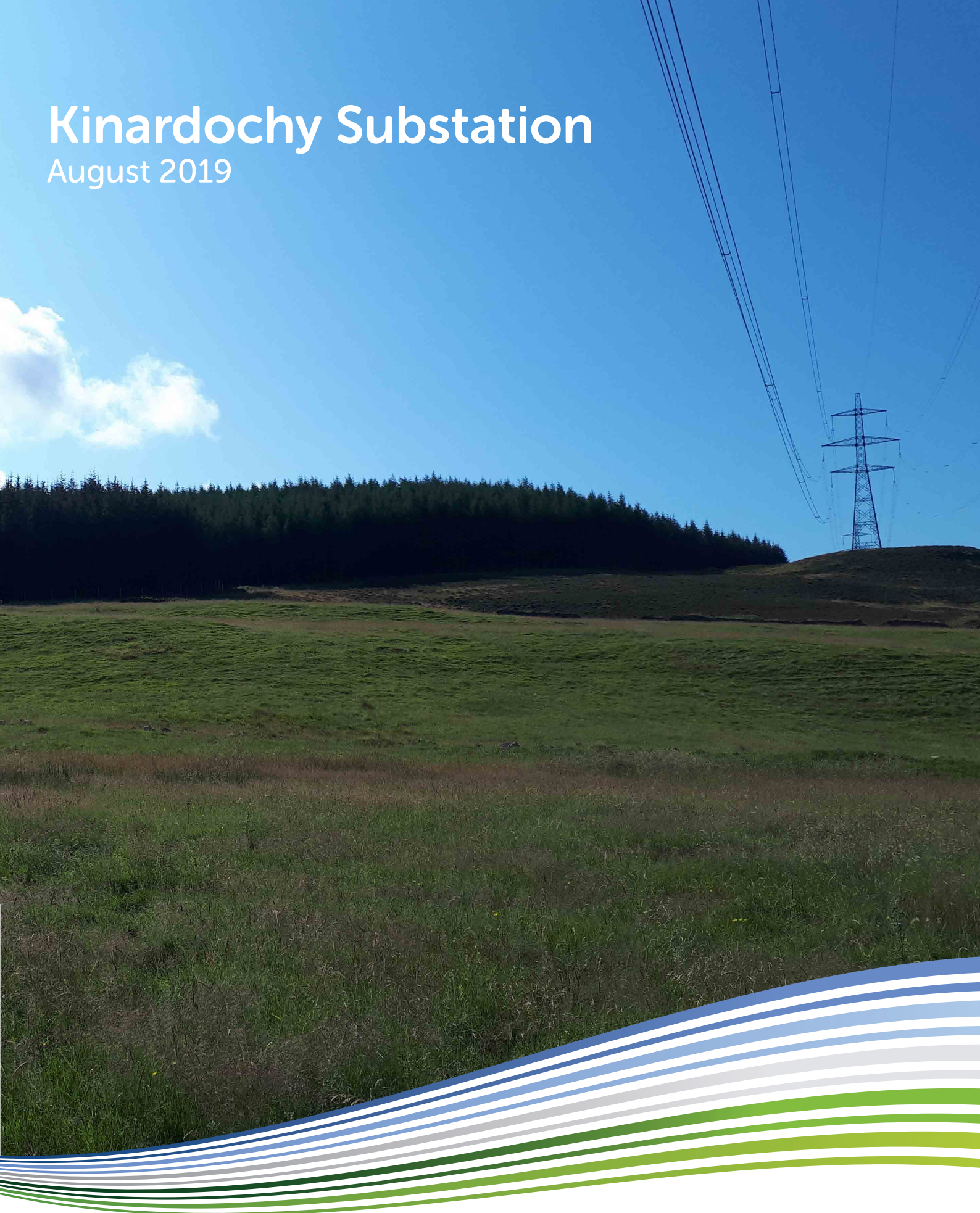


Kinardochy Substation

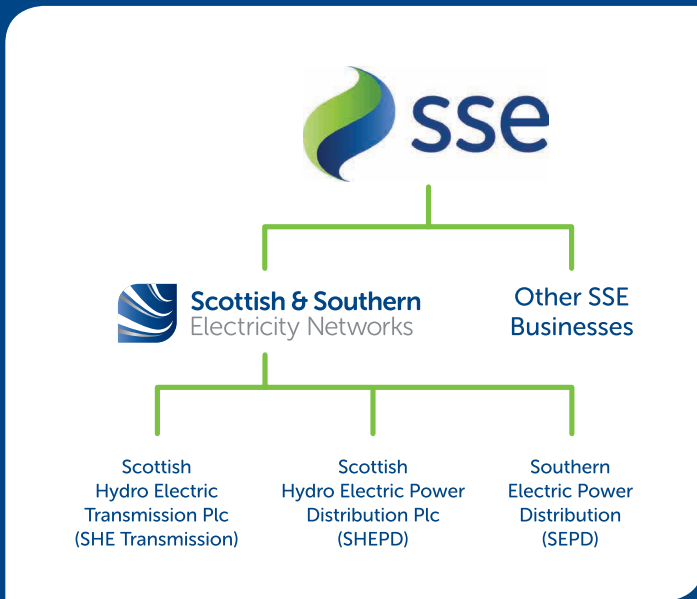
August 2019



Scottish & Southern
Electricity Networks

Who we are

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

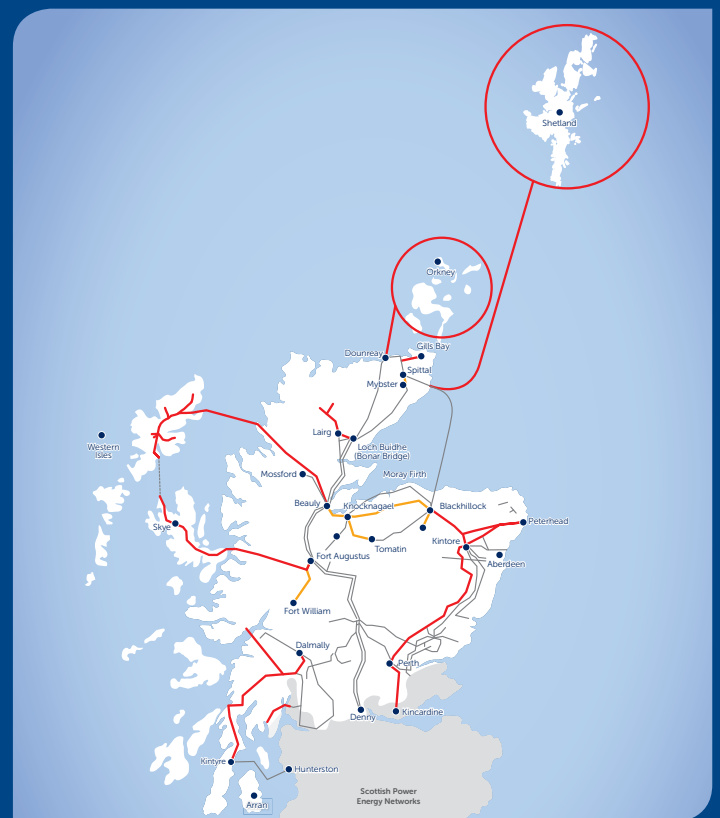


What is the difference between Transmission and Distribution?

Electricity Transmission is the transportation of electricity from generating plants to where it is required at centres of demand. The Electricity Transmission network, or grid, transports electricity at very high voltages through overhead lines, underground cables and subsea cables. Our transmission network connects large scale generation, primarily renewables, to central and southern Scotland and the rest of Great Britain. It also helps secure supply by providing reliable connection to the wider network of generation plants.

The Electricity Distribution network is connected into the Transmission network but the voltage is lowered by transformers at electricity substations, and the power is then distributed to homes and businesses through overhead lines or underground cables.

Overview of Transmission Projects



In total we maintain about 5,000km of overhead lines and underground cables – easily enough to stretch across the Atlantic from John O’Groats all the way to Boston in the USA.

Our network crosses some of the UK’s most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

The landscape and environment that contribute to the challenges we face also give the area a rich resource for renewable energy generation. There is a high demand to connect from new wind, hydro and marine generators which rely on Scottish and Southern Electricity Networks to provide a physical link between the new sources of power and electricity users. Scottish and Southern Electricity Networks is delivering a major programme of investment to ensure that the network is ready to meet the needs of our customers in the future.

Our responsibilities

We 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 need and overview

Project overview

The power flow on the Beauly – Denny overhead line (OHL) is expected to increase over the next 10 years as more generation connects on the wider system; namely generation towards the west coast, north of Beauly substation and in and around Caithness.

Connecting generation can cause changes to the voltage levels along affected circuits. These changes could mean the network, without intervention, would not meet the voltage requirements set out within the National Energy Transmission System Security and Quality of Supply Standard (NETS SQSS).

Our network and system studies have shown that currently contracted generation will cause such a change, within the Tummel Bridge area, and will require reactive power support to be installed to maintain voltage levels under a number of different system operating scenarios. Reactive power support helps the system by ensuring the voltage levels stay within the required limits and assists in the continuation of the quality and supply of electricity across the network.

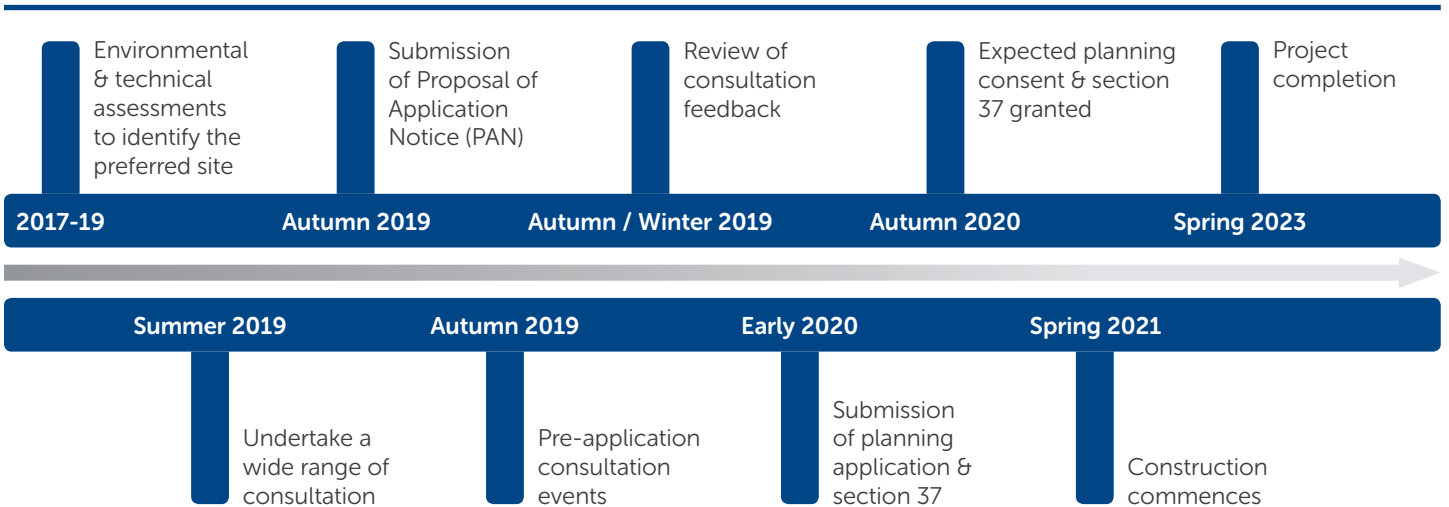
To ensure safe, efficient and coordinated operation of our network, it is proposed that a new reactive power substation is connected within the Tummel Bridge area.

Main elements

This transmission connection will be known as the Kinardochoy Substation. The works will comprise:

- Forestry felling for the substation compound.
- Temporary works including a construction compound, laydown and welfare area.
- Formation of a substation compound, access track and appropriate landscaping to allow for installation of:
 - Reactive power equipment.
 - A Mechanically Switched Capacitor with Dampening Network (MSCDN).
 - A double busbar arrangement.
- Other electrical infrastructure required to facilitate connection of the substation.
- Dismantling of one OHL tower and replacement with two similar towers to permit a turn in arrangement of the circuits.

Project timeline



Kinardochy substation site selection

We carried out an assessment on potential substation site locations against technical, environmental and cost considerations.

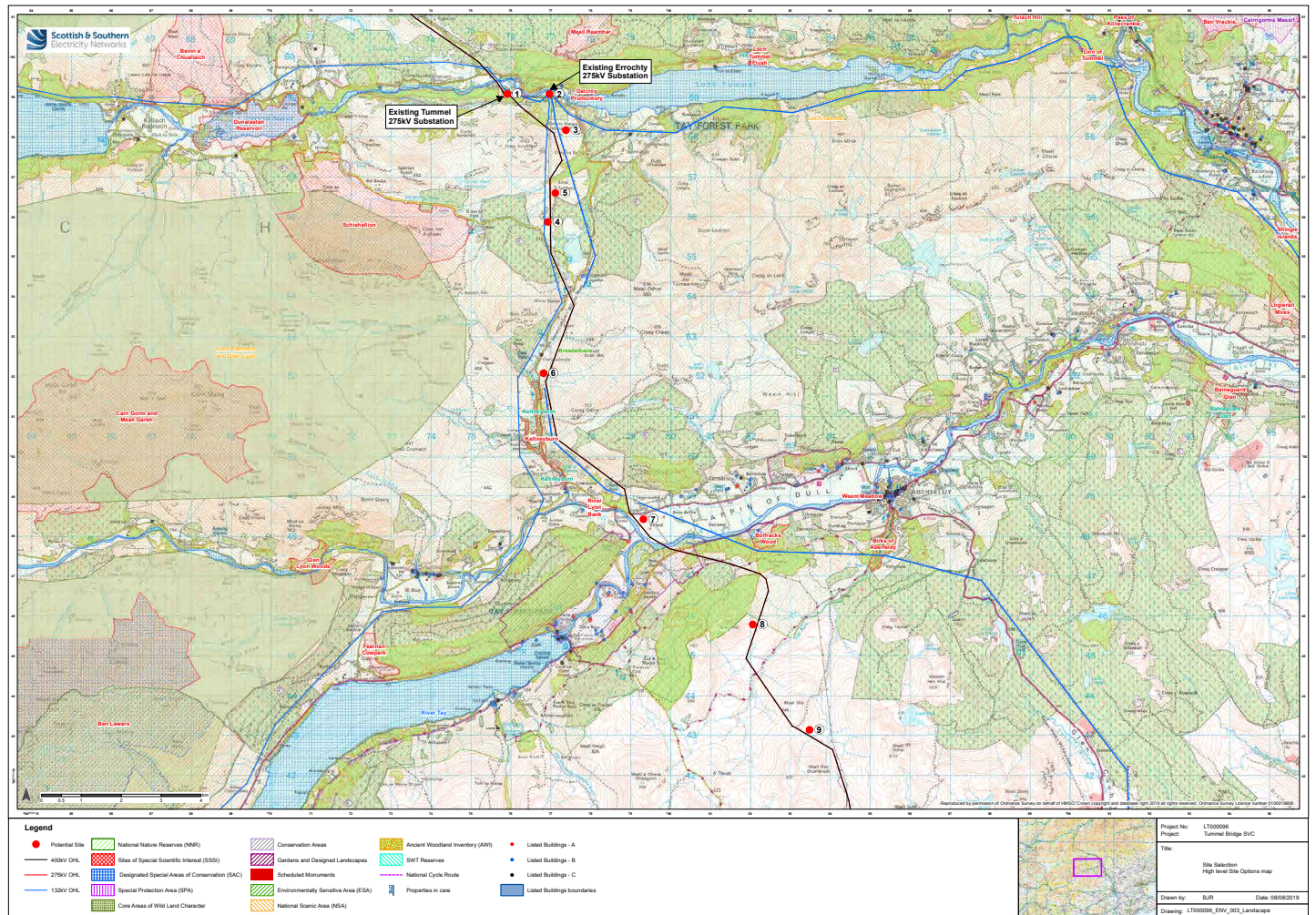
Nine potential substation site locations were initially identified based on proximity to the existing electricity infrastructure, access requirements, and potential environmental constraints. The same substation design and required size of site was used to allow a comparative assessment of the sites to be undertaken. The criteria used in the assessment included the following:

Environmental considerations

Geology and soils, hydrology, ornithology, protected species, habitats, cultural heritage, landscape character, visual amenity, land use, access and recreation, traffic and transport, and noise.

Technical considerations

Health and safety during construction and operation, construction timescales, maintenance requirements and potential for future development and connections.



Based on these criteria site 1 and site 4 were identified as the least constrained and taken forward for further detailed appraisal as part of the site selection process.

Kinardochoy substation site selection

Initial site assessment

Potential substation site 1: Is close to the existing operational substation, although some potential space restrictions were identified, it was considered that developing an existing site presented some opportunities. This site location was taken forward for further assessment.

Potential substation site 2: The area surrounding the existing Errochty Substation is very constrained by existing land features / infrastructure e.g. river Tummel, B846, nearby properties, and did not provide the space needed for the new substation. This site location was discounted from further assessment.

Potential substation site 3: The area surrounding site 3 has significant ecological value and peat land, is located a distance away from the Beauly – Denny OHL, meaning significant diversion of this OHL would be required. This site location was discounted from further assessment.

Potential substation site 4: The site is not confined in terms of space and is near to the existing OHL. This site location was taken forward for further assessment.

Potential substation site 5: Is in close proximity to Tombreck cottage and would require significant access upgrade works. This site was discounted from further assessment.

Potential substation site 6: The area is next to a campsite and recreational activities, which could have potential significant visual and noise impacts. This site was discounted from further assessment.

Potential substation site 7: This site is in a flood plain and could have potential significant visual impacts related to users of the main road (B846). This site was discounted from further assessment.

Potential substation site 8: Access requirements to this site would be significant and would be potentially inaccessible during the winter months due to the altitude. This site was discounted from further assessment.

Potential substation site 9: Access requirements for this site would be significant and would be potentially inaccessible during the winter months due to the altitude. This site was discounted from further assessment.

Detailed site selection

Site 1 and site 4 were taken forward for further assessment, including site walkovers and surveys, transport, ground conditions and environmental assessments and technical assessments related to connecting the new substation equipment to the existing electricity network. During this stage, site 1 and 4 were comparatively reviewed against the environmental, technical and operational considerations detailed above. An economic appraisal was also undertaken. Following this assessment work, and balancing all the considerations, site 4 was identified as the preferred site for the required new substation. The main points which determined the preferred site are as follows:

- Site 4 was favoured due to the relative size of the site when compared with site 1.
- Site 4 has reduced health and safety considerations during construction (site 1 is adjacent to an existing live substation and aqueduct).
- Site 4 will involve less work on the existing overhead line (OHL) resulting in the requirement for fewer additional towers to achieve connection.
- Site 4 is less constrained by existing development which would negate any future expansion requirements.
- Site 4 is marginally favoured as it is further away from the River Tay Designated Special Areas of Conservation (SAC), has fewer protected species opportunities, the required OHL works are further away from existing residential properties, and there is likely to be less felling requirement; and
- Site 4 is marginally more economic due to the reduced required works on the existing OHL.

Preferred site

The preferred substation site (site 4), located to the south of Tummel Bridge, near Loch Kinardochy, provides an appropriate location for installation for the reactive power substation. The site is near to the Beauly – Denny overhead line, permitting a turn in arrangement of the circuits into the site.

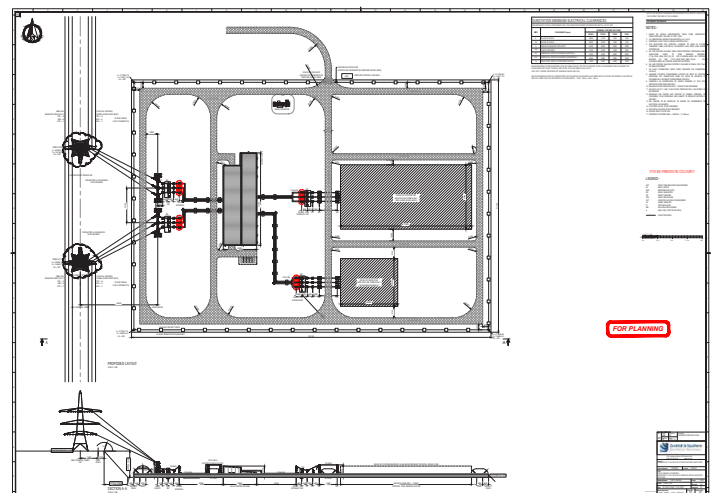
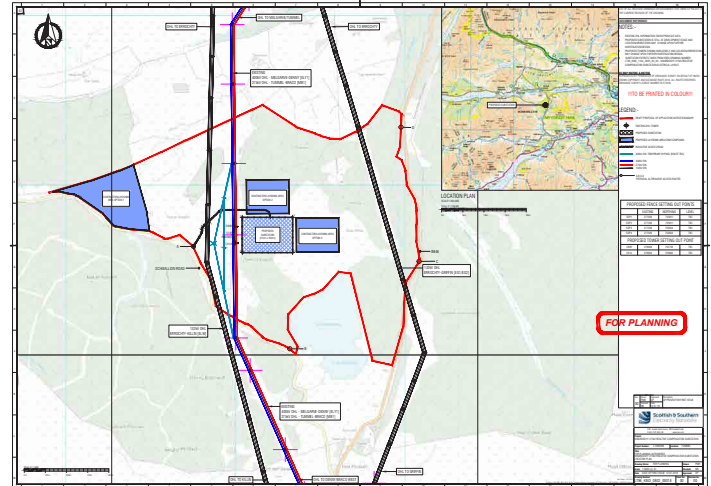
The platform area will include a control building and up to two other buildings to house electrical infrastructure. The location of the site has been identified as providing the least constrained in terms of engineering and environmental aspects.

A new access will need to be formed from the public road to access the site. At the moment a number of access points are being explored. This could include forming a new access off Schieallion Road. Other potential accesses could be provided from the B846 and will be concluded following further studies.

The platform area will be surrounded by a palisade fence for security purposes. Felling will be required to facilitate the development and studies to determine the extent of these works are currently underway.

Temporary compound/laydown area(s) will be required during construction. Three potential options are shown on the adjacent site location plan.

Overhead line alterations will be required in order to tie in to the proposed substation.



Substation dimensions

- The Substation platform dimensions are approximately 302 x 212m (plus any landscaping)
- Substation building heights vary between 5.5m and 16m

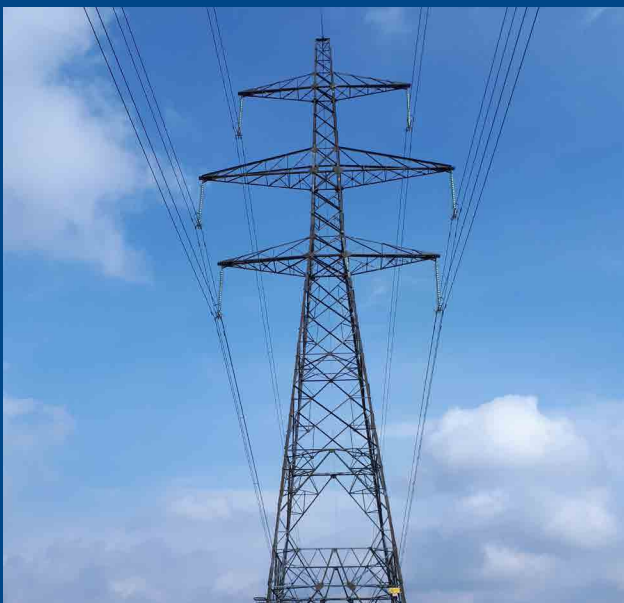
Environment

Desk-based studies and site walkovers have been undertaken to gather data and understand the key environmental constraints and opportunities within the local area. This process has helped to identify the key environmental issues for this project to be landscape and visual amenity, habitats / hydrology and forestry. Other environmental aspects including cultural heritage, protected species, natural heritage and biodiversity will be further considered during the detailed environmental assessment.

Following confirmation of the proposed site location, further detailed studies and assessment work will be undertaken to ensure all required mitigations are fully understood and implemented during the detailed design and construction phases. Further consultation will be undertaken as part of the planning process, and appropriate supporting documentation, to include an environmental assessment report will be submitted as part of the planning consent applications.

Landscape and visual amenity

The site lies on the transitional edge of the Highland Summits and Plateaux and Lower Highland Glens with Lochs Landscape Character Type (LCTs). The site is located within a coniferous plantation which encloses, and contrasts with, the more open reflective surface of Loch Kinardochoy, which is a key focal point in the landscape situated to the south east of the site and popular for trout fishing and wildlife watching. Potential views across Loch Kinardochoy, although within a short section, towards the site are available from the B846 (General Wade's Military Road) Distant elevated views of the site are likely from some elevated locations within Loch Rannoch National Scenic Area (NSA), including Schiehallion/Breadalbane-Schiehallion Wild Land Area (WLA). A full landscape and visual amenity assessment will be undertaken and appropriate mitigation, including micro-siting and landscaping will be developed.



Habitats / Hydrology

There are no sites designated for habitat conservation located in proximity to site 4, and the site contains no Annex 1 habitats under the habitats directive. Site 4 is dominated by sitka spruce plantation with a large area of unmanaged heather dominated dry heath along its western edge. The site can be waterlogged, with small pools of standing water. There are some areas of deeper peat and careful micro-siting will be undertaken to avoid these areas where possible.

Forestry

The site is located within an area mostly covered by coniferous woodland plantation, with a small part of it within a glade. Land use within 5 km of the site is primarily rural, with large plantation areas located at the east and west. Historical land use on the site has been the same as at present, as shown on the earliest historical maps. Felling will be required to facilitate the development.



Notes

What happens now and how do I have my say?

We understand and recognise the value of the feedback provided by members of the public during all engagements and consultations. Without this valuable feedback, the project development team would be unable to progress projects and reach a balanced proposal.

We are keen to receive your views and comments in regards to the following questions:

- Has the requirement for the project been clearly explained?
- Have we explained the approach taken to select the proposed site adequately?
- Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?

Comments

Your views and comments can be provided to the project team by completing a feedback form or by writing to Louise Anderson, Community Liaison Manager. We will be seeking feedback from members of the public and Statutory Bodies until the **13th September 2019**.

All received feedback will be assessed and the proposed options adapted where necessary.

Community Liaison Manager Louise Anderson



louise.anderson@sse.com



07384 454 233



Louise Anderson
Scottish and Southern
Electricity Networks,
200 Dunkeld Road, Perth,
PH1 3AQ



Additional information

Information will also be made available via the project webpage and social media channels:

Project Website: www.ssen-transmission.co.uk/projects/kinardochoy-substation

Follow us on Twitter:
[@asscommunity](https://twitter.com/asscommunity)

Follow us on Facebook:
[@asscommunity](https://www.facebook.com/asscommunity)



Your Feedback

Thank you for taking the time to attend this consultation event. In order to record your views and improve the effectiveness of our consultation, please complete this short feedback form.

Please complete in **BLOCK CAPITALS**. (Please tick one box per question only)

Q1 Has the requirement for the project been clearly explained?

Yes No Unsure

Q2 Have we explained the approach taken to select the proposed site adequately?

Yes No Unsure

Q3 Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?



Please use space below to provide further comments:

Full name

Address

Telephone

Email

If you would like to be kept informed of progress on the project please tick this box.

If you would like your comments to remain anonymous please tick this box.

Thank you for taking the time to complete this feedback form.

Please hand your completed form in at the event or alternatively by one of the methods below:

Post: Scottish and Southern Electricity Networks, 200 Dunkeld Road, Perth, PH1 3AQ

Email: louise.anderson@sse.com

Online: www.ssen-transmission.co.uk/projects/kinardochoy-substation

Download: Comments forms and all the information from today's event will also be available to download from the project website.

Closing date for feedback is 16:00, Friday 13th September 2019.

The feedback form and all information provided at the event can also be downloaded from the dedicated website:

Any information given on the feedback form can be used and published anonymously as part of Scottish and Southern Electricity Networks consultation report. By completing this feedback form you consent to Scottish and Southern Electricity Networks using feedback for this purpose.

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