Alyth to Tealing Overhead Line 400 kV Upgrade

EIA Report Volume 1: Non-technical Summary

November 2024

AECOM

Scottish & Southern Electricity Networks

Who we are

We are Scottish and Southern Electricity Networks, operating under licence as Scottish Hydro Electric Transmission Plc for the transmission of electricity in the north of Scotland.

Who are SSEN Transmission?

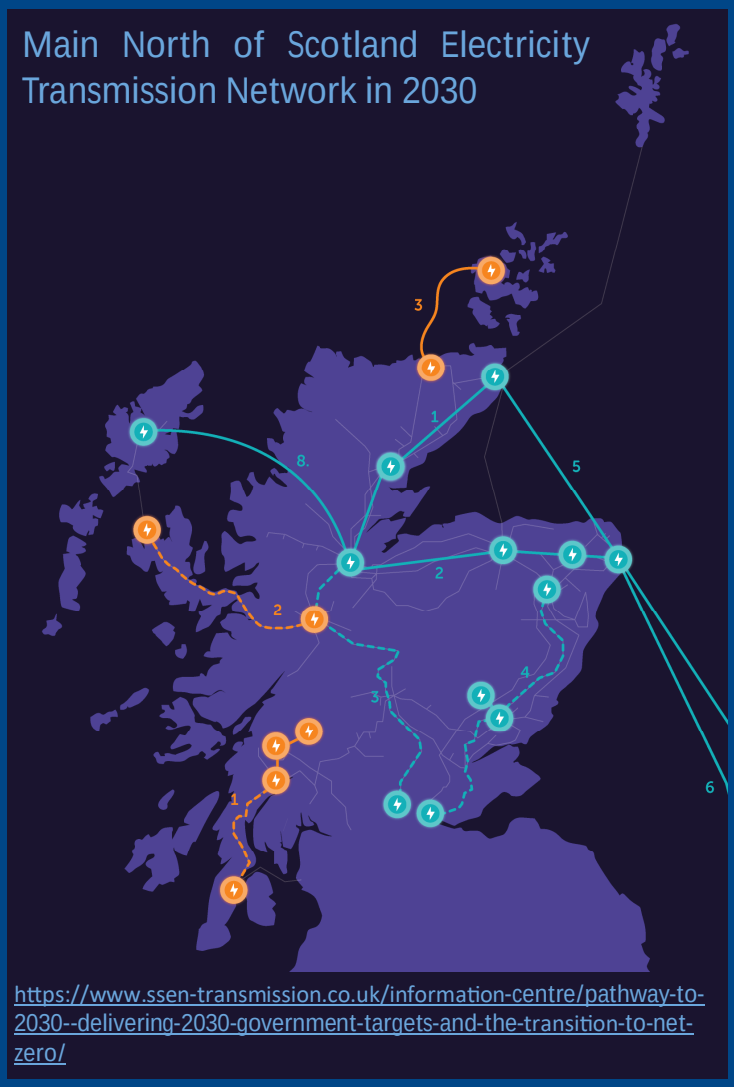
SSEN Transmission operates, maintains, and improves the high voltage electricity transmission network in the north of Scotland. Our network extends over a quarter of the UK's land mass and some of its most challenging terrain. This area has a lot of renewable energy potential such as wind, solar, hydro and marine power.

Delivering a Network for Net Zero

SSEN Transmission are investing over £20bn to upgrade the network infrastructure across the north of Scotland between now and 2030 as the region plays a leading role in the clean energy transition.

As a mass transporter of renewable energy, the north of Scotland electricity transmission network has a major role to play in supporting delivery of Scotland and the UK's 2030 net zero targets, connecting new onshore and offshore renewables generation and transporting the power generated to demand centres in the rest of Scotland and beyond.

This investment is critical to powering change and meeting Scotland and the UK's renewable energy targets, accelerating our delivery to meet the 2030 offshore wind connection dates, known as the 'Pathway to 2030'. This investment will also play a vital role in helping ensure our future energy security by using affordable, home-grown, low carbon electricity while providing significant economic and employment opportunities supporting 20,000 jobs across the UK, 9,000 of which will be in Scotland.



https://www.ssen-transmission.co.uk/information-centre/pathway-to-2030--delivering-2030-government-targets-and-the-transition-to-net-zero/

Our Responsibilities

SSEN Transmission have a licence for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator Ofgem.

Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

Project Overview

The upgrade of the exiting 275 kilovolt (kV) overhead line (OHL) between Alyth and Tealing to 400 kV is part of a larger upgrade of the National Grid to enable the growth of renewable energy across Great Britain.

Introduction

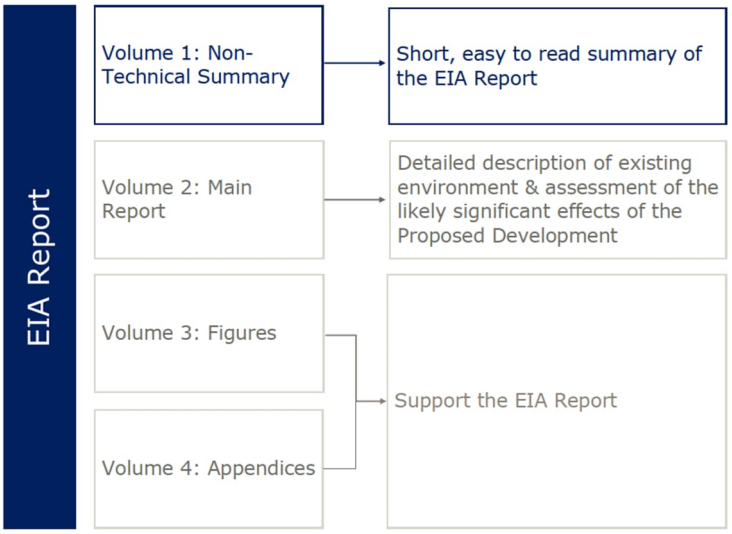
This Non-Technical Summary forms part of the Environmental Impact Assessment Report ('EIA Report') which has been prepared to accompany an application for consent to approximately 14 kilometres (km) of an existing 16 kilometres (km) 275 kilovolts (kV) overhead line (OHL), between Alyth Substation and Tower 685 north west of Tealing Substation, to enable operation at 400 kV ('the Proposed Development').

The EIA Report presents the findings of a detailed environmental assessment and advises on whether there would be any significant environmental effects as a result of the Proposed Development. It also includes measures which would be taken to prevent, reduce and, where possible, offset predicted likely significant adverse effects.

Whilst Volumes 2 to 4 present detailed technical assessments, the first volume - this Non-Technical Summary – provides a simpler, clearer summary of the key findings of the EIA Report.

AECOM have prepared this EIA Report on behalf of SSEN and in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

View east from Kinpurney Hill



Environmental Impact Assessment (EIA) Process

EIA is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It considers how sensitive a receptor is (such as a community or certain wildlife); what the magnitude of the impact (or change) will be; and then determines how significant the effect will be (using a scale: moderate or major effects are considered significant and can be negative (adverse) or positive (beneficial)).

EIA is an important design tool as it provides an opportunity to avoid or minimise significant adverse effects as the design of a development progresses. If effects cannot be reduced through design, other measures to improve effects can sometimes be identified, such as through planning the movements of construction traffic. This is called mitigation.

Project Description

Consent for the Proposed Development is being sought under Section 37 of the Electricity Act 1989, as amended, for the increase in voltage of the existing OHL from 275 kV to 400 kV. Deemed planning permission is also being sought under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended, for supporting and associated works.

Proposed Development

The main components of the Proposed Development are:

- replacement of conductors, insulators and fittings on the existing steel lattice towers;
- where required, tower condition works including steelwork and tower leg foundation work to strengthen the existing steel lattice towers;
- the sag of new proposed phase conductor will be matched with sag of existing Optical Ground Wire (OPGW); and
- subject to further engineering and design checks, some modifications to the existing towers may be required, such as;
  - the inverting of cross arms to improve clearances, and;
  - changes to the insulator set configurations.

View north over River Isla towards Alyth **Substation**

Associated Works

The other works required to support the main components of the Proposed Development (i.e. the associated works) include:

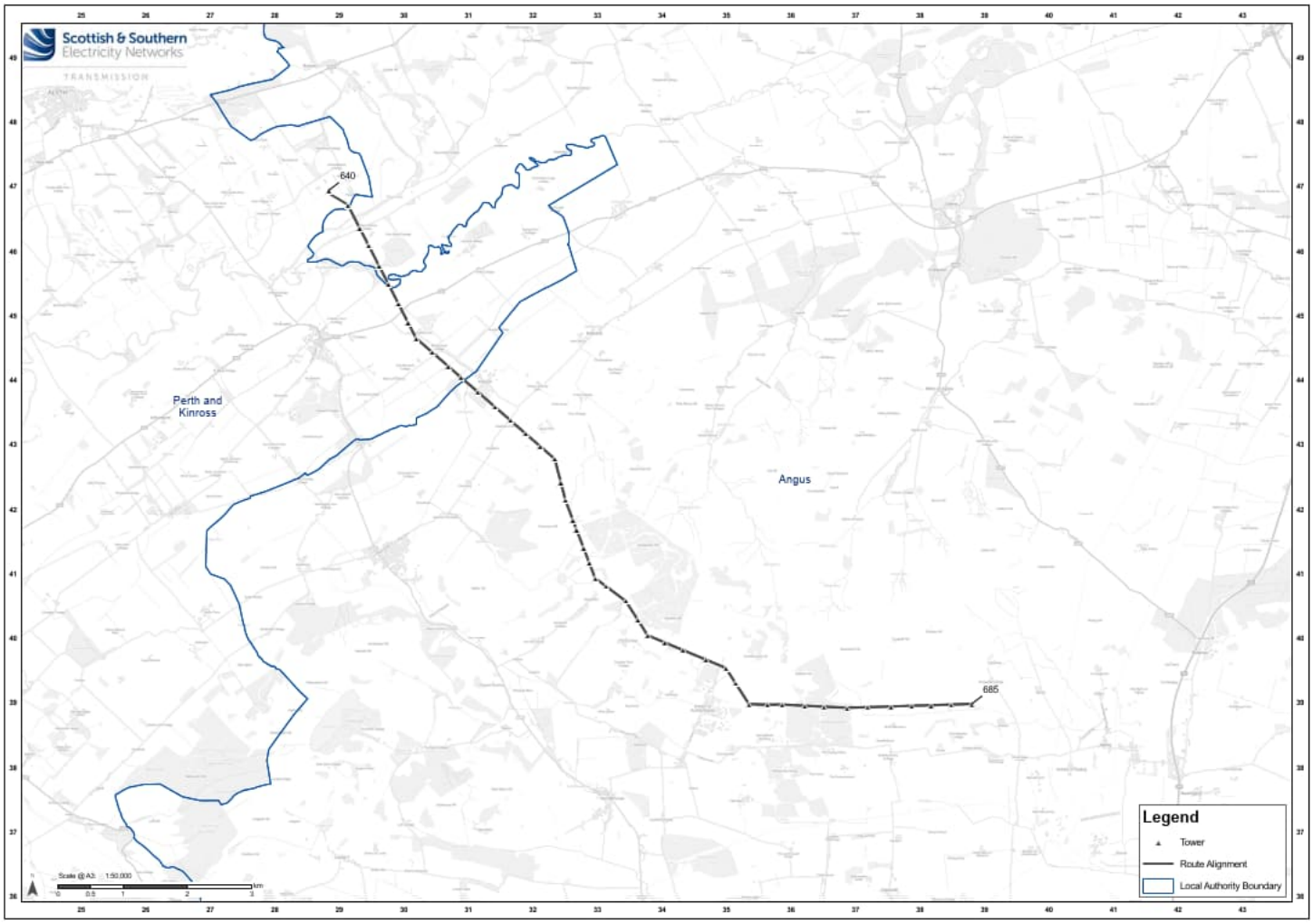
- vegetation clearance,
- access track construction and track upgrades,
- temporary site compounds (at working areas, to include mobile welfare unit and refuelling / spill kits, etc.),
- laydown areas,
- crane pads,
- Equipotential Zones (which is an area to protect workers from electric shock when working on the lines),
- temporary measures to protect road, rail and water crossings, and
- the increase in operating voltage of the OHL requires a wider wayleave corridor, therefore some tree felling will be required where there are infringements to this corridor.

Construction Allowances

The Proposed Development includes a number of elements which, for construction, will need some flexibility in final siting to reflect localised land, engineering and environmental constraints. No element would be placed more than 100m from the designs submitted with this EIA. Maximum distances are established and assessed within the EIA.

Site Location

The route of the Proposed Development is shown on the figure below. It passes through the following Local Authority areas: Perth and Kinross, and Angus.



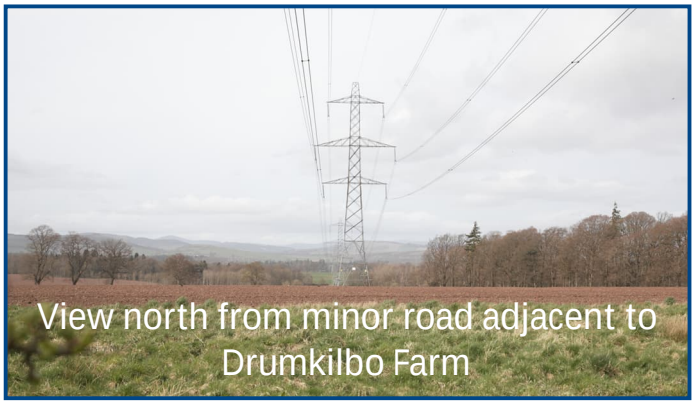

Twin and Triple Conductor Comparison

Conductor Replacement

Conductors are important elements of OHLs which allow the transmission of electricity. The existing conductors on the OHL are twin conductors. These would be replaced by triple bundle conductors for the Proposed Development. The photograph on the left shows the difference between the conductors types: on the left of the tower is the twin, and on the right is the triple conductor.

Need for Project and Alternatives Considered

The EIA Report provides details on the reasonable alternatives studied, and the reasons for the selection of the final option.



View north from minor road adjacent to Drumkilbo Farm

Need for the Proposed Development

To enable the forecasted growth in renewable electricity across Great Britain, including the UK and Scottish Government's 2030 offshore wind targets of 50 gigawatts (GW) and 11 GW respectively, in 2022 the National Grid set out a blueprint of the electricity transmission network infrastructure required.

As part of wider proposals, collectively known as East Coast 400 kV Phase 2, this project has been determined as critical to enable the delivery of the UK and Scottish Government's renewable energy targets.

For the north of Scotland, there is a need for a significant and strategic increase in the capacity of the onshore electricity transmission infrastructure to deliver 2030 targets and a pathway to net zero. East Coast 400 kV Phase 2 requires accelerated development and delivery to meet 2030 connection dates.

The need for these reinforcements has been further underlined within the recent British Energy Security Strategy. This sets out the UK Government's plans to accelerate homegrown power to support increased UK energy independence.

Consideration of Alternatives

The EIA Regulations require SSEN to report upon the reasonable alternatives that were studied and the main reasons for the choice of the development, taking into account the environmental effects. In this case, the consideration of alternative options considered were a "do nothing" scenario, and the refurbishment and upgrade of the existing 275 kV OHL to 400 kV.

"Do-nothing"

The "do-nothing" scenario assumes that no other options are considered as reinforcement and the section of the transmission network forming part of this application would remain operational at a voltage of 275 kV.

The upgrade to the transmission network in the north of Scotland is necessary due to the growth in renewable electricity generation requiring an increase in transmission capacity. Therefore, a "do nothing" scenario would result in a significant network capacity deficit.

The "do nothing" scenario is not considered a sustainable development option, resulting in insufficient capacity in the network and a failure to meet the generation and supply demands. It would be inconsistent with SSEN's licence obligations to develop and maintain an efficient, coordinated and economic electricity system.

Refurbish and Upgrade Existing OHL to 400 kV

The option of refurbishing and upgrading the existing OHL was based upon re-using the existing tower assets, as this could be achieved and would avoid additional cost, time and potential impacts of installing new assets. For this reason, and to be in line with the SSEN's licence obligations , the decision was taken to refurbish and upgrade the existing OHL.

Ecology

A desk study was carried out to identify nature conservation designations and records of important habitats and species potentially relevant to the Proposed Development. Ecological field surveys were undertaken in 2023 and 2024 to identify sensitive ecological habitats and to confirm the presence or absence of protected ecological species. Targeted surveys were undertaken for habitats, bats, otter, beaver, water vole, badger and pine marten.

Baseline

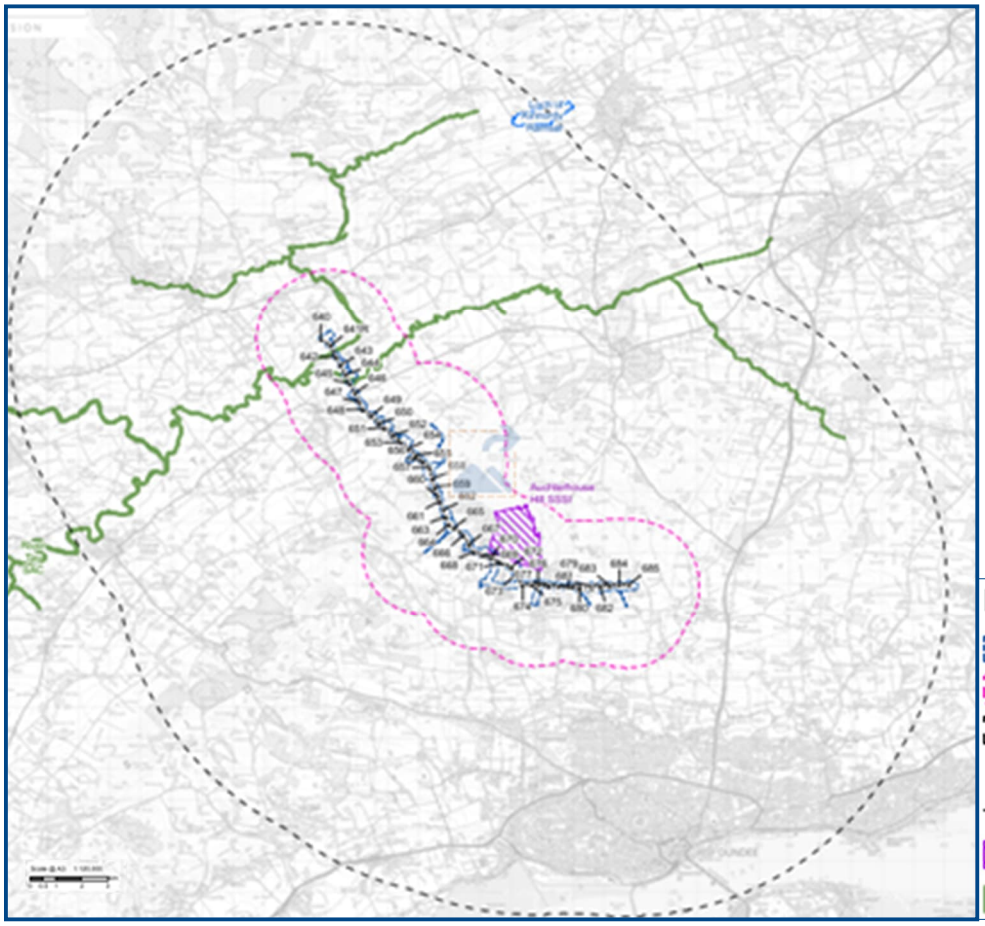
There are 4 identified designated sites within the vicinity of the Proposed Development, including 2 Special Areas of Conservation, 1 RAMSAR (wetland) site designated for habitats and 1 Sites of Special Scientific Interest. At the time of writing, there are no Local Nature Conservation Sites Project (including proposed upcoming sites) in the vicinity of the Proposed Development. A variety of habitats were found within the large study area, including areas of Ancient Woodland. Some plant invasive non-native species were also recorded incidentally.

A minimum of four bat species were confirmed to be present within the survey area. There was also evidence of otter, badger, beaver, red squirrel, brown hare, and pine marten.

Significant Effects

No significant effects on any important ecological features from the Proposed Development were identified during the assessment. A variety of mitigation measures were identified to further reduce effects.

Some otter refuges in the study area:



Ornithology

An ornithological desk study was carried out to identify nature conservation designations and records of important bird species potentially relevant to the Proposed Development. Ornithological field surveys, including a moorland breeding bird survey, were also carried out in suitable habitats within 2km of the Proposed Development between April and July 2024.

Potential Receptors

There are 4 sites with a statutory designation for ornithological interest which are potentially connected (i.e. lie within distances typically travelled for an individual bird species from its roost) to the Proposed Development, as follows:

- Firth of Tay and Eden Estuary (SPA and Ramsar site)
- Outer Firth of Forth and St Andrews Bay (Complex SPA)
- Loch of Lintrathen (SPA and Ramsar site)
- Loch of Kinnordy (SPA and Ramsar site)

Bird species present include: pink-footed goose, greylag goose, and a large number of seabirds and waterfowl.

The moorland breeding bird survey identified 36 different species, 17 of which are considered important, including: cuckoo, kestrel, red grouse, skylark and yellowhammer. No black grouse lekking grounds were identified during targeted field surveys, and no breeding by any bird species listed on Schedule 1 of the Wildlife and Country Act (1981) is suspected to have taken place within 1 km of the Proposed Development during the survey period.

Significant Effects

It has been concluded that there will be no likely significant effects caused by the Proposed Development on ecological features relating to ornithology.

As the alignment of the existing Overhead Line will remain unchanged, there will be no change to the current baseline risk of birds colliding with the line.

Forestry

The forestry assessment focused on commercial and non-commercial woodland and its ability to withstand a shock event and then return to its former purpose and quality. In this context, management of vegetation in proximity to the energy network considers growth and the potential failure of trees . As part of the assessment, a resilience survey was undertaken.

Significant Effects

Woodland sites at Scotston Wood, Kirkinch Wood and Balkello Wood will require tree removals for the wider wayleave corridor, but in each case there would be no significant effect. No areas of extended tree felling have been identified, therefore effects are considered negligible.

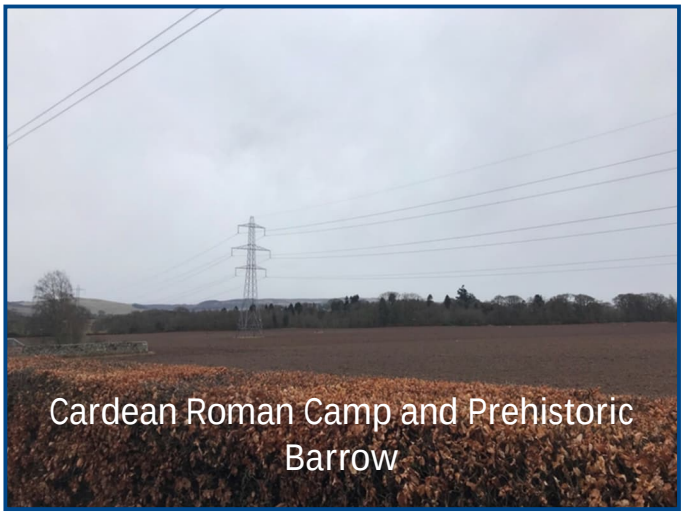
View south over Balkello Wood from footpath

Cultural Heritage

Cultural heritage in this context refers to the above and below-ground archaeological resource, built heritage, the historic landscape, and any other elements which may contribute to the historical and cultural heritage of the area. A combination of desk-based research and walkover surveys in 2023 and 2024 were undertaken for the assessment. There are 15 designated assets within the Study Area comprising of six scheduled monuments, eight listed buildings and one Garden and Designed Landscape. There is one scheduled monument which is located within the vicinity of the Proposed Development, this being Cardean Roman Camp and prehistoric barrow.

Cardean Roman Camp and Prehistoric Barrow

Cardean Roman Camp and prehistoric barrow has one tower (Tower 643) located on its western boundary. The camp is of 3rd century AD date and features visible as cropmarks comprise a sub-rectangular earthwork, enclosing an area of approximately 54 ha. At the north-western end of the camp is a ring ditch, probably representing a prehistoric barrow.



Cardean Roman Camp and Prehistoric Barrow

Archaeological monitoring to be undertaken during construction and ground works (i.e. stripping for access tracks, bell-mouths, and tower foundation upgrades) in areas where archaeological remains have been recorded.

Works to be agreed pre-construction with Historic Environment Scotland and the relevant Local Planning Authority Archaeological Advisor, and approved via a Written Scheme of Investigations.

Expected that day-to day works on site will be under the supervision of an Archaeological Clerk of Works. Periodic site monitoring visits from Local Planning Authority Archaeological Advisor likely during construction. To be agreed as part of the Written Scheme of Investigations. Through the above mitigation measures that will be adopted, no significant effects are expected upon Cardean Roman Camp and Preshistoric Barrow.

Significant Effects

The results of the baseline assessment identified that the study area contains evidence of archaeological remains dating from the later prehistoric periods to the modern period, however below ground archaeology is expected to experience relatively limited impacts a result of the Proposed Development.

Most previously recorded assets will also be avoided by the works, such as the installation of temporary trackways or the upgrade of existing tracks. As such, mitigation in most areas is limited to archaeological monitoring where trackways are being stripped to record elements of previously recorded features or assets that might extend into the work areas.

As the Proposed Development results in no changes to the majority of towers, all effects are limited to the construction phase, with no impacts on the setting of assets during the operational phase.

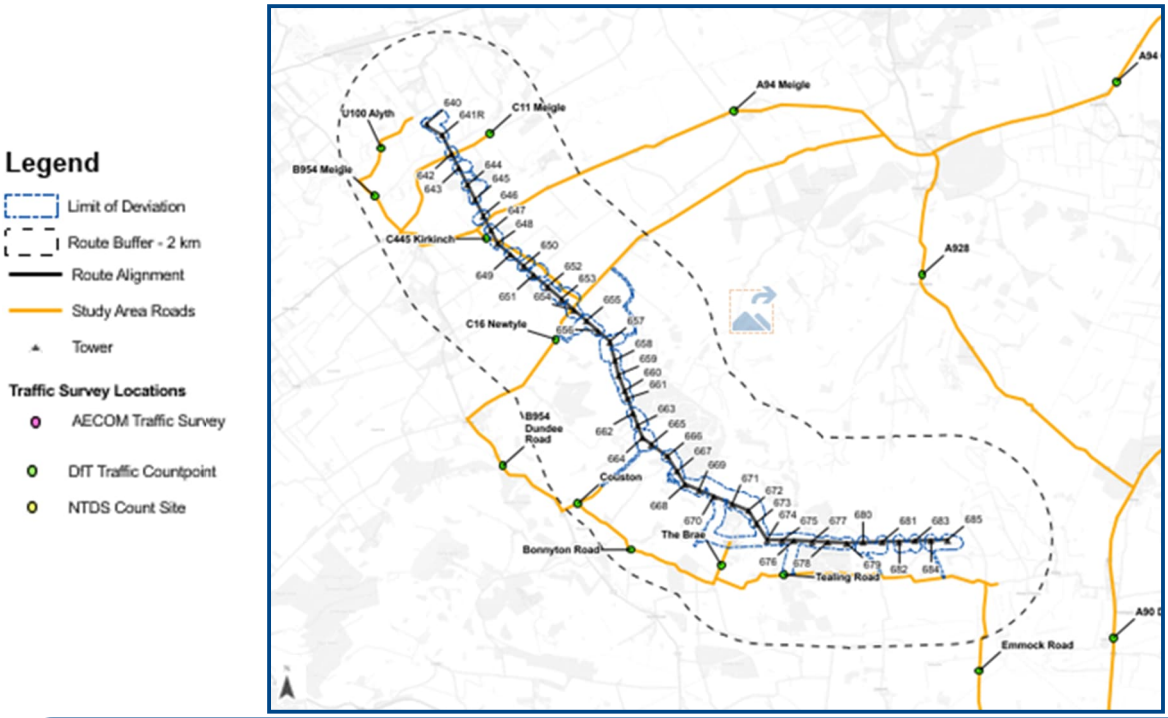
Traffic and Transport

This assessment considered the direct effects during construction of the Proposed Development on increased traffic flows on the surrounding road networks and on population groups that may be sensitive to changes in road traffic. Traffic surveys and Traffic Scotland National Traffic Data System traffic counts were used for data on 13 roads in the study area.

Receptor Sensitivity

Study area roads are subject to an assessment of sensitivity based on interests including people at work and home, sensitive and/or vulnerable groups and locations of concentrations of vulnerable users (such as hospitals and schools), areas of retail, recreation and tourism, as well as routes with road safety concerns and junctions or link roads at or over capacity.

Roads are also identified which require to be subject to environmental assessment, which considers community severance which can be caused by roads; fear and intimidation on or by road users (vulnerability relating to traffic flows and speed); road user and pedestrian safety; non-motorised amenity (broadly the pleasantness of pedestrian and cyclist journeys); and delay (both non-motorised and driver/passenger).



Significant Effects

Of the roads in the study area, no significant effects were identified except on Couston and Bonnyton Road. Prior to mitigation, temporary, short-term moderate, significant effects were identified in the categories of: community severance, non-motorised user amenity and non-motorised user delay. These results are all primarily due to the very low current traffic numbers increasing as a result of construction traffic.

Mitigation is identified to reduce the significant effects identified on the both Couston and Bonnyton Roads. This includes a Construction Traffic Management Plan to control and minimise the effects of vehicle movements to and from the Proposed Development, and control measures at access points onto public roads. This mitigation would reduce predicted effects to not significant.

Hydrology, Hydrogeology and Soils

An assessment of the potential impacts and effects of the Proposed Development on the water environment and geology during its construction, operation and maintenance. Baseline data was gathered from a range of sources and a site walkover was also conducted in March 2024.


Camno Burn

Baseline Conditions

The site walkover aimed to identify and characterise surface and groundwater receptors, consider flow pathways from source to receptors, and make general observations about the character of the landscape and other relevant features that may influence the sensitivity and importance of water features.

Two catchment areas were identified to be crossed by the Proposed Development. There are also 10 private water supplies within 1km and 9 Water Environment (Controlled Activities) (Scotland) Regulations 2011 licences within 200 m of the Proposed Development. These licences include the activities of discharge, diffuse pollution, abstractions, engineering works in inland waters and groundwater activities.

Significant Effects

No significant effects were identified on groundwater receptors, culverts, peat or geologically designated sites. Prior to mitigation, significant effects were identified on the water quality of three water features River Isla, Dean Water and an unnamed tributary to the Dean Water) due to sediment laden run-off and spillage risk. Significant effects were also identified through foundation improvements to the hydromorphology of an unnamed tributary to the Dean Water.


River Isla

Following the implementation of mitigation, including a Construction Environmental Management Plan, which would include standard good construction practices, and a water quality and flow management plan for water bodies directly affected by works and any identified private water supplies, no significant residual environmental effects on the water environment have been predicted.

It is expected that there will be minimal impacts from the operation of the Proposed Development due to its nature as operational residue and emissions are very limited and additional works are only expected if there is unexpected damage to the Proposed Development.

Noise

An assessment of the potential noise effects that could arise due to the construction and operational phases of the Proposed Development to the closest noise sensitive receptors has been undertaken.

Baseline Conditions

There are 52 noise sensitive receptors identified within 280 m of the centreline of the existing overhead line. To determine the background noise at each location, free-field attended spot measurements were conducted at nearby noise sensitive receptors between 23:00 and 03:00 on the nights of 23 April, 24 April, 01 May, 02 May, 12 June and 17 June 2024.

It is not expected that there will be a significant change to future baseline noise levels than those measured in this study.

Significant Effects

Prior to mitigation, significant effects were identified on nearby residents if certain works took place in the evenings and weekends working hours.

However, the implementation of a robust construction noise management plan will ensure residual construction noise has a minor impact on all receptors, which is not considered significant.

The operational noise of the Proposed Development is predicted to have no significant effects on any noise sensitive receptor.

View from local path network, Balkello Woodland

Cumulative Effects

The EIA Regulations require that the cumulative effects of the Proposed Development are assessed. This assessment considers a number of different interactions, including the combined environmental effects from the Proposed Development (such as the effects that may occur on a community from traffic and visual impacts); as well as the combined environmental effects from multiple projects in development (such as the effects that may occur on a community from traffic if many projects were being constructed at once).

Approach to Assessment

The assessment of cumulative impacts for the Proposed Development was split into 3:

1. Interactive cumulative assessment for the Proposed Development

The effects caused by a combination of effects from the Proposed Development on a receptor, such as the community or the natural environment. Collectively, all of the impacts considered in each of the assessment chapters of the EIA may combine to cause a more significant effect than they do alone.

Significant Effects

After the implementation of mitigation, no significant effects have been identified in any of the specialist assessments conducted for the EIA (including ecology, ornithology, traffic and transport, noise, etc.). No significant combined effects have therefore been identified.

2. Interactive cumulative assessment for associated SSEN developments

The consideration of the effects from all projects from the SSEN Pathway to 2030 projects, referenced on Page 1 'Who we are', that are geographical proximity to the Proposed Development

Significant Effects

Four other projects are considered as part of this assessment: the Tealing to Westfield 400 kV upgrade, Emmock (Tealing) substation, Kintore to Tealing 400 kV connection, and the Alyth—Tealing OHL substation tie ins and associated tower dismantling.

If all developments were constructed at once, a moderate adverse significant effect on traffic was identified, however mitigation through coordinated construction traffic management plans would manage these cumulative effects. No other cumulative effects were identified.

3. In combination cumulative assessment for other SSEN and 3rd party developments

The combined effect from the Proposed Development, associated SSEN developments and other reasonably foreseeable developments, in the surrounding area.

Significant Effects

Eight other projects are considered as part of this assessment, including energy storage facilities, energy generation projects and another proposed OHL uprating to the south of the Proposed Development.

As above, a significant effect with combined traffic was identified if all developments were constructed at once, however mitigation would manage this. No other cumulative effects were identified.

Summary of Effects

Where significant effects from the Proposed Development have been identified, either alone or in combination with other topics and/or developments, mitigation measures have been proposed with the aim of reducing the extent of the effects. As a result, no significant residual effects have been identified following the application of these measures.

Summary of Effects

A full schedule of mitigation measures is provided in Chapter 16 of the EIA Report (Volume 2). This will need to be implemented as part of any future consent and the contractor who builds the development will be required to comply with them. The list below provides a selection of some of the key measures in the schedule:

- A Construction Environmental Management Plan, which will detail how the contractor will manage the project in accordance with all commitments and mitigation detailed in this EIA Report, as well as statutory consents and authorisations, and industry best practice and guidance.
- SEPA will produces a series of Pollution Prevention Guidelines, which will be incorporated into the Construction Environmental Management Plan.
- Biodiversity Net Gain measures, as prescribed in the associated report to enhance habitat and woodland, are to be implemented.
- Construction work should be designed to avoid disruption to beavers, badgers, pine martens and red squirrels as identified through the ecological survey. Where this is not possible, a Species Protection Plan will be needed and a licence will be required from NatureScot.
- New temporary stone track to be narrowed as far as possible, minimising the extent of habitat loss within Auchterhouse Hill Site of Special Scientific Interest boundary, and microsited so as to avoid heathland habitat completely
- All works in or near watercourses would adhere to pollution control measures and the Water Environment (Controlled Activities) (Scotland) Regulations 2011 .
- Archaeological monitoring to be undertaken during construction and ground works in areas identified in cultural heritage assessment.
- Detailed Construction Traffic Management Plan to be approved by relevant roads authorities .
- Control movement of construction traffic to /from public roads in safe and efficient manner
- A robust Construction Noise Management Plan to ensure construction noise has a minor impact on all noise sensitive receptors.

What happens next and have your say

An application for consent under Section 37 of the Electricity Act 1989 has been submitted to the Scottish Government Energy Consents Unit to upgrade the Alyth to Tealing OHL to 400 kV. Deemed planning consent has also been applied for under the Town and Country Planning (Scotland) Act 1997, as amended, for supporting and associated works.

Feedback

Any representations in respect of the application may be submitted via:

email to The Scottish Government, Energy Consents Unit mailbox at representations@gov.scot or

post to The Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow G2 8LU, identifying the proposal and specifying the grounds of representation.

Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations. Only representations sent by email to representations@gov.scot will receive acknowledgement.

All representations should be received no later than the date falling 30 days from the date of the last published notice, although Ministers may consider representations received after this date. Any subsequent additional information which is submitted by the Applicant will be subject to further public notice in this manner, and representations to such information will be accepted as per this notice.

Further Information

The application, including the EIA Report, has been advertised in the following newspapers: Edinburgh Gazette, Perthshire Advertiser, and the Dundee Courier.

Notice of the Section 37 application, including this EIA Report and associated documents and figures, will be available for viewing at the following public locations during normal opening hours:

- Perth & Kinross Council, Pullar House, 35 Kinnoull Street, Perth, PH1 5GD (normal opening: hours Monday to Friday 8.45am to 5.00pm); and
- Angus House, Orchardbank Business Park, Orchardbank, Forfar, DD8 1AN (opening hours: Monday to Friday 8.00am to 5.00pm).

An electronic version is available online at: https://www.ssen-transmission.co.uk/projects/project-map/alyth---tealing-overhead-line-upgrade/, and the Energy Consents Unit website at www.energyconsents.scot/

This EIA Report is available in other formats if required. For details, including costs, contact:

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