Scottish & Southern Electricity Networks

TRANSMISSION

Consultation Document

Coire Glas Grid Connection Project

May 2022

Scottish & Southern Electricity Networks
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GLOSSARY

Term	Definition
ALC	Agricultural Land Classification
ASH	ASH Design and Assessment Ltd
Alignment	A centre line of an overhead line, along with location of key angle structures.
AWI	Ancient Woodland Inventory
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of SHE Transmission's works on communities, such as the effects of noise and disturbance from construction activities.
BBOP	Business and Biodiversity Offset Programme
Biodiversity Net Gain (BNG)	an approach to development, that aims to leave the natural environment in a measurably better state than it was before that development.
BNG Tookit	A toolkit developed by SSEN Transmission based upon the Natural England metric[1], which aims to quantify biodiversity based upon the value of habitats for nature.
CIEEM	The Chartered Institute for Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
Conductor	A metallic wire strung from structure to structure, to carry electric current.
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views, normally, with the objective of influencing decisions, policies or programmes of action.
Corridor	A linear area which allows a continuous connection between defined connection points. The corridor may vary in width along its length; in unconstrained areas it may be many kilometres wide.
Design Solution	The design of the transmission infrastructure (location, structure type) between Fort Augustus and Ardmore
DNO	Distribution Network Operator
DWPA	Drinking Water Protection Area
Environmental Impact Assessment (EIA)	A formal process set down in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 used to systematically identify, predict and assess the likely significant environmental impacts of a proposed project or development.
ESO	Electricity System Operator
FLS	Forestry and Land Scotland.
Fort Augustus to Skye Project	SSEN Transmission has previously promoted the Fort Augustus to Skye Project, which was based upon a design that proposed a new 132 kV wood pole OHL between Fort Augustus and Broadford with the existing steel lattice OHL remaining in place, and a replacement 132 kV wood pole OHL between Broadford and Dunvegan. This is now replaced by this Skye Reinforcement Project which is currently progressing toward Section 37 consent application.

[1] Natural England Biodiversity Metric 2.0 http://publications.naturalengland.org.uk/publication/5850908674228224

Term	Definition
GWDTE	Ground Water Dependent Terrestrial Ecosystem
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities.
HER	Historic Environment Record
HES	Historic Environment Scotland.
IEMA	Institute of Environmental Management and Assessment
Kilovolt (kV)	One thousand volts.
Landscape Character Type (LCT)	A defined area of consistent landscape character identified in the NatureScot National Landscape Character Assessment of Scotland (2019)
Listed Building (LB)	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified categories A – C(s).
Limit of Deviation (LOD)	The area either side of the proposed alignment within which micrositing of structures may take place in accordance with the conditions of the Section 37 consent.
LMP	Land Management Plan
Micrositing	The process of positioning individual structures to avoid localised environmental or technical constraints.
Mitigation	Term used to indicate avoidance, remediation or reduction of adverse impacts.
MITS	Main Integrated Transmission System
MW	Megawatt
National Scenic Area (NSA)	A national level designation applied to those landscapes considered to be of exceptional scenic value.
NCR	National Cycle Route
NETSQSS	National Electricity Transmission System Security and Quality of Supply Standard
NGR	National Grid Reference
NNL	Not Net Loss
NVC	National Vegetation Classification
NWSS	National Woodland Survey of Scotland
Overhead line (OHL)	An electric line installed above ground, usually supported by lattice steel towers or poles.
Plantation / Plantation Woodland	Woodland of any age that obviously originated from planting.
PAWS	Plantations on Ancient Woodland Sites
PWS	Private Water Supply
RAG Rating	Each topic within the environmental, technical and economic categories should be considered in terms of the potential for the development to be constrained and a Red/Amber/Green (RAG) rating applied as appropriate.
Riparian Woodland	Natural woodland home for plants and animals occurring in a thin strip of land bordering a stream or river.

Term	Definition
Route	A linear area of approximately 1 km width (although this may be narrower/wider in specific locations in response to identified pinch points / constraints), which provides a continuous connection between defined connection points.
Route (preferred)	A route for the overhead line taken forward to stakeholder consultation following a comparative appraisal of route options.
Route (proposed)	A route taken forward following stakeholder consultation to the alignment selection stage of the overhead line routeing process.
Routeing	The work undertaken which leads to the selection of a proposed alignment, capable of being taken forward into the consenting process under Section 37 of the Electricity Act 1989.
Scheduled Monument	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
Semi-natural Woodland	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
SEPA	Scottish Environmental Protection Agency
SF	Scottish Forestry.
SHE Transmission	Scottish Hydro Electric Transmission plc. Scottish Hydro Electric Transmission plc, owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.
SI	Site Investigation
Sites of Special Scientific Interest (SSSI)	Areas of national importance. The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species across Britain.
Skye Reinforcement Project	The grid infrastructure project to replace the existing Fort Augustus to Skye overhead line which is currently progressing towards Section 37 consent application.
SNH	Scottish Natural Heritage
Span	The section of overhead line between two supporting structures.
Special Area of Conservation (SAC)	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
Special Landscape Area (SLA)	Landscapes designated by The Highland Council which are considered to be of regional/local importance for their scenic qualities.
Special Protection Area (SPA)	An area designated under the Wild Birds Directive (Directive74/409/EEC) to protect important bird habitats.
SM	Scheduled Monument
SMC	Scheduled Monument Consent
SSEN Transmission	Scottish and Southern Electricity Networks Transmission
SSE Renewables (SSER)	The Developer of the consented Coire Glas Pumped Storage Scheme
Stakeholders	Organisations and individuals who can affect or are affected by SHE Transmission works.
Study Area	The area within which the corridor, route and alignment study takes place.

Term	Definition
System Planning Pathway	A system planning pathway looks at medium to long term network needs to determine electrical transmission infrastructure requirements (Development Pathway).
THC	The Highland Council. The Local Authority
The National Grid	The electricity transmission network in Great Britain.
Volts	The international unit of electric potential and electromotive force.
WTW	Water Treatment Works
Wayleave	A voluntary agreement entered into between SSEN Transmission and a landowner upon whose land an overhead line is to be constructed for the installation and retention of the transmission equipment.
Wild Land Area (WLA)	A series of 42 mapped areas which have been identified by Scottish Natural Heritage as comprising the most extensive areas of high wildness within Scotland, following a process of interpretive mapping and site survey. WLA is not a statutory designation but these areas are considered to be nationally important.

PREFACE

This Consultation Document has been prepared by ASH Design and Assessment Ltd (ASH) on behalf of by Scottish Hydro Electric Transmission plc (SHE Transmission), to seek comments from all interested parties on the proposed approach to meeting the electricity transmission infrastructure requirements and the preferred route for the proposed Coire Glas Grid Connection Project between the consented Coire Glas Pumped Storage Scheme and the existing Fort Augustus Substation.

The Consultation Document is available online at: https://www.ssen-transmission.co.uk/projects/coire-glas-connection-project/

Public consultation events detailing the proposals described in this document will be held at the following times and locations:

Invergarry Village Hall, Invergarry	Wednesday 4th May 2022	3pm – 7pm
Fort Augustus Village Hall, Fort Augustus	Thursday 5th May 2022	3pm – 6:45pm
Virtual Consultation	Monday 9th May 2022	5pm – 7pm

Comments on this document should be sent to:

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All comments are requested by 1700 hrs Monday 20th June 2022.

EXECUTIVE SUMMARY

This Consultation Document has been prepared by ASH Design and Assessment Ltd (ASH) on behalf of Scottish Hydro Electric Transmission plc (SHE Transmission) who, operating and known as Scottish and Southern Electricity Networks Transmission (**SSEN Transmission**), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

This Consultation Document invites comments from all interested parties on the proposals by SSEN to construct a new grid connection for the consented Coire Glas Pumped Storage Scheme to connect it to the National Electricity Transmission System at the existing Fort Augustus Substation. The project is also required as part of a wider rationalisation exercise to reduce the overall amount of grid infrastructure in the surrounding area.

The project being promoted is known as The Coire Glas Grid Connection Project.

The Coire Glas Grid Connection Project consists of four components, comprising:

- a new 400 kV switching station for the Coire Glas Pumped Storage Scheme;
- a new 132 kV / 400 kV substation at Loch Lundie (near Invergarry);
- a new 400 V overhead line (OHL) between the new 400 kV switching station and the new 400 kV / 132 kV substation; and
- a new 400 kV OHL between the new 132 kV / 400 kV substation and the existing Fort Augustus Substation.

The consented Coire Glas Pumped Storage Scheme being developed by SSE Renewables (SSER), comprises a hydro pumped storage scheme with a potential installed capacity of up to 1500 Megawatts (MW), maximising the potential of the site, and helping to meet electricity demand as the UK moves towards a net zero carbon energy system by 2050.

The Coire Glas Grid Connection Project is a separate project, which will facilitate the connection of the pumped storage scheme to the National Electricity Transmission System. This connection also helps to meet increased electricity demand and net zero carbon targets fixed by the Scottish and UK Governments to achieve net zero by 2045 and 2050 respectively. The policy objective of “net zero” is the reduction of carbon emissions by 100% from 1990 levels by 2050 in order to avoid the worst impacts of climate change and seeks to limit global warming to 1.5 degrees centigrade. This target applies to all sectors of the economy, including energy.

This Consultation Document describes the Coire Glas Grid Connection Project including:

- the Study Corridor selection process; and
- a review and appraisal of the route options, alignment, and site selection processes.

These were undertaken to decide on a Preferred Alignment having regard to environmental, engineering and economic constraints. The Consultation Document forms part of the consultation exercise which provides stakeholders and members of the public with the opportunity to provide feedback on the proposed electricity transmission infrastructure requirements and Preferred Alignment.

When providing comments and feedback on this Consultation Document, SSEN Transmission would be grateful for your consideration of the questions below:

- Have we adequately explained the need for this Project?
- Are you satisfied that our approach taken to selecting the Preferred Alignment and design solution has been adequately explained?

- Are there any factors, or environmental features, that you consider may have been overlooked during the route and alignment selection process?
- Do you have any other comments in relation to the drivers for the project, related to the transmission infrastructure requirements, or about the Preferred Alignment and design solution?

1. INTRODUCTION

1.1 Purpose of Document

1.1.1 This Consultation Document has been prepared by ASH Design and Assessment Ltd (ASH) on behalf of Scottish Hydro Electric Transmission plc (SHE Transmission) who, operating and known as Scottish and Southern Electricity Networks Transmission (**SSEN Transmission**), own, operate and develop the high voltage electricity transmission system in the north of Scotland and remote islands.

1.1.2 This Consultation Document invites comments from all interested parties on the proposals by SSEN to construct a new grid connection for the consented Coire Glas Pumped Storage Scheme to connect it to the National Electricity Transmission System at the existing Fort Augustus Substation. The project is also required as part of a wider rationalisation exercise to reduce the overall amount of grid infrastructure in the surrounding area.

1.1.3 The Coire Glas Grid Connection Project comprises the provision of the grid connection from the consented Coire Glas Pumped Storage Scheme to the existing Fort Augustus Substation at Auchterawe, where the pumped storage scheme will connect to the National Electricity Transmission System. The project consists of four components, comprising: a new 400 kV switching station for the Coire Glas Pumped Storage Scheme; a new 400 kV / 132 kV substation at Loch Lundie (near Invergarry); a new 400 kV overhead line (OHL) between the new switching station and the new substation; and a new 400 kV OHL between the new substation and the existing Fort Augustus Substation. The two new OHLs will consist of 400 kV steel lattice towers with an average height of 58.2 m. As the project comprises one grid connection, the two OHLs are referred to collectively in this Consultation Document as 'the new OHL'.

1.1.4 The consented Coire Glas Pumped Storage Scheme comprises a hydro pumped storage scheme being developed by SSE Renewables (SSER), with a potential installed capacity of up to 1500 Megawatts (MW). The Coire Glas Grid Connection Project is a separate project being developed by SSEN Transmission that will facilitate the connection of the Coire Glas Pumped Storage Scheme to the National Electricity Transmission System, also helping to meet increased electricity demand and net zero carbon targets fixed by the Scottish and UK Governments, to achieve net zero by 2045 and 2050 respectively.

1.1.5 This Consultation Document describes the Coire Glas Grid Connection Project including: the Study Corridor selection process and a review and appraisal of the route options, alignment, and site selection processes which were undertaken to decide on a Preferred Alignment having regard to environmental, engineering and economic constraints. The Consultation Document forms part of the consultation exercise which provides stakeholders and members of the public with the opportunity to provide feedback on the proposed electricity transmission infrastructure requirements and Preferred Alignment.

1.1.6 All comments received on this Consultation Document will inform further consideration and assessment of the preferred route, and subsequent work on the proposed alignment, and OHL design considerations.

1.2 Document Structure

The Consultation Document is structured as follows:

Chapter 1: Introduction - setting out the purpose of the Consultation Document as well as the project background, document structure and the next steps;

Chapter 2: Project Need and Overview – describes the need for the proposed transmission project, the proposed development solution, access requirements and the typical construction methods;

Chapter 3: Corridor, Route, Alignment and Site Selection Process – describes the Study Corridor, Switching Station Search Area and Substation Search Area selection process, with reference to the SSEN Transmission

Route Selection and Site Selection guidance and the methodology used for the route, alignment, and site selection process;

Chapters 4: Study Corridor and Substation Search Areas – describes the environmental baseline used for the Study Corridor, Switching Station Search Area and Substation Search Area;

Chapters 5: Comparative Appraisal of Coire Glas Switching Station options- describes the switching station site options identified within the Coire Glas Switching Station Search Area during the site selection process and provides a comparative appraisal of these site options, which considers environmental, technical and economic factors, to identify the overall 'Preferred Site';

Chapters 6: Comparative Appraisal of Loch Lundie Substation options- describes the substation site options identified within the Loch Lundie Substation Search Area and provides a comparative appraisal of these site options, which considers environmental, technical and economic factors, to identify the overall 'Preferred Site';

Chapters 7-10: Routeing – describes the OHL route options identified within the Study Corridor and provides a comparative appraisal of these route options, which considers environmental, technical and economic factors, to identify the overall 'Preferred Route';

Chapters 11-13: Alignment – describes the OHL alignment options identified within the Study Corridor and provides a comparative appraisal of these alignment options, which considers environmental, technical and economic factors, to identify the overall 'Preferred Alignment'; and

Chapter 14: Consultation on the Proposal and Next Steps – invites comments on the route, alignment and site selection process and describes the next stage of the consultation process.

2. PROJECT NEED AND OVERVIEW

2.1 Introduction

This chapter provides an overview of the need for the Coire Glas Grid Connection Project, including an explanation of existing electricity transmission infrastructure in the area, the proposed development solution and other related work.

2.2 The Need for the Project

2.2.1 The consented Coire Glas Pumped Storage Scheme, being developed by SSER, is a new pumped storage hydro scheme located to the north of Loch Lochy, with a potential capacity of up to 1500 MW currently contracted a with capacity for 1296MW/1300MW generating/pumping. It will be one of the first large-scale pumped storage scheme to be developed in the UK for more than 30 years.

2.2.2 SSER have applied to The National Grid Electricity System Operator (ESO) for a grid connection for the Coire Glas Pumped Storage Scheme. As part of its Statutory and Transmission Licence obligations as Transmission Owner (TO) SSEN Transmission under Schedule 9 of the Electricity Act 1989 have to develop and maintain an efficient, coordinated and economical electrical transmission system in its licensed areas and as such SSEN Transmission are developing the connection arrangement for the Coire Glas Pumped Storage Scheme.

2.2.3 Feasibility and optioneering studies have been carried out to determine the most efficient solution for the connection of Coire Glas Pumped Storage Scheme to the National Electricity Transmission System. The solution must be compliant with the requirements of the Security Quality of Supply Standard (SQSS) which sets out the criteria and methodology for the planning and operation of the National Electricity Transmission System (NETS). The optimal solution requires new 400kV transmission infrastructure between the Corie Glas Pumped Storage location and the nearest point of connection onto the network which can accommodate the additional load, this is Fort Augustus substation at Auchterawa. NThe Coire Glas Grid Connection Project is required to facilitate the connection of the Coire Glas Pumped Storage Scheme to the National Grid at the existing Fort Augustus Substation, which will also help to meet increased electricity demand and meet net zero carbon targets fixed by the Scottish and UK Governments to achieve net zero by 2045 and 2050 respectively. The policy objection of “net zero” is the reduction of carbon emissions by 100% from 1990 levels by 2050 in order to avoid the worst impacts of climate change and seeks to limit global warming to 1.5 degrees centigrade. This target applies to all sectors of the economy, including energy. The Coire Glas Grid Connection Project is also required as part of a wider rationalisation exercise to reduce the overall amount of grid infrastructure in the surrounding area.

2.3 Proposed Development Solution

Proposed Development Solutions – 400 kV Grid Connection

2.3.1 Due to the generation capacity of the Coire Glas Scheme which requires to be transmitted to the National Electricity Transmission System, a 400 kV double circuit connection is required. The proposed engineering solution is a 400 kV double circuit OHL supported by steel lattice structures as this technology would provide a high capacity, low loss transmission circuit. This connection will use the same technology as the 400 kV circuits that currently come into Fort Augustus Substation from Beauly and Tummel.

Proposed Development Solutions – 400 kV Coire Glas Switching Station

2.3.2 The 400 kV Coire Glas Switching Station provides the point of connection between the consented Coire Glas Pumped Hydro scheme and the electricity Transmission system. It consists of outdoor 400 kV switchgear and a building which houses associated control panels and equipment. Gas Insulated Switchgear (GIS) that is

compliant with SSEN Transmissions SF_6 reduction policy is not currently available on the market at 400 kV, therefore Air Insulated Switchgear (AIS) technology is proposed.

Proposed Development Solutions – 400 kV / 132 kV Loch Lundie Substation

2.3.3 The 400 kV / 132 kV Loch Lundie Substation provides the facility to rationalise the existing 132 kV OHL from Fort William and Invergarry Power Station. These circuits will be diverted into the 132 kV side of the proposed substation and connected to the new 400 kV OHL to Fort Augustus via two new transformers. The corresponding sections of the existing 132 kV OHLs between the proposed new Loch Lundie Substation and the existing Fort Augustus Substation can then be decommissioned and removed. The proposed Loch Lundie Substation will consist of outdoor 400 kV switchgear, outdoor 132 kV switchgear, two 400 / 132 kV transformers and a building housing associated control panels and equipment. Gas Insulated Switchgear (GIS) that is compliant with SSEN Transmissions SF_6 reduction policy is not currently available on the market at 400 kV, therefore Air Insulated Switchgear (AIS) technology is proposed.

Alternative Design Solutions

2.3.4 A 400 kV underground cable connection between the proposed Coire Glas Switching Station and the proposed Loch Lundie Substation is not considered to be a feasible option due to both economic and technical reasons. Cables are more expensive than overhead lines and the terrain over which it would need to be installed offers significant challenges. There are also significant challenges post construction associated with undergrounding cables. When there is any maintenance or repairs required on the cable, locating and repairing faults underground can be difficult, with longer timescales for repair work.

Access Solutions

2.3.5 It is anticipated that traffic for the construction, maintenance and subsequent operation of the various elements of this project would reach the site via designated main access routes as described below:

- Access to the new 400 kV Coire Glas Switching Station site and the western section of the new OHL would be taken from the A87 then utilise the existing forestry track network at White Bridge;
- Access to the new 400 kV / 132 kV Loch Lundie Substation would be taken from the A82 and then utilise the existing forestry tracks located within the commercial forestry to the north of Invergarry. These tracks would require upgrading and extension;
- The existing, recently upgraded, access track which runs to the east of Loch Lundie, taken from Bridge of Oich would be utilised to access the central section of the new OHL; and
- The existing road through the settlement of Auchterawe and the existing main haul through the forestry at Auchterawe would be utilised to access the eastern section of the new OHL. Some sections of these tracks would require upgrading.

2.3.6 At present it is too early in the development of this project to confirm the exact access track requirements for the Preferred Route of the OHL, but existing tracks will be utilised where possible to minimise disruption to habitats. Preference will also be given to lower impact access solutions including the use of low pressure tracked personnel vehicles and Trackway in boggy / soft ground areas to reduce any damage to, and compaction of, the ground. The access strategy will be further developed during the alignment selection process, following further design development and stakeholder consultation in advance of detailed assessments required for any forthcoming EIA Report and application for S37 consent under the Electricity Act 1989 and planning permission under the Town and Country Planning regime.

2.3.7 In addition to the main access routes described in Paragraph 2.3.5 above, a working access track would be required to access each 400 kV steel lattice tower. Access to tower locations is likely to require either stone tracks or upgrades to existing tracks. There is an operational requirement for permanent access tracks to be

provided to angle towers and cable pulling points whereas in-line or suspension towers will require temporary access.

2.3.8 Any temporary tracks built during construction of the Coire Glas Gird Connection Project would be restored as closely as possible to their pre-existing condition using natural regeneration techniques on completion of the works. The location of these access tracks will be developed during the alignment selection process, once indicative tower locations have been proposed.

2.4 Forestry Removal

2.4.1 Construction of the Coire Glas Grid Connection Project will require the removal of sections of commercial forestry. Felling would be undertaken in consultation with affected landowners. Scottish Forestry (SF) would also be consulted throughout the development of the project and the project would seek to adhere to the Scottish Government's Control of Woodland Removal Policy.

2.4.2 After felling, any timber removed that is commercially viable would likely be sold and the remaining forest material would be dealt with in a way that delivers the best practicable environmental outcome and is compliant with waste regulations. All forestry operations would be managed in-line with The UK Forestry Standard guidance.

2.4.3 An operational corridor would be required to enable the safe operation and maintenance of the OHL. The width of this corridor would vary depending on the type of woodland (based on species present) in proximity to the OHL, and the height of support structures used within each woodland area but is anticipated an 80 m operational corridor (40 m either side of the centre line of the OHL) would be sufficient for a 400 kV OHL through areas of commercial forestry. This operational corridor will be subject to further assessment as the project progresses. In areas of native woodland, it is usually possible to provide a narrower corridor due to a reduced risk of trees falling on the OHL.

2.5 Other Related Works

2.5.1 As part of a rationalisation exercise to reduce the overall amount of grid infrastructure in this area, it is proposed that a new substation would be constructed at Loch Lundie near Invergarry, into which the proposed 400 kV / 132 kV OHL from the Coire Glas Switching Station and the existing 132 kV Fort Augustus to Fort William OHL and 132 kV Invergarry Tee OHL would connect into. At this point the 132 kV Fort Augustus to Fort William circuit would be diverted into the new 400 kV / 132 kV Loch Lundie Substation and its capacity accommodated within the new 400 kV OHL circuit, meaning that the existing steel lattice towers for the 132 kV Fort Augustus to Fort William OHL could be dismantled to the north of the new substation location and there would only be one OHL approaching the existing Fort Augustus Substation at Auchterawe, from this direction.

2.5.2 To dismantle the existing 132 kV Fort Augustus to Fort William OHL, once the new 400kV OHL is commissioned, the following works would be required:

- The foundations would be removed up to 1.2 m below ground level by either felling or crane removal and the ground would be reinstated. Where possible, the existing towers will be removed via the existing access tracks,
- Any permanent access tracks would be reutilised for the Coire Glas Grid Connection Project where feasible. All other existing materials and above ground infrastructure would be removed from site.

2.5.3 The new 400 kV / 132 kV Loch Lundie Substation will also be built with spare capacity to allow the future connection of other renewable generation projects in the surrounding area.

2.6 Biodiversity Net Gain

2.6.1 Biodiversity Net Gain (BNG) is an approach to development, that aims to leave the natural environment in a measurably better state than it was before that development. Although it is an internationally recognised

process and tool within the development industry, it is not a term that is widely used or implemented in Scotland[2]. A small handful of businesses are making voluntary commitments to incorporating BNG into their projects, including SSEN Transmission.

2.6.2 SSEN Transmission has developed a BNG toolkit based upon the Natural England metric[3], which aims to quantify biodiversity based upon the value of habitats for nature. It is an efficient and effective method for demonstrating whether development projects have been able to maintain or increase the biodiversity value of a development site after construction works.

2.6.3 For BNG to be used appropriately and to generate long-term gains for nature, the good practice principles established by the Business and Biodiversity Offset Programme (BBOP)[4] should be followed. These principles have been established in the context of UK development by the Construction Industry Research and Information Association (CIRIA), the Chartered Institute for Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment (IEMA)[6].

2.6.4 BNG does not apply to statutory designated sites or irreplaceable habitats (e.g., ancient woodland[5], blanket bog)[6].

2.6.5 A high level BNG assessment has been undertaken at the Route Selection, Alignment Selection, Switching Station Site Selection and Substation Site Selection elements of this project, to provide an environmental appraisal of the impacts of different development options considered on biodiversity in line with the SSEN Guidance described in Chapter 3 of this Report. A more detailed BNG assessment will be undertaken in parallel with the EIA for the final 400 kV OHL alignment, as well as the final location of the 400 kV Coire Glas Switching Station and 400 kV / 132 kV Loch Lundie Substation.

2.7 Consultation Undertaken to Date

2.7.1 SSEN Transmission issued an Ornithology Scoping Letter to NatureScot on the 28th October 2021, setting out the scope and methodology of the proposed ornithology surveys for the Coire Glas Grid Connection Project. NatureScot provided a response on the 29th of November 2021.

2.7.2 SSEN Transmission held a virtual Pre-Application Meeting with The Highland Council (THC), NatureScot and SEPA to introduce the Coire Glas Grid Connection Project on 3rd November 2021. In response, THC issued a Pre-Application response on the 1st December 2021.

2.7.3 In response to the Pre-Application response from Historic Environment Scotland (HES), which recommended early consultation 'to discuss the proposed works and identify any requirements for scheduled monument consent (SMC) or particular mitigation measures to ensure that direct impacts are avoided', SSEN Transmission attended a virtual meeting with HES on 31st March 2022, to discuss the potential effects of the Preferred Alignment on the Torr Dhuin Scheduled Monument and potential mitigation measures.

[2] CIEEM. 2019. Biodiversity Net Gain in Scotland. CIEEM Scotland Policy Group. https://cieem.net/wp-content/uploads/2019/06/Biodiversity-Net-Gain-in-Scotland-CIEEM-Scotland-Policy-Group.pdf
[3] Natural England Biodiversity Metric 2.0 http://publications.naturalengland.org.uk/publication/5850908674228224
[4] Guidance Notes to the Standard on Biodiversity Offsets (2012). Business and Biodiversity Offsets Programme (BBOP). https://www.forest-trends.org/wp-content/uploads/imported/BBOP_Standard_Guidance_Notes_20_Mar_2012_Final_WEB.pdf
[5] Categories 1a and 2a.
[6] CIRIA, CIEEM, IEMA (2019). Biodiversity Net Gain: Good practice principles for development, A Practical Guide. https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf

3. CORRIDOR, ROUTE, ALIGNMENT, AND SITE SELECTION PROCESS

3.1 Corridor, Route, and Alignment Selection

3.1.1 The approach to corridor, route and alignment selection has been informed by SSEN Transmission's guidance[7] which provides a framework to ensure environmental, technical and economic considerations are identified and appraised at each stage of the routeing process.

3.1.2 SSEN Transmission has developed and implemented this formal Guidance and procedure for routeing overhead lines and underground cables of 132 kV and above. The approach set out in this guidance is underpinned by the statutory obligations on SSEN Transmission to 'develop and maintain an efficient, coordinated and economical electricity transmission system in its licenced area' and in so doing, to 'have regard to the desirability of preserving the natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and protecting sites, buildings and objects of architectural, historic or archaeological interest; and do what they 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'.

3.1.3 These duties capture the principal objective of the route selection process, which is to balance technical and cost considerations with environmental considerations to select a proposed alignment which is economically viable, technically feasible, minimises impacts on important resources or features of the environment and reduces disturbance to those living in it, working in it, visiting it or using it for recreational purposes. The alignment also has to be capable of being granted consent by the Scottish Government. The guidance splits the routeing stage of a project into four principal stages, as follows:

- Stage 0: Routeing Strategy Development;
- Stage 1: Corridor Selection;
- Stage 2: Route Selection; and
- Stage 3: Alignment Selection.

3.1.4 Each stage is an iterative process and involves an increasing level of detail and resolution, bringing economic, technical and environmental considerations together in a way which seeks to achieve the best balance at each stage. The stages that are carried out can vary depending on the type, nature of and size of a project and consultation is carried out at each stage of the process.

3.1.5 The approach to the route and alignment selection process is set out in **Appendix 3.1** of this Consultation Document.

Engineering and Environmental Input

3.1.6 A detailed desk-based exercise (see Section 3.4) and site walkover survey to explore the advantages, disadvantages and constructability of OHL alignment options within the Preferred Route (selected at Stage 2: Route Selection) has been undertaken. Within the Preferred Route, SSEN Transmission OHL engineers developed a preferred OHL alignment. This OHL alignment has been identified by SSEN Transmission on the basis of it being the most technically feasible and economically viable alignment, giving due consideration to a range of technical and economic criteria which require to be taken into account in the construction and operation phases of a new OHL. This is referred to in this Report as the 'Baseline Alignment'.

3.1.7 Alternative OHL alignment options and design solutions (referred to as 'Alignment Variations') have been put forward by the Applicants' Environmental Consultant ASH, in conjunction with their technical specialists, as well

[7] SSEN Transmission (March 2018), Procedures for Routeing Overhead Lines of 132 kV and above (updated in September 2020)

as SSEN Transmission's project environment and engineering teams. These options were also considered by SSEN Transmission's OHL engineers and as part of the iterative alignment selection process.

3.1.8 In considering the potential environmental constraints which might affect the Baseline Alignment, as well as Alignment Variations and design solutions, the following tasks have been undertaken:

- Desk-based review (see Section 3.4) and targeted site survey by project landscape architects, ecologists, ornithologists, archaeologists, geologists and hydrologists to review alignment options and provide advice on variants or micrositing opportunities for positioning of towers and indicative construction access;
- Targeted Phase 1 / National Vegetation Classification (NVC) habitat surveys and protected species surveys to supplement existing data;
- Workshops with SSEN Transmission and environmental consultants to discuss alignment options and variants, prior to the identification of a Preferred Alignment and design solution;
- Site reconnaissance visits by the SSEN Transmission engineering team and environmental consultants to review alignment options; and
- Meetings with statutory consultees (as required) to present the Preferred Alignment and design solution and seek preliminary feedback.

3.2 Substation Site Selection

3.2.1 The approach to the selection of the sites for the proposed Coire Glas Switching Station and the proposed Loch Lundie Substation has been informed by SSEN Transmission's guidance[8] which sets out SSEN Transmission's approach to identification and selection of new substation sites.

3.2.2 SSEN Transmission has developed and implemented this formal Guidance and procedure for Substation Site Selection for Voltages at or above 132 kV. The approach set out in this guidance is underpinned by the statutory obligations on SHE Transmission to 'develop and maintain an efficient, coordinated and economical electricity transmission system in its licenced area' and in so doing, to 'have regard to the desirability of preserving the natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and protecting sites, buildings and objects of architectural, historic or archaeological interest; and 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'.

3.2.3 These duties capture the principal objective of the site selection process which is to facilitate the design, consenting, construction and operation of a substation in a manner that is technically feasible and financially viable whilst causing, on balance, the least disturbance during construction and operation to the environment and the people who live, work and use it for recreation.

3.2.4 The guidance splits the principal site selection into stages, as follows:

- Stage 0: Pre-Site Selection Activities – Strategic Connections Options Appraisal;
- Stage 1: Initial Site Screening;
- Stage 2: Detailed Site Selection; and
- Post Site Selection Activities – Consenting Process.

[8] Substation Site Selection Guidelines for Voltages at or Above 132kV (July 2021)

3.2.5 The stages that are carried out can vary depending on the type, nature and size of a project and consultation is carried out during the process as appropriate.

3.2.6 The approach to the site selection process is set out in **Appendix 3.2** of this Consultation Document.

3.3 Areas of Search for OHL Route Corridor and Substation Sites

Area of Search - Corridor Selection

3.3.1 The Area of Search for the Study Corridor identified during Stage 1: Corridor Selection of the project, was largely defined by a broad area centred on the start point of the grid connection (the consented Coire Glas Pumped Storage Scheme), and end point (connection to the National Electricity Transmission System at Fort Augustus Substation at Auchterawe), and the general direction the OHL connection would require to be routed between the two, over a maximum distance of approximately 17.5 km. The Corridor Study Area is illustrated in **Figure 3.1.**

3.3.2 The Study Corridor identified within the Area of Search was developed following the identification of the constraints within the wider area which would make the construction of an OHL development unfeasible:

- Loch Lochy, Loch Oich to the east, as well as the eastern banks of these lochs, which rise up sharply towards the Monadhliath Mountains beyond;
- Several peaks and steep topography surrounding the consented Coire Glas Pumped Storage Scheme, including Ben Tee and the rising topography that surrounds Coire Glas itself;
- Loch Garry to the north of the consented Coire Glas Pumped Storage Scheme;
- Steep topography and existing wind farm infrastructure to the north-west of Invergarry.

3.3.3 The location of the key elements of the proposed Coire Glas Pumped Storge Scheme were also considered when defining the extent of the south-western extent of the Study Corridor area, whereas the north-easterly extent of the Study Corridor was defined by the location of the existing Fort Augustus Substation, where the Coire Glas Grid Connection Project would connect to the National Grid.

Area of Search - Route Selection

3.3.4 The Study Corridor identified during Stage 1: Corridor Selection (as illustrated in **Figure 3.1**), formed the Area of Search for Stage 2: The Route Selection Process. Within the Study Corridor, potential route options were identified and assessed for both sections of the OHL being assessed, which collectively comprise the new OHL.

Area of Search - Alignment Selection

3.3.5 The Preferred Routes identified during Stage 2: Route Selection formed the Area of Search for Stage 3: Alignment Selection Process. Within the Preferred Route, the Baseline Alignment and the alignment variations were identified and assessed for both sections of the OHL being assessed which collectively comprise the new OHL.

Area of Search – Coire Glas Switching Station

3.3.6 The Area of Search for the proposed Coire Glas Switching Station, within which the identification and assessment of substation site options could be completed, was identified following a desk-based assessment (see Section 3.4). As the connection point identified for the consented Coire Glas Pumped Storage Scheme is the Fort Augustus Substation, approximately 17.5 km to the north-east, the identification of the Area of Search for the switching station largely focused on the area to the east and north-east of the location of the consented

Coire Glas Pumped Storage Scheme cavern power station. The proposed Coire Glas Switching Station Search Area is illustrated in **Figure 3.1.**

3.3.7 Within the Area of Search for the Coire Glas Switching Station, a more refined 'Preferred Search Area' was identified, to represent the area where a cable (within an underground tunnel) between the consented cavern power station and the new Switching Station site providing the point of connection, could feasibly 'surface. Outwith the 'Preferred Search Area', site options were considered to be limited to the area surrounding Loch Lochy due to the mountainous terrain to the north and steep slopes to the south resulting in considerable technical challenges to construction.

Area of Search – Loch Lundie Substation

3.3.8 The Area of Search for the Loch Lundie Substation, within which the identification and assessment of substation site options could be completed, was identified following a desk-based assessment (see Section 3.4). As the Loch Lundie Substation is proposed as part of a rationalisation project of OHLs in the area, the identification of the Area of Search for the substation largely focused on sites in the area around Loch Lundie where several existing OHLs converge and which offered reasonable access for construction and maintenance.

3.4 Desk Based Studies

3.4.1 Desk-based studies / exercises undertaken during the corridor, route, alignment and site selection processes included, but were not limited to, the following activities:

- Identification of environmental designated sites and other constraints, utilising GIS datasets available via NatureScot[9] Site Link[10];
- Identification of archaeological designations and other recorded sites, utilising GIS datasets available via Historic Environment Scotland[11][12], and Highland Historic Environment Record (HER)[13];
- SEPA interactive Flood Risk Mapping[14];
- Review of the Highland-wide Local Development Plan (2012)[15] and West Highland and Islands Local Development Plan (2019)[16] to identify further environmental constraints and opportunities, such as regional level designations or other locations important to the public;
- Review of landscape character assessments of relevance to the Study Corridor[17];
- Review of Native Woodland Survey of Scotland and Ancient Woodland Inventory data sets[18];
- Review of Ordnance Survey (OS) mapping (1:50,000 and 1:25,000 and online GIS data sources from OS OpenData) and aerial photography (where available) to identify other potential constraints such as settlement, properties, walking routes, cycling routes, habitats, etc;
- Extrapolation of OS GIS data to identify further environmental constraints including locations of watercourses and waterbodies, roads classifications and degree of slope;
- Review of environmental information relating to the Coire Glas Pumped Storage Scheme; and

[9] Scottish Natural Heritage (SNH) became NatureScot on 24 August 2020
[10] SNH. SNHi Site Link. [online] Available at: https://sitelink.nature.scot/home [Last Accessed 12/05/2022]
[11] Historic Environment Scotland Data Services. Portal. [online] Available at: http://portal.historicenvironment.scot/
[12] Royal Commission on Ancient and Historical Monuments of Scotland. Canmore. [online] Available at:: http://canmore.rcahms.gov.uk/
[13] Highland Council Archaeology Service. Highland Historic Environment Record. [online] Available at: https://her.highland.gov.uk/
[14] Scottish Environmental Protection Agency. SEPA Flood Maps [online] Available at: http://map.sepa.org.uk/floodmap/map.htm
[15] Highland Council (2012), Highland-wide Local Development Plan
[16] Highland Council (2019), West Highland and Islands Local Development Plan
[17] NatureScot. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions
[18] Available at data.gov.uk

- Review of other local information through online and published media such as tourism sites and walking routes[19][20][21][22].

[19] Munro Magic [online] Available at: http://www.munromagic.com/
[20] Walk Highlands [online] Available at: http://www.walkhighlands.co.uk/
[21] Scotways [online] Available at: https://www.scotways.com/
[22] Sustrans [online] Available at: https://www.sustrans.org.uk/national-cycle-network

4. STUDY CORRIDOR AND SUBSTATION SEARCH AREAS

4.1 Introduction

4.1.1 This Section describes the baseline key environmental and technical constraints associated with the Study Corridor, the 400 kV Coire Glas Switching Station Search Area and the Loch Lundie 400 kV / 132 kV Substation Search Area, as illustrated in **Figure 3.1.**

4.2 Baseline Conditions – Study Corridor

4.2.1 The key environmental and technical constraints associated with the Study Corridor are described in the following paragraphs.

Local Context

4.2.2 The Study Corridor is located within the local authority area of The Highland Council and extends across the Great Glen between the western banks of Loch Lochy, near Laggan and Auchterawe, near Fort Augustus.

*Natural Heritage (See **Figure 4.1**)*

4.2.3 Loch Lundie forms the most westerly extent of the West Inverness-shire Lochs Special Protected Area (SPA)[23] and Site of Special Scientific Interest (SSSI)[24]. The western-most extent of Loch Garry, which also forms part of this SPA/SSSI, is also located within the Study Corridor. The West Inverness-shire Lochs SPA and SSSI is designated for breeding black-throated diver *Gavia arctica* and breeding Common Scoter *Melanitta nigra.*

4.2.4 There are several areas of woodland that are listed on Ancient Woodland Inventory (AWI) within the Study Corridor, particularly along the A82 and A87 between Bridge of Oich and White Bridge, within the forestry area at White Bridge and within the forestry surrounding Auchterawe.

*Ecology, Habitats and Ornithology (Refer to **Figures 4.1 and 4.6**)*

4.2.5 Abundant woodland and woodland edge habitat with the Study Corridor, provide suitable habitat for badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and bat species. Riparian zones provide suitable habitat for otter (*Lutra lutra*) and wet heath and mire habitats provide suitable habitat for water vole (*Arvicola amphibius*). Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten within the Study Corridor. Signs of otter were also recorded along minor burns and under bridges in forested areas.

4.2.6 In terms of habitat constraints, a principal consideration within the Study Corridor will be the avoidance of semi-natural and ancient woodland. Outside of the woodland areas, other sensitive habitats, including blanket and wet heaths have been identified within the Study Corridor in localised areas.

4.2.7 Ornithological constraints within the Study Corridor are limited by the presence of plantation woodland and presence of existing OHL infrastructure covering large areas of the Study Corridor. These plantation woodland areas have limited ornithological potential, although Goshawk *Accipiter gentilis* and Crossbill *Loxia curvirostra* may be present. The open moorland around Ben Tee has Golden Eagle *Aquila chrysaetos* and Merlin *Falco columbarius* as potential constraints. In addition to this, there is known historical eagle territory in the open area north of Loch Lundie.

4.2.8 Red-throated Diver (*Gavia stellata)* may use Loch Lundie to forage. Other protected species, such as Common Scoter and Slavonian Grebe (*Podiceps auratus)*, may be present on the loch for a short time between spring and autumn, as both species breed on small lochans along the Great Glen, including those to the west near

[23] NatureScot, 2022. West Inverness-shire Lochs SPA Available at: https://sitelink.nature.scot/site/9187 [Last accessed 12/05/2022]
[24] NatureScot, 2022. West Inverness-shire Lochs SSSI Available at: https://sitelink.nature.scot/site/9189 [Last accessed 12/05/2022]

Millennium Wind Farm. The West Inverness-shire Lochs SPA/SSSI, is also designated for breeding black-throated diver and breeding Common Scoter. Red-throated may also use Loch Lundie.

4.2.9 All open areas of moorland within the Study Corridor have potential for Merlin, Golden Plover (*Pluvialis dominica)*, and (Dunlin) *Calidris alpina.* Dunlin may be present in boggier areas, and Greenshank (*Tringa nebularia)* in pools along the watercourses. All these species are known to inhabit all adjacent moorlands from previous survey work in the surrounding area.

*Hydrology, Geology, Soils and Peat (refer to **Figures 4.4 and 4.5**)*

4.2.10 There are several large water bodies and watercourses located within the Study Corridor, including Loch Garry, Loch Lochy, Loch Oich, Loch Lundie, the River Garry, the River Tarff and the Caledonian Canal. There are also several burns and smaller watercourses / waterbodies located within the Study Corridor, as shown in **Figure 4.4**.

4.2.11 An OHL connection between the new 400 kV Coire Glas Switching Station and the new 400 kV / 132 kV Loch Lundie Substation would require tocross over the River Garry. The siting of this OHL crossing would require careful consideration in relation to flood risk and potential impacts on water quality.

4.2.12 Parts of the Study Corridor are covered by a mosaic of peatland comprising a large proportion of vegetation cover considered to be Class 2 priority peatland[25] (see **Figure 4.5**). Much of the peat located within forested areas will have been previously disturbed. Areas of Class 1 priority peatland[25] within the Study Corridor are limited to a few localised areas and are limited in extent.

4.2.13 Several known private water supplies (PWS) are located within the Study Corridor, mostly around North Laggan. Other PWSs and/or Scottish Water mains may be present further away from the main roads and settlements. A hydrology site walkover survey will be required to identify the location of PWS and mains water supplies.

4.2.14 The entire Aldernaig Burn catchment has been designated a Drinking Water Protection Area (DWPA)[26], Scottish Water abstract from Aldernaig Burn to supply their Invergarry Water Treatment Works (WTW).

*Cultural Heritage (See **Figure 4.1**)*

4.2.15 Two separate sections of the Caledonian Canal, which runs between Fort William and Inverness and is listed as a scheduled monument (SM), are present within the Study Corridor. One section is located at Laggan Locks between the eastern end of Loch Lochy and Loch Oich27 and the other section is between Loch Oich and Fort Augustus[424344].

4.2.16 Other designated cultural heritage sites within the Study Corridor include Invergarry Castle SM (SM 5481)28, Torr Dhuin (SM 794)29, the old bridge over the River Oich at Bridge of Oich (Category A Listed Building) (LB 1872: Oich, Old Bridge Over River Oich) and the Blar na Léine Inventory Historic Battlefield (BTL29)30.

*Landscape and Visual (refer to **Figures 4.2, 4.3 and 4.4**)*

[25] NatureScot, 2016. Carbon and Peatland 2016 Map. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map [last accessed 12/05/2022]

[26] SEPA, 2014. DWPA - Scotland RBD – surface water – Map 3 of 22 Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/map/2014/03/drinking-water-protected-areas-scotland-river-basin-district-maps/documents/surface-water-maps/ [last accessed 12/05/2022]

[27] HES 2022. Caledonian Canal, Laggan Locks to Loch Oich, Available at http://portal.historicenvironment.scot/designation/SM6494 [last accessed 12/05/2022]

[28] HES 2022. Invergarry Castle, Available at http://portal.historicenvironment.scot/designation/SM5481 [last accessed 12/05/2022]

[29] HES 2022. Torr Dhuin,fort,Fort Augustus, Available at http://portal.historicenvironment.scot/designation/SM794 [last accessed 12/05/2022]

[30] HES 2022. Blar na Léine Available at: http://portal.historicenvironment.scot/designation/BTL29 [last accessed 12/05/2022]

4.2.17 The Study Corridor contains several Landscape Character Types (LCTs)[31], as shown in **Figure 4.3**, including:

- LCT 220. Rugged Massif – Inverness;
- LCT 221. Rolling Uplands – Inverness;
- LCT 225. Broad Steep-Sided Glen;
- LCT 235: Broad Forested Strath;
- LCT 236: Smooth Moorland Ridges;
- LCT 237. Rocky Moorland – Lochabe;
- LCT 239: Interlocking Sweeping Peaks – Lochaber; and
- LCT 289: Upland Farmed Valleys.

4.2.18 The southern section of the Study Corridor is located within the Loch Lochy and Loch Oich SLA[32], as shown in **Figure 4.2**. In addition, the Braeroy - Glenshirra - Creag Meagaidh Wild Lands Area (WLA)[33] is located approximately 1 km south-east of the Study Corridor and the Kinlochhourne -Knoydart – Morar WLA is located approximately 1 km west of the Study Corridor.

4.2.19 There are several properties and other potentially sensitive visual receptors located within the Study Corridor. Residential properties are largely concentrated in Laggan, Invergarry, Fort Augustus and Auchterawe. There are also properties scattered along the A82, the A87 and other minor roads within the Study Corridor, as shown in **Figure 4.2**. There are also properties located within the forestry area at White Bridge, north-east of the proposed Coire Glas Switching Station Search Area and a few scattered properties, as well as the Faichemard Farm Caravan and Camping Site, at Faichem, located along the southern boundary of the proposed Loch Lundie Substation Search Area within an open area to the east of the forestry at Faichem, as shown in **Figure 4.2**.

*Land use, tourism, and recreation (refer to **Figure 4.4**)*

4.2.20 The Study Corridor is largely located within an area where the land is only capable of supporting rough grazing (Agricultural Land Classification (ALC) 6.3)[34].

4.2.21 The Study Corridor is largely comprised of vast areas of commercial forestry, as well as upland moorland. Forestry constraints are considered in Paragraph 4.2.25 – 4.2.27 below. The upland moorland areas of the Study Corridor, including around Loch Lundie and the moorland adjacent to the forestry area at White Bridge, are owned by Aberchalder Estate. The estate is managed for sporting activities, including red deer stalking and trout and salmon fishing. The estate also offers other recreational activities such as highland safaris, canoeing and clay pigeon shooting and has several self-catering holiday properties available for let[35].

4.2.22 Another key land use in the Study Corridor is the existing OHL and grid infrastructure, including the Fort Augustus / Fort William 132 kV OHL, the Fort Augustus to Skye T 132 kV OHL, the Quoich to Aberchalder 132 kV OHL, the Invergarry Tee 132 kV OHL, the Beauly Denny 400 kV OHL, the Bhlaraidh to Beinneun 132 kV OHL and the Auchterawe Substation. It is understood that once the new Loch Lundie Substation is operational, the Fort Augustus / Fort William 132 kV OHL will be removed between the Loch Lundie Substation

[31] Scottish Natural Heritage. (2019). Scottish Landscape Character Types Map and Descriptions [online] Available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions [last accessed 12/05/2022]

[32] Horner+Maclennan and Wood, Mike (2011). Assessment of Highland Special Landscape Areas. The Highland Council [last accessed 12/05/2022]

[33] SNH ,2017. Braeroy - Glenshirra - Creag Meagaidh Wild Lands Area. Available at https://www.nature.scot/sites/default/files/2021-06/Wild%20land%20Description%20Braeroy-Glenshirra-Creag-Meagaidh-July-2016-19.pdf [last accessed 12/05/2022]

[34] Macaulay Land use Research Institute (2010), Land Capability for Agriculture in Scotland Map. Available at: https://www.hutton.ac.uk/sites/default/files/files/soils/lca_map_hutton.pdf [last accessed 12/05/2022]

[35] Christopher Ellice, 2021. Aberchalder & Glengarry Estates. Available at: https://www.aberchalderestate.co.uk/ [Last accessed 22/07/2021]

and the Auchterawe Substation. The Fort Augustus to Skye T 132 kV OHL and the Quoich to Aberchaler 132 kV OHL will also be decommissioned following the completion of the Skye Reinforcement Project.

4.2.23 The Study Corridor is located within the Great Glen, a picturesque area of the Scottish Highlands between Fort William and Inverness which is popular with tourists, walkers and other recreational users. The wider area (including parts of the Study Corridor) is popular for water sports, such as sailing, canoeing and white-water rafting and fishing. Several popular recreational routes pass through the Study Corridor, including the Great Glen, the Caledonian Canal National Cycle Route 78 (NCR 78) and several other Core Paths. Mountain trails leading to the summits of Ben Tee, Sron a Choire Ghairbh and Meall na Teanga also pass through the southern section of the Study Corridor.

4.2.24 Fort Augustus, located to the north-east of the Study Corridor, is a popular tourist village and holiday destination located on the southern shore of Loch Ness. The settlement contains several hotels, B&Bs, shops, restaurants, a tourist information centre and a Golf Club. The Caledonian Canal Centre is also located in Fort Augustus.

*Forestry and Woodland (refer to **Figures 4.1 and 4.6**)*

4.2.25 There are several areas of commercial forestry within the Study Corridor, including:

- Part of Inchnacardoch Forest in the north-western area of the Study Corridor;
- A large area of forestry, known as Drynachan Wood, owned by the Woodland Trust[36], is present to the north of Invergarry;
- A large area of forestry at White Bridge, which is part of Glengarry Forest;
- Part of South Laggan Forest along the banks of Loch Lochy;

4.2.26 Smaller areas of forestry are also present along the western side of the A82, both between North Laggan and Invergarry and at Newtown. Most of the forestry within the Study Corridor is owned by Forestry Land Scotland (FLS) mainly comprises non-native conifer plantations. However, FLS are in the process of transitioning to the more native character woodlands.

4.2.27 Much of the forestry within the Study Corridor is listed on the AWI woodland and/or is recorded on the National Woodland Survey of Scotland (NWSS) as Native Woodland, Nearly Native Woodland or Plantations on Ancient Woodland Sites (PAWS) (illustrated on **Figure 4.6**). There are also several areas of Caledonian Pinewood located within the forested area at White Bridge, as well as a small area at Aberchalder.

Technical Constraints

4.2.28 A number of technical constraints are present within the Study Corridor, not least the presence of existing and proposed OHL and cable infrastructure. However, it is proposed that that once the new Loch Lundie Substation is operational, the Fort Augustus / Fort William 132 kV OHL will be removed to the north of the substation location. The 132 kV Fort Augustus to Skye T OHL and the 132 kV Quoich to Aberchalder OHL will also be decommissioned following the construction of the new permanent Fort Augustus to Skye Reinforcement Project, if consented.

4.2.29 Steep topography along the banks of Loch Lochy, Loch Oich and land at high altitude in the vicinity of Ben Tee and other summits within the Study Corridor also present a technical constraint for the Coire Glas Grid Connection Project. In particular, it would be technically challenging to build a large substation platform or an

[36] The Woodland Trust (2022). Drynachan. Available at: https://www.woodlandtrust.org.uk/visiting-woods/woods/drynachan/ [Last accessed 03/05/2021]

OHL on the steep, forested slopes to the north of Loch Lochy. The presence of several large waterbodies within, or adjacent to, the Study Corridor also present a technical constraint for an OHL route.

4.3 Baseline Conditions – 400 kV Coire Glas Switching Station Search Area

4.3.1 The key environmental and technical constraints associated with the 400 kV Coire Glas Switching Station Search Area are described in the following paragraphs.

Local Context

4.3.2 The 400 kV Coire Glas Switching Station Search Area extends across the Great Glen between the western banks of Loch Lochy, near Laggan and the Forestry at White Bridge, near Invergarry.

*Natural Heritage (See **Figure 4.1**)*

4.3.3 There are no ecological designations within the 400 kV Coire Glas Switching Station Search Area. However, Loch Garry, which forms part of the West Inverness-shire Lochs SPA and SSSI is located approximately 1 km north of the Search Area. Garry Falls SSSI[37] is also located approximately 1 km north-east of the Search Area, at White Bridge. Large areas of the commercial forestry and other woodland within the Search Area is listed on the AWI and/or is recorded on the NWSS. Most of the forestry at White Bridge also lies within the Glen Garry Caledonian Pinewood Regeneration Zones.

*Ecology, Habitats and Ornithology (Refer to **Figures 4.1 and 4.6**)*

4.3.4 In terms of habitat constraints, a principal consideration within the 400 kV Coire Glas Switching Station Search Area is the avoidance of semi-natural and ancient woodland. Outwith the woodland areas, a number of sensitive habitats, principally wet heaths and blanket bog have been identified at higher altitudes are found within the Search Area.

4.3.5 The wet heath and mire habitats within the Search Area may provide suitable habitat for water vole, although no water vole signs were recorded during Initial walkover surveys undertaken in August 2021.This woodland and woodland edge habitat within the Search Area would provide suitable habitat for badger, red squirrel, pine marten and bat species. Riparian zones within the Search Area may provide suitable habitat for otter.

4.3.6 The Search Area is located within close proximity to the nesting and foraging ranges for a breeding pair of Golden Eagle, which are protected under Schedule 1A. Other Schedule 1 bird species which could use the Search Area for breeding or hunting are likely to be limited to Merlin and Short-eared Owl (*Asio flammeus*), Osprey (*Pandion haliaetus*), Goshawk and Crossbill.

*Hydrology, Geology, Soils and Peat (refer to **Figures 4.4 and 4.5**)*

4.3.7 Watercourses within the Search Area include several tributaries of the River Garry and Loch Lochy, including the Allt Coire Bo'Chailein, Allt na Cailiche and Allt a'Choire Ghlais as well as several unnamed, minor watercourses.

4.3.8 Priority peatland mapping1 above indicates that the central section of the Search Area to the north-east of the consented Power Station cavern location, extends across significant area of Class 2 priority peatlands. Class 2 peatland are considered nationally important carbon-rich soils, deep peat and priority peatland habitats that are likely to be of high conservation value.

[37] NatureScot 2022. Garry Falls SSSI. Available at: https://sitelink.nature.scot/site/675 [Last Accessed 12/05/2022]

4.3.9 SEPA floodplain mapping[38] indicates that there are floodplains associated with the larger watercourses in the Search Area. However, these floodplains are rarely extensive and generally confined to the watercourse channels.

4.3.10 There are several registered PWSs associated with properties along the western banks of Loch Lochy, such as at Kilfinnan. However, none of these PWSs fall within the 400 kV Coire Glas Switching Station Search Area.

*Cultural Heritage (See **Figure 4.1**)*

4.3.11 There are cultural heritage designations within the 400 kV Coire Glas Switching Station Search Area. However, the western extent of the Blar na Léine Inventory Historic Battlefield (BTL29)[30] is located immediately north-east of the South Laggan Forrest, just outside of the Search Area. Blar na Léine is the location of a historic battle between different highland clan groups and is significant as a classic example of the internecine tribal warfare[39].

*Landscape and Visual (refer to **Figures 4.2, 4.3 and 4.4**)*

4.3.12 The 400 kV Coire Glas Switching Station Search Area contains two LCTs[31]:

- LCT 235: Broad Forested Strath;
- LCT 239: Interlocking Sweeping Peaks – Lochaber.

4.3.13 Approximately 50% of the 400 kV Coire Glas Switching Station Search Area is located within the Loch Lochy and Loch Oich SLA[32].

4.3.14 There are no settlements, residential properties or public roads within the Search Area. However, there is at least one occupied at Glenluire within the forestry at White Bridge, located approximately 150 m north-east of the Search Area.

*Land use, tourism, and recreation (refer to **Figure 4.4**)*

4.3.15 The Search Area is located within an area of land which is only capable of supporting rough grazing (Land Capability for Agriculture (ALC) 6.3)[34].

4.3.16 The Great Glen Way, NCR 78 and a Scottish Hill Track used by walkers climbing the summits of Sròn a' Choire Ghairbh and Meall na Teanga, all pass through the southern section of the 400 kV Coire Glas Switching Station Search Area along the western bank of Loch Lochy.

4.3.17 To the north of the Search Area the main haul road within the forestry at White Bridge is classified as a Scottish Hill Track and is used by walkers climbing Ben Tee, Sròn a' Choire Ghairbh and Meall na Teanga. There are also several footpaths, which would pass through the open moorland area in the central part of the Search Area. This land is also owned by Aberchalder Estate and is managed for commercial Highland sports, such as Red Deer stalking[35].

*Forestry and Woodland (refer to **Figures 4.1 and 4.6**)*

4.3.18 South Laggan Forest is an area of commercial forestry owned by FLS, which runs along the lower slopes of the western banks of Loch Lochy within the southern section of the 400 kV Coire Glas Switching Station Search Area.

4.3.19 The northern section of the Search Area is located within the forestry at White Bridge, which is part of Glengarry Forest. This area of forestry is managed by FLS under the Glengarry Land Management Plan (LMP)[40] and includes mid rotation, upland commercial conifers, mainly Sitka spruce and Lodgepole pine. Scots pine and

[38] SEPA (2022): *River and Coastal Flood Map*. Available at: https://map.sepa.org.uk/floodmap/map.htm [Accessed 12/05/2022]
[39] HER (2012*), Blar na Léine*. Available at: http://portal.historicenvironment.scot/designation/BTL29 [Last Accessed 16/12/2021]
[40] FLS (2013). Glen Garry Land Management Plan. Available at https://forestryandland.gov.scot/what-we-do/planning/active/glengarry-land-management-plan [Last Accessed 12/05/2022]

birch trees are also present. Large areas of the commercial forestry and other woodland within the Search Area is listed on the AWI and/or is recorded on the NWSS. Most of the forestry at White Bridge also lies within the Glen Garry Caledonian Pinewood Regeneration Zones.

Technical Constraints

4.3.20 The southern / south-eastern extent of 400 kV Coire Glas Switching Station Search Area extends to the western banks of Loch Lochy, where the tailrace, jetty and administration building for the consented Coire Glas Pumped Storage Scheme are proposed. This area includes the extremely steep topography of the slopes surrounding Loch Lochy.

4.3.21 The central area of the Search Area extends across approximately 3 km of steep, mountainous, open terrain, including the lower slopes of Ben Tee, the elevated ridgeline of Meal nan Dearcag (689 m AOD) and the valley surrounding the Allt Glas-Dhoire watercourse, to reach the forestry at White Bridge.

4.4 Baseline Conditions – Loch Lundie 132 / 400 kV Substation Search Area

4.4.1 The key environmental and technical constraints associated with the 400 kV / 132 kV Loch Lundie Substation Station Search Area described in the following paragraphs.

Local Context

4.4.2 Loch Lundie is situated to the north of Glen Garry, approximately 2.5 km north-west of the village of Invergarry. The Loch Lundie 400 kV Substation Station Search Area surrounds the area around Loch Lundie.

Natural Heritage

4.4.3 Loch Lundie forms part of the West Inverness-shire Lochs SPA and SSSI. Localised areas of commercial forestry and other woodland areas within the Search Area are listed on the AWI and/or are recorded on the NWSS.

*Ecology, Habitats and Ornithology (Refer to **Figures 4.1 and 4.6**)*

4.4.4 In terms of habitat constraints, a principal consideration within the 400 kV Loch Lundie Substation Search Area will be the avoidance of semi-natural and ancient woodland. Outside of the woodland areas, a number of sensitive habitats, principally wet heaths and blanket mire have been identified within the Search Area.

4.4.5 The wet heath and blanket mire habitats within the Search Area may provide suitable habitat for water vole and riparian zones within the Search Area may provide suitable habitat for otter. The woodland and woodland edge habitat within the Search Area would provide suitable habitat for badger, red squirrel, pine marten and bat species. No protected species signs were recorded in the Search Area during Initial walkover surveys undertaken in August 2021.

4.4.6 Loch Lundie forms the most westerly extent of the including the West Inverness-shire Lochs SPA/SSSI, which is designated for breeding black-throated diver and breeding Common Scoter. Red-throated Diver may also use Loch Lundie. Other protected species, such as Common Scoter and Slavonian Grebe, may be present on the loch for a short time between spring and autumn, as both species breed on small lochans along the Great Glen, including those to the west near Millennium Wind Farm. The plantation woodland areas of the Search Area will have limited ornithological potential, although Goshawk and Crossbill may be present.

*Hydrology, Geology, Soils and Peat (refer to **Figures 4.4 and 4.5**)*

4.4.7 Watercourses within the Search Area include Loch Lundie, Lochan Doire Cadha and the Aldernaig Burn, as well as several unnamed, minor watercourses and tributaries of Loch Lundie. The entire Aldernaig catchment,

which includes Loch Lundie and the Aldernaig Burn, is designated a DWPA[26], Scottish Water abstract from Aldernaig Burn to supply their Invergarry WTW.

4.4.8 Priority peatland mapping[25] indicates there are areas of Class 1 and Class 2 priority peatlands within the Search Area, particularly around Loch Lundie, around Lochan Doire Cadha and the open moorland areas to the north of the Search Area, Class 1 and Class 2 priority peatlands are considered to be nationally important carbon-rich soils, deep peat and priority peatland habitat that are likely to be of high conservation value.

4.4.9 SEPA floodplain mapping[38] indicates that there are floodplains associated with the larger watercourses in the Search Area. However, these floodplains are rarely extensive and generally confined to the watercourse channels.

4.4.10 There are no registered PWSs within the 400 kV Loch Lundie Substation Search Area.

Cultural Heritage

4.4.11 There are no cultural heritage designations within the 400 kV Loch Lundie Substation Search Area.

*Landscape and Visual (refer to **Figures 4.2, 4.3 and 4.4**)*

4.4.12 The 400 kV Loch Lundie Substation Search Area contains two LCTs:

- LCT 235: Broad Forested Strath; and
- LCT 237. Rocky Moorland – Lochaber.

4.4.13 There are no sites designated for landscape purposed within the 400 kV Loch Lundie Substation Search Area.

4.4.14 There are no settlements or public roads within the 400 kV Loch Lundie Substation Search Area. There are a few scattered properties near Faichem, along the south-western extent of the Search Area.

*Land use, tourism, and recreation (refer to **Figure 4.4**)*

4.4.15 The 400 kV Loch Lundie Substation Search Area is located within an area of land which is only capable of supporting rough grazing (ALC 6.3)[34].

4.4.16 A Core Path and Scottish Hill Track route between Invergarry and Fort Augustus crosses through the Search Area to the east of Loch Lundie,

4.4.17 The land surrounding Loch Lochy is owned by Aberchalder Estate and is managed for commercial Highland sports, such as Red Deer stalking[35]. Loch Lundie is also used for brown trout fishing.

*Forestry and Woodland (refer to **Figures 4.1 and 4.6**)*

4.4.18 The eastern extent of the 400 kV Loch Lundie Substation Search Area is dominated by an area of commercial forestry plantation, located to the north of Invergarry. This area of forestry includes areas of mid-rotation commercial forestry, mainly Sitka spruce and lodgepole pine with some larch.

4.4.19 Outside of this large block of commercial forestry, there are also several smaller areas of woodland present within the are also present within the Study Area, many of which are listed on the AWI and/or are recorded on the NWSS.

Technical Constraints

4.4.20 The presence of existing and proposed OHL infrastructure presents a technical constraint within the 400 kV Loch Lundie Substation Search Area. However, as has been previously described, it is intended that once the new Loch Lundie Substation is operational, the Fort Augustus / Fort William 132 kV OHL will be removed to the

north of the substation location. The Fort Augustus to Skye T 132 kV OHL and the Quoich to Aberchalder 132 kV OHL will also be decommissioned following the completion of the Skye Reinforcement Project.

5. COMPARATIVE APPRAISAL OF COIRE GLAS SWITCHING STATION SITE OPTIONS

5.1 Introduction

5.1.1 The 400 kV Coire Glas Switching Station is required as part of the Coire Glas Grid Connection Project to connect the consented Coire Glas Pumped Storage Scheme to the proposed 400 kV OHL, which will connect to the National Electricity Transmission System at the existing Fort Augustus Substation, at Auchterawe. As described in Paragraphs 3.3.6 and 3.3.7, an Area of Search for the switching station site was identified following a desk-based exercise (see Section 3.4), which largely focused on the area to the east and north-east of the location of the Power Station cavern, within the consented Pumped Storage Scheme. The Coire Glas Switching Station Search Area within the wider Study Corridor is illustrated in **Figure 5.1.**

5.1.2 This Section describes the potential site options for the switching station identified within the Search Area during the site selection process described in Section 3.2, and provides an appraisal of these sites, leading to the identification of a Preferred Site.

5.2 Identification of Site Options

5.2.1 As part of Stage 1: Initial Site Screening of the Site Selection process described in Section 3.2, a workshop was undertaken in June 2021 to identify the Switching Station Search Area for the 400 kV Coire Glas Switching Station. Following this workshop four potential switching station sites were identified, as follows:

- 1: Site Option CG1 (National Grid Reference (NGR) NH 226428, 800418) would be located within the forestry at White Bridge, near the existing haul road. Site Option CG1 was developed in conjunction with SSER as the developer of the consented Pumped Storage Scheme, as it is located close to where the proposed cable tunnel for the pumped storage scheme would surface and is also located in the area where a borrow pit and construction compound are proposed, which would mean that the new switching station could be constructed in an area of ground that has already been disturbed.
- 2: Site Option CG2 (NGR NH 227013, 800290) would be located within an existing quarry within the forestry at White Bridge, near the existing forestry access track.
- 3: Site Option CG3 (NGR NH 225903, 797848) would be located in an area of open moorland adjacent to the forestry at White Bridge. Site Option CG3 is located in an area where a borrow pit for the consented Coire Glas Pumped Storage Scheme is proposed, which would mean that the new switching station could be constructed in an area of ground that has already been disturbed.
- 4: Site Option CG 4 (NGR NH 225381, 793863) would be located on the western banks of Loch Lochy, near the proposed infrastructure for the consented Coire Glas Pumped Storage Scheme.

5.2.2 Following a site visit undertaken in July 2021 and the Initial Site Screening Stage of the project (see Section 3.2), Site Option CG2 was ruled out of consideration as it was considered that the existing quarry within the forestry at White Bridge was not large enough to accommodate the proposed switching station and associated infrastructure. A more detailed description of the environmental conditions prevailing at the other site options is provided in **Appendix 5.1**. Figure 5.2 illustrates these site options in relation to the consented Coire Glas Pumped Storage Scheme Infrastructure.

5.3 Environmental Considerations

5.3.1 The key environmental considerations in the site selection of the 400 kV Coire Glas Switching Station include:

- Minimising potential impacts on the Loch Lochy and Loch Oich SLA[32];
- Minimising potential impacts on sensitive habitats (including groundwater dependent terrestrial ecosystems), the water environment and avoidance of areas of deep peat where practicable;

- Minimising potential impacts on European Protected Species such as Pine Martin, Otter and bats, other protected species such as reptiles, and protected bird species such as Merlin and Short-eared Owl;
- Avoiding area of flood risk around watercourses and waterbodies;
- Minimising potential direct or settings impacts on cultural heritage features and designated sites;
- Minimising impacts (particularly noise and visual amenity) on residential or tourism properties, particularly at Glenluie and Kilfinnan;
- Minimising direct or visual impacts on recreational users of the surrounding landscape, particularly users of the Great Glen Way, the NCR 78, the Caledonian Canal and those accessing the peaks and summits in the surrounding are, including Ben Tee;
- Potential effects on commercial forestry plantations;
- Minimising potential impacts on classified area of woodland, including woodland listed on the AWI and or recorded on the NWSS and Caledonian Pine Forest.

5.4 Technical Considerations

5.4.1 The key technical considerations in the site selection of the 400 kV Coire Glas Switching Station include:

- A basic requirement of an OHL is to carry the desired power at maximum efficiency. The electrical line losses are proportional to the length. Ideally the substation location should be such that the line is the shortest length where possible.
- Minimise the impact when terminating the existing OHL into the new substation. The proposesd location will reduce the number of new towers required terminate the lines into the new substation
- The topography of the substation site is chosen to minimise the construction impact and reduce the health and safety risk during the installation of the substation

5.5 Site Options Appraisal (See Figures 5.3 - 5.5)

*Environmental Appraisal (See **Appendix 5.1**)*

5.5.1 None of the site options considered are located within any regionally, nationally, or internationally designated sites for ecological purposes. Loch Garry, which forms part of the West Inverness-shire Lochs SPA/SSSI[2324], is located within 1 km of Site Option CG1. However, this site option lies within the Allt Ruighe Bhlàir catchment, which discharges into the River Garry downstream of Loch Garry, as such Site Option CG1 is not hydrologically connected to the West Inverness-shire Lochs SPA/SSSI.

5.5.2 Site Option CG3 would be the most constrained site option in relation to habitats, due to the dominance of wet heath habitat, which is identified as an Annex 1 habitat, within this site option and the surrounding area. Although, small areas of wet heath were also identified within the vicinity of Site Options CG1 and CG4, it is anticipated that impacts on these sensitive habitats could be eliminated or reduced at both of these sites by micro-siting infrastructure and/or adopting appropriate mitigation.

5.5.3 In relation to BNG, irreplaceable habitats are not present within any of the site options considered. However, a switching station development at any of these sites would be likely to result in losses of habitats considered to be habitats of High distinctiveness. If such habitats are not mitigated through replacement with habitats of equivalent or better distinctiveness, the development cannot meet No Net Loss (NNL) of biodiversity under BNG guidance.

5.5.4 Site Option CG3 would be constrained on ornithological grounds due to the potential presence of breeding or hunting protected species, including Merlin and Short-eared Owl. It is not anticipated that ornithology would pose a particular constraint to a switching station development at either Site Option CG1 or Site Option CG4,

which are both located with commercial forestry plantations. However, pre-construction surveys will need to be undertaken for any Site Option taken forward as the Proposed Site (once selected).

5.5.5 No peat soils of conservation value[25] are located at any if the site options considered, although. areas of Class 2 Priority Peatlands are recorded downhill of Site Option CG3. Site Option CG4 is considered to be the least Preferred Site Option in relation to Geology, Hydrology and Hydrogeology due to the flood risk associated with the Allt Glas Dhoire and Loch Lochy at this location.

5.5.6 None of the site options considered are anticipated to have any direct or settings impacts on any cultural heritage designations. There is one non-designated heritage asset CG1 (HER entry MHG22917[41]) within micrositing buffer for Site Option CG1.

5.5.7 Site Option CG1 is considered the preferred site option, as a switching station in this location from a landscape and visual perspective as it would be unlikely to affect any designated area and is unlikely to result in very notable visual effects from nearby receptors. The site also offers good opportunity for mitigation to limit visual effects.

5.5.8 Site Option CG4 would be located within the Loch Oich and Loch Lochy SLA[32]. Although the switching station would be seen in the context of the lower works outfall area features of the consented Coire Glas Pumped Storage Scheme, the earthworks required to create a platform in this area would lead to considerable disturbance of the highly visible consistently steep, regular slope, which is a Special Quality of the SLA. Site CG4 would also be located within LCT 239 (Interlocking Sweeping Peaks)[31], which is considered to have Medium-High sensitivity to this type of development and would be visible from a number a highly sensitive visual receptors, including users of the A82, Loch Lochy, the Great Glen Way and properties at Loch Laggan.

5.5.9 Site Option CG3 is also located within LCT 239 and would be highly visible to those accessing Ben Tee and other mountain summits in the area, with limited opportunities for mitigation to limit visual effects, but is considered preferable to Site Option CG4.

5.5.10 Site Option CG3 would be the Preferred Option from a forestry and woodland perspective, as this site is located on an open moorland, and would therefore not be constrained by the presence of forestry, woodland or associated woodland classifications. Both Site Options CG1 and CG4 are located within commercial woodlands. However, Site Option CG1 would be the less preferred option, due to the potential impacts on areas of classified woodland within this site, including areas of woodland listed on the AWI, woodland recorded on the NWSS, and woodland located within the Glen Garry Caledonian Pinewood Regeneration Zone

*Technical Appraisal (See **Appendix 5.2**)*

5.5.11 From a technical perspective, all three site options would require similar supporting infrastructure (e.g. access road for construction and operation). Many technical factors that were assessed would have a similar impact across all three sites, however, the main differentiators between them were distance from the existing network (connectivity), topography and elevation. Overall, Site Option CG1 was assessed at being the Preferred Site Option when considering these factors, as it is closer to the existing network for connection and Distribution Network Operator (DNO) supplies, and at a lower elevation and closer to the public roads for both access for construction and operations and maintenance. The lower elevation also reduces the risk of restricted access during adverse weather and risk of weather-related faults on the connecting OHL.

Economic Appraisal

5.5.12 No economic appraisal has been undertaken for the switching station site option at this stage, as there is currently no differentiation between the design of the switching station at each site. In addition, no topographical or site investigation (SI) works have been undertaken to be able to identify differences in earthwork

[41] HER 2022, MHG 22917 Available at https://pastmap.org.uk/map [last assessed 12/05/2022]

requirements at each site. It is therefore assumed that there would be no cost difference for construction the 400 kV Switching Station at any of the site options considered.

5.6 Preferred Site

5.6.1 Overall, Site Option CG1 is considered to the Preferred Site Option for the proposed 400 kV Coire Glas Switching Station. Although Site Option CG1 would potentially impact classified areas of woodland within the forestry at White Bridge, compensatory planting could mitigate any loss. In addition to this, constructing the proposed switching station within the plantation woodland would provide good opportunities for mitigation to limit visual effects for receptors in the surrounding area, whereas it is anticipated that it would be difficult to achieve mitigation for visual effects at either Site Option CG3 or Site Option CG4.

5.6.2 Site Option CG1 is also the Preferred Option from a technical perspective, as it is closer to the existing network for connection and DNO supply from the local electricity distribution network, and closer to the public roads for both access for construction and operations and maintenance. As noted in Paragraph 5.2.1, Site Option CG1 was also developed in conjunction with SSER, the developer of the consented Pumped Storage Scheme, as it is located close to where the proposed cable tunnel for the pumped storage scheme would surface. The area where the tunnel could feasibly surface is constrained by gradient, as it will be utilised for operations and maintenance of the cable and potentially provide a secondary emergency access point.

5.6.3 Site Option CG3 is the overall least preferred option for the proposed Coire Glas Switching Station due to the dominance of wet heath habitat within this site, as well as potential high risk ornithological constraints associated with this site option. However, Site Option CG4 is considered the least preferred option in relation to landscape and visual effects and due to it's location within the Loch Oich and Loch Lochy SLA and the potential visibility of this site from a number a highly sensitive visual receptors.

6. COMPARATIVE APPRAISAL OF LOCH LUNDIE SUBSTATION SITE OPTIONS

6.1 Introduction

6.1.1 The 400 kV / 132 kV Loch Lundie Substation is required as part of the Coire Glas Grid Connection Project to connect the consented Coire Glas Pumped Storage Scheme to the National Electricity Transmission System at the existing Fort Augustus Substation, at Auchterawe. As described in Paragraph 3.3.8, an Area of Search for the substation site was identified following a desk-based exercise (see Section 3.4). The Loch Lundie Substation Search Area within the wider Study Corridor is illustrated in **Figure 6.1.**

6.1.2 This Section describes the potential site options for the switching station identified within the Search Area during the site selection process described in Section 3.2, and provides an appraisal of these sites, leading to the identification of a Preferred Site

6.2 Identification of Site Options

6.2.1 As part of Stage 1: Initial Site Screening of the Site Selection process described in Section 3.2, a workshop was undertaken in June 2021 to identify the Substation Search Area for the 400 kV / 132 kV Loch Lundie Substation. Following this workshop seven potential switching station sites were identified, as follows:

- 1: Site Option LL1(NGR NH 230305, 804557) would be located in an area of open moorland to the north of Loch Lundie. A small area of woodland would be located within the eastern extent of Site Option LL1;
- 2: Site Option LL2 (NGR NH 230984, 804307) would be located in an area of open moorland to the north-east of Loch Lundie;
- 3: Site Option LL3 (NGR NH 230678, 803878) would be located in an area of commercial forestry to the north-east of Loch Lundie;
- 4: Site Option LL4 (NGR NH 229052, 803761) would be located in an area of commercial forestry to the north-east of Loch Lundie;
- in an area of open moorland to the west of Loch Lundie;
- 5: Site Option LL5 (NGR NH 230313, 802708) would be located in an area of commercial forestry to the south-east of Loch Lundie;
- 6: Site Option LL6 (NGR NH 229888, 802600) would be located in an area of open moorland to the south-east of Loch Lundie; and
- 7: Site Option LL7 (NGR NH 22846, 802398) would be located in an area of open moorland and commercial forestry to the south-west of Loch Lundie.

6.2.2 Following a site visit undertaken in July 2021 and the Initial Site Screening Stage of the project (see Section 3.2), Site Option LL4 to the west of Loch Lundie was ruled out of consideration due to the potential impacts on the qualifying features of the West Inverness-shire Lochs SPA/SSSI, as well as anticipated likely significant landscape and visual effects and impacts on cultural heritage assets associated with this site option. A more detailed description of the environmental conditions at the other site options is provided in **Appendix 6.1**. These site options within the Substation Search Area are illustrated in Figure 6.2.

6.3 Summary of Key Environmental Considerations

6.3.1 The key environmental considerations the site selection of the 400 kV/132 kV Loch Lundie Substation include:

- Minimising potential impacts on the designating features of the West Inverness-shire Lochs SPA/SSSI;

- Minimising landscape and visual effects, including cumulative effects with existing grid infrastructure;
- Minimising potential impacts on sensitive habitats (including groundwater dependent terrestrial ecosystems), the water environment and avoidance of areas of deep peat where practicable;
- Minimising potential impacts on European Protected Species such as badger, pine martin, otter, water vole, red squirrel and bats and other protected species such as reptiles and bird species;
- Avoiding Area of flood risk around watercourses and waterbodies and avoiding potential impacts on the Aldernaig Burn catchment, which has been designated a DWPA;
- Minimising impacts (particularly noise and visual amenity) on residential properties, particularly at Faichem;
- Minimising direct or visual impacts on recreational users of the surrounding landscape, particularly users of the Core Path along the eastern banks of Loch Lundie;
- Potential effects on commercial forestry plantations; and
- Minimising potential impacts on classified area of woodland, including woodland listed on the AWI and or recorded on the NWSS.

6.4 Technical Considerations

6.4.1 The key technical considerations in the site selection of the 400 kV / 132 kV Loch Lundie Substation include:

- Construction access due to distance from public roads;

Operation and maintenance access due to distance from public roads

- DNO connection; and
- Topography.

6.5 Site Options Appraisal (*See Figures 6.3-6.5*)

*Environmental Appraisal (See **Appendix 6.1**)*

6.5.1 All sites are within close proximity to Loch Lundie which forms the most western extent of the West Inverness-shire Lochs SPA/SSSI[23][24]. Potential impacts on the designating features of this protected site (Black-throated Diver and Common Scoter), as well as Red-throated Diver (which may also use Loch Lundie) would require consideration at any of the site options considered. Site Options LL1, LL2 and LL3 would have potential for hydrological connectivity with the SPA/SSI at Loch Lundie via Aldernaig Burn. However, with good practice and control measures implemented, this is not anticipated to be a constraint to these site options.

6.5.2 Habitats are potentially a moderate constraint in Site Options LL1, LL2, LL6 and LL7 as these sites all contain blanket mire and wet heath habitats, which are identified as Annex 1 habitats. However, these habitats are widespread in the surrounding area and are generally not in good condition as a result of land management impacts. No significant extent of Annex 1 habitat has been identified in the vicinity of Site Options LL3 or LL5.

6.5.3 In terms of BNG, irreplaceable habitats may be affected by the footprint of Site Option LL6, with potential for avoidance considered low.All other site options avoid irreplaceable habitats and as such present preferred options based on BNG assessment at this stage.

6.5.4 Site Option LL2 would be located on an area of Class 2 Priority Peatlands[25] and areas of Class 2 peatlands are recorded downhill of Site Option LL1 on all sides. Site Option LL6 is absent of any peat soils of conservation

value but there are areas of Class 1 and Class 2 Priority Peatlands recorded within 100 m of this site option towards Loch Lundie. Peat is therefore considered a moderate constraint to each of these site options.

6.5.5 None of the site options considered are anticipated to have any direct or settings impacts on any cultural heritage designations or other known cultural heritage assets.

6.5.6 None of the site options considered are located within, or are likely to lead to any effects on, any areas covered by landscape designations. A substation at any of the site options considered would be visible from short sections of the Core Path and Scottish Hill Track route which passes to the east of Loch Lundie A potential substation in this location would increase the adverse effect of OHL infrastructure on the visual amenity of this route, although open views across Loch Lundie to the west would be likely remain unaffected.

6.5.7 Site Options LL1, LL2 and LL6 are all located in an open area of moorland where a substation would form a visible feature, however the existing grid infrastructure to the south and east of Loch Lundie already has some influence on the character of this area. However, unlike Site Options LL2 and LL6, Site Option LL1 would be located in an area that is currently free of any grid infrastructure. A substation at this location would be likely to spread the appearance of infrastructure to a new part of the landscape, increasing the surrounding influence of this type of development in the landscape around Loch Lundie and potentially forming a new visual focus from the Core Path to the east of Loch Lundie. Site Option LL1 is therefore the least preferred site option from a landscape and visual perspective.

6.5.8 Site Option LL7 is located on an area of moorland plateau, set on the edge of a forest and native woodland. Unlike other site options, views of Site Option LL7 would be relatively small and distant from the Core Path to the east of Loch Lundie at approximately 1 km away. However, additional OHL connections leading across the landscape would be required for to reach this site, creating additional effects over a wider area. Filtered views of a substation at this location would also potentially be obtained from a few properties and the caravan park at Faichem.

6.5.9 Site Options LL3 and LL5 are both located within areas of commercial forestry where sensitivity is slightly lower than the sites on the open moorland. However, Site Option LL3 would be likely to lead to a greater number of OHLs crossing the eastern banks of Loch Lundie Loch Lundie. Although the presence of the existing forestry would provide some opportunity to mitigate views at both sites, the proximity of Site Option LL3 to the existing OHL may limit such opportunities to the west of the site, where a Core Path is located. The more elevated position of Site Option LL3 may also lead to infrastructure appearing slightly more prominent Site Options LL5 is therefore the preferred site option from a landscape and visual perspective.

6.5.10 There is no commercial forestry or other woodland within either Site Option LL2. Commercial forestry and other woodland is largely avoided by Site Options LL1 and LL7, although these sites do overlap with small areas of woodland that is recorded on the NWSS. Site Options LL3, LL5 and LL6 are all located fully, or partially within mid-rotation commercial forestry to the north of Invergarry These site options would have some impact on commercial forestry returns. However, none of these sites are located within an area covered by any woodland designations.

*Technical Appraisal (See **Appendix 6.2**)*

6.5.11 From a technical perspective, all three site options would require similar supporting infrastructure (e.g. access road for construction and operation). Many technical factors that were assessed would have a similar impact across all six sites, however, the main differentiators between them were distance from the public road (for both construction, operation and maintenance), distance from the existing network (connectivity) and topography.

6.5.12 Site Options LL1, LL2 and LL3 would all be the least preferred options in relation to the distance from the public road as these sites would need to be accessed using the existing track on Aberchalder Estate, which would be expensive and difficult to upgrade for construction and transformer delivery and would be dependent on the

Estate agreeing to the upgrades. Site Options LL5 and LL6 would be accessed through the forestry to the north of Invergarry. There is a good existing junction with the A82 to access this area of forestry and existing forestry tracks could be utilised until about half-way through the forestry from the public road. However, a new access track would need to be constructed in the second half of the forestry to reach the sites. Site Option LL7 would be the preferred site option in relation to the distance from the public road, as this site would require the shortest route from public road and could be largely accessed via an existing forestry track through Munergie Wood.

6.5.13 All Site Options will require several kilometres of new 400 kV OHL circuits to connect to the Fort Augustus Substation. However, Site Options LL5 and LL6 offer the best sites for the existing Fort Augustus to Fort William 132 kV and the Invergarry Tee 132 kV circuits to connect into the new substation and are therefore the preferred site options in relation to proximity to existing infrastructure. Site Option LL7 would be the least preferred site option from this perspective, as several spans of new 132 kV OHL would be required along the southern banks of Loch Lundie to divert the existing Fort Augustus to Fort William OHL and the Invergarry Tee OHL into a substation at this location.

6.5.14 Site Option LL7 would be the preferred site option in relation to a DNO connection as this is the only site option that is close to a DNO network, whereas the other site option would all be approximately 1 km away from a DNO network. However, this is not considered an overriding consideration.

6.5.15 In relation to topography Site Option LL6 would be the Least Preferred Site Option as this site drops off very rapidly to the west and extensive fill would be required to construct a substation platform at this location. Site Options LL2 and LL7 would be the Preferred Site Options, as these are the sites with the least gradients across them and would require less cut and fill to construct a substation platform at these locations compared to the other site options.

Economic Appraisal

6.5.16 No economic appraisal has been undertaken for the switching station site option at this stage, as there is currently no differentiation between the design of the switching station at each site. In addition, no topographical or SI works have been undertaken to be able to identify differences in earthwork requirements at each site. It is therefore assumed that there would be no cost difference for construction the 400 kV / 132 kV Loch Lundie Substation at any of the site options considered.

6.6 Preferred Site

6.6.1 Overall, Site Option LL5 is considered to the Preferred Site Option for the proposed 400 kV / 132 kV Loch Lundie Substation. Although Site Option LL5 would potentially impact an area of commercial forestry to the north of Invergarry, none of this of this area of forestry is protected and compensatory planting could mitigate any loss. In addition to this, constructing the proposed switching station within the plantation woodland would provide good opportunities for mitigation to limit visual effects for receptors in the surrounding area, whereas it is anticipated that it would be difficult to achieve mitigation for visual effects at other locations, including Site Option LL3 which is also located within the forestry. In addition, no Annex 1 habitats or areas of Priority Peatland[25] have been identified at Site Option LL5.

6.6.2 From a technical perspective Site Option LL5 is the Preferred Option due to the proximity of this site to the present 132 kV circuits which will connect into the substation. The topology at this site is also considered better than most of the other site options and the access track would comprise of the upgrade and extension of existing forestry tracks, taken from a wide junction with the A87 with good visibility.

6.6.3 LL7 would be the next preferred site and in the areas of topography, access and DNO connection this Site Option scores better than Site Option LL5. Disadvantages of Site Option LL7 would be the proximity to residential properties and the caravan park at Faichem, which could lead to potential noise impacts from construction and from the substation transformers during operation, as well as potential adverse impacts on

visual amenity from residences. A substation at this Site Option would also require a diversion of at least 1 km of the existing 132 kV Fort Augustus to Fort William OHL and Invergarry Tee OHL along the southern banks of Loch Lundie. This diversion would be technically challenging to construct and would also likely lead to additional landscape and visual impacts over a wider area around Loch Lundie, although sensitivity may be locally reduced where existing OHLs are already prominent.

6.6.4 Site Option LL1 is considered is the least preferable option for the proposed 400 kV / 132 kV Loch Lundie Substation primarily because a substation at this site would likely spread the appearance of infrastructure to a new part of the landscape surrounding Loch Lundie, leading to adverse landscape and visual effects. In addition, this site would be constrained by the presence of sensitive habitats (including blanket mire, wet heath and woodland listed on the AWI), Class 2 Priority Peatland[25], and by being located within the Aldernaig catchment which is designated a DWPA. From a technical perspective Site Option LL1 would need to be accessed using the existing track on Aberchalder Estate, which would be expensive and difficult to upgrade for construction and transformer delivery and would be dependent on the Estate agreeing to the upgrades.

7. APPRAISAL OF ROUTE OPTIONS

7.1 Overview

7.1.1 A 400 kV grid connection is required as part of the Coire Glas Grid Connection Project to connect the consented Coire Glas Pumped Storage Scheme to the National Electricity Transmission System at the existing Fort Augustus Substation at Auchterawe. However, as part of a rationalisation exercise to reduce the overall amount of grid infrastructure in this area, it is proposed that a new 400 kV / 132 kV substation would be constructed at Loch Lundie near Invergarry, which both the proposed 400 KV OHL from the Coire Glas Switching Station and the existing 132 kV Fort Augustus to Fort William OHL would connect into. At this point the 132 kV Fort Augustus to Fort William circuit would be accommodated into the new 400 kV OHL circuit, meaning that the existing steel lattice tower for the 132 kV Fort Augustus to Fort William OHL could be dismantled to the north of the new substation location and there would only be one OHL approaching the existing Fort Augustus Substation, from this direction.

7.1.2 Chapters 8, 9 and 10 of this Report provide a comparative appraisal of the Route Options identified within the Study Corridor for the OHL grid connection element of the Coire Glas Grid Connection Project. For the purposes of this assessment the route options for the new OHL are assessed in two separate sections, split where the OHL would connect into the Loch Lundie Substation:

- Chapter 8: Route Options between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area (CG-LL Route Options); and
- Chapter 9: Route Options between the Loch Lundie Substation Search Area to the existing Fort Augustus Substation at Auchterawe (LL-FA Route Options).

7.1.3 Chapter 10 provides a further comparative appraisal of the route options required to connect the Preferred Route Options identified in Chapters 8 and 9 into the Preferred Switching Station Site and Substation Sites identified in Chapters 5 and 6 of this Report within the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area. Chapter 10 also identifies an Overall Preferred Route Option for the Coire Glas Grid Connection Project, which extends all the way from the Preferred Site of the 400 kV Coire Glas Switching Station to the exiting Fort Augustus Substation (via the Preferred Site for the 400 kV / 132 kV Loch Lundie Substation). The route options assessed in Chapter 10 are referred to as ‘Connection Route Options’.

7.1.4 Chapters 8, 9 and 10 are supported by the following Figures:

- Figure 7.1: Route Options
- Figure 7.2: Route Options - Natural Heritage and Cultural Heritage Constraints Figure 7.3 Route Options: Habitats
- Figure 7.4: Route Options - Landscape and Visual Constraints
- Figure 7.5: Route Options - Landscape Character
- Figure 7.6: Route Options - Land Use, Recreation and OHL Infrastructure
- Figure 7.7: Route Options - Peatland Classifications
- Figure 7.8: Route Options - Forestry and Woodland
- Figure 7.9: Preferred Route
- Figure 7.10a: Connection Route Option to Loch Lundie Substation Site Option LL7
- Figure 7.10b: Connection Route Option to Loch Lundie Substation Site Option LL5
- Figure 7.11a: Connection Route Option to Loch Lundie Substation Site Option LL7 - Environmental Constraints

- Figure 7.11b: Connection Route Option to Loch Lundie Substation Site Option LL5 - Environmental Constraints

8. ROUTEING – COIRE GLAS SWITCHING STATION SEARCH AREA TO LOCH LUNDIE SUBSTATION SEARCH AREA

8.1 Introduction

8.1.1 This Section describes the potential route options identified within Study Corridor between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area during the route selection process described in Section 3.1, and provides an appraisal of these routes, leading to the identification of a Preferred Route.

8.2 Identification of Route Options

8.2.1 As part of Stage 1: Corridor Selection of the Route Selection process described in Section 3.1, a workshop was undertaken in June 2021 to identify the Study Corridor for Coire Glas Grid Connection Project, as illustrated in **Figure 3.1.** Potential route options within the Study Corridor were constrained by:

- Loch Lochy, to the east, as well as the eastern banks of these lochs, which rise up sharply towards the Monadhliath Mountains beyond;
- Several peaks and steep topography surrounding the consented Coire Glas Pumped Storage Scheme, including Ben Tee and the rising topography that surrounds Coire Glas itself;
- Loch Garry to the north of the consented Coire Glas Pumped Storage Scheme; and
- Steep topography and existing wind farm infrastructure to the north-west of Invergarry.

8.2.2 Following desk-based exercises (see Section 3.4) and a site visit undertaken in July 2021, three potential route options between the proposed new 400 kV Coire Glas Switching Station Search Area and the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area were identified within the Study Corridor, as follows:

1. Route Option CG-LL1 - the most westerly route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area.
2. Route Option CG-LL2 - the central route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area.
3. Route Option CG-LL3 - the most easterly route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area.

8.2.3 These Route Options are illustrated in **Figure 7.1** and a more detailed description of each Route Option is included in **Appendix 8.1.**

8.3 Summary of Key Environmental Considerations

8.3.1 The key environmental considerations for the route selection between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area include:

- Minimising potential Impacts on the Loch Lochy and Loch Oich SLA;

- Minimising potential effects on the qualifying features of the West Inverness-shire Lochs SSSI and SPA and Garry Falls SSSI;
- Minimising potential impacts on sensitive habitats (including groundwater dependent terrestrial ecosystems), the water environment and avoidance of areas of deep peat where practicable;
- Minimising potential impacts on European Protected Species such as Pine Martin, Otter and bats, other protected species such as reptiles, and protected bird species such as Golden Eagle, Merlin and Short-eared Owl;
- Avoiding Area of flood risk around watercourses and waterbodies;
- Avoidance of potential effects on the Aldernaig Burn catchment, which has been designated as a DWPA;
- Minimising potential direct or settings impacts on cultural heritage features and designated sites, including the Blar na Léine (BTL29) Inventory Historic Battlefield and Invergarry Castle (SM5481);
- Minimising impacts (particularly noise and visual amenity) on residential or tourism properties, particularly at larger settlements such as Invergarry, Mandally and Faichem;
- Minimising direct or visual impacts on recreational users of the surrounding landscape, particularly users of the A82, the A87, the Great Glen Way, NCR 78, the Caledonian Canal and those accessing the mountain peaks and summits in the surrounding area, including Ben Tee;
- Potential effects on commercial forestry plantations; and
- Minimising potential impacts on classified area of woodland, including woodland listed on the AWI and/or recorded on the NWSS and Caledonian Pine Forest.

8.4 Technical Considerations

8.4.1 The key technical considerations for the route selection between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area include:

- Infrastructure Crossing, particularly over the A87; A netted protection scaffold will be required when constructing the OHL over the road. This will ensure that the road is protected when pulling conductor through the towers located on either side of the A87.
- Construction and Maintenance; the ease of access to each tower location during the construction work and the requirement for permanent access to angle tower for maintenance purposes post construction.
- Ground Conditions; ensuring where possible that the route avoids any areas that would be which would be difficult for construction purposes i.e. areas of deep peat or shallow rock.
- Connectivity to existing network; the proximity to existing infrastructure and the ability to rationalise the routes to minimise the number of routes terminating into substations, taking into account the capacity of each circuit.

8.5 Route Options Appraisal *(See Figure 7.2 – 7.8)*

*Environmental Appraisal (See **Appendix 8.1**)*

8.5.1 In the selection of a preferred route between the proposed new 400 kV Coire Glas Switching Station Search Area and the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area, forestry is identified as one of the most constraining factors. Route Option CG-LL1 is almost entirely routed through an area of commercial forestry, most of which is listed on the AWI, recorded on the NWSS and/or is located within the Glen Garry Caledonian Pinewood Buffer Zone. However, all routes would potentially have a significant impact on forestry

and woodlands, including areas of listed on the AWI and/or recorded on the NWSS. Therefore, forestry and woodland are considered to be a significant constraint to all of the route options considered.

8.5.2 A small section of the West Inverness-shire Lochs SPA/SSSI (at Loch Garry) and the Garry Falls SSSI are located within Route Option CG-LL1, whereas the other route options do not contain or have hydrological connectivity to any sites designated for ecological purposes. However, the designated sites within Route Option CG-LL1 collectively only have a very small footprint within the overall route option and it is anticipated that they could both be avoided through micrositing of the OHL within the route option, resulting in no adverse impacts on the qualifying features of these designated sites. Neither Route Option CG-LL2 or Route Option CG-LL3 contain any designated sites for ecological purposes.

8.5.3 Large pockets of blanket mire habitat exist on flatter plateaus and depressions on moorland areas within Route Options CG-LL2 and CG-LL3, whereas wet heaths dominate other open moorland within these routes. Both these habitat types are identified as Annex 1 habitats. Loss of woodland, including AWI woodland, is considered probable from routeing infrastructure through any of the route options.

8.5.4 In terms of BNG, irreplaceable habitats may be affected by a new OHL within all of the route options considered. If avoidance of impact on irreplaceable habitat is not achieved by the Proposed Development, the project cannot meet NNL of biodiversity under BNG guidance. Avoidance of irreplaceable habitat by a new OHL development within Route Options CG-LL1 and CG-LL3 are considered low, therefore Route Option CG-LL2 is the Preferred Route Option based on the BNG assessment at this stage.

8.5.5 All of the route options considered have the potential to be constrained by the presence of Merlin, Short-eared Owl, Osprey, Goshawk and Crossbill. The western extent of each of the route options considered is also within close proximity to Loch Lundie, which forms the most easterly extent of the West Inverness-Shire Lochs SPA/SSSI. A small section Loch Garry, which also forms part of this designated site is also located within Route Option CG-LL1, All of the route options therefore have the potential to be constrained by the presence of the qualifying species (Black-throated Diver and Common Scoter) of the West Inverness-Shire Lochs SPA/SSSI, as well as Red-throated Diver, which may also use Loch Lundie. Black Grouse are also present around Loch Lundie. Golden Eagle are known to be present in the open moorland around Ben Tee and the southern end of Route Option CG-LL3 would have the potential to be constrained by the golden eagle. Route Option CG-LL3 is therefore the least preferred route option from an ornithology perspective.

8.5.6 Areas of Class 2 Priority Peatland[25] are recorded at higher elevations within Route Options CG-LL2 and CG-LL3. Two small areas of Class 1 peatland are also recorded within Route Option CG-LL3.

8.5.7 There are PWS registered within and in close proximity and downgradient of all of the route options. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source. However, given the number of PWS sources and the steep surface gradients on the northern bank of Loch Lochy rapid water movement to PWS sources and pollution of these could occur if an OHL were to be constructed within Route Option CG-LL3.

8.5.8 There are no designated cultural heritage sites within either Route Option CG-LL1 or CG-LL2, with the exception of one Category C Listed Building within Route Option CG-LL1 and two Category B Listed Building in Route Option CG-LL2. In contrast, Route Option CG-LL3 would have the potential for direct and/or settings effects on an Inventory Historic Battlefield, a Scheduled Monument and up to 12 Category B and C Listed Buildings.

8.5.9 Route Option CG-LL3 would fall within the Loch Lochy and Loch Oich SLA[32] and would likely have an adverse impact on the Special Qualities of the designated site. Route Option CG-LL3 would also likely affect the

landscape character, as an OHL within this route option would cross the side slope of the Great Glen and would be very noticeable in the landscape.

8.5.10 Route Option CG-LL2 is located approximately 1 km from the boundary of the Loch Lochy and Loch Oich SLA. A steel lattice OHL within this route could potentially influence the experience of this SLA and would also form a noticeable feature in views from the summits of the surrounding mountains. In contrast, Route Option CG-LL1 would not affect any areas designated or otherwise protected for landscape purpose.

8.5.11 All three route options considered would have potential impacts on sensitive visual receptors. Route Option CG-LL1 would potentially be visible from the property at Glenluie, the A87 and from a parking and forest recreational area at White Bridge. Route Option CG-LL2, including likely wayleaves down the steep glen sides would be likely to appear prominent within views from properties around the west of Invergarry, and potentially Faichem, as well as the A87. Route Option CG-LL3 would potentially be visible from the A82 and the A87. An OHL development within this route would also be likely to appear prominent from some parts of the Caledonian Canal and the Great Glen Way. Towers would also be prominent in views from the initial parts of walking routes up Ben Tee and Sròn a Choire Ghairbh. Route Options CG-LL2 and CG-LL3 would also both have likely cumulative visual effects with the existing Fort William – Fort Augustus steel lattice OHL.

8.5.12 Route Options CG-LL2 and CG-LL3 both cross directly over the settlements of Mandally and Invergarry and it could be difficult to construct an OHL within either of these routes that is a sufficient distance from all properties located within, or in close proximity to the route option to avoid amenity impacts on these properties, such as noise impacts.

*Technical Appraisal (See **Appendix 8.2**)*

8.5.13 From a technical perspective, all three route options considered would cross over the A87 near Invergarry. In each case this would require a standard road crossing and during construction scaffold protection or other suitable protection methods would be required for conductor pulls. Rock is expected to be encountered within all three route options. However, within Route Options CG-LL1 and CG-LL2 there are relatively flat sections of topography, whereas in Route Option CG-LL3 there are steep side slopes down towards Loch Lochy and substantial cut and fill would be required to access this section of the route. Route Options CG-LL2 and CG-LL3 would cross populated areas where there would be a greater risk of encountering underground services than within Route Option CG-LL1.

*Economic Appraisal (See **Appendix 8.3**)*

8.5.14 From an economic perspective Route Option CG-LL1 is the Preferred Route Option, as it is the shortest route and therefore represents the Least Cost Option.

8.6 Preferred Route (*See Figure 7.9)*

8.6.1 Route Option CG-LL1 is **the Preferred Route** for the grid connection between the Coire Glas Switching Station Search Area and the new Loch Lundie Substation Search Area. The selection of Route Option CG-LL1 as the Preferred Route is largely due to the lesser landscape and visual impacts associated with this route option. Unlike the other route options considered, Route Option CG-LL1 would not have an adverse impact on the special qualities of the Loch Lochy and Loch Oich SLA. Although there are visual receptors within Route Option CG-LL1, such as recreational users accessing Ben Tee from White Bridge and properties at Glenluie and Faichem, the numbers and sensitivity of visual receptors that could potentially be impacted by route options CG-LL2 and CG-LL3 are anticipated to be much greater, as these routes would pass through the settlements on Mandally and Invergarry, and would be visible from sensitive recreations routes such as the A87, the Great Glen Way and the Caledonian Canal. For both Route Options CG-LL2 and CG-LL3, there would also be potential cumulative visual effects with the existing Fort Augustus – Fort William OHL. In addition, Route Options CG-LL2 and CG-LL3 would both potentially lead to adverse impacts on sensitive Annex 1 habitats, as

well as priority peatland[25]. In contrast no Annex 1 habitats or priority peatland has been identified within Route Option CG-LL1.

8.6.2 Although Route Option CG-LL1 is almost entirely routed through an area of commercial forestry, most of which is listed on the AWI, recorded on the NWSS and/or is located within the Glen Garry Caledonian Pinewood Buffer Zone, all route options considered would potentially have a significant impact on forestry and woodlands, including areas of listed on the AWI and/or recorded on the NWSS. The Developer will seek to minimise these impacts on Caledonian Pinewood and other woodland classifications during detailed design through micrositing and strategic positioning of towers, informed by site surveys. Compensatory planting will also be undertaken to mitigate any loss of forestry or woodland.

8.6.3 Route Option CG-LL3 would be the least preferred route option because in addition to the potential landscape and visual impacts associated with this option, technically an OHL within Route Option CG-LL3 would be very difficult to construct due to the steep side slopes down to Loch Lochy. Unlike the other options considered, this route option would also potentially be constrained by the presence of golden eagle in the southern extent of the route.

9. ROUTEING – LOCH LUNDIE SUBSTATION SEARCH AREA TO FORT AUGUSTUS SUBSTATION

9.1.1 This Section describes the potential route options identified within the Study Corridor between the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area and the existing Fort Augustus Substation during the route selection process described in Section 3.1, and provides an appraisal of these routes, leading to the identification of a Preferred Route.

9.2 Identification of Route Options

9.2.1 As part of Stage 1: Corridor Selection of the Route Selection process described in Section 3.1, a workshop was undertaken in June 2021 to identify the Study Corridor for Coire Glas Grid Connection Project. Potential route options within the Study Corridor were constrained by:

- Loch Lochy, Loch Oich to the east, as well as the eastern banks of these lochs, which rise up sharply towards the Monadhliath Mountains beyond; and
- Steep topography and existing wind farm infrastructure to the north-west of Invergarry.

9.2.2 Following a desk-based exercise (see Section 3.4) and a site visit undertaken in July 2021, three potential route options between the proposed new 400 kV / 132 kV Loch Lundie Substation Search Area and the existing Fort Augustus Substation were identified within the Study Corridor, as illustrated in **Figure 7.1**, as follows:

1. Route Option LL-FA1 - the most westerly route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the existing Fort Augustus Substation.
2. Route Option LL-FA2 - the central route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the existing Fort Augustus Substation and follows the route of the existing Fort-Augustus to Fort William OHL.
3. Route Option LL-FA3 - the most easterly route being considered between the proposed new 400 kV Coire Glas Switching Station Search Area and the existing Fort Augustus Substation.

9.2.3 These Route Options are illustrated in **Figure 7.1** and a more detailed description of each Route Option is included in **Appendix 9.1.** However, as Route Option LL-FA2 follows the route of the existing Fort-Augustus to Fort William OHL, two scenarios were considered for this route at this stage of the project as follows:

- Scenario A The existing Fort-Augustus to Fort William OHL would be retained and the new 400 kV OHL for the Coire Glas Grid Connection Project would be constructed alongside this existing 132 kV OHL between the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation.
- Scenario B; The existing Fort-Augustus to Fort William OHL would be decommissioned and dismantled as part of a wider rationalisation project in this area (as described in Section 2.5) between the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus Substation.

9.3 Environmental Considerations

9.3.1 The key environmental considerations for the route selection between the Loch Lundie Substation Search Area and the existing Fort Augustus Substation include:

- Minimising potential Impacts on the Ness and Duntelchaig SLA and the Loch Lochy and Loch Oich SLA[32];
- Minimising potential effects on the qualifying features of the West Inverness-shire Lochs SSSI and SPA[2324];

- Minimising potential impacts on sensitive habitats (including groundwater dependent terrestrial ecosystems), the water environment and avoidance of areas of deep peat where practicable;
- Minimising potential impacts on European Protected Species such as pine martin, otter, water vole, badger, red squirrel and bats, other protected species such as reptiles and protected bird species, such as Merlin, Osprey, Goshawk and Crossbill;
- Avoiding Area of flood risk around watercourses and waterbodies;
- Minimising impacts on local hydrology, in particular PWSs near Auchterawe;
- Avoidance of potential effects on the Aldernaig Burn catchment, which has been designated a DWPA[26];
- Minimising potential direct or settings impacts on cultural heritage features and designated sites, including the Caledonian Canal (at Kyltra Lock (SM5291), Cullochy Lock to Kyltra Lock (SM6496) Kyltra Lock to Fort Augustus (SM6497) and the Torr Dhuin fort, Fort Augustus (SM794);
- Minimising impacts (particularly noise and visual amenity) on residential or tourism properties at Auchteraw and smaller settlements such as Coiltry;
- Minimising direct or visual impacts on recreational users of the surrounding landscape, particularly users of the A82, the Great Glen Way, NCR 78, the Caledonian Canal and those accessing the recreational woodland paths around Auchterawe or using the FLS Car Park and Picnic Area at Torr Dhuin;
- Potential effects on commercial forestry plantations; and
- Minimising potential impacts on classified area of woodland, including woodland listed on the AWI and or recorded on the NWSS.

9.4 Technical Considerations

9.4.1 The key technical considerations for the route selection between the Loch Lundie Substation Search Area and the existing Fort Augustus Substation include:

- Infrastructure Crossing: there are no major road crossings on this route., There are some forestry access roads that will be crossed and consideration will be taken into protecting these crossings during the construction phase.
- Construction and Maintenance: the ease of access to each tower location during the construction work and the requirement to access angle tower for maintenance purposes. Any routes located along steep side slope will increase the groundwork requirements and increase the construction timescales.
- Ground Conditions: ensuring where possible that the route avoids any areas that would be difficult for construction purposes i.e., areas of deep peat or shallow rock. Such conditions are likely to be encountered for the routes selected as these are the prevailing ground conditions at these locations. Ground investigations will be carried out to confirm the ground conditions at each location.
- Connectivity to existing networks: the proximity to existing infrastructure and the ability to rationalise the routes to minimise the number of routes terminating into substations, considering the capacity of each circuit.

9.5 Route Options Appraisal *(See Figures 7.2 – 7.9)*

*Environmental Appraisal (See **Appendix 9.1**)*

9.5.1 The eastern extent of each of the route option is located within close proximity to Loch Lundie, which forms the most easterly extent of the West Inverness-Shire Lochs SPA/SSSI[2324]. All of the route options therefore have the potential to be constrained by the presence of the qualifying species (Black-throated Diver and Common Scoter) of this designated site, as well as Red-throated Diver which may also use Loch Lundie. Black Grouse is also present around Loch Lundie. Route Option LL-FA1 also includes two upgradient tributaries of Loch Lundie. Consequently, if this route option was brought forward as the Preferred Route Option, careful consideration would be required to ensure that there is no potential hydrological connectivity between the OHL alignment and the West Inverness-shire Lochs SPA/SSSI.

9.5.2 Habitats present moderate constraints to all of the route options considered, due to the presence of sensitive habitats, including woodland listed on the AWI and Annex 1 habitats. However, it is anticipated that potential effects on sensitive habitats within each route option could be minimised through micro-siting of the tower locations. Further habitat surveys to identify the location and quality of sensitive habitats within the Proposed Route (once selected) will be required to ensure that the OHL can be microsited to avoid areas of good quality sensitive habitats.

9.5.3 In terms of BNG, irreplaceable habitats may be affected by a new OHL within all of the route options considered. If avoidance of impact on irreplaceable habitat is not achieved by the Proposed Development, the development cannot meet NNL of biodiversity under BNG guidance. Route Option LL-FA1 traverses the least amount of irreplaceable habitat, whereas potential for avoidance of irreplaceable habitat is considered low within both Route Options LL-FA2 and LL-FA3.

9.5.4 Subject to peat probing and peat condition assessment, the presence of peatland is not considered a development constraint to any of the route options considered between the proposed new proposed Loch Lundie Substation Search Area and the existing Fort Augustus Substation.

9.5.5 Route Option LL-FA1 extends into the Aldernaig catchment, which is designated a DWPA[26]. However, as the development footprint of an OHL would comprise a very small area of the total DWPA, it is considered unlikely that the presence of the DWPA would pose a significant development constraint to the construction of an OHL subject to best practice construction and suitable mitigation. There are several PWS, generally associated with springs and surface water, registered within or in hydrological connectivity to all of the route options considered. These sources could be prone to pollution without appropriate control. However, given the superficial and solid geology, water catchment to the PWS sources are likely to be localised / close to the water source, and thus impacts mitigated.

9.5.6 There are no cultural heritage designations or Listed Buildings within Route Option LL-FA1. Route Option LL-FA1 is therefore the Preferred Route Option in relation to cultural heritage designations.

9.5.7 The Torr Dhuin fort, Fort Augustus (SM794)[29] would be located within Route Options LL-FA2. Direct impacts on this SM could likely be avoided through micrositing of the OHL alignment within the route, however, there would likely be settings effects on this SM, including cumulative settings effects with the existing 132 kV Fort Augustus – Fort William OHL. If the new 400 kV OHL replaced the existing Fort Augustus – Fort William OHL (following the same alignment) then baseline setting of SM794 would remain substantively unchanged, albeit the towers would be taller.

9.5.8 A new steel Lattice OHL within Route Option LL-FA3 would have potential direct impacts and/or setting effects upon up to three SMs of high sensitivity: the Caledonian Canal, Kyltra Lock (SM5291)[42], the Caledonian Canal,

[42] HES, 2022. Caledonian Canal Kyltra Lock. Available at: http://portal.historicenvironment.scot/designation/SM5291 [Last Accessed 12/05/2022]

Cullochy Lock to Kyltra Lock (SM6496)[43] and the Caledonian Canal, Kyltra Lock to Fort Augustus (SM6497)[44]. In addition, Route Option LL-FA3 would also have the potential to have setting effects upon the Torr Dhuin fort, Fort Augustus (SM794). Route Option LL-FA3 is therefore the Least Preferred Route Option in relation to cultural heritage designations.

9.5.9 Proximity to dwellings has been identified as a moderate constraint for all route options considered because it may not be possible to implement a suitable buffer (anticipated to be a minimum of 170 m based on preliminary noise modelling results) between a new steel lattice OHL and all properties with any of the route options. Although unlike the other route options considered, Route Option LL-FA3 would largely avoid properties at Auchterawe, there are properties at Coiltry and Kyltra Locks located within this route option. If an OHL within Route Option LL-FA2 was routed through the FLS forestry to the south of the existing Fort Augustus substation rather than following the route of the existing Fort Augustus to Fort William OHL through the open area to the west of the substation, then it may be possible to implement a suitable buffer between the OHL and all properties at Auchterawe.

9.5.10 Landscape and Visual Impacts have been identified as a key constraint to the OHL route between the new proposed Loch Lundie Substation Search Area and the existing Fort Augustus Substation. None of the route options considered are located within an area designated for landscape purposes. There may be some intervisibility of Route Option LL-FA3 with the Loch Ness and Duntelchaig SLA and Loch Lochy and Loch Oich SLA[32]. However, this is unlikely to result in any notable effect on either of these SLAs.

9.5.11 All of the route options have the potential to have adverse effects on landscape character due to the requirement for new wayleaves to be established or, in the case of LL-FA2, existing wayleaves to be widened. These wayleaves would likely be broader than the wayleaves that currently exist within the surrounding area. However, landscape character would pose a particularly high constraint to Route Option LL-FA2 (Scenario A), as the small-scale residential landscapes at Auchterawe have an increased sensitivity to cumulative effects. Therefore, if the existing steel lattice Fort Augustus to Fort William OHL were to remain in position on the approach to the Fort Augustus Substation, there would be a higher potential for notable landscape effects within this area. However, if the new 400 kV OHL were to replace the existing Fort Augustus to Fort William 132 kV OHL under Route Option LL-FA2 (Scenario B), then the effect on the landscape character would be limited.

9.5.12 In terms of visual receptors an OHL within Route Option LL-FA1 would likely to be visible from parts of the A82 and Fort Augustus. However, in general it is considered that these visual effects would be relatively small. Route Option LL-FA1 is therefore the Preferred Route Option in relation to visual effects.

9.5.13 An OHL within Route Option LL-FA2 would pass by and be visible from a number of residential properties, a minor road and a the FLS Car Park and Picnic Area at Torr Dhuin. There would be potential for notably increased visual effects from these properties and whilst the existing 132 kV Fort Augustus to Fort William OHL already leads to some desensitisation of the view, the addition of a further 400 kV OHL under Route Option LL-FA2 (Scenario A) to this view would be noticeable and likely to be adverse. If the existing Fort Augustus to Fort William OHL were to be replaced by the new 400 kV OHL however, such as in Route Option LL-FA2 (Scenario B), then it is likely that an OHL alignment could be achieved that would not be noticeably more detrimental to the visual resource than the existing baseline scenario

9.5.14 An OHL within Route Option LL-FA3 would be potentially visible from the Core Path descending Ciolle Rèidh nan Làir to Bridge of Oich, although existing OHL infrastructure already visible from some areas may locally reduce sensitivity. This route option would also cross the Caledonian Canal and the Great Glen Way footpath twice, with towers likely to form a prominent feature in views for boat and towpath users and recreational users

[43] HES, 2022. Caledonian Canal Cullochy Lock to Kyltra Lock. Available at: http://portal.historicenvironment.scot/designation/SM6496 [Last Accessed 12/05/2022]
[44] HES, 2022. Caledonian Canal Kyltra Lock to Fort augustus. Available at: http://portal.historicenvironment.scot/designation/SM6497 [Last Accessed 12/05/2022]

of the footpath. There would also be a cumulative effect with the existing Beauly – Denny OHL within this route option and potentially prominent views for recreational receptors using routes up Invervigar Burn.

9.5.15 In the selection of a preferred route between the proposed new Loch Lundie Substation Search Area and the existing Fort Augustus Substation, forestry has again been identified as a key constraint as all route options considered would impact the commercial viability of areas of commercial forestry and would likely impact areas of woodland listed on the AWI and/or recorded on the NWSS. If an OHL within Route Option LL-FA2 would be able to follow the wayleave of the existing Fort Augustus to Fort William OHL through Inchnacardoch Forest, such as in scenario B, it is anticipated that there would be a reduced requirement for felling of commercial woodland associated with this option, minimising the impact on the commercial viability of this forest area and woodland classifications, although it is likely that the existing wayleave would still need to be widened to accommodate the larger 400 kV OHL.

9.5.16 A new battery energy storage system (Ref: 20/04565/FUL) has both recently been consented within the open area to the west of the Fort Augustus Substation. If either scenario considered within Route Option LL-FA2 was to be taken forwards as the Proposed Route Option (once selected), an OHL alignment within this route would need to avoid this consented development.

*Technical Appraisal (See **Appendix 9.2**)*

9.5.17 From a technical perspective, none of the route options considered would cross any major infrastructure. Any single track / minor roads crossed would be protected using a scaffold or other suitable protection methods. All of the route options could largely be accessed from existing tracks constructed for previous grid projects, although some upgrades may be required. In all options considered angle towers would likely be required at Aucherawe to deviate the OHL away from properties.

9.5.18 With regard to construction and maintenance Route Option LL-FA3 is the Preferred Option as sections of this route are closer to local infrastructure than the other route options, although Route Option LL-FA3 would require cut and fill works for access. Route Option LL-FA1 would be the least Preferred Option as a steeper section of new access track would be required to construct an OHL within this route, possibly with the need for some substantial cut and fill works.

9.5.19 In relation to ground conditions, peat and/or rock is expected to be found along all route options considered and SI works will be required. Route Option LL-FA1 is considered to be the Least Preferred Route Option as this option is at a higher elevation along approach to Auchterawe and Fort Augustus Substation.

9.5.20 Route Option LL-FA2 (Scenario A) is the Least Preferred Route Option in relation to proximity to existing grid infrastructure as this route would run parallel to the existing 132 kV Fort Augustus to Fort William OHL. However, if the new 400 kV OHL were to replace the existing OHL as part of rationalisation works, then Route Option LL-FA2 (Scenario B) would be the Preferred Option, assuming that the existing 132 kV Fort Augustus to Fort William OHL were to be removed prior to the construction of the new 400 kV OHL. This issue is further addressed in Section 9.7

9.5.21 A technical limitation of Route Option LL-FA1 compared to the other route options considered would be that the OHL would need to connect into the south-western corner of the 400 kV infrastructure within the existing substation site. This would be extremely challenging from Route Option LL-FA1 as an OHL within this route would approach the substation from the north and would be constrained by other grid infrastructure, nearby properties and consented and / or recently implemented, landscape mitigation around the Fort Augustus Substation.

*Economic Appraisal (See **Appendix 9.3**)*

9.5.22 From an economic perspective Route Option LL-FA1 is the Preferred Route Option, as it represents the Least Cost Option as it is the shortest route. Route Option LL-FA2 and Route Option LL-FA3 are comparatively close

in value, both to each other and when compared to the least cost option. Note in the economic assessment an allowance for the rationalisation of the relevant section of the existing 132 kV Fort Augustus to Fort William OHL was included to allow a comparable assessment between all of the route options considered.

9.6 Preferred Route (*See Figure 7.10)*

9.6.1 Overall, Route Option LL-FA2 (under Scenario B) is considered to be the Preferred Option. This conclusion is largely due to the rationalisation scenario considered, whereby the Proposed Development would replace, rather than be in addition to, the existing 132 kV Fort Augustus to Fort William OHL, leading to several reduced potential environmental constraints, including reduced cumulative landscape and visual impacts and settings impacts on cultural heritage designations. In addition, Route Option LL-FA2 (under Scenario B) could potentially utilise, or partially utilise, the existing wayleave of the existing 132 kV Fort Augustus to Fort William OHL through Inchnacardoch Forest rather than require an entirely new wayleave, which would have additional benefits on forestry and woodland and landscape character.

9.6.2 From a technical perspective, Route Option LL-FA2 (Scenario B) would also be the overall Preferred Option, assuming that the existing 132 kV Fort Augustus to Fort William OHL were to be removed prior to the construction of the new 400 kV OHL.

9.6.3 It should be noted that the extent of some of the benefits identified (environmental and technical) for Route Option LL-FA2 (under Scenario B) are dependent on the extent that the new 400 kV OHL would be able to utilise the operational corridor and/or the existing wayleave of the existing 132 kV Fort Augustus to Fort William OHL between the new 400 kV Loch Lundie Substation and Fort Augustus. If the existing 132 kV OHL is removed prior to the construction of the Coire Glas Grid Connection Project, then the new 400 kV OHL could follow the exact route of the existing OHL and utilise the existing wayleave through Inchnacardoch Forest, although the wayleave may need widened. However, if the new 400 kV OHL is constructed before the existing 132 kV Fort Augustus to Fort William OHL is decommissioned and dismantled, then it will likely be constructed parallel to the existing 132 kV OHL and a new wayleave would need to be felled to accommodate the 400 kV OHL rather than the existing wayleave being widened. However, there may be opportunities to replant part of the existing wayleave following construction, once the 132 kV Fort Augustus to Fort William OHL has been removed. This issue is further addressed in Section 9.7.

9.6.4 From an environmental perspective, Route Option LL-FA1 would be the next preferred route option, largely due to the lack of sensitive landscape and visual and cultural heritage receptors within this option. However, Route Option LL-FA1 is less preferable from a technical perspective, due to the higher elevation of this route option on the approach to the Fort Augustus Substation, which would likely result in challenging ground conditions and potentially substantial cut and fill works. In addition, it would be extremely challenging to connect an OHL from Route Option LL-FA1, which would approach the Fort Augustus Substation from the north, into the existing 400 kV infrastructure located within the south-western corner of the substation.

9.7 Rationalisation of the Existing 132 kV Fort Augustus to Fort William OHL

9.7.1 Following the completion of the route assessment and the identification of Route Option LL-FA2 (under Scenario B) as the Preferred Route Option, it was confirmed that rationalisation of the existing 132 kV Fort Augustus to Fort William OHL would be undertaken. As Route Option LL-FA2 under Scenario A (as described under Paragraph 9.2.3) is no longer considered a realistic scenario, and it was identified as a less preferred option than Scenario B in the Route RAG assessment, this option was not included in the public consultation information. The route option referred to as ‘Route Option LL-FA2’ included in the Consultation Booklet and the

Public Exhibition Material therefore refers to the assessment undertaken for Route Option LL-FA2 under Scenario B.

9.7.2 A further exercise was undertaken to identify how the existing 132 kV Fort Augustus to Fort William OHL would be rationalised was undertaken. Two scenarios for rationalising the existing OHL were identified:

1. Temporarily connect the existing 132 kV Fort Augustus to Fort William OHL into the proposed Skye Reinforcement Project circuit, which is proposed to be undergrounded between Loch Lundie and the Fort Augustus Substation ahead of the construction of the Coire Glas Grid Connection Project. The existing 132 kV towers could then be dismantled, allowing the new 400 kV OHL to be constructed within the same operational corridor that is currently occupied by the existing 132 kV Fort Augustus to Fort William OHL. Once the 400 kV circuit is operational, the 132 kV Fort Augustus to Fort William circuit would be diverted into the new 400 kV / 132 kV Loch Lundie Substation and the capacity accommodated within the new 400 kV OHL circuit.

2. Construct the new 400 kV OHL in a separate parallel corridor to the existing 132 kV Fort Augustus to Fort William OHL and then transfer the 132 kV OHL across to the new OHL upon completion. Again, once the 400 kV circuit is operational, the 132 kV Fort Augustus to Fort William circuit would be diverted into the new 400 kV / 132 kV Loch Lundie Substation and the capacity accommodated within the new 400 kV OHL circuit.

9.7.3 Option 1 is not considered feasible as the proposed Skye Reinforcement Project, if consented, is not forecast to be energised until December 2025 and construction on the Coire Glas Grid Connection Project would be required to start ahead of this time.

9.7.4 Therefore, Option 2 is considered the only feasible option for the rationalisation of the existing 132 kV Fort Augustus to Fort William OHL, as the new 400 kV OHL would need to be constructed prior to the existing OHL being decommissioned and dismantled. This would mean that the new 400 kV would not be able to utilise the operational corridor of the existing 132 kV OHL and a new wayleave will need to be created through Inchdacardoch Forest to allow for the construction of the new 400 kV OHL This new wayleave would likely run parallel to the wayleave for the existing 132 kV Fort Augustus to Fort William OHL and would mean that the new 400 kV OHL development would have a greater impacted on and would impact a greater area of classified woodland. Construction would also be required to take place on previously undisturbed habitats. However, habitats would be reinstated following the removal of the existing towers and there may be some opportunities to replant part of the existing 132 kV Fort Augustus to Fort William wayleave, including areas within classified areas of woodland, once the existing 132 kV OHL has been dismantled and removed. Option 2 would also make this Route Option LL-FA2 less preferable from a technical perspective in relation to proximity to existing grid infrastructure during construction.

9.7.5 However, Route Option LL-FA2 (under Scenario B) is still considered **the Preferred Route Option**, even if the new 400 kV OHL would not be able to utilise the operational corridor and wayleave of the existing 132 kV Fort Augustus to Fort William OHL, as described under Scenario 2 in Paragraph 9.7.1 above.

10. ROUTEING – CONNECTION OF PREFERRED ROUTES TO THE PREFERRED SITE OPTIONS

10.1 Introduction

10.1.1 This Section describes how the Preferred Site Options for the 400 kV Coire Glas Switching Station and the 400 kV / 132 kV would connect into the Preferred Route Options identified in Sections 8.7 and 9.7 of this report, with consideration of environmental and technical constraints. These route options are referred to as the 'Connection Route Options' and are illustrated in **Figures 7.10a and 7.10b.**

10.2 Connection of the Preferred Coire Glas Switching Station Site Option to the Preferred Route Option

10.2.1 As noted in Sections 5.6 and 8.6 respectively, Site Option CG1 was identified as the Preferred Site Option for the new 400 kV Coire Glas Switching Station and Route Option CG-LL1 was identified as the Preferred Route Option between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area. However, as Site Option CG1 is located within Route Option CG-LL1, no further assessment to determine how Route Option CG-LL1 would connect into the Preferred Site Option for the Coire Glas Switching Station is required.

10.3 Connection of the Preferred Loch Lundie Substation Site Option to the Preferred Route Options

10.3.1 As noted in Section 6.6, Site Option LL5 was identified as the Preferred Site Option for the new 400 kV / 132 kV Loch Lundie Substation. However, Site Option LL7 also scored highly in the assessment from both an environmental and technical perspective. Both Site Options LL5 and LL7 were therefore considered when identifying the best Connection Route Option to the new 400 kV / 132 kV Loch Lundie Substation.

10.3.2 As noted in Sections 8.6 and 9.6 respectively, Route Option CG-LL1 was identified as the Preferred Route Option between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area and Route Option LL-FA2 (under Scenario B) was identified as the Preferred Route Option between the Loch Lundie Substation Search Area and the existing Fort Augustus Substation. It was later determined that a new 400 kV OHL within Route Option LL-FA2 would likely be constructed in parallel to the existing 132 kV OHL to the east of Loch Lundie rather than within the same operational corridor, as described in Section 9.7.

10.3.3 Site LL7 is located within the Preferred Route between the Coire Glas Switching Station Search Area and the Loch Lundie Substation Search Area (as illustrated on **Figure 7.10a**) but not the Preferred Route between Loch Lundie Substation Search Area and the existing Fort Augustus Substation. Site Option LL5 is not located within either of the Preferred Route Options as illustrated on **Figure 7.10b**). A further assessment is therefore required to assess the key environmental, technical and economic constraints of a potential connection between the Preferred Routes identified in this Report (CG-LL1 and LL-FA2R), and the Preferred Site Options for the new Loch Lundie Substation (LL5 and LL7).

10.3.4 This assessment uses the same route selection process described in Section 3.1, and provides an appraisal of these route connection option, leading to the identification of an overall Preferred Route between the proposed new 400 kV Coire Glas Switching Station and the existing Fort Augustus Substation. The Area of Search for this appraisal is the Loch Lundie Search Area as described in Section 4.4.

10.4 Identification of Connection Route Options (see Figures 7.10a-7.10b).

10.4.1 This section of the Report provides a summary of each of the connection route options identified for the appraisal of the Connection Route Options

10.4.2 The connection route options assessed for each section of the OHL are listed below:

- Connection Route Option for LL7, comprising of Route Option LL7-FA; and

- Connection Route Option for LL5, comprising of Route Options CG-LL5 and LL5-FA.

10.4.3 These Route Options are illustrated in **Figures 7.10a and 7.10b** and a more detailed description of each Route Option is included in **Appendix 10.1.**

10.5 Summary of Key Environmental Considerations

10.5.1 As the Area of Search for this Route Options Appraisal is the Loch Lundie Substation Search Area, the key environmental constraints for the Connection Route Options considered are the same as those identified in Section 6.3 of this report.

10.6 Summary of Key Technical Considerations

10.6.1 The key technical considerations in this section include:

- Proximity to existing infrastructure consideration was taken to ensure the project could safely construct and maintain safety clearances from existing infrastructure during the construction phase. The adjacent overhead line route would be live during the construction phase. Once the new route has been energised, the existing OHL can be de-energised and safely dismantled. The existing route naturally diverge adjacent to this location, this will minimise the requirement to construct new towers to terminate the route into the new substation.

10.7 Connections Route Options Appraisal (See Figures 7.11a and 7.11b)

*Environmental Appraisal (See **Appendix 10.1**)*

10.7.1 Habitats are considered a moderate constraint for both of the connection route options considered due to the presence of large pockets of blanket mire habitat on flatter plateaus and depressions on moorland areas within the Loch Lundie Substation Search Area. In addition, wet heaths dominate other open moorland within this area. Both habitats are identified as Annex 1 habitats. In BNG guidance, blanket mires are considered to be irreplaceable habitat and wet heaths ate considered to be habitats of high distinctiveness. Loss of irreplaceable habitat would result in No Net Loss being unachievable. Where habitats of high distinctiveness are lost, replacement must be of equivalent value to meet No Net Loss. Surveys to identify the location and quality of sensitive habitats within the Proposed Route (once selected) will be required to ensure that the OHL can be microsited to avoid areas of sensitive habitat.

10.7.2 Ornithology is also considered a moderate constraint for all the connection options considered due to the proximity of these route options to Loch Lundie, which forms the most easterly extent of the West Inverness-Shire Lochs SPA. Ornithological constraints for all of the connection options considered are therefore focussed on the qualifying species of the West Inverness-Shire Lochs SPA (Black-throated Diver and Common Scoter), as well as Red-throated Diver.

10.7.3 Geology, Hydrology and Hydrogeology is also considered a moderate constraint for all the connection options considered due to the presence of priority peatland[25] within the Loch Lundie Substation Search Area, and the potential interaction of an OHL development within these route option with the DWPA[26]. Surveys to identify the location and quality of peat within the Proposed Route (once selected) will be required to ensure that the OHL can be micrositied during the alignment phase to avoid areas of good quality, deep peat.

10.7.4 None of the route connection options considered would pass through or have intervisibility with any cultural heritage designations or listed buildings.

10.7.5 There are a few scattered properties, as well as the Faichemard Farm Caravan and Camping site, located within, or in close proximity to, the southern extent of all of the connection options considered, at Faichem. A suitable buffer (anticipated to be a minimum distance of 170 m) between the OHL alignment and any residential

properties, is required due to the proposed operational noise associated with 400 kV OHL. These properties are therefore considered a moderate constraint to both the connection route options considered.

10.7.6 None of the route connection options considered would pass through or have intervisibility with any landscape designations.

10.7.7 If Site Option LL7 was selected as the Proposed Site for the new Loch Lundie Substation and Route Option LL7-FA was taken forward as the connection option, it is assumed that the existing 132 kV Fort Augustus to Fort William OHL and 132 kV Invergarry Tee OHL would both be rerouted across the landscape to the south of Loch Lundie, to connect into the new Loch Lundie Substation at Site Option LL7. This would lead to up to four parallel OHLs across this part of the landscape. The cumulative effects of these developments would increase the width of the OHL corridor to the south of the loch, with a higher potential to affect the more sensitive landscapes closer to the loch and a greater potential for OHL infrastructure to become a more prominent and character defining feature of the landscape. In addition, this option would lead to two additional routes crossing the Core Path which runs along the eastern bank of Loch Lundie. Although existing OHLs already feature in views from this Core Path, this would lead to an increased visual presence of OHL infrastructure in southern and south-westerly views with likely greater cumulative effects to the south of Loch Lundie. However, under this scenario the Fort Augustus to Fort William OHL would be dismantled to the north of the existing T point (to the east and north of Loch Lundie) and Connection Route Option LL7-FA would therefore comprise an effective like-for-like replacement through the landscapes to the east and north of Loch Lundie. Landscape and Visual effects are therefore considered to pose an overall moderate constraint to Connection Route Option associated with Site Option LL7.

10.7.8 If Site Option LL5 was selected as the Proposed Site for the new Loch Lundie Substation and Route Options CG1-LL5 and LL5-FA were taken forward as the connection options, there would be some potential for cumulative effects with other existing OHLs in this area, to the south of Loch Lundie, where it is anticipated that the OHL route would follow the Skye Reinforcement Project steel lattice tower OHL (once constructed) to the south of Loch Lundie. Whilst this reduces the sensitivity of the landscapes involved, it would lead to potential for cumulative impacts and would increase the influence of OHL development. This option would also lead to visual effects on users of the Core Path, particularly on the approach to the point where the route option would cross over the Core Path to the south of Loch Lundie and potentially in eastern views as the Core Path passes to the east of the loch. However, to the east of Loch Lundie it is anticipated that the existing Fort Augustus – Fort William OHL would be dismantled to the north of the new substation location, therefore the Route Option LL5-FA section of this connection option would likely result in an effective like-for-like replacement with minimal landscape and visual effects anticipated. Landscape and Visual Effects are therefore considered to pose a moderate constraint to the CG1-LL5 section of this Connection Route Option but a low constraint to the LL5-FA section of this connection route option.

10.7.9 The Faichemard Farm Caravan and Camping site at Faichem is located within, or in close proximity to, the southern extent of both of the connection options considered. It is anticipated direct impacts on this site could be avoided by micrositing the OHL infrastructure within the route option, however, the OHL may lead to visual and/or noise effects for residents at the caravan and camping site, including cumulative effects with other existing OHL infrastructure in the area.

10.7.10 Due to the substation site options being located within the forestry to the north of Invergarry, forestry has been identified as a moderate constraint for the route connection option into Site Option LL5, as it is assumed that some felling of the plantation forestry would be required to accommodate the connection into the substation at this location. However, it is anticipated that there would be opportunity to minimise the felling to the plantation edge and avoid areas of woodland listed on the AWI and/or recorded on the NWSS. In contrast, the Connection Route Option associated with Route Option LL7-FA mostly crosses over an area of open ground, with commercial forestry plantation making up less than 50% of the route connection option. Therefore, there is greater potential to avoid the woodland plantations within this route option and forestry is considered a low

constraint. However, should an OHL within this route option encroach onto the conifer plantations, this would then be considered a moderate constraint.

Technical Appraisal

10.7.11 The connection route options associated with Site Options LL5 and LL7 would require similar supporting infrastructure (e.g. access road for construction and operation) so there is not much to differentiate the two options from a technical perspective and a technical assessment has not been undertaken. However, the potential diversion of the existing 132 kV Fort Augustus to Fort William OHL and the 132 kV Invergarry Tee OHL along the southern banks of Loch Lundie associated with Site Option LL7 would be technically challenging to construct. The Connection Route Option associated with Site Option LL5 is therefore the Preferred Connection Route Option from a technical perspective.

Economic Appraisal

10.7.12 No economic appraisal has been undertaken for the route connection options, as the OHLs associated with these options would be a similar total length crossing over largely the same area of terrain so there is not much to differentiate the two options from an economic perspective. However, the potential diversion of the existing 132 kV Fort Augustus to Fort William OHL and the 132 kV Invergarry Tee OHL along the southern banks of Loch Lundie associated with Site Option LL7 would likely make this option more costly.

10.8 Preferred Connection Route Option

10.8.1 None of the environmental topics considered in the appraisal of the connection route options into the new Loch Lundie Substation were considered to have a high potential for the development to be constrained and the comparative analysis concludes that overall, there is not much variation between the different connection route options. However, the connection option associated with Site Option LL5 would be the Preferred Connection Route Option based on the benefits of this option in relation to potential cumulative landscape and visual effects.

10.8.2 If the connection route option associated with Site Option LL7 is selected, this would lead to up to four parallel OHLs running along the southern side of Loch Lundie due to the required rerouting of the existing Fort Augustus to Fort William OHL and 132 kV Invergarry Tee OHL and the proposed construction of the Skye Reinforcement Project OHL. This would lead to adverse cumulative landscape and visual effects along the southern banks of Loch Lundie. The diversion of the existing 132 kV Fort Augustus to Fort William OHL to Site Option LL7 would also be technically challenging to construct. In contrast, if the connection route option associated with Site Option LL5 is selected, there would only be two parallel OHLs running along the southern side of Loch Lundie, as there would be no requirement to divert the existing Fort Augustus – Fort William OHL or the132 kV Invergarry Tee OHL along the southern bank of Loch Lundie. The overall cumulative landscape and visual effects associated the proposed connection option for Site Option LL5 are therefore anticipated to be less than those for Site Option LL7, although still considered a moderate constraint in relation to landscape and visual effects.

10.8.3 Although the connection route option associated with Site Option LL7 is the Preferred Option with regards to forestry, this is largely based on an assumption that this connection route option could avoid interaction with areas of forestry and woodland altogether. However, if the new 400 kV OHL were to be constructed in parallel to the existing 132 kV OHL, as is likely (as described in Section 9.7), rather than within the same operational corridor on the open moorland area as described in Section 9.7, it would likely need to be constructed either within or along the edge of the forestry to the north of Invergarry. In this situation impacts on commercial forestry would pose a moderate constraint to the connection route option associated with Site Option LL7, and the difference between the two connection route options considered in relation to forestry would not outweigh

the landscape and visual benefits identified for the connection route option associated with Site Option LL5. In addition, compensatory planting would also be undertaken to mitigate any loss of forestry or woodland.

10.9 Conclusion and Overall Preferred Route Option

10.9.1 The findings of the comparative analysis of the route connection options into the Preferred Site Options for the new 400 kV / 132 kV Loch Lundie Substation compliment the findings in Section 6.6 of this Report, which concludes that Site Option LL5 is the overall Preferred Site Option for the substation. Following this comparative appraisal exercise, the Preferred Routes identified in 8.7 (Route Option CG-LL1) and 9.7 (Route Option LL-FA2) of this Report were extended to include the connection to the Preferred Substation Site Option LL5 to provide an overall Preferred Route Option for the Coire Glas Grid Connection Project, as illustrated in **Figure 7.12**.

11. COMPARATIVE APPRAISAL OF ALIGNMENT OPTIONS

11.1 Overview

11.1.1 Chapters 12 and 13 of this Consultation Document provide a summary of the alignment options that have been considered, together with the primary reasons for the selection of a Preferred Alignment within each section, giving due consideration to environmental, technical, and economic considerations.

11.1.2 As noted previously, the 'Baseline Alignment' is the alignment identified by SSEN Transmission engineers on the basis of it being the most technically feasible and economically viable alignment within the Preferred Routes identified in 8.7 (Route Option CG-LL1) and 9.7 (Route Option LL-FA2) of this Report, giving due consideration to a range of environmental, technical and economic criteria during the construction and operation phases of a new OHL. The term 'Alignment Variations' is used to describe alternative alignment options to the Baseline Alignment to avoid localised constraints. The Preferred Alignment is the alignment and design solution taken forward to stakeholder consultation and could be a combination of the Baseline Alignment and Alignment Variations.

11.1.3 The Baseline Alignment and Alignment Variations, together with environmental designations and constraints within each section, are shown in **Figures 11.1-11.11**. The Preferred Alignment is shown on **Figure 11.12**. An indicative 200 m Limit of Deviation (LOD) (i.e.100 m either side of the centre line except where constraints exist e.g. the existing OHL) has been applied to the Baseline Alignment and Alignment Variations, as shown in **Figure 11.2**. This LOD would allow for further micrositing of the Preferred Alignment during the EIA process and the subsequent consenting process, as more detailed survey information is gathered and analysed.

11.1.4 Chapters 12 and 13 are supported by the following Figures:

- Figure 11.1: Study Corridor, Preferred Route Options and Preferred Site Options
- Figure 11.2: Alignment Options
- Figure 11.3: Alignment Options - Natural Heritage and Cultural Heritage Constraints
- Figure 11.4: Alignment Options – Habitats
- Figure 11.5: Alignment Options – Landscape and Visual Constraints
- Figure 11.6: Alignment Options – Landscape Character
- Figure 11.7: Alignment Options – Land Use, Recreation and OHL Infrastructure
- Figure 11.8: Alignment Options – Peatland Classifications
- Figure 11.9: Alignment Options – Peat Probing
- Figure 11.10: Alignment Options – Forestry and Woodland
- Figure 11.11: Alignment Options – Noise Constraints
- Figure 11.12: Preferred Alignment

12. ALIGNMENT - COIRE GLAS TO LOCH LUNDIE

12.1 Introduction

12.1.1 This section of the OHL Alignment of the project originates at the Preferred Site of the proposed new 400 kV Coire Glas Switching Station and runs in a general easterly direction to the Preferred Site of the proposed new 400 kV / 132 kV Loch Lundie Substation.

12.2 Baseline Alignment (*See Figure 11.2)*

12.2.1 The Baseline Alignment between the Preferred Site of the new 400 kV Coire Glas Switching Station and the Preferred Site of the new 400 kV / 132 kV Loch Lundie Substation (hereafter referred to as 'the CG-LL Baseline Alignment') represents the Preferred Alignment within the Preferred Route (Route Option CG-LL1[45]) from an engineering perspective. Deviations to the CG-LL Baseline Alignment have been put forward by the Applicants' Environmental Consultant ASH, in conjunction with their technical specialists, as well as SSEN Transmission's project environment and engineering teams, referred to as Alignment Variations. On the approach to the Preferred Loch Lundie Substation Site, along the southern banks of Loch Lundie, the CG-LL Baseline Alignment would run parallel to the southern side of the existing 132 kV Quoich to Aberchalder OHL and the existing 132 kV Fort Augustus to Skye OHL Although it is anticipated that these existing OHLs will eventually be replaced by the Skye Reinforcement Project and dismantled, the alignment options appraisal in Section 12.3 is based on the existing baseline conditions. Both existing and planned grid infrastructure are illustrated on **Figure 11.7**.

12.2.2 A full baseline description of the CG-LL Baseline Alignment is provided in Table 1 of **Appendix 12.1.**

12.3 Alignment Options Appraisal (*See Figures 11.2-11.11)*

12.3.1 As part of the iterative alignment selection process, a review of the CG-LL Baseline Alignment has been carried out by the SSEN Transmission environmental and engineering teams, and environmental consultants. A summary of the key elements of this review is provided below. The detailed environmental appraisal of the CG-LL Baseline Alignment is provided in Table 1 of b 12.1.

CG-LL Baseline Alignment (Environmental Considerations)

Natural Heritage

12.3.2 No regionally, nationally, or internationally designated sites are crossed by the CG-LL Baseline Alignment. Loch Garry and Loch Lundie, which are both component lochs of the West Inverness-shire Lochs SPA/SSSI[2324], lie approximately 380 m and 200 m from the CG-LL Baseline Alignment respectively. Garry Falls SSSI[37], which lies where the river Garry emerges from Loch Garry, is also located within 1 km of the CG-LL Baseline Alignment.

12.3.3 The CG-LL Baseline Alignment would travel directly through approximately 1.3 km of woodland which is included in the AWI at White Bridge. Within this woodland, the NWSS identifies areas of native woodland, nearly-native woodland, open land habitat and PAWS.

12.3.4 Initial walkover surveys undertaken in August 2021 highlighted the presence of pine marten in areas of forestry to the south of the River Garry. Abundant woodland, and woodland edge habitat, crossed by the CG-LL

[45] as identified in Section 8.7 (as well as) 10.9 of this Report

Baseline Alignment also provides suitable habitat for badger, red squirrel and bat species, whereas riparian zones provide suitable habitat for otter.

12.3.5 Initial walkover surveys undertaken in August 2021 indicate that the CG-LL Baseline Alignment would pass through large areas of coniferous plantation. However, many coupes within the plantation are stocked with mature Scot's Pine (*Pinus sylvestris*) although areas of semi-natural mixed and broadleaved woodland are also present. These are commonly represented by Birch Betula *spp*. woodlands.

12.3.6 In the open moorland area between Munerigie Wood and the Preferred Site of the proposed new 400 kV / 132 kV Loch Lundie Substation the CG-LL Baseline Alignment would cross extensive areas of wet heath habitat, as well as smaller areas of blanket mire and acid flush habitat. Both wet heath and blanket mire are Annex 1 habitats. Wet heath habitats are also considered to be moderately dependent on groundwater, whereas acid flush habitats are considered to be highly dependent on groundwater. Impacts to GWDTE of higher dependency could be avoided by micro-siting infrastructure to avoid acid flush habitats, however wet heath habitat is extensive within this area and is unlikely to be completely avoidable.

12.3.7 Around Loch Lundie, ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA/SSSI (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver. Black Grouse is also present around Loch Lundie. Surveys between mid-March-mid and May will determine the lekking site(s). Ornithological constraints within the forestry are focussed on those species which use the forest or the river for hunting purposes. Potential protected avian species that are likely to be present in the area crossed by the CG-LL Baseline Alignment are likely to be limited to Goshawk and Crossbill.

12.3.8 Published priority peatland mapping[25] suggests that the CG-LL Baseline Alignment is not located within Class 1 or 2 priority peatland. Site specific peat probing has been completed along the majority of the alignment option (See **Figure 11.9**). Within 100 m of the proposed alignment, a peat depth of between 0 m and 5.6 m was recorded; approximately 88% of peat probes recorded depths <1 m deep. Areas of deeper peat are noted to the south-west of the Allt a'Bhainne and near the south-western corner of the Preferred Site if the new 400 kV / 132 kV Loch Lundie Substation.

Cultural Heritage

12.3.9 There are no designated heritage assets within the CG-LL Baseline Alignment LOD. No potential direct effects on designated heritage assets are therefore anticipated. There is one Category C Listed Building (Suspension Footbridge, Falls of Garry, Invergarry) of low sensitivity within 500 m of the Baseline Alignment, however no potential setting effects are anticipated on this Cultural Heritage site.

Proximity to Dwellings

12.3.10 The CG-LL Core Alignment would pass in close proximity to the following properties:

- As the CG-LL Baseline Alignment passes through the forestry at White Bridge, it would pass within 300 m of the properties at Glenluie.
- An application to erect a house in the area to the north of the River Garry at the Blar an Eas Salt Store has been submitted. The CG-LL Baseline Alignment would pass within 250 m of the proposed location for these cabins, between the River Garry and the A87.
- As the CG-LL Baseline Alignment exits the northern extent of Munerigie Wood, it would pass within 150 m to the north and west of a small cluster of properties scattered along the minor road between Faichem and Munerigie.

12.3.11 Based on a preliminary noise buffer a minimum buffer of 170 m would need to be implemented between the new 400 kV OHL and any properties. If the Baseline Alignment was to be microsited within the LOD in the

vicinity of these properties, then care would be required to ensure that this did not result in potential noise issues.

Landscape and Visual

12.3.12 The CG-LL Baseline Alignment would not be located within or affect any designated landscapes.

12.3.13 The CG-LL Baseline Alignment would lead to a wayleave being established through areas of Caledonian Pine Woodland, which is a valued feature of the landscape in White Bridge Forest and is also likely to affect other areas of native and ancient woodland. Wayleaves would form a visible cut through areas of forest to north and south of the A87 affecting the enclosed and intimate woodland character and towers would form new prominent features crossing Glen Garry and on side slopes to north and south.

12.3.14 The CG-LL Baseline Alignment would lead to likely visual effects for the Faichemard Farm Caravan and Camping Site, although the nearby properties at Glenluie may not be affected. Visual effects would also be likely for recreational users as the alignment crosses the River Garry, where there are several woodland trails and rafting and white water canoeing is popular, and users of the A87.

12.3.15 Visual effects could also be significant for users of the Baseline Path / Scottish Hill Track which runs along the eastern banks of Loch Lundie. Although existing OHLs are already visible from this route, a new OHL within this area would lead to potential cumulative effects with the potential for the creation of a greater dominance of OHL infrastructure in this area.

Land Use

12.3.16 The CG-LL Baseline Alignment would travel directly though areas of commercial forestry at White Bridge and Munerigie Wood. Where the CG-LL Baseline Alignment connects to the Preferred Site of the new 400 kV Coire Glas Switching Station, the conifer planting is interspaced with a high percentage of open ground. The forestry at Munerigie Wood is much denser, and a new alignment through this area of forestry may result in windblow or more extensive management felling.

12.3.17 The area between the Preferred Site of the new 400 kV Coire Glas Switching Station and the Car Park at White Bridge is almost all recorded in the Caledonian Pinewood Inventory, classed as Glen Garry Caledonian Pinewood Buffer Zone. Within this zone are areas of Caledonian Pinewood Regeneration Zone. The CG-LL Baseline Alignment to White Bridge would also pass through areas listed on the AWI and/or recorded on the NWSS.

CG-LL Baseline Alignment (Technical Considerations)

- Basic requirement of the OHL is to carry the desired power at maximum efficiency, The electrical line losses are proportional to the length. Ideally the routing should be such that the line is the shortest length where possible.
- However the shortest route is not always possible. Obstacles may include settlements/dwellings, areas of cultural or environmental importance, existing infrastructure (roads, pipelines etc.) and natural hazards (rivers, mountains etc.).
- The topography of the route is chosen to minimise the construction impact and reduce the health and safety risk during the installation of the OHL.

12.3.18 Technical constraints of the CG-LL Baseline Alignment refer, as a minimum, to the capacity and voltage of the circuit which will dictate the choice of conductor and tower suite, which in turn may inform foundation requirements, span lengths, angle points, and constructability requirements. Other considerations will also include the influence of the River Garry crossing, the A87 crossing, altitude, requirement for temporary works scaffolding, as well as access and accommodation works.

Alignment Variations (***See Figures 11.2-11.11***)

12.3.19 A number of Alignment Variations to the CG-LL Baseline Alignment have been considered, to either mitigate a potential effect, or to provide an alternative for consideration by the project team during the selection of a Preferred Alignment. These variants are set out in Table 12.1 and shown on **Figures 11.2-11.11.** The potential environmental constraints and opportunities presented by these variants in comparison to the CG-LL Baseline Alignment, and with regard to the environmental topic areas set out in SSEN Transmission's routeing guidance, are discussed in more detail in **Appendix 3.1.**

Table 12.1: CG-LL Alignment Variations (*See Figures 11.2-11.11*)

Variant	Description	Reason for Variation	Variant Taken forward? (Y/N)
CG-LL Alignment Variation 1	CG-LL Alignment Variation 1 is similar to the CG-LL Baseline Alignment, except from the northern side of the 400 kV Coire Glas Switching Station it would briefly travel in a westerly direction for approximately 0.2 km, where it would cross a minor watercourse and the main forestry haul road, (which is classified as a Scottish Hill Track). The Alignment Variation would then change direction to a north-westerly direction through the forestry at White Bridge for approximately 1 km, where it would travel to the west of the properties at Glenluie before rejoining the CG-LL Baseline Alignment (at NGR NH 227378, 801216).	The reason for this Alignment Variation is to minimise potential impacts of established Caledonian Pinewood, as recorded in the Caledonian Pinewood Inventory. A disadvantage of this Alignment Variation is it would potentially bring the OHL infrastructure slightly closer to the properties at Glenluie. No difference in cost between this alignment variation and the CG-LL Baseline Alignment was drawn during the cost assessment.	Y
CG-LL Alignment Variation 2	CG-LL Alignment Variation 2 would diverge from the CG-LL Baseline Alignment within the forestry at White Bridge, at a location to the north of Glenluie (NGR NH 227413, 801248). The Alignment Variation would travel in an east-north-easterly direction for approximately 0.7 km, crossing the River Garry and several recreational routes. CG-LL Alignment Variation 1 would then change direction and travel in a north-easterly direction for approximately 0.6 km, crossing the A87 before travelling through Munerigie Wood. The Alignment Variation would then change direction again and travel in an east-north-easterly direction for approximately 0.1 km, where it would re-join the CG-LL Baseline Alignment at the edge of Munerigie Wood, at the point where the CG-LL Baseline Alignment crosses the forestry track between Faichem and Munerigie.	There were several reasons for the development of this Alignment Variation, including: • To avoid the OHL running parallel to a minor tributary of the River Garry located within the Forestry at White Bridge; • To utilise a natural forestry clearing within the Forestry at White Bridge, on the approach to the western bank of the River Garry; • To avoid ancient oak trees identified on site on the western bank of the River Garry; • To further increase the distance of the OHL from properties at Faichem to reduce potential noise and visual amenity effects for these properties. • To avoid a sharp angle in the alignment, at the point where the CG-LL Baseline Alignment crosses the forestry track between Faichem and Munerigie. Disadvantages of this Alignment Variation include that this alignment would be located closer to the West Inverness-shire	Y

		Lochs SPA/SSSI (at Loch Garry) and the Garry Falls SSSI. The Garry Falls SSSI would lie within the LOD of CG-LL Alignment Variation 2, however it is still anticipated that adverse impacts of on the qualifying features of this designated site could be avoided by micrositing the alignment within the LOD. This Alignment Variation would also be in closer proximity to the location of where an application for a new property to be erected t at the Blar an Eas Salt Store has been submitted. No difference in cost between this alignment variation and the CG-LL Baseline Alignment was drawn during the cost assessment.	

12.4 Preferred Alignment (*See Figure 11.12)*

12.4.1 In selecting the Preferred Alignment between the new 400 kV Coire Glas Switching Station and the Preferred Site of the new 400 kV / 132 kV Loch Lundie Substation, consideration has been given to a variety of environmental, technical and economic considerations. On balance, it was determined that both CG-LL Alignment Variation 1 and CG-LL Alignment Variation 2 should be taken forward as **the Preferred Alignment. The Preferred Alignment** is illustrated on **Figure 11.12.**

12.4.2 **Figure 12.1** presents a visualisation of **the Preferred Alignment** from the A87 Road to the west of the settlement of Invergarry. No photomontage has been provided in **Figure 12.1** as the view of the Coire Glas Grid Connection Project from this location would be the same as the baseline photograph shown.

13. ALIGNMENT– LOCH LUNDIE TO FORT AUGUSTUS

13.1.1 This section of the OHL Alignment originates at the Preferred Site of the proposed new 400 kV / 132 kV Loch Lundie Substation and travels in a general northerly direction to connect to the exiting Fort Augustus Substation.

13.2 Baseline Alignment (*See Figure 11.2)*

13.2.1 The LL-FA Baseline Alignment between the Preferred Site of the new 400 kV / 132 kV Loch Lundie Substation and the Fort Augustus Substation (hereafter referred to as 'the LL-FA Baseline Alignment') represents the Preferred Alignment within the Preferred Route (Route Option LL-FA2[46]) from an engineering perspective. Alignment Variations to this Baseline Alignment have put forward by the Applicants' Environmental Consultant ASH, in conjunction with their technical specialists, as well as SSEN Transmission's project environment and engineering teams. From the Preferred Loch Lundie Substation Site the LL-FA Baseline Alignment would run parallel to the eastern side of the existing 132 kV Fort Augustus to Fort OHL and the existing 132 kV Fort Augustus to Skye T OHL. Although it is anticipated that the existing 132 kV Fort Augustus to Skye T OHL will eventually be replaced by the Skye Reinforcement Project and, the alignment options appraisal in Section 13.3 is based on the existing baseline, except it assumes that the Fort Augustus to Fort William OHL will be rationalised to the north of the new 400 kV / 132 kV Loch Lundie Substation site and dismantled. Existing and planned grid infrastructure is illustrated on **Figure 11.6**.

13.2.2 A full baseline description of the LL-FA Baseline Alignment is provided in Table 1 of **Appendix 13.1.**

13.3 Alignment Options Appraisal (*See Figures 11.2-11.11)*

13.3.1 As part of the iterative alignment selection process, a review of the LL-FA Baseline Alignment and potential Alignment Variations has been carried out by the SSEN Transmission environmental and engineering teams, and environmental consultants. A summary of the key elements of this review is provided below. The detailed environmental appraisal of the LL-FA Baseline Alignment is provided in Table 1 of **Appendix 13.1.**

LL-FA Baseline Alignment (Environmental Considerations)

Natural Heritage

13.3.2 No regionally, nationally, or internationally designated sites are crossed by the LL-FA Baseline Alignment. Loch Loch Lundie, which forms the most westerly extent of the West Inverness-shire Lochs SPA/SSSI[2324], lies approximately 160 m from the LL-FA Baseline Alignment at its closest point.

13.3.3 Initial walkover surveys undertaken in August highlighted the presence of pine marten in areas of forestry north of Invergarry. Abundant woodland, and woodland edge habitat, provides suitable habitat for badger, red squirrel, pine marten and bat species. Loch Lundie and riparian zones associated with watercourses provide suitable habitat for otter, particularly along the banks of the Invervigar Burn and its tributaries. Wet heath and mire habitats in the area may also provide suitable habitat for water vole.

13.3.4 Initial walkover surveys undertaken in August 2021 indicate that the LL-FA Baseline Alignment would pass through large areas of coniferous plantation, although areas of semi-natural mixed and broadleaved woodland are also present. Several areas of woodland are crossed by the LL-FA Baseline Alignment are identified on the AWI and/or are recorded on the NWSS.

13.3.5 Open ground crossed by the LL-FA Baseline Alignment between and adjacent to forestry plantations is dominated by wet heath and blanket mire communities, with smaller areas of dry heath and semi-improved grassland. Both habitats are identified as Annex 1 habitats. Smaller patches of dry heath, also an Annex 1

[46] As identified in Section 9.7 (as well as Section 10.9) of this Report of this Report.

habitat, is present on drier knolls within the open moorland areas. GWDTE are found also along the LL-FA Baseline Alignment.

13.3.6 Ornithological constraints are focussed on the qualifying species of the West Inverness-Shire Lochs SPA/SSSI (Black-throated Diver and Common Scoter), of which Loch Lundie is a part of, as well as Red-throated Diver. Black Grouse are also present around Loch Lundie. Surveys between mid-March-mid and May will determine the lekking site(s). Potential species breeding on the open moorland and within the forestry, and those species which use the moorland, forest or the river for hunting purposes could include protected (Schedule 1) species such as Merlin Short-eared Owl, Osprey, Goshawk and Crossbill.

13.3.7 Published priority peatland mapping[25] suggests that approximately 3 km of the southern extent of the LL-FA Baseline Alignment would be located within Class 2 Priority Peatland. Site specific peat probing has been undertaken along the LL-FA Baseline Alignment. Within 100 m of the LL-FA Baseline Alignment **(see Figure 11.9**). Peat depths of between 0 m and 5.1 m were recorded, with approximately 86% of the peat probes recording depths <1 m. Areas of deeper peat are noted west of proposed location of the new 400 kV / 132 kV Loch Lundie Substation and in localised areas to the east of Loch Lundie.

Cultural Heritage

13.3.8 There are no designated or non-designated heritage assets within the Baseline Alignment or associated LOD. No potential direct effects on heritage assets are therefore anticipated. However, there are four Scheduled Monuments of high sensitivity within 500 m of the LL-FA Baseline Alignment: the Torr Dhuin Fort (SM 794)[29] and three sections of the Caledonian Canal near Kyltra Lock (SM 6496, SM 6497 and SM 5291)[424344]. The LL-FA Baseline Alignment would have a potential for setting effects on each these designated heritage assets, particularly the Torr Dhuin, fort, which the alignment would pass within 160 m of the cultural heritage asset on an area of steep topography, where the where towers would be on more elevated ground than the existing 132 kV towers.

Proximity to Dwellings

13.3.9 There are no dwellings within close proximity tof the LL-FA Baseline Alignment, except on the approach to the existing Fort Augustus Substation, where there are approximately twelve properties located along the along the Auchterawe Road. As the LL-FA Baseline Alignment would diverge from the alignment of the existing Fort Augustus to Fort William OHL at Torr Dhuin and would approach the existing Fort Augustus Substation from the FLS forestry to the south of the substation, the Baseline Alignment largely avoids these dwellings. However, the LL-FA Baseline Alignment would pass within 200 m of one property at Torr Dhuin (near the point where it would diverge from the route of the existing Fort Augustus to Fort William OHL) and another property located within the open area to the west of the Fort Augustus Substation. Based on a preliminary noise buffer a minimum buffer of 170 m would need to be implemented between the new 400 kV OHL and any properties. If the Baseline Alignment was to be microsited within the LOD in the vicinity of these properties, then care would be required to ensure that this did not result in potential noise issues. The towers of the LL-FA Baseline Alignment may also be prominent from the properties along Auchterawe Road.

Landscape and Visual

13.3.10 The LL-FA Baseline Alignment would not be located within or affect any designated landscapes. The LL-FA Baseline Alignment would directly affect LCT 237 (Rocky Moorland – Lochaber) and LCT 225 (Broad Steep-Sided Glen)[31]. Both of these LCT are considered to have some sensitivity to development of this type, but this sensitivity would be lowered by the presence of existing grid infrastructure in the area surrounding Loch Lundie.

13.3.11 The LL-FA Baseline Alignment would mostly follow the alignment of the existing 132 kV Fort Augustus to Fort William OHL so would not look unexceptional. However, the towers would be larger and they may appear more prominent, especially near Auchterawe and surrounding Torr Dhuin Fort, where towers would be on more elevated ground and more likely skyline than the existing 132 kV towers. Retaining a fringe of trees within the

FLS forestry to the south of the existing Fort Augustus Substation, between the new OHL and the open ground at Auchterawe, would help reduce the influence on this more sensitive landscape.

13.3.12 From the proposed Loch Lundie Substation, the LL-FA Baseline Alignment would follow the Baseline Path to the east of Loch Lundie for around 3 – 4 km. There would be a visual effect on users of this Baseline Path, as well as other located between Loch Lundie and Auchterawe, particularly the woodland walks around theTorr Dhuin fort. On the approach to Auchterawe, the towers would be elevated going round the fort and prominent from nearby houses along Auchterawe Road.

Land Use

13.3.13 From the new 400 kV / 132 kV Loch Lundie Substation, the LL-FA Baseline Alignment would follow the western edge of the commercial forestry plantation to the north of Invergarry, of mid rotation Sitka spruce and lodgepole pine. The adjacency to the plantation may result in felling of the plantation edge within the LOD, felling this edge may result in windthrow within the plantation or require management felling to a wind firm edge. It is noted that the Land Management Plan for this Drynachan woodland suggests early felling these areas of forestry due to areas affected by the forest disease Dothistroma needle blight (DNB). Within this plantation there are no woodland classifications that would be impacted by an OHL development within any part of the LOD of the LL-FA Baseline Alignment.

13.3.14 On entering Inchnacarrdoch Forest the LL-FA Baseline Alignment initially follows the northern edge of commercial conifer plantations, which would require felling within the LOD. This alignment then further enters the main plantation to the south of Torr Dhuin and continues within a Scots pine conifer plantation, until entry to the Fort Augustus Substation. The LL-FA Baseline Alignment would require felling a new corridor through this semi-mature plantation, which may result in subsequent windthrow or require management felling to form windfirm breaks.

13.3.15 The LL-FA Baseline Alignment encounters areas of woodland that is recorded on the NWSS (largely classified as PAWS) and is listed on the AWI (As Ancient of semi-natural origin from 1860 maps ANSO 186). Between the FLS Car Park and Picnic Area at Torr Dhuin and the Fort Augustus Substation, the LL-FA LL-FA Baseline Alignment would pass through areas of woodland that are recorded on the NWSS as native pinewood.

LL-FA Baseline Alignment (Technical Considerations)

13.3.16 Technical Considerations refer, as a minimum, to the capacity and voltage of the circuit which will dictate the choice of conductor and tower suite, which in turn may inform foundation requirements, span lengths, angle points, and construction requirements. Other considerations will also include altitude, requirement for temporary works scaffolding as well as access and accommodation works.

Alignment Variations (***See Figures 11.2-11.11***)

13.3.17 A number of Alignment Variations to the LL-FA Baseline Alignment have been considered to either mitigate a potential effect, or to provide an alternative for consideration by the project team during the selection of a Preferred Alignment. These variants are set out in Table 13.1 and shown on **Figures 11.2-11.11**. The potential environmental constraints and opportunities of these variants in comparison to the LL-FA Baseline Alignment, and with regard to the environmental topic areas set out in SSEN Transmission's routeing guidance, is discussed in more detail in **Appendix 3.1.**

Table 13.1: CG-LL Alignment Variations (*See Figures 11.2-11.11*)

Variant	Description	Reason for Variation	Variant Taken forward? (Y/N)
LL- FA Alignment Variation 1	LL-FA Alignment Variation 1 is similar to the LL-FA Baseline Alignment, except it would follow the exact route of the existing Fort Augustus to Fort William OHL between the new 400 kV / 132 kV Loch Lundie Substation and the point where the LL-FA Baseline Alignment diverges from the route of the existing 132 kV OHL at Torr Dhuin (where it would connect to the LL-FA Baseline Alignment).	LL-FA Alignment Variation 1 would be preferable to the LL-FA Baseline Alignment for the following reasons: • It would traverse habitats already disturbed during the installation of the existing Fort Augustus to Fort William OHL, which would be preferrable to installing infrastructure on undisturbed habitats. • It would reduce the requirement for additional felling along the route, as this alignment will travel through the wayleave already created for the existing OHL. Widening of the existing wayleave would be required to accommodate the larger 400 kV towers. • By following the existing wayleave the alignment could be routed at a lower elevation at Torr Dhuin, which would likely have beneficial landscape and settings effects on the Torr Dhuin SM to the LL-FA Baseline Alignment. However, the new 400 kV towers would still be larger and more prominent than the existing 132 kV towers. LL-FA Alignment Variation 1 would be beneficial from a construction perspective, as it would reduce the requirement to construct new access along a large section of the route, as there is an existing access route adjacent to the existing route. However, the capacity of the 132 KV existing Fort Augustus to Fort William OHL would need to be transferred on to the proposed Skye Reinforcement Project circuit to allow the safe dismantling of the route between Loch Lundie to Fort Augustus. This is not considered feasible as described in Section 9.7	N

		The LL-FA Baseline Alignment is preferred to this alignment variation in relation to cost. Despite advantages, the feasibility of this variation would be dependent on whether the existing 132 kV Fort Augustus to Fort William OHL could be decommissioned and dismantled prior to construction commencing on the Coire Glas Grid Connection Project, which is not considered feasible as described in Section 9.7. This alignment option is therefore not taken forward as it is deemed high risk.	
LL- FA Alignment Variation 2 (+ 400 kV / 132 kV Loch Lundie Substation Option 2)	LL-FA Alignment Variation 2 would connect to the north-eastern corner of the new 400 kV / 132 kV Loch Lundie Substation (Option 2) within the forestry to the north of Invergarry. It is also proposed that the orientation of the substation platform would be rotated for Alignment Variation 2 to improve the approach of the alignment to the substation. Alignment Variation 2 would travel through the forestry in a north-easterly direction for approximately 0.8 km before changing direction to a north-north-easterly direction within a clearing in the forestry. Alignment Variation 2 would continue through the forestry for approximately 0.6 km. A new wayleave corridor would be required to be felled through coniferous plantation to the north of Invergarry to accommodate this alignment. After exiting the northern extent of the forestry at Invergarry, Alignment Variation 2 would continue to travel in the same direction for a further 1.3 km, where it would connect to the Baseline Alignment within the area of open moorland to the north-east of Loch Lundie.	The primary reason for this Alignment Variation is to remove the requirement for the felling of the edge of the western extent of the forestry to the north of Invergarry, which may result in windthrow within the plantation or require management felling to a new wind firm edge. Alignment Variation 2 takes advantage of the broken nature of the forestry and is routed through an open area of the forestry, which will reduce the potential area of woodland loss. Within this plantation there are no woodland classifications that would be impacted by an OHL development within any part of the LOD of LL- FA Alignment Variation 2. Alignment Variation 2 would also have a lesser effect on the landscape around Loch Lundie compared to the Baseline Alignment, which would have a slight positive effect for landscape character compared to the Baseline Alignment and would also have a lesser effect on users of the Core Path along the eastern banks of Loch Lundie. Alignment Variation 2 would also avoid passing within 500 m of Loch Lundie, which would avoid potential constraints from otter known to be present around the loch and may also have benefits in relation to the qualifying features of the West Inverness-shire Lochs SPA/SSSI. However, this variation would pass through an open area of habitat within the plantation forestry where evidence of pine marten was found.	Y

		An additional benefit of this variation is that approximately 1.3 km of the southern extent of the alignment would be located within Class 5 rather than Class 2 Priority Peatland[25]. However, four additional watercourse crossings would be required within the southern extent of the route. No difference in cost between Alignment Variation 2 and the LL-FA Baseline Alignment was drawn during the cost assessment.	
LL- FA Alignment Variation 3 / 3A / 3B	<u>Alignment Variation 3</u> LL-FA Alignment Variation 3 would diverge from the Baseline Alignment within the forestry at Inchnacardoch Forest at NGR NH 33724, 806435. The variation would travel through the forestry in an east-north-easterly direction for approximately 1.3 km to reach the banks of the River Oich, which forms part of the Caledonian Canal, near Kyltra Loch. As Alignment Variation 3 travels through the forestry, it would cross several existing forestry tracks and recreational routes, including NCR 78. The Great Glen Way footpath and the Calendonian Canal are also located immediately east of the River Oich at this point. Alignment Variation 3 would then change direction to a north-easterly direction for approximately 0.5 km, running parallel to the eastern bank of the River Oich towards the FLS forestry area to the east of Auchteraw. In this area the variation would pass the elevated Torr Dhuin Fort, which is designated as a Scheduled Monument (SM794) to the west. There is a popular recreational footpath to the Torr Dhuin fort which is signposted from the FLS Carpark and Picnic Area at Torr Dhuin. Alignment Variation 3 diverges into Alignment Variation 3A and 3B at a location to the south-east of the FLS Carpark and Picnic Area at Torr Dhuin. <u>Alignment Variation 3A</u>	The primary reason for Alignment Variation 3/3A/3B is to avoid the property the property at Torr Dhuin that is within 200 m of the LL-FA Baseline Alignment, which could lead to adverse noise on this property during both construction and operation of the new OHL. Alignment Variation 3/3A/3B would also remove the more elevated and prominent towers on the approach to Auchterawe, which would have some benefial effects for visual receptors in this area, including the properties along Auchterawe Road, as views of the towers would be limited to distant views from these properties. However, Alignment Variation 3/3A/3B would have a greater impact on landscapes surrounding the Caledonian Canal at Kyltra Lock and would affect the connection between these landscapes and the fort as a landmark. It would also have a greater impact on sensitve visual receptors, including users of the Caledonian Canal, Great Glen Way and properties at Coiltry and Kyltra Lock. Although Alignment Variation 3/3A/3B would pass to the southern side of the Torr Dhuin SM rather than the northern side, it would still cross within close proximity to, and have potential for setting effects on, this designated heritage asset, as well as the three designated heritage assets associated with the Caledonian Canal that were identified for the LL-FA Baseline Alignment. LL-FA Alignment Variation 3/3A/3B would also travel along the banks of the River Oich, which would increase the potential for	N

	LL-FA Alignment Variation 3A represents a scenario where Alignment Variation 3 would connect back into the Baseline Alignment. From Alignment Variation 3, Alignment Variation 3A would change direction to a north-north-easterly direction for 0.4 km to rejoin the Baseline Alignment within the FLS forestry area to the east of Auchteraw. <u>Alignment Variation 3B</u> LL-FA Alignment Variation 3B represents a scenario where Alignment Variation 3 would connect into Alignment Variation 5. From LL-FA Alignment Variation 3, Alignment Variation 3B would continue in a north-easterly direction for 0.2 km to join LL-FA Alignment Variation 5 within the FLS forestry area to the south of the Fort Augustus Substation.	constraints from otter and is also likely to be within or immediately upstream of the mapped floodplain of the river. Variation Alignment 3/3A/3B would be routed away from the existing wayleave for the Fort Augustus to Fort William OHL through a mixture of semi mature commercial conifer plantation, recently felled plantation and takes advantage of open space within woodlands. However, this variation would cross PAWS areas, which are also listed on the AWI as ASNO 1860. Closer to western bank of the River Oich, Variation Alignment 3/3A/3B would also require felling of some woodland that is listed on the NWSS as upland mixed ashwood. This variation would also be located on extremely steep terrain which would be very challenging during the construction phase. There would be considerable cut and fill requirement for the access roads and working platforms and there may also be a requirement to install protection measures along the hillside to protect the River Oich from falling debris. No difference in cost between LL-FA Alignment Variation 3 and the LL-FA Baseline Alignment was drawn during the cost assessment. However, the LL-FA Baseline Alignment is preferred to both LL-FA Alignment Variations 3A and 3b in relation to cost, with Alignment Variation 3A being the least preferred option.	
LL- FA Alignment Variation 4 / 4A / 4B	<u>LL-FA Alignment Variation 4</u> LL-FA Alignment Variation 4 would diverge from the Baseline Alignment within the forestry at Inchnacardoch Forest at approximately NGR NH 234261, 806873. The variation would travel through the forestry to the north-east of Torr Dhuin in an east-north-easterly direction for approximately 0.8km, exiting the forestry near the FLS Car Park and Picnic Area. Alignment Variation 4 would cross several existing forestry tracks and recreational routes, including the circular Baseline Path leading the Torr Dhuin Fort and a minor watercourse.	The primary reason for Alignment Variation 4/4A/4B is to avoid the property the property at Torr Dhuin that is within 200 m of the LL-FA Baseline Alignment, which could lead to adverse noise impacts on this property during both construction and operation of the new OHL. Alignment Variation 4/4A/4B would be approximately 260 m from the property at Torr Dhuin. Alignment Variation 4/4A/4B would be largely similar to the Baseline Alignment but the towers would cross higher ground near Torr Dhuin and would therefore be potentially slightly more prominent in the setting of the more sensitive landscapes around Auchterawe, with greater potential to affect the role of	LL- FA Alignment Variation 4 and 4B to be taken forward.

	Alignment Variation 4A LL-FA Alignment Variation 4A represents a scenario where Alignment Variation 4 would connect back into the Baseline Alignment. Alignment Variation 4A would re-join the Baseline Alignment at approximately NGR NH 235064, 807214, located 0.06km to the north-east of Alignment Variation 4, at a location near the FLS Car Park and Picnic Area. Alignment Variation 4B LL-FA Alignment Variation 4B represents a scenario where Alignment Variation4 would connect into Alignment Variation 5. From Alignment Variation 4, Alignment Variation 4B would continue in an east-north-easterly direction for a further 0.3 km, to join Alignment Variation 5 within the FLS forestry area to the east of Auchterawe.	Torr Dhuin Fort as a landmark. This variation may also have a greater impact on some visual receptors in the surrounding area, including users of recreational routes around Torr Duin fort and some properties in Auchterawe, although it may be further from others. Alignment Variation 4/4A/4B would also likely have a slightly increased settings effects on the Torr Dhuin SM, due to the towers being located within 100 m of this cultural heritage asset and at a higher elevation than the towers associated with the LL-FA Baseline Alignment. The technical issues associated with this variation would be similar to the Baseline Alignment, with the exception being the decent down the hillside towards Fort Augustus would be much steeper and would increase the cut and fill requirements for the access roads and working platforms. The LL-FA Baseline Alignment is preferred to this alignment variation in relation to cost.	
LL- FA Alignment Variation 5	Alignment Variation 5 would diverge from the Baseline Alignment near the FLS Carpark and Picnic and continue in an east-north-easterly direction for a further 0.2 km, before changing direction, to a north-easterly direction as it enters the FLS forestry area to the east of Auchterawe. Alignment Variation 5 would then continue through this area of forestry for approximately 0.7 km, crossing a FLS forestry access track (which is also used as a recreational route) twice, before changing direction again to north-north-westerly direction, to approach the south-western corner of the existing Fort Augustus Substation.	The primary reason for Alignment Variation 5 is to remove the requirement for the felling of the edge of the north-western extent of the forestry to the south of the Fort Augustus Substation, which may result in windthrow within the plantation or require management felling to a new wind firm edge. Alignment Variation 5 also takes advantage of the broken nature of the forestry and is routed through an open area of the forestry, which will reduce the potential area of woodland loss. Alignment Variation 5 would be routed through the same areas of woodland that are recorded on the NWSS as native pinewood as the Baseline Alignment. An additional benefit of LL-FA Variation Alignment 5 is that this alignment would not pass within 200 m of the property located in the open area to the west of the Fort Augustus Substation. There would therefore be no potential noise issues associated with the alignment if this variation was selected as part of the Proposed Alignment.	Y

		Variation Alignment 5 would also be slightly preferable to the LL-FA Baseline Alignment because towers would be further from the properties along Auchterawe Road and there would be a greater opportunity to retain a forest buffer between these visual receptors and the OHL. This would also lead to slight localised improvement on Landscape Character near as it would allow a greater proportion of forest to be retained between the sensitive landscapes at Auchterawe. No difference in cost between Alignment Variation 5 and the LL-FA Baseline alignment was drawn during the cost assessment	

13.4 Preferred Alignment (*See Figure 11.12)*

13.4.1 In selecting the Preferred Alignment between the Preferred Site of the new 400 kV / 132 kV Loch Lundie Substation and the existing Fort Augustus, consideration has been given to a variety of environmental, technical and economic considerations. On balance, it was determined that both LL-CG Alignment Variation 2, LL-CG Alignment Variation 4/4B and LL-FA Alignment Variation 5 should be taken forward as **the Preferred Alignment**. **The Preferred Alignment** is illustrated on **Figure 11.12.**

13.4.2 **Figure 13.1** presents a visualisation of **the Preferred Alignment** from the settlement of Auchterawe, on the approach to the Fort Augustus Substation. The existing 132 kV Fort Augustus to Fort William OHL shown in the baseline photograph of **Figure 13.1** has also been removed from the photomontage, as it is anticipated that this OHL will be decommissioned and dismantled following the construction of the Coire Glas Grid Connection Project as part of the wider rationalisation project. An anticipated wayleave corridor of 80 m (40 m either side of the OHL) where the Preferred Alignment passes through areas of forestry has been assumed for the purposes of the visualisation. The exact width of the wayleave will be determined during the EIA Stage.

14. CONSULTATION ON THE PROPOSALS AND NEXT STEPS

14.1 Consultation Process

14.1.1 SSEN Transmission places great importance on, and is committed to, consultation and engagement with all parties or stakeholders who are likely to have an interest in proposals for new projects. Stakeholder consultation and engagement is an essential part of an effective development process.

14.1.2 A series of public exhibition events, as detailed in the Preface of this Report. will be held to provide local communities the opportunity to provide feedback on the alignment selection stage of the project.

14.2 Questions for Consideration by Consultees

14.2.1 When providing your comments and feedback, SSEN Transmission would be grateful for your consideration of the questions below:

- Have we adequately explained the need for this Project?
- Are you satisfied that our approach taken to selecting the preferred sites, routes and alignments has been adequately explained?
- Are there any factors, or environmental features, that you consider may have been overlooked during the site selection and routeing process?
- Do you have any other comments in relation to the drivers for the project, related to the transmission infrastructure requirements, or about the Preferred Alignment or Preferred Sites for the new 400 kV Coire Glas Switching Station or the new 400 kV / 132 kV Loch Lundie Substation?

14.3 Next Steps

14.3.1 All comments are requested by 1700 hrs Monday 20th June 2022. A Report on Consultation will be produced which will document the consultations received, and the decisions made in light of these responses, and the identification of a Proposed Alignment and Proposed Sites for the new 400 kV Coire Glas Switching Station or the new 400 kV / 132 kV Loch Lundie Substation.

14.3.2 Following the identification of the Proposed Alignment and Proposed Sites for the new 400 kV Coire Glas Switching Station or the new 400 kV / 132 kV Loch Lundie Substation, further technical and environmental surveys will be undertaken as appropriate to support an The EIA Report will accompany both a S37 application under the Electricity Act 1989 for the OHL elements of the project and a Town and Country Planning application for both the substation and switching station, anticipated to be made in December 2022. A Scoping Report for the project is planned to be published in Summer 2022 to outline the proposed scope of the EIA Reports.