. The most relevant objectives for this are expected to be included in the following strategies:

- Scottish Government (2022), Scotland's National Strategy for Economic Transformation;
- Scottish Government (2023, 2026), Scotland's National Performance Framework and Update on the National Performance Framework – Letter of 16 February 2026;
- Scottish Government (2021), Local Energy Policy Statement;
- Scottish Government (2022), Onshore Wind Policy Statement;
- Scottish Government (2023) Onshore Wind Sector Deal;
- Scottish Government (2023) National Planning Framework 4;
- South Lanarkshire Council (2022) South Lanarkshire Economic Strategy 2022 – 2027;
- Glasgow City Region (2021) Glasgow City Region Economic Strategy;
- East Ayrshire Council (2023), Ayrshire Regional Economic Strategy; and
- Scottish Tourism Alliance (2021), Scotland Outlook 2030.

It is also essential to take into consideration for the assessment the fourth National Planning Framework (NPF4), the national spatial strategy for Scotland. The document considers:

- Scotland's spatial principles;
- National planning policy;
- National developments; and
- Regional priorities.

In the context of energy generation, Policy 11 is relevant to the socio-economic impact of the proposed Development. Paragraph (c) states that *"development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities"*. The analysis will reach the conclusion on whether the proposed Development maximises the net economic impact in the context of this NPF4 Policy 11(c).

Paragraph (d) of Policy 11 sets out a number of impacts that should be addressed during project design and mitigation. That list does not include tourism.

## 18.3. Existing Conditions

### 18.3.1. Study Areas

The study areas of the assessment will be selected to meet the interests of key stakeholders and will be made of predefined geographies. It will be based on the boundaries of the Site, which currently contains an operational windfarm, visitor centre and tracks/trails that are used for recreation.

The baseline assessment will provide a description of the current socio-economic, recreation and tourism baseline within the local area. This will include a summary of the economic performance data and a description of the relevant tourism assets that will be covered in the assessment.

The baseline description will cover and compare the study areas of:

- Regional Area, covering the local authorities of
  - East Ayrshire;
  - East Renfrewshire; and
  - South Lanarkshire;
- Scotland.

### 18.3.2. Baseline Description

The population of the Regional Area was 541,200 in 2021 (10% of the Scottish total), of which 62% were working age, lower than the figure for Scotland of 64%. Between 2021 and 2043, the population of the Regional Area is projected to increase by 2%, the same as Scotland as a whole.

The proportion of the population that is economically active is similar in the Regional Area (78.1%), compared to Scotland as a whole (77.9%), while the unemployment rate is 2.8% compared to 3.4% nationally.

The main sectors of employment in the Regional Area are human, health and social work activities (18% of employment in the Regional Area compared to 15% in Scotland) and wholesale and retail trade (14% across the Regional Area compared to 13% nationally). The share of employment in construction in the Regional Area is 8%, slightly higher than the Scottish average (6%).

The socio-economic and strategic baseline will be expanded on in the standalone report through a review of publicly available data sources. This will include:

- the population characteristics of the local area, including local and national demographic trends;
- deprivation statistics set within a national context;
- employment and economic activity in the Regional Area within the context of the national economy;
- wage levels in the local area compared to the national level;

- the industrial structure of the local economy compared to the national level; and
- the role of the tourism sector in the local economy.

## 18.4. Proposed Scope and Assessment Methodologies

It is anticipated that the contents of the assessment will include:

- introduction;
- economic development and tourism strategic context;
- baseline socio-economic context;
- baseline tourism and recreation context;
- socio-economic impact assessment;
- tourism and recreation impact assessment;
- proposed measures and actions to maximise local economic and community impacts (including Community Wealth Building); and
- summary of findings and conclusion.

This study will primarily be desk-based, alongside consultation by the Applicant with the local community. The consultation will further inform the baseline and any opportunities from the proposed Development which arise therein.

The assessment of socio-economic impacts will focus on the level of activity/employment supported during the construction and operation phases. Government and industry reports will be used to determine the expected capital and operational expenditure associated with the proposed Development, as well as the breakdown of expenditure by different contracts (e.g. decommissioning existing turbines, turbines/generators, balance of plant). An assumption of the geographic distribution of contracts will then be made based on the share of each type of contract that can be secured regionally and nationally. This increase in turnover will then be used to estimate the economic impact associated with the proposed Development.

In order to assess the effects on tourism and recreation, the features that make the local area distinctive and attractive will be identified and the potential impact of the proposed Development on those key features will then be assessed. This will also include the existing tourism and recreational facilities within the Site.

## 18.5. Potential Significant Effects

### 18.5.1. Potential Significant Effects during Construction and Operation

It is not anticipated that there will be any potentially significant adverse effects on socio-economic or tourism receptors during the construction and operation of the proposed Development. However, this section considers what adverse and beneficial effects are likely, regardless of significance, and therefore will be included in the standalone assessment.

The impacts that will be considered in this assessment will include the potential socio-economic, tourism, recreation and land use impacts associated with the proposed Development.

An economic impact analysis will be undertaken using the methodology developed by BiGGAR Economics; which has been used to assess over 200 onshore windfarms across the UK. The potential socio-economic impacts that will be considered during construction and operation are:

- temporary effects on the identified study areas due to expenditure during the construction phase (taking account of the phased programme of decommissioning and removal of the existing turbines and construction of the repower turbines and associated infrastructure);
- permanent effects on the identified study areas due to expenditure associated with the ongoing operation and maintenance of the proposed Development;
- permanent effects as a result of any additional public expenditure that could be supported by the additional tax revenue that would be generated by the proposed Development during the operational phase;
- permanent effects on the local economy that could be supported by any community funding and/or shared ownership proposals during the operational phase of the proposed Development; and
- permanent effects on local and regional tourism and recreation resources, associated with potential enhancement of existing facilities at the Site (visitor centre, trails, education programmes etc.).

The link between onshore wind energy developments and the tourism sector has been a subject of debate. However, the most recent research has not found a link between tourism employment, visitor numbers and onshore wind development.

In 2021, BiGGAR Economics research (BiGGAR Economics, 2021) identified 44 windfarms with a capacity of at least 10 megawatts that became operational between 2009 and 2019. Analysis of trends in tourism employment in the locality of these windfarms (15 km radius), found that for the majority of the windfarms considered, trends in tourism employment in the locality had outperformed the local authority in which they were based. The analysis found that there was no relationship between the development of onshore windfarms and tourism employment at the level of the Scottish economy, at the local authority level nor in the areas immediately surrounding windfarm developments.

Nevertheless, the tourism sector is an important contributor to the Scottish economy, therefore, there is merit in considering whether the proposed Development will have any effect on tourism behaviour and the tourism economy. The existing Whitelee Windfarm is one of the most popular tourism and recreation attractions in the area, having received around 75,000 visitors a year to the visitor centre on site, plus an estimated 200,000 visitors a year to the recreational paths on the site which are open to the public. This assessment will consider the potential effects that the proposed Development could have on tourism, recreation and land use, including the existing assets on site, following a more focused approach on effects related to key tourist attractions and recreation assets.

### 18.5.2. Effects Scoped Out

It is proposed that, if applicable, any substantial, adverse impacts identified as part of the standalone socio-economic, tourism and recreation assessment will be considered as part of the EIA, and all other impacts will be scoped out.

## 18.6. Indicative Mitigation and Enhancement

Proposed mitigation measures will depend on the findings of the assessment. Proposed measures that will be adopted to enhance the socio-economic impacts include:

- engaging early with the local community and local businesses;
- providing clear information on technical requirements that can allow businesses to prepare; and
- incentivising Tier 1 suppliers to engage with local businesses.

Other measures will be identified as part of the standalone socio-economic and tourism assessment.

## 18.7. References

BiGGAR Economics. (2021.) Wind Farms & Tourism Trends: Evidence from 44 Wind Farms. Available at: <https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf> [Accessed August 2024]

BVG Associates. (2019.) 10 years of Whitelee Windfarm: A decade of economic, environmental and social benefits. Available at: [https://bvgassociates.com/wp-content/uploads/2019/06/BVGA\\_SPR-Whitelee\\_10\\_year\\_anniversary-rl.pdf](https://bvgassociates.com/wp-content/uploads/2019/06/BVGA_SPR-Whitelee_10_year_anniversary-rl.pdf) [Accessed September 2024]

East Ayrshire. (2023.) Ayrshire Regional Economic Strategy Building wealth for everyone in Ayrshire Our vision for Ayrshire 2033. Available at: <https://www.east-ayrshire.gov.uk/Resources/PDF/A/ayrshire-regional-economic-strategy-june-23.pdf> [Accessed September 2024]

Glasgow City Region. (2021.) Glasgow City Region Economic Strategy. Available at: <https://glasgowcityregion.co.uk/wp-content/uploads/2021/12/GCR-EconomicStrategy-Final.pdf> [Accessed September 2024]

NatureScot (Scottish Natural Heritage) (2018) Environmental Impact Assessment Handbook, Volume 5.0 Available at: <https://app-hes-pubs-prod-neu-01.azurewebsites.net/api/file/a205a9f7-8d3e-4e4f-b8a4-a8e800a6c81f>

RenewableUK. (2015.) Onshore Wind: Economic Impacts in 2014. Available at: [https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/publications/reports/onshore\\_economic\\_benefits\\_re.pdf](https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/publications/reports/onshore_economic_benefits_re.pdf) [Accessed August 2023]

Scottish Government. (2022.) Scotland's National Strategy for Economic Transformation. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/03/scotlands-national-strategy-economic-transformation/documents/delivering-economic-prosperity/delivering-economic-prosperity>

[prosperity/govscot%3Adocument/delivering-economic-prosperity.pdf](#) [Accessed August 2023]

Scottish Government. (2023.) National Planning Framework 4. Available at <https://www.gov.scot/publications/national-planning-framework-4/documents/> [Accessed August 2024]

Scottish Government. (2023.) Onshore Wind Sector Deal. Available at <https://www.gov.scot/publications/onshore-wind-sector-deal-scotland/documents/> [Accessed August 2024]

Scottish Government. (2023.) National Performance Framework. Available at: <https://blogs.gov.scot/national-performance-framework/> [Accessed August 2023]

Scottish Government. (2026.) Update on the National Performance Framework – Letter of 16 February 2026. Available at: [https://www.parliament.scot/-/media/files/committees/finance-and-public-administration-committee/correspondence/2026/npf\\_dfmcssegtoconvener\\_16feb26.pdf](https://www.parliament.scot/-/media/files/committees/finance-and-public-administration-committee/correspondence/2026/npf_dfmcssegtoconvener_16feb26.pdf)

Scottish Government. (2023.) Draft Energy Strategy and Just Transition Plan. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/01/draft-energy-strategy-transition-plan/documents/draft-energy-strategy-transition-plan/draft-energy-strategy-transition-plan/govscot%3Adocument/draft-energy-strategy-transition-plan.pdf> [Accessed August 2023]

Scottish Government. (2022.) Onshore Wind Policy Statement 2022. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/12/onshore-wind-policy-statement-2022/documents/onshore-wind-policy-statement-2022/onshore-wind-policy-statement-2022/govscot%3Adocument/onshore-wind-policy-statement-2022.pdf> [Accessed August 2023]

Scottish Tourism Alliance. (2021.) Scotland Outlook 2030. Available at: <https://scottishtourismalliance.co.uk/wp-content/uploads/2020/03/Scotland-Outlook-2030.pdf> [Accessed August 2023]

South Lanarkshire Council. (2022.) South Lanarkshire Economic strategy 2022 -2027. Available at: <https://southlanarkshire.cmis.uk.com/southlanarkshire/Document.ashx?czJKcaeAi5tUFLIDTL2UE4zNRBcoShgo=Z9JpVXraH6xk60ouBdJyW2RQIL%2FeSc7xaq0UKjKnS4IAa7WVVOh8oig%3D%3D&rUzwRPf%2BZ3zd4E7lkn8Lyw%3D%3D=pwRE6AGJFLDNlh225F5QMaQWCtPHwdhUfCZ%2FLUQzgA2uL5jNRG4jdQ%3D%3D&mCTIbCubSFfXsDGW9lXnlq%3D%3D=hFfIUdN3l00%3D&kCxIAnS9%2FpWZQ40DXFvdEw%3D%3D=hFfIUdN3l00%3D&uJovDxwdjMPoYv%2BAJvYtyA%3D%3D=ctNJFf55vVA%3D&FgPIIEJYlotS%2BYGoBi5oIA%3D%3D=NHdURQburHA%3D&d9Qjj0agIPd993jsyOJqFvmyB7X0CSQK=ctNJFf55vVA%3D&WGewmoAfeNR9xqBux0rIQ8Za60lavYmz=ctNJFf55vVA%3D&WGewmoAfeNQl6B2MHuCPMRKZMwaGIPaO=ctNJFf55vVA%3D> [Accessed September 2023]

## 18.8. Scoping Questions to Consultees

- **Question 36:** Do you agree with the approach of scoping socio-economics out of the EIA and into a standalone report to better address the socio-economics requirements of NPF4?
- **Question 37:** Do you agree that the scope of the proposed assessment is appropriate?
- **Question 38:** Are there specific socio-economic, tourism and recreation effects and potential enhancements that should be considered in the standalone report?

## 19. Other Issues

A single EIA Report chapter will be prepared to address any implications the proposed Development may have on other technical disciplines that are not covered within the other technical chapters of the EIA Report. It is anticipated that this chapter would address the following issues:

- Telecommunications and Utilities;
- Shadow Flicker; and
- Climate Change and Carbon Balance.

The following topics are proposed to be scoped out of the EIA, as discussed further below:

- Population and Human Health;
- Major Accidents and Disaster;
- Ice Throw; and
- Lightning.

### 19.1. Telecommunications and Utilities

#### 19.1.1. Introduction

This Section considers potential issues associated with telecommunications as a result of the construction and operation of the proposed Development.

Wind turbines can introduce electromagnetic signal interference due to both physical and electrical factors. Physical interference can disrupt electromagnetic signals, leading to a ghosting effect that particularly impacts television and radar. Electrical interference stems from the operation of the generator within the turbine's nacelle and may affect communication equipment near the turbines. Efforts to mitigate potential electromagnetic signal effects will be incorporated into the turbine layout design by establishing exclusion zones around electromagnetic links.

#### 19.1.2. Guidance and Legislation

The below relevant legislation, policy and guidance will be used to inform the telecommunications and utilities assessment:

- HSG 47 Avoiding Danger from Underground Services, Third Edition (Health and Safety Executive (HSE), 2014);
- Wireless Telegraphy Act (UK Government, 2006);
- South Lanarkshire Council Local Development Plan 2 (2021) (South Lanarkshire Council, 2021);
- East Ayrshire Council Local Development Plan 2 (2024) (East Ayrshire Council, 2024);

- East Renfrewshire Council Local Development Plan 2 (2022) (East Renfrewshire Council, 2022);
- Digital Telecommunications: Planning Guidance (Scottish Government, 2023);
- Guidelines for Improving Digital Television and Radio Reception (Ofcom, 2003); and
- Tall structures and their impact on broadcast and other wireless services (Ofcom, 2009).

### 19.1.3. Proposed Scope and Methodology of Assessment

#### Telecommunications

The acceptability of the proposed Development, in terms of its effects on telecommunications, will be established through direct consultation with all appropriate consultees within the consenting process, namely Airwave Solutions, Arqiva, Atkins, BT, EE, Joint Radio Company (JRC), Spectrum Licensing (Ofcom) and Vodafone.

The proposed turbine locations will be designed to take into account the minimum separation distance of any identified communication link.

#### Television

Currently there is no widely accepted method of determining the potential effects of wind turbines on digital television reception, however digital television signals are better at coping with signal reflections, and do not suffer from ghosting that may occur with analogue signals. To date, there are very few cases of wind turbine interference with digital television reception post-digital switchover.

Given the strength of the digital signal in the area and the inherently resilient nature of digital television reception, there is considered to be a low risk of any interference from a wind energy development at this location on domestic television reception. To date there have been no instances of complaints from nearby residential properties in regards to television reception interference as a result of the operational Whitelee Windfarm.

#### Utilities

Other infrastructure, such as utilities, could be affected during construction; however, implementation of best practice would ensure that these are not adversely affected during construction or operation of the proposed Development. As the Site is the current location of the operational Whitelee Windfarm, the Applicant has prior knowledge of any potential utility infrastructure within the Site and in the immediate vicinity. Prior to construction, a line search for undergrounded utilities would occur with a focus on any New Extension Areas, and any services located and avoided.

During construction, there may be construction traffic passing beneath electricity lines along the transportation route. Appropriate management measures will be put in place to ensure that electricity lines are not affected by the proposed Development, and that the proposed Development is constructed in accordance with relevant health and safety legislation as appropriate.

#### 19.1.4. Potential Impacts

If turbines are sited outside of any prescribed buffer zones, there is no potential for the Proposed Development, once operational, to have an impact on telecommunications links or utility infrastructure.

Due to the low risk of interference with television reception, the requirement to address any reception issues once the proposed Development is operational could be conditioned in any consent granted. For the above reasons, it is not proposed to carry out a detailed assessment of potential effects on television reception and this topic therefore will be scoped out of further assessment.

No impacts are anticipated during construction on local telecommunication or television network or the local utility network.

#### 19.1.5. Potential Mitigation

Mitigation of impact on telecommunications links will be by design where possible, i.e., the turbines will be sited outside the minimum separation distance from any identified communication link(s) or other identified infrastructure. Where this is not possible, any other suitable mitigation measures will be agreed through direct dialogue between the Applicant and relevant stakeholders.

#### 19.1.6. Receptors & Impacts Scoped In or Out of Assessment

Television and utility receptors are unlikely to be impacted during construction and operation of the proposed Development. It is therefore proposed to scope out the potential effects on television and utility receptors.

Telecommunications receptors are unlikely to be impacted during construction, and the potential for operational effects can be mitigated through design. It is therefore proposed to scope out the potential effects of telecommunications receptors at the operational stage of development, due to the expectation of avoiding any impacts through embedded mitigation, unless any new links are identified prior to the submission of the Section 36 application.

## 19.2. Shadow Flicker

### 19.2.1. Introduction

This Section considers shadow flicker, which is an effect caused by the rotation of the turbine blades when the sun is shining, which can create a flickering or strobe-like effect. It can be distracting and disturbing for people who are affected. Effects usually occur when the frequency of the flicker is less than 1.5 Hz.

### 19.2.2. Guidance and Legislation

There are at present no formal guidelines available on what exposure would be acceptable in relation to shadow flicker. There is no standard for the assessment of shadow flicker. The specific advice sheet from Scottish Government, Onshore Wind Turbines, a web-based guide

(Scottish Government, 2014)<sup>8</sup> sets out the potential geographic area which may fall under assessment: *"Where this (shadow flicker) could be a problem, developers should provide calculations to quantify effect. In most cases however, where separation is provided between turbines and nearby dwellings (as a general rule ten rotor diameters), 'shadow flicker' should not be a problem."*

Published research by the Department of Energy and Climate Change (DECC), Update of UK Shadow Flicker Evidence Base (DECC, 2011), evaluates the current international understanding of shadow flicker and confirms an acceptable study area for assessment is ten rotor diameters from each turbine and within 130 degrees either side of north.

### 19.2.3. Baseline

Potential for shadow flicker impacts will be assessed at all residential receptors within the shadow flicker Study Area.

As detailed above, the shadow flicker Study Area includes the area within a distance of ten times the rotor diameter and 130 degrees either side of north for each turbine. In the case of the proposed Development, this area extends to approximately 1.7 km from each turbine, based on a current indicative rotor diameter of 170 m. Based on the current layout, the closest active or viable residential receptors are within approximately 1 km of the nearest turbine.

### 19.2.4. Assessment Methodology and Potential Impacts

Impacts during the phased construction process could arise from operation of new proposed Development turbines alongside operational Whitelee Windfarm turbines. However, such impacts would be no greater than the impacts that may be experienced from the fully operational proposed Development. Therefore, a separate assessment of construction phase effects is not proposed to be undertaken.

In respect of potential shadow flicker impacts from the fully operational proposed Development, although further design iterations will be undertaken and the distance from residential receptors to the nearest turbines may change, it is very likely that some receptors will fall within the relevant Study Area (ten rotor diameters). A shadow flicker assessment will therefore be undertaken using WindPRO computer modelling software or equivalent. This will be run for both a worst-case scenario (accounting for 365 sunshine days per year and 100% turbine operation) and realistic scenario (using, where possible, measured meteorological data and 85% turbine operation) on the potential shadow flicker occurrence for a 1 m x 1 m ground floor window at each identified sensitive receptor location. It will be assumed that each identified receptor will be facing directly towards the proposed Development.

The sensitivity of the receptors will be considered to be high unless there are particular reasons for reduced sensitivity. A significant effect will be noted where a receptor is identified as experiencing greater than 30 hours of flicker a year or more than 30 minutes per day on the worst affected day (based on the realistic scenario), which ever if greater (DECC, 2011).

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<sup>8</sup> This guidance has been formally withdrawn, however remains a useful reference; no subsequent guidance has been published by the Scottish Government to indicate any change to the relevant study area to be considered for shadow flicker assessment.

The assessment will present clear findings on the estimated number of hours of shadow flicker impact anticipated for each receptor, for both scenarios.

A cumulative assessment will also be undertaken if it is identified that there are operational, consented, or proposed (in planning) wind turbines for which the relevant shadow flicker Study Area (ten rotor diameters from those turbines) overlaps with the proposed Development Study Area, and any residential receptors are present within the overlapping Study Areas. The estimated cumulative hours of shadow flicker impact will be considered, again for both worst-case and realistic scenarios.

Where required, potential mitigation measures will be discussed.

#### 19.2.5. Potential Mitigation

If required, the Applicant will implement a shadow flicker protocol during operation to mitigate shadow flicker impacts.

### 19.3. Climate Change and Carbon Balance

#### 19.3.1. Introduction

This Section sets out the proposed approach to the assessment of potential effects of the construction and operation of the proposed Development on carbon balance.

Calculation of the carbon footprint will be based on best practice guidelines including the Scottish Government Carbon Calculator Tool. The Applicant is aware of possible updates to the Carbon Calculator Tool and the latest version available at the point of submission will be used.

#### 19.3.2. Proposed Scope of Assessment

A renewable energy development has the potential to displace electricity generated from fossil fuels during its operational lifespan and consequently prevent carbon dioxide (CO<sub>2</sub>) from being released. The EIA Report will provide an estimate of the potential amount of CO<sub>2</sub> savings that can be made will be based on assessing the electricity generation mix that the proposed Development is displacing at any given time and the carbon released due to the construction of the proposed Development.

#### 19.3.3. Assessment Methodology

A windfarm constructed on peatland habitat and/or forested land has the potential to generate CO<sub>2</sub> emissions as a result of the excavation and/or degradation of peat and/or forestry felling. The current best practice guidance available on the Scottish Government website provides a method to calculate carbon emission savings associated with windfarm developments on Scottish peatlands and forested land using a full life-cycle analysis approach using a web-based application. The tool was originally published in 2008 and the latest update was made in 2023 (Scottish Government, 2023). The tool compares the carbon costs of windfarm developments with the carbon emissions savings attributable to the windfarm. The calculation is summarised as the length of the time (in years) it will take the carbon savings to amount to the carbon costs also referred as the 'payback period'. An assessment of effect of significance will not be undertaken but the estimated volumes of CO<sub>2</sub>

savings and emissions will be provided within the EIA Report and outputs from the Carbon Calculator tool will be provided as a Technical Appendix.

#### 19.3.4. Potential Mitigation

During the design process, the turbines and ancillary infrastructure will be sited to avoid areas of deep peat and to minimise the need for any potential felling as far as possible. Measures to minimise peat disturbance especially during excavation and measures to compensate any loss of forestry will also be taken into consideration. However, given that the proposed Development is a repowering project, some of the infrastructure required to be built will already have impacted the peat onsite such as the access roads and turbine hardstandings. Best practice measures will be considered to minimise peat disturbance during construction and decommissioning and will be provided as a part of the CEMP.

It is therefore proposed to scope out climate change and carbon balance from an impact assessment within the EIA Report but as noted above, the Carbon Calculator output and a summary of findings will be provided within the Project Description chapter.

### 19.4. Population and Human Health

During the construction of the proposed Development, the movement of vehicles and the onsite plant would generate exhaust emissions. Construction activities also have the potential to generate dust during dry spells, which may adversely affect local air quality. Construction traffic will be appropriately managed in line with a Construction Traffic Management Plan (CTMP) to be agreed in advance of construction works commencing. Dust from construction activities will be appropriately managed through implementation of standard mitigation measures (e.g. wheel washing, dampening of loads, etc.) which will be captured in a Site-specific CEMP.

Given this appropriate management of dust and construction traffic, the temporary nature of the construction period, and the distance between construction areas and the nearest residential properties, effects on local air quality are likely to be negligible.

Operational windfarms produce no notable atmospheric emissions. The operation of the proposed Development would therefore have no discernible adverse effects on local or national air quality.

The assessment of other potential health effects will be covered under individual aspect chapters where relevant and were scoped into the EIA (e.g. noise and shadow flicker).

A dedicated assessment of effects on population and human health will therefore not be undertaken and is scoped out of the EIA.

### 19.5. Major Accidents and Disasters

Given the nature of the proposed Development, the risk of a major accident or disaster is considered to be extremely low. Where further detail is identified as being required, for example peat slide risk, this will be provided within the relevant technical assessment chapters of the EIA Report.

The Principal Designer will ensure a Design Risk Assessment process is followed during the design phase to ensure designers fully assess risks and mitigate to a level deemed as low as

reasonably practicable during the design stage as part of the requirements of the Construction (Design and Management) Regulations (2015) (UK Government, 2015).

During the operational phase of the proposed Development, routine maintenance inspections will be completed in order to ensure the safe and compliant operation of all built infrastructure.

Assessment of the risk of major accidents and/ or disasters is therefore scoped out of the EIA.

## 19.6. Ice Throw

Ice throw is the process of ice falling or being launched from the blades of a turbine. Icing in Scotland is a rare occurrence, with the Icing Map of Europe (WECO, 2000) showing Scotland to be within a light icing area with an annual average of only two to seven icing days per year. The Scottish Government's Onshore Windfarm Advice Sheet (Scottish Government, 2014)<sup>9</sup>, "*danger to human or animal life from falling parts or ice is rare*".

The risk is further reduced by the following embedded mitigation:

- Turbines will have sensors on them to detect the build-up of ice and automatically prevent the turbines spinning when ice has developed on them, thus preventing the ice being thrown;
- Service crews will be trained regarding the potential for ice throw;
- Ice risk conditions will be monitored by the windfarm operator; and
- Public notices will be displayed at access points alerting members of the public and staff accessing the Site of the possible risk of ice throw under certain weather conditions.

Ice throw will therefore not be assessed in the EIA and is scoped out of the assessment.

## 19.7. Lightning

As stated in Scottish Government's online planning advice for onshore wind turbines (Scottish Government, 2014)<sup>10</sup>, "*the danger to human or animal life from lightning strike via a turbine is rare since lightning is directed down the turbine to the earth; the turbine itself being earthed*". Maintenance of the turbines would not be undertaken during high lightning risk weather conditions.

Risks from lightning will not be assessed in the EIA and this topic is therefore scoped out of the assessment.

## 19.8. References

Department of Energy and Climate Change. (2011.) Update of UK Shadow Flicker Evidence Base.

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<sup>9</sup> This guidance has been formally withdrawn, however remains a useful reference; no subsequent guidance has been published by the Scottish Government relating to ice throw from wind turbines.

<sup>10</sup> This guidance has been formally withdrawn, however remains a useful reference; no subsequent guidance has been published by the Scottish Government relating to lightning risks for wind turbines.

East Ayrshire Council. (2024.) Adopted Local Development Plan 2. Available at: <https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2.aspx>

East Renfrewshire Council. (2022.) Local Development Plan 2. Available at: <https://www.eastrenfrewshire.gov.uk/article/1173/Local-Development-Plan-2>

Health and Safety Executive. (2014.) HSG 47 Avoiding Danger from Underground Services, Third Edition.

Ofcom. (2003.) Guidelines for Improving Digital Television and Radio Reception.

Ofcom. (2009.) Tall structures and their impact on broadcast and other wireless services.

Scottish Government. (2014.) Onshore wind turbines: planning advice [Online] Available at: Onshore wind turbines: planning advice - gov.scot ([www.gov.scot](http://www.gov.scot))

Scottish Government. (2023a.) Digital Telecommunications: Planning Guidance. Available at: <https://www.gov.scot/publications/scottish-government-planning-guidance-digital-telecommunications/>

Scottish Government. (2023b.) Carbon Calculator for Wind Farms on Scottish Peatlands. Available at: <https://informatics.sepa.org.uk/CarbonCalculator>

South Lanarkshire Council. (2021a.) South Lanarkshire Local Development Plan 2. Available at: <https://www.southlanarkshire.gov.uk/developmentplan2>

UK Government. (2006.) Wireless Telegraphy Act.

UK Government. (2015.) Construction (Design and Management) Regulations (2015).

WECO. (2000.) Icing Map of Europe.

## 19.9. Scoping Questions to Consultees

- **Question 39:** Do consultees agree with the proposed approach of the assessments within this section?

## 20. Residual, Synergistic Effects and Mitigation

A concluding chapter will present the key findings from each EIA Report chapter, including a summary of the residual effects predicted to arise in relation to the proposed Development construction and operation. In line with the EIA Regulations, an assessment will be presented of the potential synergistic effects that may occur in combination.

Finally, the chapter will present a summary of committed mitigation and enhancement measures (including embedded mitigation by design), which will be undertaken should the proposed Development be consented.

## 21. EIA Report Accompanying Documents

### 21.1. Non-Technical Summary

The NTS details the main components of the proposed Development and summarises the main findings of the environmental studies carried out to build and operate the proposed Development. It is designed to be an easily readable document that will communicate the main elements of the EIA to any interested party without the need for the reader to have specialist background knowledge. It will also contain maps that show the extent and geographical location of the proposed Development.

### 21.2. Planning and Renewable Energy Policy Statement

As described in **Section 6**, a standalone Planning and Renewable Energy Policy Statement will be submitted as part of the Section 36 application package, providing a detailed appraisal of the proposed Development against the relevant Development Plan policies, national planning and energy policy and other material considerations.

### 21.3. Pre-Application Consultation Report

As described in **Section 5**, a PAC Report will be submitted with the Section 36 application, summarising the community engagement and consultation activities undertaken up to the point of submission.

### 21.4. Socio-economic and Tourism Appraisal

As described in **Section 7**, a standalone Socio-economic and Tourism Appraisal document will be submitted as part of the Section 36 application package. This will include consideration of recreation and land use.

## 22. Conclusion

This Scoping Report has been prepared by SLR Consulting Limited on behalf of the Applicant in anticipation of an application under Section 36 of the Electricity Act 1989 for the Whitelee Windfarm Repowering development, located on Eaglesham Moor, approximately 15 km south of Glasgow and 6 km south west of East Kilbride.

For each topic area, questions to relevant consultees have been provided within this Scoping Report. The questions focus on the proposed methodologies for collecting baseline data and assessing likely effects caused by the construction and operation of the proposed Development.

Information has been provided on the proposed Development, the current baseline, and environmental receptors identified to date. Where features or receptors are deemed to potentially experience a significant effect due to the construction and/or operation of the proposed Development, the proposed methodologies to assess the level and significance of effect have been provided for comment. In line with good practice in the planning system, emphasis is focused on key elements identified at the scoping stage, i.e. effects which have the potential to be considered significant.

Responses to the questions raised in this Scoping Report would help ensure that the detailed surveys and assessments are carried out with consideration to all statutory consultees and key stakeholders.

## 23. Responding to this Scoping Report

Consultee responses to this report should be directed to the ECU, who will then form a Scoping Opinion. The ECU can be contacted via email:

Econsents\_Admin@gov.scot

The Applicant will welcome copies of responses to inform the scope of EIA to be undertaken for the proposed Development. Further direct consultation will be undertaken with each consultee as the EIA progresses.