

Glenvernoch Wind Farm

**Additional Information
Volume I – Main Text**

May 2026



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1 INTRODUCTION

Introduction

- 1.1 This Additional Information (AI) is submitted in support of an application for consent under Section 36 of the Electricity Act 1989 by Energiekontor UK Ltd ("the Applicant") to the Energy Consents Unit (ECU) for thirteen wind turbines and associated infrastructure ("the Proposed Development") on land at Glenvernoch ("the Site"). The application was accompanied by an Environmental Impact Assessment Report ("the EIAR") as required under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations").
- 1.2 Regulation 19 of the EIA Regulations directs that, in order to ensure the completeness and quality of the EIAR, the Scottish Ministers must (having regard in particular to current knowledge and methods of assessment) seek from the developer supplementary information about any matter in schedule 4 which in the opinion of Scottish Ministers is directly relevant to reaching a reasoned conclusion on the significant effects of the development on the environment.

Purpose of AI

- 1.3 Additional Information dated April 2026 ("the April 2026 AI") was submitted by the Applicant to identify the potential for likely significant environmental effects associated with the grid connection for the Proposed Development, including cumulative effects with the wind farm. The Proposed Development and the grid connection, as considered for EIA purposes, are described as the "wider project".
- 1.4 The April 2026 AI identifies two potential grid connection routes for the Proposed Development:
- A southern connection route to Newton Stewart Substation, which would consist of 8km of underground cable buried within the road corridor; and
 - A northern connection route to Pinwherry Substation, which would consist of 15.5km of underground cable buried within the road corridor and 11.5km of overhead line.
- 1.5 Following submission of the April 2026 AI, comments submitted by third parties¹ queried whether the April 2026 AI presents a reasonable worst-case assessment of the grid connection, as elements of the northern connection route to Pinwherry Substation were assumed to be underground, rather than overhead line for the entire route.
- 1.6 In particular, the third parties make reference to the 'Rochdale Envelope' as defined in the *R v Rochdale MBC ex parte Milne (No 2) [2000]* judgement, and suggest there is a requirement to consider the worst-case effects of the development, even where there is

¹ Third response to the Procedure Notice 18/3/26 on behalf of the owners of Knockville and Crungie Woodland and Hands off our Hills, prepared by Dr Christopher Ford (May 2026)

uncertainty. The third parties submit that the April 2026 AI has not considered the effects arising from the worst-case scenario for the grid connection, which they consider to be an overhead line from the Site all the way to the Pinwherry substation.

- 1.7 This AI is submitted supplementary to the April 2026 AI and seeks to identify the potential for likely significant environmental effects associated with an assumed overhead line route from the Site to Pinwherry Primary Substation. Various references are made to the April 2026 AI and the two documents should be read alongside one another.
- 1.8 Where the level of effect on certain environmental topics is considered to have reduced as a result of a fully overhead line grid connection route, when compared against the environmental assessments for the northern grid connection route submitted as part of the April 2026 AI, these topics have been scoped out of this assessment. Further information is set out in Section 2 on this scoping process.
- 1.9 This AI has been prepared by the Applicant with specialist input where required. The AI is based on the information that is known at the time of writing.
- 1.10 For the avoidance of doubt, permission is not sought for the grid connection itself as part of this application. The connection would be subject to its own separate consenting process in the future, which would be led by SP Energy Networks ("SPEN"). SPEN would also construct, operate and own the grid connection infrastructure.
- 1.11 It should be stressed at the outset that the final details of the grid connection are not currently known. A number of ongoing initiatives relating to electricity network planning may influence the eventual point of connection, connection date, connection voltage, routing of the connection, and the balance of underground cable and overhead line. These include Connections Reform, the Strategic Spatial Energy Plan (SSEP), Regional Energy Strategic Planners (RESPs) and Centralised Strategic Network Planning (CSNP). These initiatives are discussed in section 3 of the previous AI dated April 2026.

Structure of Report

- 1.12 This FEI is structured as follows:
 - Section 2 describes the likely overhead line route details from Glenvernoch Wind Farm to Pinwherry Substation;
 - Section 3 – 7 provide an environmental assessment of the grid connection; and
 - Section 8 provides a Non-Technical Summary of the environmental assessment.

The Applicant

- 1.13 Energiekontor UK Ltd is a renewable energy development company with offices in Glasgow, Edinburgh and Leeds. The company was formed in 1999 and develops onshore wind and solar farms throughout the United Kingdom. The company operates eleven existing wind farms in the UK, including three subsidy-free wind farms in Scotland, with many others at various stages of the development process in the UK.

- 1.14 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, Portugal, the USA and the UK. The company has built more than 170 onshore wind farms and solar parks in Europe with a total nominal power of 1.5 gigawatts.

Contact for Further Information

- 1.15 For additional copies, a charge of £10 will be made for a full electronic copy of this FEI on CD. Costs for paper copies are as follows:
- Written Text £15.
 - Figures £15
- 1.16 Requests for copies should be sent to: George.Oldroyd@energiekontor.com.
- 1.17 Hard copies of this FEI will be available for public inspection at Dumfries and Galloway Council, Council HQ, English Street, Dumfries, DG1 2DD.

2 GRID CONNECTION DETAILS

Introduction

- 2.1 This section outlines the currently understood parameters of the potential grid connection for the Proposed Development and identifies an overhead line connection route to Pinwherry Substation. The subsequent sections provide a high-level assessment of the potential for likely significant environmental effects to arise from the northern grid connection. This assessment is based on the information available at the time of writing, recognising that the grid connection details for the Proposed Development are currently unknown. To inform the assessment, reasonable assumptions of a worst-case scenario, likely overhead line grid route have been made.

Uncertainty

- 2.2 The EIA process is designed to ensure robust information about the environmental effects of a development is reported in a systematic way to inform decision making. There will, however, always be an element of uncertainty as to the exact scale and nature of the predicted effects. As required by Schedule 4, Part 6 of the EIA Regulations, any uncertainty shall be identified within an EIA Report.
- 2.3 Under the process of Connections Reform outlined in Section 2, Glenvernoch Wind Farm does not currently benefit from a Gate 2 grid connection agreement. The Gate 1 connection agreement for the Proposed Development confirms that the Point of Connection (PoC) will be on the Glenvernoch Wind Farm site at the proposed 132kV substation, however, the means by which the transmission network would be extended to connect to the PoC will not be confirmed until the Proposed Development achieves Gate 2 status, which would not happen until the Proposed Development achieves consent. As such the following details for the grid connection have not been confirmed by SPEN:
- Connection voltage (although it is most likely to be 132kV);
 - Route corridors for new transmission infrastructure, including the preferred route; and
 - The balance of overhead line and underground cable sections of the preferred route.
- 2.4 Until these details are confirmed by SPEN it is not possible to provide an EIA of the final grid connection route. As explained in Section 2 of the April 2026 FEI, paragraphs 2.13-2.19, SPEN will not commence work on the connection details unless and until consent for the Proposed Development has been granted. This necessarily limits the level of detail at which environmental effects can be assessed at this stage. Accordingly, this AI presents a high-level environmental assessment based on the information currently available regarding the likely grid connection at the time of writing, noting there is a significant degree of uncertainty, given the indicative grid corridor within which a likely overhead line route has been identified.

Indicative Grid Connection Details

Grid Connection Corridor

- 2.5 As indicated at paragraph 2.4 above, owing to the fact that Glenvernoch wind farm does not currently benefit from a Gate 2 offer, the grid connection corridor for the Proposed Development is unknown.
- 2.6 The approach taken to inform the April 2026 AI was to identify the two nearest substations to the Site (one to the north and one to the south) and identify a potential route corridor for each. The April 2026 AI therefore considers the following two scenarios:
- A southern connection route to Newton Stewart Substation, which would consist of 8km of underground cable buried within the road corridor; and
 - A northern connection route to Pinwherry Substation, which would consist of 15.5km of underground cable buried within the road corridor and 11.5km of overhead line.
- 2.7 These routes are illustrated on Figure 4.1 of the April 2026 AI.
- 2.8 This AI presents an assessment of a third scenario in which the northern connection route is constructed using overhead line between the Site and Pinwherry Substation. This results in a different and more direct route alignment than the northern route assumed in the April 2026 AI. Underground cable would still be used within the Wind Farm Site itself owing to technical spacing requirements between overhead lines and wind turbines². In particular, wind turbines should be separated from overhead electricity lines by a distance equivalent to three rotor diameters. This spacing requirement constrains overhead lines within most of the site boundary apart from a narrow corridor at the eastern edge, running parallel to the A714 where in theory it could be technically possible to construct a new overhead line. However, this area is constrained by the residential property Knockville, by an existing overhead line (which would need to be avoided), and by adjacent ancient woodland. It is therefore considered likely that the grid connection would begin underground (particularly as the on-site substation is within a three rotor diameter buffer zone) and follow the wind farm access tracks north before emerging north of Turbine T12 at the end of the three rotor diameter buffer zone. Nevertheless, if overhead line was used within the wind farm site along the eastern boundary then it is considered unlikely this would lead to any additional significant effects due to the presence of the existing overhead line which it would run alongside, and the extensive screening provided by the ancient woodland present on the eastern boundary of the site. In total the route would consist of 21.8km of overhead line and 4.5km of underground cable.
- 2.9 Figure 2.1 shows a likely overhead line grid connection route within a 500m buffer offset of the route to effectively provide a 1km grid corridor, which is located within a broader grid

² Energy Networks Association, Separation between Wind Turbines and Overhead Lines Principles of Good Practice (2012), available at:
https://www.spenergynetworks.co.uk/userfiles/file/Energy_Networks_Association_Separation_Wind_Turbines_Overhead.pdf

corridor. It is likely that any refinement to the detailed routing design would be located within or close to the identified likely overhead line route (particularly within the 500m buffer offset) through a process of route design and micro-siting where the final, precise positions of individual wooden poles and the exact alignment of conductors would be finalised. This detailed, design and engineering stage is critical for balancing technical requirements, land use, and environmental effects in accordance with SPEN's licence holder obligations. Figure 2.1 forms the basis for subsequent assessment of potentially significant environmental effects.

Overhead Lines

- 2.10 With an overhead line, conductors (or wires) are suspended at a specified height above ground and supported by wooden poles, spaced at intervals. Conductors can be made either of aluminium or steel strands.
- 2.11 Wood poles can be used for single circuit lines operating at 33kV and 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity.
- 2.12 Wood poles can consist of single poles, or in certain circumstances, double 'H' poles which consist of two wooden poles joined by a steel cross bracing both above and below the ground. H poles are generally used for greater changes in direction or above certain altitudes.
- 2.13 There are three types of pole:
- Intermediate: where the pole is part of a straight line section.
 - Angle: there is only one type of angle pole which can support changes in direction up to a maximum of 300 degrees. All angle structures will require to be back stayed.
 - Terminal: where the overhead line terminates into a substation or on to an underground cable section via a cable sealing end.
- 2.14 Span lengths between poles average between 80m and 120m. The average height for a pole varies from 14m to 16m. New wood poles are dark brown in colour and weather over the years to a light grey.

Underground Cables

- 2.15 Underground cable would be utilised within the Wind Farm Site owing to technical spacing requirements between overhead lines and wind turbines. The cable route would follow existing access tracks north through the Site, before emerging at a suitable location north of turbine T12 and switching to overhead line infrastructure.
- 2.16 With an underground cable, the conductors are encased in insulated material and buried in a backfilled trench of suitable depth and width. The number of cables, and the depth and width of the trench, depends on a range of factors including voltage, number of circuits and the rating of the cables to be installed.

- 2.17 Where connected to an overhead line, an underground cable may also involve the siting of terminal supports and sealing end compounds above ground. These require their own siting appraisal which should normally be undertaken in conjunction with the overhead line/underground cable routeing.
- 2.18 Open cut trenching is the most frequently used construction method for cable installation. However, in crossing under watercourses or motorways for example, a trenchless technique such as directional drilling may be used. Works at each section commonly consist of the excavation of the cable trench by mechanical excavators, the storage of excavated material, cable laying, the backfilling of the trench and surface reinstatement. Sections of cable are joined together at cable jointing pits, with the location of these dictated by a number of factors including cable size/length and ongoing access requirements. Manhole covers above jointing pits enable access just below the surface for routine maintenance. Underground cables are marked on service maps provided to other utilities and are installed with surface marker tape to warn of their presence below the ground. If lines are decommissioned, cables can either be left in situ or removed carefully by opening up the ground.
- 2.19 The connection works period would be unlikely to take longer than 12 months in total and works would be subject to SPEN's established construction methodology to avoid or minimise any adverse construction effects. Temporary traffic management measures would be deployed as necessary where works are due to take place within or adjacent to the public highway.

Environmental Effects Scoped In

- 2.20 Based on the currently understood parameters of the likely grid connection and the associated high level of uncertainty, a proportionate assessment of environmental effects is provided for the following topics:
- Landscape and visual amenity;
 - Cultural heritage and archaeology;
 - Ecology; and
 - Forestry.
- 2.21 These topics are considered separately in the following sections of this AI.

Environmental Effects Scoped Out

- 2.22 The following topics are scoped out of the assessment as it is considered that either no significant environmental effects are likely, or the worst-case has already been assessed in the April 2026 FEI:
- Air quality – Due to the short term and localised nature of the construction and decommissioning phases, any temporary impacts to air quality, including from construction traffic, are likely to be minimal and locally concentrated. Operational

impacts are expected to be negligible as the activities associated with maintenance will be sporadic. Consequently, no significant effects are predicted in relation to air quality.

- Construction and operational noise – Due to the short term and localised nature of the construction and decommissioning phases of the grid connection, any temporary noise created (including from construction traffic) is likely to be minimal and locally concentrated. During operation, overhead lines can create audible noise depending on the operating voltage and the type of conductor system used. For connections at 132kV and below however, audibility of noise would be limited to an observer directly below the line. Consequently, no significant effects are predicted in relation to noise.
- Land quality and contamination – During construction and maintenance of the grid connection there could be a potential risk of accidental fuel or oil spills from the operation of plant and machinery, which could potentially lead to pollution of nearby watercourses or sensitive habitats. It is expected that SPEN would follow its established construction guidance and would be regulated under the future consent for the grid connection. Relevant Guidance for Pollution Prevention (GPP) documents would also be strictly followed by SPEN to minimise risks. The use, storage, transport and handling of materials on site will comply with relevant legislation and best practice, including adherence to Control of Substances Hazardous to Health (COSHH) regulations and the appointed contractor will prepare and adhere to a Materials Management Plan (MMP) to mitigate any potential risks effectively. Given these robust preventative measures to manage and mitigate potential impacts, no significant effects are predicted in relation to land quality and contamination.
- Material assets and waste – The grid connection is not anticipated to generate significant quantities of waste during construction or operation. It is expected that SPEN would adopt its established practices in effective waste management to promote the reduction, reuse and recycling of waste material. Mitigation measures would be put in place to further minimise the potential environmental effects associated with waste storage and transportation. Consequently, no significant effects are predicted in relation to material assets and waste.
- Climate – It is considered unlikely that the grid connection would lead to significant effects on climate or the ability of receptors to adapt to climate change.
- Population and human health – Given that no significant effects are predicted in relation to noise, air quality and socio-economics, and that noise and dust nuisances will be adequately mitigated through the implementation of good practice construction methods and mitigation, it is considered that no significant effects are likely to occur in relation to population and human health.
- Major accidents and disasters – The grid connection is not located in an area with a history of natural disasters and the operation of the connection would be managed in line with the requirements of a number of health and safety related

regulations. Consequently, no significant effects are predicted in relation to major accidents and disasters.

- Light, heat and radiation – Electromagnetic fields are produced by electrical charges. Exposure guidelines developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) ensure the protection of human health from dangerous levels of occupational and public exposure. These guidelines have been adopted by Public Health England, which the Scottish Government follows on matters relating to electromagnetic fields. The grid connection voltage and equipment is considered by the Government to be inherently compliant with exposure limits due to design. During construction, temporary pollution from light and heat sources would be minimised through adherence to standard best practice construction practices and working hours that would be implemented by the appointed contractor. Consequently, no significant effects are predicted in relation to light, heat and radiation.
- Socio-economics, recreation and tourism – The construction and decommissioning phases are anticipated to cause minimal disturbance to recreational activities, localised to small working areas as construction progresses. Post-construction, use of the land would continue as normal with the exception of the occasional need for maintenance. Due to the relatively short construction period and the scale of the grid connection, impacts to employment and local income generation are not anticipated to be significant, and there would be a small but not significant benefit due to the capital expenditure associated with the grid connection. Consequently, no significant effects are predicted in relation to socio-economics, recreation and tourism.
- Geology, Hydrology and Hydrogeology – An assessment of the likely significant environmental effects of the grid connection on geology, hydrology and hydrogeology was undertaken as part of the April 2026 AI. With regard to the likely overhead line grid connection route and its impacts on hydrology and soils receptors, increasing the extent of the overhead line and reducing the underground extent would likely result in comparatively reduced adverse impact. This is primarily to do with the extent of the earthworks soil/peat disturbance, potential for erosion, disruption of groundwater and dewatering, trenching and cable laying of watercourses, which for an overhead line is much reduced and localised to pole locations or where temporary tracks are used. For undergrounding, such impacts could be expected the full length of the connection. Consequently, the 'worst-case' scenario impacts for geology, hydrology and hydrogeology have already been assessed as part of the April 2026 AI, and so no further assessment is provided.
- Traffic and Transport – An assessment of the likely significant environmental effects of the grid connection on traffic and transport was undertaken as part of the April 2026 AI. With regard to the likely overhead line grid connection route and its impacts on traffic and transport, the length of the route for a fully overhead line would be shorter than the mix of underground cabling and overhead line that was assessed as part of the April 2026 AI. The likely overhead line grid connection route

in this assessment is 21.8km in total and is assessed as resulting in a total of 3,549 construction trips, whereas the mix of underground cabling and overhead line assessed in the April 2026 AI was 26km in total and was assessed as resulting in a total of 3,788 construction trips. Consequently, as the number of construction trips for the likely overhead line route which this assessment is based on is less than the number of trips assessed as part of the April 2026 AI, it is considered that the 'worst case' scenario for traffic and transport has already been assessed and no further assessment on this topic is provided.

- 2.23 The subsequent sections consider the potential significant environmental effects of the grid connection in relation to the topics scoped into this AI, including any cumulative effects in-combination with the Proposed Development.

3 LANDSCAPE AND VISUAL EFFECTS

Introduction

- 3.1 This section presents an assessment of the likely significant environmental effects of the likely overhead line grid connection route to Pinwherry Substation on landscape character and visual amenity. It also describes the baseline conditions and any potential mitigation measures that could be put in place.
- 3.2 An assessment of the Proposed Development, as described in the EIAR, was included as part of the original Landscape and Visual Impact Assessment (LVIA) presented in Chapter 6: Landscape and Visual which was submitted as part of the planning application for the Proposed Development in November 2024.
- 3.3 This appraisal is accompanied by a bareground Zone of Theoretical Visibility (ZTV) map showing theoretical visibility from a likely linear overhead line route (see **Figure 3.1: Likely OHL ZTV**).
- 3.4 In preparing this appraisal, the previous assessments included in Chapter 6: Landscape and Visual and the April 2026 AI have been reviewed. The purpose is to determine if the addition of an overhead line, when considered as part of the wider project, would result in any change to the landscape and visual effects as set out in the original LVIA material presented in Chapter 6: Landscape and Visual, when assessing the Proposed Development as a standalone development. An overall conclusion in relation to any additional significant effects from the inclusion of an overhead line as part of the wider project as a whole has been included.
- 3.5 The information presented in this appraisal has been prepared by chartered Landscape Architects at Pegasus Group who prepared the assessment of landscape and visual effects as set out in Chapter 6: Landscape and Visual, and the April 2026 AI.

Approach and Scope

- 3.6 The methodology and approach taken to the overhead line appraisal follows that of the earlier LVIA work set out in Chapter 6: Landscape and Visual and the Additional Information April 2026.
- 3.7 An update on the relevance of national and local plan policies, as well as guidance documentation considered as part of the original LVIA material, was provided in the Additional Information April 2026. To avoid duplication in this appraisal, reference should be made to the guidance and planning policy documents as set out and considered as part of the original LVIA material (see **Legislation, Policy, and Guidance and Methodology sections in Chapter 6: Landscape and Visual**) and the Additional Information April 2026.
- 3.8 This appraisal adopts a similar approach and scope as set out in the dated April 2026 AI. As such, this appraisal presents a proportionate assessment on the potential landscape

and visual effects that may arise from an overhead line when considered as part of the wider project as a whole during the construction and operational phases.

- 3.9 No significant landscape and visual impacts from an overhead line would be expected during decommissioning. Whilst some short-term and minor temporary disturbance would be expected to the landscape fabric, in the longer-term, the infrastructure would be removed or would not be visible in the landscape. As a result, an assessment during the decommissioning phase has been scoped out of this appraisal.
- 3.10 It should be noted that this appraisal is based on what can reasonably be predicted at the time of writing (May 2026). Further analysis would be required to provide a detailed assessment of a defined route if the Proposed Development were awarded planning consent (under Section 37 of the Electricity Act 1989).
- 3.11 The scope of this appraisal is set out as follows:
- Likely Overhead Line Route and Grid Connection Corridor.
 - Assumptions and Limitations.
 - Zone of Theoretical Visibility Analysis.
 - Landscape and Visual Considerations.
 - Assessment of Landscape Effects.
 - Assessment of Visual Effects.
 - Cumulative Assessment; and
 - Summary.
- 3.12 This appraisal is supported by the following Figures:
- Figure 3.1: Likely OHL Route ZTV.

Likely Overhead Line Route and Grid Connection Corridor

- 3.13 Based on current information, two potential points of connection have been identified for the Proposed Development. As outlined in the Additional Information April 2026, the first – and preferred – potential point of connection is the existing Newton Stewart Substation. This would require an underground cabling route in its entirety, which would be routed along the roadside verge of the A714.
- 3.14 The second potential point of connection is the existing Pinwherry Substation, which is located approximately 18.9km northwest of the Application Site. Whilst it is expected that any grid connection would be via a combination of underground and above ground works, this assessment considers a likely connection route comprising wholly above ground works.

- 3.15 From the proposed 132kV substation in the Site boundary (that was assessed as part of the Proposed Development in the original LVIA), to Pinwherry Substation, the above ground and underground portions of the route previously identified and assessed in the Additional Information had to be reconsidered for applicability. When balancing the environmental, operational (including management and maintenance), and technical considerations of an entirely above ground route, it should be noted that the overall grid connection route has changed from that assessed in the April 2026 AI. Whilst the overhead line route largely mirrors the portions of the overhead line route as assessed previously, slight deviations have occurred near the settlement of Barrhill and Cross Water. The portions of the route previously considered to be underground have been re-routed. The likely overhead line route from the proposed substation in the Site and Pinwherry Substation has been identified on **Figure 3.1: Likely OHL Route ZTV**. As shown on **Figure 3.1**, a 500m buffer offset has been established to the route to essentially provide a 1km route corridor, which is located within a broader grid corridor. It is likely that any refinement to the detailed routing design would be located within or close to the identified corridor of the likely overhead line route (including 500m buffer offset) through a process of route design and micro-siting where the final, precise positions of individual wooden poles and the exact alignment of conductors would be finalised. This detailed design and engineering stage is critical for balancing technical requirements, land use, and environmental effects in accordance with SPEN's licence holder obligations.
- 3.16 In the Site, a portion of the grid connection would be underground. Broadly speaking, once any proposed underground cable is installed, it would not be visible, negating the need for an assessment of operational landscape and visual effects. With any effects associated with the laying of underground cables predicted to be limited and localised, there is not considered to be any potential for the underground sections of the route to alter the findings of the previous assessments as set out in the original LVIA material prepared for the Proposed Development. As a result, for the purposes of this appraisal, it is only the overhead line on wooden poles relating to the secondary option from the onsite substation proposed as part of the Proposed Development to Pinwherry Substation that is considered.
- 3.17 As shown on **Figure 3.1**, the likely route of the overhead line would predominantly span across commercial coniferous forestry plantations and multiple field boundaries (predominantly third-party land) before connection at the Pinwherry Substation.
- 3.18 It is assumed that the route of the likely overhead line would be designed to fit appropriately within the Site and the surrounding land use, to minimise potential landscape and visual impacts, including maximising setbacks from surrounding receptors, working with existing landform, and implementing other mitigation measures (e.g. landscape mitigation measures) to reduce impacts, where appropriate and practicable. For further information on the assumptions built into this appraisal, please refer to the Assumptions and Limitations of Assessment section.
- 3.19 In terms of design parameters, the design guidelines developed by Lord Holford in 1959 for routing overhead transmission lines, 'The Holford Rules', are widely considered to be a principal point of reference, alongside GLVIA3, when appraising potential landscape and visual effects of linear infrastructure routes. Whilst the Holford Rules were prepared

principally for the routing of pylons, similarities exist with the routing of an overhead line on wooden poles. As a result, the rules are considered a useful guide for this appraisal.

Assumptions and Limitations of Assessment

Design of Indicative Overhead Line Route (under Section 36 of the Electricity Act 1989)

- 3.20 For the purposes of this appraisal, the above ground grid connection components are considered to comprise a 132kV circuit of trident wooden poles with overhead lines, which has been adopted as a precautionary 'worst-case scenario'.
- 3.21 In order to conduct an assessment, the following assumptions have been made and applied in **Figure 3.1** that informs this appraisal:
- 3.22 Adoption of a combination of single and double (also known as 'H') trident wooden poles.
- 3.23 The poles would typically have a standard height above ground of 15m (including insulators); although, individual pole heights may change to meet statutory clearance requirements (including standard minimum statutory ground level clearance of 6.7m).
- 3.24 Individual pole heights may be increased locally (up to 20m) where required to navigate features such as watercourses, road and railway crossings, changes in localised topography, or built features, etc.
- 3.25 Individual pole heights may be reduced locally where required to navigate changes in localised topography etc. As a consequence, the heights of the poles above ground (to the top of the insulators mounted on the poles), are assumed to range from approximately 10m to 20m, with an average height of 15m adopted for the 3D modelling for the ZTV map calculations.
- 3.26 The span length between poles may range between approximately 80m – 120m, to navigate changes in localised topography, and when accounting for environmental and technical constraints. For the purposes of this appraisal, an average span length of 90m has been adopted for the 3D modelling for the ZTV map calculations.
- 3.27 The route of the overhead line would be informed by a preference to follow existing linear features, such as transport corridors, including the A714, the B7027, and railway lines, where practicable.
- 3.28 The poles are expected to be seasoned and treated with a suitable preservative, resulting in a dark brown appearance, which would weather to a silver/grey colour over a period of approximately five years following installation.
- 3.29 The construction period for the overhead line works is expected to take approximately 12months, with the poles and overhead lines then in-place throughout the operational lifetime of the Proposed Development.

Study Area

- 3.30 Based on an understanding of visibility gained during site-based visits, an appraisal of the likely overhead line route, and the results of the ZTV plan (see **Figure 3.1**), this appraisal has focussed on a 1km study area from the identified route corridor of the likely overhead line route (including 500m buffer offset).

Baseline Information

- 3.31 The baseline landscape resource and visual receptors were identified through a desk-based study of Ordnance Survey mapping, published landscape character studies, relevant planning policies, interrogation of aerial photography, as well as photographs taken, and observations made, during site-based work.
- 3.32 Access during site-based visits was largely restricted to publicly accessible locations or land within the ownership of the Application Site landowner. Certain residents/ landowners of those properties evaluated in the Residential Visual Amenity Assessment (RVAA) produced as part of the original LVIA material (see **Environmental Impact Assessment Report. EIAR Volume III – Technical Appendices. Appendix 6.6: Residential Visual Amenity Assessment (RVAA)**) granted access to their property and/or property curtilage; however, in the main, assumptions are made regarding the view from private properties. These assumptions have been based on an understanding of the properties and features present within the wider landscape gained during site visits from publicly accessible locations. Assumptions are guided by professional experience and judgement.
- 3.33 The main LVIA presented in Chapter 6: Landscape and Visual as part of the EIAR was supported by figures and visualisations in **EIAR Volume 2**, and technical appendices in **Volume 3**. The Additional Information presented in April 2026 was accompanied by a bareground ZTV showing theoretical visibility from an indicative linear route corridor in an indicative Area of Search (see **Figure 5.1: Preliminary Identified OHL ZTVs**).

Site Visits

- 3.34 As part of the baseline study, visits to the Application Site and surrounding area were undertaken during spring months in 2024, with further visits occurring in the intervening time since, up to the time of writing this appraisal (May 2026).
- 3.35 During the site-based visits, representative viewpoint locations have been micro-sited; roads have been driven; access tracks and paths have been walked; and important landscape features in-and-around the Application Site have been recorded and photographed.

Distances

- 3.36 Where distances are given in this appraisal, these are approximate distances between the nearest part of the Application Site and the nearest receptor in question, unless stated otherwise.

Detailed Design of Grid Connection Route Corridor (under Section 37 of the Electricity Act 1989)

3.37 In considering a detailed grid connection route corridor, as part of any future Section 37 application associated with the Proposed Development, it is assumed that the following design measures (largely derived from 'The Holford Rules') will be adopted:

- Final route selection chosen to avoid residential areas as far as possible on grounds of general amenity.
- In rural areas, final route selection chosen to maximise distances to scattered residential properties, ensuring that visibility from principal living spaces is minimised, to avoid risk of overhead line and wooden poles dominating isolated house, farms, or other small-scale settlements.
- Final route selection chosen to limit the visual effect as perceived by users of roads, and public rights of way, with attention also given to the effects of recreational, tourist and other well used routes.
- Final route selection chosen to respect areas of high amenity value (such as national and local landscape designations), whilst maximising opportunities to take advantage from containment of natural features such as woodland, particularly as a screening measure from key views, to help minimise effects on the landscape character of the area.
- Final route selection chosen to minimise the loss of existing trees to reduce extent of local landscape change.
- Final route selection chosen to maximise opportunities to take advantage of landform, with route layout working with existing levels, as far as possible, to minimise ground disturbance and to avoid intrusion into surrounding areas.
- Final route selection chosen to maximise opportunities for the proposed overhead line to route alongside existing infrastructure, as far as practicable, to limit the introduction of new infrastructure to previously undeveloped areas.

Zone of Theoretical Visibility Analysis

3.38 As shown on **Figure 3.1: Likely OHL Route ZTV**, the ZTV map illustrates the prospective visibility pattern when considering a 15m high overhead line supported on wooden poles along the extents of the likely overhead line route. Whilst this likely route has been considered in this appraisal, the ZTV map prepared indicates the theoretical visibility of a 15m high overhead line on wooden poles within the full width of the identified corridor of the likely overhead line route (including 500m buffer offset) for reference and assessment purposes.

3.39 Whilst it is acknowledged that the final design for the overhead line associated with the Proposed Development may be lower than 15m above ground level in certain places, or conversely, higher (e.g. up to 20m) to navigate changes in local topography and built

features etc, a 15m height has been assigned for the purposes of 3D modelling for the ZTV map calculations.

- 3.40 It is important to note that the ZTV depicts theoretical visibility based on landform only. It does not consider the additional screening effects of buildings and vegetation, which in many places would contribute notably to restricting views of the overhead line and Proposed Development as outlined in more detail below under the receptors scoped into the appraisal.
- 3.41 When considering the ZTV pattern displayed on **Figure 3.1** compared to the bareground ZTV for the Proposed Development (see **Figure 6.16: Blade Tip ZTV up to 20km**) there would only be a marginal increase in theoretical visibility levels, with visibility of the likely overhead line largely occurring on the edges of areas displaying visibility of the Proposed Development towards the northwestern extents of the study area in proximity to Pinwherry Substation. Across the other portions of the 20km LVIA study area, there are no notable new areas displaying visibility of the likely overhead line in isolation from the proposed turbines.

Landscape and Visual Considerations

- 3.42 An appraisal of an overhead line has been completed within a 1km study area from the identified corridor of the likely overhead line route (including 500m buffer offset), in order to better understand the potential for significant effects when considering an overhead line as part of the wider project as a whole (see **Figure 3.1**).
- 3.43 **Table 3.1: Landscape and Visual Receptors** below presents a list of LVIA considerations, and a list of those landscape and visual receptors scoped into this appraisal.

Table 3.1: Landscape and Visual Receptors

Considerations	Receptors Scoped into the Appraisal
National Designations	None identified within the study area
Local Designations	Galloway Hills Regional Scenic Area (RSA) The Stinchar Valley Local Landscape Area (LLA)
Landscape Character Types (LCT)	LCT 174: Plateau Moorland with Forest LCT 160: Narrow Wooded Valley LCT 78: Plateau Moorland - Ayrshire [SALWCS LCT 18c] LCT 72: Pastoral Valleys - Ayrshire [SALWCS LCT 13] ³
LVIA Viewpoints	Viewpoints 1, 2, 3, 4, 5, 7, 9, and 19
Visual Receptors	Residents of Poundland, Pinwherry, and Barrhill Scattered residential properties Users of the Southern Upland Way (and Core Path UNNO/504/5-10) Users of Ayrshire Core Paths (near to Poundland, Pinwherry, and Barrhill) Users of National Cycle Network (NCN) Route 7 Road users of A714, B7027, and B734

³ There are variances in the characterisation in the NatureScot National Landscape Character Assessment and the South Ayrshire Landscape Wind Capacity Study [SALWCS]. Whilst the NatureScot guidance was primarily adopted in the original LVIA material, as the most recently published document, LCT numbering from both documents has been included for reference purposes.

Assessment of Landscape Effects

Landscape Features

- 3.45 It was previously identified for the Proposed Development that there would be no more than a moderate/ minor, adverse effect to moorland vegetation, as well as watercourses and drainage channels during construction, which would not be significant.
- 3.46 When considering the likely route of the overhead line, it is apparent that the route would result in the loss of some areas of commercial coniferous forestry plantation across the lifetime of the Proposed Development. As commercial coniferous forestry plantation was not assessed in the original LVIA material as a landscape feature when considering the Proposed Development, a brief analysis and assessment of potentially significant impacts and effects from an overhead line is presented below.
- 3.47 The routing of an overhead line along the identified likely route corridor would require the felling of forestry, and the clearing of ground level vegetation, within the 'operational' routing corridor and along access routes. Any corridor through commercial conifer plantations is likely to necessitate up to an approximate 60m wide clearing to permit long-term access through existing forested and/or vegetated areas, and it is in this context, that the following judgements are made.
- 3.48 According to the Scottish Forestry's digital map (available to view online here: [Scottish Forestry Map Viewer](#)), the plantations that would require felling along the operational corridor of the likely overhead line route would be subject to regular felling and replanting practices during the lifetime of the Proposed Development.
- 3.49 Commercial coniferous forestry plantation is commonly found within the locality of the Site and the surrounding landscape. The plantations identified that would require felling to form the operational corridor do not form part of the fabric of land designated for its scenic value and are generally deemed to be a feature with relatively limited landscape value. The proposed felling and replanting resulting from ongoing management practices also lowers a plantation's susceptibility to accommodate change. When combining the value and susceptibility judgements, the sensitivity of commercial coniferous forestry plantation is predicted to be low.
- 3.50 The plantations identified that would require felling to form the operational corridor, would experience a medium to high magnitude of change resulting from the removal of forestry and/or vegetated areas to accommodate the construction of the overhead line and associated components. However, it is anticipated that this would affect a modest portion of the overall plantation. The overall level of effect on the commercial coniferous forestry plantations that would be subject to change as a result of the likely overhead line route is predicted to be moderate/ minor, which is not considered to be significant.
- 3.51 In this context, and upon judging the potential impact of constructing the overhead line and wooden poles in the context of construction work and activities associated with the Proposed Development, the change to landscape features is not considered to be

substantive. As a result, there is judged to be no change to the assessment of effects on landscape features as set out for the Proposed Development in the original LVIA.

Landscape Character

- 3.52 When comparing **Figure 3.1 and EIAR Figure 6.5: Landscape Character Types within 20km Study Area**, the likely route of the overhead line would pass through three LCTs: namely, LCT 174: Plateau Moorland with Forest (the 'host' LCT in which the proposed substation, and wind turbines of the Proposed Development are located), LCT 78: Plateau Moorland – Ayrshire, and LCT 72: Pastoral Valleys – Ayrshire. Both LCT 174: Plateau Moorland with Forest and LCT 78: Plateau Moorland – Ayrshire are characterised by an extensive flat and slightly undulating elevated plateaux covered by open or forested moors, whilst LCT 72: Pastoral Valleys – Ayrshire is characterised by the presence of medium to small-scale pastoral valleys that intersect into the foothills and moorlands of the Ayrshire uplands.
- 3.53 LCT 160: Narrow Wooded Valley, which is partly crossed by the Site boundary (but in which no proposed wind turbines of the Proposed Development are located) lies within the extents of the grid corridor. This LCT is primarily characterised by the occurrence of narrow valleys with wooded slopes that enclose pastoral floors. No works pertaining to the likely overhead line route are set to occur. As a result, any indirect effect is not considered to be materially different from that presented for the Proposed Development in the original LVIA.
- 3.54 At present, LCT 174: Plateau Moorland with Forest, LCT 78: Plateau Moorland – Ayrshire, and LCT 72: Pastoral Valleys – Ayrshire, are influenced by the appearance of existing wind farm development, as well as by the presence of existing pylons and wooden poles supporting overhead lines. The LCTs are further influenced, albeit to varying degrees, by the presence of settlement, and built development on settlements fringes. It is further recognised that these LCTs are influenced by the felling cycles of coniferous forestry compartments in the plantations near the Site and the surrounding landscape. Whilst the heights of different areas of forestry would alter over time (altering localised landscape character and visual effects as a by-product), the assessment results are predicted to remain consistent over the lifetime of the Proposed Development as the wider pattern of forestry would remain relatively constant.
- 3.55 Land within LCT 174: Plateau Moorland with Forest, LCT 78: Plateau Moorland – Ayrshire, and LCT 72: Pastoral Valleys – Ayrshire would experience temporary disturbance during construction of an overhead line. When balancing the loss of forestry in the commercial coniferous plantations that would require felling along the operational corridor, the small built footprint of construction works associated with wooden poles and an overhead line, along with the short-term nature of landscape and visual impacts resulting from the presence of construction machinery, as well as traffic and activities, the magnitude of change is predicted to be modest, with effects localised and predominantly contained to the immediate vicinity of the works where unobscured visibility occurs. Consequently, significant effects on the landscape during the construction phase from the overhead line are not predicted.

- 3.56 LCT 174: Plateau Moorland with Forest, LCT 78: Plateau Moorland – Ayrshire, and LCT 72: Pastoral Valleys – Ayrshire all have the potential to experience landscape effects during the operational phase of the overhead line and the Proposed Development. As the likely overhead line routes towards Pinwherry Substation it would cross (and/or connect to) the routes of the existing overhead line infrastructure that links the grid connection of the Arecleoch and Mark Hill schemes at the Mark Hill Substation. This route comprises a line of pylons, and in this context, an overhead line on wooden poles would be perceived as a minor additional infrastructure element.
- 3.57 The likely route of the overhead line would also cross the consented grid connection route between the Chirmorie and Stranoch 2 schemes. Towards Pinwherry Substation there is also an existing network of overhead lines on wooden poles, which further supports the judgement that the likely overhead line would be perceived as a minor additional infrastructure element in the receiving landscapes. When considering the lower height and reduced visual impact of overhead lines on wooden poles compared with the wind turbines associated with the Proposed Development, it is not expected that the scale of change, geographical extent, and magnitude of change from the overhead line would exert in a notable contribution to the significant effects upon landscape character that would arise, and have already been assessed in the original LVIA, for the Proposed Development during the operational phase.

Landscape Designations

- 3.58 When considering landscape designations, attention has to be given to the Galloway Hills RSA and The Stinchar Valley LLA.
- 3.59 With regards to the Galloway Hills RSA, whilst this RSA lies within the extents of the grid corridor, care has been taken to avoid this RSA when selecting the likely overhead line route. As a result, with no direct works pertaining to the likely overhead line route set to occur within the extents of the RSA boundary, there is no prospect for direct physical effects in the RSA, or any change to the landscape features within its extents. Any changes arising from the overhead line would therefore be perceptual.
- 3.60 When considering the lower height and reduced visual impact of overhead lines on wooden poles compared with the wind turbines associated with the Proposed Development, it is not expected that the scale of change, geographical extent, and magnitude of change from the overhead line would exert a notable contribution to the significant effects upon the perception of landscape qualities as assessed in the original LVIA, for the Proposed Development during the operational phase.
- 3.61 The northern part of the overhead line would pass through The Stinchar Valley LLA. When reviewing the original LVIA material, this LLA was scoped out from assessment based on there being limited theoretical visibility of the Proposed Development, at distances extending beyond 10km to the northwest. At present, this LLA is influenced by existing pylons and overhead lines, as well as the operational turbines at Arecleoch and Mark Hill. In this context, and when considering the relatively modest scale of the wooden poles and overhead line, there is not predicted to be any potential for significant effects arising from the addition of the overhead line when considered as part of the wider project as a whole.

- 3.62 As it is judged that the proposed changes would only be discernible from the closer landscape receptors, there is not considered to be any change to the level of significant effects over and above those previously identified in the original LVIA material for the Proposed Development.

Assessment of Visual Effects

- 3.63 Representative viewpoints from the original LVIA material have been used for reference purposes to understand the likely route of the overhead line in baseline views, primarily Viewpoints 1, 2, 3, 4, 5, 7, 9, and 19 (see **Figure 3.1 and EIAR Figure 6.23: Blade tip ZTV up to 35km with Viewpoints**).
- 3.64 At this preliminary stage, there is likely to be some limited visibility of the likely overhead line from the small rural settlements of Poundland, Pinwherry, and Barrhill. When reviewing the original LVIA material, these settlements were scoped out from the assessment based on there being limited theoretical visibility of the proposed wind turbines of the Proposed Development at each settlement, which extend beyond 10km to the northwest of the Application Site.
- 3.65 In this context, and when considering the relatively modest scale of the proposed wooden poles and overhead line, along with the proximity to taller existing pylons, the presence of much closer overhead lines on wooden poles, as well as the operational turbines at Arcleloch and Mark Hill, the likely overhead line would represent a minor addition to views. When also accounting for the prospect for intermittent screening from intervening landform and local planting and the likelihood for built development to provide screening from within the settlements, there is judged to be no potential for significant visual effects arising from the addition of the overhead line when considered as part of the wider project as a whole.
- 3.66 The likely overhead line has the potential to route close to a number of scattered residential properties. When reviewing the original LVIA material, the properties located on the fringes of Poundland, Pinwherry, and to the north of Barrhill, were scoped out from the assessment based on there being limited theoretical visibility of the proposed wind turbines of the Proposed Development at properties, which extend beyond 10km to the northwest of the Site. For those properties located to the south of Barrhill and north of the Site boundary, it is considered that intervening plantation, and tree cover in the direction of the likely overhead line would largely screen views of the above ground components, negating any potential for the overhead line to exert a notable contribution to visual effects from the wider project as a whole. From those properties where the overhead line would be visible, there would be incidences where the likely overhead line would appear in views with existing overhead lines on wooden poles. There are also occasions where the likely overhead line would be experienced alongside the wind turbines associated with the Proposed Development. In this context, whilst the likely overhead line would be visible, it would appear visually subservient to the proposed turbines. When considering the relatively modest scale of the wooden poles and overhead line, along with the presence of the proposed turbines, the likely overhead line would represent a minor addition to views. As a result, any effects resulting from the introduction of the likely overhead line are

not considered to exceed or alter those presented for the Proposed Development in the original LVIA.

- 3.67 In addition it should be noted that the final routing of any overhead line through rural areas would seek to maximise distances to scattered residential properties, ensuring that visibility from principal living spaces is minimised, and avoiding the risk of overhead line and wooden poles dominating isolated house, farms, or other small-scale settlements
- 3.68 Baseline views of the route of the likely overhead line from the Southern Upland Way (and Core Path UNNO/504/5-10) are broadly represented by Viewpoints 1, 4, and 7; although, each of these views are primarily directed towards the proposed wind turbines of the Proposed Development. Similarly, whilst Viewpoints 9 and 19 are located on the route of the NCN Route 7, views are primarily orientated towards the proposed wind turbines.
- 3.69 It is predicted that there would be intermittent visibility of the overhead line for recreational users travelling in both directions along the Southern Upland Way (and Core Path UNNO/504/5-10) and the NCN Route 7, particularly where the likely route of the overhead line has the potential to run adjacent or close to recreational receptors on these routes. The Southern Upland Way also routes in proximity to the consented grid connection route between the Chirmorie and Stranoch 2 schemes. Towards the Proposed Development there is also an existing network of overhead lines on wooden poles, which appear intermittently in views from these routes at present.
- 3.70 As demonstrated by the baseline views and **Figure 3.1**, there would be intermittent screening of the likely overhead line by intervening plantations, whilst incidences of woodland and tree cover along access tracks and roads would commonly provide screening or filtering of the overhead line in views. Where visible, there would be instances where the likely overhead line would be experienced in the context of the taller and more visible existing pylons. On other occasions, the likely overhead line would appear in views with existing overhead lines on wooden poles. When viewed in context with the wind turbines associated with the Proposed Development, the likely overhead line would appear visually subservient to the proposed turbines.
- 3.71 When considering the lower height and reduced visual impact of overhead lines on wooden poles compared in particular with the proposed turbines from these routes, it is not expected that the magnitude of change from the overhead line would exert a notable contribution to the significant visual effects that are predicted to arise, and that have already been assessed in the original LVIA, for the Proposed Development during the operational phase.
- 3.72 There is likely to be limited visibility of the likely overhead line from the Ayrshire Core Paths in proximity of Poundland, Pinwherry, and Barrhill. When reviewing the original LVIA, all Core Paths in Ayrshire were scoped out from the assessment based on there being limited theoretical visibility of the Proposed Development at distances extending beyond 10km to the northwest of the Application Site. In this context, and when considering the relatively modest scale of the proposed wooden poles and overhead line, along with the proximity to taller existing pylons, the presence of overhead lines on wooden poles, as well as the operational turbines at Arecleoch and Mark Hill, the likely overhead line would represent

a minor addition to views. When also accounting for the prospect for intermittent screening from intervening landform, local planting, and scattered incidences of built development, there is judged to be no potential for significant visual effects arising from the addition of the overhead line as part of the wider project. As a result, any effects resulting from the introduction of the likely overhead line are not considered to exceed or alter those presented for the Proposed Development in the original LVIA material.

- 3.73 It is predicted that there would be intermittent visibility of the likely overhead line for road users travelling in both directions along the A714 and the B7027, particularly where the likely route of the overhead line has the potential to run adjacent or close to the roads.
- 3.74 Baseline views of the route of the likely overhead line from the A714 are broadly represented by Viewpoints 2, 3, and 4, whilst Viewpoint 7 represents baseline views from the B734; although, each of these views are primarily directed towards the proposed wind turbines of the Proposed Development. At present, the A714 passes underneath the existing overhead line that links the grid connection of the Arecleoch and Mark Hill schemes at the Mark Hill Substation. This route comprises a line of pylons, which lie in proximity to the roadside, and in this context, an overhead line on wooden poles would be perceived as a minor additional infrastructure element.
- 3.75 The A714 and B7027 are both set to pass underneath the consented grid connection route between the Chirmorie and Stranoch 2 schemes. Towards Pinwherry Substation there is also an existing network of overhead lines on wooden poles, which further supports the judgement that the likely overhead line would be perceived as a minor additional infrastructure element in views as experienced at road level.
- 3.76 As demonstrated by the baseline views and **Figure 3.1**, there would be intermittent screening of the likely overhead line by intervening plantations, whilst roadside tree and hedgerow cover would commonly provide screening of the overhead line in views at road level from the A714 and B7027. Where visible, there would be incidences where the likely overhead line would be experienced in the context of the taller and more visible existing pylons. In this context, whilst the likely overhead line would be visible, it would appear visually subservient to this existing infrastructure. On other occasions, the likely overhead line would appear in views with existing overhead lines on wooden poles. When viewed in context with the wind turbines associated with the Proposed Development, the likely overhead line would appear visually subservient to the proposed turbines.
- 3.77 There is likely to be limited visibility of the likely overhead line from the B734 in proximity of Poundland and Pinwherry. When reviewing the original LVIA, the B734 was scoped out from the assessment based on there being limited theoretical visibility of the Proposed Development at distances extending beyond 20km to the northwest from the Application Site. When considering these factors, the overhead line is thought to represent only a minor addition to views from the various roads under consideration. On this basis, it is judged that there would be no notable changes attributable to the indicative grid connection when considered as part of the wider project as a whole, beyond the level of significant visual effects previously identified for the Proposed Development.

Cumulative Assessment

- 3.78 From a cumulative perspective, the proposed wind turbines of the Proposed Development represent the principal source of landscape and visual change, introducing large-scale vertical elements across the receiving landscape. The likely route of the overhead line, particularly when aligned with existing overhead infrastructure, would form a linear and secondary feature largely within an area already modified by transport corridors, overhead lines and commercial forestry. Consequently, it is assessed that there would be no potential for significant cumulative effects as a result of the addition of the overhead line when considered as part of the wider project, alongside other wind farm developments.

Summary

- 3.79 Overall, when considering the likely overhead line as part of the wider project, in the context of the Proposed Development, it is considered to result in very minor changes to landscape and visual effects compared with the Proposed Development as assessed in the original LVIA. The landscape and visual effects resulting from the addition of an overhead line would be highly limited in extent or nature and not result in any additional significant landscape and visual effects.
- 3.80 Indeed, from many locations within the 20km LVIA study area, the route of the overhead line would be difficult to perceive. Whilst recognised that individual poles may be more apparent in localised locations, in the main, this is not considered to alter the judgements on the effects from the Proposed Development as set out in the original LVIA in any substantive manner as the proposed wind turbines would represent the principal source of landscape and visual change, introducing large-scale vertical elements across the receiving landscape.
- 3.81 In this context, the likely overhead line is not considered to result in any significant effects upon landscape and visual receptors that exceed or alter those already identified for the Proposed Development in the original LVIA.
- 3.82 A detailed LVIA of the final route would be required to be conducted through extensive field survey, consultation, mapping, and visualisations to inform a future Section 37 application for consent.

4 CULTURAL HERITAGE AND ARCHAEOLOGY

Introduction

- 4.1 This section presents an assessment of the likely significant environmental effects of the likely overhead line grid connection route on the historic environment. It also describes the baseline conditions that currently exist and any mitigation measures that are likely to be set out in a future planning consent for the grid connection, in line with SPEN's established construction practices.
- 4.2 An assessment of the Proposed Development, as described in the EIAR, was included as part of the original Cultural Heritage and Archaeology Baseline – Technical Appendix 7.1, and Chapter 7: Cultural Heritage and Archaeology, which was submitted as part of the planning application for the Proposed Development in November 2024.
- 4.3 This appraisal of the likely grid connection is accompanied by a bare earth Zone of Theoretical Visibility (ZTV) showing theoretical visibility from a potential overhead line route (see **Figure 3.1: Likely OHL ZTV**). It should be noted that ZTVs imply a much greater geographical extent of influence on the landscape and views than would actually be the case. As these are based on a 'bare-earth' scenario – that is they have been created using terrain data only and do not include any buildings or vegetation.
- 4.4 In preparing this appraisal, the previous assessments included in Chapter 7: Cultural Heritage and Archaeology have been reviewed to ascertain if the addition of the indicative grid connection, when considered as part of the wider project, would result in any change to the effects or result in any additional significant effects to those set out in the original assessment.
- 4.5 The information presented in this appraisal has been prepared by Donald Sutherland, Principal Heritage Consultant at Pegasus Group, who prepared the assessment of cultural heritage effects as set out in Chapter 7: Cultural Heritage and Archaeology.

Scope and Methodology

- 4.6 The methodology and approach taken to the overhead line appraisal follows that of the earlier Cultural Heritage work set out in paragraphs 7.21-7.22 of Chapter 7: Cultural Heritage and Archaeology, and the Additional Information April 2026.
- 4.7 An update on the relevance of national and local plan policies, as well as guidance documentation considered as part of the original Cultural Heritage and Archaeology material, was provided in the Additional Information April 2026. To avoid duplication in this appraisal, reference should be made to the guidance and planning policy documents as set out and considered as part of the original Cultural Heritage material (see **Legislation and Policy Context, and Methodology sections in Chapter 7: Cultural Heritage and Archaeology**) and the April 2026 AI.

- 4.8 This appraisal adopts the same approach and scope as set out in the April 2026 AI. As such, this appraisal presents a proportionate assessment on the potential cultural heritage and archaeology effects that may arise from an overhead line when considered as part of the wider project as a whole during the construction and operational phases.
- 4.9 No significant cultural heritage impacts from the indicative grid connection would be expected during decommissioning. Whilst some short-term and minor temporary disturbance would be expected, in the longer-term, the infrastructure would be removed or would not be visible in the landscape. As a result, an assessment of the decommissioning phase has been scoped out of this appraisal.
- 4.10 It should be noted that this appraisal is based on what can reasonably be predicted at the time of writing (May 2026). Further analysis would be required to provide a detailed assessment of a defined route if the Proposed Development were awarded planning consent (under Section 37 of the Electricity Act 1989).
- 4.11 The scope of this appraisal is set out as follows:
- Likely Overhead Line Route and Grid Connection Corridor;
 - Assumptions and Limitations Assessment;
 - Baseline Conditions;
 - Assessment of Effects;
 - Mitigation Measures;
 - Cumulative Assessment; and
 - Summary.
- 4.12 This appraisal is supported by the following Figures:
- Figure 4.1 – Designated Historic Assets and Likely Overhead Line Route.

Likely Overhead Line Route and Grid Connection Corridor

- 4.13 From the proposed 132kV substation in the Site boundary (that was assessed as part of the Proposed Development in the original assessment of Cultural Heritage and Archaeology), to Pinwherry Substation, the above ground and underground portions of the routes previously identified and assessed in the April 2026 AI had to be reconsidered for applicability. When balancing the environmental, operational (including management and maintenance), and technical considerations of an entirely above ground route, it should be noted that the grid connection route had to change from that assessed in the April 2026 AI. Whilst the overhead line route largely mirrors the portions of the overhead line route as assessed previously, slight deviations have occurred near the settlement of Barrhill and Cross Water. The portions of the route previously considered to be underground have been re-routed. The likely overhead line route from the proposed substation in the Site and Pinwherry Substation is shown on **Figure 4.1**. As shown on **Figure 4.1**, a 500m buffer offset has been established to the route to essentially provide a 1km route corridor, which is

located within a broader grid corridor. It is likely that any refinement to the detailed routing design would be located within or close to the identified corridor of the likely overhead line route (including 500m buffer offset).

- 4.14 In the Application Site, a portion of the grid connection would be underground.
- 4.15 As shown on **Figure 4.1**, the indicative route of the overhead line would predominantly span across commercial coniferous forestry plantations and multiple field boundaries (predominantly third-party land) before connection at the Pinwherry Substation.
- 4.16 It is assumed that the route of the likely overhead line would be designed to fit appropriately within the Site and the surrounding land use, to minimise potential cultural heritage impacts, including maximising setbacks from assets in the vicinity, working with existing landform, and implementing other mitigation measures (e.g. localised avoidance of areas of known local archaeological interest) to reduce impacts, where appropriate and practicable. For further information on the assumptions built into this appraisal, please refer to the Assumptions and Limitations of Assessment section.
- 4.17 In terms of design parameters, the design guidelines developed by Lord Holford in 1959 for routing overhead transmission lines, 'The Holford Rules', are widely considered to be a principal point of reference, when appraising cultural heritage effects of linear infrastructure routes. Whilst the Holford Rules were prepared principally for the routing of pylons, similarities exist with the routing of an overhead line on wooden poles. As a result, the rules are considered a useful guide for this appraisal.

Assumptions and Limitations of Assessment

Design of Indicative Grid Connection Corridor (under Section 36 of the Electricity Act 1989)

- 4.18 For the purposes of this appraisal, the above ground grid connection components are considered to comprise a 132kV circuit of trident wooden poles with overhead lines, which has been adopted as a precautionary worst-case scenario.
- 4.19 In order to conduct an assessment, the following assumptions have been made:
- Adoption of a combination of single and double (also known as 'H') trident wooden poles;
 - The poles would typically have a standard height above ground of 15m (including insulators); although, individual pole heights may change to meet statutory clearance requirements (including standard minimum statutory ground level clearance of 6.7m);
 - Individual pole heights may be increased locally (up to 20m) where required to navigate features such as watercourses, road and railway crossings, changes in localised topography, or built features, etc.;
 - Individual pole heights may be reduced locally where required to navigate changes in localised topography etc. As a consequence, the

heights of the poles above ground (to the top of the insulators mounted on the poles), are assumed to range from approximately 10m to 20m, with an average height of 15m adopted for the 3D modelling for the ZTV map calculations;

- The span length between poles may range between approximately 80m – 120m, to navigate changes in localised topography, and when accounting for environmental and technical constraints. For the purposes of this appraisal, an average span length of 90m has been adopted for the 3D modelling for the ZTV map calculations;
- The route of the overhead line would be informed by a preference to follow existing linear features, such as transport corridors, including the A714, the B7027, and railway lines, where practicable;
- The poles are expected to be seasoned and treated with a suitable preservative, resulting in a dark brown appearance, which would weather to a silver/grey colour over a period of approximately five years following installation; and,
- The construction period for the overhead line works is expected to take approximately 12months, with the poles and overhead line then in-place throughout the operational lifetime of the Proposed Development.

Study Area

- 4.20 Based on an understanding of visibility, an appraisal of the likely overhead route, and the results of the ZTV plan (see **Figure 3.1**), this appraisal has focussed on a 1km study area from the likely overhead line route (including 500m buffer offset). However, consideration has also been given to assets within a 1km study area around the Area of Search corridor, where it surrounds the proposed overhead line route, to allow for potential changes in route (see **Figure 4.1**). Consideration was also given to assets beyond the study area, where appropriate.

Distances

- 4.21 Where distances are given in this appraisal, these are approximate distances between the nearest part of the Site and the nearest receptor in question, unless stated otherwise.

Detailed Design of Grid Connection Corridor (under Section 37 of the Electricity Act 1989)

- 4.22 In considering a detailed grid connection corridor, as part of any future Section 37 application associated with the Proposed Development, it is assumed that the following design measures (largely derived from 'The Holford Rules') will be adopted:
- Final route selection chosen to respect areas of highest amenity value (e.g. designated historic assets), whilst maximising opportunities to take advantage from containment of natural features such as woodland,

particularly as a screening measure from key views, to help minimise effects on the heritage assets within the vicinity;

- Final route selection chosen to minimise impacts on the setting of historic buildings and other cultural heritage features as far as possible; and
- Final route selection chosen to maximise opportunities for the proposed overhead line to route alongside existing infrastructure, as far as practicable, to limit the introduction of new infrastructure to previously undeveloped areas.

Baseline Conditions

Designated Historic Assets

- 4.23 As no direct impacts to designated historic assets are anticipated as a result of the underground cable element, only assets in the vicinity of the overhead line connection to Pinwherry substation will be considered.
- 4.24 The following designated historic assets are recorded within the 1km study area from the indicative overhead line route:
- The Scheduled Monument Middle Bridge of Cree, cairn (ref. SM1943);
 - The Category B Listed Pinwherry Castle (ref. LB1057);
 - The Category B Listed Daljarrock Hotel, Pinwherry (ref. LB104);
 - The Category B Listed Ballochmorrie House (ref. LB1053); and,
 - The Category B Listed Martyrs' Tomb, Barrhill (ref. LB1054).
 - The Category B Listed Bargrennan Church (ref. LB17047); and,
 - The Category C Listed Middle Bridge Of Cree, A714, River Cree, Bargrennan (ref. LB19278).
- 4.25 Two additional assets were identified beyond the 1km study area, but within the western extent of the grid corridor, where it surrounds the likely overhead line route. These comprise:
- The Category A Listed Kildonan House, Barrhill (ref. LB1052); and,
 - The Category C Listed Former Arnsheen Church, Barrhill (ref. LB51617).
- 4.26 No other designated historic assets beyond the study area were identified to take forward for further assessment.

Non-designated Heritage Assets – Proposed Pinwherry Connection Route

- 4.27 A review of Dumfries and Galloway's online planning constraints has identified that the southern extent of the likely Pinwherry grid connection route, within the Site, does not pass through any recorded Archaeological Sensitive Areas.
- 4.28 The likely overhead line route passes in close proximity to several areas of recorded archaeology and crosses one record, comprising an area of land recorded as holding a historic farmstead, and associated agricultural features, along with possible remains of a former chapel (WoSASPIN 11529).

Assessment of Effects

Construction Phase

- 4.29 Groundworks associated with the proposed underground section of the connection route (within the Site), and with the installation of poles associated with the likely overhead grid connection route have potential to result in belowground impacts to areas of recorded and/or unrecorded archaeology. However, based on the nature and location of the likely route, it is anticipated that at most, this may result in **Minor Adverse** effects, which are not significant in EIA terms.

Operational Phase

- 4.30 The Scheduled Monument Middle Bridge of Cree, cairn lies c.915m east-north-east of the likely overhead connection route from the Pinwherry substation (ref. SM1943). The asset comprises a prehistoric cairn, lying at c.45m aOD, in a slightly hollow, overlooking the River Cree. The cairn is oval in shape, measuring c.23m east-west by c.16m. This asset was considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development and it was concluded that the integrity of the setting of the asset would not be adversely affected and there would be a **neutral** effect on the significance of the asset. The setting of this asset is formed by the hollow in which it is located, and its situation overlooking the River Cree. Due to local topography, views southward and westwards are limited. This is supported by the ZTV (**Figure 3.1**), which indicates that the likely overhead line will not be visible from the asset. At this stage the proposed connection route is anticipated to have no impact, and a **neutral** effect on the significance of the asset.
- 4.31 The Category B Listed Pinwherry Castle lies c.200m west of the likely overhead connection route from the Pinwherry substation (ref. LB1057). The asset comprises the remains of an L-shaped (in plan) tower-house dating to the 16th century, measuring c.10m x 9m and situated on a low mound. The walls survive to a height of approximately 13m. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the likely overhead line from the asset, it is anticipated that the Listed building will be well screened from the likely overhead route by intervening woodland east of the castle, and on either side the Duisk River. Should any glimpsed views be possible then it is anticipated they would be seen in the context of, and alongside

existing lines leading from the substation. The castle lies within the grounds of a residential property, which lies to its south-east, with further modern development to the castle's north-west. The key element of this asset's setting is the immediately surrounding land which has potential for archaeological remains associated with the castle's construction and use. The castle's association with the Duisk River is also considered to contribute, as the asset was potentially sited in this location to control a crossing point over the river; it is possible that this is the same location as occupied by the current road bridge c.90m north of the asset. At this stage the likely connection route is anticipated to have no impact, and a **neutral** effect on the significance of the asset.

- 4.32 The Category B Listed Daljarrock Hotel, Pinwherry, lies c.300m north-west of the likely overhead connection route from the Pinwherry substation (ref. LB104). The building was constructed c.1750, with alterations by Reginald Farlie in 1928. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the likely overhead line from the asset, it is anticipated that there will be at least some screening afforded by the intervening woodland. It is also anticipated that any views of the overhead line would be seen in the context of, and alongside existing lines leading from the substation. The house is set within private grounds and carparking, with a static caravan park to its south-south-east. The key element of this asset's setting is the historically associated grounds and buildings. Land associated with the proposed overhead connection route does not form part of the setting of this asset and would result in no impact, a **neutral** effect on the significance of the asset.
- 4.33 The Category B Listed Ballochmorrie House lies c.660m east of the likely overhead connection route from the Pinwherry substation (ref. LB1053). The building was constructed in 1833 by W. Macadam, grandson of the celebrated road improver, and is ashlar fronted with a 2-storey cemetrical façade and two splayed bays. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the likely overhead line from the asset, it is anticipated that the building will be well screened from the overhead connection route by intervening woodland. The house is set within private gardens, with woodland to the west, separating it from the A714. The key element of this asset's setting is the historically associated grounds and buildings. Land associated with the likely overhead connection route does not form part of the setting of this asset and the likely connection route would result in no impact, a **neutral** effect on the significance of the asset.
- 4.34 The Category B Listed Martyrs' Tomb, Barrhill lies c.760m north-east of the likely overhead connection route from the Pinwherry substation (ref. LB1054). The asset comprises a pedimented monument topped by ball finial, with a stone walled enclosure in front. It bears the inscription "*Erected anew 1825 to the memory of John Murchie and Daneil Meiklewick*" and fragments of an older monument with earlier inscription lie at its side. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the proposed overhead line from the asset, it is anticipated that the building will be well screened from the overhead connection route by the surrounding woodland. The asset lies near the Cross Water, within an area of

woodland, c.250m south of Barrhill. The key element of this asset's setting is the immediately surrounding woodland and river valley. Land associated with the likely overhead connection route does not form part of the setting of this asset and the proposed connection route would result in no impact, a **neutral** effect on the significance of the asset.

- 4.35 The Category B Listed Bargrennan Church lies c.905m east-north-east of the likely overhead connection route (ref. LB17047). The asset comprises a rectangular-plan hall church constructed in 1839 whose importance lies primarily in its physical fabric which provides historic and architectural interest. The church lies within an area of woodland, with mid-19th century maps indicating that this woodland represents the historic surrounds of the church. This asset was considered as part of the cultural heritage and archaeology baseline (Technical Appendix 7.1), associated with the EIAR relating to the Proposed Development and it was concluded that longer distance views to and from the asset are not generally possible and are not considered to contribute to the importance or understanding of the asset. Therefore, it was considered that the Proposed Site did not form part of the asset's setting and it was not taken forward for further assessment within Chapter 7 of the EIAR. At this stage the proposed connection route is anticipated to have no impact, and a **neutral** effect on the significance of the asset.
- 4.36 The Category C Listed Middle Bridge Of Cree, A714, River Cree, Bargrennan lies c.910m east of the likely overhead connection route (ref. LB19278). The asset comprises an early-19th century vehicular bridge, carrying the A714 over the River Cree whose importance lies primarily in its physical fabric which provides historic and architectural interest. This asset was considered as part of the cultural heritage and archaeology baseline (Technical Appendix 7.1), associated with the EIAR relating to the Proposed Development and it was concluded the key elements of the asset's setting comprise the associated road and river, and views to and from this asset do not contribute to the importance or understanding. Therefore, it was considered that the Proposed Site did not form part of the asset's setting and it was not taken forward for further assessment within Chapter 7 of the EIAR. At this stage the proposed connection route is anticipated to have no impact, and a **neutral** effect on the significance of the asset.
- 4.37 The Category C Listed Former Arnsheen Church, Barrhill lies c.1.02km north-east of the likely overhead connection route from the Pinwherry substation (ref. LB51617). The former church was constructed in 1887 to the design of Robert Samson Ingram. It is cruciform in plan and crow-stepped Baronial church with 4-stage clock tower to its south-east corner. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the likely overhead line from the asset, it is anticipated that the likely overhead connection route will not be readily appreciable from the asset due to intervening woodland and distance by the surrounding woodland. Should any distant, glimpsed views be possible then they would be seen beyond an existing overhead line which lies in much closer proximity to the church. The asset lies on a small rise at the north-west entrance to the settlement of Barrhill. The key element of this asset's setting is the associated churchyard, and the settlement of Barrhill. Land associated with the likely overhead connection route does not form part of the setting of this asset and the likely

connection route would result in no impact, a **neutral** effect on the significance of the asset.

- 4.38 The Category A Listed Kildonan House, Barrhill lies c.1.1km north-east of the likely overhead connection route from the Pinwherry substation (ref. LB1052). The asset is a modern mansion constructed to the designs of James Miller, and reminiscent of the work of Sir Edwin Lutyens. This asset was not considered as part of the cultural heritage assessment within the EIAR relating to the Proposed Development. At this preliminary stage, it is considered that while the ZTV indicates potential visibility of the likely overhead line from the asset, it is anticipated that the building will be well screened from the overhead connection route by the surrounding, and intervening woodland. Views would be further limited due to the distance of the proposed overhead line route from the asset, and should any distant, glimpsed views be possible it is anticipated that these would be seen beyond, and in the context of existing overhead lines of similar scale which lie closer to the asset. The asset lies within extensive gardens and grounds which includes woodland in most directions, except for to the south-east where there are more open views across parkland. The key elements of this asset's setting are the immediately surrounding gardens and grounds, along with associated buildings such as lodge houses. Land associated with the likely overhead connection route does not form part of the setting of this asset and the likely connection route would result in no impact, a **neutral** effect on the significance of the asset.

Mitigation Measures

- 4.39 The detailed assessment of the grid connection route would be informed by a field survey to determine those assets to be assessed in detail, photography and visualisations where required, and consultation with HES and the Local Authorities.
- 4.40 There is potential that ground disturbing works associated with the underground cable element within the Site and overhead line infrastructure from the Site to Pinwherry substation could disturb any buried archaeological remains along the length of the route. Sensitive design and localised avoidance could be used in areas of known local archaeological interest, and an archaeological watching brief could be undertaken where appropriate.

Cumulative Assessment

- 4.41 From a cumulative perspective, the proposed wind turbines of the Proposed Development represent the principal source of change, introducing large-scale vertical elements within the landscape. The grid connection, particularly when aligned with existing overhead infrastructure, would form a linear and secondary feature largely within an area already modified by transport corridors and overhead lines. Consequently, it is assessed that there would be no potential for significant cumulative effects as a result of the addition of the grid connection when considered as part of the wider project, alongside other wind farm developments.

Summary

- 4.42 At this stage, there is not considered to be any evidence to suggest that the addition of a grid connection would result in any significant effects upon cultural heritage or archaeology.
- 4.43 While there are potential for below ground impacts associated with the likely underground elements within the Site, and elements of infrastructure associated with the likely overhead connection, it is not anticipated that any effects would be greater than **Minor adverse**, at most. It is also anticipated that any impacts could be largely avoided through /design measures, or could be mitigated through archaeological survey and/or monitoring.
- 4.44 A detailed Cultural Heritage Assessment of the final route would be required to be conducted through field survey, consultation, mapping, and potentially visualisations to inform the Section 37 application for consent.
- 4.45 As per the summary presented in the original Cultural Heritage and Archaeology Chapter, and discussed within the Planning Statement, the identified effects on cultural heritage should be balanced against the wider benefits of the Proposed Development. No effects which would be considered as significant in EIA terms have been identified as arising from the Proposed Development, or from the proposed connection routes.

5 ECOLOGY

Introduction

- 5.1 This section presents a high-level assessment of the likely significant environmental effects of the likely overhead line route from Glenvernoch Wind Farm to Pinwherry Primary Substation on ecology and ornithology. It also describes the baseline conditions that currently exist and mitigation measures that are likely to be set out in a future planning consent for the grid connection, in line with SPEN's established construction practices.

Baseline Conditions

- 5.2 A desk study to help establish the baseline conditions relevant to the likely overhead line grid connection has been completed. The desk study sought to identify ecological features which could occur within the zone of influence (Zol) of the potential grid connection and be significantly affected by its construction and/or operation.
- 5.3 A stratified approach was taken when defining the desk study area based on the likely Zol of the potential grid connection. Accordingly, the desk study searched for:
- Any Special Areas of Conservation (SAC), Special Protection Area (SPA) or Wetlands of International Importance (Ramsar sites) within 10km of the grid connection;
 - Any Sites of Special Scientific Interest (SSSI) within 2km of the grid connection;
 - Any other locally designated nature conservation sites within 2km of the grid connection; and
 - Records of protected and/or notable habitats and species within 1km of the grid connection.
- 5.4 A range of data sources were used for the desk study, as set out in Table 5.1 below.

Table 5.1: Desk study data sources

Data Source	Date Accessed	Data Obtained
Ordnance Survey (OS) 1:25,000 maps and aerial images (Apple Maps and Google Earth)	11 May 2026	Habitats and connectivity relevant to interpretation of planning policy and potential protected/notable species constraints.
Multi-Agency Geographic Information for the Countryside (MAGIC) website	11 May 2026	SPAs, SACs and Ramsar Sites within 10km and 20km of the grid connections (as relevant). SSSIs within 2km of the grid connections.
NatureScot SiteLink website	11 May 2026	SPAs, SACs and Ramsar Sites within 10km and 20km of the grid connections (as relevant).

		SSSIs within 2km of the grid connections
NBN Atlas Scotland website	11 May 2026	Commercially available records of protected and/or notable species within 1km of the grid connections, made since 2000
Saving Scotland's Red Squirrels website	11 May 2026	Red Squirrel records
Mammal Society Species Hub website	11 May 2026	Information on protected and notable mammals

Assessment Methodology

- 5.5 In order to determine the preliminary value of the habitats and species found through the desktop study detailed above, and the potential impacts of each grid connection route, the desktop baseline results were assessed against the criteria developed by the Chartered Institute of Ecology and Environmental Management (CIEEM 2024).
- 5.6 The method used in this assessment involved four key stages:
- Baseline studies;
 - Identification of Valued Ecological Receptors;
 - Identification and characterisation of potential impacts; and
 - Assessment of impact significance.

Identification of Valued Ecological Receptors

- 5.7 From amongst the species populations or species assemblages present within the zone of influence, of the proposed grid connection, Valued Ecological Receptors (VERs) and Valued Ornithological Receptors (VOR) were identified. VERs and VORs are typically species of conservation that could be significantly affected by a development.
- 5.8 The value of populations of species, species assemblages and habitats is evaluated with reference to:
- Their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations);
 - Any social benefits that species and habitats deliver (e.g. relating to enjoyment of flora and fauna by the public); and
 - Any economic benefits that they provide.
- 5.9 For the purposes of this assessment, sites, species populations, species assemblages and habitats have been valued using the following scale:
- International;
 - National;

- Regional/County;
- District;
- Local; and
- Low.

5.10 These criteria are detailed in Table 5.2 below.

Table 5.2: Criteria for determining the nature conservation value of specific features.

Value of Feature	Key Examples
International	An internationally designated site or candidate site (SAC, SPA, Ramsar Site, Biogenetic Reserve) or an area which meets the designation criteria for such sites. Internationally significant and viable areas of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. Any regularly occurring, globally threatened species. A regularly occurring population of an internationally important species, which is threatened or rare in the UK, of uncertain conservation status. A regularly occurring, nationally significant population/number of any internationally important species.
National	A nationally designated site (e.g. SSSI, NNR) or a discrete area which meets the published selection criteria for national designation (e.g. SSSI selection guidelines) irrespective of whether or not it has yet been notified. A viable area of a UK BAP priority habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring significant number/population of a nationally important species e.g. listed on the Wildlife and Countryside Act 1981 (as amended). A regularly occurring population of a nationally important species that is threatened or rare in the county or region. A feature identified as being of critical importance in the UK BAP.
Regional/County	Viable areas of key habitat identified in the Regional or County BAP or smaller areas of such a habitat, which are essential to maintain the viability of the larger whole. Regional/county significant and viable areas of key habitat identified as being of regional value by statutory bodies. A regularly occurring significant population/number of any important species important at a regional/county level. Any regularly occurring, locally significant population of a species which is listed in a Regional/County RDB or BAP on account of its regional rarity or localisation. Sites of conservation importance that exceed the district selection criteria but that fall short of SSSI selection guidelines.
District	Areas of habitat identified in a District/City/Borough BAP or in the relevant Natural Area profile. Sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves selected on District/City/Borough ecological criteria. Sites/features that are scarce within the District/City/Borough or which appreciably enrich the District/City/Borough habitat resource.

Value of Feature	Key Examples
	A diverse and/or ecologically valuable hedgerow network. A population of a species that is listed in a District/City/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation. A regularly occurring, locally significant number of a District/City/Borough important species during key phases of its life cycle.
Local	Areas identified in a Local BAP or the relevant natural area profile. Sites/features which are scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context, e.g. species-rich hedgerows. Local Nature Reserves selected on Neighbourhood/Local ecological criteria. Significant numbers/population of a locally important species <u>e.g.</u> one which is listed on the Local BAP. Any species, populations or habitats of local importance.
Low	Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.

Sensitivity of Receptors

- 5.11 The sensitivity of any species or feature to a development must also be considered when determining the significance of any impact upon a particular species or habitat. This is based on the conservation value or importance of that species or habitat, as outlined in Table 5.3 below:

Table 5.3: Criteria for assessing the sensitivity of species, habitats and sites.

Sensitivity of Feature	Assessment Criteria
Very High	A species, population or habitat which is/are a designated feature of a SPA, Ramsar Site, SAC or SSSI.
High	Sites, habitats or species of at least national importance, as identified through field survey, desk survey or consultation or features are likely to be significantly affected by the Proposed Development.
Moderate	Sites, habitats or species of at least county importance, as identified through field survey, desk survey or consultation or features, although potentially affected, which would not suffer significant effects as a result of the Proposed Development.
Low	Sites, habitats or species of local or neighbourhood importance, as identified through field survey, desk survey or consultation or features which would not be significantly affected by the Proposed Development.

Impact Magnitude

- 5.12 The magnitude of each potential impact was determined using Table 5.4. The impact magnitude was also assessed based on whether the impact will be positive or negative and direct or indirect.

Table 5.4: Criteria for magnitude of impacts.

Magnitude of Impact	Assessment Criteria
Very Major	The proposed development will have effects which would result in a change in the integrity of a SAC, SPA, Ramsar Site or SSSI.
Major	The proposed development would have effects which would result in a change in the integrity of a site, or a change in the ability of a species to retain its current population levels (at a regional or higher level).
Intermediate	The proposed development would have effects which would alter key attributes of a site but which would not result in a change to a site's evaluation, or would result in changes in the distribution of a species but not affect its population status at a regional level.
Minor	The proposed development would have effects which would neither alter key attributes of a site nor change its evaluation, or would affect the distribution or status of a species at a local level.
Neutral/Negligible	No impact or the proposed development will have very minor effects which would neither alter key attributes of a development site nor change its evaluation, or will affect the distribution or status of a species at a local level.

Significance of Effect

- 5.13 The magnitude of impacts was compared against the value and sensitivity of particular features in order to determine the significance of effects the development is likely to have upon such features, prior to mitigation. It should be noted that such effects may be negative or positive. The matrix below (Table 5.5) was used to determine the significance of effects upon sites and species. Cells highlighted in light grey are classified as a significant effect for the purposes of this assessment.

Table 5.5: Matrix for assessing significance of effects.

Sensitivity of Feature	Magnitude of Impact				
	Very Major	Major	Intermediate	Minor	Neutral/Negligible
Very High	Very Major	Major	Moderate/ Major	Minor	Negligible
High	Major	Major	Moderate/ Major	Minor	Negligible
Moderate	Major	Moderate/ Major	Moderate/ Minor	Minor	Negligible
Low	Moderate/ Major	Moderate/ Minor	Minor	Minor/ Negligible	Negligible

- 5.14 The impacts that will have a Very Major, Major or Moderate/Major negative effect upon a feature are considered to be significant, and measures would be put in place to mitigate or compensate for these effects where appropriate.
- 5.15 Effects that were assessed to be Minor/Negligible were subject to professional judgement as to whether the effect was indeed Minor or Negligible. In such cases, mitigation or

compensation was included for effects where appropriate to help ensure that there is no net loss in biodiversity as a result of the development.

- 5.16 The duration and reversibility of effects was also considered as a part of the assessment. The definitions used to describe the duration of the effects are explained in Table 5.6. The duration of effects is extremely variable and is dependent upon an individual or species tolerance towards an effect.

Table 5.6: Definitions of the duration of effects.

Effect Magnitude	Assessment Criteria
Permanent	Effects that have the potential to continue over 15 years are considered as permanent. This typically includes habitat loss such as tree felling.
Temporary	Long term: 10 to 15 years. Medium term: 5 to 10 years. Short term: 0 to 5 years.

Reversibility

- 5.17 A temporary impact is one that means recovery is possible. A permanent impact is one that means recovery is unlikely to occur within a reasonable timescale.

Statutory Designated Sites

- 5.18 Table 5.7 details the statutory designated sites within the Zol.

Table 5.7: Statutory Designations within the Zol.

Designated Site	Reason for Designation	Proximity to Pinwherry overhead grid connection
Galloway Oakwoods SAC	Old Sessile Oakwoods	3.8km SE of OHL, 610m ESE of on-site underground
Lendalfoot Hills Complex SAC	Mountain grassland and fen habitats	1.3km north & west
River Bladnoch SAC	High quality Atlantic Salmon population	2.3km west
Glen App and Galloway Moors SPA	Breeding Hen Harrier	5.7km south-west
Carsegowan Moss SAC	Active raised bog habitat	-
Merrick Kells SAC	Blanket bog, wet heath & alpine and boreal grassland habitats	7.7km east
Kirkcowan Flow SAC	Blanket bog habitat	9.8km west
Wood of Cree SSSI	Oak woodland, flora and breeding birds	3.8km SE of OHL, 610m ESE of on-site underground
Feoch Meadows SSSI	Fen meadow and lowland neutral grassland habitats	750m north-east

Aldons Hill SSSI	A range of upland habitats	1.3km north
Lower River Cree SSSI	Only know spawning site of Spelt in Scotland	-

Non-statutory Designated Sites

- 5.19 No non-statutory sites were identified during the desk study.

Species Records

- 5.20 Table 5.8 provides details of the species records that the desk study returned, for a search radius of 1km around the Pinwherry overhead grid route.

Table 5.8: Species recorded with 1km of Pinwherry overhead grid route.

Species	Number of Records in 1km radius
Mammals: four species	
Red Squirrel	11
Grey Squirrel	11
Otter	3
Badger	1
Amphibians: one species	
Common Frog	1
Birds: 47 species, including the notable/sensitive species below	
Spotted Flycatcher	3
Barn Owl	2
Cuckoo	1
Common Crossbill	1

Assessment of Effects

Pinwherry overhead route

- 5.21 The potential significant effects from the construction and/or operation of the Pinwherry overhead grid connection on VERs and VORs are summarised below:
- Permanent habitat loss (e.g. the loss of important habitats due to construction of access tracks or other infrastructure);
 - Temporary habitat loss (e.g. the temporary loss of habitat to accommodate temporary construction compounds or other works areas);
 - Habitat degradation as a result of pollution incidents (e.g. fuel or oil spills);
 - Permanent or temporary changes to hydrological conditions which may affect vegetation and habitats (e.g. where tracks intercept flushes or infrastructure impacts upon a groundwater dependent terrestrial ecosystem);

- Loss of habitat which supports protected and/or notable species;
- Creation of barriers to animal movements;
- Temporary disturbance and/or displacement of species during construction (e.g. disturbance of protected species whilst occupying places of shelter or nest sites);
- Potential for direct mortality of species during construction (e.g. as a result of increased vehicular traffic, or as a result of pollution incident); and
- Potential for birds to collide with the new overhead line.

5.22 The predicted effects of the proposed Pinwherry overhead grid connection on both VERs and VORs, prior to mitigation, are shown in Table 5.9 below. These predicated effects are solely based on the results of the desktop study undertaken above, and may be subject to change following full ecological and ornithological surveys and EcIA.

Table 5.9: Assessment of the predicted effects of the Pinwherry combined overhead grid connection prior to mitigation.

Receptor & Summary of Predicted Effect	Sensitivity of Feature	Magnitude of Impact	Duration of Pre-mitigation Effect	Significance of Effect
Construction Phase - Ecology				
Habitats: loss through construction	Low - Moderate	Minor	Permanent	Minor/negligible
Bat species: disturbance during construction	High	Minor	Short-term	Minor
Otter: disturbance during construction	High	Minor	Short-term	Minor
Water Vole: disturbance during construction	High	No effect	Short-term	No effect
Badger: disturbance during construction	High	Minor	Short-term	Minor
Red Squirrel: disturbance during construction	High	Negligible	Short-term	Negligible
Pine Marten: disturbance during construction	High	Negligible	Short-term	Negligible
Fish species: disturbance during construction	Moderate	No effect	Short-term	No effect
Reptiles: disturbance during construction	Moderate	Minor	Short-term	Minor
Construction Phase – Ornithology				
Breeding wildfowl: disturbance during construction	Low - Moderate	Minor - Intermediate	Short-term	Moderate/Minor

Receptor & Summary of Predicted Effect	Sensitivity of Feature	Magnitude of Impact	Duration of Pre-mitigation Effect	Significance of Effect
Breeding raptors: disturbance during construction	Moderate	Minor - Intermediate	Short-term	Moderate/Minor
Breeding waders: disturbance during construction	Moderate	Minor - Intermediate	Short-term	Moderate/Minor
Black Grouse: disturbance during construction	Moderate	No effect	Short-term	No effect
Breeding owls: disturbance during construction	Low – Moderate	Minor - Intermediate	Short-term	Moderate/Minor
Nightjar: disturbance during construction	Moderate	No effect	Short-term	No effect
Common Crossbill: disturbance during construction	Moderate	Minor	Short-term	Minor
Operational Phase - Ecology				
Bat species: disturbance during operation	High	Negligible	Permanent	Negligible
Otter: disturbance during operation	High	Negligible	Permanent	Negligible
Water Vole: disturbance during operation	High	No effect	Permanent	No effect
Badger: disturbance during operation	High	Negligible	Permanent	Negligible
Red Squirrel: disturbance during operation	High	Negligible	Permanent	Negligible
Pine Marten: disturbance during operation	High	Negligible	Permanent	Negligible
Fish species: disturbance during operation	Moderate	No effect	Permanent	No effect
Reptiles: disturbance during operation	Moderate	Negligible	Permanent	Negligible
Operational Phase - Ornithology				
Breeding wildfowl: displacement during operation	Moderate	Negligible	Permanent	Negligible
Breeding wildfowl: collision during operation	Moderate	Minor	Permanent	Minor

Receptor & Summary of Predicted Effect	Sensitivity of Feature	Magnitude of Impact	Duration of Pre-mitigation Effect	Significance of Effect
Breeding raptors: displacement during operation	Moderate	Negligible	Permanent	Negligible
Breeding raptors: collision during operation	Moderate	Minor	Permanent	Minor
Breeding waders: displacement during operation	Moderate	Negligible	Permanent	Negligible
Breeding waders: collision during operation	Moderate	Minor	Permanent	Minor
Black Grouse: displacement during operation	Moderate	No effect	Permanent	No effect
Black Grouse: collision during operation	Moderate	No effect	Permanent	No effect
Breeding owls: displacement during operation	Moderate	No effect	Permanent	No effect
Breeding owls: collision during operation	Moderate	Minor	Permanent	Minor
Nightjar: displacement during operation	Moderate	No effect	Permanent	No effect
Nightjar: collision during operation	Moderate	No effect	Permanent	No effect
Common Crossbill: displacement during operation	Moderate	Negligible	Permanent	Negligible
Common Crossbill: collision during operation	Moderate	No effect	Permanent	No effect

Mitigation Measures

5.23 It is expected that the final routing strategy for the grid connection would engage the following mitigation hierarchy, where there is potential for adverse effects on ecological and ornithological features:

- Avoid ecological and ornithological features where possible;
- Minimise impact by design, method of working or other measures (mitigation); and,
- Compensate for significant residual effects (e.g. by providing suitable alternative habitat elsewhere).

5.24 This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. At this stage in the design of the grid connection, it is not possible to make detailed recommendations for mitigation. The requirement for specific mitigation will be determined based on the results of desk study and field survey work and the subsequent EclA. However, it is likely that the following generic mitigation measures will be required to reduce the impacts and effects of the grid connection on both ecological and ornithological features:

- Minimising the loss of habitats of high conservation value through project design and micro-siting;
- Providing compensatory habitat, where appropriate, for permanent losses to the grid connection (e.g. replanting of a larger area of native broadleaved trees than is felled to accommodate construction works);
- Restoring areas of habitat temporarily lost during the construction period;
- Implementing standard pollution prevention measures to protect surface water systems, groundwater and species;
- Maintaining the existing hydrological regime, particularly in any areas of peat bog and Ground Water Dependant Terrestrial Ecosystems (GWDTEs);
- Designing watercourse crossings to be maintain passage for species such as Otter, Water Vole and fish species;
- Avoiding key areas and/or features used by important ecological and ornithological features through project design and micro-siting;
- Timing of construction activities to minimise impacts upon species;
- Pre-construction and pre-felling checks for protected species;
- Implementing works exclusion zones around specially protected species to ensure that they are not disturbed or otherwise directly harmed during construction, and acquiring associated licensing where necessary to ensure legal compliance; and
- Appointment of an Ecological Clerk of Works (ECoW) for the duration of the construction period.

Cumulative Assessment

5.25 From a cumulative perspective, the assessment of the grid connection would not give rise to any significant effects on ecological and ornithological receptors associated with the Proposed Development. Consequently, it is assessed that there would be no potential for significant cumulative effects as a result of the addition of the grid connection when considered as part of the wider project, alongside other wind farm and grid connection developments.

Summary

5.26 No likely significant effects on ecology, biodiversity and ornithology are predicted as a result of likely overhead line grid connection route. The mitigation outlined above follows SPEN's established construction practices and are likely to be proposed on a precautionary basis as part of any future planning application for the defined grid

connection route once it is known. Subject to mitigation measures, no likely significant residual effects are predicted.

References

- 5.27 Chartered Institute of Ecology and Environmental Management. 2024. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 – Updated September 2024.

6 FORESTRY

Introduction

- 6.1 This section presents an assessment of the likely significant environmental effects of the northern overhead line grid connection on forestry. It also describes the baseline conditions that currently exist and any mitigation measures that are likely to be set out in a future planning consent for the grid connection, in line with SPEN's established construction practices.

Scope and Methodology

- 6.2 Forestry Commission Scotland (now Scottish Forestry) issued a document entitled *The Scottish Government's Policy on Control of Woodland Removal* in 2009, which provides guidance on the control of woodland removal and the process for managing the implementation of the woodland removal policy in respect of forestry removal on development sites. The principal aims of the Control of Woodland Removal Policy are to provide a strategic framework for appropriate woodland removal and to support climate change mitigation and adaptation.
- 6.3 The Control of Woodland Removal Policy is built on the following principles:
- A strong presumption in favour of protecting Scotland's woodland resource;
 - Woodland removal should be allowed only where significant and clearly defined additional public benefit can be demonstrated. A proposal for compensatory planting may add additional public benefit;
 - Approval for woodland removal should be conditional on the undertaking of actions to ensure full delivery of the defined additional public benefits;
 - Planning conditions are used to mitigate the environmental impacts arising from development; and
 - Where felling is permitted but woodland removal is not supported, conditions conducive to woodland regeneration should be maintained through adherence to good forestry practices as defined in the UK Forestry Standard.
- 6.1 An iterative process of corridor and route selection would be undertaken by SPEN to identify the optimal alignment for the grid connection. A key consideration in this process will be to minimise the amount of permanent felling required to construct the grid connection. Despite this, it is likely that the grid connection would still involve the permanent removal of woodland for the purposes of conversion to another type of land use. Under these circumstances, the Scottish Government's Control of Woodland Removal policy requires that compensatory planting should be required.

Baseline Conditions

- 6.2 The overhead line grid corridor for the northern route includes large areas of commercial plantations and areas of ancient woodland. In accordance with Holford Rule 5, which seeks to avoid routing through woodland or commercial forestry, avoidance of these woodland blocks would be a strong influence on the eventual design of the northern grid route, should it be progressed by SPEN.
- 6.3 The northern route considered in the April 2026 AI was selected because it largely avoids these woodland blocks: first, by undergrounding the first section of the route along the A714 within the road corridor; and second, by routing the overhead elements to the south of the A714 to avoid the woodland blocks in the vicinity of Barhill. This route avoids all of the ancient woodland in the area and does not go directly through any of the major woodland blocks. It does however go through some smaller areas of woodland, and some felling would be necessary to provide the clear swathe needed to accommodate the overhead line. It is likely that detailed routing carried out by SPEN would seek to further minimise the amount of felling required.
- 6.4 In assuming an overhead line route between the Glenvernoch Wind Farm Site and Pinwherry Substation however, it is impossible to avoid the large areas of woodland that are present to the north of the River Cree. Accordingly, this section provides an assessment associated with the routing of the likely overhead line through this woodland area.

Assessment of Effects

- 6.5 The study area for the proposed overhead line covers all woodlands within a wayleave corridor width of 30m either side of the route corridor (total wayleave corridor width of 60m).
- 6.6 The April 2026 AI identified that the overhead line elements of the northern grid connection route would impact on the following areas of forestry:
- Individual trees on field boundaries between the A714 and the Dusk River – 0.1ha.
 - Areas of scrub and individual trees in the vicinity of where the overhead line would cross the Cross Water – 0.7ha.
 - Commercial plantation at Arecleoch Forest, in the vicinity of Barrhill railway station (the majority of which has recently been clear felled) – 4.6ha.
 - Individual trees on field boundaries to the east and west of Forest Road, west of Bents Farm – 0.1ha.
 - Areas of scrub and individual trees in the vicinity of where the overhead line would cross the Burn of Lig – 0.2ha.
 - Newly planted commercial woodland in the area between Balliard Farm Cottage and the A714 – 5.1ha.

- Individual trees within the highway corridor on the A714, east of High Alticane and west of Drumgrier – 0.1ha.
- Individual trees in the vicinity of where the overhead line would cross the Duisk River to the south of Drumspillan Hill – 0.1ha.
- Individual trees on field boundaries between Drumspillan Hill and Pinwherry Substation – 0.3ha.

- 6.7 The introduction of additional overhead line between the Site and Pinwherry Substation, in substitute for the underground cable elements, would introduce a requirement for a further 31.7ha of felling in the area of established commercial woodland from north of the River Cree to the area between Knockytoul and Knockycoid. This increases the total felling requirement to accommodate the overhead line from 11.3ha (for the April 2026 AI northern route) to 43ha.
- 6.8 The likely impact of this is Minor/Moderate (Not Significant) given the relatively modest area of permanent woodland loss taking into account the scale of the woodland resource in the wider area.
- 6.9 SPEN's standard preference for timber harvesting would likely be whole tree harvesting. However, where ground conditions do not allow for this, then the method employed is likely to be based on the use of harvesters which will process every tree to very small top diameters leaving only small volumes of timber on soft areas and brash to support the harvesting equipment. All works would only be undertaken after assessment of the felling site's capacity to sustain such a process and with due consideration to operator safety.
- 6.10 As illustrated on Figure 6.1, areas of ancient woodland are present within the grid corridor and within the 500m buffer of the likely overhead line route. It is expected that SPEN's routing strategy would seek to avoid and direct impacts on these designated areas, given its licence duties, its approach to routeing and the application of the Holford Rules.

Mitigation Measures

- 6.11 As the grid connection would involve the permanent removal of woodland for conversion to another type of land use, compensatory planting would be required in line with the requirements of the Scottish Government's Control of Woodland Removal policy. It is anticipated that the compensatory planting requirement would be in the region of 43ha, plus an additional 10% for designed open ground. Following delivery of the compensatory planting the residual effect would be Negligible.
- 6.12 Timber extraction would be carried out making optimum use of existing tracks wherever possible. Site refuelling and maintenance areas would be sited outside the watercourse buffer areas and best practice measures would be taken to mitigate risks of spillages.
- 6.13 All forestry waste materials would be managed in accordance with SEPA's guidance notes – Land Use Planning System, SEPA Guidance Note LUPS-GU27 – Use of Trees Cleared to Facilitate Development on Afforested Land and the SEPA (2017) Guidance WST-G-027 version 3 Management of Forestry Waste.

Summary

- 6.14 Compensatory planting would be provided for any areas of felling, ensuring there would be no net loss of forestry. Given that there would be no overall loss of woodland the overall effect would be not significant.

7 CUMULATIVE ASSESSMENT

Introduction

- 7.1 This section presents a cumulative assessment of the grid connection route in combination with the wind farm and other relevant cumulative schemes.
- 7.2 An assessment of cumulative effects should focus on whether there are any potential cumulative impacts which are reasonably foreseeable and which are likely to influence the decision making of the proposed development, rather than an assessment of every potential cumulative effect⁴ which in practice means focussing on other nearby development proposals and the effects that might arise from the combined influence of those developments.

Scope and Methodology

- 7.3 The following scenarios are considered in the cumulative assessment:
- Scenario 1: the significant environmental effects arising from the Proposed Development;
 - Scenario 2: likely significant environmental effects of the likely overhead line grid connection route in combination with the Proposed Development; and
 - Scenario 3: likely significant environmental effects of the likely overhead line grid connection route in combination with the Proposed Development and other relevant cumulative schemes.
- 7.4 Operational developments are included in the baseline. Consented developments which are expected to be constructed form part of the future baseline and are also included as such. However, where there is some uncertainty regarding the future construction of consented developments, they may be considered in the third scenario of the cumulative assessment.
- 7.5 Proposals in planning are considered in the third scenario where there is good reason to assume that the timing of decisions may be similar and significant cumulative effects are likely.
- 7.6 Proposals in scoping are not considered within the cumulative assessment, as there is no certainty that these proposals will progress to planning submissions and the nature of the proposed schemes may be subject to change.
- 7.7 The potential future grid connections associated with wind farm projects are considered in the third scenario where details of those connections are publicly available. Where no

⁴ GLVIA page 121, paragraph 7.5

details are publicly available the potential future grid connections are not considered within the cumulative assessment.

- 7.8 Table 7.1 provides a list of developments within 20km of the Proposed Development that are included in the cumulative assessment for all topics.

Table 7.1: Other Wind Farm and Grid Connection Developments within 20km of the Proposed Development

Development	Status	Distance and direction to Glenvernoch Wind Farm
Glenvernoch Wind Farm	In Planning	0km
Airies Wind Farm	Operational	8km southwest
Kilgallioch Wind Farm	Operational	8km west
Artfield Fell Wind Farm	Operational	13km southwest
Balmurrie Fell Wind Farm	Operational	14km southwest
Glenchamber Wind Farm	Operational	14km southwest
Mark Hill Wind Farm	Operational	14km northwest
Mark Hill Grid Connection	Operational	14km northwest
Arecleoch Wind Farm	Operational	16km northwest
Arecleoch Grid Connection	Operational	14km northwest
Carscreugh Wind Farm	Operational	16km southwest
Barlockhart Wind Farm	Operational	19km southwest
Kilgallioch Extension	Under Construction	9km west
Arecleoch Extension	Under Construction	15km northwest
Stranoch 2	Under Construction	16km west
Chirmorie Wind Farm	Consented	14km northwest
Stranoch and Chirmorie Grid Connections	In Planning	14km northwest
Garvilland Wind Farm	Consented	17km southwest
Gass Wind Farm	Consented	11km southwest
Barlockhart Moor Extension	Consented	19km southwest
Knockodhar Wind Farm	In Planning	17km northwest
Blair Hill Wind Farm	In Planning	5km east
Craig Nab Wind Farm	In Planning	14km southwest
Shennanton Wind Farm	In Planning	6km southwest
Whiteminwhill Wind Farm	Scoping	10km northwest
Greyland Energy Park	Scoping	18km southwest

- 7.9 Table 7.2 provides the cumulative assessment on an individual topic basis across the three separate scenarios. Only those topics scoped into the assessment of the grid connection route are considered.

Table 7.2: Cumulative Assessment

Topic and Receptor	Scenario 1 Glenvernoch Wind Farm	Scenario 2 Glenvernoch Wind Farm and Likely Overhead Line Grid Connection Route	Scenario 3 Glenvernoch Wind Farm, Likely Overhead Line Grid Connection Route and other Cumulative Developments
<u>Landscape and Visual</u> Landscape character and visual receptors	<u>Landscape Character</u> Construction Phase: Major/ moderate significant effect to the part of LCT 174: Plateau Moorland with Forest where the Proposed Development would be located in. Moderate/ minor non-significant effect to parts of surrounding LCTs, including LCT 181: Rugged Uplands with Forest, LCT 172: Upland Fringe, and LCT 168: Drumlin Pasture in Moss and Moor Lowland. Operational Phase: Major significant effects extending to approximately 4km at LCT 174: Plateau Moorland with Forest, and LCT 160: Narrow Wooded Valley.	No change.	No change.

	Major/ moderate significant effects extending to approximately 6km from the Proposed Development on LCT 172: Upland Fringe, and LCT 168: Drumlin Pasture in Moss and Moor Lowland. <u>Visual Receptors</u> Construction Phase: Moderate non-significant temporary effect from several locations. Operational Phase: Significant effects from 8no. of the 20no. LVIA Viewpoints. Major significant effects at three viewpoints - Viewpoint 1: Southern Upland Way (Hill of Ochiltree), Viewpoint 4: Southern Upland Way (Bargrennan), and Viewpoint 19: The minor road.		
<u>Cultural Heritage</u> Non-designated assets	Assessment of effects on non-designated assets were scoped out due to the fact that their setting did not include the Proposed Development Area, nor were views that may	No change.	No change.

	potentially contain the Proposed Scheme an important element of the key character of these assets.		
<u>Ecology</u> Valued Ornithological Receptors (VORs) Valued Ecological Receptors (VERs)	At most, Minor adverse effect on VORs. At most, Moderate / Minor adverse effect on VERs.	No change.	No change.
<u>Forestry</u>	No effects.	Minor/Moderate (Not Significant) effect on forestry resource. Negligible residual effect following implementation of mitigation.	No change

8 NON-TECHNICAL SUMMARY

Introduction

- 8.1 This Additional Information (AI) is submitted in support of an application for consent under Section 36 of the Electricity Act 1989 by Energiekontor UK Ltd ("the Applicant") to the Energy Consents Unit (ECU) for thirteen wind turbines and associated infrastructure ("the Proposed Development") on land at Glenvernoch ("the Site"). The application was accompanied by an Environmental Impact Assessment Report ("the EIAR") as required under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations").
- 8.2 Regulation 19 of the EIA Regulations directs that, in order to ensure the completeness and quality of the EIAR, the Scottish Ministers must (having regard in particular to current knowledge and methods of assessment) seek from the developer supplementary information about any matter in schedule 4 which in the opinion of Scottish Ministers is directly relevant to reaching a reasoned conclusion on the significant effects of the development on the environment.
- 8.3 Additional Information dated April 2026 ("the April 2026 AI") was submitted by the Applicant to identify the potential for likely significant environmental effects associated with the grid connection for the Proposed Development, including cumulative effects with the wind farm.
- 8.4 The April 2026 AI identifies two potential grid connection routes for the Proposed Development:
- A southern connection route to Newton Stewart Substation, which would consist of 8km of underground cable buried within the road corridor; and
 - A northern connection route to Pinwherry Substation, which would consist of 15.5km of underground cable buried within the road corridor and 11.5km of overhead line.
- 8.5 Following submission of the April 2026 AI, comments submitted by third parties⁵ queried whether the April 2026 AI presents a reasonable worst-case assessment of the grid connection, as elements of the northern connection route to Pinwherry Substation were assumed to be underground, rather than overhead line for the entire route.
- 8.6 In particular, the third parties make reference to the 'Rochdale Envelope' as defined in the *R v Rochdale MBC ex parte Milne (No 2) [2000]* judgement, and suggest there is a requirement to consider the worst-case effects of the development, even where there is uncertainty.. The third parties submit that the April 2026 AI has not considered the effects

⁵ Third response to the Procedure Notice 18/3/26 on behalf of the owners of Knockville and Crungie Woodland and Hands off our Hills, prepared by Dr Christopher Ford (May 2026)

arising from the worst-case scenario for the grid connection, which they consider to be an overhead line from the Site all the way to the Pinwherry substation.

- 8.7 This AI is submitted supplementary to the April 2026 AI and seeks to identify the potential for likely significant environmental effects associated with an assumed overhead line route from the Site to Pinwherry Primary Substation. Various references are made to the April 2026 AI and the two documents should be read alongside one another.
- 8.8 Where the level of effect on certain environmental topics is considered to have reduced as a result of a fully overhead line grid connection route, when compared against the environmental assessments for the northern grid connection route submitted as part of the April 2026 AI, these topics have been scoped out of this assessment. Further information is set out in Section 2 on this scoping process.
- 8.9 This AI has been prepared by the Applicant with specialist input where required. The AI is based on the information that is known at the time of writing.
- 8.10 For the avoidance of doubt, permission is not sought for the grid connection itself as part of this application. The connection would be subject to its own separate consenting process in the future, which would be led by SP Energy Networks ("SPEN"). SPEN would also construct, operate and own the grid connection infrastructure.
- 8.11 It should be stressed at the outset that the final details of the grid connection are not currently known. A number of ongoing initiatives relating to electricity network planning may influence the eventual point of connection, connection date, connection voltage, routing of the connection, and the balance of underground cable and overhead line. These include Connections Reform, the Strategic Spatial Energy Plan (SSEP), Regional Energy Strategic Planners (RESPs) and Centralised Strategic Network Planning (CSNP). These initiatives are discussed in section 3 of the previous AI dated April 2026.

Indicative Grid Connection Details

- 8.12 Glenvernoch wind farm does not benefit from a Gate 2 grid connection offer, therefore the grid connection corridor for the Proposed Development is unknown.
- 8.13 The approach taken to inform the April 2026 AI was to identify the two nearest substations to the Site (one to the north and one to the south) and identify a potential route corridor for each. The April 2026 AI therefore considers the following two scenarios:
- A southern connection route to Newton Stewart Substation, which would consist of 8km of underground cable buried within the road corridor; and
 - A northern connection route to Pinwherry Substation, which would consist of 15.5km of underground cable buried within the road corridor and 11.5km of overhead line.
- 8.14 These routes are illustrated on Figure 4.1 of the April 2026 AI.
- 8.15 This AI presents an assessment of a third scenario in which the northern connection route is constructed using overhead line between the Site and Pinwherry Substation. This results

in a different and more direct route alignment than the northern route assumed in the April 2026 AI. Underground cable would still be used within the Wind Farm Site itself owing to technical spacing requirements between overhead and wind turbines⁶. In particular, wind turbines should be separated from overhead electricity lines by a distance equivalent to three rotor diameters. This spacing requirement constrains overhead lines within most of the site boundary apart from a narrow corridor at the eastern edge, running parallel to the A714 where in theory it could be technically possible to construct a new overhead line. However, this area is constrained by the residential property Knockville, by an existing overhead line (which would need to be avoided), and by adjacent ancient woodland. It is therefore considered more likely that the grid connection would begin underground (particularly as the on-site substation is within a three rotor diameter buffer zone) and follow the wind farm access tracks north before emerging north of Turbine T12 at the end of the three rotor diameter buffer zone. Nevertheless, if overhead line was used within the wind farm site along the eastern boundary then it is considered unlikely this would lead to any additional significant effects due to the presence of the existing overhead line which it would run alongside, and the extensive screening provided by the ancient woodland present on the eastern boundary of the site.

- 8.16 In total the route would consist of 21.8km of overhead line and 4.5km of underground cable.
- 8.17 Figure 2.1 shows a likely overhead line grid connection route within a with a 500m buffer offset of the route to effectively provide a 1km grid corridor, which is located within a broader grid corridor. It is likely that any refinement to the detailed routing design would be located within or close to the identified likely overhead line route (particularly within the 500m buffer offset). Figure 2.1 forms the basis for subsequent assessment of potentially significant environmental effects.

Overhead Lines

- 8.18 With an overhead line, conductors (or wires) are suspended at a specified height above ground and supported by wooden poles, spaced at intervals. Conductors can be made either of aluminium or steel strands.
- 8.19 Wood poles can be used for single circuit lines operating at 33kV and 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity.
- 8.20 Wood poles can consist of single poles, or in certain circumstances, double 'H' poles which consist of two wooden poles joined by a steel cross bracing both above and below the ground. H poles are generally used for greater changes in direction or above certain altitudes.

⁶ Energy Networks Association, Separation between Wind Turbines and Overhead Lines Principles of Good Practice (2012), available at:
https://www.spenergynetworks.co.uk/userfiles/file/Energy_Networks_Association_Separation_Wind_Turbines_Overhead.pdf

8.21 There are three types of pole:

- Intermediate: where the pole is part of a straight line section.
- Angle: there is only one type of angle pole which can support changes in direction up to a maximum of 300 degrees. All angle structures will require to be back stayed.
- Terminal: where the overhead line terminates into a substation or on to an underground cable section via a cable sealing end.

8.22 Span lengths between poles average between 80m and 120m but can go up to 120m. The average height for a pole varies from 14m to 16m. New wood poles are dark brown in colour and weather over the years to a light grey.

Underground Cables

8.23 Underground cable would be utilised within the Wind Farm Site owing to technical spacing requirements between overhead lines and wind turbines. The cable route would follow existing access tracks north through the Site, before emerging at a suitable location north of turbine T12 and switching to overhead line infrastructure.

8.24 With an underground cable, the conductors are encased in insulated material and buried in a backfilled trench of suitable depth and width. The number of cables, and the depth and width of the trench, depends on a range of factors including voltage, number of circuits and the rating of the cables to be installed.

8.25 Where connected to an overhead line, an underground cable may also involve the siting of terminal supports and sealing end compounds above ground. These require their own siting appraisal which should normally be undertaken in conjunction with the overhead line/underground cable routeing.

8.26 Open cut trenching is the most frequently used construction method for cable installation. However, in crossing under watercourses or motorways for example, a trenchless technique such as directional drilling may be used. Works at each section commonly consist of the excavation of the cable trench by mechanical excavators, the storage of excavated material, cable laying, the backfilling of the trench and surface reinstatement. Sections of cable are joined together at cable jointing pits, with the location of these dictated by a number of factors including cable size/length and ongoing access requirements. Manhole covers above jointing pits enable access just below the surface for routine maintenance. Underground cables are marked on service maps provided to other utilities and are installed with surface marker tape to warn of their presence below the ground. If lines are decommissioned, cables can either be left in situ or removed carefully by opening up the ground.

8.27 The connection works period would be unlikely to take longer than 12 months in total and works would be subject to SPEN's established construction methodology to avoid or minimise any adverse construction effects. Temporary traffic management measures would be deployed as necessary where works are due to take place within or adjacent to the public highway.

Environmental Effects Scoped In

8.28 Based on the currently understood parameters of the likely grid connection and the associated high level of uncertainty, a proportionate assessment of environmental effects is provided for the following topics:

- Landscape and visual amenity;
- Cultural heritage and archaeology;
- Ecology; and
- Forestry.

8.29 These topics are considered separately in the following sections of this AI.

Environmental Effects Scoped Out

8.30 The following topics are scoped out of the assessment as it is considered that no significant environmental effects are likely:

- Air quality – Due to the short term and localised nature of the construction and decommissioning phases, any temporary impacts to air quality, including from construction traffic, are likely to be minimal and locally concentrated. Operational impacts are expected to be negligible as the activities associated with maintenance will be sporadic. Consequently, no significant effects are predicted in relation to air quality.
- Construction and operational noise – Due to the short term and localised nature of the construction and decommissioning phases of the grid connection, any temporary noise created (including from construction traffic) is likely to be minimal and locally concentrated. During operation, overhead lines can create audible noise depending on the operating voltage and the type of conductor system used. For connections at 132kV and below however, audibility of noise would be limited to an observer directly below the line. Consequently, no significant effects are predicted in relation to noise.
- Land quality and contamination – During construction and maintenance of the grid connection there could be a potential risk of accidental fuel or oil spills from the operation of plant and machinery, which could potentially lead to pollution of nearby watercourses or sensitive habitats. To mitigate this, SPEN would follow its established construction guidance and would be regulated under the consent for the grid connection. Relevant Guidance for Pollution Prevention (GPP) documents will also be strictly followed to minimise risks. The use, storage, transport and handling of materials on site will comply with relevant legislation and best practice, including adherence to Control of Substances Hazardous to Health (COSHH) regulations and the appointed contractor will prepare and adhere to a Materials Management Plan (MMP) to mitigate any potential risks effectively. Given these

robust preventative measures to manage and mitigate potential impacts, no significant effects are predicted in relation to land quality and contamination.

- Material assets and waste – The grid connection is not anticipated to generate significant quantities of waste during construction or operation. SPEN would adopt their established practices in effective waste management to promote the reduction, reuse and recycling of waste material. Mitigation measures would be put in place to further minimise the potential environmental effects associated with waste storage and transportation. Consequently, no significant effects are predicted in relation to material assets and waste.
- Climate – It is considered unlikely that the grid connection would lead to significant effects on climate or the ability of receptors to adapt to climate change.
- Population and human health – Given that no significant effects are predicted in relation to noise, air quality and socio-economics, and that noise and dust nuisances will be adequately mitigated through the implementation of good practice construction methods and mitigation, it is considered that no significant effects are likely to occur in relation to population and human health.
- Major accidents and disasters – The grid connection is not located in an area with a history of natural disasters and the operation of the connection would be managed in line with the requirements of a number of health and safety related regulations. Consequently, no significant effects are predicted in relation to major accidents and disasters.
- Light, heat and radiation – Electromagnetic fields are produced by electrical charges. Exposure guidelines developed by the International Commission on Non-Ionising Radiation Protection (ICNIRP) ensure the protection of human health from dangerous levels of occupational and public exposure. These guidelines have been adopted by Public Health England, which the Scottish Government follows on matters relating to electromagnetic fields. The grid connection voltage and equipment is considered by the Government to be inherently compliant with exposure limits due to design. During construction, temporary pollution from light and heat sources would be minimised through adherence to standard best practice construction practices and working hours that would be implemented by the appointed contractor. Consequently, no significant effects are predicted in relation to light, heat and radiation.
- Socio-economics, recreation and tourism – The construction and decommissioning phases are anticipated to cause minimal disturbance to recreational activities, localised to small working areas as construction progresses. Post-construction, use of the land would continue as normal with the exception of the occasional need for maintenance. Due to the relatively short construction period and the scale of the grid connection, impacts to employment and local income generation are not anticipated to be significant, and there would be a small but not significant benefit due to the capital expenditure associated with the grid connection. Consequently,

no significant effects are predicted in relation to socio-economics, recreation and tourism.

- **Geology, Hydrology and Hydrogeology** – An assessment of the likely significant environmental effects of the grid connection on geology, hydrology and hydrogeology was undertaken as part of the April 2026 AI. With regard to the likely overhead line grid connection route and its impacts on hydrology and soils receptors, increasing the extent of the overhead line and reducing the underground extent would likely result in comparatively reduced adverse impact. This is primarily to do with the extent of the earthworks soil/peat disturbance, potential for erosion, disruption of groundwater and dewatering, trenching and cable laying of watercourses, which for an overhead line is much reduced and localised to pole locations or where temporary tracks are used. For undergrounding, such impacts could be expected the full length of the connection. Consequently, the 'worst-case' scenario impacts for geology, hydrology and hydrogeology have already been assessed as part of the April 2026 AI, and so no further assessment is provided.
- **Traffic and Transport** – An assessment of the likely significant environmental effects of the grid connection on traffic and transport was undertaken as part of the April 2026 AI. With regard to the likely overhead line grid connection route and its impacts on traffic and transport, the length of the route for a fully overhead line would be shorter than the mix of underground cabling and overhead line that was assessed as part of the April 2026 AI. The likely overhead line grid connection route in this assessment is 21km in total and is assessed as resulting in a total of 3,549 construction trips, whereas the mix of underground cabling and overhead line assessed in the April 2026 AI was 26km in total and was assessed as resulting in a total of 3,788 construction trips. Consequently, as the number of construction trips for the likely overhead line route which this assessment is based on is less than the number of trips assessed as part of the April 2026 AI, it is considered that the 'worst case' scenario for traffic and transport has already been assessed and no further assessment on this topic is provided

Assessment of Effects

Landscape and Visual

- 8.31 Overall, when considering the likely overhead line as part of the wider project, in the context of the Proposed Development, it is considered to result in very minor changes to landscape and visual effects compared with the Proposed Development as assessed in the original LVIA. The landscape and visual effects resulting from the addition of an overhead line would be highly limited in extent or nature and not result in any additional significant landscape and visual effects.
- 8.32 Indeed, from many locations within the 20km LVIA study area, the route of the overhead line would be difficult to perceive. Whilst recognised that individual poles may be more apparent in localised locations, in the main, this is not considered to alter the judgements on the effects from the Proposed Development as set out in the original LVIA in any

substantive manner as the proposed wind turbines would represent the principal source of landscape and visual change, introducing large-scale vertical elements across the receiving landscape.

- 8.33 In this context, the likely overhead line is not considered to result in any significant effects upon landscape and visual receptors that exceed or alter those already identified for the Proposed Development in the original LVIA.
- 8.34 A detailed LVIA of the final route would be required to be conducted through extensive field survey, consultation, mapping, and visualisations to inform a future Section 37 application for consent.

Cultural Heritage

- 8.35 At this stage, there is not considered to be any evidence to suggest that the addition of a grid connection would result in any significant effects upon cultural heritage or archaeology.
- 8.36 While there are potential for below ground impacts associated with the likely underground elements within the Site, and elements of infrastructure associated with the likely overhead connection, it is not anticipated that any effects would be greater than **Minor adverse**, at most. It is also anticipated that any impacts could be largely avoided through /design measures, or could be mitigated through archaeological survey and/or monitoring.
- 8.37 A detailed Cultural Heritage Assessment of the final route would be required to be conducted through field survey, consultation, mapping, and potentially visualisations to inform the Section 37 application for consent.
- 8.38 As per the summary presented in the original Cultural Heritage and Archaeology Chapter, and discussed within the Planning Statement, the identified effects on cultural heritage should be balanced against the wider benefits of the Proposed Development. No effects which would be considered as significant in EIA terms have been identified as arising from the Proposed Development, or from the proposed connection routes.

Ecology

No likely significant effects on ecology, biodiversity and ornithology are predicted as a result of the northern grid connection route or the southern grid connection route. The mitigation outlined above follows SPEN's established construction practices and are likely to be proposed on a precautionary basis as part of any future planning application for the defined grid connection route once it is known. Subject to mitigation measures, no likely significant residual effects are predicted.

Forestry

- 8.39 Compensatory planting would be provided for any areas of felling, ensuring there would be no net loss of forestry. Given that there would be no overall loss of woodland the overall effect would be not significant.

Cumulative Effects

- 8.40 While the final grid connection route remains unknown, it is anticipated that once it has been defined and is under construction, cumulative effects arising from the grid connection may overlap with the construction of the Proposed Development. In particular, there is potential for temporary cumulative effects where activities occur at the same time and place. However, given the lack of any likely significant effects identified for the likely overhead line grid connection route presented in this assessment, in no case would the likely significant effects identified for other cumulative developments – including Glenvernoch Wind Farm – be increased by the in-combination effects with the grid connection once it is defined.

APPENDIX 3.1 – THE HOLFORD RULES

Rule 1: Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Note of Rule 1

- (a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particular in the case of commercial forestry, then effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.
- (b) Areas of high amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish, English and Welsh planning policies, Circulars and Planning Advice and the spatial extent of areas identified.

Examples of areas of highest amenity value which should be considered are:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)
- Ramsar Sites
- National Scenic Areas (NSAs) (Scotland)
- Areas of Outstanding Natural Beauty (AONBs) (England and Wales)
- National Parks
- Wild Land Areas
- National Nature Reserves (NNRs)
- Sites of Special Scientific Interest (SSSIs)
- Scheduled Monuments
- Listed Buildings
- Conservation Areas
- World Heritage Sites (a non-statutory designation)
- Gardens and Designed Landscapes (a non-statutory designation)
- Historic Battlefields
- Heritage Coasts

Rule 2: Avoid smaller areas of high amenity value, or scientific interest by deviation; provided that this can be done without using too many angle towers, i.e. the more massive structures which are used when lines change direction

Note on Rule 2

- (a) Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.
- (b) Impacts on the setting of historic buildings and other cultural heritage features should be minimised.
- (c) If there is an existing transmission line through an area of high amenity value and the surrounding land uses have to some extent adjusted to its presence, particularly in the case of commercial forestry, then the effect of remaining on this line must be considered in terms of the effect of a new route deviating around the area.

Rule 3: Other things being equal, choose the most direct line, with no sharp changes of direction and thus with few angle towers.

Note on Rule 3

- (a) Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.
- (b) Too few angles on flat landscapes can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4: Choose tree and hill backgrounds in preference to sky backgrounds, where possible; and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5: Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees

Notes on Rules 4 and 5

- (a) Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints
- (b) Minimise the exposure of numbers of towers on prominent ridges and skylines
- (c) Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through

woodland or commercial forestry, discussions should be undertaken with the relevant forestry regulator.

- (d) Protect existing vegetation, including woodland and hedgerows, and safeguard visual and ecological links with the surrounding landscape.

Rule 6: In country which is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concatenation or 'wirescape'.

Note on Rule 6

- (a) In all locations minimise confusing appearance.
- (b) Arrange wherever practicable that parallel or closely related routes are planned with tower types, spans and conductors forming a coherent appearance. Where routes need to diverge allow, where practicable, sufficient separation to limit the impacts on properties and features between lines.

Rule 7: Approach urban areas through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, go carefully into the comparative costs of undergrounding, for lines other than those of the highest voltage.

Note on Rule 7

- (a) When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.
- (b) Alignments should be chosen after consideration of impacts on the amenity of existing developments and on proposals for new development.
- (c) When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Explanatory Note on Rule 7

The assumption made in Rule 7 is that the highest voltage line is overhead.

Supplementary Notes

- (a) Residential Areas - Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- (b) Designations of Regional and Local Importance - Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.

- (c) Alternative Lattice Steel Tower Designs - In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified. [Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled 'Overhead Transmission Line Tower Study 2004'].

1 Interpretation of The Holford Rules 1 and 2

1.1 Introduction

Rule 1 refers to avoiding major areas of highest amenity value, Rule 2 refers to avoiding smaller areas of high amenity value. These rules therefore require identification of areas of amenity value in terms of highest and high, implying a hierarchy, and the extent of their size(s) or area(s) in terms of major and smaller areas.

The NGC Notes to these Rules identify at Rule 1(b) areas of highest amenity value and at Rule 2(a) and (b) of high amenity value that existed in England circa 1992.

1.2 Designations

Since 1949 a framework of statutory measures has been developed to safeguard areas of high landscape value and nature conservation interest. In addition to national designations, European Community Directives on nature conservation, most notably through Special Areas of Conservation under the Habitats and Species Directive (92/43/EC) and Special Protection Areas under the Conservation of Wild Birds Directive (79/409/EEC) have been implemented. Governments have also designated a number of Ramsar sites under the Ramsar Convention on wetlands of International Importance (CM6464). In addition, there are a number of non-statutory landscape and nature conservation designations.

1.3 Amenity

The term 'Amenity' is not defined in the Holford Rules but has generally been interpreted as designated areas of scenic, landscape, nature conservation, scientific, architectural or historical interest.

This interpretation is supported by paragraph 3 of the Schedule 9 to the Electricity Act 1989 (The Act). Paragraph 3(1)(a) requires that in formulating any relevant proposals the licence holder must have regard to the desirability of preserving natural beauty, or conserving flora, fauna and geological or physiological features of special interest and of protecting sites, buildings, including structures and objects of architectural, historic or archaeological interest. Paragraph 3(1)(b) requires the licence holder to do what he reasonably can do to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any flora, fauna, features, sites, buildings or objects.

1.4 Hierarchy of Amenity Value

Rules 1 and 2 imply a hierarchy of amenity value from highest to high.

Schedule 9 to the Act gives no indication of hierarchy of value and there is no suggestion of a hierarchy of value in Scottish, English or Welsh planning policy. Nevertheless, designations give an indication of the level of importance of the interest to be safeguarded.

1.5 Major and Smaller Areas

Rules 1 and 2 imply consideration of the spatial extent of the area of amenity in the application of Rules 1 and 2.

1.6 Conclusion

Given that both the spatial extent in terms of major and smaller and the amenity value in terms of highest and high that must be considered in applying Rules 1 and 2, that no value in these terms is provided by either Schedule 9 to the Act, or relevant planning policies, then these must be established on a project-by-project basis. Designations can be useful in giving an indication of the level of importance and thus value of the interest safeguarded. The note to The Holford Rules can thus only give examples of the designations which may be considered to be of the highest amenity value.

2. The setting of a Scheduled Monument or a Listed Building

The NGC note to Rule 2 refers to the setting of historic buildings and other cultural heritage features. Scottish Planning Policy (SPP) and the National Planning Policy Framework for England (NPPF) include definitions of the setting of historic assets.

Environmental and Planning Designations – Examples of designations to be taken into account in the routing of new high voltage transmission lines

1. Major Areas of Highest Amenity Value

Relevant national, European or international designations for major areas of highest amenity value include the following:

- Special Areas of Conservation
- Special Protection Areas
- Ramsar Sites
- National Scenic Areas (Scotland)
- Areas of Outstanding Natural Beauty (England and Wales)
- National Parks
- Wild Land Areas
- National Nature Reserves

- Sites of Special Scientific Interest
- Scheduled Monuments
- Listed Buildings
- Conservation Areas
- World Heritage Sites
- Gardens and Designed Landscapes
- Historic Battlefields
- Heritage Coasts

2. Other Smaller Areas of High Amenity Value

There are other designations identified in development plans of local planning authorities which include areas of high amenity value, for example:

- Areas of Great Landscape Value
- Regional Scenic Areas
- Regional Parks
- Country Parks

The nature of the landscape in these areas is such that some parts may also be sensitive to intrusion by high voltage overhead transmission lines but it is likely that less weight would be given to these areas than to National Scenic Areas, Areas of Outstanding Natural Beauty and National Parks.

3. Flora and Fauna

Legislation sets out the procedure for designation of areas relating to flora, fauna and to geographical and physiogeographical features. Designations relevant to the routeing of transmission lines will include Special Area of Conservation, Special Protection Area, Sites of Special Scientific Interest, National Nature Reserves, Ramsar Sites and may also include designations such as Local Nature Reserves.

4. Area of Historic, Archaeological or Architectural Value

Certain designations covering more limited areas are of relevance to the protection of views and the settings of towns, villages, buildings or historic, archaeological or architectural value. These designations include features which may be of exceptional interest. Of particular importance in this connection are:

- Scheduled Monuments
- Listed Buildings, especially Grade A and Grade B
- Conservation Areas
- Gardens and Designed Landscapes

- Registered Historic Landscapes

5. Green Belts

Generally, the purposes of Green Belts are not directly concerned with the quality of the landscape.

Further Notes on Clarification to The Holford Rules

Line Routeing and People

The Holford Rules focused on landscape amenity issues for the most part. However, line routeing practice has given greater importance to people, residential areas etc.

The following notes are intended to reflect this.

- (a) Avoid routeing close to residential areas as far as possible on grounds of general amenity.
- (b) In rural areas avoid as far as possible dominating isolated houses, farms or other small-scale settlements.
- (c) Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Supplementary Notes on the Siting of Substations

- (a) Respect Areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.
 - (b) Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.
 - (c) Use space effectively to limit the area required for development, minimising the impacts on existing land use and rights of way.
 - (d) Alternative designs of substation may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified.
 - (e) Consider the relationship of tower and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.
 - (f) When siting substations take account of the impacts of line connections that will need to be made
- Appendix 3.1 – The Holford Rules