

BLACKCRAIG & MARGREE WINDFARMS

132KV GRID CONNECTION

Environmental Statement

[FEBRUARY 2011]

NTS

NON-TECHNICAL SUMMARY



SP TRANSMISSION



Blackcraig & Margree Windfarms Grid Connection Project

Environmental Statement

Non-Technical Summary

Prepared for SP Transmission Ltd by Capita Lovejoy

February 2011

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1.1 PREFACE

1 This document provides a non-technical summary of the Environmental Statement which has been prepared in support of the applications for the development of a grid connection for the proposed windfarms at Blackcraig and Margree and associated changes to the grid network in this area.

2 The Environmental Statement comprises the following documents:

- The Environmental Statement (principal document)
- Non-Technical Summary
- Technical Appendix (single document)

3 Further copies of all these documents may be obtained, and will be available for viewing, from:

ScottishPower EnergyNetworks
New Alderstone House
Dove Wynd
Strathclyde Business Park
Bellshill
ML4 3FF
Tel: 01698 413270

4 The Non-Technical Summary is available free of charge, a copy of the Environmental Statement & Technical Appendices (principal document including figures) for £350.00. In addition all documents are available (as a PDF for screen viewing only) on a DVD for £25.00. Copies of all documents are also available at www.spenergynetworks.com/publicinformation/performance.asp.

5 Any representations to the application should be made directly to the Scottish Government Energy Consents Unit at the following email

representations@scotland.gsi.gov.uk

OR

By post to The Scottish Government, Energy Consents Unit, Scottish Government, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU

6 Copies of the documents will be available for public viewing at the following Council departments and Libraries:

East Ayrshire Council
Offices
Planning Development
& Building Standards
6 Croft Street
Kilmarnock
KA1 1JB

Scottish Government
Library
Saughton House
Broomhouse Drive
Edinburgh
EH11 3XD

Cumnock Community
Library
25-27 Ayr Road
Cumnock
East Ayrshire
KA18 1EA

Dumfries & Galloway Council
Area Planning Office
4 Market Street
Castle Douglas
DG7 1BE

Dalry Community Library
Main Street
St John's Town of Dalry
Castle Douglas
DG7 3UP

Dalmellington Community
Library
Townhead
Dalmellington
East Ayrshire
KA6 7QZ

1.2 INTRODUCTION

- 1 This Non-Technical Summary forms part of the Environmental Statement prepared under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 on behalf of ScottishPower Transmission Ltd, a wholly owned subsidiary of ScottishPower and subsequently referred to as SPT.
- 2 SPT is the Transmission Licence holder for the south of Scotland and is required under the Electricity Act 1989 and under the terms of its Electricity Supply Licence "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission". SPT is obliged to provide electrical connections from various proposed windfarm developments to the existing grid network.
- 3 Applications to install and operate larger overhead lines are made to the Scottish Ministers through Section 37 of the Electricity Act 1989 rather than to the local planning authority. The local planning authority is however consulted in its determination.
- 4 The Environmental Statement has been prepared in support of three applications under Section 37 of the Electricity Act 1989 for:



- A single circuit overhead (wood pole) line between the Blackcraig and Margree substations (carrying the Blackcraig Windfarm circuit);
 - A single circuit overhead (wood pole/tower) line between Margree and Meikle Hill substations (carrying the windfarm circuits); and
 - A single circuit overhead (tower) line between Kendoon and Meikle Hill substation (carrying the existing Galloway Hydro circuit).
- 5 As part of the Section 37 applications, SPT are also seeking that the Scottish Ministers issue a direction that deemed planning permission be granted under Section 57 (2) of the Town & Country (Scotland) Planning Act for the overhead lines and the ancillary development of the windfarm substations at Blackcraig and Margree.
 - 6 The Environmental Statement sets out the background to the route identification process, the relevant planning and other issues. It presents details of the proposed development, and the results of specific studies undertaken to assess the likely significant environmental effects of the proposal.
 - 7 The connection is required in this location as the locations of the Blackcraig and Margree Windfarms and Meikle Hill are fixed end points for this connection.
 - 8 In identifying the proposed route, SPT has sought to combine sensitive routeing with appropriate mitigation measures to avoid and reduce environmental effects on both the immediate and wider environment. In addition the project has sought to use the requirement for this new connection to provide an opportunity to replace elements of the existing ageing grid infrastructure which will be removed following completion and energisation of the new connections.
 - 9 At all stages of the project, SPT has consulted widely with all of the relevant local, regional and national bodies. In addition to this project information was made available to the public in order to gauge and respond to public concerns regarding the proposal.

- 10 This proposal for the grid connections is made whilst the applications for the windfarms remain undetermined to ensure that if consented, any time lag to achieving a grid connection is minimised. The grid connection would only be developed (if consented) if the windfarms were consented.

1.3 LEGAL AND POLICY FRAMEWORK

- 1 Whilst the application for these grid connections will be made to the Scottish Ministers under Section 37 of the Electricity Act 1989, they lie within the administrative areas of East Ayrshire Council and Dumfries and Galloway Council, and the applications will be considered not only in the context of the Electricity Act but Scottish Government Planning Policy (SPP) and the development plans for these areas.
- 2 SPT have accepted that an Environmental Impact Assessment (EIA) is required for this grid connection and have prepared this Environmental Statement to report the findings of this EIA. The process of EIA seeks to identify the likely significant effects of the proposal.

1.4 ROUTE SELECTION, COMMUNITY CONSULTATION AND SCOPING

- 1 This grid connection is located in this area to provide a connection between the fixed points of the Blackcraig and Margree Windfarms and Meikle Hill.
- 2 In identifying the proposed route and form of this grid connection SPT, whilst being obliged to provide a grid connection, have been mindful of their dual obligations under the Electricity Act 1989 to develop and maintain an efficient co-ordinated and economical system of electricity transmission and also to preserve the environment.
- 3 On the basis of the fixed points for the connection, extensive studies have been undertaken to identify the most suitable alignment and technical form for the grid connection. This has been undertaken sequentially through the process of EIA to allow the balance of technical and environmental issues to be



fully understood.

- 4 The routeing exercise was initially undertaken on the basis of well established industry rules and was subsequently modified to reflect the growing understanding of the specific local constraints identified through the EIA process.
- 5 The principal issues to which the routeing needed to respond were the:
 - Requirement to minimise the number and extent of overhead lines within the environment;
 - The requirement to adopt accepted principles of routeing;
 - The need to identify and use forms of overhead line most suited to the local environment; and
 - To avoid where possible identified environmental and other constraints both at a broad and more local scale.
- 6 Whilst it has not been possible to avoid all constraints, the route identified is considered to provide the most appropriate balance in the light of SPT's dual obligations described previously.
- 7 The grid connection was initially developed through a number of options to a stage known as the "Preferred Route" which represented SPT's understanding of the most appropriate way to provide a grid connection based on the environmental work and consultation undertaken to that point.
- 8 This Preferred Route was described within the following documents:
 - Consultation Document (April 2009) (Issued to a wide range of consultees to seek their opinions on the proposal);
 - An exhibition of the material within the Consultation Document which was held on four consecutive days 27th to 30th April 2009, two days in Dalmellington Community Hall and two days in Lagwyne Hall, Carsphairn to allow members of the public to view the developing proposal and to comment on it. These exhibitions were attended by SPT (and their consultants) for one day in each location, with the exhibitions open but unattended

on the other day.

- 9 In addition SPT undertook a series of consultation meetings with East Ayrshire Council, Dumfries and Galloway Council, Scottish Natural Heritage, Forestry Commission, Royal Society for the Protection of Birds and others.
- 10 Following this round of consultation the comments of those responding to the proposal were considered and the grid connection was subject to revision to reflect a number of these.
- 11 These comments and the results of further environmental studies allowed the development of the "Proposed Route" which is the subject of these applications.
- 12 This proposed route was described in the Scoping Request (September 2009) issued to the Scottish Ministers (who will determine the application) to allow them to identify the issues that should be considered within the EIA).
- 13 In response, the Scottish Ministers provided a Scoping Opinion – their view as to what should be considered within the EIA. The EIA and the Environmental Statement have been undertaken on this basis. It should be noted that no Scoping Response was received from East Ayrshire Council.

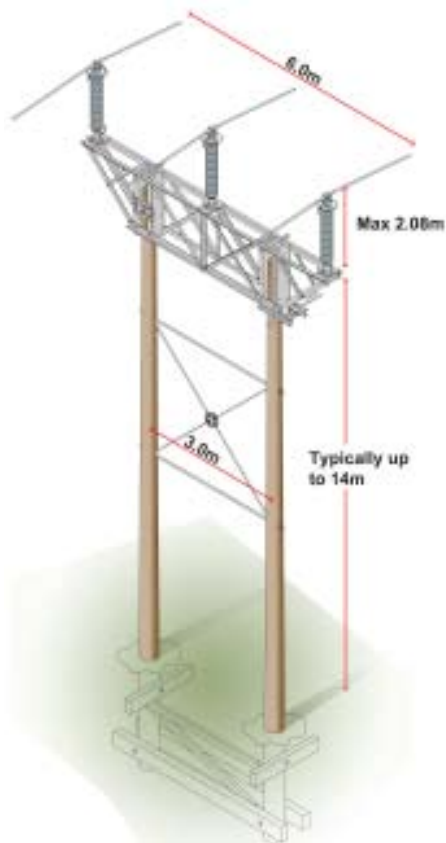


1.5 THE GRID CONNECTION

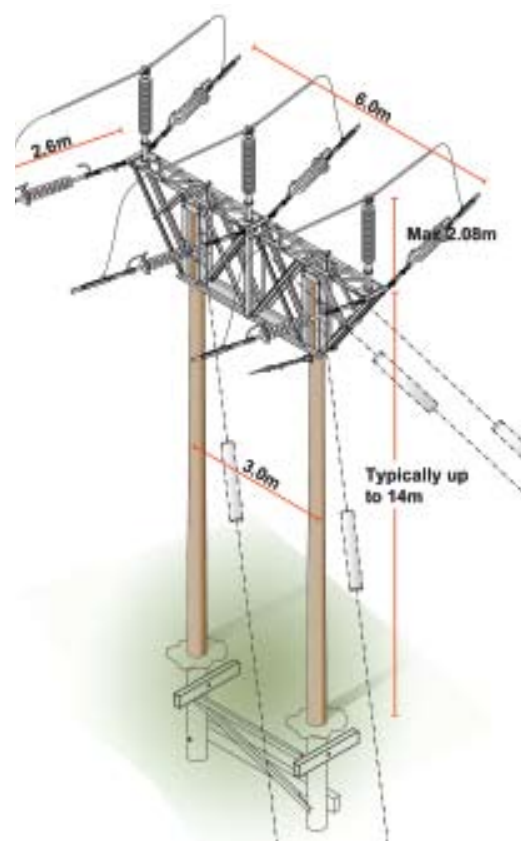
- 1 The proposed grid connections provide the link between the windfarms at Blackcraig and Margree and the substation at Meikle Hill. (The Meikle Hill substation (and associated overhead lines) is the subject of an existing undetermined Section 37 application to the Scottish Ministers.) The substation at Meikle Hill will, when consented, provide a link to the wider grid in southern Scotland.
- 2 The grid connection required to accommodate the combined capacity of these two windfarms will be a single circuit at 132kV. This voltage will be stepped up at the Meikle Hill substation to 400kV for onward transmission to the grid.
- 3 The connections between the windfarms and their substations will be at 33kV and this voltage will be stepped up to 132kV within the substations.
- 4 Typically 132kV connections take the form of overhead lines carried on steel lattice towers with an average height of 29m. In recognition of the sensitive nature of some of the local landscapes, SPT identified from the outset that the connection could be provided on a wood pole structure of up to 16m height rather than the more typical steel lattice towers.
- 5 The wood pole structures generally comprise twin poles with steel work above supporting the insulators and 3 conductors and the earth wire. See Figure NTS.01.
- 6 The strategy adopted for the connection to limit the extent of overhead lines within the landscape and to provide an opportunity to replace and reinforce the existing ageing network in this area requires that part of the connection be combined with the replacement for the existing single circuit 132kV Galloway Hydro circuit.
- 7 This resulted in much of the route comprising two 132kV circuits (one from the windfarms and one replacement for the existing Galloway Hydro Circuit) combined and being supported on a steel lattice tower structure. See Figure NTS.02.
- 8 On this basis the proposal was developed to provide a route between the substations which both minimised the required length and also respected the environmental constraints.
- 9 The proposed grid connection therefore comprises the following (See Figure NTS.03):
 - 2.7km of underground cable (33kV) from the windfarm at Blackcraig to its substation;
 - 1.8km of single circuit overhead line (132kV) on wood poles running west to the substation at Margree;
 - 10.4km of single circuit overhead line (132kV) overhead line on wood poles running west from the substation at Margree to a point west of the A713 to the north of Polmaddie;
 - 440m of underground cable (132kV) between the wood pole line and the L7 tower line; and
 - 24.3km of twin circuit overhead line (132kV) overhead line on steel lattice towers running north from a point west of the A713 to the north of Polmaddie to the substation at Meikle Hill.
- 10 Following construction and energisation of the new overhead lines, the redundant parts of the existing 132kV single circuit N-Route (32km from a point west of the A713 to the north of Polmaddie to 12km north of Dalmellington) will be dismantled and removed under Permitted Development Rights.



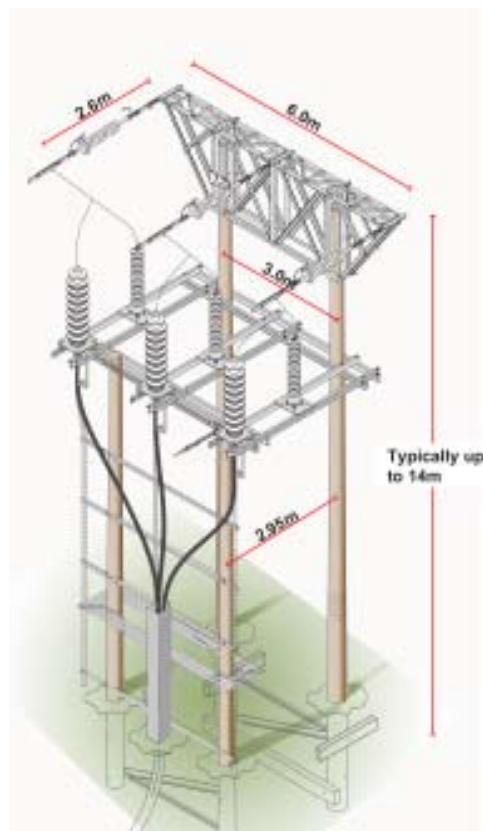
Figure NTS.01 - Wood pole types/supports



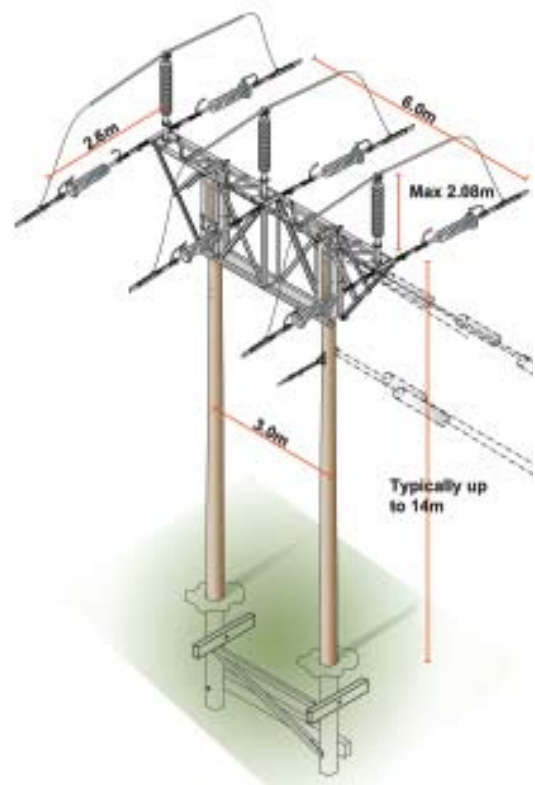
Straight line Wood pole



Angle Wood pole



Termination Wood pole



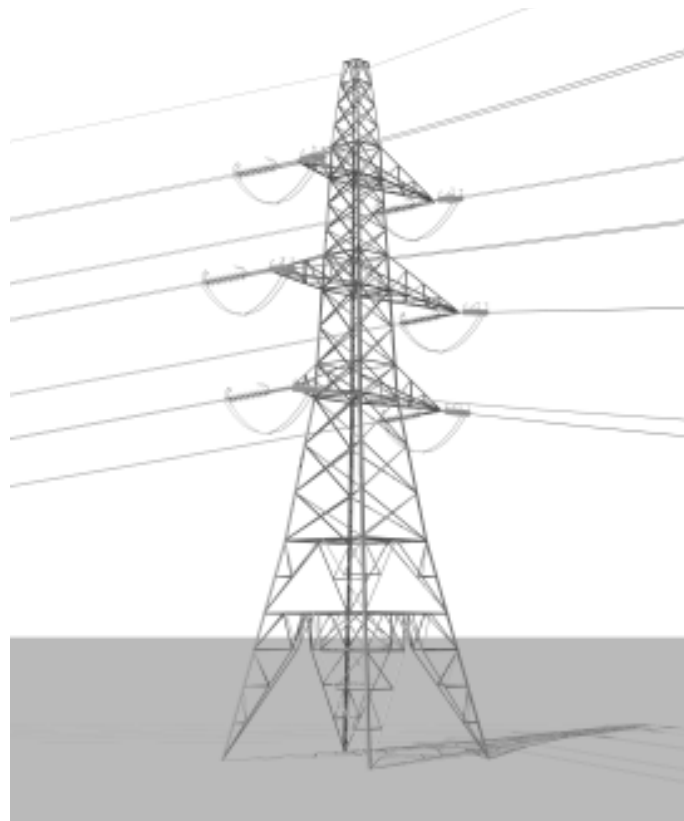
Section Wood pole



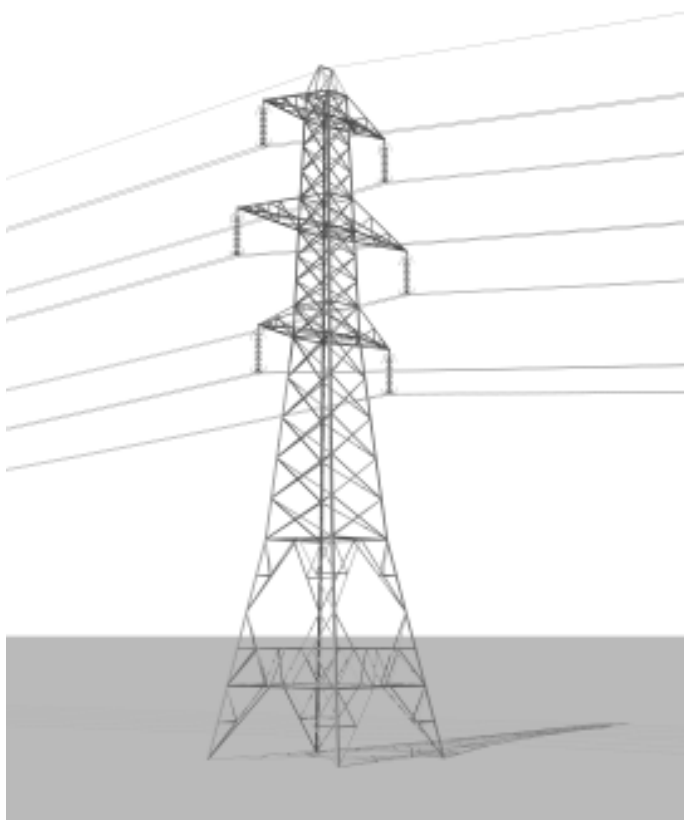
Figure NTS.02 - L7H Tower types



L7H D30 (up to 30° deviations) Tower



L7H D60 (up to 60° deviations) Tower

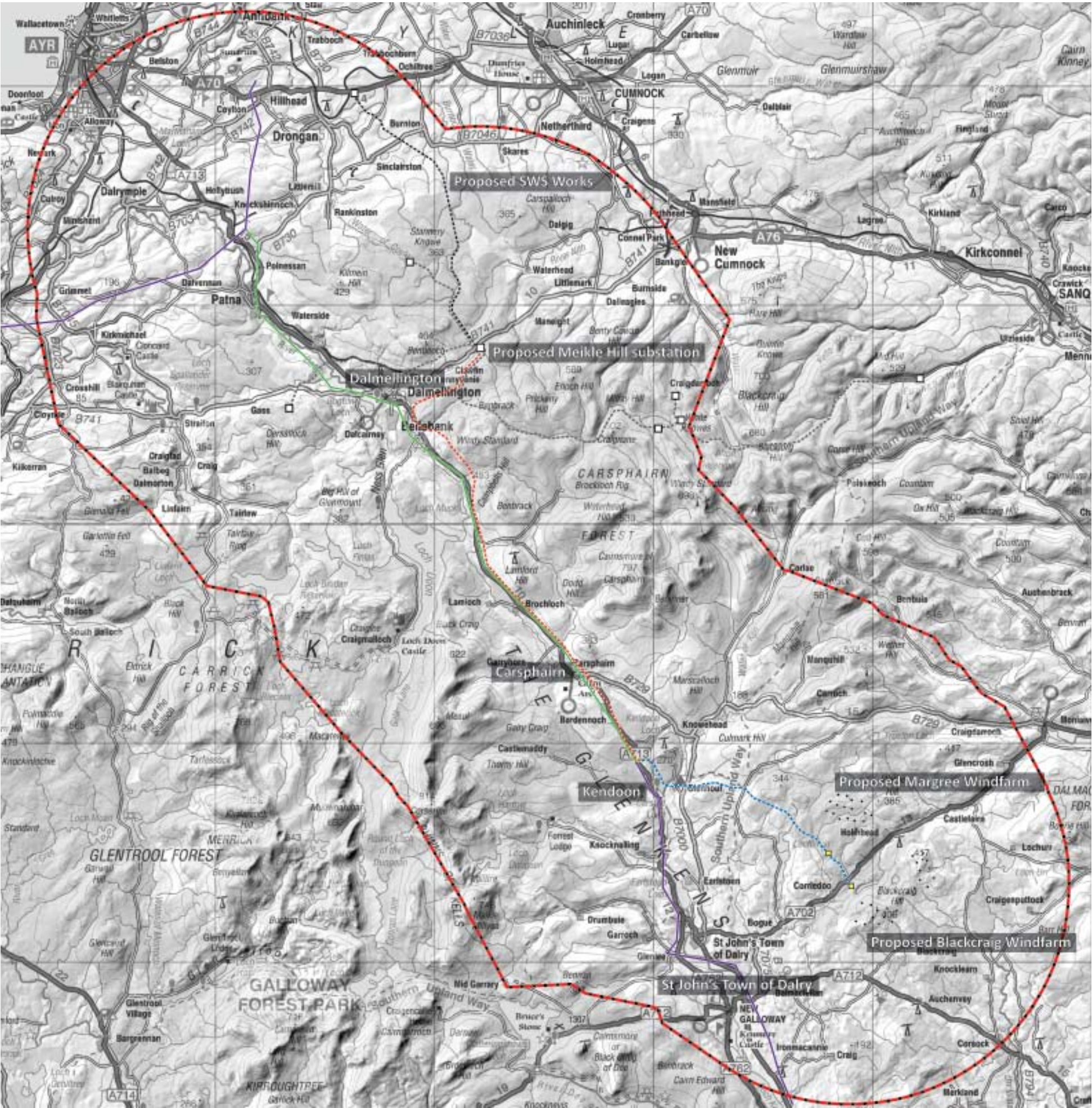


L7H Suspension Tower



L7H DT (Terminal) Tower





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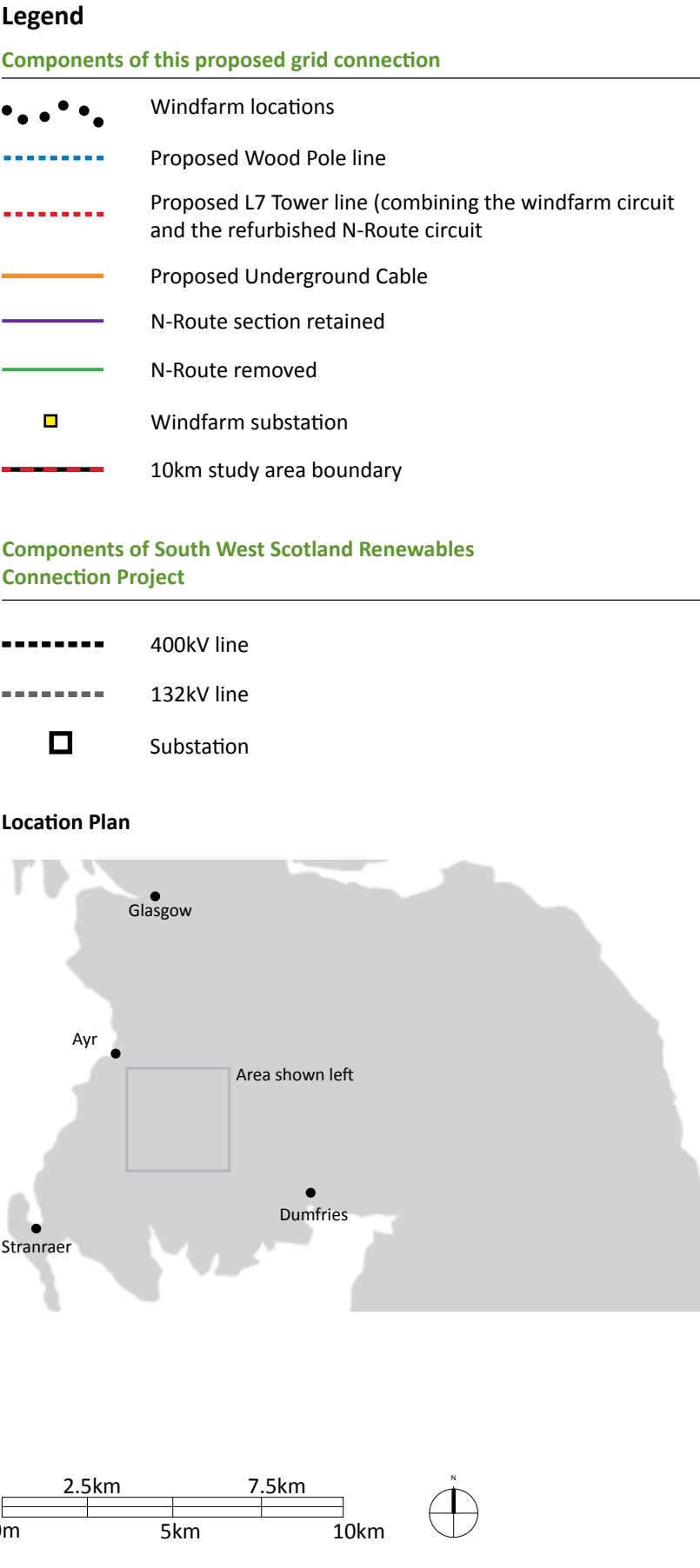


Figure NTS.03 - Site Context & elements of the grid connection



1.6 ENVIRONMENTAL EFFECTS

- 1 The process of EIA has been undertaken to identify the likely significant effects of the proposed grid connection and these are described in the following sections. The effects may result either from the construction of the connection or through its operation over the period of its life.
- 2 Through the process of the EIA, SPT has sought to limit the effects of the proposed grid connection. This has been undertaken through a process known as mitigation. Where likely significant environmental effects are identified, the proposal may be amended to avoid these, or measures developed to reduce these or offset them.
- 3 Much of the routeing process was undertaken to avoid potential environmental issues.

1.6.1 FORESTRY

- 1 The construction of the grid connection will require a number of changes to the pattern of woodland along its length.
- 2 Within the overall length of the proposed grid connection, 21.7km of this lies within areas of woodland. This woodland is divided between Forestry Commission Scotland and a number of private owners.
- 3 The woodland is predominantly commercial coniferous plantation, although with limited areas of broad leaved woodlands.
- 4 The proposal has been developed to reduce the area of felling required whilst being mindful of the need to achieve:
 - A layout which does not unduly compromise forestry activities;
 - A corridor within the forest which respects best practice forest design; and
 - Avoids areas of sensitive habitat.
- 5 Mitigation of the effects on forests and woodlands is proposed through a combination of routeing,

detailing of the overhead line structures and crown reduction and other arboricultural measures.

- 6 The proposal requires the felling of approximately 111ha of woodland within the 80m corridor for the overhead line. The effect of this felling is such that an additional area of 106 ha is thought likely to be liable to windthrow. It is the intention of SPT to seek to agree with the relevant landowners to manage this area liable to windthrow in accordance with best practice to the nearest practical windfirm edge taking account of forest landscape design principles.
- 7 Most of this 217ha of woodland is commercial conifers and would anyway therefore be felled at some stage in the future.
- 8 There are limited areas of Ancient Semi-Natural Woodland along the route of the proposed overhead line, notably at the Carse of Dundee and Greenwell of Scotland. These amount to 614m in length, and if felled to the full 80m corridor width would require 4.77ha of felling.
- 9 The detail of the overhead line in these areas has however been developed such that the requirement for felling in these areas has been limited to only a very limited number of mature broad leaved trees, with others dealt with through limited crown reduction or other arboricultural management.
- 10 The effect of felling of 217ha of commercial (largely) coniferous woodland is considered significant. The effect of the very limited change to the Ancient Semi-Natural Woodland is considered not significant.



1.6.2 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

- 1 The proposed grid connection has been developed as far as possible to mitigate the potential landscape and visual effects that might result from such development.
- 2 The detailed route, and the forms of the overhead lines, in responding to the underlying landscape form and pattern, have limited the extent, nature and scale of effects.
- 3 Notwithstanding the mitigation provided by the routeing and detailed design of the OHL route, a number of significant effects on the landscape resource and visual amenity will result from the proposed grid connection.
- 4 Local significant effects upon the landscape character occur along the length of the route within all of the landscape units through which it passes, except within the Foothills landscape unit to the south of Dalmellington. These effects are variously both beneficial and adverse in nature, depending on the elements of the grid connection being considered. Beneficial effects generally occur to the north of Dalmellington, where the existing N-Route will be removed from the landscape without replacement.
- 5 Significant adverse effects particularly occur within the landscapes currently not containing infrastructure of this type and where this constitutes an appreciable change such as that between Butterhole Bridge and Dalshangan.
- 6 Where the proposed OHL essentially replaces the existing N-Route, along the A713 valley, the effects upon the landscape resource are not significant.
- 7 Significant effects upon the landscape resource for other specific receptors are limited to a small number of the roads that run through the Study Area, part of the Southern Upland Way near to Butterhole Bridge and the Loch Doon Valley Sensitive Landscape Area.
- 8 The significant effects upon the A713 are adverse where the proposed OHL route passes closer to, or forms a more conspicuous element of the view, from this important tourist route, but are beneficial as the road corridor runs northwards from Glen Muck, and the existing N-Route is removed from within views from the road. Elsewhere, significant adverse effects are found from parts of the B7000 and the minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig, where the wood pole OHL route runs in close proximity to the road.
- 9 Significant effects on the visual amenity extend along much of the local landscape occupied by the OHL and in close proximity to it. In some cases these effects are adverse, although locally in Glen Muck and northward there are beneficial effects from the removal of the N-Route.
- 10 These significant adverse effects upon visual amenity result from the OHL either becoming a new or more prominent element of the view (relative to the existing N-Route OHL) than is currently the case.
- 11 The effects on visual amenity diminish rapidly with increasing distance from the OHL (particularly the wood pole elements) especially where it is viewed backclothed by landscape or woodland, such that within much of the wider landscape it will be either unseen or not perceptible.



1.6.3 TERRESTRIAL ECOLOGY

- 1 The study area for the OHL includes a range of habitats, statutory designated sites, flora and fauna. The dominant habitats are commercial conifer plantation, moorland habitat mosaics, improved enclosed pasture, and scattered areas of semi-improved species-rich neutral / calcareous grassland.
- 2 Important ecological constraints (protected/sensitive sites, habitats and species of national conservation concern), along with other environmental constraints, were carefully considered during the determination of the proposed route for the OHL. This has appreciably avoided and reduced potential adverse effects from this OHL on sensitive ecological receptors.
- 3 Local information concerning the ecology of the area has been obtained from relevant statutory and non-statutory consultees. These include Scottish Natural Heritage, Scottish Wildlife Trust, Scottish Environment Protection Agency, Ayrshire and Galloway Rivers Trust. Desk study information was also obtained from the local biological record centres, Botanical Society of the British Isles local recorder, Forestry Commission Scotland, local badger and bat groups, Red Squirrel Group, and information from the East Ayrshire and Dumfries & Galloway Biodiversity Officers.
- 4 Field surveys were carried out including an extended Phase 1 habitat survey and a range of protected species surveys (i.e. water vole, otter, red squirrel, badger and bats).
- 5 The nature conservation value of habitats and flora ranged from High (e.g. Bogton Loch SSSI, Dalmellington Moss SSSI, main watercourses), Medium (e.g. broadleaved semi-nature woodland, blanket bog, semi-improved species-rich grasslands) to Low (e.g. conifer plantation woodland). All fauna identified as Medium or Local High nature conservation value apart from fresh water pearl mussels which were assessed as High.
- 6 Potentially significant effects on habitats as a result of the proposed OHL, were identified for:
 - blanket bog;
 - marsh;
 - marshy grassland;
 - semi-improved grasslands; and
 - wet dwarf shrub heath.
- 7 Potentially significant effects on were also identified as a result of the dismantling of the N-Route for:
 - Dalmellington Moss SSSI;
 - blanket bog; and
 - raised bog.
- 8 Potentially significant effects were identified, principally in relation to pollution risk during construction works on:
 - Watercourses;
 - salmonid fish;
 - Bogton Loch SSSI;
 - Loch Doon SSSI; and
 - standing waters.
- 9 Potentially significant effects during the construction, dismantling and operational phase were identified for:
 - bat species;
 - otter;
 - red squirrel; and
 - fresh water pearl mussel.
- 10 A range of mitigation measures have been developed to address these effects and are included within the proposal. They include pre-works surveys/assessments (followed by appropriate measures where necessary to prevent significant adverse effects on any protected species), ecological micro-siting of all works, use of best practice pollution control measures, and habitat management of the wayleave corridor to address adverse effects on species and habitats.
- 11 Implementation of the proposed mitigation measures will result in the overall effects on habitats and species of conservation interest being not significant in the long-term.



1.6.4 ORNITHOLOGY

- 1 The bird populations of the study area have been determined through the collation of relevant available baseline data, desk study and field survey. Field survey has included extensive flight activity surveys (>4,000 hours of observations between October 2007 and May 2009), wintering wildfowl surveys, woodland breeding bird surveys, moorland breeding bird surveys, breeding raptor surveys, black grouse lek surveys, forest owl surveys, breeding nightjar survey, and hen harrier roost survey.
- 2 Species present in the study area identified as important for the assessment of the proposed OHL include species listed on Schedule 1 to the Wildlife & Countryside Act 1981 and/or Annex 1 of the EC Birds Directive, such as:
 - red kite;
 - goshawk;
 - merlin;
 - peregrine;
 - hen harrier;
 - barn owl;
 - nightjar; and
 - whooper swan.
- 3 Also a number of UK Red List and/or UK BAP priority species are present such as:
 - black grouse;
 - lapwing;
 - cuckoo;
 - skylark; and
 - tree pipit.
- 4 Local information concerning the ornithological interest of the area has been obtained from relevant statutory and non-statutory consultees. These include Scottish Natural Heritage and Royal Society for the Protection of Birds, Scottish Ornithological Society, British Trust for Ornithology, and the Dumfries & Galloway Raptor Study Group.
- 5 Important ornithological constraints such as protected/sensitive sites, breeding/roosting sites of species of high conservation concern, were considered during the determination of the proposed route for the OHL to avoid and/or reduce potential adverse effects on sensitive ornithological receptors.
- 6 Calculations based on the bird flight activity survey data were undertaken to assess collision risk for species of high conservation concern considered to at particular risk of collision with overhead lines (e.g. whooper swan, greylag and pink-footed geese, Schedule 1 raptor species and black grouse).
- 7 38 species of conservation concern (i.e. Schedule 1 / Annex 1 species, species listed on the UK amber or red lists) were confirmed or suspected of breeding within the OHL survey area.
- 8 The survey area was found to support breeding bird assemblages typically associated with the dominant habitats.
- 9 Eight raptor/owl species were recorded as breeding within 2km of the proposed OHL route.
- 10 Five wader species were recorded as breeding in the survey area.
- 11 Occasional black grouse flight activity was recorded however; no lekking activity or evidence of breeding activity was recorded.
- 12 A total of 20 songbird species were confirmed as breeding within the survey area.
- 13 Potentially significant effects, were identified for the construction phase for several species including:
 - red kite;
 - hen harrier;
 - goshawk;
 - black grouse;
 - barn owl; and
 - nightjar.
- 14 A similar range of potentially significant effects were also identified during the proposed dismantling works.



- 15 For whooper swan and greylag goose the overall effect of the installation of the proposed OHL and removal of the existing line on annual collision mortality is considered to be beneficial.
- 16 Peregrine is the only species that is considered to be subject to a potentially significant effect from collision risk in the long-term, in relation to the local-regional population.
- 17 Potentially significant effects were identified for goshawk, black grouse and nightjar during operation maintenance or emergency works.
- 18 Additional mitigation measures are proposed to address potentially significant effects. These include pre-construction bird surveys, felling of trees outwith the breeding season and use of bird flight diverters on the conductors and earthwires to reduce collision risk along a number of defined sections of the OHL. Implementation of these measures will ensure that there are no significant effects.

1.6.5 ARCHAEOLOGY

- 1 An assessment has been undertaken of the likely effects on cultural heritage assets of the proposed construction and operation of the Blackcraig and Margree OHL and substations at the two wind farms, including the dismantling of a length of the existing N-Route overhead line. Desk-based assessment and reconnaissance field survey were carried out to identify the cultural heritage baseline within and surrounding the proposed works. The baseline survey identified more than 300 relevant cultural heritage sites, monuments, features and areas of interest, ranging in date from early prehistoric findspots to the remains of 20th century military installations and industrial monuments. These cultural heritage assets are testament to the long and continuous history of occupation and exploitation of the landscape crossed by the proposed and existing overhead lines, since early prehistoric times.
- 2 The assessment identifies the likely construction, operational, secondary and cumulative effects of the proposed works on cultural heritage assets. Likely felling and construction effects (i.e. physical effects on cultural heritage assets) have been identified in relation to 47 cultural heritage features and potentially on presently unrecorded archaeological remains. A range of mitigation measures are identified that will variously prevent, reduce or offset these likely effects. Taking this mitigation into account, the assessment does not identify any significant residual construction and felling effect.
- 3 The assessment of operational effects identifies that two cultural heritage assets are likely to experience significant beneficial effects on their settings as a result of the implementation of the proposals. These are the designed landscape at Craigengillan; and a listed lodge within the designed landscape and they will be enhanced, with the removal of the existing N-Route overhead line that presently crosses the northern part of the designed landscape. There are a number of not significant effects on the settings of a number of receptors. These not significant effects include both adverse and beneficial effects.
- 4 No significant adverse operational effects are identified as a result of the proposals on cultural heritage receptors. A small number of not significant secondary effects on cultural heritage assets are identified, on heritage walks and as a result of potential disturbance caused by windthrown trees consequent upon forestry felling.
- 5 Cumulative operational effects are identified in relation to seven specific cultural heritage receptors; in all cases the Blackcraig and Margree proposals are found to provide a beneficial contribution to the identified cumulative operational effect, through the removal of a length of the existing N-Route overhead line.
- 6 Overall, the assessment concludes that the proposed works will have a minor, adverse and not significant effect on cultural heritage assets and the historic environment, principally as a result of the likely physical effects of construction and felling operations upon archaeological remains. However, it identifies positive outcomes of the proposed works, specifically resulting from the removal of a length of the existing N-Route overhead line, which will be beneficial and significant.



1.6.6 GEOLOGY AND HYDROGEOLOGY

- 1 An assessment has been carried out of the likely effects of the proposed grid connection on the hydrological and hydrogeological environments. The assessment has considered site preparation, construction and operation of the grid connection, together with removal and decommissioning of part of the existing N-Route.
- 2 The potential effects on the surface waters, groundwaters, peat and soils, and public and private water supplies that have been considered are:
 - Pollution incident;
 - Erosion and sedimentation;
 - Changes to water resources, i.e. public and private water supplies;
 - Modification to surface water and groundwater flows;
 - Modification of natural drainage patterns;
 - Impediments to flows and flood risk; and
 - Compaction of soils.
- 3 The principal potential effects relate to the construction phase of the OHL as a result of disturbance to soils and the use of plant and chemicals within the hydrological environment.
- 4 A number of layout, design and construction proposals have been identified that will minimise, mitigate or offset these potential effects.
- 5 It is concluded that, with the proposed mitigation in place, the effects on the hydrological and hydrogeological environments will not be significant.

1.6.7 TRAFFIC AND TRANSPORT

- 1 The operation of the proposed OHL will not give rise to any significant effects, with vehicle movements related to this limited to occasional visits for routine repairs and wayleave maintenance and exceptionally for emergency maintenance if required.
- 2 The construction of the substations and to a lesser extent the overhead lines themselves will require appreciable vehicle movements during the construction period.
- 3 The total number of vehicle movements have been identified for the various stages and elements of the construction works.
- 4 These vehicle movements include both light vehicles and HGVs. There will only be very limited requirements for abnormal vehicle movements with these limited to a single transformer movement for each substation.
- 5 The routes likely to be used for these vehicle movements have been identified and the vehicle numbers assigned to these routes to provide an assessment based on a comparison between the existing traffic flows and those attributable with this project.
- 6 Typically in assessments, a $\geq 30\%$ increase in traffic is considered to result in significant effects. This level of change (significant) is predicted on the following roads during some part of the construction programme:
 - A712 – east of B7-75 junction;
 - A702 - east of B7-75 junction;
 - B729 – from A713 junction to A702 at Moniaive;
 - B7000 – north of St John’s Town of Dalry;
 - B7075 – between A702 and A712 junctions;
 - C51 – all; and
 - U141 – all.



- 7 There are not significant effects ($\leq 30\%$ increase in traffic) on the:
 - A713 – Patna to Dalmellington;
 - A713 – south of B741 junction; and
 - B741 – Dalmellington to New Cumnock.
- 8 Although the normal assessment criteria ($\geq 30\%$ increase) identify a number of significant effects, these need to be considered in the light of the existing capacities of these roads. In all cases, although there are appreciable increases in terms of percentages, these increases in many cases reflect the low baseline traffic flows.
- 9 The assessment particularly considers the temporary traffic movements associated with the construction of the OHL and substations and the percentage thresholds are normally applicable to permanent traffic increases as a result of development.
- 10 Despite the sizeable percentage increases on a number of the roads, these temporary additional traffic movements arising from the construction process remain appreciably within the capacities of the roads

1.6.8 TOURISM AND RECREATION

- 1 An assessment of the likely significant effects of the proposed grid connection on the Tourism and Recreation baseline of the area within which the development is proposed has been undertaken. This assessment considered a broad range of potential receptors as identified below:
 - Settlements;
 - Tourist Routes;
 - Walking Routes;
 - Rights of Way;
 - Core Paths;
 - Bridleways;
 - Climbing Routes;
 - Cycling Routes;
 - Golf;
 - Fishing – Rivers and Lochs;
 - Forest Parks/Nature Reserves;
 - Estates;
 - Events;
 - Visitor Attractions;
 - Activity Centres; and
 - Accommodation
- 2 The assessment draws on an understanding of the potential effects of development of this type to the receptors identified.
- 3 The assessment identified that there would only be significant effects on a limited number of the potential receptors identified above. In most cases these are adverse effects, however in a number of cases there are also beneficial effects. Beneficial effects largely result from the removal of the N-Route north of Dalmellington. Significant effects of both types are set out below in Table NTS.01:



Table NTS.01 - Schedule of Significant Effects - Tourism & Recreation

| Significant Adverse Effects | Significant Beneficial Effects |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Settlements (9 no) None | Settlements (9 no) (4 of 9) - Bellsbank, Burnfoot, Patna and Straiton |
| Tourist Routes (5 no) (2 of 5) - A713 and B7000 | Tourist Routes (5 no) (1 of 5) - A713 |
| Walking Routes (25 no) (1 of 25) - Carsphairn Trail | Walking Routes (2 of 25) – Dalmellington Town Trail and Patna Walk |
| Rights of Way (67 no) (12 of 67) Rights of Way | Rights of Way (67 no) (12 of 67) Rights of Way |
| Core Paths (101 no) (19 of 101) Core Paths | Core Paths (101 no) (4 of 101) Core Paths |
| Bridleways None | Bridleways None |
| Climbing Routes (10 no) None | Climbing Routes (10 no) None |
| Cycling Routes (6 no) (3 of 6) – Carsphairn Loop to Moniaive and Dalry, St John's Town of Dalry to Drumlanrig Castle and The National Byway | Cycling Routes (6 no) None |
| Golf (1 no) None | Golf (1 no) (1 of 1) - Doon Valley Golf Course |
| Fishing – Rivers and Lochs (20 no) (2 of 20) – Water of Deugh and Water of Ken | Fishing – Rivers and Lochs (20 no) (1 of 20) – River Doon |
| Forest Parks/Nature Reserves (8 no) (1 of 8) – Dundelagh Hill Woodland | Forest Parks/Nature Reserves (8 no) (1 of 8) – Bellsbank Plantation |
| Estates (2 no) None | Estates (2 no) (1 of 2) - Craigengillan Estate |
| Events (5 no) None | Events (5 no) None |
| Visitor Attractions (7 no) (2 of 7) – Carricks of Carsphairn and Carsphairn Heritage Centre | Visitor Attractions (7 no) (1 of 6) – Cathcartson Visitor Centre/ Doon Valley Museum |
| Activity Centres (1 no) None | Activity Centres (1 no) None |
| Accommodation (17 no) (1 of 17) – Kendoon Youth Hostel. | Accommodation (17 no) (1 of 17) – Carskeoch Caravan Park. |

1.6.9 OTHER ISSUES

- 1 A range of other issues were considered and found not to give rise to any significant effects.
- 2 The issues considered included:
 - Noise;
 - EMF Radiation;
 - Waste Management; and
 - Land use.

- 4 In addition to these significant effects there are a number of minor (not significant effects) on a number of the receptors.



1.7 SUMMARY

- 1 The routeing, forms of the overhead line and its support structures, the combination and integration with the existing and proposed grid network and the proposed mitigation have served to limit and/or avoid potential effects.
- 2 This reduction of effects has resulted in a proposal that only gives rise to significant effects as outlined in Table NTS.02 below. These effects are illustrated diagrammatically, and in the context of the route, on Table NTS.03.
- 3 These effects are generally in close proximity to the overhead line and as such there is limited additional mitigation that could be applied to these to further reduce them.
- 4 The location of the significant adverse effects is generally outwith the areas considered most sensitive.
- 5 The limited number of significant effects (most of which cannot be avoided with a development of this nature) indicates that SPT have complied with their obligations in providing a technically feasible and economically viable grid connection which causes the minimum disturbance to people and the environment.

Table NTS.02 - Categories of Significant Effect

| Discipline | Effect |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forestry | Locally significant adverse effects as a result of the felling (111 ha) and potential windthrow (106 ha); |
| Landscape resource | Local changes to the landscape units and other receptors in close proximity to the overhead (principally adverse, although some beneficial effects where the existing overhead line is removed and not replaced) |
| Visual amenity | Local changes to views and visual amenity in close proximity to the overhead (principally adverse, although some beneficial effects where the existing overhead line is removed and not replaced) |
| Archaeology | Significant beneficial effects on the settings of the designed landscape at Craigengillan and a lodge building within the estate result from the removal of part of the existing overhead line north of Dalmellington |
| Traffic and Transport | Locally significant adverse effects on the immediate road network (although within the capacity of these roads) |
| Tourism and Recreation | Locally a range of significant effects, (both adverse and beneficial) |



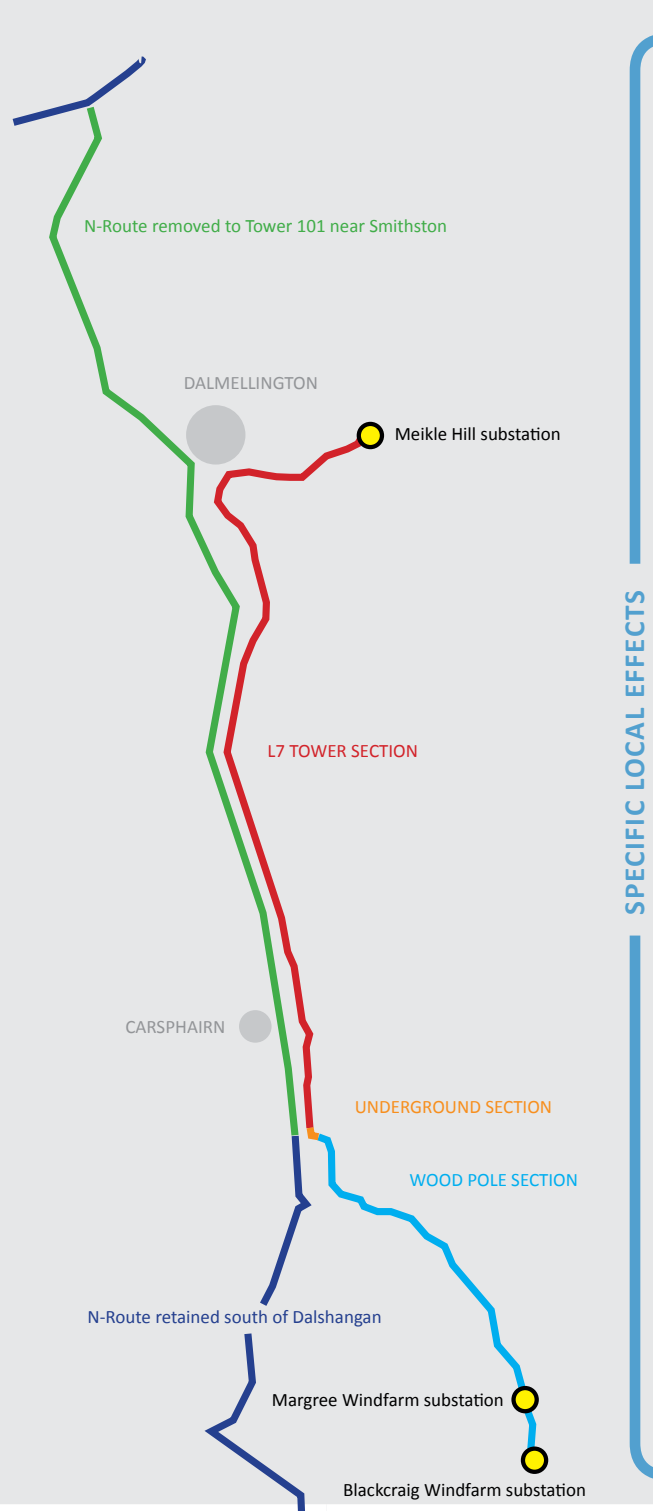
| Schematic Route plan | Significant Effects | | | | | | | | | |
|------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Forestry | Landscape Resource | Perception of landscape resource | Visual Amenity | Ecology | Ornithology | Archaeology | Hydrology | Traffic & Transport | Tourism & recreation |
|  | No Significant Effects See Chapter 6 | <div><div></div> Upland River Valley LCA 17a</div> <div><div></div> Southern Upland with Forest LCA 8a</div> <div><div></div> Upland River Valley LCA 17a</div> <div><div></div> Upper Dale LCA 10a</div> <div><div></div> Foothills with Forest LCA 12a</div> | <div><div></div> A713</div> <div><div></div> A713</div> <div><div></div> B7000</div> <div><div></div> B729</div> <div><div></div> Southern Upland Way</div> | <div><div></div> VP33 Dalmellington</div> <div><div></div> VP24 Mossdale</div> <div><div></div> VP23 Court Knowes</div> <div><div></div> VP22 Glenmuck</div> <div><div></div> VP16 North Liggat</div> <div><div></div> VP13 Linnfraig</div> <div><div></div> VP29 Dundee Hill</div> <div><div></div> VP07 Blackwater Valley</div> <div><div></div> VP05 Hog Hill</div> <div><div></div> VP36 Knockman Hill</div> <div><div></div> VP02 A702</div> | No Significant Effects See Chapter 8 | No Significant Effects See Chapter 9 | <div><div></div> Setting of Craigengillan GDL</div> <div><div></div> Setting of Craigengillan Lodge</div> | No Significant Effects See Chapter 11 | <div><div></div> A713</div> <div><div></div> B7000</div> <div><div></div> U141</div> <div><div></div> B729</div> <div><div></div> C51</div> <div><div></div> A702</div> <div><div></div> B7075</div> <div><div></div> A712</div> | <div><div></div> Straiton</div> <div><div></div> Doon Valley Golf Course</div> <div><div></div> Patna</div> <div><div></div> Patna Walk</div> <div><div></div> Burnfoot</div> <div><div></div> Bellsbank</div> <div><div></div> A713</div> <div><div></div> A713</div> <div><div></div> A713 Tourist Route</div> <div><div></div> Carricks of Carsphairn</div> <div><div></div> Carsphairn Heritage Centre</div> <div><div></div> Carsphairn Trail</div> <div><div></div> Fishing on Water of Deugh and Water of Ken</div> <div><div></div> B7000 Tourist Route</div> <div><div></div> Forest Park at Dundee Hill</div> <div><div></div> Kendoon Youth Hostel</div> |
| | EXTENDED EFFECTS | | | <div>Potential for significant beneficial effects from viewpoints within circa 1km of N-Route removed north of Dalmeilington</div> <div>Potential for significant adverse effects from viewpoints within circa 1km of the proposed OHL</div> | | | | | | <div>12 Rights of Way and 4 Core Paths would be subject to significant beneficial effects</div> <div>12 Rights of Way and 19 Core Paths would be subject to significant adverse effects</div> |

Table NTS.03 - Summary of Significant Effects table

ScottishPower EnergyNetworks
New Alderstone House
Dove Wynd
Strathclyde Business Park
Bellshill
ML4 3FF

CAPITA LOVEJOY