01.
Appendices

Appendix 1.1 EIA Team

Details of EIA Team – Experience and Competency

The EIA Report has been prepared by a team of competent experts from AECOM. AECOM is a founding member of the Institute of Sustainability and Environmental Professional's (ISEP) Environmental Impact Assessment (EIA) Quality Mark scheme, which recognises and accredits organisations that meet required high-quality standards in relation to EIA on a consistent basis.

The team is made up of technical specialists with extensive experience in EIA for a wide range of energy infrastructure projects including electricity transmission infrastructure. A summary of core team members and their relevant experience and qualifications is set out below.

Table 1.1 EIA Team

Name	Role	Relevant Qualifications and Experience
D. Ritchie	Technical Director EIA Management	• BSc (Hons) Environmental Management • 20 years' experience • IEMA Membership
V. Deacon	Principal Consultant EIA Coordination	• BSc (hons) Animal Biology • 20 years' experience • Qualifying Member of CIEEM
R. Watt	Associate Director Ecology and Ornithology	• BSc Zoology Animal Biology • MSc Molecular Ecology • Qualifying Member of CIEEM
R. Ewan	Consultant Ecology and Ornithology	• BSc (Hons) Animal Behaviour • Qualifying Member of CIEEM • 3.5 years experience
A.Jones	Principal Landscape Architect Landscape and Visual	• BA (Hons) • Dip LA Landscape Architecture • 25 years' Experience • Chartered member of the Landscape Institute (CMLI)
R. Mauritzen	Technical Director Landscape and Visual Reviewer	• BSc Environmental Science • MLA Landscape Architecture

Name	Role	Relevant Qualifications and Experience
		• 28 years' experience • Chartered member of the Landscape Institute (CMLI)
J. Shipley	Associate Director Cultural Heritage	• Phd, MLitt, BA (Hons) • 20 years' experience • Associate member of Chartered Institute for Archaeologists, Member of the Society of Antiquaries of Scotland
O. Tucker	Technical Director Water Environment	• BSc Geography • MSc Physical Sciences • 22 years' experience • Chartered environmentalist and MCIWEM
A. Grieveson	Consultant Water Environment	• BSc Zoology • Meng Civil Engineering • 5 years' experience • Member of the Institution of Civil Engineers (ICE)
D. Dewar	Associate Director Traffic and Transport lead verifier	• BEng (Hons) Civil Engineering • MSc Transport Planning and Engineering • 34 years' experience • Member Chartered Institution of Highways and Transportation (MCIHT) • Chartered Member Chartered Institute of Logistics and Transport (CMILT)
J. Graham	Senior Consultant Traffic and Transport Checker	• MA (Hons) Economics and Geography • 8 years experience • Member Chartered Institution of Highways and Transportation (MCIHT)
L. Wisekal	Consultant Traffic and Transport Author	• MA (Hons) Geography, Society and Environment • 4 years' experience • Member of Transport Planning Society
D. Preston	Associate Director	• BSc (Hons) Geography and Biology,

Name	Role	Relevant Qualifications and Experience
	Noise and Acoustics	• Post Grad Diploma in Acoustics and Noise Control • Member of the Institute of Acoustics • 23 years' experience

02.
Appendices

Appendix 2.1 Scoping Opinions

Fife Council

AECOM
David Ritchie

Planning Services

Scott Simpson

development.central@fife.gov.uk

Your Ref:
Our Ref: 24/01242/SCO

Date 26th June 2024

Dear Mr Ritchie

Application No:	**24/01242/SCO**
Proposal:	**Environmental Impact Assessment scoping opinion for construction of a 400kv substation and associated infrastructure including access, landscaping and drainage**
Address:	**Land 750M North of Hawkhill Farm Hawkhill Kincardine Fife**

I refer to your request for a scoping opinion received on the 19th of April 2023.

In terms of the EIA Scoping Request, I can confirm that the scope of the proposed EIA Report (EIAR) is broadly acceptable in terms of the headings and summaries provided within your Scoping Opinion Request. The matters that should, therefore, be scoped into the EIA are:

- Landscape and Visual Amenity
- Ecology
- Cultural Heritage including the impact on the setting of the historic environment.
- Traffic and Transport (construction only)
- Noise
- Cumulative Effects

The following matters should be scoped out of the EIA:

- Trees and Woodland
- Ground Conditions
- Water Environment
- Land Use, Tourism and Recreation
- Major accidents and disasters
- Climate Change
- Human Health

Planning Services
Fife House, North Street, Glenrothes, KY7 5LT

Healthy Working Lives

www.fife.gov.uk/planning

As part of this Scoping Opinion Process, the relevant organisations were consulted and these included Transport Scotland, Scottish Water, Historic Environment Scotland, SEPA, Fife Council's Land and Air Quality team, Fife Council's Archaeology officer, Fife Council's Built Heritage Officer and Fife Council's Natural Heritage Officer. These consultation responses are attached to this response and the comments raised should be taken into account when you submit your EIA.

Alternatives and Site Selection

A description of the main alternatives considered such as alternative sites, alternative technologies and alternatives for the proposed development within the site should be included in the EIAR. The description must include the main reasons for the choice made, taking into account the environmental effects of the decision. This should not focus on planning matters. The site selection assessment should show the consideration given to locating the proposed development adjacent to potential users of heat and power. This should also provide a no development scenario as an alternative.

Environmental Commitments

It is considered good practice to include a chapter that would contain a summary of all mitigation methods proposed as part of the development. A robust EIAR submission would normally include such a chapter as a conclusion. Where relevant, the EIAR should also identify monitoring measures to prevent, reduce or offset significant adverse effects of the development identified through the EIA process.

EIA Documents Submission

As part of the planning application registration process, Fife Council is required to provide document submissions to be viewed online at www.fifedirect.gov. To allow this to be done in the most efficient manner it is requested that each document you submit is limited to fewer than 10MB in size. Documents submitted exceeding this capacity are required to be split into smaller units. Fife Council does not have the resources to actively decide how best to split documents at legible points and therefore it would be to your benefit if the documents were grouped together into associated order (preferably split into individual chapters where possible), each under 10mb in size. This would allow your documents to be viewed online by members of the public and consultees in a legible and concise format. It should also be noted that, given that some of the information within any Ecology chapter may have information relating to the number and habitat location of protected species, this information should not be made public. To ensure the non-protected species information is still available to the public and consultees it is advisable to separate any protected species information from the remainder of the information and hold it within a separate appendix to the chapter to ensure this can be passed only to the relevant section. SNH can advise on the information to be treated as sensitive.

Closing Comments

I trust that the above comments and information enclosed is of assistance to you in developing the EIAR. Please note that this scoping opinion should not be construed as giving support for the development at the present time and that the above comments are made without prejudice to the eventual decision of the Planning Authority with respect to any future application submitted. Although every attempt has been made to present you with the information necessary in order to determine a planning application of this nature, this scoping opinion does not prejudice the ability of the Planning Authority to request further information during the application process should this be necessary. I would also advise that sufficient information should also be submitted with regards to the matters which have been scoped out of the EIA to allow these matters to be fully assessed during the planning application process.

I am also happy to provide further comments and advice with regards to these matters prior to submission of any detailed application.

Yours sincerely

S Simpson

Scott Simpson
Planner, Major Business and Customer Service

Reviewed by:

Decland Semple
Lead Officer, Major Business and Customer Service

Clackmannanshire Council

The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 – Request for a Scoping Opinion - Kincardine North Substation

Keith Johnstone <kjohnstone@clacks.gov.uk>
To Ritchie, David
Cc Btinney@spenergynetworks.co.uk
If there are problems with how this message is displayed, click here to view it in a web browser.
KINN Scoping REV_Final.pdf
4 MB

Reply | Reply All | Forward
Wed 26/06/2024 14:20

This Message Is From an External Sender
This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Report Suspicious

I refer to your email below seeking a Scoping Opinion on the above proposed development.

The Service has no objection to the content and conclusions reached in the Scoping Document submitted with the request in terms of the issues which would be scoped in and scoped out of the EIAR.

The Service would also offer the following comments on some of the headings set out in the document ;

1. Consideration should be given to possible cumulative impacts associated with existing and planned developments in the vicinity of the site including the Kincardine Grid Services Complex which was granted permission on land to the immediate south of the proposed site by ECU (ref ECU00003326) .

2. **Ecology and Nature Conservation** - the development should deliver measures to enhance the biodiversity value of the site and seek to integrate with and enhance existing green infrastructure in the area.

3. **Landscape and Visual Amenity** - The A876 is one of the key transport routes into and out of Clackmannanshire for business, residential, recreational and tourism related trips including those to access the Ochil Hills and Hillfoots villages. Measures should be included to mitigate the landscape and visual impacts of the development from this route as well as any from the C68. This may be achieved through tree and shrub planting in the vicinity of the road.

4. **Water Environment** - Consideration should be given within the application to measures to naturalise and enhance the biodiversity condition and value of the Canal Burn where it abuts the site. The Burn has had a number of functions historically but one as blue infrastructure is likely to be its main potential function in future. This could be associated with SUDs provision within the development. Development should accord with the requirements of NPF4 Policy 22 - Flood Risk and Water Management and relevant SEPA guidance.

5. **Land Use, Tourism and Recreation** - The A876 is one of the key transport routes into and out of Clackmannanshire including for recreational and tourism related trips including those to access the Ochil Hills and Hillfoots village. The C68 from which the site may be visible is also part of National Cycle Route 76. There is also a tourism accommodation business operating at Broadcarse Farm to the west of the A876. The application should include consideration of measures to mitigate impacts from the development on these receptors. There should also be suitable mitigation of the impact of construction traffic on the NCR 76 route during the construction phase.

If you have any queries about the above then please contact me .

Yours sincerely

Keith Johnstone
Principal Planner
Development Quality
Clackmannanshire Council

Tel 01259 452614
www.clacks.gov.uk

Scottish Ministers

Scottish Government
Riaghaltas na h-Alba
gov.scot

The Scottish Government
Energy Consents Unit

Scoping Opinion on Behalf of Scottish Ministers Under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP)
SP Transmission Plc

August 2024

CONTENTS

1. Introduction

1.1 This scoping opinion is issued by the Scottish Government Energy Consents Unit ('ECU') on behalf of the Scottish Ministers to SP Transmission Plc a company incorporated under the Companies Acts with company number SC189126 and having its registered office at 320 St Vincent Street, Glasgow, G2 5AD ("the Company") in response to a request dated 30 May 2024 for a scoping opinion under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 in relation to the proposed Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) ("the proposed development"). The request was accompanied by a scoping report.

1.2 The proposed development would be located in 3 locations as shown below:

• Approximately 10km of an existing overhead line (known as 'XL route') from south west of Blairingone in Perth and Kinross to a new substation, to be known as Kincardine North, at Kilbagie in Fife. XL route then continues to the existing Kincardine Substation located to the immediate north of the River Forth. This forms part of a wider upgrade referred to as ECUP.

• Approximately 22km of an existing overhead line (known as 'ZCN route') from Longannet to the proposed Kincardine North Substation. The ZCN route then continues to the existing Denny North Substation located approximately 1.5km north of Denny. This forms part of a wider upgrade referred to as LWUP.

• Approximately 22km of an existing overhead line (known as 'ZCS route' from Longannet to the proposed Kincardine North Substation. The ZCS route then continues to the existing Denny North Substation located approximately 1.5km north of Denny. This forms part of a wider upgrade referred to as DWUP.

1.3 The Proposed XL Route Upgrade comprises two components:

• An increase in operating voltage from 275kV to 400kV increasing the capacity of the overhead line between Blairingone and Kincardine. This does not require any construction or refurbishment works to be undertaken as the existing overhead line is capable of operating at 400kV but is not consented to operate at this voltage: and

• The construction of new terminal towers at Kilbagie to turn in and connect the XL overhead line route to the proposed Kincardine North Substation as well as the removal and replacement of existing line towers as shown within the Proposed Terminal Towers figure contained in the published screening request. Overall, one tower is to be removed and four new towers installed. Temporary masts will be required to enable the continuous operation while permanent towers are constructed to connect to the substation. The new towers connecting XL route to Kincardine North are located to the east and south of the Proposed Substation.

The Proposed ZCN and ZCS Route Upgrades comprises of:

• The construction of new terminal towers at Kilbagie to turn in and connect the ZCN and ZCS overhead lines to the proposed Kincardine North Substation as well as the removal and replacement of existing line towers as shown within the Proposed

Terminal Towers figure contained in the published screening request . Overall, two towers are to be removed and six new towers installed.

Temporary masts will be required to enable the continuous operation while permanent towers are constructed to connect to the substation. The new towers connecting ZCN and ZCS routes to Kincardine North are located to the north east and north west of the Proposed Substation.

1.4 The Proposed XL Upgrade comprises an increase in the operating voltage of the overhead line from 275 to 400 kilovolts (kV) increasing its capacity as well as construction of four new towers to turn in and connect XL route to the proposed Kincardine North Substation. The Proposed ZCN and ZCS Upgrades comprise new terminal towers to turn in and connect both routes to the proposed Kincardine North Substation only. This is because the existing ZCN and ZCS routes are already consented to operate at 400kV enabling an increase in their capacity. The majority of the Proposed Upgrades do not require any physical works to be undertaken as the existing overhead lines (XL, ZCN and ZCS) are capable of operating at 400kV. The only new infrastructure which is proposed are the new terminal towers at Kilbagie which are required to connect the XL, ZCN and ZCS to the proposed Kincardine North Substation.

1.5 The elements of the Proposed Development subject to consent under Section 37 of the Electricity Act 1989, comprise:

ZCS Route (DWUP)

The elements of the Proposed Development subject to consent under Section 37 of the Electricity Act 1989, comprise of the construction of four new steel towers and associated electric line spans to connect the upgraded ZCS overhead line to the proposed Kincardine North Substation as well as a temporary overhead line supported on masts to maintain the existing connection during construction. The substation and underground cable will be subject to a separate application to the local authority under the Town and Country Planning (Scotland) Act 1997.

In addition to the overhead line the applicant is also seeking deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 for certain elements of the project, or ancillary works required to facilitate its construction. The ancillary works relate to small scale temporary works including hard standings to provide access to tower working areas from accesses approved as part of the substation application.

The proposed works will form part of the strategic transmission network and the permission sought is an enduring one until such time as the electric line is not required.

XL route (ECUP)

The elements of the Proposed Development subject to consent under Section 37 of the Electricity Act 1989, comprise of an increase in the operating voltage of the XL route from 275kV to 400kV between Blairingone and Kincardine Substation and construction of four new steel towers and associated electric line spans to connect the

upgraded XL route to the proposed Kincardine North Substation as well as a temporary overhead line supported on masts to maintain the existing connection during construction.
The substation and underground cable will be subject to a separate application under to the local authority the Town and Country Planning (Scotland) Act 1997.

In addition to the overhead line the applicant is also seeking deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 for certain elements of the project, or ancillary works including hard standings required to facilitate its construction. The ancillary works relate to small scale temporary works to provide access to tower working areas from accesses approved as part of the substation application.

The proposed works will form part of the strategic transmission network and the permission sought is an enduring one until such time as the electric line is not required.

ZCN route (LWUP)

The elements of the Proposed Development subject to consent under Section 37 of the Electricity Act 1989, comprise of the construction of four new steel towers and associated electric line spans to connect the upgraded ZCN route to the proposed Kincardine North Substation as well as a temporary overhead line supported on masts to maintain the existing connection. The substation and underground cable will be subject to a separate application to the local authority under the Town and Country Planning (Scotland) Act 1997.

In addition to the overhead line,the applicant is also seeking deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997 for certain elements of the project, or ancillary works including hard standings required to facilitate its construction. The ancillary works relate to small scale temporary works to provide access to tower working areas from accesses approved as part of the substation application.

The proposed works will form part of the strategic transmission network and the permission sought is an enduring one until such time as the electric line is not required.

1.6 In addition to the overhead line the applicant is also seeking deemed planning permission under section 57(2) of the Town and Country Planning (Scotland) Act 1997. A separate planning application for Kincardine North Substation will made to Fife and Clackmannanshire Councils under the Town and Country Planning (Scotland) Act 1997 while also having regard to the requirements of the Town and Country Planning (EIA) Regulations 2017. The proposed substation does not form part of this request but would be considered as part of any cumulative assessment with the Proposed Upgrades where relevant to do so.

1.7 The Company has not stated a fixed operational life.

1.8 The proposed development is solely within the planning authority areas of Clackmannanshire Council and Fife Council.

2. Consultation

2.1 Following the scoping opinion request a list of consultees was agreed between the applicant and the ECU. A consultation on the scoping report was undertaken by the Scottish Ministers and this commenced on **10 June 2024**. The consultation closed on **01 July 2024**. Extensions to this deadline were granted to Defence Infrastructure Organisation and Transport Scotland. The Scottish Ministers also requested responses from their internal advisors Transport Scotland and Scottish Forestry. Standing advice from Marine Directorate – Science Evidence Data and Digital (MD-SEDD) has also been provided with requirements to complete a checklist prior to the submission of the application for consent under section 37 of the Electricity Act 1989. All consultation responses received, and the standing advice from MD-SEDD, are attached in ***ANNEX A Consultation responses.***

2.2 The purpose of the consultation was to obtain scoping advice from each consultee on environmental matters within their remit. Responses from consultees and advisors, including the standing advice from MD-SEDD, should be read in full for detailed requirements and for comprehensive guidance, advice and, where appropriate, templates for preparation of the Environmental Impact Assessment ("EIA") report.

2.3 Unless stated to the contrary in this scoping opinion, Scottish Ministers expect the EIA report to include all matters raised in responses from the consultees and advisors. No responses were received from: Fife Council, Civil Aviation Authority – Airspace, Fisheries Management Scotland, Edinburgh Airport, North District Salmon Fishery Board, RSPB Scotland, The Coal Authority, Scottish Wild Land Group and Clackmannan Community Council.

2.4 With regard to those consultees who did not respond, it is assumed that they have no comment to make on the scoping report, however each would be consulted again in the event that an application for section 37 consent is submitted subsequent to this EIA scoping opinion.

2.5 The Scottish Ministers are satisfied that the requirements for consultation set out in Regulation 12(4) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 have been met.

3. The Scoping Opinion

3.1 This scoping opinion has been adopted following consultation with Clackmannanshire Council and Fife Council, within whose area the proposed development would be situated, NatureScot (previously "SNH"), SEPA and HES, all as statutory consultation bodies, and with other bodies which Scottish Ministers consider likely to have an interest in the proposed development by reason of their specific environmental responsibilities or local and regional competencies.

3.2 Scottish Ministers adopt this scoping opinion having taken into account the information provided by the applicant in its request dated 30 May 2024 and information available at today's date in respect of the specific characteristics of the proposed development and responses received to the consultation undertaken. In providing this scoping opinion, the Scottish Ministers have had regard to current knowledge and methods of assessment; have taken into account the specific characteristics of the proposed development, the specific characteristics of that type of development and the environmental features likely to be affected.

3.3 A copy of this scoping opinion has been sent to Clackmannanshire Council and Fife Council for publication on their website. It has also been published on the Scottish Government energy consents website at www.energyconsents.scot.

3.4 Scottish Ministers expect the EIA report which will accompany the application for the proposed development to consider in full all consultation responses attached in **Annex A.**

3.5 Scottish Ministers are broadly content with the **EIA set out at Chapter 3** of the Scoping Report.

3.6 In addition to the consultation responses, Ministers wish to provide comments with regards to the scope of the EIA report. The Company should note and address each matter.

3.7 Scottish Ministers Request that the applicant include a section in the EIA Report on the justification of Route Selection.

3.8 Scottish Ministers note the detailed comments provided by Historic Environment Scotland, Network Rail, Transport Scotland and Defence Infrastructure Organisation regarding requirements for information to be included in the EIA Report and agree with all their requests.

3.9 Scottish Water provided information on whether there are any drinking water protected areas or Scottish Water assets on which the development could have any significant effect. Scottish Ministers request that the company contacts Scottish Water (via EIA@scottishwater.co.uk) and makes further enquires to confirm whether there any Scottish Water assets which may be affected by the development, and includes details in the EIA report of any relevant mitigation measures to be provided.

3.10 Scottish Ministers request that the Company investigates the presence of any private water supplies which may be impacted by the development. The EIA report should include details of any supplies identified by this investigation, and if any supplies are identified, the Company should provide an assessment of the potential impacts, risks, and any mitigation which would be provided.

3.11 MD-SEDD provide generic scoping guidelines for overhead line development https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/Freshwater/Research/onshoreren) which outline how fish populations can be impacted during the construction, operation and decommissioning of a wind farm development or overhead line development and informs developers as to what should be considered, in relation to freshwater and diadromous fish and fisheries, during the EIA process.

3.12 In addition to identifying the main watercourses and waterbodies within and downstream of the proposed development area, developers should identify and consider, at this early stage, any areas of Special Areas of Conservation where fish are a qualifying feature and proposed felling operations particularly in acid sensitive areas.

3.13 MD-SEDD also provide standing advice for overhead line development (which has been appended at Annex A) which outlines what information, relating to freshwater and diadromous fish and fisheries, is expected in the EIA report. Use of the checklist provided, should ensure that the EIA report contains the required information; the absence of such information may necessitate requesting additional information which may delay the process. Developers are required to submit the completed checklist in advance of their application submission.

3.14 Scottish Ministers consider that where there is a demonstrable requirement for peat landslide hazard and risk assessment (PLHRA), the assessment should be undertaken as part of the EIA process to provide Ministers with a clear understanding of whether the risks are acceptable and capable of being controlled by mitigation measures. The Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Second Edition), published at http://www.gov.scot/Publications/2017/04/8868, should be followed in the preparation of the EIA report, which should contain such an assessment and details of mitigation measures.

3.15 Scottish Ministers advise that Viewpoints should be prepared to inform and support the Landscape and Visual Impact Assessment ('LVIA') and must be agreed in advance of preparation with Clackmannanshire Council, Fife Council and NatureScot.

3.16 Ministers expect Company's to conduct adequate pre-application consultation and to demonstrate what alternatives to the proposal were considered before arriving at the design they apply for. Ministers agree with the Planning Authority that the EIA should include a description of the main development alternatives which are relevant to the proposal and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3.17 Ministers are aware that further engagement is required between parties regarding the refinement of the design of the proposed development regarding, among other things, surveys, management plans, peat, finalisation of viewpoints, cultural heritage, cumulative assessments, and request that they are kept informed of relevant discussions.

4. Mitigation Measures

4.1 The Scottish Ministers are required to make a reasoned conclusion on the significant effects of the proposed development on the environment as identified in the environmental impact assessment. The mitigation measures suggested for any significant environmental impacts identified should be presented as a conclusion to each chapter. Applicants are also asked to provide a consolidated schedule of all mitigation measures proposed in the environmental assessment, provided in tabular form, where that mitigation is relied upon in relation to reported conclusions of likelihood or significance of impacts.

5. Conclusion

5.1 This scoping opinion is based on information contained in the applicant's written request for a scoping opinion and information available at the date of this scoping opinion. The adoption of this scoping opinion by the Scottish Ministers does not preclude the Scottish Ministers from requiring of the applicant information in connection with an EIA report submitted in connection with any application for section 37 consent for the proposed development.

5.2 This scoping opinion will not prevent the Scottish Ministers from seeking additional information at application stage, for example to include cumulative impacts of additional developments which enter the planning process after the date of this opinion.

5.3 Without prejudice to that generality, it is recommended that advice regarding the requirement for an additional scoping opinion be sought from Scottish Ministers in the event that no application has been submitted within 12 months of the date of this opinion.

5.4 It is acknowledged that the environmental impact assessment process is iterative and should inform the final layout and design of proposed developments. Scottish Ministers note that further engagement between relevant parties in relation to the refinement of the design of this proposed development will be required and would request that they are kept informed of on-going discussions in relation to this.

5.5 Applicants are encouraged to engage with officials at the Scottish Government's ECU at the pre-application stage and before proposals reach design freeze.

5.6 Applicants are reminded that there will be limited opportunity to materially vary the form and content of the proposed development once an application is submitted.

5.7 When finalising the EIA report, applicants are asked to provide a summary in tabular form of where within the EIA report each of the specific matters raised in this scoping opinion has been addressed.

5.8 It should be noted that to facilitate uploading to the Energy Consents portal, the EIA report and its associated documentation should be divided into appropriately named separate files of sizes no more than 10 megabytes (MB).

PP Carolanne Brown

Alan Brogan
Energy Consents Unit
28 August 2024

ANNEX A – Consultation Responses

List of consultees

- Clackmannanshire Council
- Fife Council*
- Historic Environment Scotland
- NatureScot
- SEPA
- Bear Scotland*
- BT
- Civil Aviation Authority – Airspace*
- Defence Infrastructure Organisation
- Fisheries Management Scotland*
- Edinburgh Airport*
- JRC
- Forth DSFB*
- RSPB Scotland*
- ScotWays
- Scottish Water
- Network Rail
- The Coal Authority*
- Scottish Wild Land Group*
- Clackmannan Community Council*
- Kincardine Community Council

*No response was received.

Internal advice from areas of the Scottish Government was provided by officials from Transport Scotland and Scottish Forestry.

BT Consultation Response

From: radionetworkprotection@bt.com
To: Carolanne Brown
Subject: RE: Scoping Opinion request For Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) - ECU00005132 WID13455
Date: 14 June 2024 10:21:15
Attachments: image001.png
Kincardine north sub-station.pdf

OUR REF:- WID13455

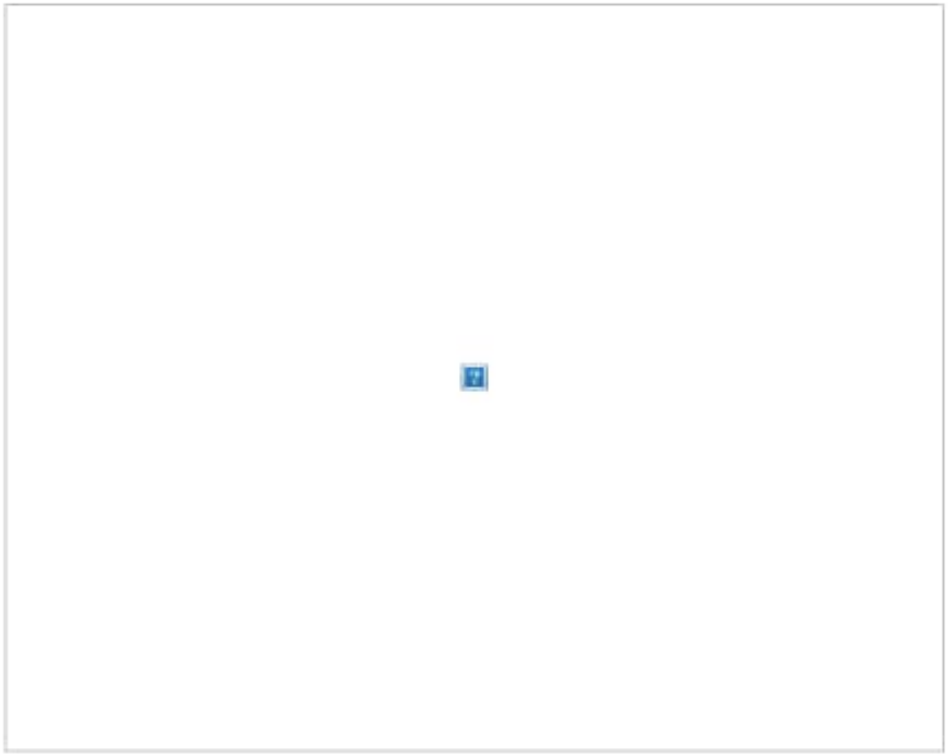
Good morning Carolanne

Thank you for your email dated 10/06/2024

We have studied the 18 proposed towers and temporary masts with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that the Project indicated should not cause interference to BT's current and presently planned radio network.

Kind Regards Chris



XL004A 292549.11 689172.4 NS 92549 89172
XL004B 292536.71 689265.35 NS 92537 89265

XL004C 292465.76 689347.48 NS 92466 89347
XL005A 292762.17 689434.1 NS 92762 89434
ZC(N)018A 292750.73 689677.58 NS 92751 89678
ZC(N)018B 292685.7 689567.46 NS 92686 89567
ZC(N)019A 292542.6 689505.61 NS 92543 89506
ZC(N)019B 292436.55 689629.48 NS 92437 89629
ZC(S)018A 292802.12 689622.93 NS 92802 89623
ZC(S)018B 292737.56 689515.06 NS 92738 89515
ZC(S)019A 292494.68 689458.73 NS 92495 89459
ZC(S)019B 292403.5 689563.06 NS 92403 89563
Temporary Masts
XL-TT1 292657.42 689221.4 NS 92657 89221
XL-TT2 292776.84 689339.3 NS 92777 89339
XL-TT3 292923.96 689484.56 NS 92924 89485
ZC(N)-TT1 292808.51 689715.37 NS 92809 89715
ZC(N)-TT2 292579.24 689683.71 NS 92579 89684
ZC(S)-TT1 292702.28 689575.42 NS 92702 89575
ZC(S)-TT2 292500.62 689546.16 NS 92501 89546

Clackmannanshire Council Consultation Response

To: Econsents_Admin@gov.scot.,
Cc: Carolanne.Brown@gov.scot, Planning Services/CLACKS,
Bcc:

Subject: Scoping Opinion request For Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) Comprising Increase in Operating Voltage of XL Route and Construction of 12 Additional Towers Adjacent to Proposed Kincardine North Substation - Your Ref ECU00005132 / our Ref 146116

I refer to your consultation to the Council on the request you have received for a Scoping Opinion for the above proposed development.

On behalf of the Council, the Service has no objection to the content and conclusions reached in the Scoping Opinion Request Document prepared by AECOM in terms of the matters to be scoped in and scoped out of the EIAR relating to the XL, ZCN and ZCS Routes. or to the scope of the issues identified subject to the comments provided below,

1. Consideration should be given to any possible cumulative impacts associated with existing and planned developments in the vicinity of the site including the Kincardine North Sub Station and Kincardine Grid Services Complex which was granted permission on land to the immediate south of the proposed site by ECU (ref ECU00003326).

2. Ecology and Nature Conservation - the development should deliver where appropriate measures to enhance the biodiversity value of the site and seek to integrate with and enhance existing green infrastructure in the area. This could include adjoining land also under the control of the applicant.

3. **Landscape and Visual Amenity** - The A876 is one of the key transport routes into and out of Clackmannanshire for business, residential, recreational and tourism related trips including those to access the Ochil Hills and Hillfoots villages. Measures should be included to mitigate the landscape and visual impacts of the development from this route as well as any from the C68. The development relates to existing overhead lines however the towers are currently evenly spaced and linear while the proposed development would create a cluster of around 10 towers which would be likely to result in greater visual and/or landscape impacts than the existing arrangements. The commentary in the Scoping Document is considered to possibly underestimate the potential impact and this should be suitably assessed as part of the EIAR. Mitigation such as new or increased planting in the vicinity of the A876 could help mitigate impacts to receptors travelling north or south on the A876 which may involve land also in the applicant`s control.

4. Water Environment - The development should not adversely affect the biodiversity or character of the Canal Burn watercourse.

5. **Land Use, Tourism and Recreation** - The A876 is one of the key transport routes into and out of Clackmannanshire including for recreational and tourism related trips including those to access the Ochil Hills and Hillfoots village. The C68 from which the site may be visible is also part of National Cycle Route 76. There is also a tourism accommodation business operating at Broadcarse Farm to the west of the A876. The application should include consideration of measures to mitigate impacts from the development on these receptors.

The topics which have been scoped out should still be assessed and covered as part of the planning submission.

A pdf copy of this response is also attached.

If you have any queries about the above then please do not hesitate to contact me.

Yours sincerely

Keith Johnstone
Principal Planner
Development Quality

Defence Infrastructure Organisation

Wendy Talbot
Ministry of Defence
Safeguarding Department
St George's House
DIO Headquarters
DMS Whittington
Lichfield
Staffordshire
WS14 9PY

MoD Telephone: 07977410762
E-mail: DIO-safeguarding-statutory@mod.gov.uk

Your Reference: ECU00005132

Our Reference: DIO10063375

Carolanne Brown
Scottish Government
Directorate for Energy and Climate Change
5 Atlantic Quay
150 Broomielaw
GLASGOW
G2 8LU

8 July 2024

Dear Carolanne

MOD Safeguarding – SITE OUTSIDE SAFEGUARDING AREA (SOSA)

Proposal: Increase in the operating voltage of the XL route from 275kv to 400kV between Blairingone and Kincardine Substation. Construction of four new towers to connect the upgraded XL route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (XL05). Construction of four new towers to connect the upgraded ZCN route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (ZCN19). Construction of four new terminal towers to connect the upgraded ZCS route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (ZCS19). Temporary overhead lines operating at 275kv to facilitate existing connections during construction.

Location: Kilbagie, Kincardine North Substation, Highlands of Scotland

Grid Ref: Easting: 292697 Northing: 689515

Thank you for consulting the Ministry of Defence (MOD) on the above proposed development which was received by this office.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the Ministry of Defence (MOD) as a consultee in UK planning and energy consenting systems to ensure that development does not compromise or degrade the operation of defence sites such as aerodromes, explosives storage sites, air weapon ranges, and technical sites or training resources such as the Military Low Flying System.

The application is a Scoping Opinion Request on the upgrade of 253m of 275kV overhead powerline to 400kV using the existing support structures currently carrying the 275kV overhead powerline; two existing towers will be removed and four new terminal towers created to facilitate the 400kV at Kincardine North substation with the height of the towers given as 52m.

Low Flying

In this case the development falls within Low Flying Area 14 (LFA 14), an area within which military aircraft may conduct low level flight training. The addition of a development featuring tall or narrow profile structures such as electricity towers in this locality has the potential to introduce a physical obstruction to low flying aircraft operating in the area.

To address this impact, and given the location and scale of the development, the MOD will require that a condition is added to any consent issued requiring that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction.

At this consultation stage, where details for the final route, design and/or maximum height of the proposed development have not been determined, MOD representations are limited to the principle of the development only. In summary the MOD has concerns, and should be consulted at all future stages for this proposed development to complete a full detailed safeguarding assessment.

The MOD must emphasise that the advice provided within this letter is in response to the data and information detailed in the developer's documents titled "Scoping Opinion Request" and "Co-ordinates" dated May 2024. Any variation of the parameters (which include the location, dimensions, form, and finishing materials) detailed may significantly alter how the development relates to MOD safeguarding requirements and cause adverse impacts to safeguarded defence assets or capabilities. In the event that any amendment, whether considered material or not by the determining authority, is submitted for approval, the MOD should be consulted and provided with adequate time to carry out assessments and provide a formal response.

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours sincerely

REDACT

Wendy Talbot
Assistant Safeguarding Manager
DIO Safeguarding

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

By email: Econsents_Admin@gov.scot

Carolanne Brown
Case Officer
Energy Consents Unit
Scottish Government

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Enquiry Line: 0131-668-8716
HMConsultations@hes.scot

Our case ID: 300073689
Your ref: ECU00005132

01 July 2024

Dear Carolanne Brown

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) - 400kV overhead connection
Comments on scope of proposed Environmental Impact Assessment

Thank you for you consulting us on this Environmental Impact Assessment (EIA) scoping report, which we received on 10 June 2024. We have reviewed the details in terms of our historic environment interests. This covers World Heritage Sites, scheduled monuments and their settings, category A-listed buildings and their settings, inventory gardens and designed landscapes, inventory battlefields and Historic Marine Protected Areas.

The relevant local authority archaeological and cultural heritage advisors will also be able to offer advice on the scope of the cultural heritage assessment. This may include topics covered by our advice-giving role, and also other topics such as unscheduled archaeology, category B and C listed buildings, and conservation areas.

Proposed development

I understand that the proposed development comprises the proposed upgrading of three existing overhead lines from 275kV to 400kV in the area around Kincardine. We note that each of the upgrades are proposed to connect into a new proposed substation at Kincardine North (which does not form part of the current scoping consultation). We understand that 12 new steel lattice towers will be required to enable the connection of the upgraded lines in to the proposed substation.

Scope of assessment

We recommend that the applicant refers to the EIA Handbook for best practice advice on assessing cultural heritage impacts.

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

We have identified likely significant effects on our historic environment interests. Our advice on the nature of these impacts, and any potential mitigation measures, are included in an annex to this covering letter. This also includes our requirements for information to be included in the EIA Report.

Further information

Decisions that affect the historic environment should take the Historic Environment Policy for Scotland (HEPS) into account as a material consideration. HEPS is supported by our Managing Change guidance series. In this case we recommend that you consider the advice in the setting guidance note.

We hope this is helpful. If you would like to submit more information about this or any other proposed development to us for comment, please send it to our consultations mailbox, hmconsultations@hes.scot. If you have questions about this response, please contact Victoria Clements at Victoria.Clements@hes.scot.

Yours sincerely

Historic Environment Scotland

Historic Environment Scotland – Longmore House, Salisbury Place, Edinburgh, EH9 1SH
Scottish Charity No. **SC045925**
VAT No. **GB 221 8680 15**

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

ANNEX

Historic Environment Scotland's interest

The following designated historic environment asset is in the vicinity of the development and has the potential to receive adverse impacts to its setting. This list is not considered to be exhaustive, and we would recommend that a wider search is undertaken of the surrounding area for potential impacts in the first instance. We recommend that a ZTV should be used to identify potential setting impacts in the first instance.

Scheduled monuments

- Tulliallan Castle (SM736)

We welcome that the scoping request document identifies that Tulliallan Castle (SM736) is located in close proximity to the proposed new towers and that these aspects of the overhead line upgrade may affect the setting of this scheduled monument.

We agree that Tulliallan Castle (SM736) should be scoped in to the assessment and we would be happy to provide further advice regarding any necessary visualisations to support the assessment or potential mitigation measures as the design of the proposals and the assessment progresses.

Scoping request document

We welcome that potential impacts on the historic environment has been scoped in to the assessment. We welcome that the assessment will include the potential for direct impacts and impacts on the setting of assets from the proposals. We recommend that consideration of the potential cumulative impacts on the historic environment, including with the proposed new substation are also assessed. We recommend that the applicant refers to the EIA Handbook for best practice advice on assessing cultural heritage impacts and we would be happy to provide further advice on methodology if that would be helpful.

We note that the scoping request document identifies Tulliallan Castle (SM736) as the only designated historic environment asset in the near vicinity to the proposals to be assessed for impacts to its setting. The scoping request document also notes that there are listed buildings within the surrounding 1km area but does not identify the Inventory Garden and Designed Landscape of Tulliallan (GDL00379). It is therefore not clear that any potential impacts on the setting of this nationally important historic environment asset have been considered. Having reviewed the information provided in the scoping request document we are satisfied that any impacts to the setting of this asset would likely not be significant, however, we recommend that the asset is identified on any plans and figures going forward and a short justification for its exclusion from further assessment is provided in any forthcoming assessment.

Historic Environment Scotland
01 July 2024

Historic Environment Scotland – Longmore House, Salisbury Place, Edinburgh, EH9 1SH
Scottish Charity No. **SC045925**
VAT No. **GB 221 8680 15**

Joint Radio Company Consultation Response

From: JRC Windfarm Coordinations Old
To: Carolanne Brown
Cc: WindSPEN
Subject: Central Scotland - OHL Upgrades (DWUP, ECUP and LWUP). ECU00005132 [WF706823]
Date: 01 July 2024 17:44:08

Dear carolanne,

A Windfarms Team member has replied to your co-ordination request, reference **WF706823** with the following response:

Dear Sir, Madam

***Planning Ref**: ECU00005132*

***Location**: Central Scotland OHL*

***Proposal**: OHL Scoping Request*

***Link**: Scottish Government - Energy Consents Unit - Application Details*

*Thank you for your advisory regarding the **Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP)**.*

*This proposal is **cleared** with respect to radio link infrastructure operated by the local energy networks.*

In the case of this proposed development, JRC does not foresee any potential problems based on known interference scenarios and the data you have provided. However, if any details of the development change, particularly the disposition or scale of any towers, it will be necessary to re-evaluate the proposal. Please note that due to the large number of adjacent radio links in this vicinity, which have been taken into account, clearance is given specifically for a location within the declared grid reference (quoted above).

In making this judgement, JRC has used its best endeavours with the available data, although we recognise that there may be effects which are as yet unknown or inadequately predicted. JRC cannot therefore be held liable if subsequently problems arise that we have not predicted.

It should be noted that this clearance pertains only to the date of its issue. As the use of the spectrum is dynamic, the use of the band is changing on an ongoing basis and consequently, you are advised to seek re-coordination prior to submitting a planning application, as this will negate the possibility of an objection being raised at that time as a consequence of any links assigned between your enquiry and the finalisation of your project.

JRC offers a range of radio planning and analysis services. If you require any assistance, please contact us by phone or email.

With best wishes

The Windfarm Team.

Friars House
Manor House Drive

Coventry CV1 2TE
United Kingdom

Office: 02476 932 185

We hope this response has sufficiently answered your query.
If not, please **do not send another email** as you will go back to the end of the mail queue, which is not what you or we need. Instead, **reply to this email by clicking on the link below or login to your account** for access to your co-ordination requests and responses.

https://breeze.jrc.co.uk/tickets/view.php?id=33597

From: Donald Campbell REDACT
Sent: 25 June 2024 19:30
To: Econsents Admin
Cc: Vicechair
Subject: Kincardine Community Council
Attachments: Scoping.docx

Please find attached the comments by Kincardine Community Council on the Scoping Opinion Request: Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP).

We would be grateful if confirmation of receipt and readability are confirmed.

Kind regards, Donald.

Donald Campbell, Chair, Kincardine Community Council.

Kincardine Community Council

Kincardine Community Council **comment** on the Scoping Opinion request prepared by AECOM for SP Energy Networks: Central Scotland - Overhead Line Upgrades
(DWUP, ECUP and LWUP).

Working through the document we would like to pick up on some points raised which we find give us cause for concern:

1. Under 1.1 Introduction, in the final sentence which states- "The proposed substation does not form part of this request but would be considered as part of any cumulative assessment with the Proposed Upgrades where relevant to do so". We reject this statement, if the proposed substation is not part of this request we are not sure why this statement is included in this document. In fact we think this sentence is obtuse and lacks clarity.

2. Under 1.3 in the first paragraph, second sentence, "In parallel with this SPEN will also seek a direction under section 57 of the Town and County Planning (Scotland) Act 1997 that planning permission is deemed to be granted from the affected Local Authorities...." We will object to any development in our area of responsibility that does not involve direct consultation with Kincardine Community Council, being, as we are, Statutory Consultees. We ask that any direction from the Scottish Government takes this into consideration before making any decision on the matter. In the final sentence of 1.3 it states that "This Scoping Opinion request is the first step in that process ensuring that the EIA is proportionate to the scale and nature of the works involved in upgrading the XL,ZCN and ZCS overhead lines". We do not think that this document fulfills that criteria and therefore the 'first step' has not been met.

3. Under 2.3 second sentence, "these works would be undertaken in parallel with construction of the Proposed Substation...." We think it is premature to state that the works would take place in unison, there may be conditions in any Planning Application for the proposed substation, that will have to be met, to satisfy us that proper cognisance is being taken of any potential issues we have raised in that process.

4. Under 3.1 Ecology and Nature Conservation, second paragraph, second sentence, " Likely significant effects would be limited to where new towers are required to connect to the proposed Kincardine North Substation." We need more information on what the 'likely significant effects' mentioned are to help us fully understand what it is we are commenting on.

5. Under 3.1 Landscape and Visual Amenity, first sentence, to state that 'no likely significant landscape or visual effects are expected', then in sentence 3 to state that

' would result in an overall increase in the number of towers', we can't quite see how both these statement gel from the perspective of a spectator viewing the scene, we find this unacceptable.

6. Under 3.1, Cultural Heritage and Archaeology, the final paragraph regarding Tulliallan Castle, if, as stated in the previous paragraph that the new towers will be within 650m of the castle then we find this totally unacceptable, if as stated, the EIA 'will consider the impact of these on Tulliallan Castle, including its setting' then we can only hope that the result of the EIA will come to the same conclusion.

7. Under 3.1, Water Environment, any potential spillages or leaks or suspended sediments in runoff are unacceptable to us. This is prime farmland and downstream of the Canal Burn is a wildlife haven, the EIA will need to explain the mitigation that would be required to prevent any of these scenarios affecting the area.

8. Under 3.1, Ground Conditions, Hawkhill Colliery was the largest historic colliery around Kincardine, there are numerous smaller coal mines in the area. The EIA needs to very careful and scrutinise all available documents concerning mining activity locally. This is a speciality of the local heritage group and they would be the obvious group to assist with this, they have maps available that show the pylon and substation site is completely undermined by substantial mine workings.

9. Under 3.1, Land Use, Tourism and Recreation, second sentence is just absolutely and completely wrong, the area is prime, in fact award winning, broad range farmland. Forth sentence, " The permanent loss of land resulting from the proposed terminal towers is not considered to be significant ", the landowner has intimated to Kincardine Community Council that, if this project goes ahead, with the amount of loss of the area of prime farmland, his business would no longer be a viable concern and he would be forced to cease farming. We find this totally and utterly unacceptable, to drive someone out of business, especially a viable, healthy one, cannot be condoned at any level, this needs serious consideration.

10. Under 3.1, Noise, there is already considerable traffic noise in this area, Kincardine Community Council have asked for acoustic barriers to be fitted to the Clackmannanshire Bridge but our request fell on deaf ears. Cumulative noise calculations require to be done, in **all** weather conditions, to determine if the noise levels are acceptable to nearby residents. The site of the noise measuring equipment must be agreed by local residents prior to the assessment.

11. Under 3.1, Traffic and Transport, we totally disagree with the assertions made in this statement, proof of the vehicular activity needs to be shown to allow us to properly assess if this statement is true.

12. Under 3.1, Air Quality, no mention is made of emissions or dust from pylon and substation construction traffic movements, we think this should merit further consideration with a view to being scoped into the EIA.

13. Under 3.2, Ecology and Nature Conservation, " Likely significant effects would be limited to where new towers are required to connect to the proposed Kincardine North Substation." We need more information on what the 'likely significant effects' mentioned are to help us fully understand what it is we are commenting on.

14. Under 3.2, Landscape and Visual Amenity, to state that 'no likely significant landscape or visual effects are expected', then in sentence 3 to state that ' would result in an overall increase in the number of towers', we can't quite see how both these statement gel from the perspective of a spectator viewing the scene, we find this unacceptable.

15. Under 3.2, Cultural Heritage and Archaeology, the final paragraph regarding Tulliallan Castle, if, as stated in the previous paragraph that the new towers will be within 650m of the castle then we find this totally unacceptable, if as stated, the EIA 'will consider the impact of these on Tulliallan Castle, including its setting' then we can only hope that the result of the EIA will come to the same conclusion.

16. Under 3.2, Water Environment, any potential spillages or leaks or suspended sediments in runoff are unacceptable to us. This is prime farmland and downstream of the Canal Burn is a wildlife haven, the EIA will need to explain the mitigation that would be required to prevent any of these scenarios affecting the area.

17. Under 3.2, Ground Conditions, Hawkhill Colliery was the largest historic colliery around Kincardine, there are numerous smaller coal mines in the area. The EIA needs to very careful and scrutinise all available documents concerning mining activity locally. This is a speciality of the local heritage group and they would be the obvious group to assist with this, they have maps available that show the pylon and substation site is completely undermined by substantial mine workings.

18. Under 3.2, Land Use, Tourism and Recreation, second sentence is just absolutely and completely wrong, the area is prime, in fact award winning, broad range farmland. Forth sentence, " The permanent loss of land resulting from the proposed terminal towers is not considered to be significant ", the landowner has intimated to Kincardine Community Council that, if this project goes ahead, with the amount of loss of the area of prime farmland, his business would no longer be a viable concern and he would be forced to cease farming. We find this totally and utterly unacceptable, to drive someone out of business, especially a viable, healthy one, cannot be condoned at any level, this needs serious consideration.

19. Under 3.2, Noise, there is already considerable traffic noise in this area, Kincardine Community Council have asked for acoustic barriers to be fitted to the

Clackmannanshire Bridge but our request fell on deaf ears. Cumulative noise calculations require to be done, in **all** weather conditions, to determine if the noise levels are acceptable to nearby residents. The site of the noise measuring equipment must be agreed by local residents prior to the assessment.

20. Under 3.2, Traffic and Transport, we totally disagree with the assertions made in this statement, proof of the vehicular activity needs to be shown to allow us to properly assess if this statement is true.

21. Under 3.2, Air Quality, no mention is made of emissions or dust from pylon and substation construction traffic movements, we think this should merit further consideration with a view to being scoped into the EIA.

1. Under 3.3, Electric and Magnetic Fields, this requires to be scoped in, as the community requires to know the guidelines provided with the applications are acceptable to us.

2. Under 3.3, Major Accidents and Disasters, this requires to be scoped in, coastal flooding is of great concern to Kincardine residents, in fact this year Spring Tides overtopped the present flood defences, as reported to SEPA. Natural disaster by coastal flooding is a real issue once expected climate change sea level rises are taken account off.

3. Under 3.3, Human Health, all of this requires to be scoped in to ensure Kincardine residents are fully aware of the risks involved, especially including a separate assessment of the Proposed Upgrades on human health, however unlikely the effects.

Under 3.4 Summary and Conclusions, just because the ZCN and ZCS routes are already consented to operate at 400kV does not mean that it should not be considered, this should be done as part of the whole process.

The EIA is our protection against known and unknown hazards beyond the normal persons understanding of Environmental issues, a complete assessment should be made, not a piecemeal assessment. All of the proposed matters to be scoped out should be included in the EIA, then, and only then, would Kincardine residents be better able understand what is being proposed.

NatureScot Consultation Response

From: Keith Dalgleish
To: Carolanne Brown
Cc: Econsents Admin
Subject: Scoping Opinion request For Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) - ECU00005132
Date: 17 June 2024 10:11:41

Good afternoon

Thanks for consulting us on the scope of the EIA for the above proposal. We are satisfied with the proposed approach to the EIA.

We would also like to enquire if an HRA is proposed? This would assess the likely significant effects (LSE) on the nearby Firth of Forth SPA.

regards

Keith Dalgleish | Operations Officer - South

NatureScot | Elmwood Campus | Carslogie Road | Cupar | Fife | KY15 4JB
Dualchas Nàdair na h-Alba | Àrainn Elmwood | Rathad Carslogie | Cùbar | Fiobha | KY15 4JB
01738 458803
nature.scot | @nature_scot | Scotland's Nature Agency | Buidheann Nàdair na h-Alba

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The Scottish Government
Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Network Rail
Town Planning
1st Floor George House
36 North Hanover Street
Glasgow
G1 2AD

Martin Henderson
Town Planning Technician

E-Mail:
TownPlanningScotland@networkrail.co.uk

Planning reference: ECU00005132
Case Officer: Carolanne Brown

Network Rail ref: 175 2024
27/06/2024

Dear Ms Brown,

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017
REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 37 APPLICATION FOR THE CENTRAL SCOTLAND – OVERHEAD LINE UPGRADES (DWUP, ECUP AND LWUP)

Thank you for consulting Network Rail regarding the above development.

We would strongly suggest that reference to the issues below are included in the Scoping Opinion to ensure that potential impacts of both the construction and completed development on the current and future safe and efficient operation of the railway are assessed:

- A Traffic Assessment should be included to assess the effects of construction traffic on existing traffic flows and the public road network. Preferred construction traffic routes should be indicated. This will enable Network Rail to assess the possible impacts where/if the traffic crosses over/under our infrastructure and the suitability of these crossings.

- Details of proposed construction and engineering works in the vicinity of the railway line. Any works over the railway will be subject to further discussion and agreement with Network Rail.

Yours sincerely

REDACT

Martin Henderson
Town Planning Technician

Scottish Forestry Consultation Response

From: Snape S (Stewart)
To: Ecosystems Admin; Scottish Forestry Conservancy, Central Scotland; Colquhoun K (Karen)
Subject: RE: Scoping Opinion request For Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) - ECU00005132
Date: 19 June 2024 15:59:45
Attachments: image001.png
image002.jpg

Dear Carolanne,
Thank you for consulting Scottish Forestry on whether Trees and Woodland should be considered as being out of scope of the Central Scotland – Overhead Line Upgrade EIA. Having reviewed the description of the development and reviewed the maps, I am content that as the existing overhead line routes largely avoid trees and woodlands, and where they don't, they are located within existing wayleaves, it is reasonable to consider trees and woodland to be out of scope for EIA purposes. However, if changes are made to the route following the EIA, Scottish Forestry should be contacted for their opinion on the implications that any amended proposals may have for trees and woodland.

Kind regards
Stewart

My working days are Wednesday, Thursday and Friday

Stewart Snape MICFor, MRSB
Regulations and Development Manager
Scottish Forestry
Central Scotland Conservancy | Bothwell House | Hamilton Business Park| Caird Park | Hamilton | ML3 0QA
stewart.snape@forestry.gov.scot

Website: forestry.gov.scot

BRAVE values are the roots that underpin Scottish Forestry, to create a workplace where our staff, and the people we work with, feel valued, supported and respected.

Be professional, Respect others, Act with honesty and integrity, Value teamwork and collaboration and Encourage innovation and creativity.

Scottish Forestry is the Scottish Government agency responsible for forestry policy, support and regulation.

Thursday, 04 July 2024

Local Planner
Energy Consents Unit
5 Atlantic Quay
Glasgow
G2 8LU

Development Operations
The Bridge
Buchanan Gate Business Park
Cumbernauld Road
Stepps
Glasgow
G33 6FB

Development Operations
Freephone Number - 0800 3890379
E-Mail - DevelopmentOperations@scottishwater.co.uk
www.scottishwater.co.uk
Follow Us

Dear Customer,

Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP)
Clackmannan, FK10 4DW
Planning Ref: ECU00005132
Our Ref: DSCAS-0111791-B6S
Proposal: Increase in the operating voltage of the XL route from 275kv to 400kV between Blairingone and Kincardine Substation. Construction of four new towers to connect the upgraded XL route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (XL05). Construction of four new towers to connect the upgraded ZCN route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (ZCN19). Construction of four new terminal towers to connect the upgraded ZCS route to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of one existing tower (ZCS19). Temporary overhead lines operating at 275kv to facilitate existing connections during construction.

Please quote our reference in all future correspondence

Scottish Water has no objection to this proposal. Please read the following carefully as there may be further action required. Scottish Water would advise the following:

Drinking Water Protected Areas

A review of our records indicates that there are no Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the area that may be affected by the proposed activity.

SW Public
General

Asset Impact Assessment

Scottish Water records indicate that there is live infrastructure in the proximity of your development area that may impact on existing Scottish Water assets.

The applicant must identify any potential conflicts with Scottish Water assets and contact our Asset Impact Team via our Customer Portal for an appraisal of the proposals.

The applicant should be aware that any conflict with assets identified will be subject to restrictions on proximity of construction. Please note the disclaimer at the end of this response.

Written permission must be obtained before any works are started within the area of our apparatus

Surface Water

For reasons of sustainability and to protect our customers from potential future sewer flooding, Scottish Water will not accept any surface water connections into our combined sewer system.

There may be limited exceptional circumstances where we would allow such a connection for brownfield sites only, however this will require significant justification from the customer taking account of various factors including legal, physical, and technical challenges.

In order to avoid costs and delays where a surface water discharge to our combined sewer system is anticipated, the developer should refer to our guides which can be found at https://www.scottishwater.co.uk/Help-and-Resources/Document-Hub/Business-and-Developers/Connecting-to-Our-Network which detail our policy and processes to support the application process, evidence to support the intended drainage plan should be submitted at the technical application stage where we will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.

Next Steps:

All developments that propose a connection to the public water or waste water infrastructure are required to submit a Pre-Development Enquiry (PDE) Form via our Customer Portal prior to any formal technical application being submitted, allowing us to fully appraise the proposals

I trust the above is acceptable however if you require any further information regarding this matter please contact me on **0800 389 0379** or via the e-mail address below or at planningconsultations@scottishwater.co.uk.

Yours sincerely,

REDACT
Development Services Analyst
PlanningConsultations@scottishwater.co.uk

W Public
eneral

Scottish Water Disclaimer:

"It is important to note that the information on any such plan provided on Scottish Water's infrastructure, is for indicative purposes only and its accuracy cannot be relied upon. When the exact location and the nature of the infrastructure on the plan is a material requirement then you should undertake an appropriate site investigation to confirm its actual position in the ground and to determine if it is suitable for its intended purpose. By using the plan you agree that Scottish Water will not be liable for any loss, damage or costs caused by relying upon it or from carrying out any such site investigation."

Supplementary Guidance

- Scottish Water asset plans can be obtained from our appointed asset plan providers:
    - Site Investigation Services (UK) Ltd
    - Tel: 0333 123 1223
    - Email: sw@sisplan.co.uk
    - www.sisplan.co.uk
- Scottish Water's current minimum level of service for water pressure is 1.0 bar or 10m head at the customer's boundary internal outlet. Any property which cannot be adequately serviced from the available pressure may require private pumping arrangements to be installed, subject to compliance with Water Byelaws. If the developer wishes to enquire about Scottish Water's procedure for checking the water pressure in the area, then they should write to the Development Operations department at the above address.
- If a connection to the public sewer and/or water main requires to be laid through land out-with public ownership, the developer must provide evidence of formal approval from the affected landowner(s) by way of a deed of servitude.
- Scottish Water may only vest new water or waste water infrastructure which is to be laid through land out with public ownership where a Deed of Servitude has been obtained in our favour by the developer.
- The developer should also be aware that Scottish Water requires land title to the area of land where a pumping station and/or a Sustainable Drainage System (SUDS) proposed to vest in Scottish Water is constructed.
- Please find information on how to submit application to Scottish Water at our Customer Portal.

SW Public
General

ScotWays Consultation Response

From: Lynda Grant
To: Carolanne Brown
Cc: Fleisha Fahy
Subject: Re: Scoping Opinion request For Central Scotland - OHL Upgrades [10419]
Date: 24 June 2024 11:12:30

Good morning Carolanne,

Thank you for your email regarding an extension to the deadline for comments on this scoping application. An extension will not be required as we have no capacity to comment on OHLs at the moment.

Kind regards,
Lynda

Lynda Grant
Access Officer

I work part-time - Monday to Wednesday

--
Scottish Rights of Way and Access Society (ScotWays)
24 Annandale Street, Edinburgh EH7 4AN
tel: 0131 558 1222
web: www.scotways.com
follow us on Twitter: @ScotWays
find us on Facebook: www.facebook.com/scotways

Safeguarding Public Access in Scotland since 1845

A company limited by guarantee, registered in Scotland
Company number SC024243
Registered office as above
Scottish Charity number SC015460

SEPA Consultation Response

From: Planning South <Planning.South@sepa.org.uk>
Sent: Tuesday, June 11, 2024 3:17 PM
To: Econsents Admin <Econsents_Admin@gov.scot>
Cc: Brown C (Carolanne) <Carolanne.Brown@gov.scot>
Subject: 20001919 SEPA response RE: Scoping Opinion request For Central Scotland - Overhead Line Upgrades (DWUP, ECUP and LWUP) - ECU00005132

OFFICIAL

Dear Energy Consents Unit
Thank you for consulting us for a scoping opinion in this case. We can confirm that we have no concerns to raise about the current scope of the assessment. It is also unlikely that we would offer site-specific advice at the full application stage, given the scale and nature of the works currently proposed. Instead we refer you and the developer to the relevant standing advice in our sepa-triage-framework-and-standing-advice.pdf which is equally applicable to Electricity Act applications. Notwithstanding this it is the applicant's responsibility to meet their obligations and mitigate environmental impacts under Schedule 9 of the Electricity Act 1989.
If you have any queries relating to this response, please contact us by email, via: planning.south@sepa.org.uk
Regards

Peter Minting | Planning Officer
Scottish Environment Protection Agency

Development Management and Strategic Road Safety
Roads Directorate

George House 36 North Hanover St Glasgow G1 2AD
george.smith@transport.gov.scot

Carolanne Brown
Energy Consents Unit
The Scottish Government
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Econsents_Admin@gov.scot

Your ref:
ECU00005132

Our ref:
GB01T19K05

Date:
27/08/2024

Dear Sirs,

ELECTRICITY ACT 1989

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017

REQUEST FOR SCOPING OPINION - CENTRAL SCOTLAND - OVERHEAD LINE UPGRADES (DWUP, ECUP AND LWUP)

With reference to your recent correspondence on the above development, we acknowledge receipt of the Scoping Report (SR) prepared by Aecom in support of the above development.

This information has been passed to SYSTRA Limited for review in their capacity as Term Consultants to Transport Scotland – Roads Directorate. Based on the review undertaken, Transport Scotland would provide the following comments.

Proposed Development

The proposed development comprises the upgrades of three existing overhead lines as part of planned reinforcements of the existing transmission system in Central Scotland. The three existing lines and necessary works are described as follows:

- Approximately 10km of an existing overhead line (known as 'XL route') from southwest of Blairingone in Perth and Kinross to a new substation, to be known as Kincardine North, at Kilbagie in Fife. The XL route then continues to the existing Kincardine Substation located to the immediate north of the River Forth. This forms part of a wider upgrade referred to as **ECUP**.
- Approximately 22km of an existing overhead line (known as 'ZCN route') from Longannet to the proposed Kincardine North Substation. The ZCN route then continues to the existing Denny North Substation located approximately 1.5km north of Denny. This forms part of a wider upgrade referred to as **LWUP**.

- Approximately 22km of an existing overhead line (known as 'ZCS route' from Longannet to the proposed Kincardine North Substation. The ZCS route then continues to the existing Denny North Substation located approximately 1.5km north of Denny. This forms part of a wider upgrade referred to as **DWUP**.

We understand from the SR that the works proposed involve an increase in the operating voltage of the XL route from 275 to 400kV between Blairingone and Kincardine Substations, and the construction of ten new towers to connect the upgraded XL, ZCN and ZCS routes to the proposed Kincardine North Substation (substation is subject to a separate application) as well as removal of three existing towers.

Assessment of Environmental Impacts

The SR indicates that since the majority of the proposed upgrades do not involve construction works, it is considered that significant construction traffic effects are unlikely to occur. Traffic movements associated with the construction of the terminal towers would be temporary, limited to the construction period only and will not significantly increase vehicle movements on the existing road network.

Transport Scotland is satisfied that no assessment of the impact of traffic (nor the environmental effects of this traffic) associated with the proposed works is required, however, we note that the proposed Kincardine North Substation is located within the area bounded by the A876(T), A977(T) and the Kincardine on Forth Bridge and each of the proposed towers are located within this area.

Transport Scotland would, therefore, state that a Construction Traffic Management Plan (CTMP) will require to be discussed and agreed with the Area Manager for these routes who is Graeme Paget. Graeme can be contacted at graeme.paget@transport.gov.scot.

Abnormal Loads Assessment

As no abnormal loads are expected during construction, no further assessment in this regard is required.

I trust that the above is satisfactory but should you wish to discuss any issues raised in greater detail, please do not hesitate to contact me or alternatively,Alan DeVenny at SYSTRA's Glasgow Office can assist on 0141 343 9636.

Yours faithfully

REDACT

George Smith

Transport Scotland
Roads Directorate

cc Alan DeVenny – SYSTRA Ltd.

Marine Directorate – Science Evidence Data and Digital (MD-SEDD) advice on freshwater and diadromous fish and fisheries in relation to the installation of overhead line developments.

Updated September 2023

Marine Directorate – Science Evidence Data and Digital (MD-SEDD) provides internal, non-statutory, advice in relation to freshwater and diadromous fish and fisheries to the Scottish Government's Energy Consents Unit (ECU) for the installation and maintenance of overhead line (OHL) developments in Scotland.

Atlantic salmon (*Salmo salar*), sea trout and brown trout (*Salmo trutta*) are of high economic value and conservation interest in Scotland and for which MD-SEDD has in- house expertise. The route of OHLs often cross watercourses which support important salmon and trout populations. MS-SEDD aims, through our provision of advice to ECU, to ensure that the installation and maintenance of these OHLs do not havea detrimental impact on the fish habitat and populations.

The Electricity Works (Environmental Impact Assessment) (EIA) (Scotland) Regulations (2017) state that the EIA must assess the direct and indirect significant effects of the proposed development on water and biodiversity, and in particular species (such as Atlantic salmon) and habitats protected under the EU Habitats Directive. Salmon and trout are listed as priority species of high conservation interest in the Scottish Biodiversity List and support valuable recreational fisheries.

A good working relationship has been developed over the years between ECU and MD-SEDD, which ensures that these fish species are considered by ECU during all stages of the application process of OHL developments and are similarly considered during the installation and maintenance of future transmission lines. It is important that matters relating to freshwater and diadromous fish and fisheries, particularly salmon and trout, continue to be considered during the installation and maintenance of future OHLs.

In the current document, MD-SEDD sets out a revised, more efficient approach to the provision of our advice, which utilises our generic scoping and monitoring programme guidelines (https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/Freshwater/Research/onshoreren). This standing advice provides regulators (e.g. ECU, local planning authorities), developers and consultants with the information required at all stages of the application process for OHL projects, such that matters relating to freshwater and diadromous fish and fisheries are addressed in the same rigorous manner as is currently being carried out and continue to be fully in line with EIA regulations. At the request of ECU, MD-SEDD will still be able to provide further and/or bespoke advice relevant to freshwater and diadromous fish and fisheries e.g. site specific advice, at any stage of the application process for a proposed development, particularly where a development may be considered sensitive or contentious in nature.

MD-SEDD will continue undertaking research, identifying additional research requirements, and keep up to date with the latest published knowledge relating to the

impacts of onshore wind farms on freshwater and diadromous fish populations. This will be used to ensure that our guidelines and standing advice are based on the best available evidence and also to continue the publication of the relevant findings and knowledge to all stakeholders including regulators, developers and consultants.

MD-SEDD provision of advice to ECU

- MS-SEDD should not be asked for advice on pre application and application consultations (including screening, scoping, gate checks and EIA applications). Instead, the MD-SEDD scoping guidelines and standing advice (outlined below) should be provided to the developer as they set out what information should be included in the EIA report;
- if new issues arise which are not dealt with in our guidance or in our previous responses relating to respective developments, MD-SEDD can be asked to provide advice in relation to proposed mitigation measures and monitoring programmes which should be outlined in the EIA Report (further details below);
- if new issues arise which are not dealt with in our guidance or in our previous responses, MD-SEDD can be asked to provide advice on suitable wording, within a planning condition, to secure proposed monitoring programmes, should the development be granted consent;
- MD-SEDD cannot provide advice to developers or consultants, our advice is to ECU and/or other regulatory bodies.
- if ECU has identified specific issues during any part of the application process that the standing advice does not address, MD-SEDD should be contacted.

MD-SEDD Standing Advice for each stage of the EIA process

Scoping

MD-SEDD issued generic scoping guidelines (https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/Freshwater/Research/onshoreren) which outline how fish populations can be impacted during the construction, operation and decommissioning of a wind farm and transmission line developments and informs developers as to what should be considered, in relation to freshwater and diadromous fish and fisheries, during the EIA process.

In addition to identifying the main watercourses and waterbodies within and downstream of the proposed development area, developers should identify and consider, at this early stage, any areas of Special Areas of Conservation where fish are a qualifying feature and proposed felling operations particularly in acid sensitive areas.

If a developer identifies new issues or has a technical query in respect of MD-SEDD generic scoping guidelines then ECU should be informed who will then co-ordinate a response from MD-SEDD.

Gate check

The detail within the generic scoping guidelines already provides sufficient information relating to water quality and salmon and trout populations for developers at this stage of the application.

Developers will be required to provide a completed gate check checklist (annex 1) in advance of their application submission which should signpost ECU to where all matters relevant to freshwater and diadromous fish and fisheries have been presented in the EIA report. Where matters have not been addressed or a different approach, to that specified in the advice, has been adopted the developer will be required to set out why.

EIA Report

MD-SEDD will focus on those developments which may be more sensitive and/or where there are known existing pressures on fish populations (https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/fishreform/licence/status/Pressures). The generic scoping guidelines should ensure that the developer has addressed all matters relevant to freshwater and diadromous fish and fisheries and presented them in the appropriate chapters of the EIA report. Use of the gate check checklist should ensure that the EIA report contains the required information; the absence of such information may necessitate requesting additional information which may delay the process:

Developers should specifically discuss and assess potential impacts and appropriate mitigation measures associated with the following:

- any designated area, for which fish is a qualifying feature, within and/or downstream of the proposed development area;
- the presence of a large density of watercourses;
- the presence of large areas of deep peat deposits;
- known acidification problems and/or other existing pressures on fish populations in the area; and
- proposed felling operations.

Post-Consent Monitoring

MD-SEDD recommends that a water quality and fish population monitoring programme is carried out to ensure that the proposed mitigation measures are effective. A robust, strategically designed and site specific monitoring programme conducted before, during and after construction can help to identify any changes, should they occur, and assist in implementing rapid remediation before long term ecological impacts occur.
MD-SEDD has published guidance on survey/monitoring programmes associated with onshore wind farm developments (https://www2.gov.scot/Topics/marine/Salmon- Trout-Coarse/Freshwater/Research/onshoreren) which developers should follow when drawing up survey and/or monitoring programmes

If a developer considers that such a monitoring programme is not required then a clear justification should be provided.

Planning Conditions

MD-SEDD advises that planning conditions are drawn up to ensure appropriate provision for mitigation measures and monitoring programmes, should the development be given consent. We recommend, where required, that a Water Quality Monitoring Programme, Fisheries Monitoring Programme and the appointment of an Ecological Clerk of Works, specifically in overseeing the above monitoring programmes, is outlined within these conditions and that MD-SEDD is consulted on these programmes.

Wording suggested by MD-SEDD in relation to water quality, fish populations and fisheries for incorporation into planning consents:

1. No development shall commence unless a Water Quality and Fish Monitoring Plan (WQFMP) has been submitted to and approved in writing by the Planning Authority in consultation with Marine Directorate – Science Evidence Data and Digital (MD-SEDD) and any such other advisors or organisations.

2. The WQFMP must take account of the Scottish Government's MD-SEDD guidelines and standing advice and shall include:

a) water quality sampling should be carried out at least 12 months prior to construction commencing, during construction and for at least 12 months after construction is complete. The water quality monitoring plan should include key hydrochemical parameters, turbidity, and flow data, the identification of sampling locations (including control sites), frequency of sampling, sampling methodology, data analysis and reporting etc.;

b) the fish monitoring plan should include fully quantitative electrofishing surveys at sites potentially impacted and at control sites for at least 12 months before construction commences, during construction and for at least 12 months after construction is completed to detect any changes in fish populations; and

c) appropriate site specific mitigation measures detailed in the Environmental Impact Assessment and in agreement with the Planning Authority and MD-SEDD

3. Thereafter, the WQFMP shall be implemented within the timescales set out to the satisfaction of the Planning Authority in consultation with MD-SEDD and the results of such monitoring shall be submitted to the Planning Authority on a 6 monthly basis or on request.

Reason: *To ensure no deterioration of water quality and to protect fish populations within and downstream of the development area.*

Sources of further information

NatureScot (previously "SNH") guidance on wind farm developments - https://www.nature.scot/professional-advice/planning-and-development/advice-planners-and-developers/renewable-energy-development/onshore-wind-energy/advice-wind-farm

Scottish Environment Protection Agency (SEPA) guidance on wind farm developments – https://www.sepa.org.uk/environment/energy/renewable/#wind

A joint publication by Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, Historic Environment Scotland, MD-SECC (previously Marine Scotland Science) and Association of Environmental and Ecological Clerks of Works (2019) Good Practice during Wind Farm Construction - https://www.nature.scot/guidance-good-practice-during-wind-farm- construction.

Appendix 2.2 Pre-application Advice

Fife Council

Fife Council

Planning Services

SP Transmission Plc
Brendan Tinney
320 St Vincent Street
Glasgow
G2 5AD

Scott Simpson
03451 55 11 22
development.central@fife.gov.uk

Your Ref:
Our Ref: 23/00137/PREAPP

Date 12th April 2023

Dear Sir/Madam

Application No: **23/00137/PREAPP**
Proposal: **Pre-Application for erection of a 400kv transmission substation**

Address: **Land 750M North Of Hawkhill Farm Hawkhill Kincardine Fife**

I refer to your request for pre-application advice which was registered on 21st February 2023.

BACKGROUND

Existing Site

This pre-application enquiry relates to a site which measures approximately 5.4 hectares, and which is located within the countryside and outwith any settlement boundary as designated within the Adopted FIFEplan (2017) (LDP). The site is an open field area which is located between the A876 and A976 Trunk roads with the Tulliallan Settlement Boundary located approximately 545 metres to the south-east. The land is designated as non-prime agricultural land (Category 3.2) as per the Macauley Institute and is located within a coal mining high risk area. Small parts of the site would also appear to be adjacent to or located within a surface water flooding medium and high-risk area as per SEPA's flood risk maps. Tulliallan golf course is located approximately 383 metres to the east of the site, whilst Tulliallan Castle which is a scheduled ancient monument is located approximately 587 metres to the south of the site. The site would appear to not be easily visible from the A976 to the west due to the intervening tree coverage, however, it would appear that it would be clearly visible from the A876 to the east. There are several overhead electricity cables and towers within the site and surrounding area. The Kincardine to Alloa Core Path (Path Code: P745/01) is located next to Hawkhil Road and approximately 485 metres to the south of the application site. The former Kincardine Power Station is located approximately 1.5 kilometres to the south of the application site.

Proposal

This pre-application enquiry seeks advice for the erection of a 400kv transmission substation building and associated infrastructure including two construction access roads and one permanent vehicular access road.

Planning History

There is no relevant planning history for the application site, however, the relevant recent planning history for the surrounding area is as follows:

- Full planning permission (22/02151/FULL) for erection of two compounds including erection of fencing and formation of hardstanding and temporary accesses was approved with conditions on 17th November 2022 on land approximately 242 metres to the east of the site. These compounds were required in relation to the connection point at the interface between overhead electricity lines and underground lines.
- An application under Section 37 of the Electricity Act 1989 to upgrade existing transmission line including the erection of new terminal tower and 3 low level gantries, the installation of gas insulated substation, cable route and formation of vehicular access for a site at Kincardine Power Sation with the overhead transmission line being located between Kincardine Power Station and Blairgone was approved.
- An application under Section 36 of the Electricity Act 1989 (application reference: ECU00003326) for the construction and operation of an electricity generating station including battery energy storage system, and synchronous condenser was approved with conditions by the Scottish Government on 5th January 2022. This site is located directly to the south of and adjacent to the proposed substation site.
- Full planning permission (18/00296/FULL) for replacement of existing 275kV electrical switchyard with 275kV gas insulated switchgear substation including installation of proposed switchgear, new GIS building, installation of new steel palisade security fencing and a new access track was approved with conditions on 25th June 2018 within the former Kincardine Power Station site which is located approximately

Development Plan

Under Section 25 of the Town and Country Planning (Scotland) Act 1997, the determination of the application is to be made in accordance with the Development Plan unless material considerations indicate otherwise.

National Planning Framework 4 (NPF4) was formally adopted on the 13th of February 2023 and is now part of the statutory Development Plan. NPF4 provides the national planning policy context for the assessment of all planning applications. The Chief Planner has issued a formal letter providing further guidance on the interim arrangements relating to the application and interpretation of NPF4, prior to the issuing of further guidance by Scottish Ministers.

The Adopted FIFEplan (2017) (LDP) and associated Supplementary Guidance continue to be part of the Development Plan. The SESplan and TAYplan Strategic Development

Plans and any supplementary guidance issued in connection with them cease to have effect and no longer form part of the Development Plan.

As per Section 24 (3) of the Town and Country Planning (Scotland) Act 1997 (as amended) where there is any incompatibility between a provision of the National Planning Framework and a provision of a Local Development Plan, whichever of them is the later in date is to prevail. The Chief Planner's Letter dated 8th February 2023 also advises that provisions that are contradictory or in conflict would be likely to be considered incompatible.

EIA Screening

The proposal would appear to fall under Class 3 (a) (Industrial installations for the production of electricity, steam and hot water) of Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and would be for a development which may have significant adverse effects on the environment, therefore, the proposal could have an impact that may necessitate the need for an EIA Screening. A formal screening application should, therefore, be submitted with regards to this proposal. This can be submitted by emailing the required information to development.central@fife.gov.uk. The required information is set out in regulation 8 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (available to view online at www.legislation.gov.uk).

ASSESSMENT

The issues to be assessed against the Development Plan and other guidance are as follows:

- Principle of Development
- Landscape and Visual Impact
- Amenity Impact
- Community and Economic Benefits
- Transportation
- Water/Drainage/Flood Risk
- Natural Heritage including impact on Trees, Protected Species and Wildlife Habitats and Biodiversity Enhancement
- Tackling the climate and nature crises
- Contaminated Land/Land Stability

Principle of Development

NPF4 sets out the overarching spatial strategy for Scotland to 2045. Policy 1 (Tackling the climate and nature crises) of NP4 states that when considering all development proposals significant weight will be given to the global climate and nature crises.

Policy 11 (Energy) of NPF4 states that proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported, and these include enabling works, such as grid transmission and distribution infrastructure. The policy further states that development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities. The policy also states that project design and mitigation will demonstrate how the following impacts are addressed:

1. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;
2. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable;
3. public access, including impact on long distance walking and cycling routes and scenic routes;
4. impacts on aviation and defence interests including seismological recording;
5. impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;
6. impacts on road traffic and on adjacent trunk roads, including during construction;
7. impacts on historic environment;
8. effects on hydrology, the water environment and flood risk;
9. biodiversity including impacts on birds;
10. impacts on trees, woods and forests;
11.proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration;
12. the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; and
13. cumulative impacts.

Policy 11 of NPF4 also advises that significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.

Policy 29 of NPF4 states that proposals that contribute to the viability, sustainability and diversity of rural communities and local rural economy will be supported, including essential infrastructure. This policy further advises that proposals in rural areas should be suitably scaled, sited and designed to be in keeping with the character of the area, whilst they should also consider how the development will contribute towards local living and take into account the transport needs of the development as appropriate for the rural location.

The glossary of NPF 4 also defines essential infrastructure as including all forms of renewable, low-carbon and zero emission technologies for electricity generation and distribution and transmission electricity grid networks and primary sub stations.

Policy 1, Part A, of the LDP (2017) stipulates that the principle of development will be supported if it is either (a) within a defined settlement boundary and compliant with the policies for this location; or (b) is in a location where the proposed use is supported by the LDP. Policy 7 (Development in the Countryside) of the LDP states that development in the countryside will only be supported where it is for other development which demonstrates a proven need for a countryside location. Policy 7 also advises that in all cases development must be of a scale and nature compatible with surrounding uses; be well-located in respect of available infrastructure and contribute to the need for any improved infrastructure; and be located and designed to protect the overall landscape and environmental quality of the area.

The application site is located outwith any designated settlement boundary and is, therefore located within the countryside as per the LDP. It has previously been accepted that this type of infrastructure may have a proven need for a countryside location as required by Policy 7 of the LDP. Policy 29(a) (Rural Development) of NPF4 also provides support for essential infrastructure applications of this type within the countryside, whilst Policy 11 of NPF4 provides support in principle to new and replacement transmission and distribution infrastructure providing the proposal is designed to address its impacts, with significant weight to be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.

The proposal could, therefore, potentially be accepted at this countryside location as it would be considered essential infrastructure, however, further information is, required to fully justify the proposal at this location and to demonstrate that the proposed design and mitigation will address the impacts as set out under Policy 11 of NPF4 (see above). It is also acknowledged that it would be difficult to locate a development of this size and scale (5.4 hectares) (whilst addressing potential amenity impacts) within an existing settlement, however, this does not give immediate support to locating this proposal within the countryside and it may also be that this is not the most preferable location, notwithstanding the support in principle now offered for essential infrastructure developments within rural locations. A detailed site selection appraisal should, therefore, be submitted with any future application which fully demonstrates that there are no other suitable sites for this proposal, and which sets out why this location has been chosen.

The application site is also located within 1.5 kilometres of Kincardine Power Station (site KCD006 in FIFEplan), whilst Longannet is located approximately 5 kilometres to the south-east. Any site selection appraisal should, therefore, set out why these locations would not be suitable for the proposed substation, similar to the information submitted with this pre-application enquiry. The appraisal should also set out all other sites within the surrounding rural area which were discounted in favour of this site. Further information is, therefore, required to allow a full assessment of the proposal to be carried out including:

Submission Requirements

- A site selection appraisal.

Landscape and Visual Impact

Policy 11 of NPF4 states that that project design and mitigation will demonstrate how significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy, will be addressed. This policy further states that where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable.

Policy 14 of NPF4 states that development proposals will be designed to improve the quality of an area whether in urban or rural locations and regardless of scale. It further advises that development proposals will be supported where they are consistent with the six qualities of successful places (Health, Pleasant, Connected, Distinctive, Sustainable and Adaptable) and development which is poorly designed or inconsistent with the six qualities will not be supported. Annex D of NPF4 sets out further details relating to the delivery of these six qualities of a successful place. Policy 29 of NPF4 states that development proposals in rural areas should be suitably scaled, sited and designed to be in keeping with the character of the area.

Policies 1 and 10 of the LDP advise that development will only be supported if it has no significant detrimental visual impact on the surrounding area. Policy 7 of the LDP continues that new development in the countryside must be of a scale and nature that is compatible with its surrounding uses and must be located and designed to protect the overall landscape and environmental quality of the area. Policy 13 of the LDP states that development proposals will only be supported where they protect or enhance natural heritage and access assets including landscape character and views.

Policy 14 of FIFEplan and Making Fife's Places Supplementary Guidance (2018) sets out the expectation for developments with regards to design. Making Fife's Places encourages a design-led approach to development proposals through placing the focus on achieving high quality design. These documents also illustrate how development proposals can be evaluated to ensure compliance with the six qualities of successful places. The guidance sets out the level of site appraisal an applicant is expected to undertake as part of the design process. This includes a consideration of the landscape setting, character and the topography of the site. Appendix B of the Supplementary Guidance sets out the detailed site appraisal considerations in relation to landscape change. Details of the assessment to be undertaken to determine a proposals consistency with these principles is provided in the Scottish Government's Creating Places: A Policy Statement on Architecture and Place for Scotland and Designing Streets.

The NatureScot website states that "in the European Landscape Convention definition 'Landscape' means an area, as perceived by people, whose visual features and

character are the result of the action and interaction of natural and/or human factors. All landscapes combine natural components (such as geology, soils and watercourses) and human influences (such as settlement and land use) with cultural perceptions (such as history, social associations and aesthetic values). Landscape Character is created by the way the physical components come together and can be defined as "a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another". Although landscape character is also about experience and sense of place it is not about opinions or judgements on whether one landscape is considered better or worse than another". It further states that "Landscape Character Assessment (LCA) is the process of identifying and describing variation in the character of the landscape. An LCA provides baseline information including a shared written understanding of the key characteristics of a landscape that can be used to guide landscape change.

The submission includes site layout drawings, however, no other supporting information has been submitted to demonstrate the proposals visual and landscape impact on the site and surrounding area. Further information is, therefore, required to allow a full assessment of the proposals visual impact. A full set of elevation drawings and manufacturer's brochures should be submitted with any future application to allow this matter to be fully assessed and any future application should also include a fully detailed landscape and visual impact assessment (LVA), and this should clearly demonstrate the landscape and visual impacts as a result of the proposal. These assessments should include a zone of theoretical visual impact (ZTV) of up to 2 kilometres. Visualisations of the proposed development are also required, with the most useful materials including ZTV diagrams, wireframes and photomontages. Any subsequent study areas for this required information including viewpoint assessments and identification of sensitive landscape receptors etc should be informed by the required ZTV. These viewpoints should also be agreed with this Planning Authority before the LVA is undertaken.

Insufficient information has, therefore, been submitted to allow a full assessment of this matter to be carried out and any future application should include the following:

Submission Requirements

- Detailed design drawings including location plan, site plan, floor plans, elevations, sections and contextual drawings.
- Landscape and Visual Impact Assessment including a ZTV of 2 kilometres and photomontages, visualisations, wireframes and viewpoint assessments.

Amenity Impact

PAN (Planning Advice Note) 1/2011 Planning and Noise provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise. It also advises that Environmental Health Officers should be involved at an early stage in

development proposals which are likely to have significant adverse noise impacts or be affected by existing noisy developments.

Policy 11 of NPF4 states that project design and mitigation will demonstrate how impacts on communities and individual dwellings, including, residential amenity and noise are addressed. Policy 14 of NPF4 states that development proposals will be designed to improve the quality of an area whether in urban or rural locations and regardless of scale. This policy further states that development proposals that are poorly designed, detrimental to the amenity of the surrounding area or inconsistent with the six qualities of successful places, will not be supported. Policy 23 (Health and Safety) of NPF4 requires that development proposals that are likely to raise unacceptable noise issues will not be supported, whilst the agent of change principle applies to noise sensitive development and a noise impact assessment may be required where the nature of the proposal or its location suggests that significant effects are likely.

Policies 1 and 10 of the LDP state that new development is required to be implemented in a manner that ensures that existing uses and the quality of life of those in the local area are not adversely affected. Policy 10 further states that development will only be supported where it will have no significant detrimental impact on amenity in relation to noise and light pollution and the operation of existing or proposed businesses and commercial operations or on the amenity of surrounding existing land uses.

Fife Council's Policy for Development and Noise (2021) sets out how noise impact should be considered through the planning process. It advises that the noise impact arising from development should be considered and mitigated and residential development should not unacceptably affect existing businesses or be built in locations which would be affected by excess or inappropriate noise levels.

Fife Council's Planning Guidance is available to view online by clicking on the following link: Planning Guidance | Fife Council.

Noise

A noise report should be submitted with any future planning application, and this should set out the anticipated noise emissions from the proposal and provide details of the existing background and predicted noise levels at the boundary of nearby residential properties together with any required noise attenuation measures.

Submission Requirements

- Noise report

Community and Economic Benefits

Policy 11 (Energy) of NPF4 states that development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

Policy 11 of the LDP states that permission will only be granted for new development where it has been demonstrated that the net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities have been demonstrated.

No information regarding the potential community and economic benefits as a result of the proposal have been submitted. Full details relating to this matter should, therefore, be submitted with any future application.

Submission Requirements

- Evidence that the proposal would maximise net economic benefits including community socio-economic benefits such as employment, associated business and supply chain opportunities.

Transportation

Policy 11 of NPF4 states that project design and mitigation will demonstrate how impacts on road traffic and on adjacent trunk roads, including during construction will be addressed. Policy 14 of NPF4 states that development proposals will be supported where they provide well connected networks that make moving around easy and reduce car dependency. Policy 15 (Local Living and 20 Minute Neighbourhoods) requires that development proposals will contribute to local living including, where relevant, 20-minute neighbourhoods. To establish this, consideration will be given to existing settlement pattern, and the level and quality of interconnectivity of the proposed development with the surrounding area. Policy 13 (Sustainable Transport) of NPF4 advises that proposals which improve, enhance or provide active travel infrastructure, public transport infrastructure or multi-modal hubs will be supported. It further states that development proposals will be supported where it can be demonstrated that the transport requirements generated have been considered in line with the sustainable travel and investment hierarchies and where appropriate they will provide direct, easy, segregated and safe links to local facilities via walking, wheeling and cycling networks before occupation.

Policy 1, Part C, Criterion 2 of the LDP states that development proposals must provide the required on-site infrastructure or facilities, including transport measures to minimise and manage future levels of traffic generated by the proposal. Policy 3 of the Adopted FIFEplan advise that such infrastructure and services may include local transport and safe access routes which link with existing networks, including for walking and cycling. Further detailed technical guidance relating to this including parking requirements,

visibility splays and street dimensions are contained within Appendix G (Transportation Development Guidelines) of Making Fife's Places Supplementary Guidance (2018).

Fife Council's Transportation Development Management Team (TDM) have verbally advised that a construction traffic management report should be submitted with any future application to allow the matter relating to construction movements to be fully assessed. It is, however, considered that the proposal would potentially have no other significant impacts on the site or surrounding area in terms of transportation and road safety impacts as it is for a substation which should have no significant vehicular trips associated with it. The proposal would also result in accesses being formed onto the A876 Trunk Road to the east and Transport Scotland would require to be consulted on any future planning application. I would recommend that you contact them about your proposal before submitting any future application. They can be contacted at development_management@transportscotland.gsi.gov.uk.

Insufficient information has currently been submitted to allow a full assessment of the proposal. The following should be submitted with any future application to allow this matter to be fully assessed:

Submission Requirements

- A construction traffic management report which sets out the type and number of traffic movements expected as a result of the construction phase of the proposal.
- Evidence relating to the land ownership either side of the existing and proposed accesses onto the public road roads and a drawing demonstrating the potential visibility splays that can be achieved.

Water/Drainage/Flood Risk

Policy 11 of NPF4 states that project design and mitigation will demonstrate how effects on hydrology, the water environment and flood risk have been addressed. Policy 22 (Flooding) of NPF4 states that development proposals at risk of flooding or in a flood risk area will only be supported if they are for essential infrastructure where the location is required for operational reasons. This policy further states that it will be demonstrated by the applicant that all risks of flooding are understood and addressed, there is no reduction in floodplain capacity, increased risk for others, or a need for future flood protection schemes, the development remains safe and operational during floods and flood resistant and resilient materials and construction methods are used.

Policy 22 also requires that development proposals will not increase the risk of surface water flooding to others, or itself be at risk, manage all rain and surface water through sustainable urban drainage systems (SUDS), which should form part of and integrate with proposed and existing blue-green infrastructure. All proposals should also presume no surface water connection to the combined sewer and development should seek to minimise the area of impermeable surface.

Policy 20 (Blue and Green Infrastructure) of NPF4 states that proposals for or incorporating new or enhanced blue infrastructure will be supported and where appropriate, this will be an integral element of the design that responds to local circumstances. This policy further states that proposals that include new or enhanced blue infrastructure will provide effective management and maintenance plans covering the funding arrangements for their long-term delivery and upkeep, and the party or parties responsible for these.

Policies 1 and 3 of the FIFEplan state that development must be designed and implemented in a manner that ensures it delivers the required level of infrastructure and functions in a sustainable manner. Where necessary and appropriate as a direct consequence of the development or because of cumulative impact of development in the area, development proposals must incorporate measures to ensure that they will be served by adequate infrastructure and services. Such measures will include foul and surface water drainage, including Sustainable Urban Drainage Systems (SUDS).

Policy 12 of the FIFEplan advises that development proposals will only be supported where they can demonstrate that they will not, individually or cumulatively increase flooding or flood risk from all sources (including surface water drainage measures) on the site or elsewhere, that they will not reduce the water conveyance and storage capacity of a functional flood plain or detrimentally impact on future options for flood management and that they will not detrimentally impact on ecological quality of the water environment, including its natural characteristics, river engineering works, or recreational use.

A fully detailed surface water management plan should be submitted to allow a full assessment of the proposal to be carried out. Any future planning application should, therefore, include the required SUDS details and appendices 1, 2 and 8 (SUDS certificates) of Fife Council's Design Criteria Guidance on Flooding and Surface Water Management Plan Requirements (available to view online at: Surface Water Management Guidance (fife.gov.uk)). The site is also located within or adjacent to areas that are shown as a surface water flood risk area as per SEPA Flood maps. A flood risk assessment should, therefore, be submitted with any future application along with the relevant flood risk certificates as contained within the aforementioned guidance. Further information is, therefore, required to allow a full assessment of the proposal in this respect. Further information is, therefore, required to allow a full assessment of the proposal in this respect. Any future application should, therefore, include the following information:

Submission Requirements

- A Surface Water Management Plan including relevant SUDS details and appendices as required by Fife Council's Design Criteria Guidance on Flooding and Surface Water Management Plan Requirements.

- - Flood risk assessment including relevant certificates
- A maintenance and management plan for any proposed surface water management solution including details relating to who will adopt/vest and maintain the system.

Natural Heritage including impact on Trees, Protected Species and Wildlife Habitats and Biodiversity Enhancement

Policy 3 (Biodiversity) of NPF4 states that proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them, whilst, proposals should also integrate nature-based solutions, where possible. Policy 3 further states that proposals for major development will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention and this will include future management. This policy requires that best practice assessment methods should be used and that proposals within these categories will demonstrate how they have met all the criteria relating to biodiversity enhancement within this policy.

Policy 4 of NPF4 advises that proposals that are likely to have an adverse effect on species protected by legislation will only be supported where the proposal meets the relevant statutory tests. If there is reasonable evidence to suggest that a protected species is present on a site or may be affected by a proposed development, steps must be taken to establish its presence, whilst the level of protection required by legislation must be factored into the design of the development.

Policy 6 (Forestry, Woodland and Trees) of NPF4 advises that proposals that enhance, expand and improve woodland and tree cover will be supported, however, proposals will not be supported where they would result in the loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition. This policy further states that adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy.

Policy 11 of NPF4 states that that project design and mitigation will demonstrate how biodiversity including impacts on birds and impacts on trees, woods and forests have been addressed.

Policies 1 and 13 of the FIFEplan state that development proposals will only be supported where they protect or enhance natural heritage and access assets including protected and priority habitats and species, designated sites of international and national importance, including Natura 2000 sites and Sites of Special Scientific Interest, designated sites of local importance, including Local Wildlife Sites, Regionally Important Geological Site, green networks and greenspaces and woodlands (including native and other long-established woods), and trees and hedgerows that have a landscape, amenity, or nature conservation value. Policy 13 also states that the Scottish Government's Control of Woodland Removal Policy includes a presumption in favour of

protecting woodland. Woodland removal should only be permitted where it would achieve significant and clearly defined additional public benefits. Where woodland is removed in association with development, developers will generally be expected to provide compensatory planting.

Policy 11 of FIFEplan states that development of low carbon energy schemes such as wind turbines, will be supported provided the proposals do not result in unacceptable significant adverse effects or impacts which cannot be satisfactorily mitigated, giving due regard to relevant environmental impact considerations, including effects on natural heritage (including birds). The LCSG sets out that numerous wildlife species exist in Fife and consideration must be made of the likely impact that development will have on these species. For some proposals Fife Council require detailed surveys to be undertaken to provide information on potential impacts on habitats and species. Surveys will be required to determine the impact of the proposal both on the site and in the surrounding area and must be carried out at appropriate times of the year by suitably qualified and experienced professionals. Risks to birds of habitat loss, collision and displacement including barrier effects (where the wind turbine creates an obstacle to regular movements for feeding or roosting grounds) shall all be considered. Further detailed guidance relating to the carrying out of natural heritage, biodiversity and tree assessments is contained within Making Fife's Places Supplementary Guidance (2018).

Fife Council's Natural Heritage officer advises that given the site context (i.e., within a gas processing and storage facility), the habitat involved is likely to be of relatively low ecological value. However, depending upon the localised operational disturbance and opportunities to become accustomed to such disturbance, it is likely that the vegetated area will support a range of bird species, including during the breeding season. They recommend that any construction works, and clearance of the site should be undertaken outwith the bird breeding season. They also advise that where this is not possible then a nesting bird check should be undertaken no more than 48 hours ahead of clearance works, with this conducted by a suitably qualified and experienced ecologist. This matter could be dealt with through a condition of any future potential planning permission.

The following should be fully considered with the submission of any future application.

Impact on Trees

It does not appear that there are any trees on or adjacent to the site which would be significantly impacted upon due to the proposal. Full details of all trees within and adjacent to the site should, however, be submitted with any future application to allow this matter to be fully assessed.

Protected Species and Wildlife Habitats

An Ecological Appraisal Report (ER) should be submitted in support of any future application, and this should include a desk-based search, a phase 1 habitat survey and a protected species survey of the application site and adjacent areas. The report should also outline, if required, any mitigation measures. Any Protected Species (European and UK) found to be present should be assessed, with appropriate surveys undertaken and impacts and mitigation identified. Surveys should be reported in full, with mapping provided as appropriate.

Biodiversity Enhancement

Any future planning application should include a supporting statement illustrating the development's compliance with Policy 3 of NPF4 and Making Fife's Places Supplementary Guidance (2018) including reference and proposals relating to natural heritage and biodiversity enhancement. Making Fife's Places provides information on the site assessment which must be submitted for natural heritage and biodiversity and is available to view online under Adopted Supplementary Guidance at: Planning Guidance | Fife Council. To maximise biodiversity, native species of local origin should be specified for landscaping. These details should also include a landscaping plan indicating the siting, numbers, species and heights (at time of planting) of all trees, shrubs and hedges to be planted, and the extent and profile of any areas of earthmounding.

Submission Requirements

- A supporting statement showing the development's compliance with Policy 3 of NPF4 and Making Fife's Places Supplementary Guidance (2018) including reference and proposals relating to the design, layout, green network infrastructure and natural heritage and biodiversity enhancement.
- An Ecological Appraisal Report.
- A Landscaping Plan

Tackling the climate and nature crises

Policy 1 of NPF4 requires that when considering all development proposals significant weight will be given to the global climate and nature crises.

Policy 2 of NPF4 state that proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible and will be sited and designed to adapt to current and future risks from climate change.

Policies 1 and 11 (Low Carbon) of the FIFEplan (2017) state that planning permission will only be granted for new development where it has been demonstrated that:

- The proposal meets the current carbon dioxide emissions reduction target (as set out by Scottish Building Standards), and that low and zero carbon generating technologies will contribute at least 15% of these savings from 2016 and at least 20% from 2020.

Statutory supplementary guidance will provide additional advice on compliance with this requirement;
- Construction materials come from local or sustainable sources;

Fife Council's Low Carbon Fife Supplementary Guidance (January 2019) notes that major developments are required to provide an energy statement of intention which sets out how the proposal will meet the requirements of Policy 11. This statement should also investigate the feasibility of creating a new or connecting to an existing or proposed district heating network, however, this is not required if the proposed development is not within a district heating buffer zone as set out in section 3.2.2 of this guidance.

Insufficient information has currently been submitted to allow this matter to be fully assessed. Any future planning application should, therefore, include the following information:

Submission Requirements

- A supporting statement which outlines how the proposal complies with Policies 1 and 2 of NPF4.

Contaminated Land/Land Stability

Policies 1 and 10 of the LDP advise that proposals must not have a significant detrimental impact on amenity in relation to contaminated and unstable land, with particular emphasis on the need to address potential impacts on the site and surrounding area.

The site appears to be located within an area of non-intensive historic agricultural use, therefore, it is unlikely that the proposal would have any significant impact on amenity in relation to contaminated land. Fife Council's Land and Air Quality team would, however, be consulted with regards to any future application and they may request that conditions relating to contaminated land are attached to any potential recommendation for approval should they consider this necessary.

The site is located within a coal mining high risk area, therefore, a coal mining risk assessment should be submitted within any future application to allow the matter relating to land stability to be fully assessed. Further guidance relating to this matter can be viewed online at Planning applications and Coal Mining Risk Assessments - GOV.UK (www.gov.uk).

Submission Requirements

-Coal mining risk assessment

APPLICATION PROCESS

Likely timescales and decision making

As the proposed development would be categorised as a 'Major' development, the Scottish Government advises that the Council should strive to determine the application within four months of receipt. This may not always be achievable where there are matters of a complex nature to consider, or if a legal agreement is needed to address financial or other requirements.

In accordance with the approved Scheme of Delegation, all Major applications must be determined by the relevant Planning Committee and this may also impact on the timescale for determination. The schedule of planned Committee meetings is available on the Council Website: Planning Committees Please note that in order for an application to be included on the agenda for a specific meeting the Committee Report must be completed 4 weeks in advance of the meeting date.

Administration of Your Application

All application information should be submitted using the Scottish Government e-planning portal: e-Planning Portal This allows your submitted information to be automatically sent to our case work system and allows relevant files to be published on our online 'Public Access' system. If you are able to also pay the application fee at the point of submission, this will assist us in avoiding potential delays in matching payments with applications.

Once the application has been submitted, any additional information or amendments should also be submitted using the e-planning portal: e-Planning Portal by using the 'Post Submission Additional Documents' process. This also applies once your application has been determined and you are submitting information needed to comply with conditions attached to the permission. Please avoid also sending an email to confirm that you have made a submission.

Should you need to contact the Council during the progress of your application please use our managed inbox address: development.central@fife.gov.uk. This email address is continually managed and monitored, and this avoids the risk of emails being missed when the case officer is on leave or otherwise unavailable.

Document Format and Size

All planning applications must be published online in order to support public involvement in the planning system. Wherever possible, applications should be submitted online as this reduces the time taken for documents to be uploaded to the public website. Where a submission is made in paper format the Council will apply an administrative charge in respect of the additional work involved in scanning and uploading the application information. Depending on the type of application being submitted, the additional fee can be up to £180 + VAT.

Electronic documents can be submitted in any of the following file formats:

DOC • DOCX •GIF • JPG • PDF • PLT • TIF • TXT • XLS • XLSX • XLW

All electronic documents must be less than 10MB in size, as anything above this cannot be loaded to the online system. Should a document need to be divided into smaller pieces it is preferred that this would be done logically, either by chapter or where obvious divisions exist.

Sensitive Information

Any information to be submitted which relates to protected species should be contained in a separate single document as this will not be published on the website as part of the application information.

Planning Fee

Your application will require a fee before it can be processed. The e-Planning portal includes a Fee Calculator. This will allow you to calculate the statutory application fee and can be used independently of the application submission process. Details of the fees which may applied by Fife Council for processing paper submissions or for any advertisements which may be required are available on the Fife Council Website: Planning Charges

How to Pay

Fife Council no longer accepts cash or cheques as payment methods. The application fee and any other fees applicable can be paid by any of the following methods:

- The Scottish Government e-planning portal
  This is our preferred method of payment we will receive your application and fee at the same time. There is a facility for agents submitting applications to provide access for their client to make fee payments.

- Fife Council Online Payments
  You can pay your fee via the Fife Council website Make a Payment. Please ensure that you provided the correct application reference number when using this option to avoid delays in processing your application.

- Bank Transfer
  Whilst we accept payment by bank transfer, using this method of payment is likely to delay the start of processing your application. Before making a payment by this method, please ask us for a copy of the form which we will need to allow us to match your fee with the correct planning application.

Whichever payment method you choose, please ensure that your payment reaches us no more than 5 days after the submission of your application.

Ordnance Survey Licence

All plans and drawings that use the Ordnance Survey map as a base map must be appropriately licensed and details of the date and licence number added to each plan.

Please ensure this is addressed in all your documents, including any plans inserted within reports and other supporting documents.

SUMMARY

The proposal for a substation at this location could be acceptable in principle, however, insufficient information has been submitted to allow a full assessment of the proposal to be carried out. Further information as set out in the above response and below is, therefore, required to allow a full assessment of the proposal to be carried out:

- A site selection appraisal.

- Detailed design drawings including location plan, site plan, floor plans, elevations, sections and contextual drawings.

- Landscape and Visual Impact Assessment including a ZTV of 2 kilometres and photomontages, visualisations, wireframes and viewpoint assessments.

- Noise report

- Evidence that the proposal would maximise net economic benefits including community socio-economic benefits such as employment, associated business and supply chain opportunities.

- A construction traffic management report which sets out the type and number of traffic movements expected as a result of the construction phase of the proposal.

- Evidence relating to the land ownership either side of the existing and proposed accesses onto the public road roads and a drawing demonstrating the potential visibility splays that can be achieved.

- A Surface Water Management Plan including relevant SUDS details and appendices as required by Fife Council's Design Criteria Guidance on Flooding and Surface Water Management Plan Requirements.

- Flood risk assessment including relevant certificates

- A maintenance and management plan for any proposed surface water management solution including details relating to who will adopt/vest and maintain the system.

- A supporting statement showing the development's compliance with Policy 3 of NPF4 and Making Fife's Places Supplementary Guidance (2018) including reference and proposals relating to the design, layout, green network infrastructure and natural heritage and biodiversity enhancement.

- An Ecological Appraisal Report.

- A Landscaping Plan

- A supporting statement which outlines how the proposal complies with Policies 1 and 2 of NPF4.

- Coal mining risk assessment

STATUS OF ADVICE GIVEN

I trust you will find this information helpful in preparing your application for submission and look forward to receiving this in due course.

Please note that this information is given at officer level only and is made strictly without prejudice to the eventual decision of Fife Council as Planning Authority. Please also note that this advice does not take into account land ownership **and extra information may be required for any application.** To confirm the exact details required, please refer to our Validation Standards at Validation-Checklist

Yours faithfully

Scott Simpson, Planner, Development Management

Response Reviewed by

Declan Semple, Lead Officer

Clackmannanshire Council

From: Keith Johnstone <kjohnstone@clacks.gov.uk>
Sent: 05 June 2023 17:38
To: Tinney, Brendan <Btinney@spenergynetworks.co.uk>
Cc: Planning Services <Planning@Clacks.Gov.Uk>
Subject: PLA146030 - Kincardine North 400kv Substation.

Dear Brendan,

I refer to previous correspondence about the above.

Although we suggested that further information be provided to the Service about the proposal, I have provided some further comments on behalf of the Planning Service;

1. What locational requirement is there for the proposed site and was consideration given to alternative sites including brown field land. For example, the former Kincardine Power Station is nearby.

2. The site is close to and mostly clearly visible the A876 which is a key transport route to and from Clackmannanshire as well as providing connections to Fife and Perth and Kinross. The National Cycle Route 76 also passes the development. The character and appearance of the site is influenced by the open flat landscape comprising agricultural land although there are overhead power lines and the former Kilbagie Mill site to the north east. It is considered that the proposed equipment would be industrial in their nature and appearance and would appear incongruous and out of character with the visual amenity and landscape character of the area.

3. A development comprising glamping pods for visitor accommodation has been implemented at Broadcarse Farm to the west of the A876 - 20/00194/FULL -| Siting Of 6 No. Holiday Glamping Pods, Siting Of Cabin for Storage and Office Facilities With Associated Facilities Including Access, Parking, Landscaping and Drainage, Broadcarse Farm - case link - https://publicaccess.clacks.gov.uk/publicaccess/applicationDetails.do?activeTab=documents&keyVal=QFZ0YOEYM4H00
Consideration should be given to the potential impact of the development on this activity and the scope for mitigation of these impacts.

4, It is considered that measures would be required to mitigate the adverse impacts if the project is approved. This could include the provision of native screen planting around the development to effectively mitigate the visual and landscape impacts, particularly the impacts on persons travelling on the A876 and NCR 76.

5. The development would further erode the historic relationship between Kilbagie and Kennetpans when Kilbagie was used as a distillery. Kilbagie Canal connected the two to enable grain to be transported to the distillery at Kilbagie.

I trust the above will be of assistance in informing any application.

regards

Keith Johnstone
Principal Planner
Development Quality
Clackmannanshire Council

Tel 01259 452614

03.
Appendices

Appendix 3.1 Industry Guidance

The Holford Rules

Rule 1

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

Note on Rule 1

(a) Investigate the possibility of alternative routes, avoiding altogether, if possible major areas of highest amenity value. The consideration of alternative routes must be an integral feature of environmental statements. If there is an existing transmission line through a major area of highest amenity value and the surrounding land use has to some extent adjusted to its presence, particularly in the case of commercial forestry, the effect of remaining on this route must be considered in terms of the effect of a new route avoiding the area.

(b) Areas of highest amenity value require to be established on a project-by-project basis considering Schedule 9 to The Electricity Act 1989, Scottish Planning Policies, National Planning Policy Guidelines, Circulars and Planning Advice Notes and the spatial extent of areas identified.

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

Special Area of Conservation (SAC)

Special Protection Area (SPA)

Wetland of International Importance (Ramsar Site)

National Scenic Areas (NSA)

National Parks

National Nature Reserves (NNR)

Protected Coastal Zone Designations

Sites of Special Scientific Interest (SSSI)

Schedule of Ancient Monuments

Listed Buildings

Conservation Areas

World Heritage Sites

Historic Gardens and Designed Landscapes

Rule 2

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

Note on Rule 2

Small areas of highest amenity value not included in Rule 1 as a result of their spatial extent should be identified along with other areas of regional or local high amenity value identified from development plans.

Impacts on the setting of historic buildings and other cultural heritage features should be minimised.

If there is an existing transmission line through an area of high amenity value and the surrounding land uses.

Rule 3

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

Note on Rule 3

Where possible choose inconspicuous locations for angle towers, terminal towers and sealing end compounds.

Too few angles on flat landscape can also lead to visual intrusion through very long straight lines of towers, particularly when seen nearly along the line.

Rule 4

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

Rule 5

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

Notes on Rules 4 and 5

Utilise background and foreground features to reduce the apparent height and domination of towers from main viewpoints.

Minimise the exposure of numbers of towers on prominent ridges and skylines.

Where possible follow open space and run alongside, not through woodland or commercial forestry, and consider opportunities for skirting edges of copses and woods. Where there is no reasonable alternative to cutting through woodland or commercial forestry, the Forestry Commission Guidelines should be followed (Forest Landscape Design Guidelines, second

edition, The Forestry Commission 1994 and Forest Design Planning – A Guide to Good Practice, Simon Bell/The Forest Authority 1998).

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

Rule 6

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

Note on Rule 6

In all locations minimise confusing appearance.

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

Rule 7

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

Note on Rule 7

When a line needs to pass through a development area, route it so as to minimise as far as possible the effect on development.

Alignments should be chosen after consideration of impacts on the amenity of existing development and on proposals for new development.

When siting substations take account of the impacts of the terminal towers and line connections that will need to be made and take advantage of screening features such as ground form and vegetation.

Supplementary Notes

a. Residential Areas: Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b. Designations of Regional and Local Importance: Where possible choose routes which cause the least disturbance to Areas of Great Landscape Value and other similar designations of Regional or Local Importance.

c. Alternative Lattice Steel Tower Designs: In addition to adopting appropriate routeing, evaluate where appropriate the use of alternative lattice steel tower designs available where these would be advantageous visually, and where the extra cost can be justified.

[Note: SHETL have reviewed the visual and landscape arguments for the use of lattice steel towers in Scotland and summarised these in a document entitled Overhead Transmission Line Tower Study 2004].

Further Notes on Clarification to The Holford Rules

Line Routeing and People

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

a. Avoid routeing close to residential areas as far as possible on grounds of general amenity.

b. In rural areas avoid as far as possible dominating isolated house, farms or other small-scale settlements.

c. Minimise the visual effect perceived by users of roads, and public rights of way, paying particular attention to the effects of recreational, tourist and other well used routes.

Supplementary Notes on the Siting of Substations

a. Respect areas of high amenity value (see Rule 1) and take advantage of the containment of natural features such as woodland, fitting in with the landscape character of the area.

b. Take advantage of ground form with the appropriate use of site layout and levels to avoid intrusion into surrounding areas.

c. Use space effectively to limit the area required for development, minimizing the effects on existing land use and rights of way.

d. Alternative designs of substations may also be considered, e.g. 'enclosed', rather than 'open', where additional cost can be justified.

e. Consider the relationship of towers and substation structures with background and foreground features, to reduce the prominence of structures from main viewpoints.

f. When siting substations take account of the effects of line connections that will need to be made.

The Horlock Rules

Overall System Options and Site Selection

1. In the development of system options including new substations, consideration must be given to environmental issues from the earliest stage to balance the technical benefits and capital cost requirements for new developments against the consequential environmental effects in order to keep adverse effects to a reasonably practicable minimum.

Amenity, Cultural or Scientific Value of Sites

2. The siting of new NGC substations, sealing end compounds and line entries should as far as reasonably practicable seek to avoid altogether internationally and nationally designated areas of the highest amenity, cultural or scientific value by the overall planning of the system connections.

Notes:

i. Internationally and nationally designated areas of highest amenity, cultural or scientific value are:
   - National Parks
   - Areas of Outstanding Natural Beauty
   - Heritage Coasts
   - World Heritage Sites
   - Ramsar Sites
   - Sites of Special Scientific Interest
   - National Nature Reserves
   - Special Protection Areas
   - Special Areas of Conservation

ii. Care should be taken in relation to all historic sites with statutory protection e.g. Ancient Monuments, Battlefields and Listed Buildings.

iii. Account should be taken of Government Planning Policy Guidance and established codes of practice.

iv. Account should be taken of any development plan policies relevant to the siting or design of substations.

3. Areas of local amenity value, important existing habitats and landscape features including ancient woodland, historic hedgerows, surface and ground water sources and nature conservation areas should be protected as far as reasonably practicable.

Local Context, Land Use and Site Planning

4. The siting of substations, extensions and associated proposals should take advantage of the screening provided by landform and existing features and the potential use of site layout and levels to keep intrusion into surrounding areas to a reasonably practicable minimum.

Notes:

i. A preliminary study should be undertaken to identify the extent of land required to meet both operational and environmental needs.

ii. In some instances it may be possible to site a substation partially or fully enclosed by existing woodlands.

iii. Topographical information should be obtained at an early stage. In some cases a geotechnical survey may be required.

5. The proposals should keep the visual, noise and other environmental effects to a reasonably practicable minimum.

Notes:

i. Allow sufficient space for screening of views by mounding or planting.
ii. Consider appropriate noise attenuation measures where necessary.
iii. Use security measures which minimise visual intrusion from lighting.
iv. Consider appropriate on-site water pollution prevention measures.
v. Consider adjoining uses and the amenity of local inhabitants.

6. The land use effects of the proposal should be considered when planning the siting of substations or extensions.

Notes:

i. Issues for consideration include potential sterilisation of nationally important land, e.g. Grade 1 agricultural land and sites of nationally scarce minerals.
ii. Effects on land drainage.

Design

7. In the design of new substations or line entries, early consideration should be given to the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.

Notes:

i. With outdoor equipment, a preference should be given normally to a low profile design with low height structures and silhouettes appropriate to the background.
ii. Use lightweight narrow section materials for taller structures especially for gantries over about 6 metres in height.
iii. Commission exterior design and colours appropriate to the surroundings.
iv. Materials and colours for buildings, equipment and fencing should be chosen to harmonise with local surroundings.
v. v. Where possible avoid the use of prominent insulators by consideration of available colours appropriate to the background.
vi. Where possible site buildings to act as visual screens for switchgear.
vii. Ensure that the design of high voltage and low voltage substations is co-ordinated by early consultation between NGC and its customers.
viii. Where there are particular technical or environmental constraints, it may be appropriate to consider the use of Gas Insulated Switchgear (GIS) equipment which occupies less space and is usually enclosed within a building.
ix. Early consideration should be given to the routeing of utility service connections.

8. Space should be used effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation.

   Notes:

   i. Assess the benefit of removing redundant substation equipment from existing sites where this would improve their appearance.

9. The design of access roads, perimeter fencing, earthshaping, planting and ancillary development should form an integral part of the site layout and design to fit in with the surroundings.

Line Entries

10. In open landscape especially, high voltage line entries should be kept, as far as possible, visually separate from low voltage lines and other overhead lines so as to avoid a confusing appearance.

11. The inter-relationship between towers and substation structures and background and foreground features should be studied to reduce the prominence of structures from main viewpoints. Where practicable the exposure of terminal towers on prominent ridges should be minimised by siting towers against a background of trees rather than open skylines.

Appendix 3.2 SP Transmission Alternatives Appraisal

Kincardine North 400kV Substation Site Selection

SP Energy Networks

Contents

1 Introduction

This document is produced for the public consultation and its purpose is to explain SP Transmission plc (SPT) license duties, needs case and relevant methodology followed in developing the new Kincardine North 400kV substation and proposed location.

Electricity transmission is a licensable activity under section 4 of the 1989 Electricity Act ("the 1989 Act"). The 1989 Act places statutory duties and licence obligations on transmission licence holders.

SPT is licenced under section 6(1)(b) of the 1989 Act to transmit electricity. The licence is granted subject to certain standard and special conditions. Under section 9(2) of the 1989 Act, SPT as a transmission licensee is required to fulfil the following duties:

- To *develop and maintain an efficient, co-ordinated and economical system for the transmission of electricity; and*
- *To facilitate competition in the supply and generation of electricity*.

These statutory duties are reflected in SPT's transmission licence. In addition, and of relevance in the context of the Kincardine North Project, SPT has the following obligations pursuant to its licence conditions (LCs):

- to at all times have in force a System Operator-Transmission Owner Code (STC) which, amongst other things, provides for the co-ordination of the planning of the transmission system (LC B12);
- to at all times plan and develop the transmission system in accordance with the National Electricity Transmission System Security and Quality of Supply Standard (LC D3);
- to make available those parts of the transmission system which are intended for the purposes of conveying, or affecting the flow of, electricity so that such parts are capable of doing so and are fit for those purposes (LC D2); and
- to offer to enter into an agreement with the system operator on notification of receipt of an application for connection or for modification to an existing connection (LC D4A).

Section 38 and Schedule 9 of the 1989 Act also impose duties on SPT when formulating any relevant proposals. In response to statutory and licence obligations upon it, SPT therefore requires to ensure that the transmission system is developed and maintained in an economic, co-ordinated and efficient manner, in the interests of existing and future electricity consumers, balancing technical, economic and environmental factors. Efficient in this context should be understood to mean a project being developed, procured and delivered at least cost to consumers.

The construction of the proposed Kincardine North 400kV Substation, and associated works, is vital in facilitating the economic integration of renewable generation and reaching legislated net zero targets. In the following sections the background and options considered are described and the justification for the proposed Kincardine North 400kV Substation is presented.

2 The need for the scheme

In June 2019, the United Kingdom (UK) parliament passed legislation introducing a binding target to reach net zero greenhouse gas emissions by 2050. In Scotland, the Scottish Parliament has committed Scotland to becoming a net zero society by 2045. The timely connection of low carbon generation, such as onshore and offshore wind, will play a vital role in reaching these legislated net zero targets.

The UK Government announced in October 2020 its commitment to make the UK a world leader in green energy and boosted the UK Government's previous 30GW target for offshore wind to 40GW by 2030. The Scottish Government ambition is 11GW of offshore wind in Scotland by 2030. Further commitments, by the UK Government in October 2021, to decarbonise the power system by 2035, as well as British Energy Security Strategy[1] published April 2022 (which raises the UK Government ambition to 50GW of offshore wind by 2030), further support the requirement for investment in the existing electricity transmission system to enable the timely connection and integration of the required renewable generation sources.

The electricity transmission system in Great Britain is therefore going through a transformational change as we move towards a net zero emissions society. Traditional large fossil fuel power stations are being replaced by a large number of renewable generating stations such as onshore and offshore wind farms.

The existing electricity transmission system was designed and built to take power from those traditional large power stations, often coal fuelled (such as Kincardine and Longannet) and take it to demand centres throughout the central belt of Scotland and beyond. However, renewable generators are now connecting to the system. These generators are located in areas where there is very little demand, such as in the north of Scotland. To allow this renewable electricity to be carried from the north to the large demand centers throughout Great Britain, there is a need for modernisation and reinforcement of the electricity transmission system across Scotland and Great Britain.

The SPT network in central and south Scotland is crucial to the delivery of the UK and Scottish Government renewable energy and decarbonisation objectives, due to its location in an area of outstanding renewable resource and its position between the SSEN Transmission area (in the north of Scotland) and the National Grid Electricity Transmission (NGET) area in England and Wales. SPT has a unique role in connecting renewable generation and the bulk transfer of renewable energy from its area and from the north of Scotland. SPT's activities therefore benefit stakeholders throughout Great Britain.

The Network Options Assessment (NOA)[2] is carried out every year to determine what, if any, additional capacity will be required and economically justified to ensure current and future generation can flow from where it is produced to where it is needed. This assessment has identified that the construction of a 400kV Substation in the Kincardine area, and the associated uprating of several circuits on the overhead line network that currently run at 275kV to 400kV, is required. This project will enhance the transmission infrastructure in the central belt of Scotland and is critical to enabling Scotland and the UK achieve its net zero carbon emissions targets.

[1] British energy security strategy - GOV.UK (www.gov.uk)

[2] The Network Options Assessment (NOA) is carried out annually by National Grid Electricity System Operator (NGESO) and evaluates proposed system reinforcement projects against future generation and demand scenarios to determine what transmission system reinforcement is required and when this should take place.

A Holistic Network Design (HND) assessment has recently been carried out by National Grid Electricity System Operator (NGESO). This considered the connection of recently contracted offshore windfarms around the Scottish coast and how the power that they generate will be transported to the load centers. The Kincardine North project was identified as a key enabling project to facilitate future network upgrades and ensure that power flows efficiently through the system. Further detail of this assessment can be found on the National Grid ESO website[3].

3 Scheme Description

The proposed scheme will consist of several components, key to which is the establishment of a new 400kV substation (referred to here as 'Kincardine North 400kV Substation') and the reinforcement of existing transmission overhead lines and substations.

Figure 1 shows the geography of the transmission network in the Kincardine area. Note that dotted blue lines denote steel lattice overhead line infrastructure.

The components of the proposed scheme include:

- Construction of the proposed Kincardine North 400kV Substation.
- Construction of two new circuits between the proposed Kincardine North 400kV Substation and the existing Kincardine 275kV Substation (it is expected that these connections will be achieved via underground cables).
- Uprating of the existing 275kV overhead line (known as XL Route[4]) between the proposed new Kincardine North 400kV Substation and the SSEN Transmission boundary - this uprating will increase the capacity and operating voltage of the overhead line (from 275kV to 400kV).
- Uprating of the existing 275kV overhead line (known as ZC(N) Route) between the proposed Kincardine North 400kV Substation and Denny North 400kV Substation. This uprating will increase the capacity and operating voltage of the overhead line (from 275kV to 400kV).
- Uprating of the existing 275kV overhead line (known as ZC(S) Route) on one side between the proposed Kincardine North 400kV Substation and Denny North 400kV Substation. This uprating will increase the capacity and operating voltage of the overhead line (from 275kV to 400kV).
- Turning in the existing XL, ZC(N) and ZC(S) overhead lines to the proposed Kincardine North 400kV Substation.
- The reconfiguration of the existing overhead lines at the proposed Kincardine North 400kV Substation, joining one side of ZC(S) Route and one side of XL Route to provide a 275kV overhead line between Kincardine 275kV Substation and Easterhouse 275kV Substation.

[3] Link: The Pathway to 2030 Holistic Network Design | National Grid ESO

[4] Within SPT, the naming convention for transmission overhead lines is for overhead line routes to be identified by a unique letter or combination of letters. Unique identification of individual towers on the SPT system is therefore achieved by adding a sequential number to the route designator, e.g. XL005 being the fifth tower on XL Route.

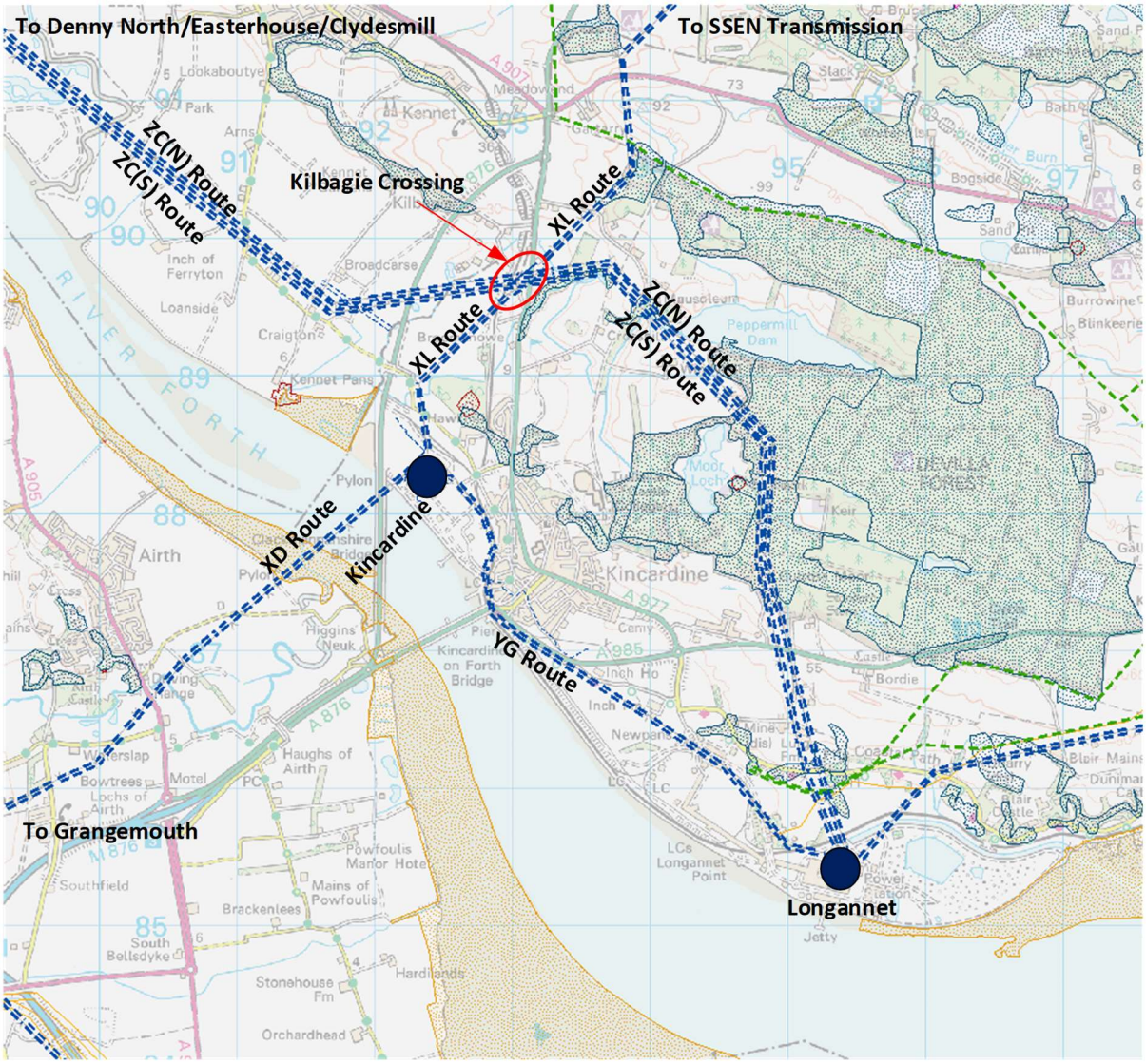


Figure 1: Existing SPT network around Kincardine area

4 Proposed Kincardine North 400kV Substation on the southwest of the Kilbagie Crossing (Preferred location)

The proposed Kincardine North 400kV Substation will be a key enabler to allow the connection of renewable generation throughout Scotland and provide additional capacity to transfer power from the north of Scotland to the south.

In addition, the existing Longannet 275kV Substation is reaching the end of its operational life and requires intervention, including replacement of the substation, within our current price control period which ends in 2026. The proposed Kincardine North 400kV Substation will facilitate the decommissioning of the existing Longannet 275kV substation and the establishment of a new node in the system that will provide much needed additional capacity.

Under its transmission licence, SPT has a duty to develop and maintain an efficient, co-ordinated and economical system of electricity transmission. In recognition of the project drivers and its statutory duties and licence obligations, SPT is planning to develop the scheme to establish the proposed Kincardine North 400kV Substation, close to where the existing 275kV overhead line circuits meet (known as the 'Kilbagie Crossing').

Following a high level technical and environmental review of the potential sites the most appropriate location to construct the substation around the Kilbagie Crossing is to the southwest, as outlined in Figure 2. An indicative electrical layout of the proposed new substation and the proposed diversions of the existing overhead line infrastructure is shown in Figure 3.

This option would require overhead line diversions on ZC(N), ZC(S) and XL Routes to turn the existing circuits into the new substation. As all of these routes are in close proximity to this location, the length of the required diversions would be relatively short.

This proposal requires a new 275kV circuit between Kincardine North 400kV and Kincardine 275kV Substations to deliver the required connectivity. It is expected that an underground cable connection will be required for this circuit. An overhead line connection is not considered to be appropriate due to the close proximity of the Ramsar site (the pink crossed area) and Ancient Woodland (the solid pink area) shown in Figure 4, Scheduled Monuments (Tulliallan Castle) and Garden and Designed Landscapes (Tulliallan) (the solid green area) shown in Figure 5, and the proposed Battery Energy Storage System (BESS) and synchronous condenser developments in the area.

This location is considered to provide the most economic, efficient, and co-ordinated solution for the construction of Kincardine North 400kV Substation. It requires the least amount of new overhead lines and underground cables to be constructed, and, from a desktop assessment, avoids several environmental challenges that some of the alternative locations are subject to, including having a reduced risk of flooding.

This is therefore considered to be the preferred location for the proposed Kincardine North 400kV Substation as it is efficient in terms of ensuring the maximum utilisation of the existing infrastructure, requires the least amount of new infrastructure to be constructed, and is economical in terms of providing the lowest cost solution for existing and future consumers.

Assessments of alternative options including areas around the Kilbagie Crossing are presented in subsequent sections of this document.

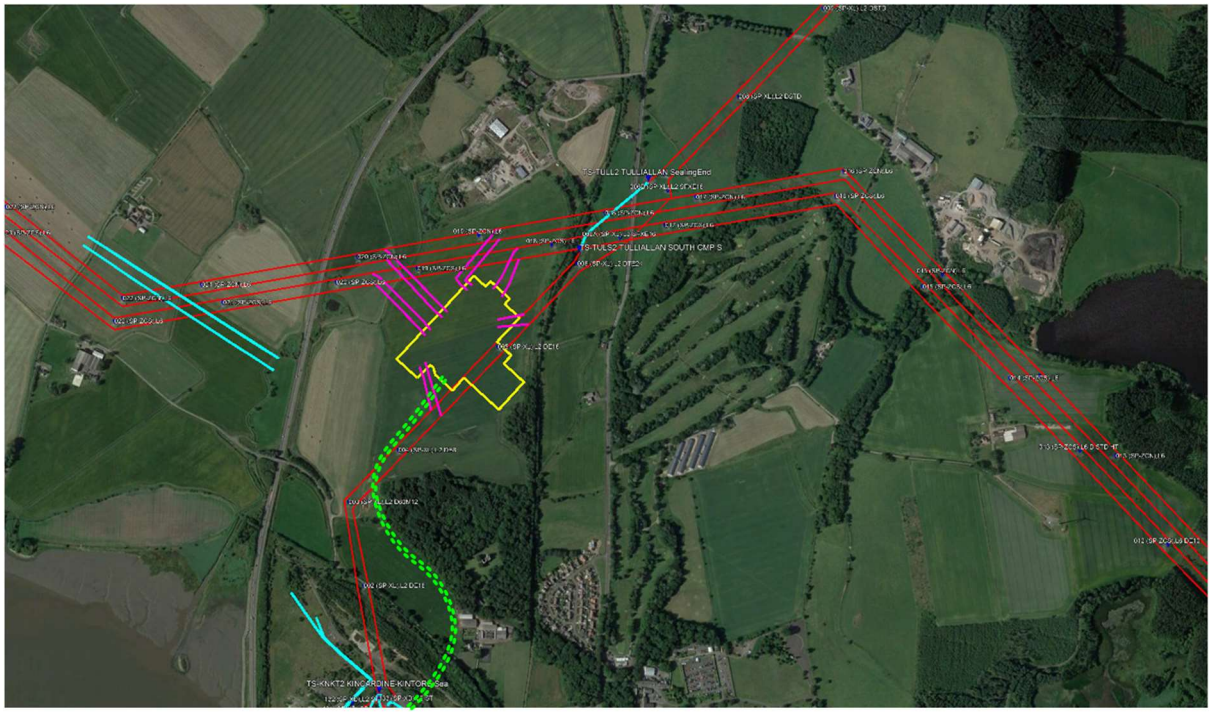


Figure 2: Proposed Kincardine North 400kV substation location on the southwest of the Kilbagie Crossing (preferred solution)

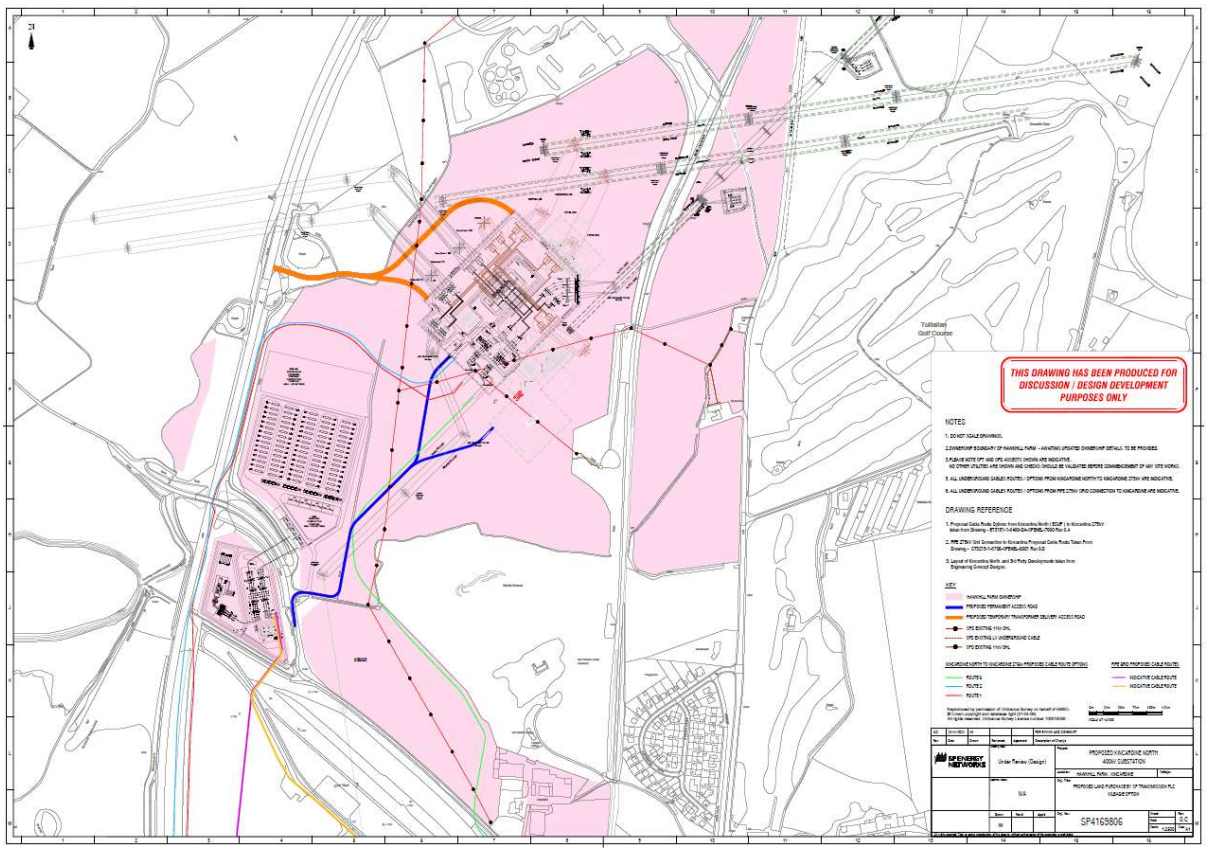


Figure 3: Electrical layout of the proposed new substation and surrounding area

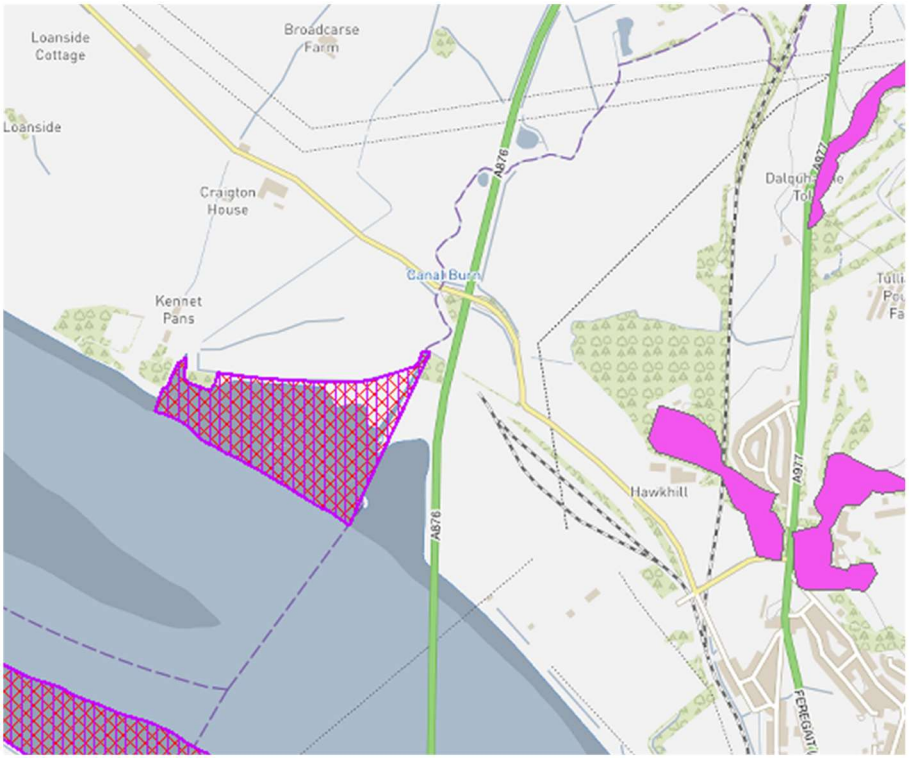


Figure 4: Ramsar and Ancient Woodland around the location on the southwest of the Kilbagie Crossing

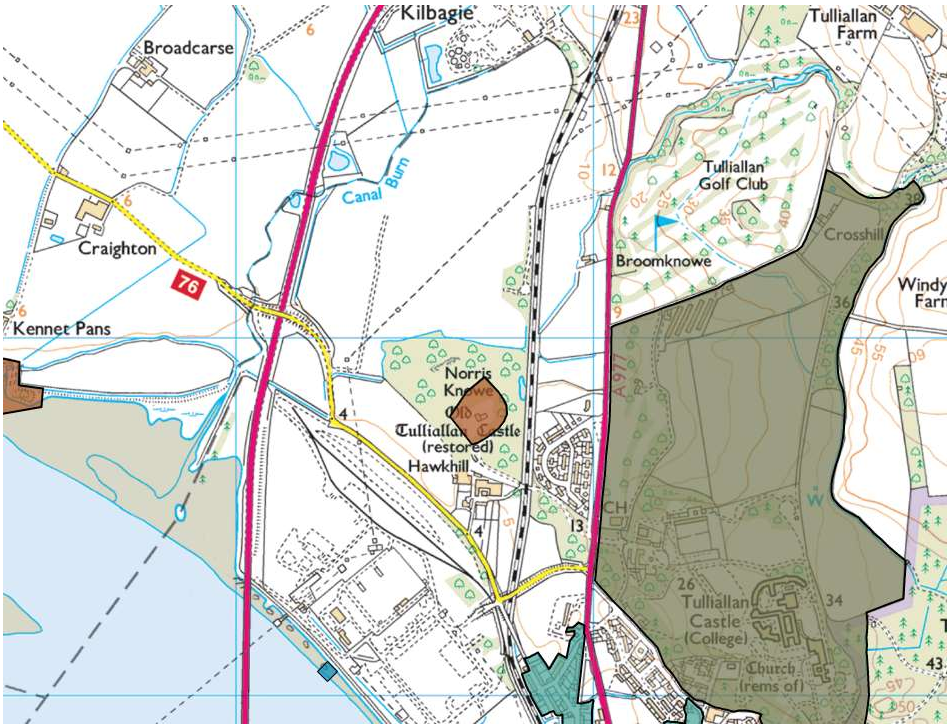


Figure 5: Scheduled Monuments and Garden & Designed Landscapes

5 Alternative Options

Several potential options were identified and evaluated by SPT when considering the best location for the new substation, including siting the new substation at various existing SPT sites. The locations considered are as follows, with further details provided in this paper:

- Do Nothing
- Paper Mill site near to the Kilbagie Crossing
- Northeast of the Kilbagie Crossing
- Southeast of the Kilbagie Crossing at Windyhill Farm
- West of the A876
- Around the existing Longannet substation
- Around the existing Kincardine substation
- Hybrid location across both the Paper Mill site and the northern section of the field to the west of the Kilbagie Crossing

5.1 Do nothing

A 'Do Nothing' option is not credible in relation to this project and would be inconsistent with SPT's various statutory duties and licence obligations. Timely progression of the uprating of transfer capability through the SPT system is crucial to ensure continued security and reliability of supply, enabling growth in renewable generation and supporting the transition to net zero in the most economical way.

5.2 Construct a new substation at the former Paper Mill site near to the Kilbagie Crossing

An alternative at the former Paper Mill site on the northwest of the Kilbagie Crossing was considered as a possible location for the new 400kV Substation. A potential site layout is shown in Figure 6.

This location is in very close proximity to two Listed Buildings as shown in Figure 7 – Kilbagie Mill House (Category C) and Kilbagie House and Garden Walls (Category B). The location of these listed buildings would make it challenging to develop Kincardine North 400kV Substation in this location due to the likely potential effects on the setting of the Listed Buildings.

It is expected that both ZC(N) and ZC(S) Routes could be turned in to this location in a similar way to the preferred location. However, it is more challenging to turn XL Route into this location due to the increased distance between this location and the existing towers on XL Route. On the circuits to Kincardine 275kV Substation utilising XL Route to the south, it is expected that a diversion including three new towers would be required to make the connection to the section of XL Route to the south. On the circuits north to the SSEN Transmission area, it is expected that a diversion across the railway and A977 including two new towers would be required to make the connection to XL Route. This diversion to the north could connect to the existing XL Route at the existing terminal tower XL007. This option would allow for the removal of the undercrossing sections of XL Route at the Kilbagie Crossing, where the circuits on XL Route pass underneath both ZC(N) and ZC(S) Routes.

The new circuits from Kincardine North 400kV Substation to Kincardine 275kV Substation would be achieved through underground cables, for the same reasons as for the preferred location detailed in Section 4. The main difference between the former Paper Mill site and the preferred site is the longer route length of these underground cable circuits.

The cost estimate for the substation in this location is considerably more than the preferred location. There are some savings made associated with the reduced requirements to construct both a construction haul road and permanent access road to the site, based on the assumption that the existing access from the A977 to the former Paper Mill site could be used for this purpose. However, these savings are more than offset by the costs associated with the additional underground cable lengths that are required on the new circuits from Kincardine North to Kincardine.

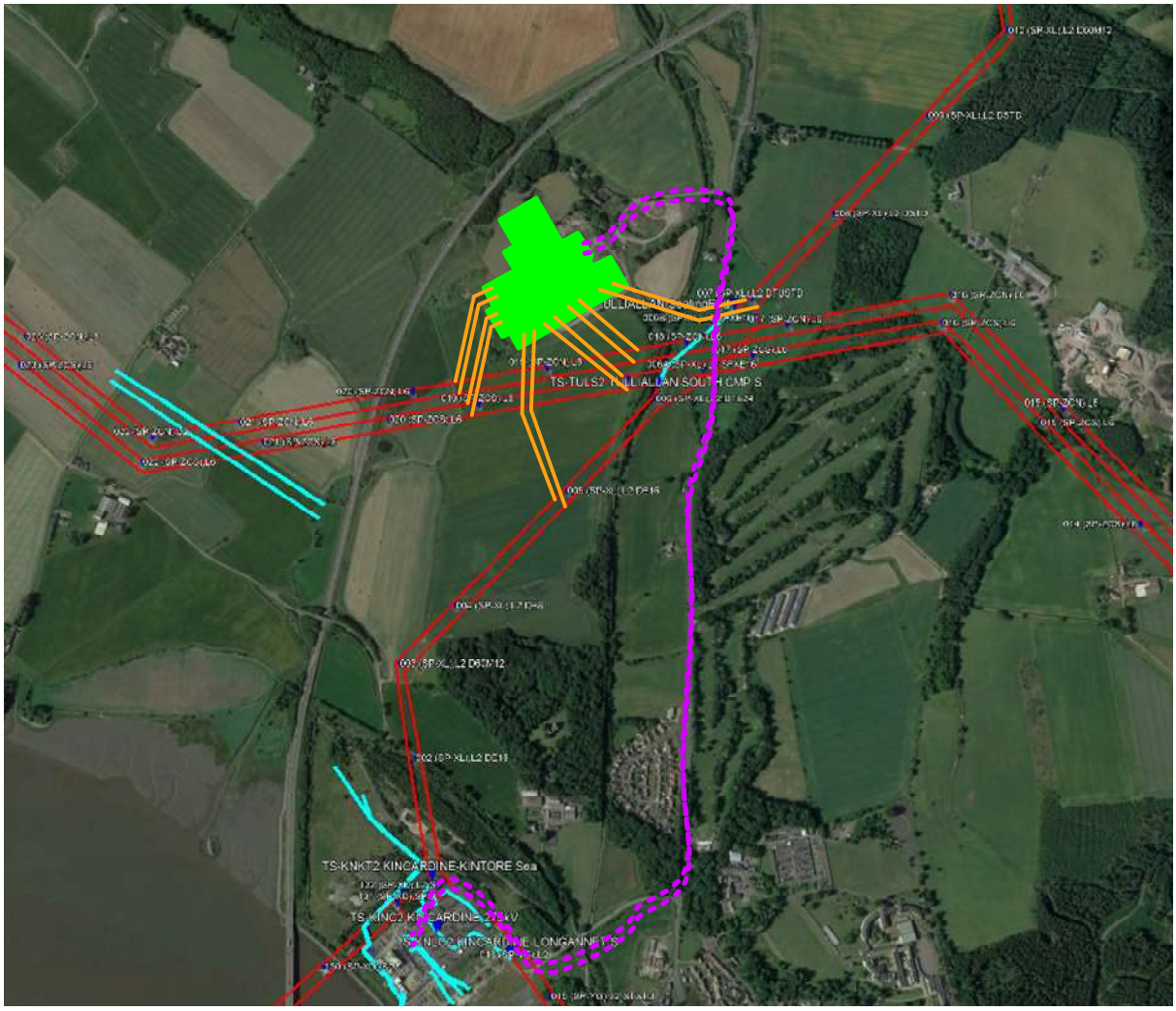


Figure 6: Substation at the Paper Mill site

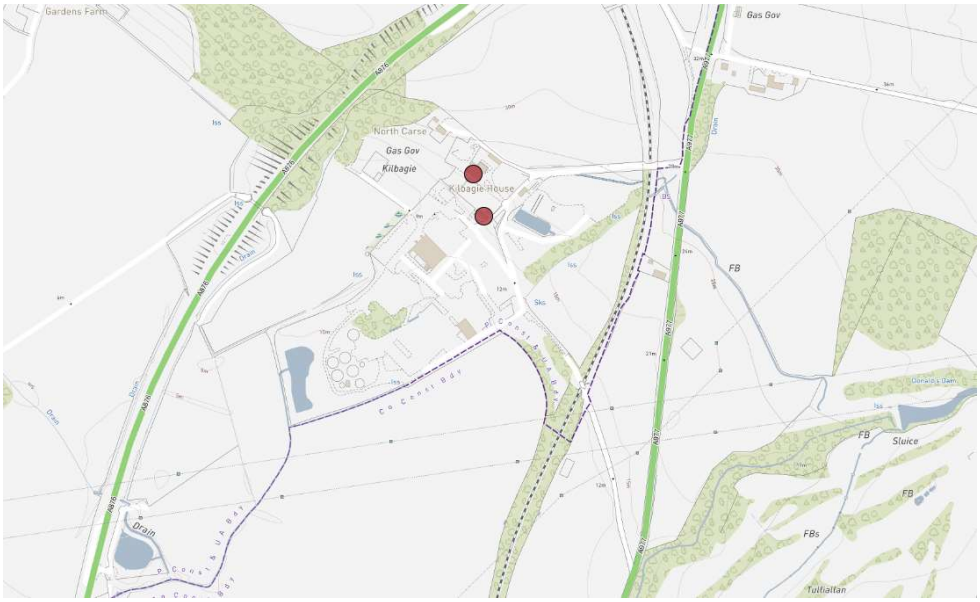


Figure 7: Listed buildings near Paper Mill site

5.3 Construct a new substation on the northeast of the Kilbagie Crossing

Another alternative to the northeast of the Kilbagie Crossing was considered as a possible location for the new 400kV Substation. A potential site layout is shown in Figure 8. Assuming the site layout and size is the same as the preferred location, the substation in this location would require the loss of the native woodland in the area, shown in Figure 9 as the orange area. This is unacceptable in principle in terms of national planning policy and there is another viable alternative site. From a desktop assessment, this location also looks to be close to properties around Tulliallan Farm, which is likely to be a landscape and visual concern.

It is expected that both ZC(N), ZC(S) and XL Routes could be turned in to this location in a similar way to the preferred location.

The new circuits from Kincardine North to Kincardine would be achieved through underground cables, for the same reasons as for the preferred location detailed in Section 4. The main difference between this location and the preferred site is the longer route length of these underground cable circuits.

The cost estimate for the substation in this location is considerably more than the preferred location. The increase in costs is primarily due to the additional underground cable lengths that would be required for the new circuits from Kincardine North to Kincardine.

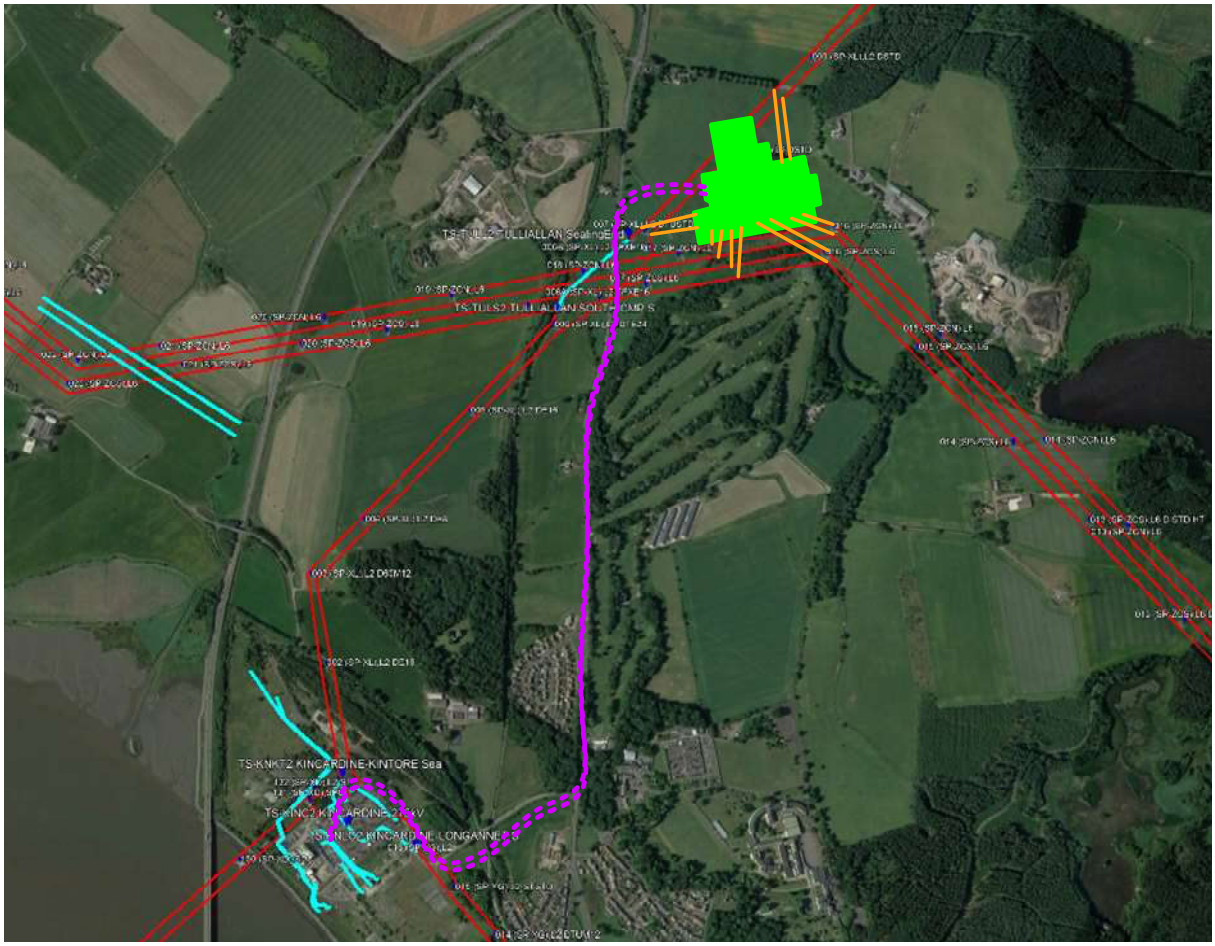


Figure 8: Substation location on the northeast of the Kilbagie Crossing

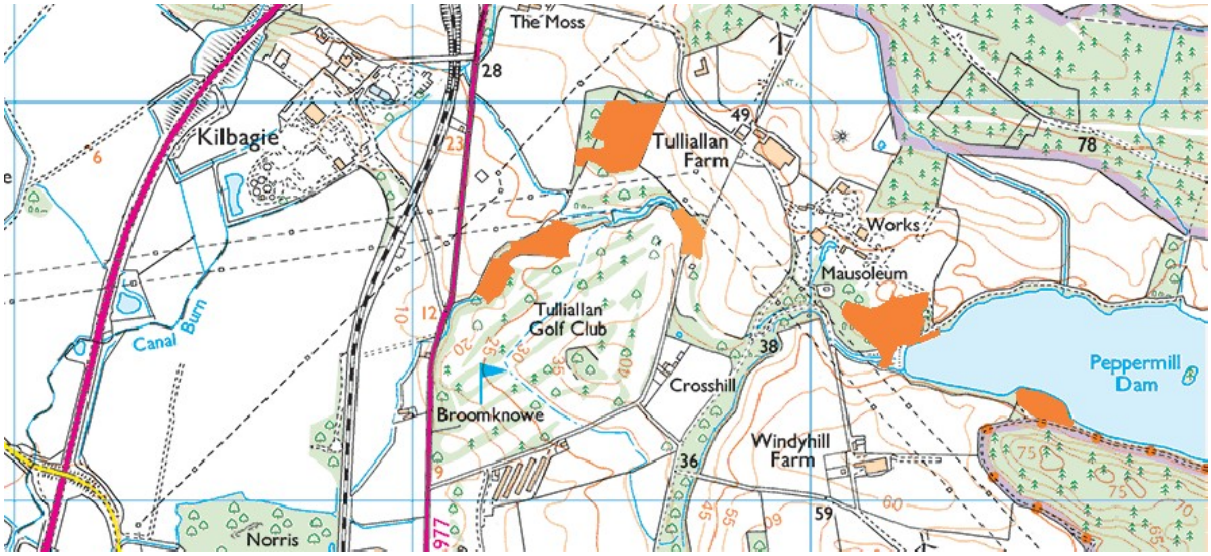


Figure 9: Native woodland at the northeast of the Kilbagie Crossing

5.4 Construct a new substation on the southeast of the Kilbagie Crossing at Windyhill Farm

An alternative on the southeast of the Kilbagie Crossing was considered as a possible location for the new 400kV Substation. A potential site layout is shown in Figure 10. The proposed location is around Windyhill Farm in the area, currently occupied by a wind turbine. From a desktop assessment, this location is higher in the landscape, which is likely to be a landscape and visual concern. This location was deemed to be the most feasible option on the southeast of the Kilbagie Crossing to minimise impacts on Tulliallan Golf Course, Tulliallan Police College, Garden and Designed Landscapes (Tulliallan), shown in Figure 5, and Ancient Woodland, shown in pink in Figure 11.

Assuming the site layout and size is the same as the preferred location, there is enough space in this location assuming that the wind turbine can be removed. It is expected that both ZC(N) and ZC(S) Routes could be turned in to this location in a similar way to the preferred location.

The major challenge with this location is the connection back to XL Routes for the circuits north and south. It is expected that these connections would need to be made via underground cable due to the proximity of Tulliallan Golf Course, Tulliallan Police College, Garden and Designed Landscapes (Tulliallan), shown in Figure 5, Native Woodland, shown in Figure 9, and Ancient Woodland, shown in Figure 11. These constraints would make it extremely challenging to route two new double circuit steel lattice tower routes to this location to facilitate the required connectivity. It is expected that these underground cable circuits would be routed to the existing terminal towers XL006 and XL007 on either side of the Kilbagie Crossing. Due to the number of underground cables per phase required for the connections, fenced cable termination compounds would be required adjacent to the existing terminal towers at the end of the underground cable sections. This option would allow for the removal of the undercrossing sections of XL Route at the Kilbagie Crossing, where the circuits on XL Route pass underneath both ZC(N) and ZC(S) Routes.

The new circuits from Kincardine North 400kV Substation to Kincardine 275kV Substation would also be achieved through underground cables, which is the same assumption that has been made for the preferred location for the same reasons detailed in Section 4. The main difference between this location and the preferred site is the longer route length of these underground cable circuits.

The cost estimate to establish the new substation in this location is considerably more than the preferred location. There are some savings made associated with the reduced requirements to construct both a construction haul road and permanent access road to the site, based on the assumption that the existing access to Windyhill Farm could be used for this purpose. However, these savings are more than offset by the costs associated with the additional circuits that are required to both XL006 and XL007, and the additional underground cable lengths that are required on the new circuits from Kincardine North to Kincardine.

It is likely that there will be additional challenges associated with this site due to the topography of the ground in this area. From a desktop assessment, it appears to be less flat that the preferred location and so is likely to require more complex and expensive earthworks to construct the substation platform. This has not been accounted for at this time and would lead to additional costs being incurred. The costs associated have not been quantified at this stage as this location can be ruled out on economic grounds without taking this into consideration.

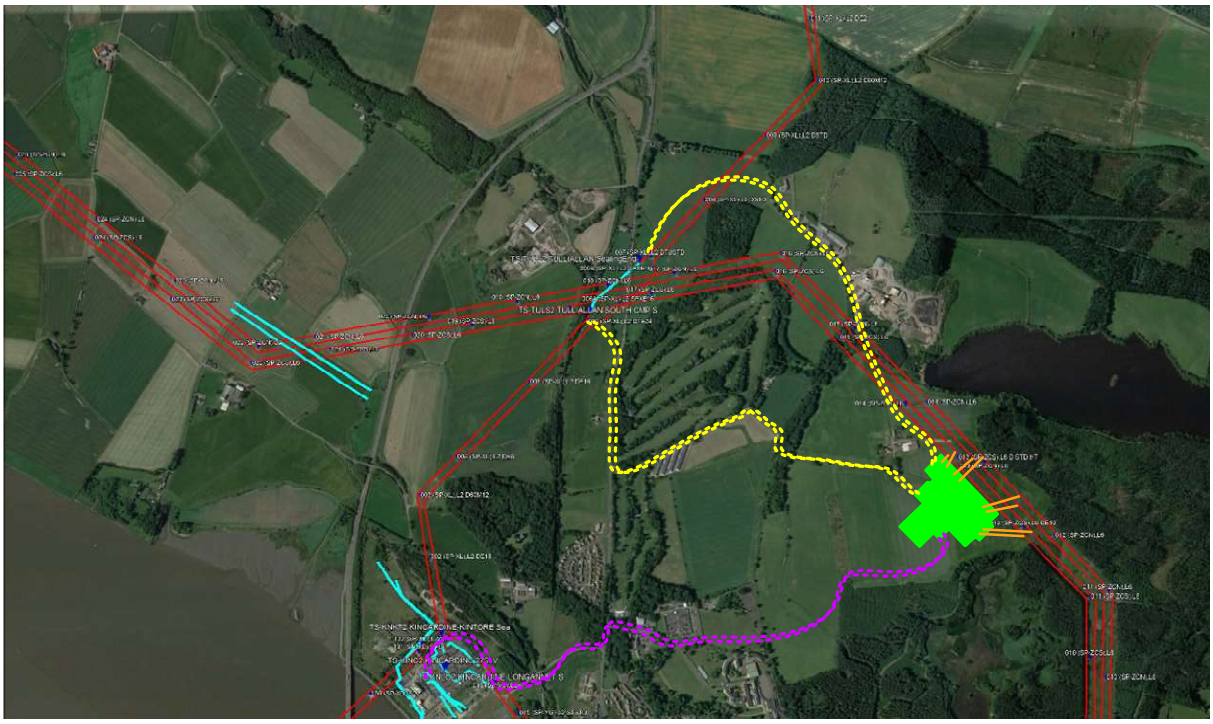


Figure 10: Substation location on the southeast of the Kilbagie Crossing at Windyhill Farm

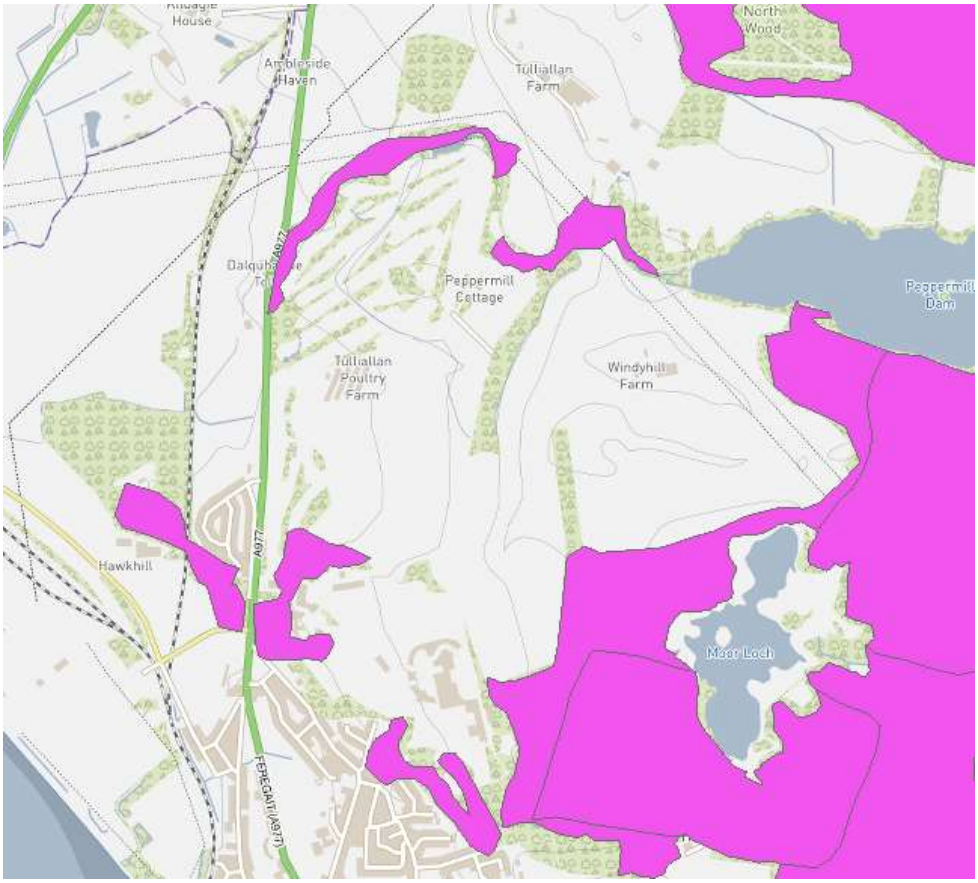


Figure 11: Ancient Woodland on the southeast of the Kilbagie Crossing

5.5 Construct a new substation west of the A876

An alternative on the west of the A876 was considered as a possible location for the new 400kV Substation. A potential site layout is shown in Figure 12. Assuming the site layout and size is the same as the preferred location, there is space for the substation to be located between ZC(N)022 and ZC(S)022, the A876 and Craighton Farm.

It is expected that both ZC(N) and ZC(S) Routes could be turned in to this location in a similar way to the preferred location.

It is more challenging to turn XL Route into this location due to the increased distance between this location and the existing towers on XL Route. On the circuits north to SSEN Transmission's area, it is expected that a diversion including three new towers would be required to make the connection to the section of XL Route to the north. On the circuits to Kincardine substation utilising XL Route to the south, it is expected that a new terminal tower around XL003 would be required, with underground cable circuits between Kincardine North substation and this new terminal tower. Due to the number of underground cables per phase required for the connection, fenced cable termination compounds would be required adjacent to the new terminal tower at the end of the underground cable sections. It is expected that an underground cable connection would be required for the same reasons detailed in Section 4. Furthermore, as with the preferred option detailed in Section 4, it is anticipated that the new circuits from Kincardine North substation to Kincardine substation would also be achieved through underground cables.

The cost estimate for the substation in this location is considerably more than the preferred location. There are some savings associated with the reduced requirements to construct both a construction haul road and permanent access road to the site, based on the assumption that the existing access from the A876 and Carse Road could be used for this purpose. However, this saving is more than offset by the costs associated with the additional underground cable circuits that are required, along with the associated fenced cable termination compounds.

It is likely that there will be additional challenges associated with this site due to the diversion of the Canal Burn and flood risk mitigation due to the potential issues associated with coastal and surface water flooding as indicated in publicly available information in the SEPA web site[5]. Neither of these aspects have been allowed for in the cost estimate at this time; however, they would both lead to additional costs being incurred. The costs associated with these works have not been quantified at this stage as this location can be ruled out on economic grounds without taking these points into consideration.

[5] Link: Flood Maps | SEPA - Flood Maps | SEPA

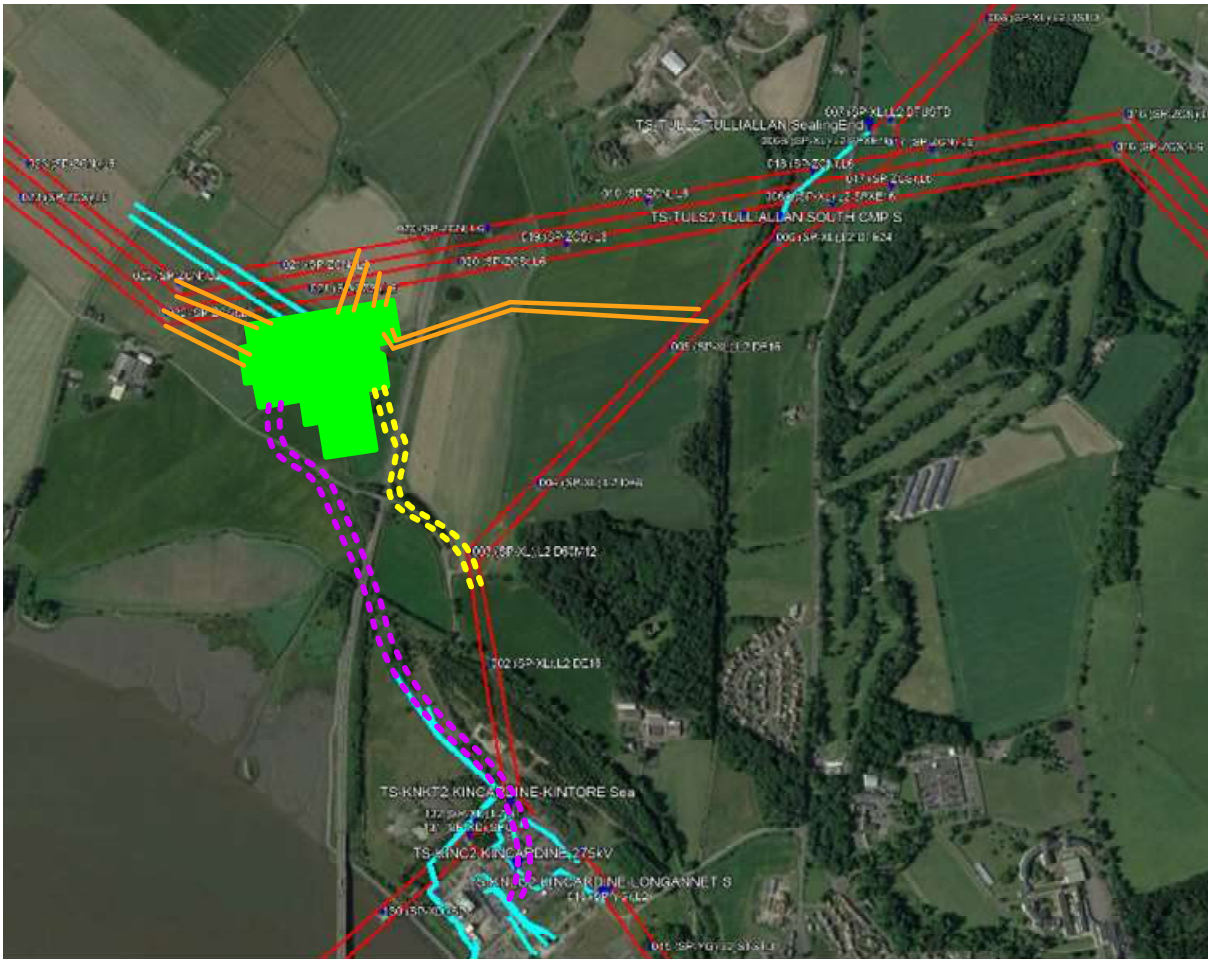


Figure 12: Site on the west of the A876

5.6 Construct a new substation in the Longannet Area

An alternative location around the Longannet area was considered for the new 400kV substation. This option is different to the others that have been assessed so far as, while the configuration of the substation would be similar to the other options, there would need to be a reconfiguration of the overhead lines around the Kilbagie Crossing to achieve the required circuit configuration.

As with all the substation locations around the Kilbagie Crossing considered from Section 5.2 to 5.5, a new 400kV substation around Longannet would require two 275kV underground cable circuits from the new substation around Longannet to the existing Kincardine substation. The underground cables from around Longannet would be considerably longer than the equivalent underground cables to any of the other locations, and so the costs associated with these underground cable circuits would also be considerably higher.

5.6.1 Substation location at Longannet

Two different locations around Longannet were considered as potential locations for the new 400kV substation, shown below in Figure 13. Records indicate that there is a gas pipeline crossing both the western and eastern areas, indicated in Figure 14 as the orange line, that used to connect to Longannet Power Station. Works to realign this gas pipeline would need to be considered for either option, which would add to project costs. The western option was deemed to be the most appropriate location to construct a new 400kV substation as it removes some of the risks associated with flooding. The western area has a risk of some surface water flooding; however, it is less than the eastern area which also has significantly greater risk of coastal flooding as indicated by publicly available information in the SEPA5 web site. The greater flood mitigation works that would be required for the eastern option when compared to the western option would result in this location being a more expensive area to construct a new 400kV substation. The eastern option would also potentially require the removal of Ancient Woodland (the solid pink area), shown in Figure 15. Based on this assessment, the western option was deemed to be the most appropriate of these two locations to construct a new 400kV substation around Longannet.

Figure 13: Potential substation locations around Longannet

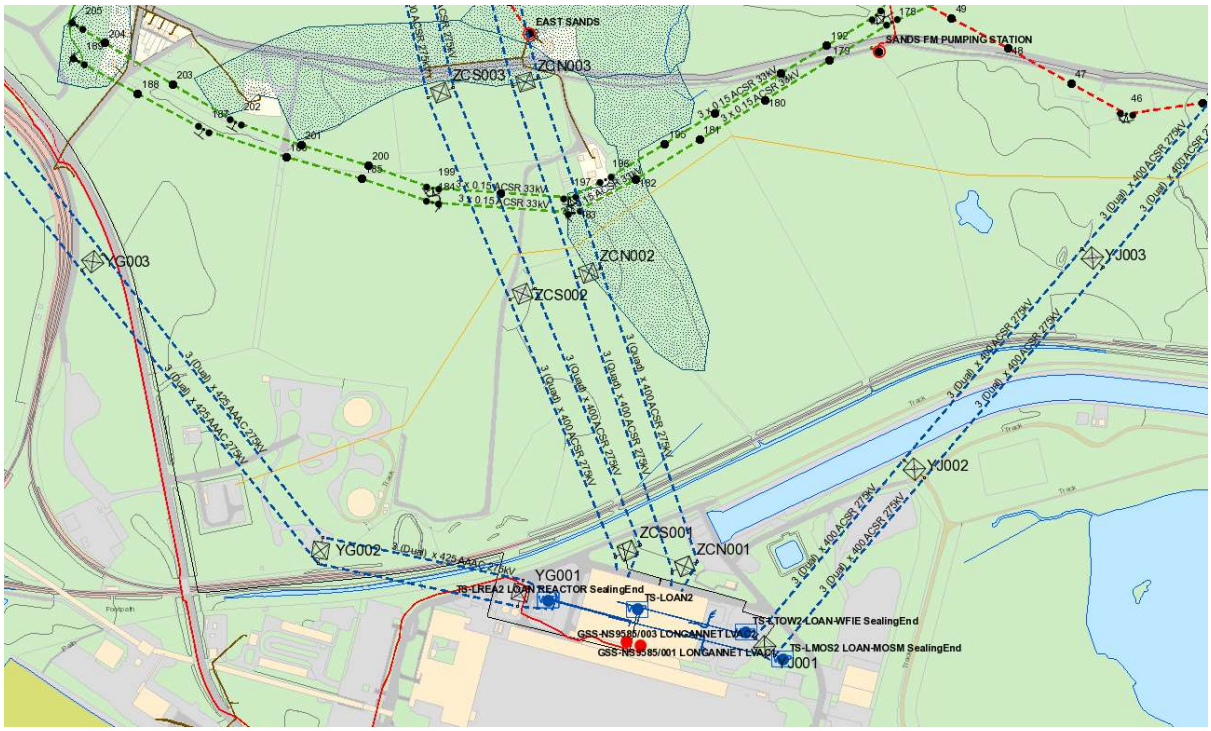


Figure 14: Gas pipeline crossing the area north of Longannet

Figure 15: Ancient Woodland around Longannet

5.6.2 Circuit reconfiguration

Three different options of circuit configurations around the Kilbagie Crossing were considered as part of the assessment of constructing the new 400kV substation in the Longannet area. An assessment of the overhead line and underground cable works that would be required to achieve these configurations was carried out, with the results shown as Options 1 to 3 in Figures 16 to 18 respectively.

Based on this assessment, Option 2 was not taken forward to a detailed costing exercise as it requires an underground cable section, with the associated fenced cable termination compounds, to achieve the desired configuration. Given that both Option 1 and Option 3 do not require an underground cable section, Option 2 is known to be a significantly more expensive solution and so was ruled out on economic grounds.

Option 1 and Option 3 are similar in that they both require some new towers to be built both on-line and off-line, and both allow for some short sections of the existing overhead line routes to be decommissioned and removed. Both options would require new towers to be built in a similar area and so would have to work around the same environmental challenges.

For Option 1, a more direct new build overhead line route than the one shown could be established between towers XL003 and ZC(S)022; however, there are challenges associated with the Ramsar site, as well as the proposed BESS and synchronous condenser developments in the area. As a result, the alignment shown in Figure 16 has been considered at this stage.

5.6.3 Cost commentary

Given all the considerations detailed above, the cost estimate for the new 400kV substation around Longannet is considerably more, based on Option 1 or Option 3, than the preferred location. The main reason for this difference is the considerably longer underground cable circuits required from the location around Longannet to Kincardine substation.

There will be additional challenges associated with these options due to the requirement to uprate the existing YG Route between Longannet and Kincardine substations to 400kV operation. A high-level assessment of these works has identified issues that would need to be overcome; however, it is thought that this uprating is possible with some tower modifications. The costs associated with these modifications have not been allowed for in the cost estimate at this time; however, they would lead to additional costs being incurred. The costs associated with these works have not been quantified at this stage as the Longannet options can be ruled out on economic grounds without taking these points into consideration.

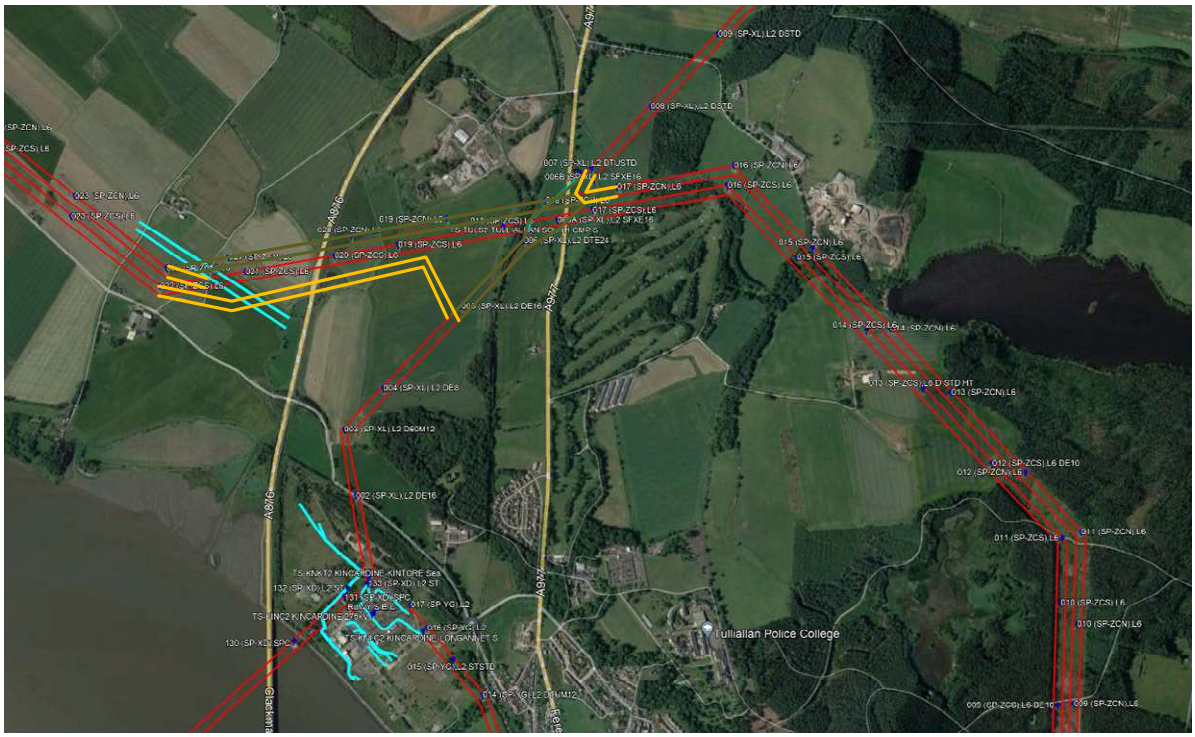


Figure 16: Option 1 – XL Route turned onto ZC(N) on both sides

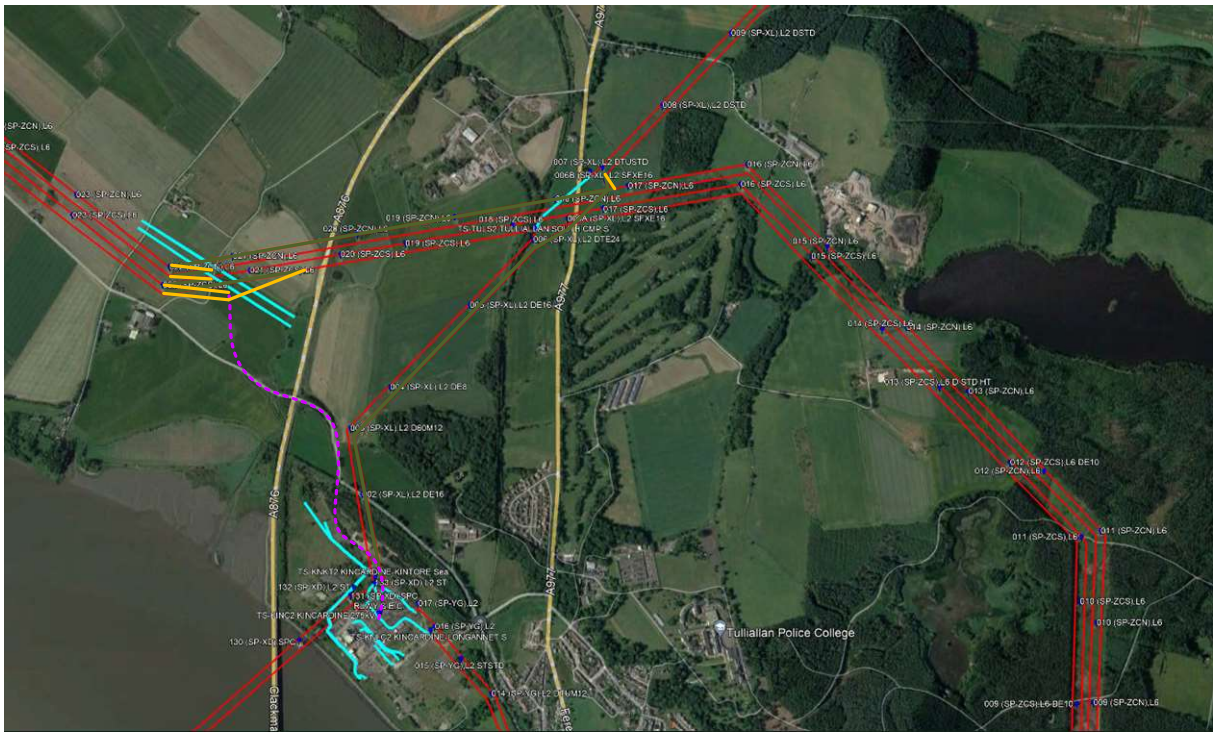


Figure 17: Option 2 – XL Route turned onto ZC(N) northern side only

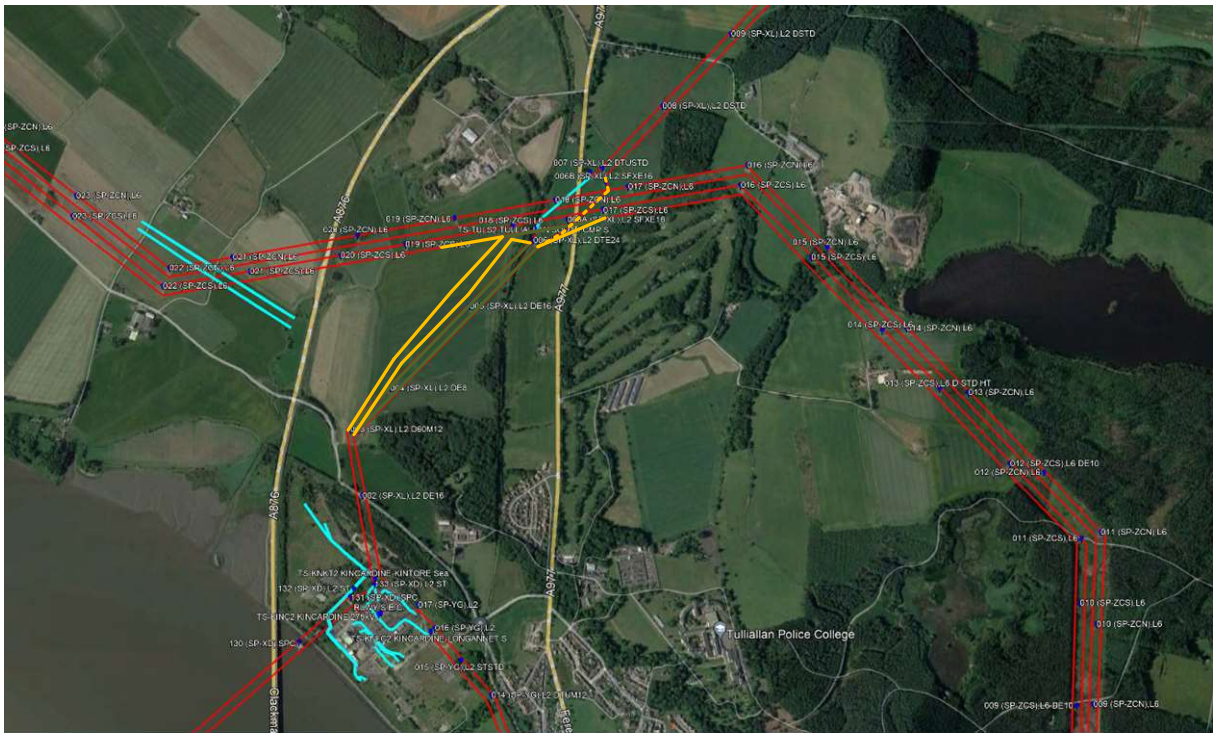


Figure 18: Option 3 – XL Route turned onto ZC(S) southern side only

5.7 Construct a new substation at Kincardine

Consideration was given to the construction of a new 400kV substation at the site of the existing Kincardine 275kV substation. The new 275kV substation has recently been rebuilt as an indoor gas-insulated switchgear (GIS) substation with extensive flood protection measures. The significant challenges in terms of substation, overhead line and cabling works are described below.

5.7.1 Substation works

A new 400kV substation at Kincardine would require similar flood protection measures, which would result in extensive civil works being carried out to raise items of plant, such as the two new supergrid autotransformers and 400kV GIS building, above the flood level.

Two options were considered for ensuring that the two new supergrid autotransformers would be installed above the flood level:

- Raising the substation platform level above the flood level by importing material
- Installing all equipment on structures to raise them above the flood level

The first of these options was deemed to be impractical due to the cost, programme and environmental impact associated with building up the substation platform. The typical maximum gradient on roads for transformer delivery is 1:12, meaning that an access road of around 60m would be required to get to the correct level. Due to the ground conditions, this is likely to settle over time on the existing soil, and so piles would potentially be required to prevent differential settlement. The amount of space required to get a suitably graded access road up to the required level would be extremely challenging.

The second option was also deemed to be impractical due to the cost and programme implications. Alternative options for delivering the two new supergrid autotransformers to site to be installed on structures above the flood level were considered. These included the use of a large mobile gantry or large capacity crane. From an initial assessment it was not clear whether there would be sufficient space available at site to use either of these options given the substation layout and other works that would be required. This would also have significant cost and programme implications as these methods of transformer delivery would require more expensive equipment and more time available on site due to the complexities associated with installing the transformers at height. The equipment required for these delivery methods are not easily available and long-term bookings are required.

Due to the size of the new substation, the plant required, and the associated flood protection measures, this option could not be accommodated within the land available at the Kincardine site and so it was ruled out on the grounds of feasibility and cost.

5.7.2 Overhead line and underground cable works

To provide the required circuit configuration for a solution at Kincardine, two new double circuit connections would require to be constructed initially to connect the new substation at Kincardine to the existing ZC(N) and ZC(S) Routes in the Kilbagie area, with another two new double circuit connections potentially required in future to connect to the other side of these routes. It is anticipated that this would be achieved through underground cables, which is the same assumption as has been made for the preferred location for the same reasons detailed in Section 4.

Each of these circuits would require at least two underground cables per phase to deliver the required capacity and would also require fenced cable termination compounds adjacent to new terminal towers on these routes at the end of the underground cable sections.

Given the size of underground cables at 275kV and 400kV, and the spacing requirements between circuits, it would be extremely challenging to install these circuits as it would involve a minimum of 48 single core 275kV or 400kV underground cables to connect from the existing overhead line routes to the new substation at Kincardine.

Hence this option was ruled out on the grounds of feasibility and cost prior to a detailed cost estimate being produced based on the scope of work of this option in comparison to the others, and the relative costs of underground cables in comparison to overhead lines.

5.8 Construct a new substation between the former Paper Mill site and the field to the west of the Kilbagie Crossing

An alternative location to the north of the preferred location for Kincardine North 400kV Substation was considered, this is sited across both the former Paper Mill site and the field to the west of the Kilbagie Crossing. A desktop assessment has been carried out on the potential site layout as shown in Figure 19.

Figure 19: Alternative substation location at the Paper Mill and Field site

The preferred location requires two new circuits between Kincardine North 400kV and Kincardine 275kV Substation, it is expected that an underground cable connection will be required for these circuits. An overhead line connection is not considered to be appropriate due to the close proximity of the Ramsar site (the pink crossed area) and Ancient Woodland (the solid pink area) shown in Figure 20, Scheduled Monuments (Tulliallan Castle) and Garden and Designed Landscapes (Tulliallan) (the solid green area) shown in Figure 21, and the proposed Battery Energy Storage System (BESS) and synchronous condenser developments in the area.

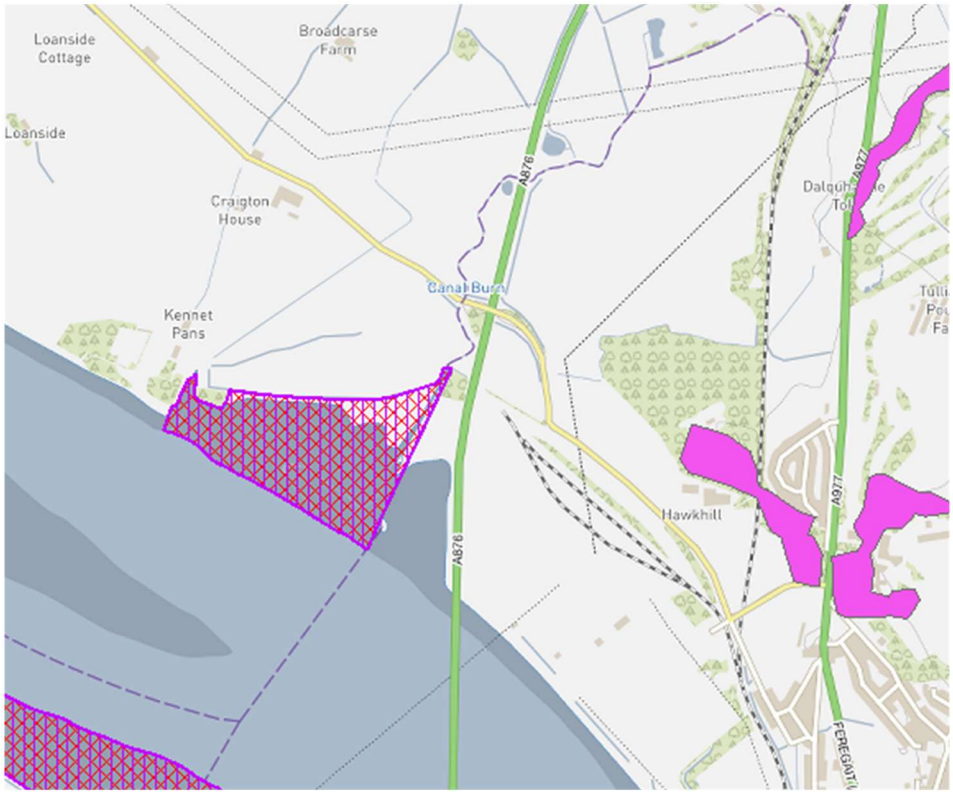


Figure 20: Ramsar and Ancient Woodland around the location on the southwest of the Kilbagie Crossing

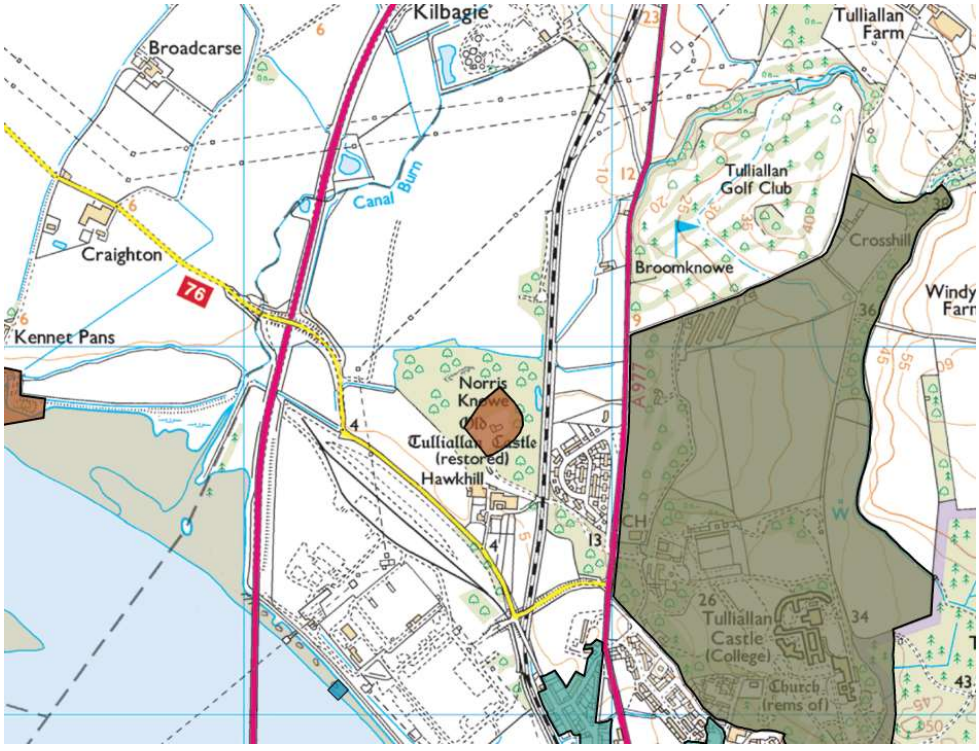


Figure 21: Scheduled Monuments and Garden & Designed Landscapes

This location is in close proximity to two Listed Buildings as shown in Figure 22 – Kilbagie Mill House (Category C) and Kilbagie House and Garden Walls (Category B). The location of these buildings

would make it challenging to develop Kincardine North 400kV Substation in this location due to the likely potential effects on the setting of the Listed Buildings.

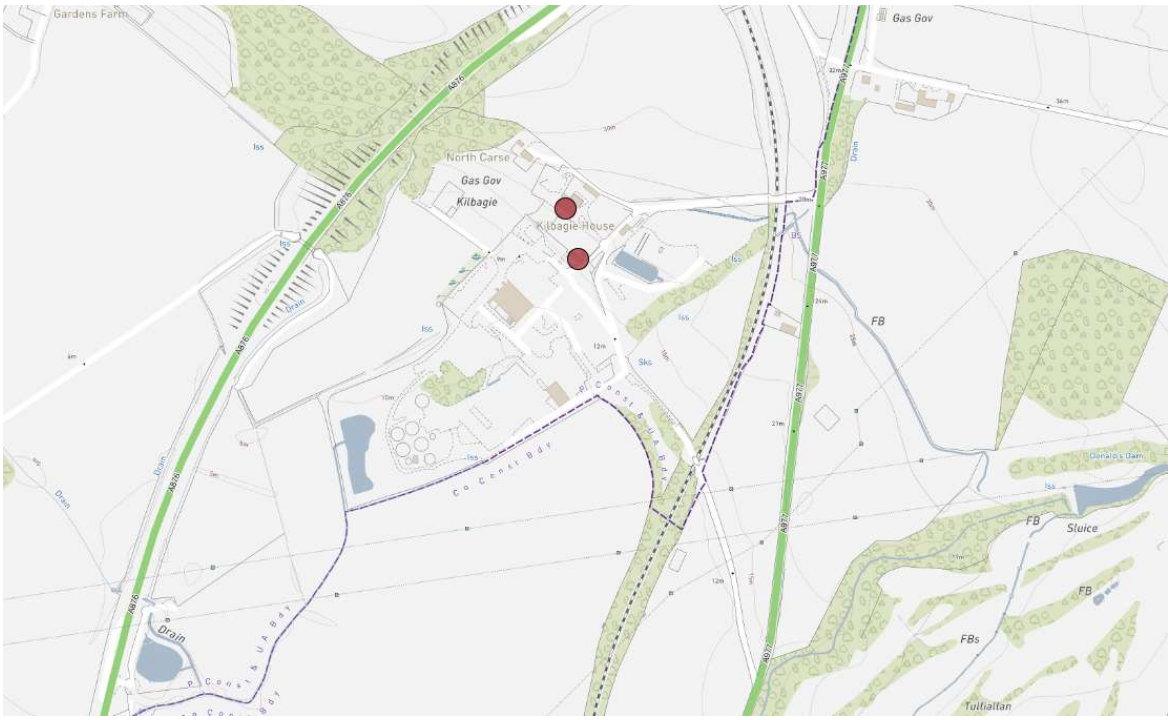


Figure 22: Listed buildings near Paper Mill site

A water course and pond area are located in the middle of the alternative site that would require to be either diverted through a culvert or diverted from its current path, these are shown in figure 23 below.

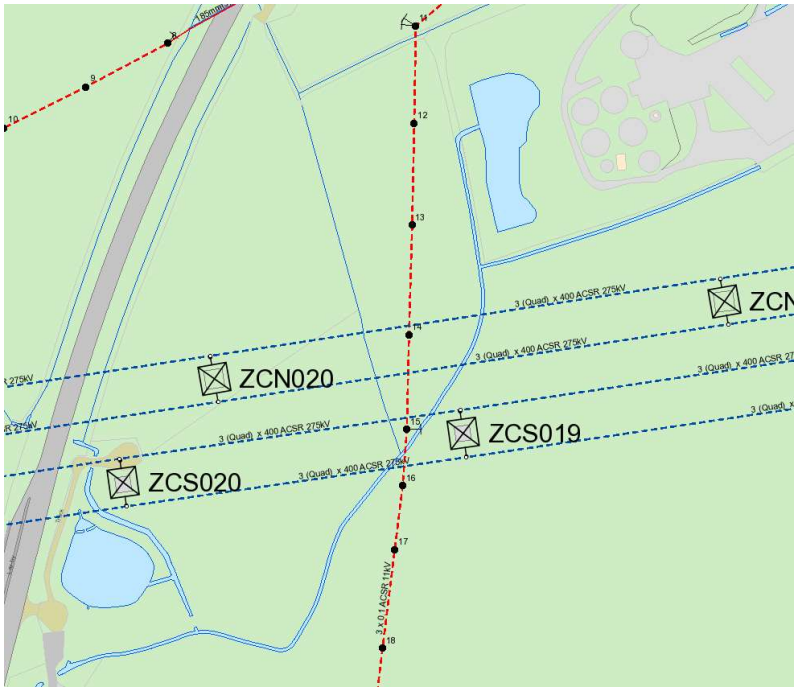


Figure 23: Pond and water course at alternative site location

Safe construction of the substation at the alternative location would require the ZC(N) and ZC(S) routes to be switched out of service or diverted as it is located under those routes. Due to the constraints that would be caused on the Transmission System it is extremely unlikely that outages would be granted by the Electricity System Operator to safely construct the platform. This would make the diversion of the ZC(N), ZC(S) and XL overhead line routes necessary, the latter to clear space to allow the former to be moved. As a result, it is expected the diversions to clear the area where the Kincardine North 400kV Substation would be constructed would be extensive. They would require fourteen new towers and approximately 36km of overhead line conductor to be installed for the construction period. It is expected that the diversion of the XL route would cross the railway line and an area of woodland to the west of the railway line. The latter would result in the loss of that woodland, which is unacceptable in principle in terms of national planning policy. Both ZC(S) and ZC(N) would be diverted further into the field to the south of the alternative site and would require a crossing of the A876 Clackmannanshire Bridge Road in two places. The potential overhead line diversions are shown in Figure 24.

The final overhead line configuration would be likely to require a further 10 new towers and approximately 12km of overhead line conductor to be installed.

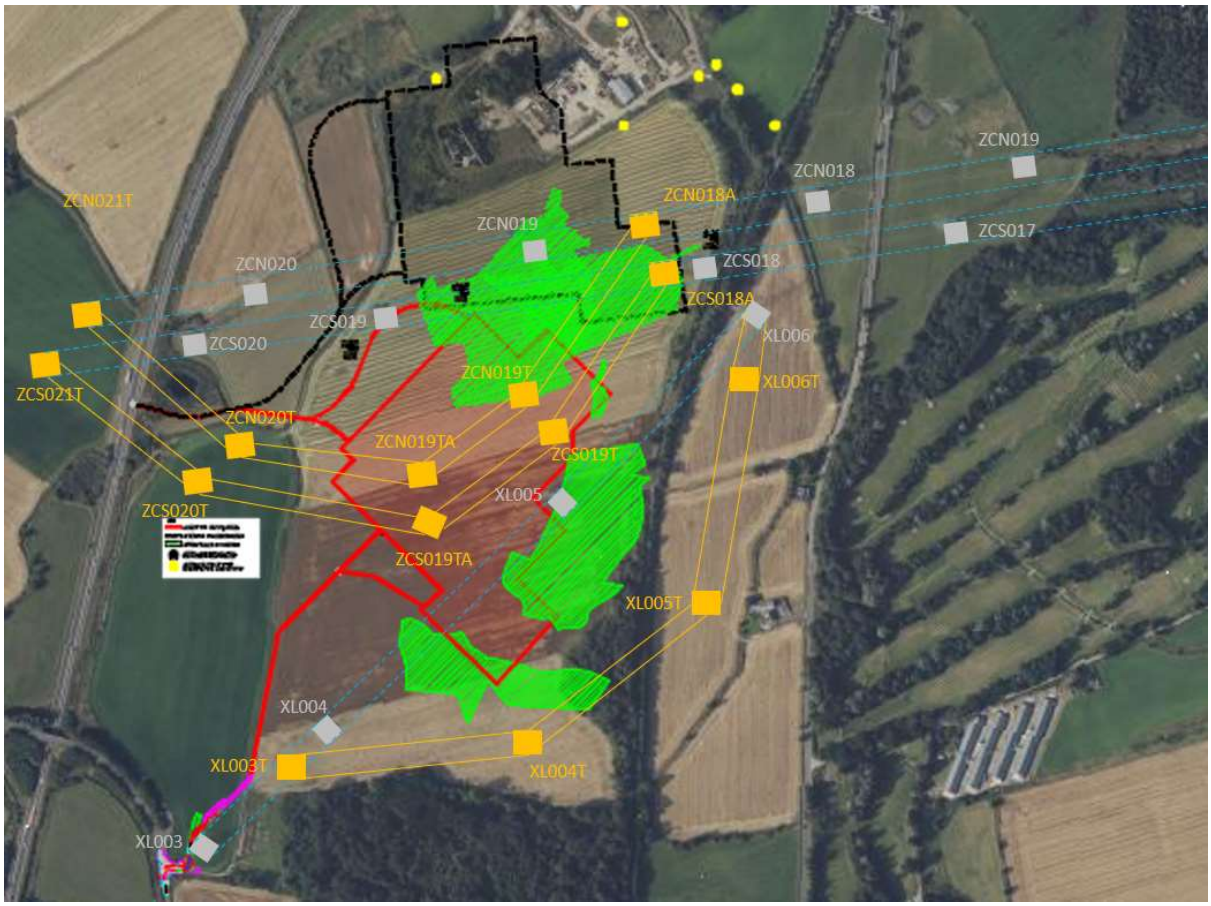


Figure 24: Potential overhead line route diversions

The cost estimate for the substation in this location is considerably more than the preferred location. The increase in costs is primarily due to the extensive overhead line diversions and the additional underground cable lengths that would be required for the new circuits from Kincardine North to Kincardine.

6 Conclusions

The establishment of the proposed Kincardine North 400kV Substation is key to facilitating the economic integration of this new renewable generation in the surrounding area. The timely connection of low carbon generation, such as onshore and offshore wind, will play a vital role in reaching legislated net zero targets.

6.1 SPT Licence Duties

As the holder of a transmission licence, SPT has a statutory duty to develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and to facilitate competition in the supply and generation of electricity. This means that any scheme that is proposed, developed and built must meet all these objectives and present value to consumers. The proposal for the new Kincardine North 400kV Substation, based on the information currently available, is the most economic and efficient solution.

6.2 Kincardine North 400kV Substation

The Kincardine North Substation will be rated at 400kV to allow the uprating of the SPT network both in the local area and beyond, which will in turn allow a higher volume of power to flow from renewable generation across the north of Scotland.

Several possible locations were considered for the siting of the new 400kV substation. The preferred option has been identified due to its proximity to the transmission overhead line network, minimising any additional circuit requirements in the area.

Consideration has been given to environmental features within the local area, such as the internationally recognised Ramsar SSSI site on the River Forth, ancient woodlands and garden and designed landscapes. The preferred site takes these considerations into account in the location of the substation.

A summary of the alternative options and subsequent incremental costs are presented in the Table below. Noting our statutory duty and licence obligations, the proposed Kincardine North 400kV Substation is considered to represent the best value for consumers, increasing the ability to economically integrate new renewable sources of power generation across the north of Scotland.

Table 1 – Summary of alternatives

Option	Comment
Southwest of the Kilbagie Crossing (preferred location)	Most economic and efficient option, minimising overhead line diversions and underground cable circuit length (i.e. least cost option).
Paper Mill site near to the Kilbagie Crossing	This option would require longer underground cable circuits to the existing Kincardine substation and more extensive overhead line works to make the necessary connections to the existing XL Route.
Northeast of the Kilbagie Crossing	This option would require longer underground cable circuits to the existing Kincardine substation and would also result in the loss of the native woodland in the area.
Southeast of the Kilbagie Crossing at Windyhill Farm	This option would require significantly longer underground cable circuits from to the existing Kincardine substation. Additional underground cable circuits would also be required to make the necessary connections to the existing XL Route. It is also likely to require more complex and expensive earthworks to construct the substation platform.
West of the A876	Additional underground cable circuits are expected to be required to make the necessary connections to the southern section of the existing XL Route. This location could also require the diversion of the Canal Burn and flood risk mitigation works due to the potential issues associated with coastal and surface water flooding.
Longannet area	This option would require significantly longer underground cable circuits to the existing Kincardine substation and complex overhead line diversion works around the Kilbagie Crossing.
Existing Kincardine	The option was discounted on the grounds of feasibility and cost, primarily due to the size of the substation, the anticipated flood protection measures and the scale of the overhead line and underground cable works that would be required to achieve the necessary circuit connections.
Hybrid Option	This option would require significant and complex overhead line diversions and longer underground cable circuits to connect to the existing Kincardine substation. This location would also require the diversion of a water course that runs between the Paper Mill and field.

04.
Appendices

Appendix 4.1 Changes to the Project Scope

Changes to the Scope of the Project

1. Introduction

1.1 This Appendix to the EIAR (referred to here as the 'Composite EIAR') has been prepared in support of the following applications:

1.1.1 Application under the Town and Country Planning (Scotland) Act 1997 for planning permission for a new substation, known as Kincardine North Substation, including various ancillary works (the "**KINN Substation Works**"), (the "**KINN Substation Application**");

1.1.2 Application for consent under section 37 of the Electricity Act 1989 and deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997 for consent to upgrade and modify three existing overhead lines (XL, ZCS and ZCN), including uprating the XL route and new and replacement towers and other ancillary works (the **"OHL Upgrade Works**"), (the "**s37 Application**"); and

1.1.3 Application under the Town and Country Planning (Scotland) Act 1997 for planning permission for the removal of existing 11kV wood pole overhead lines and replacement with 11kV underground cable and associated works (the "**SPD Works**"), (the "**SPD Works Application**"),

(together, the "**Applications**").

1.2 The KINN Substation Application was submitted to Fife Council on 21 November 2025 and validated on 25 November 2025. This Composite EIAR is submitted simultaneously with the s37 Application and the SPD Works Application.

1.3 Since the submission of the KINN Substation Application, the Scoping Report in respect of the s37 Application and the completion of pre-application consultation on the various works, certain changes have been made to: a) the works comprised in the KINN Substation Application and the s37 Application; and b) the scope of the EIA accompanying the Applications.

1.4 This Appendix explains those changes, and the reasons for them, and supplements Chapter 4 (Description of the Proposed Development) of the Composite EIAR.

2. Summary of Changes – KINN Substation Application

2.1 The KINN Substation Application has been amended to include works to upgrade the junctions at Hawkhill Road, described in more detail in [Chapter 4, Section 4.3] of the Composite EIAR and shown on Drawings LWUP-LUDD-KINNSUBS-DR-CS-1064 General Arrangement Sheet 1 LWUP-LUDD-KINNSUBS-DR-CS-1065 General Arrangement Sheet 2 and these now form part of the KINN Substation Works.

3. Summary of Changes – S37 Application

3.1 Since the publication of the Scoping Report in May 2024 and the conclusion of the pre-application consultation activities in December 2024, the Applicant has refined the design of the OHL Upgrade Works. This includes a proposal to use an alternative, quieter conductor type to mitigate likely significant effects from noise emitted by the works between XL12 and XL20 on a residential receptor at Starton House.

3.2 The S37 Application now also includes additional, temporary pulling positions and scaffolding to allow conductors to be dropped and strung as necessary. As set out in [paragraph 4.6.17] of Chapter 4 of the Composite EIAR, pulling positions are located at the western sections of ZCN & ZCS adjacent to existing towers 22, and eastern sections adjacent to existing towers 16. Pulling positions for the XL route are situated adjacent to existing towers 3, 6, 7, 12 and 20. Pulling positions and scaffolding locations can be found on Figure 4.2.

4. Summary of Changes – Composite EIAR

4.1 In order to assist decision-makers and key stakeholders, the KINN Substation Application, the s37 Application and the SPD Works Application are now accompanied by the Composite EIAR. The Composite EIAR is based on the scoping opinions provided in relation to the KINN Substation Works and the OHL Upgrade Works and provides an assessment of the likely significant effects arising from the works which are subject to each Application, as well as on the wider, inter-connected elements of the project. The wider project is known as the Central Scotland 400kV Upgrade and comprises the following:

4.1.1 the KINN Substation Works;

4.1.2 the OHL Upgrade Works; and

4.1.3 the SPD Works.

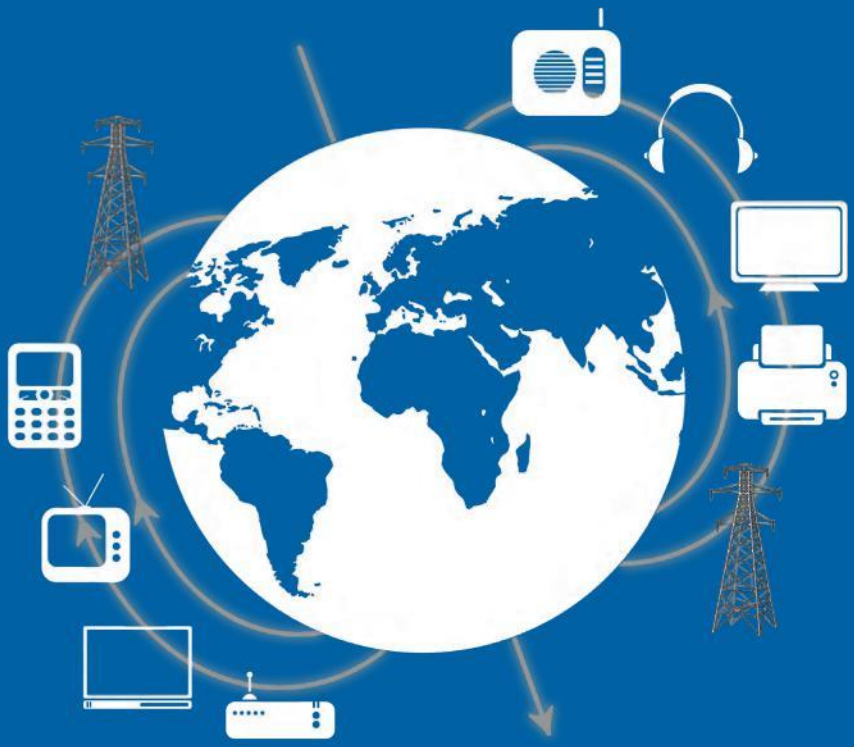
4.2 EIA in the Composite EIAR has been undertaken on the basis that the Central Scotland 400kV Upgrade constitutes a single project in EIA terms. The EIA assesses the potential for in combination impacts with works by SHE Transmission to upgrade the section of the XL route which extends into the SHE Transmission licence area. Those works have already been consented by Scottish Ministers under the Electricity Act 1989. A detailed description of all works comprising the Central Scotland 400kV Upgrade is contained in Chapter 4 Project Description of the Composite EIAR.

Appendix 4.2 Electric and Magnetic Fields Fact Sheet

PRODUCED BY **ENERGY NETWORKS ASSOCIATION - SEPTEMBER 2017**

electric and **magnetic** fields

the facts



Electricity plays a central role in the quality of life we now enjoy. In particular, many of the dramatic improvements in health and wellbeing in our homes and at work that we benefit from today could not have happened without a reliable and affordable electricity supply. Electric and magnetic fields (EMFs) are present wherever electricity is used, in the home or from the equipment that makes up the UK electricity system.

But could electricity be bad for our health? Do these fields cause cancer or any other disease?

These are important and serious questions which have been investigated in depth during the past three decades. Hundreds of millions of pounds have been spent investigating this issue around the world. Research still continues to seek greater clarity; however, the balance of scientific evidence to date suggests that EMFs do not cause disease.

This guide, produced by the UK electricity industry, summarises the background to the EMF issue, explains the research undertaken with regard to health and discusses the conclusion reached.

Electric and Magnetic Fields

Electric and magnetic fields (EMFs) are produced both naturally and as a result of human activity. The earth has both a magnetic field (produced by currents deep inside the molten core of the planet) and an electric field (produced by electrical activity in the atmosphere, such as thunderstorms).

Electric and magnetic fields are inherent in the laws of physics.

Wherever electricity is used there will also be electric and magnetic fields. This is inherent in the laws of physics - we can modify the fields to some extent, but if we are going to use electricity, then EMFs are inevitable. Like many other things that we encounter in nature, EMFs can be harmful at high-enough levels. But the fields required, for example, to start interfering with the body's nervous system are much greater than those produced by the UK electricity system.

Fields of Different Frequency

A key characteristic of a field is the frequency. The frequency indicates how rapidly the field changes direction backwards and forwards, and is measured in cycles per second or hertz (Hz).

The electricity systems in the UK and the rest of Europe produce fields of 50 hertz; in North America the frequency is 60 hertz. It is these fields produced by the electricity system (known as 'extremely low frequency' (ELF) or 'power frequency' fields) that are discussed in the rest of this guide.

This guide does not cover TV, radio, mobile phones or smart meters.

The earth's natural magnetic and electric fields do not oscillate at all. They are known as 'static fields' and have a frequency of 0 hertz. "High Voltage Direct Current", HVDC, is also used instead of alternating current in just a few places for transmission. This produces static fields similar to the earth's field, but these are not covered in this guide.

Other technologies use higher frequencies. For instance, TV and radio broadcasts operate at thousands or millions of hertz, while mobile phones transmissions and Wi-Fi are at around a billion hertz. Because these frequencies are so different and the science of the fields and their effects at those frequencies is also different, they are separate issues and this guide does not cover those technologies.

The Difference Between Electric and Magnetic Fields

The Two Components

The term ‘EMFs’ encompasses two different though related concepts: electric fields and magnetic fields.

Electric Fields

Electric fields are produced by voltage. Voltage is the pressure behind the flow of electricity. It can be likened to the pressure of water in a hose. Electricity in UK homes is at a voltage of 230 volts (V), but outside homes it is distributed at higher voltages, from 11,000 volts (usually written 11 kV) up to 400,000 volts (400 kV). Generally, the higher the voltage, the higher the electric field. Electric fields are measured in volts per metre (V/m).

Voltage can be likened to the pressure of water in a hose.

Magnetic Fields

Magnetic fields are produced by current, which is the flow of electricity. Current, which is measured in amperes or amps, can be likened to the flow of water in a hose when the nozzle is open. Generally, the higher the power and the current, the higher the magnetic field. Magnetic fields are measured in microteslas (μT).

Current can be likened to the flow of water when the nozzle is open.

Other Differences

One difference between electric and magnetic fields is that electric fields are very easily screened - by buildings, hedges, fences and trees. So inside a house there will be very little electric field from a power line outside. By contrast, magnetic fields pass readily through most buildings.
Another difference is that a mains appliance such as a radio or lamp does not have to be operating to produce an electric field - as long as it is plugged into a mains supply it will produce an electric field. However, it produces a magnetic field only when it is turned on and drawing a current.

EMF Units

Electric Fields	
Usually measured in volts per metre (V/m)	
Multiple used for large fields:	1 kilovolt per metre (kV/m) = 1,000 volts per metre
Magnetic Fields	
Usually measured in microteslas (μT)	
Multiple used for large fields:	1 millitesla = 1,000 microteslas
or small fields:	1 nanotesla = 0.001 microteslas
Other units sometimes used	1 milligauss = 0.1 microteslas

Instruments that measure field levels normally give an average value called the “root mean square”.

Exposure

National Guidelines for exposure to the public

The Government sets guidelines for exposure to EMFs in the UK on advice from Public Health England (PHE). In March 2004 the UK decided to adopt the 1998 guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in the terms of a 1999 European Union Recommendation and this policy was reaffirmed by a Written Ministerial Statement in October 2009. Other guidelines have been reviewed but Government has decided to remain with ICNIRP 1998.

The ICNIRP 'reference levels' for the public are:

100 microteslas for magnetic fields

5000 volts per metre for electric fields

These are the levels above which more investigation is needed if this level of exposure is likely to occur; the permitted levels of exposure are somewhat higher, 360 microteslas and 9000 volts per metre. They apply where the time of exposure is significant. These guidelines are designed to ensure that EMFs do not interfere with nerves, but were set after examining all the evidence, including the evidence on cancer.

Reference levels are thresholds for performing detailed investigations of compliance. The permitted levels are somewhat higher.

It is the policy of the electricity industry to follow these independent exposure guidelines. A Code of Practice, published jointly by industry and the then Department for Energy and Climate Change, sets out all the practical details needed to apply the exposure limits. All exposures in homes already comply with the ICNIRP guidelines. The electricity industry designs all new equipment to comply with the Government guidelines as set out in the Code of Practice.

Occupational exposure

Occupational exposures are governed by Regulations introduced in 2016. These are higher than the public limits – essentially 6000 microteslas and 20,000 volts per metre.

Guidelines from other organisations

Other organisations sometimes publish guidelines (e.g. "Bioinitiative", "Salzburg Standard for Building Biology"), but these have no status in the UK and are often out of line with mainstream scientific thinking.

Typical Field Levels in the UK

Natural Sources

The earth's magnetic field, which everybody is constantly exposed to, is around 50 microteslas in the UK. The earth's electric field is usually around a hundred volts per metre, but thunderstorms can make it rise to many thousands. Both these natural fields are 0 hertz or static fields. All the other values given in this section are for 50 hertz fields.

Within the Home

Within our homes, all mains appliances produce AC fields. Appliances differ, but it is often the smaller, more compact appliances that produce the largest magnetic fields.

All electrical appliances produce magnetic fields which drop rapidly with distance.

The field is greatest close to the surface of the appliance and drops rapidly with distance, falling away substantially over the first metre from the appliance. The table below shows the range of magnetic field strengths close to the appliance. Electric fields can be a few hundred volts per metre close to appliances.

Typical Magnetic Field Levels from Some Common Mains Appliances in the Home

	Magnetic Field (microteslas)	
	Close to appliances	**1 metre away**
Vacuum cleaner	800	2
TV, Washing Machine, Microwave	50	0.2
Electric oven	10	0.02
Fridge	2	0.01

Outside the home

Overhead Lines

A line typically produces fields much less than the maximum it is capable of.

Outside our homes, all overhead power lines produce fields. The fields are usually greatest directly under the lines and fall rapidly with distance to the sides of the line. For small lines on wooden poles, the fields generally fall away over a few tens of metres. For larger lines on steel pylons, the distance is slightly greater. Fields vary greatly from line to line and over time, and a line typically produces fields much less than the maximum it is capable of.

Typical Ground-level UK Field Levels from Overhead Power Lines

		Magnetic Field (microteslas)	Electric Field (volts per metre)
The largest steel pylons (275 kV and 400 kV)	Maximum field (under line)	100	11,000
	Typical field (under line)	5 - 10	3,000 - 5,000
	Typical field (50 m to side)	0.4 - 0.6	50 - 100
Smaller steel pylons and largest wooden poles (132 kV)	Maximum field (under line)	40	4,000
	Typical field (under line)	0.5 - 2	500 - 3,000
	Typical field (50 m to side)	0.03 - 0.2	20 - 100
Medium wooden poles (11 kV and 33 kV)	Maximum field (under line)	15	500
	Typical field (under line)	0.4 - 1	50 - 200
	Typical field (50 m to side)	0.01 - 0.03	1 - 5
Smallest wooden poles (400 V or 230 V)	Maximum field (under line)	1	1
	Typical field (under line)	0.05 – 0.2	<1
	Typical field (50 m to side)	<0.01 - 0.02	<1

Further information is available from:

www.emfs.info/

There is no restriction in the UK on EMF grounds on how close a house can be to an overhead line.

Underground Cables

High voltage underground cables can produce higher magnetic fields directly above them than an overhead line would produce at ground level, because the physical distance from the underground cable is smaller. The field falls more rapidly with distance to the sides, and they produce no external electric field. Such cables are not normally located beneath buildings.

Substations

Small electricity distribution substations, typically one for every few hundred homes, generally produce up to 2 microteslas close to their perimeter fence (occasionally more if built into another building, usually less for pole-mounted transformers), and often no electric field at all. The fields fall rapidly with distance and, within 1 to 2 metres from a typical substation, the fields associated with it are usually indistinguishable from other fields present in homes. Larger electricity transmission substations do not produce very large fields themselves (generally less than a microtesla); the fields close by are mainly produced by power lines and cables entering them. There is no restriction on EMF grounds on how close houses can be to substations.

Average Magnetic Field Levels

In the Home

In the vast majority of homes in the UK, the magnetic field is between 0.01 and 0.2 microteslas.

In the vast majority of homes in the UK, the magnetic field, averaged over 24 hours, is between 0.01 and 0.2 microteslas, typically half the level in some other countries. In some homes it can be higher and in less than half a percent of UK homes the average level can be greater than 0.4 microteslas. Some of these homes are near power lines, but about half are not. Although no health risk has been established in these homes, there is particular interest in them because of the results of some scientific studies. This is discussed in more detail later in this guide (see page 11).

It is actually easy to experience fields greater than 0.4 microteslas for short periods, close to an appliance or passing underneath a power line, but short exposures like these do not usually contribute much to the average field over a day.

Outside the Home

The occupations where exposure to fields has been investigated in greater detail tend to be those involving power workers. For instance, a typical worker in a UK power station experiences an average field of a few microteslas during working hours, and an electrician perhaps one microtesla. By contrast a typical office worker experiences about 0.2 microteslas. Fields in roads and public areas can be a microtesla above buried cables.

Potential Health Effects

Any suggestion of a risk to health must always be taken seriously. When considering issues of diseases and what causes them, it is important to look at what the scientific research reveals.

What Conditions have been Researched?

Most attention has focused on childhood cancer and leukaemia in particular. But other diseases including adult cancers, heart disease, Alzheimer's disease and depression have been examined, as has the incidence of suicide and miscarriage. "Electrosensitivity" is a term used to describe symptoms some people attribute to EMFs.

There are three main types of research scientists do to try and find out whether EMFs cause disease.

Epidemiology

Epidemiology is the study of patterns of disease in populations. It searches for any statistical link or association between exposure to EMFs and disease in actual human populations. It was through such studies that concerns about EMFs were first raised in 1979.

The strength of epidemiology is that it looks directly at human populations. However, all it can ever do is observe statistical associations. It can never completely eliminate all the many other factors that determine whether people develop diseases or not, and so it can never prove whether a particular disease is caused by EMFs or not.

Around 20 epidemiological studies have been performed looking at a possible link between childhood leukaemia and EMFs.

Over 20 epidemiological studies have now been performed looking just at a possible link between childhood leukaemia and magnetic fields. Numerous other studies have looked at other diseases. Some of those studies found no association with magnetic fields, but some have found associations, and consequently research continues until a clearer picture can be achieved.

With electric fields, the position is clearer: there is very little evidence suggesting they are a cause of childhood cancer.

All these studies have been reviewed by Public Health England and its predecessors and the conclusions are considered later in this guide (see page 13).

Theoretical

Theoretical research looks for a plausible mechanism from physics that can demonstrate how the fields could interact with living systems. Many theories have been put forward over the years, but no such mechanism has been established that would operate at the levels of field found in homes or near power lines, and this casts doubt on the existence of health effects.

Biological

An important test of any proposed health risk is biological research: laboratory research actually to observe the effects of EMFs on cells and tissue.

There have been many hundreds of these studies reported, and scientists examine them for robust results, which can be successfully repeated in different laboratories.

In over 30 years of research there have been no such reproducible results. The evidence from the laboratory is that low level EMFs of the type experienced by the public do not cause the diseases that have been claimed.

In particular, virtually every agent that is known to cause cancer in humans also causes cancer in mice or rats. But, for EMFs, tests on mice and rats have not identified any effects.

In over 30 years of research there have been no such reproducible results.

Some Important UK Research Results

There have been two big epidemiological studies of childhood cancer and EMFs in the UK.

The United Kingdom Childhood Cancer Study (UKCCS)

The UKCCS was conducted during the 1990s. It looked at a number of suggested causes of childhood cancer including EMFs. Its particularly large study population - over 2000 cases of cancer in total, every case occurring in the UK over roughly a four-year period - made it very powerful.

In December 1999, the UKCCS published its first report, on exposure to magnetic fields, and concluded:

“This study provides no evidence that exposure to magnetic fields associated with the electricity supply in the UK increases the risk for childhood leukaemia, cancers of the nervous system, or any other childhood cancer.”

Subsequent UKCCS papers in 2000 and 2002 looked at children living close to power lines and at electric fields, in both cases reporting finding “no evidence” or “no support”.

The Childhood Cancer Research Group (CCRG)

This 2005 study, also known as the “Draper” study, looked at 33,000 cases of childhood cancer from 1962 to 1995 and the distance of their address at birth from the nearest 275 kV and 400 kV power line. It found an association between childhood leukaemia and these power lines (1.7-fold increase close to the lines, less further away).

But this association extended too far (600 m) from the lines to be caused by magnetic fields, which fall below background levels at much smaller distances. Then a later study from the same group in 2014 looked at more recent cases and found that the association seemed to have diminished over the years and is no longer present today.

There is no simple explanation for these findings, and the original paper concluded:

“We have no satisfactory explanation for our results in terms of causation by magnetic fields or association with other factors.”

‘Pooled’ Analysis

In 2000, an international group, led by Professor Anders Ahlbom from Sweden, took all the separate better-quality epidemiological studies of childhood leukaemia and magnetic fields and pooled the results, so that they could perform one single re-analysis of all the available data. They found that, statistically, there was no significant evidence of any increased risk at the levels of magnetic field to which the overwhelming majority of children are exposed.

The study did, however, find that in the category of homes with a field, averaged over 24 hours, of greater than 0.4 microteslas (which applies to fewer than half a percent of children in the UK), there is a statistical suggestion of a two-fold increased risk. Some of these homes are near power lines, but many are not.

A subsequent study in 2010 pooled the relevant papers published since then in the same way, and found a similar result.

A statistical finding like this may or may not reflect a real cause-and-effect relationship. It is unlikely to be due to chance, but it could be an artefact of the studies.

The authors themselves concluded: **“The explanation for the elevated risk is unknown, but selection bias may have accounted for some of the increase.”**

Conclusion

The UKCCS did not support EMFs causing cancer, but the pooled analysis did suggest an increased risk for the highest fields. The CCRG study reinforces a link between power lines and leukaemia in the past, but suggests it may not be caused by EMFs. Evidence from other research such as laboratory studies argues against any link.

Looking at the totality of the evidence, scientists recognise the possibility of a risk for the relatively few children who receive the highest exposure to magnetic fields, but it is no more than a possibility.

A statistical finding like this may or may not reflect a real cause-and-effect relationship.

The Words ‘Risk’ and ‘Possible’

Nothing can ever be said to be ‘100% safe’ or ‘risk free’. Everything we do from the moment we get up to when we go to sleep has a ‘risk’ attached to it. Most of the risks we encounter in our day-to-day lives or we hear talked about are established or proven risks, where scientific evidence has reached firm conclusions. This enables us to decide, either as individuals or together as a society, on what actions to take in response to the risks.

Any suggestion of a possible health risk is always taken seriously by the electricity industry. For this reason, the industry will continue to support high quality research.

With EMFs and risk the situation is different; no risk has been proven. Instead, EMFs are sometimes described as ‘possibly’ a cause of cancer or a ‘possible carcinogen’. The word ‘possible’ is used about all sorts of things in our lives. It does not mean that exposure to EMFs actually does pose a risk. It simply means that there is some evidence and scientists have not been able to rule out the possibility of a risk, which on the basis of present evidence would be small.

However, any suggestion of a possible health risk is always taken seriously by the electricity industry. For this reason the industry will continue to support high quality research to help to gain a clearer picture of EMFs and to move closer to a final answer.

Corona Ions and Electric Fields

Scientists at Bristol University in the UK have suggested an alternative mechanism for health effects, involving tiny airborne “corona ions” produced by high-voltage power lines, and their interaction with existing airborne pollutants. These corona ions are indeed produced, but in 2004 Public Health England’s forerunner concluded:

“...it seems unlikely that corona ions would have more than a small effect on the long-term health risks associated with particulate air pollutants, even in the individuals who are most affected.”

Microshocks

The electric field beneath a power line charges up objects, and sometimes, if you touch a metal object, you can receive a small one-off “microshock”, similar to the shock you sometimes get after walking on a nylon carpet. This can be disconcerting but has no known long-term effect and is not regarded as harmful.

Pacemakers

It is theoretically possible for power lines to cause interference with pacemakers, defibrillators or other active implanted medical devices. This is, however, very rare as the immunity of individual devices is usually higher, and there is no recorded instance of a patient coming to any harm this way in the UK. If in doubt you should consult your doctor.

The National and International View

In the UK it is to Public Health England (PHE), and their forerunners the National Radiological Protection Board (NRPB) and the Health Protection Agency, that both Government and industry look for advice. In March 2004 the NRPB published a comprehensive review of the science on EMFs. For the key issue of childhood leukaemia they talk about the difficulties with some of the studies and say: **"The epidemiological evidence is currently not strong enough to justify a firm conclusion..."**, but also: **"Nevertheless, the possibility remains that intense and prolonged exposures to magnetic fields can increase the risk of leukaemia in children..."**

Another key conclusion is: **"There is little evidence to suggest...that raised cancer risks of other types, in children and adults, might arise as a result of exposure to ELF [extremely low frequency] magnetic fields...The findings from studies of health outcomes other than cancer have generally been inconsistent or difficult to interpret."**

The results of epidemiological studies cannot be used as a basis for quantitative restrictions on exposure to EMFs.

They then note: **"The results of epidemiological studies...cannot be used as a basis for the derivation of quantitative restrictions on exposure to EMFs."**

These views echo the international consensus. In June 2001 the International Agency for Research on Cancer, IARC, which is an agency of the World Health Organization, published an authoritative opinion on the carcinogenicity of EMFs. IARC classified extremely low frequency magnetic fields as 'possibly' a cause of cancer, on the basis of 'inadequate' epidemiological evidence for most types of cancer and 'inadequate' evidence in animals, but 'limited' epidemiological evidence for childhood leukaemia. For electric fields IARC said all the evidence was 'inadequate'. In 2005 WHO confirmed this classification, but also looked at other effects on health, and said the evidence for any of these being produced by EMFs was **"much weaker".** More recent reports by the relevant EU scientific committee in 2007, 2009 and 2015 confirm that these are still a correct summary of the science.

Some scientists hold other views, and sometimes reports are published saying the evidence is stronger (for example, a 2002 report from California and the 2007 Bioinitiative report). But such assessments are clearly out of line with the international consensus and with authoritative bodies.

The UK Electricity Industry Policy

Health

The electricity industry has dedicated EMF resources to assist the public.

The UK electricity industry takes any suggestion of a risk to health extremely seriously. The industry believes that the final decision about what constitutes a safe level of exposure should be made by an independent body. It is committed to follow the guidance given by the Government, advised by Public Health England, on safe levels of exposure, and carries out all its operations within the relevant exposure levels.

Because the electricity industry takes public concern seriously, it has dedicated EMF resources to assist the public and to provide further information, including, if appropriate, home visits and measurement of fields.

Research

The electricity industry is committed to supporting high-quality research to help get closer to a final answer on the EMF issue. For example, the UK Childhood Cancer Study received over £4 million from the industry to enable it to look at EMFs in their study, though the conduct of the study was rigorously independent of the industry. Similarly, one of the electricity companies, National Grid, has given over £5 million to an independent Research Trust to support the very best quality biological research.

It is a condition of all the research supported by the industry that the results should be published openly.

In addition, the industry has supported and continues to support numerous other studies, and its own staff carry out research into aspects of exposure to EMFs. National Grid provided the data on power lines that made the CCRG study possible. It is a condition of all the research supported by the industry that the results should be published openly in reputable peer-reviewed, scientific journals.

Amenity

All power lines comply with the Government's requirements. However, it is worth noting that normal good practice in planning new high-voltage lines ensures that they are kept as far away from existing homes as possible, simply on grounds of amenity. Subsequent new housebuilding, however, may bring homes into closer proximity to these lines.

Power lines and property

The UK Government policy is that there are no restrictions on EMF grounds on building homes close to power lines. Clearly the statutory high-voltage safety clearance distances must be followed, but the only EMF requirement is compliance with the exposure guidelines, which all power lines in the UK meet.

This policy was scrutinised and reviewed in the 2000s through a process called SAGE, the Stakeholder Advisory Group on ELF EMFs. SAGE was created in 2004 to provide a forum in which all stakeholders, citizen groups alongside industry, Government and professional bodies, could discuss possible precautionary measures and make recommendations. SAGE published its First Interim Assessment in 2007, containing recommendations on power lines, house wiring and appliances, and Government formally responded in October 2009.

That Government response adopted a measure recommended by SAGE called “optimum phasing” which applies to the design of some power lines of 132 kV and above and can result in lower fields, and the electricity industry volunteered to implement this. It also agreed with a proposal for more information to be provided to the public. It noted that some of the recommendations on house wiring are happening anyway for other reasons. But Government said clearly that it will not be introducing “corridors” along power lines where building would be restricted, because this would be disproportionate to the scientific evidence. It also says that this is a matter for central Government policy, not local decision making.

The Electricity Industry View

The electricity industry considers that the question of possible measures to reduce fields should be resolved in the best interests of society as whole, and that a forum like SAGE where all the different views and opinions were represented and discussed sensibly is greatly preferable to the alternative of confrontation and argument. We therefore welcome the clarity that the SAGE process and the Government response to it has brought.

We are committed to building and operating our systems in compliance with Government policy. They already comply with the exposure guidelines. Where there are relatively easy and low-cost ways of reducing fields, it makes sense to adopt these. But it is in the interests of society as a whole that any measures are proportionate and that they balance risk and cost to society, and that is the reason why Government has decided not to introduce “corridors” in the UK.

The electricity industry was instrumental in setting up SAGE and we have supported it throughout.

Further Information

For further information you can contact

- The Energy Networks Association website:
  www.energynetworks.org

- National Grid information site on EMFs:
  www.emfs.info

- The EMF Unit Public Information Line can be contacted on
  0845 702 3270 or 01926 653382 or:

  emfhelpline@nationalgrid.com

- Your local electricity distribution company

- The PHE website:
  https://www.gov.uk/government/collections/electromagnetic-fields
  or telephone them on **01235 831 600**

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Appendix 4.3 Technical Note Electric and Magnetic Fields

Technical Memorandum
Project: ECUP/ LWUP XL OHL Consenting
Subject: EMF Assessment – Justification for Reliance on Existing NGET Report
Date: 06 Feb 2026

Purpose

To confirm the validity of the existing Electric Magnetic Field (EMF) assessment for the Section 37 application and justify why an update is not required following the proposed conductor change.

Background

An EMF assessment has been undertaken by NGET for a 400 kV overhead line based on a twin-bundle "Twin Gap" conductor, modelling a maximum current of 3,767 A.
The assessment demonstrates compliance with ICNIRP public and occupational EMF limits, with no identified receptor impacts.

Conservative Existing Assessment

The EMF assessment models a current significantly above credible operating condition.
Even under this non-achievable worst-case, compliance with EMF standards is demonstrated.
The existing study is therefore conservative and bounding.

Impact of Conductor Change (3×Andrew)

The proposed change in conductor type from Twin Matthew Gap to 3×Andrew, introduced as a potential noise mitigation measure at XL017 does not increase system voltage or current.
Phase geometry and line configuration are unchanged.
As magnetic field levels are primarily driven by current and geometry, no material change in EMF outcomes are expected. EMF levels for 3×Andrew would not exceed those already assessed.
Simulation studies were carried out for the DWNO project to compare the EMF effects for the twin Matthew and 3×Andrew and these have shown that the impact is reduced when moving to a 3×Andrew (see Figures 6 to 9 in the conductor system assessment report for DWNO).

NGET Modelling Considerations

While NGET may subsequently be requested to model 3×Andrew for the full DWNO XX/XR routes, this is not expected to alter conclusions. Re-commissioning an updated EMF study at this stage would introduce programme delay in the absence of conductor data with NGET with no consenting benefit.
Furthermore, for DWNO, project studies were carried out for twin Matthew gap.
For the XL route, the project should proceed on the basis that the worst-case scenario has already been robustly assessed.

Conclusion

EMF compliance is demonstrated with margin.
The conductor change does not introduce a material change in EMF effects.

The existing NGET EMF report is therefore fit for purpose for the Section 37 application, and no update is required.