

Chapter 1

Introduction

Background

1.1 This Environmental Impact Assessment (EIA) Report has been prepared by LUC on behalf of SP Energy Networks (SPEN)¹ in relation to proposals to construct and operate a new 132 kilovolt (kV) overhead line (OHL) supported on steel lattice towers, as part of a transmission network reinforcement. The OHL is required to connect a new substation at Glenmuckloch, which will provide a point of connection for renewable generation in the area to the existing 132kV substation at Glenglass². The substation will be designed with sufficient space to allow for the connection of additional schemes. Together the new 132kV OHL and the new Glenmuckloch substation form the Glenmuckloch to Glenglass Reinforcement Project (GGRP). The location of the GGRP is shown on **Figure 1.1**.

1.2 The EIA Report documents the EIA process, which involves the identification, assessment and presentation of likely significant environmental effects (both positive and negative) of the construction and operation of the GGRP. The EIA Report has been prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations'), as amended. The EIA Report has been provided to support SPEN's application for Section 37 consent under the Electricity Act 1989 ('the Act') for the 132kV OHL forming part of the GGRP. It will also support the application for deemed planning permission for the GGRP and associated works (such as temporary access tracks for construction) being made under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997. The information presented in this EIA Report is intended to inform Scottish Ministers, consultees and other stakeholders of the environmental effects of the GGRP, and to inform the determination of the application for Section 37 consent and for deemed planning permission. Further details on the requirements for EIA are provided below and in **Chapter 3: Approach to the EIA**.

Climate Emergency and the Need for the GGRP

1.3 The impacts of climate change are widely recognised as being one of the greatest global, economic, environmental and social challenges facing the world today. A major cause of climate change is a rise in the concentration and volume of greenhouse gases in the atmosphere, a significant contributor to which, is the use of fossil fuels to generate electricity, provide heat and to fuel transport.

1.4 One of the primary aims of the Scottish Government is to move towards a low carbon economy, with a climate change target date for net zero emissions of all greenhouse gasses ("Net Zero") by 2045. Net zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away. To meet this target a rapid transformation across all sectors of the economy and society is required. As such, there is a recognition from the Scottish Government that renewable energy technologies will play a key role in the delivery of the emission reduction targets to achieve 'Net Zero'.

1.5 In December 2020 the Scottish Government published Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018-2032 (CCP Update). It provides an update to Scotland's 2018-2032 Climate Change Plan, and it states that by 2032: "renewable energy generation in Scotland will account for the equivalent of 50% of our energy demand across electricity, heat and transport" and that "our electricity system will have deepened its transformation for the better, with over 100% of Scotland's electricity demand being met by renewable sources."

1.6 On 27th June 2019, Dumfries and Galloway Council (D&GC) declared a climate emergency and have set this as a council priority to urgently respond to climate change and transition to a carbon neutral region by 2025. D&GC prepared a Route Map for Carbon Neutral in Dumfries and Galloway³. This states that of 32 local authorities in Scotland, Dumfries and Galloway is the third largest contributor of renewable energy generation and notes the importance that renewable energy plays in contributing to the carbon neutral target in Dumfries and Galloway.

1.7 The Third National Planning Framework (NPF3), which was laid in the Scottish Parliament on 23rd June 2014, is the spatial expression of the Scottish Government's Economic Strategy and plans for infrastructure investment and development priorities over the next 20 to 30 years. NPF3 strengthens the link between strategy and delivery through 14 national development priorities identified within Annex A. In relation to development priority number four of Annex A, 'An Enhanced High Voltage Electricity Network', the statement of need is as follows: "These classes of development are needed to support the delivery of an enhanced high voltage electricity transmission grid which is vital in meeting national targets for electricity generation, statutory climate change targets, and security of energy supplies." In terms of the description of Classes of Development, it includes new or upgraded onshore electricity cabling of, or in excess of, 132kV. The GGRP therefore constitutes national development.

1.8 The Planning (Scotland) Act 2019 elevates the status of the National Planning Framework from material consideration to part of the development plan. The 2019 Act also includes a planning purpose for the preparation of the NPF, being "to manage the development and use of land in the long-term public interest". In addition, the next National Planning Framework ("NPF4") will also incorporate Scottish Planning Policy.

1.9 Work has already begun on NPF4 and the Scottish Government published its NPF4 Position Statement on 3rd December 2020. Draft NPF4 was laid in Parliament on 10th November 2021. The public consultation and parliamentary scrutiny of Draft NPF4 has now completed and a revised draft is awaited. The Scottish Government hopes to lay a finalised version of NPF4 before the Scottish Parliament for approval by autumn 2022.

1.10 Part 1 of Draft NPF4 sets out an overarching spatial strategy for Scotland. Page 3 states: "We have set a target of net zero emissions by 2045, and must make significant progress towards this by 2030. This will require new development and infrastructure across Scotland." It continues by stating "We will plan the place we want Scotland to be carefully. The way we live, learn, work and play in the future will need to be consistent with our ambition to achieve net zero emissions and nature recovery." The Draft NPF4 emphasises the Scottish Government's commitment to Green Energy and ensuring the proper infrastructure is in place to continue the expansion of low-carbon and net zero technologies.

1.11 SPEN recognises that the electricity network is the backbone of the energy system which sits at the heart of this Net Zero transition. SPEN is currently at the forefront of decarbonising their energy system, having already connected approximately one quarter of all onshore wind in Great Britain to the electricity network. SPEN recognises their key role in helping the government meet its climate change targets.

The Applicant and Legal Framework

1.12 In recent years, SPEN has received several connection requests from developers wishing to develop renewable energy schemes in the Sanquhar area of Dumfries and Galloway. SPEN has a statutory duty to develop and maintain an economic, co-ordinated and efficient network of electricity transmission and distribution. Therefore, SPEN is proposing to extend the transmission network via a new 132kV OHL from Glenglass to Glenmuckloch to allow the connection of renewable energy projects in the area. To achieve this reinforcement, SPEN proposes to construct the GGRP. Further details of the components of the GGRP are provided in **Chapter 4: Development Description**

1.13 SPEN owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). Its transmission network is the backbone of the electricity system in its area carrying large amounts of electricity at high voltages from generating sources such as windfarms and power stations over long distances. The transmission network includes more than 4,000km of OHLs and more than 360km of

¹ SPEN, the trading name for Scottish Power Energy Network Holdings Limited which owns and operates the electricity transmission and distribution networks in central and southern Scotland through its wholly-owned subsidiaries SP Transmission plc (SPT) and SP Distribution plc (SPD). SP Transmission plc is the holder of a transmission licence. The references within this EIA Report to SPEN in the context of statutory and licence duties should be read as applying to SP Transmission plc unless the context indicates otherwise.

² The existing substation at Glenglass is required to be extended to accommodate the current contracted generation capacity from six operational/proposed renewable generation developments (Whiteside Hill, Sanquhar 1, Twentysilling, Sandy Knowe, Sanquhar 2, Glenmuckloch), as well as the GGRP. The Glenglass substation extension is being progressed separately to the GGRP which would allow work to commence on

Glenglass substation prior to the granting of Section 37 consent for the GGRP as the proposed substation would be required regardless of whether or not the GGRP is built. As such, the Glenglass substation extension does not comprise part of the GGRP, but is included in the cumulative assessment as part of the EIA. The Glenglass substation extension has been subject to a separate EIA screening application submitted to Dumfries and Galloway Council (Application Reference 22/0892/SCR). As Dumfries and Galloway Council did not respond to the screening application, a screening direction was sought and The Scottish Ministers issued a formal screening direction (EIA-170-001) on 15th September 2022 confirming that the Glenglass substation extension does not require EIA.

³ <https://www.dumgal.gov.uk/media/25192/Carbon-Neutral-Strategic-Plan/pdf/0090-21-Carbon-Neutral-Strategic-Plan.pdf?m=637731907046870000>

underground cables. The electricity is then delivered via the distribution system serving more than two million customers in central and southern Scotland.

1.14 Through a number of statutory and licence duties as detailed below, SPEN is required when formulating relevant proposals⁴ to identify electrical connections that meet the technical requirements of the electricity system, which are economically viable, and cause, on balance, the least disturbance to the environment and the people who live, work and enjoy recreation within it.

1.15 As a transmission licence holder for central and southern Scotland, SPEN is required under Section 9(2) of the 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.

1.16 SPEN also has the following obligations pursuant to its licence conditions:

- To make its transmission system available to generators wishing to connect to it and ensure that the system is fit for purpose through appropriate reinforcements to accommodate the contracted capacity.
- To plan and develop its transmission system in accordance with the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS) and in so doing take account of National Grid's obligations as system operator, to co-ordinate and direct the flow of electricity on, to and over the GB transmission system.

1.17 In response to statutory and licence obligations upon it, SPEN is required to ensure that the transmission system is developed and maintained in an economic, coordinated and efficient manner in the interests of existing and future customers.

1.18 Section 37 of the Act stipulates that consent is required from Scottish Ministers for the installation of overhead transmission lines. Section 38 and Schedule 9 of the Act imposes a further statutory duty on SPEN to take account of the following factors in formulating proposals for the installation of overhead transmission lines:

"(a) to 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) to do what it reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."

1.19 SPEN has a 'Schedule 9 Statement'⁵ which sets out how it will meet the duty placed upon it under Schedule 9. The Statement also refers to the application of best practice methods to assess the environmental effects of proposals and to identify appropriate mitigation measures.

Overview of the Surrounding Area

1.20 The GGRP is situated within the administrative boundary of D&GC. An overview of the GGRP is shown in **Figure 1.1**, with detailed sections shown in **Figure 4.1**. The GGRP will be within the red line shown on the Figures.

1.21 Much of the area surrounding the new 132kV OHL route is rural in nature, comprising primarily of minerals (coal), agricultural and forested areas. Outside of the main settlements of Kirkconnel, Kelloholm and Sanquhar which are located to the east of the GGRP, the population is dispersed, comprising individual and small clusters of farmsteads and residential properties.

1.22 The landscape within which the GGRP is located is largely defined by the valley of the River Nith and the adjacent Southern Uplands, highlighted by the notable range in elevation across the new 132kV OHL route. The valley floor is characterised by medium scale agricultural land holdings and existing infrastructure, including the railway and A76.

1.23 As noted above the GGRP crosses areas of coniferous plantation. There are also smaller areas of mixed and deciduous woodland in the area, often associated with farmsteads and narrow stretches alongside the River Nith and smaller watercourses positioned in the incised tributary valleys. Above the valley floor and lower slopes, land use gives way to rough grazing and managed moorland mixed with plantation. Several of the hilltops and ridges have been developed for wind energy production, including Hare Hill Wind Farm, Sandyknowe Wind Farm, Sanquhar Community Wind Farm and Whiteside Hill Wind Farm.

Overview of the Glenmuckloch to Glenglass Reinforcement Project

1.24 The GGRP comprises the construction of a new double circuit 132kV steel lattice tower OHL, approximately 9.3km in length, between the new Glenmuckloch substation,(also part of the GGRP) and the existing 132kV substation at Glenglass.

1.25 The new Glenmuckloch substation is located approximately 500m east of the former Glenmuckloch opencast coal working site. From the new Glenmuckloch substation the new 132kV OHL route heads broadly south-east for approximately 1km before heading south-west across the River Nith valley and the railway line. It then continues south-west for approximately 1km before crossing the A76 to the west of Rigg Farm. It then runs south-east for approximately 1.6km from Polmeur Hill and passing through the forestry plantation at Libry Moor. On exiting Libry Moor the OHL route continues in a south easterly direction for approximately 1.6km before crossing over the Kello Water and heading south for approximately 1.9km. It then heads south-west for approximately 1.5km, following the contours across Drumbuie Moorhead and following the line of a recently constructed Whiteside Hill and South West Scotland (SWS) Project access track to the Glenglass substation.

1.26 It is proposed that 40 steel towers will be installed along the length of the route, as shown in **Figure 4.1**. Proposed span lengths between steel towers across the route will range between approximately 176m and 285m. Whilst the standard height of steel towers is 29m, the tallest tower is proposed at approximately 39m high. Photographs of typical steel tower designs to be used are provided in **Chapter 4**.

1.27 The GGRP includes ancillary works including forestry felling, access tracks, working areas, laydown areas/construction compounds, winching/pulling areas and watercourse crossings.

1.28 The existing substation at Glenglass requires to be extended to accommodate a new gas insulated 132kV substation. Permission for the gas-insulated 132kV substation is being sought separately to the GGRP. Therefore, the Glenglass substation extension does not comprise part of the GGRP and is not assessed within this EIA-Report as explained above, albeit it has been considered as part of the cumulative assessment as appropriate.

1.29 The estimated period of construction of the GGRP is approximately 16 months.

The EIA and Consenting Process

Legislative Requirements for EIA

1.30 As noted above, the GGRP comprises the construction and operation of a new Glenmuckloch substation and 132kV OHL, as well as other ancillary development. Section 37 consent is being sought from the Scottish Ministers to install and keep installed the new 132kV OHL. Deemed planning permission is also being sought for the 132kV OHL and the new Glenmuckloch substation, as well as the ancillary development.

1.31 Schedules 1 and 2 of the EIA Regulations set out developments for which an EIA is or may be required. Schedule 1 developments are projects for which EIA is mandatory. For Schedule 2 developments, EIA is not mandatory but requires professional judgement to determine the likelihood of the development resulting in significant environmental effects. This is dependent on a range of factors such as the nature, scale and location of the proposal. The new 132kV OHL component of the GGRP falls within Schedule 2 of the Regulations as the development meets the following criteria:

"an electric line installed above ground with a voltage of 132 kilovolts or more".

1.32 In addition, the new 132kV OHL is also *"likely to have significant effects on the environment by virtue of factors such as its nature, size or location"*⁶. As a result, the GGRP is considered EIA development and an EIA requires to be undertaken. Further details on the requirements for EIA are set out in **Chapter 3**.

1.33 This EIA Report details the findings of the assessment of the likely significant effects of the GGRP on the environment in terms of its construction and operation. The assessment forms part of the wider process of EIA, which is undertaken to ensure that the likely significant effects, both positive and negative of certain types of development are considered in full by the decision maker prior to the determination of an application for Section 37 consent and for deemed planning permission.

⁴ Relevant proposals include any proposals for the installation of an electric line whether above or below ground

⁵ https://www.spenergynetworks.co.uk/pages/regulatory_information_library.aspx

⁶ Regulation 2(1) of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Structure of the EIA Report

1.34 This EIA Report comprises four volumes as well as a standalone Non-Technical Summary (NTS), namely:

- Volume 1: Main Text
- Volume 2: Figures;
- Volume 3: Visualisations; and
- Volume 4: Appendices.

1.35 Volume 1 comprises the following chapters:

- **Chapter 1: Introduction** (this chapter) provides a brief introduction to the GGRP, the applicant, the legislative requirements for EIA and an outline of the structure of the EIA Report.
- **Chapter 2: The Routeing and Design Strategy** discusses the design strategy for the new Glenmuckloch substation, the new steel towers, access tracks and other infrastructure and forestry felling/replanting associated with the new 132kV OHL.
- **Chapter 3: Approach to the EIA:** describes the EIA process undertaken in accordance with the requirements of the EIA Regulations and the consultation completed to date. Information on topics 'scoped out' of detailed assessment is also provided in this chapter.
- **Chapter 4: Development Description** provides details of the development proposals, construction process (including programme), operational maintenance, and proposed environmental management practices.
- **Chapter 5: Planning Policy Context** sets out the local and national planning policies of relevance to the GGRP including other material considerations.
- **Chapter 6: Landscape and Visual Amenity** assesses the potential effects of the GGRP on landscape and visual amenity.
- **Chapter 7: Hydrology, Geology, Hydrogeology and Peat** details the potential effects of the GGRP on hydrology, potential implications for hydrology, private water supplies, and effects associated with ground conditions including peat and groundwater dependent terrestrial ecosystems (GWDTEs).
- **Chapter 8: Ecology** provides an assessment of the GGRP on protected habitats and protected species.
- **Chapter 9: Ornithology** provides an assessment of the GGRP on birds.
- **Chapter 10: Cultural Heritage** details the potential effects of the GGRP on archaeology and the historic environment.
- **Chapter 11: Traffic and Transport** assesses the potential effects associated with the GGRP on traffic and transport during construction and operation.
- **Chapter 12: Summary of Likely Significant Effects** sets out all the likely significant effects identified in **Chapters 6 to 11**.

1.36 Within each of these environmental topic chapters, the information provided is structured in a consistent way, as far as practicable. **Box 1** provides further information on the structure of each chapter.

Box 1: Structure of the EIA Report Topic Chapters (Chapters 6-11)

Introduction: outlines the content and key objectives of the chapter.

Scope of the Assessment: identifies the key issues to be considered in the assessment and any issues which are considered unlikely to be significant and which have been scoped out of detailed assessment.

Assessment Methodology: outlines the legislation and guidance that the assessment has been undertaken in accordance with, the consultation undertaken with statutory consultees and other organisations, methods used (desk study, surveys etc.), the Study Area, the criteria used to assess the significance of the effects and, (as required by the EIA Regulations) any limitations encountered in undertaking the assessment.

Existing Conditions: summarises the baseline situation along the GGRP route, including field survey results where appropriate.

Future Baseline in the Absence of the Development: provides a description of the predicted environmental conditions and proposed or likely changes to occur in the absence of the GGRP which are of relevance to the topic assessed. This includes natural changes, climate change and the potential for future developments in the Study Area.

Project Design Modifications: outlines modifications that were made to the GGRP design to avoid and reduced effects associated with the topic being assessed, and any mitigation that has been incorporated into the design of the proposals.

Infrastructure Locations Allowance: details any specific areas where the use of the 50m infrastructure location allowance (ILA) is proposed to be utilised in advance of detailed site investigation works taking place, and how this may affect the assessment of effects.⁷

Embedded Mitigation: outlines detailed measures for construction and operation working practices that are assumed to be in place during construction and operation of the GGRP.

Assessment of Effects: details the likely significance of effects (both negative and positive) of the GGRP during its construction and operational phases, as well as the cumulative effects expected with other existing or proposed developments. Proposed additional mitigation and resulting residual effects are detailed, where required.

Interrelationship between Effects: considers where effects between topics may interact to lead to interrelated effects on a single receptor.

Summary of Significant Effects: summarises in tabular format the significant effects, mitigation measures and residual effects of the GGRP.

1.37 The assessment Section of each specialist chapter is structured in a way that is most logical for that particular topic area and, whilst maintaining the general structure identified above, may include other Sections specific to that particular topic where necessary.

1.38 The EIA Report contains supporting appendices as listed in the contents page. A free-standing Non-Technical Summary (NTS) has also been produced in accordance with the EIA Regulations.

Statement of Expertise

1.39 Regulation 5 of the EIA Regulations, and relating to the preparation of the EIA Report, states that:

"... to ensure the completeness and quality of the environmental statement—

- a) the developer must ensure that the EIA Report is prepared by competent experts: and
- b) the EIA Report must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts."

1.40 LUC has coordinated the EIA and compiled this EIA Report on behalf of SPEN. LUC has secured the Institute of Environmental Management and Assessment (IEMA) Quality Mark for EIA. This provides assurance to third party stakeholders that the EIA is of high quality and that LUC's EIA activities have been independently reviewed by IEMA. LUC prepared the introductory chapters (**Chapter 1 to 5**) in conjunction with SPEN and the summary chapter (**Chapter 12**). Whilst LUC has overall responsibility for the EIA Report, sub-

⁷ The ILA does not apply to the new Glenmuckloch substation as detailed further in Chapter 3: Approach to the EIA.

consultants have undertaken specialist assessment where necessary as detailed in **Table 1.1** below. A statement of competency for the lead author is provided in **Appendix 1.1: Statement of Expertise**.

Table 1.1: Responsibilities for EIA Topic / Chapters

EIA Report Topic Chapter	Responsible Organisation
Chapter 1: Introduction	LUC
Chapter 2: The Routeing Process and Design Strategy	LUC and SPEN
Chapter 3: Approach to the EIA	LUC (information on noise provided by Hoare Lea)
Chapter 4: Development Description	LUC (technical details supplied by SPEN and forestry information provided by RTS)
Chapter 5: Planning Policy Context	LUC
Chapter 6: Landscape and Visual Assessment	LUC
Chapter 7: Hydrology, Geology, Hydrogeology, and Peat	Kaya Consulting
Chapter 8: Ecology	LUC
Chapter 9: Ornithology	Natural Research Projects
Chapter 10: Cultural Heritage	LUC
Chapter 11: Traffic and Transport	Mott MacDonald
Chapter 12: Summary	LUC

Availability of the EIA Report

1.41 Electronic copies of the NTS and all other EIA Report documents can be downloaded free of charge via the project website:
https://www.spenergynetworks.co.uk/pages/glenmuckloch_pumped_storage_hydro_and_wind_farm_connections.aspx.

1.42 Electronic (USB) and hard copies of the EIA Report may be obtained by contacting SPEN at:
glenmucklochprojectmanager@spenergynetworks.co.uk.

Representations

1.43 Any representations to the application may be submitted via the Energy Consents Unit website at www.energyconsents.scot/Register.aspx; by email to the Scottish Government, Energy Consents Unit mailbox at representations@gov.scot; or by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal and specifying the grounds for representation.