

Breackerie Wind Farm

Further Environmental Information Volume I – Main Text

June 2026

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1 INTRODUCTION

Introduction

- 1.1 This Further Environmental Information (FEI) is submitted in support of an application for consent under Section 36 of The Electricity Act 1989 by Energiekontor UK Ltd ("the Applicant") on land approximately 8km south-west of Campbeltown ("the Site") for the development of up to 13 turbines at a height of up to 200m and associated infrastructure ('the proposed development'). 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 In accordance with Regulation 20 of the EIA Regulations, this FEI will be advertised and made available for consultation.
- 1.3 The FEI has been prepared and written by Craig Potter, a Registered Environmental Impact Assessment (EIA) Practitioner with the Institute of Sustainability and Environmental Practitioners (ISEP, formerly IEMA) who holds approximately 17 years of experience in the field of EIA and town planning. Where individual assessments have been undertaken by third parties, the credentials of those 'competent experts' have been stated.

Purpose of FEI

- 1.4 This FEI has been prepared by the Applicant to provide details of the likely grid connection for the proposed development, together with an assessment of the potential likely significant environmental effects associated with the connection and in-combination with the proposed development. The FEI is based on the information that is known at the time of writing.
- 1.5 For the avoidance of doubt, permission is not sought for the grid connection itself as part of this application. The connection will be subject to its own separate consenting process in the future.
- 1.6 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 Plans (RESPs) and Centralised Strategic Network Planning (CSNP). These initiatives are discussed in section 2.

Structure of Report

- 1.7 This FEI is structured as follows:
 - Section 2: Regulatory and Policy Background sets out the current grid reform landscape;

- Section 3: Approach to Routeing describes the approach to routeing for the District Network Operator (DNO) relevant to the proposed development;
- Section 4: Grid Connection Details sets out what is known about the likely grid connection at this stage; and
- Section 5 to Section 10 set out subject specific environmental appraisals of potential significant effects, including cumulative interactions.

- 1.8 The assessment is accompanied by the appropriate figures which are cross referenced within each section. These can be found in Volume 2: Figures, whilst Technical Appendices are found within Volume 3.
- 1.9 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.
- 1.10 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 140 onshore wind farms in Europe.

Contact for Further Information

- 1.11 For additional copies, a charge of £5 will be made for a full electronic copy of this FEI on USB. Costs for paper copies are as follows:
- Volume I – Written Text £50;
 - Volume 2 – Figures £50; and
 - Volume 3 – Technical Appendices £50.
- 1.12 Requests for copies should be sent to: Craig Potter, Project Manager, Energiekontor Uk Ltd, craig.potter@energiekontor.com
- 1.13 Hard copies of this FEI will be available for public inspection at Campbeltown Library, Aqualibrium, Kinloch Road, Campbeltown, PA28 6EG.

2 REGULATORY AND POLICY BACKGROUND

Introduction

- 2.1 As part of its commitment to tackling climate change, the Scottish Government has set legally binding targets to reach net zero greenhouse gas emissions by 2045. In delivering net zero, the electricity system – how electricity is generated, transmitted, distributed and used – is undergoing significant transformational change. This section sets out the regulatory and policy context that underpins how this transformation will be delivered in practice.

Regulatory Context

- 2.2 Scottish Hydro Electric Transmission plc, operating and known as Scottish and Southern Electricity Networks Transmission ("SSEN Transmission") owns and maintains the electricity transmission networks across the north of Scotland.
- 2.3 There are a number of legal provisions which apply to the development of electricity transmission and distribution lines and associated infrastructure. The principal legislation which applies in the UK is the Electricity Act 1989. Licence holders are required under Section 9(2) of the Electricity Act to:
- Develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
 - Facilitate competition in the supply and generation of electricity.
- 2.4 Transmission licence holders therefore have statutory and licence obligations to develop the electricity transmission network to provide adequate transmission capacity and to provide connections to customers who wish to connect to and use the transmission system to participate in the national wholesale electricity market, including new electricity generators. Similar obligations exist for distribution licence holders.
- 2.5 Section 38 and Schedule 9 of the Electricity Act imposes a further statutory duty on licence holders to take account of the following factors in formulating proposals for the installation of overhead transmission lines:
- *"(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*
 - *(b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."*
- 2.6 The Construction (Design and Management) Regulations 2015 require that the design of new grid infrastructure minimises hazards and reduces risk during construction.

- 2.7 The Holford Rules provide guidance relating to the routing of overhead electricity transmission lines.
- 2.8 In the context of the above, transmission licence holders are required to identify electrical connections that meet the technical requirements of the electricity system, which are economically viable, and to consider and mitigate environmental impacts.

Policy Context

Planning Policy

- 2.9 NPF4 recognises the need for the expansion of the electricity grid in Scotland and includes 'Strategic Renewable Electricity Generation and Transmission Infrastructure' as a 'national development'. This is to support a large and rapid increase in electricity generation from renewable sources, which is essential for Scotland to meet its net zero emissions targets. This will require substantial reinforcement of the electricity transmission grid, including the addition of new infrastructure to connect and transmit the output from new on and offshore capacity to consumers in Scotland, the rest of the UK and beyond. NPF4 makes it clear that national developments "will be a focus for delivery".
- 2.10 Policy 11 of NPF4 relates to energy generation and infrastructure. The intent of the policy is stated to be:
- "To encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS)."*
- 2.11 Policy 11 also states that "grid capacity should not constrain renewable energy development" and that "it is for developers to agree connections to the grid with the relevant network operator".

Connections Reform

- 2.12 The UK's energy system is undergoing a fundamental transformation to achieve the UK Government's Clean Power 2030 ambition, support the transition to net zero, and reform the way projects connect to the electricity network. The National Energy System Operator (NESO) has introduced 'Connections Reform'. The reform introduces significant changes to the codes and methodologies that govern how projects enter and progress through the connections process; it will remove unviable projects from the grid connection queue; and prioritise those critical to delivering clean power and wider industrial decarbonisation.
- 2.13 Previously, the way energy projects connected to the grid was based on a long 'first come, first served' queue. Projects joined the queue according to the order in which their grid connection application was submitted, and whichever project was first in line would be prioritised for connection first, even if that project was not ready to build.

- 2.14 As part of the reformed connections process, the rules have changed and projects are now assessed and assigned a status – or ‘Gate’ – based on their readiness and strategic alignment with the UK Government's energy goals:
- Gate 1 applies to projects that do not meet the Gate 2 criteria. These projects will not be assigned a confirmed point of connection or connection date, but may progress to Gate 2 in the future if both Readiness and Strategic Alignment can be demonstrated.
 - Gate 2 applies to projects that meet the new requirements for Readiness and Strategic Alignment. These projects can secure a confirmed point of connection, connection date, and queue position.
- 2.15 Readiness and Strategic Alignment are defined by NESO in the new rules. Readiness generally means that a project has secured land rights, while Strategic Alignment for Scottish onshore wind projects currently means that planning consent has been gained.
- 2.16 In December 2025 NESO published its re-ordered connections queue based on the application of Gate 1 and Gate 2 criteria to all projects in the existing queue.
- 2.17 Breackerie Wind Farm has a Gate 1 3a protection, which provides a guaranteed move to Gate 2 within the 2031 – 2035 window upon receipt of deemed planning permission and Section 36 consent.
- 2.18 The status of the proposed development's grid connection is set out within section 4 of this FEI.

Strategic Spatial Energy Plan

- 2.19 NESO is currently working with a broad range of stakeholders, including the UK, Scottish and Welsh governments, to develop Great Britain's first ever spatial plan for energy: the Strategic Spatial Energy Plan (SSEP). This will be a comprehensive blueprint for the energy system across Great Britain and drive a more strategic approach to energy infrastructure planning from 2030 to 2050, aiming to speed up the transition away from fossil fuels and towards homegrown clean energy. The SSEP will be instrumental in achieving clean power and net zero.
- 2.20 The SSEP will be used to help plan the future of the energy system for the whole of Great Britain. It will take over from the government's Clean Power 2030 report and sit alongside and grow with future government policy and market-led interventions, providing a more strategic approach to energy system. The SSEP's outputs will directly feed into the Centralised Strategic Network Plan (CSNP), which is a plan for transmission network infrastructure which NESO is also developing.
- 2.21 The overall goal of the SSEP is to help accelerate and optimise the transition to clean, affordable and secure energy across Great Britain. This goal, and the objectives that support it, will be achieved via a partnership between the UK Government, Scottish and Welsh Governments, Ofgem, NESO and private industry. It will be supported in achieving

these goals through work including the CSNP and regional energy plans produced by Regional Energy Strategic Plans (RESPs).

2.22 The SSEP will contribute to achieving these goals by providing greater clarity on the long-term evolution of the energy system as we decarbonise the economy in line with our net zero commitments. It will also support policy decisions with its assessment of the optimal locations, quantities and types of energy infrastructure required to meet future energy demand with clean, affordable and secure supply. It will take account of public views, environmental considerations and cross-sectoral demands on land and sea, and express this information as a spatial plan for energy generation.

2.23 The first SSEP, currently due to be published in Autumn 2027, will take account of current and planned infrastructure and map the potential locations, quantities and types of electricity generation and storage infrastructure required between 2030 and 2050. Following publication of the first plan it is intended that the SSEP will be updated every three years. It is anticipated that the initial SSEP, together with future iterations, will revise the capacity requirements for individual generation technologies in different regions in response to evolving electricity demand patterns as the economy decarbonises.

Summary

2.24 In summary:

- Licence holders have statutory and licence obligations to develop the electricity network to provide adequate capacity and to provide connections to customers who wish to connect to and use the electricity system.
- NPF4 is clear that *"grid capacity should not constrain renewable energy development"* and that *"it is for developers to agree connections to the grid with the relevant network operator"*.
- In delivering net zero, the electricity system – how electricity is generated, transmitted, distributed and used – is undergoing significant transformational change.
- Connections Reform has moved from the previous 'first come, first served' process to a new gated process, which prioritises projects based on their readiness and strategic alignment with the UK Government's energy goals.
- Only projects with Gate 2 status are assessed in detail by the network licence holders and only these projects will have confirmed points of connection and connection dates.
- Scottish onshore wind projects with Gate 1 status will not have details confirmed for their points of connection or connection dates and, at least until the SSEP is published, will only progress to gate 2 when they receive consent.

3 APPROACH TO ROUTEING

Introduction

- 3.1 SSEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system in central and southern Scotland. This section outlines how SSEN seeks to fulfil this duty whilst having due regard to environmental interests including natural and cultural heritage assets and people
- 3.2 SSEN, the Transmission Operator for northern Scotland, carry out the design, environmental assessment and application to the Scottish Ministers for grid connection routes, under Section 37 of the Electricity Act 1989. This process is explained by SSEN in their Routeing Overhead Lines¹ document and is followed in EIA Report documents which support the applications for other wind farm grid connections.

Approach to Routeing

- 3.3 The routeing process undertaken by SSEN follows the below stages:
- Stage 0: Routeing Strategy;
 - Stage 1: Corridor Selection;
 - Stage 2: Route Selection;
 - Stage 3: Alignment Selection; and
 - Stage 4 EIA Process.

Stage 0: Routeing Strategy

- 3.4 The routeing strategy is defined, the process of which is tailored to the scale and requirements of the individual project in question.

Stage 1: Corridor Selection

- 3.5 Large corridors ("up to several kilometres wide") between the Point of Connection (PoC) and the wind farm substation are selected based on SSEN criteria. In some cases, Stage 1 takes place alongside Stage 2.

Stage 2: Route Selection

- 3.6 Once the large corridor has been chosen, routes are identified within and can range from 500m to 1km in width depending on the environment through which they pass. Route

¹ <https://www.ssen-transmission.co.uk/globalassets/projects/2030-projects/2030-project-documents/routeing-overhead-lines.pdf>

options are evaluated in the same way as the corridor options, based on environmental and technical factors, to narrow the potential options to a proposed route.

- 3.7 Identification of route options takes place after desk-based assessment and field survey takes place. SEN Transmission guidance is applied at this stage along with assessment of the route against each of the Holford Rules. Consideration is also given to site-specific environmental topics such as cultural heritage, settlements, landscape and visual and land use. Technical constraints assessed include infrastructure, design based on terrain, as well as access, construction, maintenance and operation.
- 3.8 Assessment of each topic as outlined above is carried out using a Red/Amber/Green (RAG) rating, based on the likelihood that the route option will be constrained by the particular topic. Red indicates high potential for the option to be constrained, amber indicates intermediate potential for the option to be constrained, and green indicates low potential for the option to be constrained.
- 3.9 The method of underground cable (UGC) is also evaluated at this stage should this be deemed the more appropriate method for part of the route.

Stage 3: Alignment Selection

- 3.10 The final stage aims to produce a final alignment within the route option selected in Stage 2. This is designed to be taken forward to the formal consenting process.
- 3.11 Further constraints are considered at this stage, which are local to the route that the connection follows. Multiple alignment options are carefully considered with respect to factors such as access, ecology, ornithology, geology and hydrology and both desk-based assessment and field survey is undertaken if required.
- 3.12 Further consideration is given to UGC if required and once the alignment with the least environmental and technical impact with respect to the topics outlined has been identified, then this is the route that is chosen.
- 3.13 In terms of identifying and appraising options for underground cable sections, as opposed to overhead lines, an approach is based on the premise that the most significant effects are likely to result from the level of ground disturbance required for the construction of cable trenches and associated works. Where possible, cables will be routed to follow existing linear features that have already created disturbance such as roads or existing overhead line corridors. Well routed cables take into account environmental and technical considerations and seek to avoid, wherever possible, areas of irreplaceable habitats which are difficult to reinstate. The following criteria are particularly important for underground cables:
 - Suitable locations for transition between overhead line and cable (overhead lines may terminate to cable either via a separate 'sealing end compound' or by a gantry fitted to the tower body);
 - Safety and reliability;

- Constructability;
- Likely impact on the local environment during construction and ability to mitigate this;
- Disruption to third parties during construction and ability to mitigate this;
- Ground conditions, including risk of contamination and also ground stability;
- The need to cross wet areas and/or habitats that are difficult to reinstate;
- Flood risk, proximity to water supplies and ability to cross watercourses at their narrowest point;
- Long term visibility of the cable route post construction, including the length that will be seen and the distance at which it will be visible;
- Likely long term loss of landscape features such as hedges or individual trees;
- Likely permanent impacts on known and unknown archaeology;
- Topographical and geological features; and
- The need for long term access for maintenance.

3.14 In siting the associated terminal towers and sealing end compounds, used to connect the cable section with an overhead line, due consideration is given by SSEN to the Holford Rules, including the avoidance of areas of highest and high 'amenity' value where possible, the use of the visual containment offered by natural features such as woodland, and the potential use of bunding and/or screen planting where compatible with landscape character.

Stage 4: EIA

3.15 EIA is part of the iterative design process of overhead line routeing and, in conjunction with the technical design and landowner inputs, is used to refine the proposed route to a detailed alignment along with siting and design of tower or pole positions and ancillary development. Once the final design is 'frozen' the formal assessment of environmental effects is undertaken. EIAs are undertaken according to the following principal steps:

- Scoping of the EIA;
- Collection of baseline information;
- Identification and assessment of the likely significant effects;
- Identification of mitigation measures; and
- Preparation of the formal EIA Report

The Holford Rules

- 3.16 It is generally accepted across the electricity industry that the guidelines developed by the late Lord Holford in 1959 for routeing overhead transmission lines, 'The Holford Rules', should continue to be employed as the basis for routeing high voltage overhead transmission lines.
- 3.17 The Holford Rules were reviewed circa 1992 by the National Grid Company (now NESO) as owner and operator of the electricity transmission network in England and Wales, with notes of clarification added to update the Rules. A subsequent review of The Holford Rules (and clarification notes) was undertaken by Scottish Hydro Transmission Ltd in 2003 to reflect Scottish circumstances. The Holford Rules are reproduced at Technical Appendix 3.1 and an appraisal of the grid connection corridor is provided within section 4 of this report.

Stakeholder Engagement

- 3.18 SSEN seeks to engage with key stakeholders including local communities and others who may have an interest in a project. This engagement process begins at the early stages of development of projects to ensure that the project design balances the views of stakeholders and communities with SPEN's statutory obligations.
- 3.19 SPEN undertakes engagement at four different steps of project development:
- Step 1: Pre-notification and engagement. Discussions at this stage enable the views of stakeholders to inform project design, advice on routeing and assessment methodologies.
 - Step 2: Information gathering. Discussions at this stage inform the routeing strategy through the gathering of relevant environmental and planning considerations within the study area.
 - Step 3: Obtaining feedback on emerging route options and substation sites. This often includes discussion of alternative corridors, line routes, cable section routes and substation sites which are being considered. For larger projects, these alternatives may be set out in a 'Routeing Consultation Document' prepared by SPEN, which will clearly indicate the preferred route and set out the reasons for the other route options being discarded.
 - Step 4: The EIA stage. The results of stakeholder engagement are taken into consideration and used to confirm the 'proposed route' (and substation site if relevant) for progression to EIA.

Summary

- 3.20 In summary:

- SSEN has a legal duty to develop and maintain a technically feasible and economically viable transmission and distribution system in the area in which they operate.
- SSEN seeks to fulfil this duty whilst having due regard to environmental interests including natural and cultural heritage assets and people.
- SSEN has a detailed approach to routeing which involves two main stages: identification of routes, and environmental assessment. These two stages must be completed before an application for consent is submitted.
- Consultation with stakeholders is undertaken by SSEN at various stages of the project's development.

3.21 For the proposed development, it is the case that SSEN has yet to begin carrying out any of these development or consultation activities.

4 GRID CONNECTION DETAILS

Introduction

- 4.1 This section outlines the currently understood parameters of the likely grid connection corridor for the proposed development. The subsequent sections provide a high-level assessment of the potential likely significant environmental effects associated with its routing. This assessment is based on the current Gate 1 (3a protection) connection status, recognising that the final grid connection details have yet to be confirmed. These would be confirmed and the proposed development provided a guaranteed grid connection offer before 2035 (via protection clause 3a) should the wind farm be granted deemed planning permission and Section 36 consent achieved.

Uncertainty

- 4.2 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.
- 4.3 In terms of Schedule 4, Part 6 of the EIA Regulations, difficulties encountered in compiling the information and the main uncertainties should be identified.
- 4.4 Under the process of Connections Reform outlined in Section 2, the proposed development does not currently benefit from a Gate 2 grid connection agreement, however may do so in the future (see paragraph 4.5 below). As such the following details for the grid connection have not been confirmed by SSEN:
- Point of Connection (PoC) to the electricity transmission network;
 - Connection voltage;
 - Route corridors, including the preferred route; and
 - The balance of overhead line and underground cable sections of the preferred route.
- 4.5 Until these details are confirmed by SSEN it is not possible to provide a final EIA of the final grid connection route. As explained in Section 2, SSEN will not commence work on the connection details unless and until consent for Breackerie Wind Farm has been granted. This necessarily limits the level of detail and the certainty at which environmental effects can be assessed at this stage.
- 4.6 The proposed development has a Gate 1 offer with Clause 3a protection. This means at this stage the offer is indicative; however it guarantees that the proposed development would be offered a Gate 2 offer (between 2031 and 2035) for projects which have submitted valid planning applications before 20th December 2024. This means that if the Scottish Ministers decide to consent the wind farm (along with granting deemed planning consent), NESO will subsequently provide a grid offer for it to join other Gate 2 projects and a grid connection is guaranteed.

- 4.7 Accordingly, this FEI presents a proportionate environmental assessment based on the information currently available regarding the likely grid connection corridor at the time of writing.

Indicative Grid Connection Details

Outline Plans

- 4.8 Discussions with SSEN to date have been caveated with the understanding that the trigger point for SSEN undertaking extensive work on the grid connection has not yet been met. However, it is understood that the likely method of connection would be via a new distributor substation which would link to the existing Carradale substation via a, as yet to be determined grid connection corridor of approximately 31km. Where possible, likely significant effects of both are considered.
- 4.9 It is anticipated therefore that the point of connection for the proposed development would therefore be the new distributor substation, and not Carradale. It is assumed that this distributor substation (via indicative high level conversations with SSEN) would be located south of Campbeltown, and close to the proposed development.
- 4.10 It is assumed that in future, the next stages would be for SSEN to provide a location for the distributor substation, and then a further application to link this to Carradale. As set out above, the final choice will be determined by SSEN following an in detail route assessment. However the indicative grid connection corridor is based on a logical route northwards towards Carradale that avoids substantial tree loss and current wind farms within the spine of Kintyre, is cognisant of designations such as the Kintyre Goose Roosts Special Protection Area, and follows the Holford Rules (see Table 4.1 below). It is stressed however, that the final corridor may be different to that depicted at this stage.

Grid Connection Corridor

- 4.11 This FEI provides a high level assessment and potential spatial arrangement of a potential grid connection corridor based on the known worst case that the wind farm must connect to Carradale ultimately, via the point of connection distributor substation and eventually to Carradale.
- 4.12 The corridor is not uniform for its entire length owing to known constraints, including topographical and environmental, however has been originally based on a 2km wide indicative corridor per Stage 1 / Stage 2 of SSEN Transmission's routeing strategy for overhead lines².
- 4.13 The corridor has then been trimmed and expanded in a non-uniform fashion to meet the requirements of the Holford Rules as they relate to designations and constraints along the route. The assumptions made are explained below in Table 4.1.

² <https://www.ssen-transmission.co.uk/globalassets/projects/2030-projects/2030-project-documents/routeing-overhead-lines.pdf>

Table 4.1: Grid Corridor and Holford Rules

Holford Rule	How it has been applied to the grid connection corridor
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. Rule 1 Note a) requires the possibility of alternative routes. Rule 1 Note b) requires that the areas of highest amenity value should be established on a project-by-project basis having regard to international and national designations.	Alternative routes. Rule 1 Note a) requires the investigation of alternative routes, avoiding major areas of amenity value. The Applicant has provided a corridor in which there may be several alignments which may be possible. Alternative routes are theoretically available should the grid connection corridor continue north towards Tangy IV Wind Farm, and join a connection there. There are however several wind farm option areas within the spine of Kintyre. The spine of Kintyre is largely forested and to place the corridor here would run contrary to Rule 5 note c) also, where it is stated that where possible, the corridor should follow open space and run alongside, not through woodland or commercial forestry.
	Areas of highest amenity value Designations (per FEI Figures 5.1, 6.1 and Figure 7.1) in consideration when defining an indicative grid connection corridor include: • Kintyre Goose Roosts Special Protection Area (SPA) / Goose Lochs Site of Special Scientific Interest (SSSI) which has been buffered by 750m to provide a cautious buffer in excess of the recommended 600m disturbance zone for Greenland white-fronted geese³ • Torrisdale Cliff SSSI which has been avoided. • Several Scheduled Monuments which would be considered on a case-by-case basis

³ [Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot](#)

Holford Rule	How it has been applied to the grid connection corridor
	Listed Buildings scattered throughout the corridor, and also concentrated within Campbeltown.
Rule 2 Avoid smaller areas of high amenity value or scientific interest by deviation. Areas 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. Effects on the setting of historic buildings and cultural heritage features should be minimised. 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, then the effect of remaining on this route must be considered.	The East Kintyre Local Landscape Area (LLA) is locally designated. Although the special qualities of the LLA are not cited in its designation, it is assumed that the qualities are associated with coastal scenery and experience. Part of the grid connection corridor overlaps with the LLA. This is to cover the eventuality that a line could follow the B842. There are existing wooden pole lines to the west of the B842. The Mull of Kintyre LLA is host to the proposed development and has no citation detailing its qualities however they are assumed to be associated with the coastal scenery at its periphery. The presence of the grid connection corridor within this LLA is unavoidable in order to connect the proposed development. Final selection of routes within the grid connection corridor would seek to minimise effects upon cultural heritage receptors.
Rule 3 Choose the most direct line, with no sharp changes of direction and thus with few angle towers. Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers.	Given the presence of the Kintyre Goose Roosts SPA, the most direct route for the grid connection corridor is to pass to the north-west of Campbeltown, to the north of Black Loch, and then northward within a corridor up the eastern coast, avoiding hugging the sensitive coastline, and set back from the wind farm option areas within the central area of Kintyre. The landform within LCT 14 Bay Farmland is predominately flat. Within this area it is considered likely that it would be possible to introduce angles to the line, or alternatively use the B842 corridor to underground a section.

Holford Rule	How it has been applied to the grid connection corridor
Rule 4 Choose tree and hill backgrounds in preference to sky backgrounds wherever possible, and when the line has to cross a ridge, secure this opaque background as long as possible.	The grid connection corridor has been selected such that for its majority, it could be viewed against the backdrop of ridgelines and commercial forestry. This is consistent with other existing lines in the area.
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. Utilise background and foreground features, minimise exposure of towers on prominent ridges and skylines, and where possible, follow open space and run alongside, not through woodland or commercial forestry.	The grid connection corridor has been selected such that for its majority, it could be viewed against the backdrop of trees and background features. Where possible, it provides options to avoid forestry, although detailed analysis would determine how that is possible within later submissions.
Rule 6 In country which is flat and sparsely populated keep the high voltage lines as far as possible independent of smaller lines to prevent a 'wirescape'.	The flatter land within the grid connection corridor is located north of the proposed development within LCT 14 Bay Farmland. Options would be progressed that avoided coalescence with smaller lines.
Rule 7	Not relevant for the grid connection corridor.

Holford Rule	How it has been applied to the grid connection corridor
Approach urban areas through industrial zones where they exist.	

- 4.14 SSEN would be responsible for the final route selection, following the process set out in Section 3.

Overhead Lines

- 4.15 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.
- 4.16 Wood poles can be used for single circuit lines operating at 132kV. Wood poles are fabricated from pressure impregnated softwood, treated with a preservative to prevent damage to structural integrity.
- 4.17 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.
- 4.18 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.
- 4.19 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.
- 4.20 For the purposes of this assessment, this type of overhead line is assumed in the absence of full detail at this stage.
- 4.21 The FEI has assumed a 'worse case' that the grid connection is entirely above ground, via a combination of single or double wood poles supporting a 132 kV 'trident' overhead line. However should undergrounding be appropriate, the description of this is provided below. Any partial undergrounding of the line would reduce likely significant effects for that part of the route.

Underground Cables

- 4.22 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.
- 4.23 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.
- 4.24 Open cut trenching is the most frequently used construction method for cable installation. However, in crossing under watercourses or roads 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.

Environmental Effects Scoped In

- 4.25 Based on the currently understood parameters of the likely grid connection and the associated level of uncertainty, a proportionate assessment of environmental effects is provided for the following topics:
- Landscape and visual amenity;
 - Cultural heritage and archaeology;
 - Ecology;
 - Geology, hydrology and hydrogeology;
 - Forestry; and
 - Traffic and transport.

- 4.26 These topics are considered separately in the following sections of this FEI.

Environmental Effects Scoped Out

- 4.27 The following topics are scoped out of 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. It is assumed that the distributor substation will be sited in an area which is not adjacent to residential properties. Therefore depending on the final location of the distributor substation, noise can be scoped out based on information known at this stage;
- 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. Best practice guidance will however be followed to prevent and manage any accidental discharges. 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. Effective waste management practices would be implemented 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.

4.28 The subsequent sections consider the potentially significant environmental effects of the grid connection in relation to the topics scoped into this FEI, including significant cumulative effects.

5 LANDSCAPE AND VISUAL EFFECTS

Introduction

- 5.1 This assessment has been prepared by Rebecca Rylott, independent consultant and formerly Technical Director at WSP, who was co-author and reviewer of the original EIA Report chapter for the proposed development. Ms Rylott is a fellow of the Landscape Institute and has over 28 years of experience in LVIA for wind farms.
- 5.2 This section presents an outline Landscape and Visual Impact Assessment (LVIA) which identifies the likely types of significant landscape, visual and cumulative effect that would arise from a theoretical OHL, located within the grid connection corridor. The outline LVIA describes the baseline conditions that currently exist and makes recommendations that may be carried through further design stages of route selection and alignment explained in Section 3.
- 5.3 Considering the preliminary nature of the Grid connection corridor an outline LVIA is appropriate noting this assessment has taken a precautionary and conservative approach in comparison to an LVIA for a specific grid connection route.
- 5.4 This outline LVIA should be read in conjunction with the Landscape and Visual Impact Assessment (LVIA) in Volume 1, Chapter 6 of the EIA Report, August 2023 (EIAR).

Scope and Methodology

- 5.5 The grid connection corridor is described in Section 4 and shown in Figure 4.1 indicating a grid connection corridor of approximately 31km between Breackerie Wind Farm and Carradale Substation.
- 5.6 The outline LVIA has assumed a 'worse case' that the grid connection is entirely above ground, via a combination of single or double wood poles supporting a 132 kV 'trident' overhead line (OHL). 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 as noted in Section 4.
- 5.7 For the purposes of this assessment a distributor substation may also be required at an unspecified location along the grid connection corridor. The height of electrical infrastructure within a distributor substation (typically up to 12m) is below the height of the OHL and so falls within the 'height envelope' for this outline LVIA. Its location and design, however, would require a larger land-take area, likely to require landscape mitigation to provide screening and landscape integration. This aspect of the grid connection corridor has not been considered at this stage and would therefore require further assessment as part of the routing process undertaken by SSEN.
- 5.8 If the grid connection is underground, there would be no landscape or visual effects during its operation and the temporary construction effects would not be significant.

5.9 The likely significant environmental effects, based on the available information, are set out below.

- Construction effects associated with the OHL and distributor substation as follows:
 - Introduction of construction activity and vehicular/personnel movements on temporary access routes and on existing tracks;
 - Disturbance of areas of land and surface vegetation;
 - Erection of wooden poles and conductor pulling for the creation of the overhead line;
 - Excavation and reinstatement of material and directional drilling (if applicable) below watercourses;
 - Potential for temporary lighting for construction; and
 - Introduction and operation of any temporary laydown spaces or construction compounds.
- Construction of distributor substation and associated landscaping.
- Operational effects may be associated with:
 - Visibility of wood poles and conductors above the ground for overhead lines;
 - Visibility of distributor substation (subject to establishment of landscaping) and
 - Occasional maintenance operations.

Study Area

5.10 The assessment focuses on those areas or receptors which are likely to experience significant effects. Based on wider experience of LVIA for grid connections of this nature (OHL on wood poles as described in Section 4) and from site knowledge and analysis of the general visibility, landscape character, topography, forestry and existing wind farm coverage, a study area of 1km from the grid connection corridor is considered appropriate for this outline assessment stage, noting that subsequent design and assessment is likely to narrow the grid connection corridor further.

5.11 Effects on receptors more than 2km distant are not considered in the assessment, as it is highly unlikely that the wood poles would give rise to significant effects at such distances, noting also that there are no national level landscape designations or Wild Land Areas within the grid connection corridor.

Methodology

- 5.12 The outline LVIA accords with the methodology in the EIAR, Volume 3, Technical Appendix 6.1.

Cumulative Assessment

- 5.13 In accordance with the written submissions presented to the ECU from the applicant (Ref: ECU 00004507, April 2026) The outline LVIA will include a cumulative assessment as follows:
- *"A cumulative assessment of the effects of the Wind Farm together with the grid connection – that is, where both the proposed Wind Farm and the grid connection infrastructure are both likely to have an impact on the same receptor, a qualitative assessment of this cumulative assessment; and*
 - *A combined assessment of the effects of both the Wind Farm and the grid connection, recognising that, because of the geographical extent of the grid connection corridor, there may be pathways to combined impacts on receptors."*

Design Considerations and The Holford Rules

- 5.14 The Holford Rules (and clarification notes) are considered in Section 4. They comprise well established design principles which aim to minimize the landscape and visual impact of overhead and high voltage transmission lines. Their consideration is relevant to the outline LVIA in identifying potential landscape or visual constraints which may have a bearing on the sensitivity of landscape and visual receptors and point towards appropriate mitigation.
- 5.15 As noted previously in Sections 3 and 4 the design of the grid connection would be subject to further iterative design and assessment at more detailed stages of development. Broad recommendations for further design and mitigation resulting from this high-level assessment have been made within the appropriate section.

Visibility and Viewpoint Analysis

- 5.16 It has been assumed that the grid connection corridor would extend north-east from the proposed development towards Campbeltown, broadly within the B842 corridor towards Stewarton. The corridor then travels northwards, west of Campbeltown, passing over High Ranachan and Glen Lussa until reaching commercial forestry north of Glen Lussa. The corridor then broadly follows the B842 to the north-east towards Carradale substation.
- 5.17 Likely extent of theoretical visibility, of an OHL within the grid connection corridor, has been considered in reference to the landscape character, topography, forestry and existing wind farm coverage within the surrounding area. Viewpoints included in the EIAR have also been referenced as follows:
- Viewpoint 4: Drumlemble (Figure 6.23a-f), approximately 2km west of the grid connection corridor;
 - Viewpoint 7: Stewarton (Figure 6.26a-g) within the grid connection corridor;

- Viewpoint 11: A83 between Kilchenzie and Drumore (Figure 6.30a-g) approximately 0.8km west of the grid connection corridor; and
- Viewpoint 13: Ranachan Hill (Figure 6.32a-e) approximately 1km west of the grid connection corridor.

5.18 Except for Viewpoint 4, existing wood poles from other OHLs and telegraph poles feature as a minor and non-significant component of the view.

Breackerie Wind Farm to Killeonan / Knocknaha

5.19 Between the proposed Breackerie Wind Farm and Killeonan / Knocknaha theoretical visibility of an OHL within the Grid connection corridor is likely to be largely contained to within the 1km study area by the topography of the western *Mull of Kintyre Upland Forest Moor Mosaic Landscape Character Type (LCT)* and the *Connie Glen Rocky Mosaic LCT*, including Tirfergus Hill, Black Hill and forestry.

5.20 Wider theoretical visibility and sky-lining could be avoided by adherence to the Holford Rules and avoidance of hill summits / high ground to the northern and southern edges of Grid connection corridor.

Killeonan / Knocknaha to Ranachan Hill

5.21 This section of the grid connection corridor crosses the lower lying *Bay Farmland LCT* and the southern slopes of the *Upland Forest Moor Mosaic LCT* south of High Ranachan. To the east of the Grid connection corridor theoretical visibility would be restricted by built up development and vegetation at Campbeltown. Elsewhere however, theoretical visibility is likely to be more widespread, viewing from facing slopes and high ground to the north and south of the *Bay Farmland LCT* and from across this landscape to the west, although subject to successive layers of screening from buildings (including the airport) and vegetation.

5.22 Within this section the appearance of an OHL on wood poles would not be out of character and, per the SSSEN guidance and Holford Rules, it would be important to align the grid connection with logical landscape patterns such as roads and field boundaries to 'knit' the OHL development into the landscape fabric. The grid connection should avoid road crossings / junctions and residential properties. The assent towards High Ranachan should consider a simple alignment that avoids sky-lining and / or the over proliferation of wood poles and wires.

Ranachan Hill to Glen Lussa

5.23 This section of the grid connection corridor crosses part of the *Upland Forest Moor Mosaic LCT* which is an undulating plateau contained by higher hills (Ranachan Hill, Skerobin Cruach, Ballywilline Hill) and forestry. Theoretical visibility is likely to be largely contained within the 1km study area and there are limited receptors.

5.24 Within this section the grid connection corridor should seek to avoid residential properties and avoid significant harm to the visual amenity of the Kintyre Way.

Glen Lussa to Carradale

- 5.25 This section of the grid connection corridor crosses multiple LCAs, generally aligned from the western higher ground (part of the *Upland Forest Moor Mosaic* LCT) to the coastal LCTs (*Low Coastal Hills*, *Rocky Mosaic* and *Hidden Glens*). Due to the forestry and topography, theoretical visibility is likely to be restricted to within the 1km study area and close to the Grid connection corridor. Theoretical visibility from the sea and across several bays is likely to be more widespread although unlikely to be significant, assuming the OHL route avoids sky-lining across hilltops and ridges in favour of back-clothing against mid to lower slopes and or forestry screening.
- 5.26 There are multiple receptors within this zone and notably the coastal landscapes have a smaller and more intimate scale. The grid connection should avoid disrupting connections between land and sea (including views), residential properties, coastal landscape features and recreational / visitor attractions and associated views and visual amenity. It should also pay careful attention to mature trees and vegetation which make an important contribution to the local landscape character and the LLA.

Baseline Conditions

- 5.27 Drawing from the EIAR, the following landscape and visual receptors are noted within the Grid connection corridor and 1km study area as follows:
- Landscape receptors shown in Figures 5.1-2:
 - Mull of Kintyre Upland Forest Moor Mosaic LCT (western unit);
 - Mull of Kintyre Upland Forest Moor Mosaic LCT (eastern unit);
 - Rocky Mosaic LCT, at Connie Glen;
 - Bay Farmland LCT;
 - Upland Forest Moor Mosaic LCT;
 - Low Coastal Hills LCT at Glen Lussa;
 - Rocky Mosaic LCT at Campbeltown, Carrick Point to Saddell Bay, and Saddell Bay to Carradale; and
 - Hidden Glens LCT at Saddell Water, and Carradale Water.
 - Note: all coastal LCTs include the Lower Firth of Clyde (west) Seascape.
 - Mull of Kintyre LLA; and
 - East Kintyre (Coast) LLA.

- Visual receptors:
 - Settlements: Killeonan / Knocknaha, Stewarton, Campbeltown, Peninver, Saddell and Carradale.
 - Transport routes: B842, B843, B879 and the A83 (including the Kintyre 66 tourist route and Sustrans cycle route No. 78).
 - Recreational routes: The Kintyre Way.
 - Visitor / Tourist Attractions: Numerous bays and coastal attractions are noted on the Ordnance Survey basemap in Figure 4.1. Given the outline nature of the LVIA these have been treated as 'one' coastal receptor, assuming the coastline as a whole can be regarded as a visitor or tourist attraction.

5.28 The Core Path Network and minor roads and hill tracks have been excluded from this outline LVIA to provide a proportionate assessment appropriate to this stage of the development. These receptors should be assessed as part of further LVIA at a more detailed stage of the grid connection design.

Assessment of Effects

5.29 Visual effects could be significantly reduced for sensitive parts of the route should undergrounding be deemed suitable and appropriate, subject to detailed site survey.

Assessment of Landscape Effects

5.30 In summary, there is potential for the grid connection corridor to have **significant** landscape effects on the following landscape receptors, although in all cases it is likely that these effects could be mitigation through avoidance and design as a continuation of the Holford Rules.

5.31 These likely significant effects are therefore based on a worst case scenario. More sensitive LCTs could potentially be avoided through detailed siting, keeping the final grid connection further inland.

- Rocky Mosaic LCT: Conie Glen – potential effects on shelterbelts in the northern part of Conie Glen requiring mature tree removal, breaking up the shelter belt form and pattern within the OC. Mitigation avoiding these features is advised.
- Rocky Mosaic LCT: Carrick Point to Saddell Bay and Saddell Bay to Carradale – potential significant effects are noted in respect of both landscape elements and landscape character. It is recommended that the Grid connection corridor is curtailed to the B842 road corridor and excluded from the area east of the B842 to avoid significant effects as far as possible.
- Hidden Glens LCT: Saddell Water and Carradale Water – as above, potential significant effects are noted in respect of both landscape elements and landscape character. It is recommended that the Grid connection corridor is curtailed to the B842

road corridor and the detailed route alignment avoids OHL 'duplication' or the creation of wirescape.

- East Kintyre (Coast) LLA - landscape elements, associated views and character contributing to the special qualities of the LLA could be significantly affected without appropriate mitigation.

- 5.32 Some these effects would also be cumulative with the effects of the proposed Breackerie Wind Farm, although the combined cumulative effects would not be significant.

Mull of Kintyre Upland Forest Moor Mosaic LCT (western unit)

- 5.33 The Mull of Kintyre Upland Forest Moor Mosaic LCT (western unit) is a locally valued LLA indicating a high to medium value. The containing topography and screening forestry indicate a reduced susceptibility, although hill summits and skyline ridges would be of higher susceptibility and should be avoided. Assuming this is possible the LCT is assessed as of Medium sensitivity.

- 5.34 Landscape elements of moorland and commercial forestry, which comprise the Mull of Kintyre Upland Forest Moor Mosaic LCT are noted as of lower landscape sensitivity in the EIAR. Although subject to direct effects during construction and operation the loss of these elements along the OHL and associated wayleave or operational corridor (OC) would be **not significant** in LVIA terms.

- 5.35 According to The Holford Rules an OHL within the grid connection corridor would avoid sky lining on ridges and hill summits, whilst also benefitting from forestry back-clothing and screening. The minor road through this area is accompanied by existing telegraph poles and care would be needed to avoid 'duplication' or wirescape (The Holford Rules) indicating that a setback from the road would be appropriate, although 'wood poles' would be not incongruous. These considerations indicate a Lower magnitude of change and the likelihood that the level of effect would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.36 The grid connection corridor and associated effects would overlap with the effects of the proposed Breackerie Wind Farm (assessed as significant in the EIAR) on this same receptor. Assuming the adherence to the Holford Rules and recommended mitigation, it is likely that the OHL would not significantly contribute to cumulative effects with the wind farm.

Mull of Kintyre Upland Forest Moor Mosaic LCT (eastern unit);

- 5.37 Much of the Mull of Kintyre Upland Forest Moor Mosaic LCT (eastern unit) within the study area is undesignated (north of the LLA) with a small area, much of which is forested, south of Black Hill falling within the LLA, indicating a medium value. Most of the LCT, within the study area comprises open, west facing hill slopes, although no hill summits and skyline ridges. The LCT is assessed as of Medium sensitivity.

- 5.38 Landscape elements of moorland are of lower landscape sensitivity, and the loss of these elements would not be significant in LVIA terms.
- 5.39 An OHL within the grid connection corridor, overlapping with this LCT would benefit from landform back-clothing and the occurrence of 'wood poles' would be not incongruous with western views over the *Bay Farmland* LCT. These considerations indicate a Lower magnitude of change and the likelihood that the effects would be **not significant**. The nature of these would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.40 The grid connection corridor and associated effects would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor, although neither would significantly affect *Mull of Kintyre Upland Forest Moor Mosaic* LCT (eastern unit) independently or cumulatively.

Rocky Mosaic LCT, at Connie Glen;

- 5.41 The southern part of the *Rocky Mosaic* LCT is locally valued LLA indicating a high to medium value, whilst the northern part is undesignated. Within the study area this part of Connie Glen has a broader and more open valley landform, partly influenced by the more developed *Bay Farmland* LCT to the north, reducing its susceptibility. Existing wood poles are present. Overall, a Medium sensitivity is assessed.
- 5.42 Landscape elements of pasture fields, grassland and field boundaries, which comprise this LCT are assessed as of lower landscape sensitivity and unlikely to be significantly affected. There are however a number of mature deciduous shelterbelts (with wind trained profiles) some of which have already been severed by OHLs. These are of higher individual sensitivity and direct effects requiring tree / shelterbelt clearance within the OC could lead to localised **significant** effects.
- 5.43 The addition of an OHL on wood poles would have a Low magnitude of change on the existing lowland, rural character of this landscape where these features are already a minor part of the landscape. Providing 'duplication' or wirescape can be reasonably avoided the likely landscape effects would be **not significant**. The nature of this effect would be direct, adverse (noting potential effects on shelterbelts), temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.44 The Grid connection corridor would affect the same area of *Rocky Mosaic* LCT as the proposed Breackerie Wind Farm (assessed as not significant in the EIAR and significant in part by the Council). Assuming the avoidance of shelterbelts, it is likely that the OHL would not significantly contribute to cumulative effects with the wind farm.

Bay Farmland LCT

- 5.45 The *Bay Farmland LCT* is undesignated, indicating medium value. This low lying, rural landscape is more developed and contemporary in character, with influences from wind farm development and the airport complex. Existing wood poles are present and collectively there is a reduced susceptibility. Overall, a Medium to Low sensitivity is assessed.
- 5.46 Landscape elements of pasture fields, grassland and field boundaries, which comprise this LCT are assessed as of lower landscape sensitivity and there are few shelterbelts, which are uncharacteristic. The addition of an OHL on wood poles would have a Low magnitude of change on the existing character where these features are already a minor part of the landscape. Providing 'duplication' or wirescape can be reasonably avoided the likely landscape effects (on elements and character) would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.47 The effects of the grid connection corridor would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor. The LVIA for the proposed Breackerie Wind Farm assessed a Moderate to Minor level of effect on the *Bay Farmland LCT* which would not be significant. This was agreed with the Council in the Statement of Agreed Matters. Therefore, neither the proposed Breackerie Wind Farm or the OHL would significantly affect the *Bay Farmland LCT* independently or cumulatively.

Upland Forest Moor Mosaic LCT

- 5.48 The *Upland Forest Moor Mosaic LCT* is undesignated, indicating medium value. The undulating plateau topography indicates a reduced susceptibility, although hill summits and skyline ridges would be of higher susceptibility and should be avoided. Assuming this is possible the LCT is assessed as of Medium sensitivity.
- 5.49 Landscape elements of moorland and commercial forestry, which comprise this LCT are noted as of lower landscape sensitivity in the EIAR and their loss within the OC would not be significant.
- 5.50 Due to the more open and unforested nature of this LCT, some sky-lining may be unavoidable, although there is also scope for back-clothing against the undulating landform. Although it is likely that wirescape would be avoided, the magnitude of change may be slightly increased with a Low to Medium magnitude of change and the likelihood that the level of effect would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.51 The effects of the grid connection corridor would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor, although neither would significantly affect *Upland Forest Moor Mosaic LCT* independently or cumulatively.

Low Coastal Hills LCT at Glen Lussa

- 5.52 Although described as *Low Coastal Hills LCT*, this landscape unit is really the low lying valley and mouth of the River Lussa, contained by surrounding uplands (*Upland Forest Moor Mosaic LCT*). Much of the LCT is locally valued LLA indicating a high to medium value. The open valley landform is rural with few trees and existing wood poles are present, reducing its susceptibility. Overall, a Medium sensitivity is assessed.
- 5.53 Landscape elements of pasture fields, grassland and field boundaries, which comprise this LCT are assessed as of lower landscape sensitivity and unlikely to be significantly affected.
- 5.54 The northern part of this LCT, fringing the *Upland Forest Moor Mosaic LCT* is within the Grid connection corridor and there would be limited opportunity for the OHL to intercede between this LCT and its coastal connection further to the east. The addition of an OHL on wood poles would have a Low magnitude of change on the existing lowland, rural character where these features are already a minor part of the landscape. Care, however, would be needed to avoid the creation of wirescape and a number of crossing and sky-lining OHL can be seen in this landscape along the B842. Assuming this can be avoided the likely landscape effects would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.55 This LCT is not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor.

Rocky Mosaic LCT: Campbeltown

- 5.56 This LCT is not overlapped by the Grid connection corridor, although a small part of the western edge of this LCT unit is within the 1km study area, indicating that there could be views of the OHL from the edge of this LCT. The landscape however is not designated and the built-up nature of the LCT, covering the edge of Campbeltown contributes to a lower sensitivity and limited opportunity for views of the OHL. It is unlikely that there would be any effect on this LCT (**not significant**). The nature of this effect would be indirect, neutral, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.57 The effects of the Grid connection corridor would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor, although neither would significantly affect *Rocky Mosaic LCT* independently or cumulatively.

Rocky Mosaic LCT: Carrick Point to Saddell Bay and Saddell Bay to Carradale

- 5.58 Most of this LCT is locally valued LLA indicating a high to medium value. The landscape character is often small scale and intimate with a strong coastal connection, many local landscape features and scattered residential properties with mature gardens. In places

the landscape is well wooded and steeply sloping. All of these factors indicate high susceptibility and a High sensitivity, notably along the B842 corridor and east of the road along the coast and adjoining seascape and at Torrisdale Castle to the west of the B842. The western fringes of this LCT (excepting the area around Torrisdale Castle), merging into the *Upland Forest Moor Mosaic* LCT are of reduced High to Medium sensitivity.

- 5.59 There are many and diverse landscape elements contributing to the character of this LCT and mature trees / gardens, spaces allowing views to the sea or 'places' for recreation, heritage features, rock / landform features and attractive buildings are all higher sensitivity. Effects on these elements and features is likely to be **significant**. It also follows that the effects on the majority of this LCT would result in Medium to High change and would also be **significant**. However, an OHL partly within the western fringes or edge of this LCT that avoids the creation of wirescape or sky-lining could have a Lower magnitude of change and the likely landscape effects would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).
- 5.60 To avoid significant effects, it is recommended that the Grid connection corridor is curtailed to the B842 road corridor and excluded from the area east of the B842 to avoid significant effects as far as possible.

Cumulative Effects

- 5.61 This LCT is not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor together.

Hidden Glens LCT: Saddell Water and Carradale Water

- 5.62 The eastern parts of these LCTs, east of the B842 are locally valued LLA and the whole of the Saddell Glen hosts The Kintyre Way, all indicating a high to medium value. At Saddell Water the landscape character of the Hidden Glen LCT is small scale, steep sided and well wooded in places with a strong coastal connection at Saddell Bay. These factors indicate high susceptibility and a High sensitivity, notably along the B842 corridor and east of the road, along the coast. The western fringes of this LCT, merging into the *Upland Forest Moor Mosaic* LCT are of reduced High to Medium sensitivity.
- 5.63 The sensitivity at Carradale Water east of the B842 road corridor is also of High sensitivity for similar reasons although it is less connected to the coast. West of the B842 the sensitivity is reduced and the existing Carradale substation, and associated OHLs and pylons adversely influence the landscape character, reducing sensitivity but also potentially limiting landscape capacity for further OHL development (High to Medium sensitivity).
- 5.64 As with the *Rocky Mosaic* LCT there are many landscape elements east of the B842 which are of higher sensitivity and contribute to the character of this LCT, such that effects on these are likely to be **significant**. It also follows that the effects on these LCTs, east of the B842 would result in Medium to High change and would also be **significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

- 5.65 OHL development to the west of the B842 that avoids the creation of wirescape or sky-lining could have a Lower magnitude of change and the likely landscape effects would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation). It would be difficult to avoid wirescape within the Carradale Water on approach to the PoC at Carradale Substation and the effects could be **significant** and adverse, noting the lack of landscaping / screening of the substation.
- 5.66 To avoid significant effects, it is recommended that the Grid connection corridor is curtailed to the B842 road corridor and excluded from the area east of the B842 to avoid significant effects as far as possible. Where possible, additional landscape screening of Carradale Substation should be undertaken and the detailed route alignment should avoid the creation of wirescape.

Cumulative Effects

- 5.67 This LCT is not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor together.

Mull of Kintyre LLA

- 5.68 The Argyll and Bute Council, Argyll and Bute Landscape Wind Energy Capacity Study, (2017) advises that the LLA is "*presumed to have been designated because of its coastal scenery and panoramic views of the wider seascape.*" ... "*Key special qualities are likely to be the diverse coastal scenery comprising sandy bays, cliffs and islands – including the contrast between the settled farmed southern coast and the rugged wild coast- and panoramic views over sea and to distant land.*"
- 5.69 These special qualities do not relate to the northern inland area of the Grid connection corridor and 1km study area. Although there is limited evidence of other inland special qualities, the landscape character of LCTs overlapping this part of the LLA indicate lower levels of susceptibility, sensitivity and magnitude with the result that the effects on the LLA and its special qualities, including coastal views would be **not significant**. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.70 The Grid connection corridor and associated effects would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor, although neither would significantly affect the LLA or its special qualities independently or cumulatively.

East Kintyre (Coast) LLA

- 5.71 The Argyll and Bute Council, Argyll and Bute Landscape Wind Energy Capacity Study, (2017) advises that the "*The key qualities of this APQ include the diverse landform and land cover of settled loch and sea shores and scenic views to a backdrop of mountains seen*

across water.” In this case the mountains referred to are those in the North Arran National Scenic Area.

- 5.72 The landscape character assessment for LCTs overlapped by the LLA concludes that the landscape elements, associated views and character contributing to the special qualities noted above could be significantly affected without appropriate mitigation. It is therefore possible that the effects on the East Kintyre (Coast) LLA and its special qualities would be **significant**, reducing to **not significant** via routing and design. The nature of this effect would be direct, adverse, temporary (during construction) and long-term (during operation).

Cumulative Effects

- 5.73 This LLA is not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor together.

Assessment of Visual Effects

- 5.74 In summary, there is potential for the Grid connection corridor to have **significant** visual effects on the following visual receptors, although in all cases it is likely that these effects could be mitigation through avoidance and design, following The Holford Rules.
- Settlements: Killeonan / Knocknaha, Stewarton and Saddell are all located within the Grid connection corridor and theoretically visual effects on all of these receptors would be **significant**. Mitigation in the form of a minimum exclusion zone of approximately 150m or more is recommended where there would be a clear line of sight between the settlement and the OHL, and the complete avoidance of the seaward side of Saddell. OHL routeing should avoid encirclement of settlements including scattered residential properties noting the position of existing OHLs.
 - Transport Routes: B842 and B879 - visual effects on the views from the B842 and B879 would be **significant** due to the potential effects of the OHL routed alongside over long distances, contributing to wirescape where there are already prominent / multiple OHLs close to these transport routes, interceding between the route and the sea views (B842) and / or adversely affecting scattered residential properties along these roads. Mitigation is recommended in the form of curtailing the Grid connection corridor to the B842 road corridor and excluding the area east of the B842. Additional landscape screening of Carradale Substation should be undertaken and the detailed route alignment should avoid the creation of wirescape along all roads.
 - The Kintyre Way - visual effects on the views from between the A83 and Skeroblin Cruach would be **significant** due to the potential effects of the OHL routed alongside the minor road for some distance and contributing to wirescape where there are already prominent / multiple OHLs close to this route. To avoid significant effects, it is recommended that the detailed route alignment should avoid the creation of wirescape along all roads.
 - Visitor / Tourist Attractions: mostly along the B842 - visual effects would be **significant**, subject to the recommended mitigation as noted previously.

- 5.75 Some these effects (views from Killeonan / Knocknaha, Stewarton, the B842 and The Kintyre Way) would also be cumulative and significant with the proposed Breackerie Wind Farm and where routes are significantly affected there would also be sequential cumulative effects (B842 and The Kintyre Way). Assuming the adherence of the Holford Rules and above recommendations, it is likely that potential significant effects could be avoided or reduced as part of future design and assessment stages.

Settlements

- 5.76 The outline LVIA has considered the likely effects on the views and visual amenity experienced by people from settlements at Killeonan / Knocknaha, Stewarton, Campbeltown, Peninver, Saddell and Carradale.
- 5.77 All receptors within settlements have been assessed as of High sensitivity which accords with the EIAR.
- 5.78 The settlements of Killeonan / Knocknaha, Stewarton and Saddell are all located within the Grid connection corridor and theoretically visual effects on all of these receptors could be **significant**. In the case of Saddell the OHL could intercede between the settlement and sea views. Visual effects on views from Campbeltown, Peninver, and Carradale are likely to be **not significant** due to the intervening distances and multiple intervening screening from landform, vegetation and non-residential buildings.
- 5.79 A minimum exclusion zone of approximately 150m or more is recommended where there would be a clear line of sight between the settlement and the OHL, and the complete avoidance of seaward side of Saddell. OHL routeing should avoid encirclement of settlements including scattered residential properties noting the position of existing OHLs.
- 5.80 Assuming the adherence of the Holford Rules and above recommendations the visual effects on all settlements would be **not significant**.

Cumulative Effects

- 5.81 Views from the settlements of Peninver, Saddell and Carradale are not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the grid connection corridor together.
- 5.82 The Grid connection corridor would affect the views from the same settlements of Killeonan / Knocknaha, Stewarton and Campbeltown as the proposed Breackerie Wind Farm (assessed as significant in the EIAR for Killeonan / Knocknaha and Stewarton). Assuming the adherence of the Holford Rules and above recommendations (as part of future design and assessment stages), it is likely that the OHL would not significantly contribute to cumulative effects with the wind farm.

Transport Routes

- 5.83 The outline LVIA has considered the likely effects on the views and visual amenity experienced by road users on the B842, B843, B879 and the A83 (including where these overlap with the Kintyre 66 tourist route and Sustrans cycle route No. 78).
- 5.84 All receptors have been assessed as of Medium sensitivity (High sensitivity where overlapped by The Kintyre Way, the Kintyre 66 tourist route or Sustrans cycle route No. 78) which accords with the EIAR.
- 5.85 All of the transport routes are overlapped by the grid connection corridor and the visual effects on the views from the B842 and B879 could be **significant** due to the potential effects of the OHL routed alongside, over long distances, contributing to wirescape where there are already prominent / multiple OHLs close to these transport routes, interceding between the route and sea views (B842) and / or adversely affecting scattered residential properties along these roads. The visual effects on the views from the B843 and A83 would be **not significant** because these routes are inland, have less OHLs close by, and cross the Grid connection corridor perpendicularly, limiting the visual effects of the OHLs.
- 5.86 To avoid significant effects, it is recommended that the grid connection corridor is curtailed to the B842 road corridor and excluded from the area east of the B842 to avoid significant effects. Where possible, additional landscape screening of Carradale Substation should be undertaken and the detailed route alignment should avoid the creation of wirescape along all roads.

Cumulative Effects

- 5.87 The grid connection corridor would affect the views from the same transport routes (A83, B842, and B843) as the proposed Breackerie Wind Farm (assessed as significant in the EIAR for part of the A83 and the B842 south of Stewarton). **Significant** cumulative visual effects could occur as a result of the wind farm and the OHL on part of the B842 south of Stewarton and sequentially as part of a route travelling along these roads such that the road used would experience significant effects from the wind farm and the OHL at different locations along the same route. Assuming the adherence of the Holford Rules and above recommendations, it is likely that potential significant effects could be avoided or reduced as part of future design and assessment stages.
- 5.88 Views from the B879 are not affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor together.

Recreational Routes

- 5.89 The outline LVIA has considered the likely effects on the views and visual amenity experienced by people travelling along The Kintyre Way. The sensitivity of this route has been assessed as High which accords with the EIAR.

- 5.90 The section of The Kintyre Way overlapping with the A83, B842 and B843 has been included with the transport receptors. Aside from these, The Kintyre Way crosses the Grid connection corridor and 1km study area three times as follows:
- Section between the A83 and Skeroblin Cruach, following a minor road over High Ranachan;
 - Section along a track close to the Glen Lussa Water;
 - Section along a track close to the Saddell Water and through forestry to the south and west of Saddell.
- 5.91 The section between the A83 and Skeroblin Cruach is overlapped by the grid connection corridor, and the visual effects would be **significant** due to the potential effects of the OHL routed alongside the minor road for some distance and contributing to wirescape where there are already prominent / multiple OHLs close to this route. The visual effects on the views from the sections along the Glen Lussa Water and the Saddell Water are more likely to be **not significant** because these routes, have less OHLs close by, and cross the Grid connection corridor perpendicularly, limiting the visual effects of the OHLs.
- 5.92 To avoid significant effects, it is recommended that the detailed route alignment should avoid the creation of wirescape along all roads.

Cumulative Effects

- 5.93 The effects of the grid connection corridor would overlap with the effects of the proposed Breackerie Wind Farm on this same receptor between the A83 and Skeroblin Cruach (assessed as not significant in the EIAR). The contribution of the OHL to cumulative effects on this section would be **significant** as noted above, subject to mitigation. Additionally, there could be significant sequential cumulative effects experienced by people traveling along The Kintyre Way and experienced significant effects from the wind farm and the OHL at different locations along the same route. Assuming the adherence of the Holford Rules and above recommendations as part of future design and assessment stages, it is likely that potential significant effects resulting from the OHL could be avoided or reduced.

Visitor / Tourist Attractions

- 5.94 Numerous bays and coastal attractions are noted on the Ordnance Survey basemap in Figure 4.1, mostly aligning with the B842 road corridor along eastern coastline and within the East Kintyre (Coast) LLA. All of these receptors have been assessed as of High sensitivity, which accords with the LVIA Methodology in the EIAR.
- 5.95 Using the B842 assessment as a proxy, there is the potential for the visual effects on the views from these receptors to be **significant** due to the proximity of the OHL which may also contributing to wirescape and / or intercede between these receptors and sea views.
- 5.96 To avoid significant effects, it is recommended that the grid connection corridor is curtailed to the B842 road corridor and excluded from the area east of the B842 to avoid significant effects as far as possible.

Cumulative Effects

- 5.97 Views from these receptors would not be affected by the proposed Breackerie Wind Farm and there would be no cumulative effects resulting from the proposed Breackerie Wind Farm and the Grid connection corridor together.

Cumulative Effects

- 5.98 There may be a degree of interaction between the grid connection corridor and other proposed grid connections with OHLs, dependent on final details. This concerns the proposed OHL between Tangy IV and Cnoc Buidhe and their PoC at Carradale Substation. Cumulative landscape and visual effects could therefore affect receptors close to the Carradale Substation and associated grid connection. The Cnoc Buidhe and Tangy IV OHL has not yet been subject to a Section 37 application under the Electricity Act 1989 and at present does not have land rights for its full length.
- 5.99 Considering wider, combined cumulative effects between the grid connection corridor, distributor substation, and other wind farms, it should be noted that except for the existing Beinn an Tuirc Phase 3, there are no other wind farms developments within the 1km study area for the grid connection corridor. Therefore the potential for a significant cumulative effect is unlikely to result from the combined impacts of the grid connection. The Beinn an Tuirc Phase 3 is set beyond intervening forestry and landform such that the potential for significant cumulative effects is unlikely.
- 5.100 Further cumulative assessment (considering the proposed development and other wind energy development) is provided in the LVIA in Volume 1, Chapter 6 of the EIAR. That assessment noted that cumulative effects would mainly result from the proposed development and the cumulative visibility of the Tangy Wind Farm (including Tangy / Extension and the consented Tangy IV).
- 5.101 The Meall Mor development is at design / scoping stage and in accordance with the NatureScot, Guidance: Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments, 2021 it is excluded from cumulative assessment.

Mitigation Measures

- 5.102 As outlined in Section 3, the main strategy for minimising the adverse environmental impacts of the grid connection will be through avoidance by careful routeing when the grid connection details are progressed by SSEN and through adherence to the Holford Rules.
- 5.103 The key mitigation strategy will therefore be by design to ensure the minimal loss of landscape elements such as mature trees and hedgerows, to avoid close proximity to residential properties, and to avoid or reduce the placement of grid infrastructure on prominent topographical features such as prominent ridgelines or hilltops.
- 5.104 In relation to the distributor substation, a site selection process implementing the Holford Rules and clarification notes and a landscape mitigation plant would be proposed,

detailing areas of landscape planting that would provide screening and landscape integration of the substation to reduce visual effects.

5.105 A summary of specific mitigation proposals, which have emerged from the outline LVIA process are listed as follows:

- Between Carrick Point to Saddell Bay and Saddell Bay to Carradale the Grid connection corridor should be curtailed to exclude the B842 road corridor and area east of the B842.
- A minimum exclusion zone of approximately 150m or more is recommended around the settlements of Killeonan / Knocknaha, Stewarton and Saddell, which are all located within the Grid connection corridor, and the complete avoidance of the seaward side of Saddell. OHL routeing should avoid encirclement of settlements including scattered residential properties noting the position of existing OHLs.
- The detailed route alignment should avoid 'sky-lining' and placement of grid infrastructure on prominent ridgelines or hilltops.
- The detailed route alignment should avoid the creation of wirescape or excessive duplication of OHLs along all roads.
- Avoiding effects on shelterbelts in the northern part of Connie Glen requiring mature tree removal, breaking up the shelter belt form and pattern within the OC.
- In relation to the distributor substation, a site selection process implementing the Holford Rules and clarification notes and a landscape mitigation plan would be proposed.
- Additional landscape screening of Carradale Substation should be undertaken.

Summary

5.106 An outline Landscape and Visual Impact Assessment (LVIA) of the likely significant effects of the proposed Breackerie Wind Farm grid connection has been undertaken. It describes the baseline conditions that currently exist and makes recommendations that may be carried through further design stages of route selection and alignment explained in Section 3. It should be read in conjunction with the Landscape and Visual Impact Assessment (LVIA) in Volume 1, Chapter 6 of the EIA Report, August 2023 (EIAR)

5.107 The Grid connection corridor is described in Section 4 and shown in Figure 4.1 indicating a Grid connection corridor approximately 31km between Breackerie Wind Farm and a PoC at Carradale Substation. A distributor substation may also be required at an unspecified location along the grid connection corridor. Although the electrical infrastructure falls with the 'height envelope' for this outline LVIA. Its location and design require further assessment as part of the routeing process undertaken by SSEN.

5.108 The outline LVIA has assumed a 'worse case' that the grid connection is entirely above ground, via a combination of single or double wood poles supporting a 132 kV 'trident' overhead line (OHL). It has been assumed that the grid connection would comply with the Holford Rules and that it would be subject to further route selection, alignment and detailed design at a later stage, undertaken by SSEN.

- 5.109 In summary, there is potential for the Grid connection corridor to have **significant** effects on the following landscape and visual receptors, although in all cases it is likely that these effects could be mitigation through avoidance and design, following The Holford Rules.
- Landscape Receptors:
 - Rocky Mosaic LCT: Connie – landscape elements only;
 - Rocky Mosaic LCT: Carrick Point to Saddell Bay and Saddell Bay to Carradale;
 - Hidden Glens LCT: Saddell Water and Carradale Water; and
 - The East Kintyre (Coast) LLA.
 - Visual Receptors:
 - Settlements: Killeonan / Knocknaha, Stewarton and Saddell, all located within the Grid connection corridor;
 - Transport Routes: B842 and B879;
 - Recreational Routes: The Kintyre Way; and
 - Visitor / Tourist Attractions: along the B842.
- 5.110 Some these effects would also be cumulative and significant with the proposed Breackerie Wind Farm and where routes are significantly affected there would also be sequential cumulative effects (B842 and The Kintyre Way).
- 5.111 The mitigation strategy will follow the Holford Rules and seek to avoid and or minimise effects through careful routeing, minimising loss of landscape elements such as mature trees and avoiding close proximity to residential properties. Additionally, a summary of specific mitigation proposals, have emerged from the outline LVIA process aimed at avoiding and reducing significant landscape and visual effects. If followed, the potential for likely significant effects would be significantly reduced.

6 CULTURAL HERITAGE AND ARCHAEOLOGY

Introduction

- 6.1 This chapter was prepared by Kevin Paton, an Associate Consultant in WSP's Cultural Heritage and Archaeology team, with 18 years' experience in the heritage profession. Mr Paton is a Member grade of the Chartered Institute for Archaeologists (CIfA).
- 6.2 This section presents an assessment of the potential effects of the proposed grid connection for the proposed development upon Cultural Heritage. The chapter is supported by the following figures and appendices:
- Figure 6.1: Designated Heritage Assets;
 - Figure 6.2: Non-designated Heritage Assets; and
 - Technical Appendix 6.1: Cultural Heritage Gazetteer.

Scope and Methodology

- 6.3 The scope of the assessment is to determine the potential direct impacts and effects from the grid connection on heritage assets within the proposed grid connection corridor and study area. The study area has been set at 1km from the edge of the grid connection corridor, and is based on professional judgement of the potential for significant effects to arise due to changes within the setting of designated heritage assets (e.g. direct setting effects) from the introduction of the grid connection.
- 6.4 The assessment of indirect (or secondary) impacts (e.g. indirect physical impacts such as consequent effects from vibration) is scoped out, as there is no evidence to suggest that indirect effects will arise in relation to heritage assets as a result of the proposed grid connection. The assessment of temporary construction impacts through changes within the setting of heritage assets are scoped out as construction activity would be minimal and temporary, and would not result in a significant effect.
- 6.5 No site visits have been conducted as part of this assessment. This would be a future requirement once the final grid connection alignment is known.
- 6.6 The levels of effect upon a heritage asset would depend upon its level of importance and the potential magnitude of change. The methodology for assessing the importance of heritage assets, and the magnitude of change remains the same as it previously was within Chapter 11: Cultural Heritage of the Breackerie Wind Farm EIA.

Baseline Conditions

- 6.7 There are no World Heritage Sites, Gardens and Designed Landscapes, or Inventory Battlefields within the proposed grid connection corridor or within the 1 km study area.
- 6.8 There are 23 designated heritage assets within the proposed grid connection corridor, comprising 11 Scheduled Monuments representing prehistoric settlement and funerary

activity, alongside medieval / post-medieval ecclesiastical buildings, and 12 Listed Buildings representing post-medieval estate building and infrastructure, and a modern power generation scheme (see Technical Appendix 6.1: Table 6.1 and Figure 6.1 for details).

- 6.9 There are 130 non-designated heritage assets within the proposed grid connection corridor. These heritage assets represent prehistoric funerary and ritual activity, including a possible Bronze Age henge, a possible Bronze Age burial cairn, a neolithic chambered cairn, and over 10 cup marked stones. There is also settlement evidence in the form of platforms, enclosures and hut circles. The medieval period is less represented but there are ecclesiastical buildings within the proposed grid connection corridor related to this period. The majority of non-designated heritage assets relate to post-medieval agriculture and industry in the form of farmsteads and other buildings, field systems, charcoal production platforms, quarries, and lime kilns (See Technical Appendix 6.1: Table 6.2 and Figure 6.2).
- 6.10 Within the 1 km study area around the proposed grid connection corridor, there are 20 Scheduled Monuments, representing prehistoric activity in the form of 18 monuments related to settlement, and two burial cairns. There are 21 Listed Buildings, mainly focussed around Campbeltown and the other smaller villages along the coastal edge, and the northwestern edge of the Campbeltown Conservation Area is within the Study Area (see Technical Appendix 6.1: Table 6.3 and Figure 6.1 for details).

Assessment of Effects

- 6.11 A full assessment of effects on heritage assets within the proposed grid connection corridor and the study area will be dependent upon the final alignment selection and whether the connection is through the use of an overhead line (OHL), underground cable, or combination of both. For the purposes of this assessment, it is assumed that the proposed grid connection will be through the use of an OHL that would terminate at the existing Carradale Substation, via a further distributor substation as described within section 4. This would represent the worst case scenario for the proposed grid connection as it may result in physical impacts and impacts through changes within the setting of heritage assets.

Impacts During Construction

- 6.12 There is the potential for direct impacts to the designated and non-designated heritage assets within the proposed grid connection corridor from the construction of the OHL and the access tracks required. During the design of the grid connection, Scheduled Monuments and Listed Buildings would be avoided, as per standard practice for developing the route and alignment of an OHL. Therefore, there would be no direct physical impacts upon the 23 designated heritage assets within the proposed grid connection corridor.
- 6.13 There is a cluster of cup marked stones and other non-designated heritage assets to the north of Glen Lussa, between the Scheduled Monuments of Gort na h-Ulaidhe, long cairn 900m NE of Gartgreillan, Glen Lussa (SM2484), and Kilkeddan, dun 850m W of (SM3109). However, these would be easily avoidable to the north, so it is not anticipated that there would be any direct impacts during construction on these heritage assets.

- 6.14 There are no other locations where the designated and non-designated heritage assets are clustered in a specific area, or create a barrier to placing an alignment within the proposed grid connection corridor. The spacing of the non-designated heritage assets removes or limits the potential for a direct impact upon a non-designated heritage asset. Therefore, it is not anticipated that there would be any significant direct effects on the designated and non-designated heritage assets within the proposed grid connection corridor during construction.
- 6.15 The final location of the distributor substation would be selected to avoid impacts to non-designated heritage assets, where feasible. The indicative location for the distributor substation between the proposed development and Campbeltown, is an area where the numbers of non-designated heritage assets is low and evenly distributed across the proposed grid connection corridor (see Figure 6.2). It is anticipated that the distributor substation could be sited in this area without any impacts to non-designated heritage assets.

Impacts During Operation

- 6.16 Assessment of the distributor substation would be undertaken when its location is fully known, which is consistent with Schedule 4(6) of the EIA Regulations. As suggested previously within this FEI, it is assumed that the siting of this would take into full account the existing cultural heritage baseline and incorporate a degree of landscape screening as set out within Chapter 5 of this FEI document. There is the potential for significant effects through changes within the setting of heritage assets should an unsuitable location be proposed by the Network Operator. However, it is anticipated that a suitably sited distributor substation could be located within the proposed grid connection corridor to avoid significant effects.
- 6.17 There is no potential for significant effects in relation to any possible extension to the Carradale substation as part of the proposed grid connection. Changes to the substation would be minimal, and impacts on visibility from nearby heritage assets would be assessed as No Change due to the presence of the existing substation and other electrical infrastructure at this location.
- 6.18 There is the potential for significant effects during operation of the proposed grid connection due to a possible OHL creating impacts through changes within the setting of designated heritage assets, or non-designated heritage assets where setting is an important aspect of their cultural significance. The probable locations of concern in relation to impacts through changes within the setting are where there is reduced space for an alignment to pass a reasonable distance from a heritage asset. The following paragraphs highlight these pinch points and how the heritage assets may be impacted.
- 6.19 There is potential for impacts where the OHL would pass Kilchrist Castle (LB4921), Killeonan, chapel & burial ground 300m SW of (SM3638), Oatfield House (LB4922), and Kilchrist, dun 450m ESE of (SM3640). These four designated heritage assets are equally spaced across the width and edges of the proposed grid connection corridor so any OHL alignment would be no further than 250m from two of the heritage assets. There is no contemporaneous link between the heritage assets so their intervisibility would not

necessarily be an important aspect of their cultural significance, and Kilchrist Castle (LB4921) and Oatfield House (LB4922) are both surrounded by woodland, with limited outward views. It is anticipated that an OHL alignment could be designed to avoid a significant effect, but further detailed assessment of options would be needed to verify this position.

- 6.20 The cluster of designated heritage assets at Saddell Abbey (SM3645), Saddell Castle (LB18403), and Saddell House (LB18404), and further north where there is a cluster of buildings related to Torrisdale Castle (LB18396), would constrain an OHL alignment to the western edge of the proposed grid connection corridor. It would be anticipated that an OHL alignment could be designed to avoid a significant effect passing these clusters of designated heritage assets.
- 6.21 The Marchfield henge (NRHE 298096), pit circle (NRHE298095), and barrow (NRHE 298094) form a small cluster of non-designated heritage assets whose setting would be an important element in their cultural significance. The intervisibility between the heritage assets would be especially important, but due to their relative proximity to one another, it would be anticipated that an OHL alignment could be designed to avoid a significant effect passing this cluster of non-designated heritage assets.
- 6.22 The cluster of cup marked stones and other non-designated heritage assets to the north of Glen Lussa, between the Scheduled Monuments of Gort na h-Ulaidhe, long cairn 900m NE of Gartgreillan, Glen Lussa (SM2484), and Kilkeddan, dun 850m W of (SM3109), would also be an area of potential for impacts through changes within their setting. However, as with construction impacts, it would be anticipated that these impacts could be avoided through routing the OHL to the north.

Cumulative Effects

- 6.23 The majority of wind farm developments within Kintyre are located on areas of higher ground to the west of the proposed grid connection corridor, at distances of 3-5 km from any shared receptors. It is not anticipated that shared receptors between the proposed grid connection and the other windfarm developments would lead to an increase in the previously assessed impacts and effects.
- 6.24 It would be possible for an OHL alignment to be placed within the proposed grid connection corridor that minimises the potential for cumulative impacts during the operation of the proposed grid connection. This may need revisited depending on the proximity to the shared receptors once an alignment is finalised.
- 6.25 The EIA Report, and consultation with HES, highlighted the potential for significant effects from the proposed development on Lochorodale long cairn 1000m NW of (SM3653), and Lochorodale Long cairn, long cairn 505m SW of (SM3654). Due to the areas of undulating topography containing the proposed grid connection, and the potential to limit visibility of an OHL using the slopes of Cnoc nan Gabher, and Achnaslishaig Hill, it is anticipated that an OHL could be located within the proposed grid connection corridor so that it does not add to the impacts from the windfarm. The cumulative impact would be no greater

than that stated by HES in their consultation response, and would not lead to a significant impact on the integrity of the setting of the cairns.

- 6.26 The assessment of Bealloch hill fort (SM3639) set out the importance of the views towards and from Stewarton to the northeast. The resulting impact was stated as low, but any proposed grid connection on the western side of the road leading southwest from Stewarton could increase the impact on the monument and result in a significant cumulative effect.
- 6.27 Siting of the distributor substation has the potential to result in a significant effect in combination with the proposed development should an unsuitable location be proposed by the Network Operator. Avoiding the areas between Achnaclach, Fort 680m NW of (SM3692) and the proposed development, as well as making use of the localised terrain to avoid visibility from Lochorodale long cairn 1000m NW of (SM3653), and Lochorodale Long cairn, long cairn 505m SW of (SM3654) would be key to minimising any cumulative impacts from this aspect of the grid connection. If sited further north towards Campbeltown, there is less potential for the distributor substation to result in significant cumulative effects, as there would be greater distance between the heritage assets and the substation, and only one or other of the developments would be visible in any views from the heritage assets impacted by the proposed development. Impacts upon cultural heritage assets will be a factor in final location selection.

Mitigation Measures

- 6.28 Using the standard approach of avoidance of known heritage assets during the routing and alignment of overhead lines or underground cables, any potential physical impacts would be avoidable. The design of the proposed grid connection would be set out to ensure avoidance, and where necessary, further demarcation and avoidance measures can be put in place during construction to further remove the potential for any impacts.
- 6.29 In the unlikely event that a known heritage asset is to be physically impacted by the proposed grid connection, there would be a requirement to preserve the heritage asset by record through a programme of archaeological works, to be approved by the West of Scotland Archaeology Service (WoSAS), who advise Argyll and Bute Council on archaeological matters.
- 6.30 During construction, it is anticipated that archaeological monitoring of ground breaking works in areas of high archaeological potential will be required, in compliance with NPF4 Policy 7 o). The methodology for any works will be set out within a Written Scheme of Investigation (WSI), to be approved by WoSAS.
- 6.31 The design of the proposed grid connection would be set out to avoid or minimise the potential for significant effects during operation. Where impacts may be unavoidable, such as at the pinch points highlighted above, assessments of the key aspects of the heritage assets setting will be made to allow for an informed decision on final locations for the proposed grid connection. Embedded mitigation would involve careful alignment selection to use topography to reduce visibility from sensitive receptors, maintaining distance from designated heritage assets, and using underground cabling where pinch

points from clusters of heritage assets are present and impacts through changes within the setting cannot be resolved through micro-siting.

- 6.32 During operation it would not be possible to provide additional mitigation to reduce potential impacts from the OHL, as any form of screening or planting introduced could cause the same impact through changes within the setting of a heritage asset. Landscape screening could be used within the design for the distributor substation to reduce any potential operational impacts and effects from changes within the setting of heritage assets.

Residual Effects

- 6.33 Through the use of the embedded mitigation measures outlined above, it is anticipated that impacts from the proposed grid connection would not result in any significant effects. Any physical impacts to non-designated heritage assets within the proposed grid connection corridor should be avoidable through micro-siting of wood pole locations. The selection of a preferred alignment for the proposed grid connection that avoids or minimises impacts through changes within the setting of heritage assets, and the option to use OHL or underground cabling, should ensure no significant effects related to the operation of the proposed grid connection.

Summary

- 6.34 There are 23 designated heritage assets within the proposed grid connection corridor, comprising 11 Scheduled Monuments and 12 Listed Buildings, and there are 130 non-designated heritage assets within the proposed grid connection corridor. A further 20 Scheduled Monuments, 21 Listed Buildings, and a Conservation Area are present within the 1 km study area around the proposed grid connection corridor.
- 6.35 Assuming a worst-case technology is used for the proposed grid connection (Overhead Line), there is limited potential for impacts that may lead to significant effects during construction. However, there is potential for impacts that may lead to significant effects on at least one of the following heritage assets, depending on any alignment chosen, due to their proximity and spacing across the proposed grid connection corridor:
- Killeonan, chapel & burial ground 300m SW of (SM3638);
 - Kilchrist, dun 450m ESE of (SM3640); and
 - Bealloch hill fort (SM3639)
- 6.36 Any potential for significant effects in this area could be mitigated through careful alignment selection and/or undergrounding of the proposed grid connection
- 6.37 It is not possible at this stage to provide a detailed assessment of likely significant effects upon cultural heritage assets. However, embedded mitigation through standard practice for the routing alignment and siting of electrical infrastructure, alongside measures of demarcation and avoidance or archaeological recording, would remove or minimise any potential impacts.

7 ECOLOGY AND ORNITHOLOGY

Introduction

- 7.1 This section presents an assessment of the likely significant environmental effects of the grid connection on ecology and biodiversity, including ornithology. It also describes the baseline conditions that currently exist and any mitigation measures likely to be proposed. The grid connection route corridor is illustrated on Figure 7.1.

Scope and Methodology

- 7.1 Existing information relating to statutory and non-statutory nature conservation sites, priority habitats and species, and legally protected species has been gathered from NatureScot's 'Sitelink' website⁴, and a review of the EIAR for Breackerie Wind Farm.
- 7.2 The first stage of an ecological or ornithological impact assessment is 'determining value' of features or 'receptors'. The Chartered Institute of Ecology and Environmental Management (CIEEM) places the emphasis on identifying different aspects of value including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features. These values are applied to the receptors within a defined geographical context.
- 7.3 Following the determination of value, potential effects are identified and characterised. This process involves a review of the proposed construction methods and timescales with a view to identifying the pathways by which features and receptors may be affected.
- 7.4 CIEEM best practice guidance does not recommend that significance is defined as 'Major', 'Moderate' or 'Minor' due to the complexities of ecological processes. Therefore, for the purposes of this assessment, all 'significant' effects are considered significant within the context of the EIA Regulations.
- 7.5 This assessment does not provide definitive EIA significance levels upon receptors given the final route, survey results and methods are not yet known. However it sets out potential effects and mitigation measures to be taken account of.
- 7.6 This document will not replace the need for detailed ecological survey and assessment for grid connection purposes as required for an application under Section 37 of the Electricity Act 1989.

Baseline Conditions

- 7.7 Baseline conditions for the whole corridor are not possible to accurately describe in detail at this stage, given the Applicant does not hold land and/or survey rights for the entire corridor and this is typically undertaken later in the process when the Network Operator

⁴ <https://sitelink.nature.scot/home>

has satisfied themselves that a specific route or corridor is the most viable, particularly in technical terms.

Designated Sites

- 7.8 Statutory designated sites are protected by EU and UK legislation and those considered in this report are:
- Special Protection Areas (SPA);
 - Special Areas of Conservation (SAC);
 - Ramsar sites;
 - Sites of Special Scientific Interest (SSSI); and
 - Ancient Woodland.
- 7.9 Information about statutory and non-statutory sites designated for nature conservation were sought as part of this assessment. A 5km search area from the outer extent of the route option corridor was used to gather data relating to statutory designated sites, with the exception of SPAs for which the search area was extended to 20km. In terms of ornithology, internationally designated nature conservation sites (Special Protected Areas (SPAs) and Ramsar sites) within 20km of the grid connection corridor and nationally designated sites (SSSIs and National Nature Reserves; NNRs) within 5km of the Development will be identified.
- 7.10 Data relating to non-statutory sites designated for nature conservation within 1km of the grid connection corridor will be considered for the assessment.

Table 7.1 – Designated Sites

Site name	Designation	Distance from site (km)	Reason for designation	Considered further in this assessment
Kintyre Goose Roosts	SPA and Ramsar	1km southeast	Greenland white-fronted goose (non-breeding).	Yes. Within core foraging range.
Torrisdale Cliff	SSSI	Adjacent (east)	Upland mixed ash woodland.	Yes. Adjacent to site. Potential for adverse effect.
Tangy Loch	SSSI	1.2km west	Greenland white-fronted goose (non-breeding). Slender naiad <i>Najas flexilis</i> and oligotrophic habitats.	Yes. Greenland white-fronted goose only.
Bellochantuy and Tangy Gorges	SSSI	4.5km west	Geological.	No.
Machrihanish Dunes	SSSI	3.2km west	Sand dunes.	No.
Balnabraid Glen	SSSI	4km east	Lichen and wet woodland.	No.
Dun Ban	SSSI	3.7km southwest	Calcareous grassland and tall herb ledge habitats.	No.
Arran moors	SPA and SSSI	9.5km east	Breeding hen harrier. Also breeding bird assemblage and upland habitats (SSSI only).	No. Outwith core foraging range for this species.

7.11 The Kintyre Goose Roosts Special Protection Area (SPA) is a series of fragmented waterbodies throughout Kintyre that support an internationally significant population of Greenland white-fronted geese (GWFG). The closest of these to the proposed grid corridor is Tangy Loch (approximately 2km to the north-west), Lussa Loch (also approximately 2km to the north-west) and Black Loch (approximately 1.5km to the south-east).

7.12 Torrisdale Cliff Site of Special Scientific Interest (SSSI) is located south of Torrisdale Bay and represents an area of rare ash and elm semi-natural woodland and is one of the largest remaining blocks of ancient woodland in Kintyre. The cliffs of the site support nesting for herons, ravens and peregrine falcon whilst inland areas support wet grassland and marshland.

Habitats

7.13 A review over the aerial mapping shows the corridor comprises a variety of habitats, including grassland, commercial forestry cover, and forestry on the Ancient Woodland Inventory. There is also the possibility that areas of bog habitats, areas of flushes and GWDTE habitats within the corridor.

Ornithology

- 7.14 Kintyre Goose Roosts SPA is designated for non-breeding Greenland white-fronted geese and lies within the core foraging range for this species.
- 7.15 The habitats present along the route have the potential to support the following species/species groups: waders, divers, eagles, moorland raptors and black grouse. Additionally, the forestry is suitable for goshawk and honey buzzard.

Protected Species

- 7.16 The waterbodies and watercourses that lie within the route option corridor are suitable for otter *Lutra lutra*, which are known to be present from surveys undertaken for Breackerie Wind Farm. There were no background records of water vole *Arvicola amphibius* near the wind farm site, but any slow flowing peaty headwaters and bog habitats along the route corridor are suitable for this species.
- 7.17 Surveys undertaken for Breackerie Wind Farm confirmed the area is used by low numbers of bat species. Species comprised *Myotis* species, *Nyctalus* species, brown long-eared bat, common pipistrelle, soprano pipistrelle and *Pipistrellus* species.
- 7.18 The habitats along the route are likely to contain common reptile species such as adder *Vipera berus*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* and there were sightings of adder and common lizard during the surveys undertaken for the wind farm.
- 7.19 In addition to the above there is the possibility of the presence of pine marten *Martes martes* and red squirrel *Sciurus vulgaris* is possible in the forestry habitats within the route corridor. There is also potential for badger *Meles meles* along the route.
- 7.20 Surveys undertaken by the Argyll Fisheries Trust for Breackerie Wind Farm confirmed suitable habitat for freshwater pearl mussel *Margaritifera Margaritifera* and salmonid species and there is the potential for these species also to be present within the route corridor.

Assessment of Effects

- 7.21 Design mitigation would ensure that the eventual connection would not encroach upon the Torrisdale Cliff SSSI and therefore no significant effects would be predicted.
- 7.22 In the absence of mitigation there is the potential for collision to Greenland white-fronted geese associated with the Kintyre Goose Roosts SPA with overhead line sections of the route.
- 7.23 There is also the potential for the direct loss and indirect effects (such as secondary compression) of Annex 1 habitats, such as blanket bog, and GWDTEs. In terms of ornithological receptors and protected species there is also the risk of the loss of, or disturbance or displacement to the receptors listed above.

- 7.24 Protected species survey and full habitat surveys would be carried out once the alignment was confirmed and assessment undertaken accordingly.
- 7.25 An assessment of ancient woodland within the corridor would be carried out to understand if it is still in situ, along with its condition and age. The first principle would be to avoid or design around this feature to avoid losses, or if not possible, then to minimise, compensate and enhance for any losses.
- 7.26 Once a final alignment has been selected, depending on methodology (e.g. overground or underground), ornithological surveys would be scoped in or out and agreed with NatureScot, drawing upon data sources such as the Argyll Raptor Study Group and other wind farm EIAs if appropriate in relation to validity of data.
- 7.27 The final alignment would avoid peatland habitats where practicable, however if not, then future ecological assessment would include consideration of peatland and its habitat and condition, along with any enhancement that may be required in line with good practice.

Mitigation Measures

- 7.28 Mitigation measures are set out below to address any potential negative significant effects. Specific mitigation is designed to reduce the significance of effects, while general site-wide mitigation provides a mechanism for best practice measures and those that will support compliance with wildlife legislation, irrespective of significance of effects. In addition to the mitigation measures outlined below, as part of the EIAR, it is anticipated that a Habitats Regulations Appraisal (HRA) will be required in respect of the Kintyre Goose Roosts SPA. The purpose of this document will be set out measures to protect the SPA qualifying features and to provide the competent authority with sufficient information to inform an appropriate assessment in respect of both of these Natura 2000 sites. The EIAR will also include a cumulative assessment for the route and other renewable energy and grid connection routes at the regional (Natural Heritage Zone) level.

Mitigation by Design

- 7.29 An iterative process of corridor and route selection will be undertaken by SSEN to identify the optimal alignment for the grid connection. Key receptors, in particular any designated sites, valued habitats or other sensitive locations for birds and protected species, will be avoided wherever possible.

Baseline Surveys

- 7.30 Baseline ecological and ornithological surveys would be undertaken to identify and potential constraints. This would include surveys for habitats (NVC and GWDTE), nesting birds (waders, raptors, black grouse and divers and under Schedule 1 licence where required), bird flight activity surveys (to identify areas of potential collision risk), bat roost surveys, and surveys for protected species (otter, water vole, pine marten, red squirrel and badger). A watching brief will also be maintained throughout the other surveys to record the presence of any reptile species.

- 7.31 The information gathered from these surveys would be used to inform the EIAR for the grid connection route and to develop an Ecological Management and Mitigation Plan to safeguard, and, where possible, enhance features of ecological interest; and a Breeding Bird Protection Plan. These would be live documents and updated regularly as the grid connection project progresses.
- 7.32 The Breeding Bird Protection Plan will outline relevant best practice construction measures to safeguard nesting birds, including the establishment of buffer zones around active nest sites to avoid disturbance of protected birds that are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Timing of Construction Works

- 7.33 In order to reduce any potential impacts on the assemblage of breeding birds present in the vicinity of the grid connection corridor, any vegetation removal that is necessary to facilitate construction would be undertaken during the bird non-breeding season (September – February) where possible. Should this not be possible for any reason then pre vegetation clearance checks would be undertaken to confirm the presence or absence of nesting birds. Best practice mitigation measures would be outlined within the Ecological Management and Mitigation Plan and the Breeding Bird Protection Plan and agreed with key stakeholders during the development of these live documents.

Deflectors

- 7.34 For overhead line elements, deflectors (or line markers) have been shown to reduce bird collisions by 78%⁵. As a precaution deflectors could therefore be installed on certain sections of the route, the exact positioning of which would be determined later during the development of the detailed design for the grid connection following flight activity survey work to identify key flight routes.

Summary

- 7.35 No likely significant effects on ecology, biodiversity and ornithology are anticipated as a result of the grid connection as surveys to inform the final route location will take into account features of ecological interest and maximise the distance of the final route from these features. The mitigation outlined above follows general best practice measures or would be proposed on a precautionary basis (e.g. the use of bird deflectors). On the assumption that mitigation measures are implemented, no likely significant residual effects are predicted.

⁵ Barrientos R., Alonso J.C., Ponce C. and Palacin C. (2011) Meta-analysis of the Effectiveness of Marked Wire in Reducing Avian Collisions with Power Lines

8 GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

Introduction

- 8.1 This section presents an assessment of the likely significant environmental effects of the grid connection on geology, hydrology and hydrogeology. It also describes the baseline conditions that currently exist and any mitigation measures likely to be proposed.

Scope and Methodology

- 8.2 The assessment is undertaken through a desk study of existing geology, hydrogeology and hydrology-related features within and surrounding the grid route corridor. The existing conditions are described and potential risks that may be associated with the grid connection are identified and assessed.
- 8.3 The significance of potential effects has been classified taking into account three principal factors: the sensitivity of the receiving environment, the potential magnitude of the effect, and the likelihood of that effect occurring. Potential effects are then assessed taking into account any proposed mitigation measures. Effects considered as major or moderate are deemed to be significant, whilst those assessed as minor or negligible are deemed to be not significant.

Baseline Conditions

Peatland

- 8.4 NatureScot's Carbon and Peatland Map (2016) illustrates that the grid connection corridor consists principally of unclassified peatland with some areas of Class 5 (no peatland vegetation) and mineral soil (see Figure 8.1). A small area of Class 1 (nationally important) peat is mapped approximately 3km north of Stewarton.

Private Water Supplies

- 8.5 SEPA's Land Use Planning System Guidance Note 4 requires all wind farm infrastructure less than 1m in depth to be located outwith a buffer of 100m from all groundwater abstractions, and all infrastructure greater than 1m in depth to be outwith a buffer of 250m.
- 8.6 Upon final alignment of the route, private water supplies would be supplied by the Council and final design would aim to limit interaction between the overhead or underground line and the PWS. Assessment would be made of whether or not the PWS is hydrologically connected to the OHL and if so, mitigation would be employed first by avoiding impacts and secondly by employing mitigation such as water quality monitoring.

Flood Risk

- 8.7 SEPA's Indicative Flood Map provides an overview of the likelihood of flooding within the grid connection corridor. Flood risk is shown to be relatively minor across the route, with

some localised regions of surface water west of Carradale, west of Stewarton and in localised areas between Stewarton and Peninver.

- 8.8 Given that the method of crossing any watercourse channels would be designed with flood events in mind, and that plant and vehicles would be stored outside any high risk areas, it is considered that the grid connection corridor would not give rise to any significant effects in relation to flood risk.

Assessment of Effects

Physical Changes to Overland Drainage and Surface Water Flows

- 8.9 Changes to overland drainage patterns would arise principally from excavation and installation of any sections of underground cable, and reinstatement of the worked area. Excavations would be short in length and would remain open for as short a time as practicable. Excavations would be undertaken using standard best practice, with every effort taken to cause the least disturbance possible to the surrounding area and minimise the effect on surface water flows. Excavation machinery would avoid tracking over drains/small watercourses except at designated crossing locations, and excavated material would be stored at least 10m away from all drains or watercourses to avoid obstruction.
- 8.10 Following completion of construction, any temporary access arrangements or drainage infrastructure would be removed and the ground reinstated to natural pre-development condition.
- 8.11 The effect of physical changes to overland drainage from construction works is considered to be negligible (not significant) and temporary in nature.

Particulates and Suspended Solids

- 8.12 All construction activities involving earthmoving operations (would generate loose sediment, which could potentially gain access to surface watercourses and waterbodies through entrainment in surface runoff. This could potentially have an adverse effect on downstream watercourses through damage to fish spawning habitat and changes to dissolved oxygen and nutrient levels.
- 8.13 Surface water from areas around cable trenches would be prevented from entering watercourses by appropriate use of peripheral bunding, silt fencing and cut-off drains. These would also be used to help divert clean water away from the working areas.
- 8.14 Construction activities would be restricted during periods of wet weather, particularly for any work occurring within 20m of a watercourse or within areas of identified deeper peat, to minimise mobilisation of sediment in heavy rainfall.
- 8.15 Any water collecting within excavations would be pumped out prior to further work in the excavation. The water may require treatment to remove suspended solids prior to discharge to ground.

- 8.16 The effect of particulates and suspended soils from construction works is considered to be minor to negligible and temporary in nature.

Peatland

- 8.17 NatureScot's Carbon and Peatland Map (2016) illustrates that the grid connection route consists principally of unclassified peatland with some areas of Class 5 (no peatland vegetation) and mineral soil (see Figure 8.1). A small area of Class 1 (nationally important) peat is mapped approximately 3km north of Stewarton.
- 8.18 Careful micro-siting of the OHL would be carried out in the vicinity of this area to avoid any disturbance to this peatland habitat. Best practice construction methods would also be followed to further minimise disturbance to peat and any excavated peat material would be reinstated during the backfilling of the cable trench. Location of the distributor substation would not be within areas of peatland.
- 8.19 Subject to the proposed mitigation measures it is considered that effects on peat would be Negligible, not significant and temporary in nature.

Private Water Supplies

- 8.20 Private Water Supplies would be assessed in detail following the definition of the final grid route. Potential significant effects may occur via contamination of supply during excavation of trenches, or via uncontrolled runoff from vehicle movements.

Cumulative Effects

- 8.21 The potential for cumulative effects upon the hydrological and peatland resource is unlikely given the distances between other developments such as wind farms.
- 8.22 Should trees require to be removed as part of a future application, cumulative impacts upon the hydrological resource would be considered in conjunction with other developments which may interact.

Mitigation Measures

Mitigation by Design

- 8.23 An iterative process of corridor and route selection will be undertaken by SSEN to identify the optimal alignment for the grid connection. The importance of geology, hydrology and hydrogeology will be a key consideration throughout. Peatland areas, watercourses and waterbodies, designated sites, and private water supplies, will all have a considerable influence on the design.

Soils and Peat

- 8.24 Soil stripping would be undertaken with care and would be restricted to as small a working area as practicable. Topsoil would be removed and laid in a storage bund on unstripped

ground adjacent to the working area. Care would be taken to maintain separate stockpiles for separate soil types in order to preserve the soil quality.

- 8.25 For work within areas of peat, construction work would make use of current best practice guidance relating to developments in peatland areas. A risk management system, such as a geotechnical risk register, would be compiled and maintained at all stages of the project and developed as part of the post-consent detailed design works.
- 8.26 Micrositing would be used to avoid possible problem areas identified during ground investigations or other detailed design works. This would be assisted by verification of peat depths in any highlighted areas where construction work in peatland is required.
- 8.27 Construction activities would be restricted during periods of wet weather, particularly for any work occurring within 20m of a watercourse or within areas of peatland. Careful track design and use of trackway panels and bog mats to minimise requirements for temporary stone tracks would ensure that the volume and storage timescale for excavated materials would be minimised as far as practicable during construction works.
- 8.28 Where peat requires removal, it would be removed and stored in stockpiles with the vegetation side at the top. Acrotelmic and catotelmic peat would be stored in separate stockpiles. Catotelmic peat is sensitive to handling, and loses its internal structure easily, so would be transported as short a distance as possible to its storage location. Excavation of catotelmic peat would be limited by careful infrastructure design. For underground cables, the excavated peat would be used to backfill the cable trench following installation of the electrical infrastructure.
- 8.29 All soil and peat stockpiles would be left with rough, unsmoothed surfaces to minimise soil losses from rainfall erosion. Stockpiles on sloping ground would have sediment control measures installed near the base, on the downslope side, to collect and retain any sediment mobilised by rainfall. Soils and peat would be stored for as short a time as practicable, in order to minimise degradation through erosion and desiccation. A damping spray would be employed during prolonged periods of dry weather to maintain surface moisture on the soil and peat stockpiles.

Surface Watercourses, Private Water Supplies and Groundwater

- 8.30 A Pollution Prevention Plan (PPP) would be prepared for the grid connection which would outline the detailed methods for dealing with watercourse, private water supply and groundwater pollution risk. The PPP would accompany any required applications for authorisation under the Controlled Activities Regulations (CAR).
- 8.31 All works within and adjacent to wetland areas would be supervised by an Environmental Clerk of Works (ECoW). This would be informed by a ground water dependent terrestrial ecosystem assessment.
- 8.32 A water quality monitoring programme would be established. Details would be agreed with SEPA but are likely to include visual checks for entrained sediment and in suite measurements of pH, temperature and specific conductivity. Any change during construction to pH and/or specific conductivity compared with baseline levels could

potentially indicate an incident and additional investigation would be required in order to identify the origin of the change.

Summary

- 8.33 In summary, providing design mitigation was employed to ensure that no direct impacts occur on the above receptors, and that good practice principles are enshrined into a PPP, there are anticipated to be no significant effects experienced upon the hydrological and peat resource.

9 FORESTRY

Introduction

- 9.1 This section presents an assessment of the likely significant environmental effects of the grid connection on forestry. It also describes the baseline conditions that currently exist and any mitigation measures proposed.

Scope and Methodology

- 9.2 An iterative process of corridor and route selection will be undertaken by SSEN 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.
- 9.3 It is possible that the grid connection corridor may 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.
- 9.4 Any cumulative developments that would be likely to give rise to effects on the forestry resource, for example wind farms which are in planning, would also be subject to the Control of Woodland Policy and therefore there is unlikely to be any significant cumulative effect. Therefore, cumulative effects are scoped out.

Baseline Conditions

- 9.5 The grid connection corridor contains commercial forestry particularly within the B842 corridor from Glen Lussa north and north-eastward towards Carradale. There are areas of scattered ancient woodland including both Ancient (of semi-natural origin) and long-established of plantation origin (LEPO).
- 9.6 Future baseline surveys would be required during detailed route analysis to determine whether or not all areas of ancient woodland are present and intact.

Assessment of Effects

- 9.7 Without mitigation, the proposed grid connection corridor has the potential to irreversibly remove areas of ancient woodland which would be lost. Depending upon the quantity, this may result in a significant effect upon the woodland resource.
- 9.8 Other areas of non-designated woodland may require to be removed, the assessment of which would be covered within the ecological and hydrological assessments as it relates to habitats, protected species, and changes to the water environment as a result.

Mitigation Measures

- 9.9 As the grid connection may require 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.
- 9.10 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.
- 9.11 Final design would avoid areas of ancient woodland wherever possible via design routing or via undergrounding.

Summary

- 9.12 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. Ancient woodland would be avoided as a principle.

10 TRAFFIC AND TRANSPORT

Introduction

- 10.1 This section presents an assessment of the likely significant environmental effects of the grid connection on traffic and transport. It also describes the baseline conditions that currently exist and any mitigation measures proposed.

Scope and Methodology

- 10.2 The most identifiable traffic and transport characteristics associated with the grid connection would be the transportation of plant and construction materials to overhead line or underground cable locations, access to the wind farm substation, and to the point of connection to the electricity grid.
- 10.3 Trips would be undertaken mainly by heavy goods vehicles (HGVs). The characteristic of this form of traffic is a temporary intensification of HGV traffic on the road network. This intensification varies depending on the scale of the development, the construction stage and the activity to be undertaken. A small amount of traffic would also be generated by construction workers community to / from the various site access locations during the construction stage.
- 10.4 Given the uncertain nature of the grid connection corridor and distributor substation, outline effects can be provided at this stage.

Baseline Conditions

- 10.5 It is assumed that the route to site would be from Campbeltown via the B842 and/or B843, or from the central belt via the A83. It is assumed that materials, plant, machinery and apparatus would either come from Campbeltown or from the north via the A83.
- 10.6 The A83 is a key arterial route between Loch Lomond and Campbeltown and provides the main road link to and from Kintyre to the rest of Scotland.
- 10.7 The B842 links Southend to Claonaig and forms the only route to and from eastern Kintyre, linking villages along it to Campbeltown to the south and to Tarbert to the north (via the B8001). It is single tracked for a large part of its span to the north of Carradale. South of Carradale also comprises sections of single track mixed with two way road mostly in the vicinity of Carradale and of Campbelltown. The B843 is a two way road linking Campbeltown to Machrihanish.

Assessment of Effects

- 10.8 Due to the short term and localised nature of the construction of the grid connection, any temporary disturbance created during construction is likely to be minimal and concentrated in small areas at any one time as the contractors progress along the course of the route. Offsite construction compounds may be sought.

- 10.9 Traffic management measures would be consistent with those implemented for previous construction and maintenance works associated with existing OHL infrastructure in this area, which were previously considered acceptable.
- 10.10 Careful consideration would be given to the function of the existing road network and the susceptibility of local communities to delays, particularly on sections of single track road on the B842.
- 10.11 During operation, only maintenance vehicles would be required with limited visits anticipated.

Cumulative Effects

- 10.12 Cumulative effects have been considered for other developments which may utilise any sections of the road network required for the grid connection and distributor substation.
- 10.13 Should construction timescales coincide for several schemes, a co-ordinated delivery schedule would be undertaken as part of the CTMP for each development to reduce the risk of potential significant cumulative effects. Specific detail relating to the overall increase in traffic volume would be addressed in the CTMP to minimise effects from increased traffic volumes.
- 10.14 The CTMP for each development would ensure that there are open lines of communication with Transport Scotland, Argyll and Bute Council roads department, local communities, and other stakeholders and developers as required to monitor the progress of the construction stages.

Mitigation Measures

- 10.15 A Construction Traffic Management Plan (CTMP) would be prepared for the grid connection as a good practice measure. The CTMP would identify measures to reduce the number of construction vehicles as well as considering reducing or avoiding the impact of vehicles through construction programming / routing and identification of an individual with responsibilities for managing traffic and transport impacts and effects.
- 10.16 The CTMP would be developed during the detailed design phase of the project. It would therefore have the benefit of detailed construction planning stage to allow for detailed estimates of traffic movements per tasks and vehicle type to be understood. It would be possible to set these vehicle movements against the fully developed construction programme, allowing mitigation efforts to be focused on the activities and locations that require them the most.

Summary

- 10.17 Based on the outline assessment above it is not considered that the grid connection corridor or distributor substation would be likely to give rise to any significant effects.

