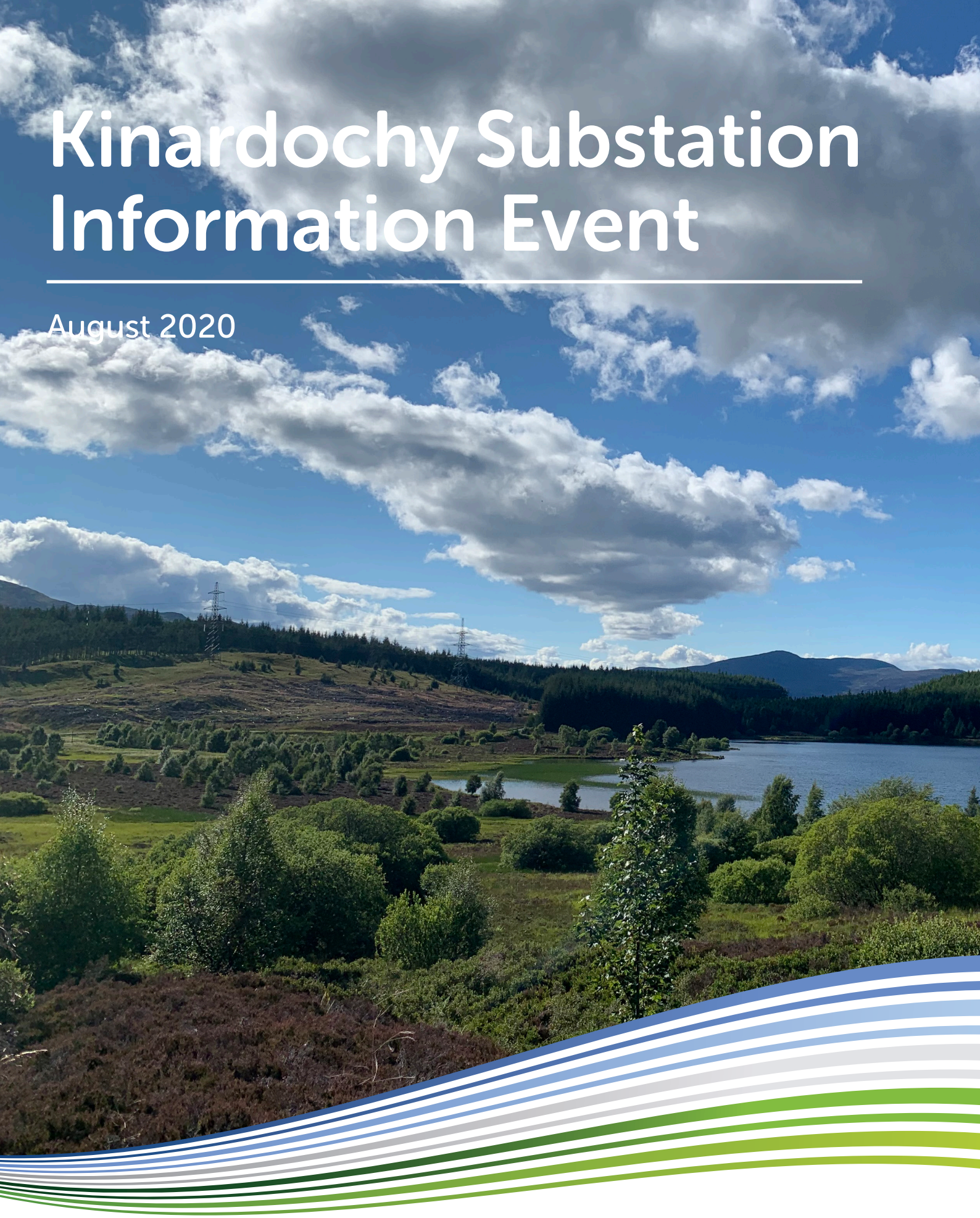
Kinardochy Substation Information Event

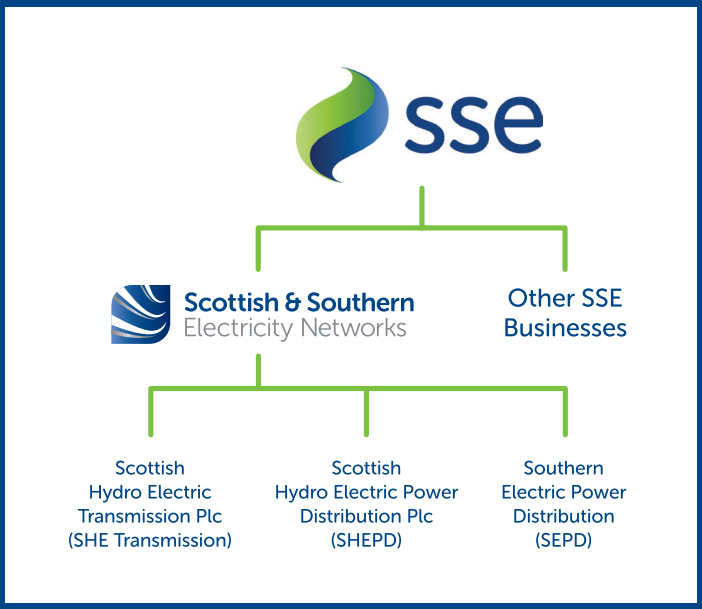
August 2020



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.



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.

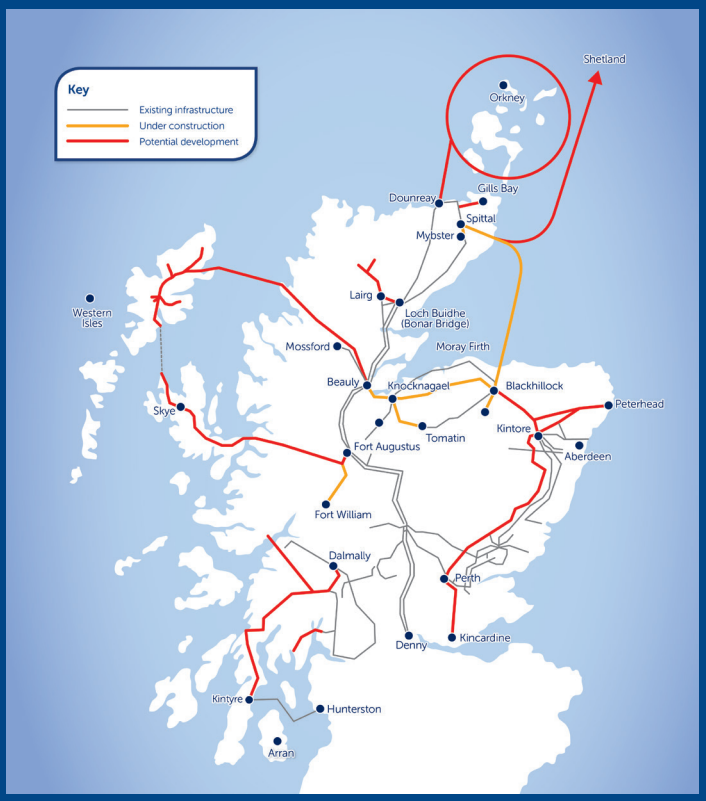
Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

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 plans.

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



Project need and proposed development

Project need

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 the safe, efficient and coordinated operation of our network, it is proposed that a new reactive power substation is connected at the proposed Kinardochy substation site.

Proposed Development

Kinardochy substation

The substation will connect into the existing Fort Augustus to Denny overhead line 275kV circuit. The circuits shall be 'turned in' to a new 275kV reactive compensation substation, which shall be built to a 400kV standard. The substation shall comprise of both Gas Insulated Switchgear (GIS) and Air Insulated Switchgear (AIS), the key components comprise:

- GIS double busbar, Switchgear hall and control building
- Reactive power support equipment including:
  - 100MVAr Mechanically Switched Capacitor with Dampening Network (MSCDN)
  - -+/-225MVAr Static Compensator (STATCOM) Interconnecting gas-insulated and air-insulated bars
- Associated electrical infrastructure
- Permanent access track off the B846.

A level platform shall be created to accommodate the electrical plant, structures, internal access and drainage to support operational requirements. As a result, it is anticipated that the construction of the platform will require considerable earthworks to achieve a cut and fill balance of material.

The main buildings within the compound will house the gas insulated switchgear, control building and internal control equipment of the STATCOM. The buildings are proposed to be steel portal frame with external cladding and will be of a maximum height of 16m.

The works will require forestry clearance necessary for the contractor's compound and welfare area, substation platform and permanent access track.

Overhead line tie in

The proposed substation is located adjacent to the existing Fort-Augustus to Denny overhead line, which carries both 275kV and 400kV circuits.

The proposed solution provides a 'turn in' arrangement of the existing 275kV Fort Augustus to Denny circuit.

To facilitate the turn in arrangement, the project will require the dismantling of one existing suspension tower and erection of two terminal towers of a similar scale.

The circuits will be turned in via downleads to two termination gantries, which are of a steel lattice construction.

The overhead line works, including diversions shall be applied for under Section 37 of the Electricity Act (1989).

Proposed Kinardochy substation

The proposed substation site, located to the north of Loch Kinardochy, was chosen following a detailed site selection process, which considered environmental, technical and cost aspects of the development, in line with SHE Transmission's internal site selection guidance.

The potential substation site options were presented to the public at an event on 29th August 2019. The public were invited to comment on our site selection exercise and our preferred site. Further information was then presented at a public event held on 21st November 2019 based on the design information available at that time. This event was attended by around 35 people and provided an opportunity for the public to ask questions and give feedback on the proposed development.

Following the public event in November 2019, the substation design has continued to progress and evolve. This has included:

- The substation platform has been refined to take account of localised areas of blanket bog. For example, the equipment and plant in the south east corner of the platform has been rearranged and we have also taken this into account with the positioning and extent of the temporary construction compound, which we have also refined to a single location.
- Previously we showed three options for the access track into the substation. Since our last consultation further work has been undertaken to assess the suitability of the routes and our preferred route has been selected (as shown in Figure 1). This has included a review of a number of factors including, substation site arrangement, local topography, extent of water crossings and crossing points under the high voltage overhead line to the east of the substation site. A key consideration however has been ensuring we can provide safe access and egress from the junction with the B846 in compliance with the design manual for roads and bridges. Although this has been refined to one access point, work is still ongoing to clarify the exact location where we will take access off the B846 and shall do so in consultation with Perth and Kinross Council.

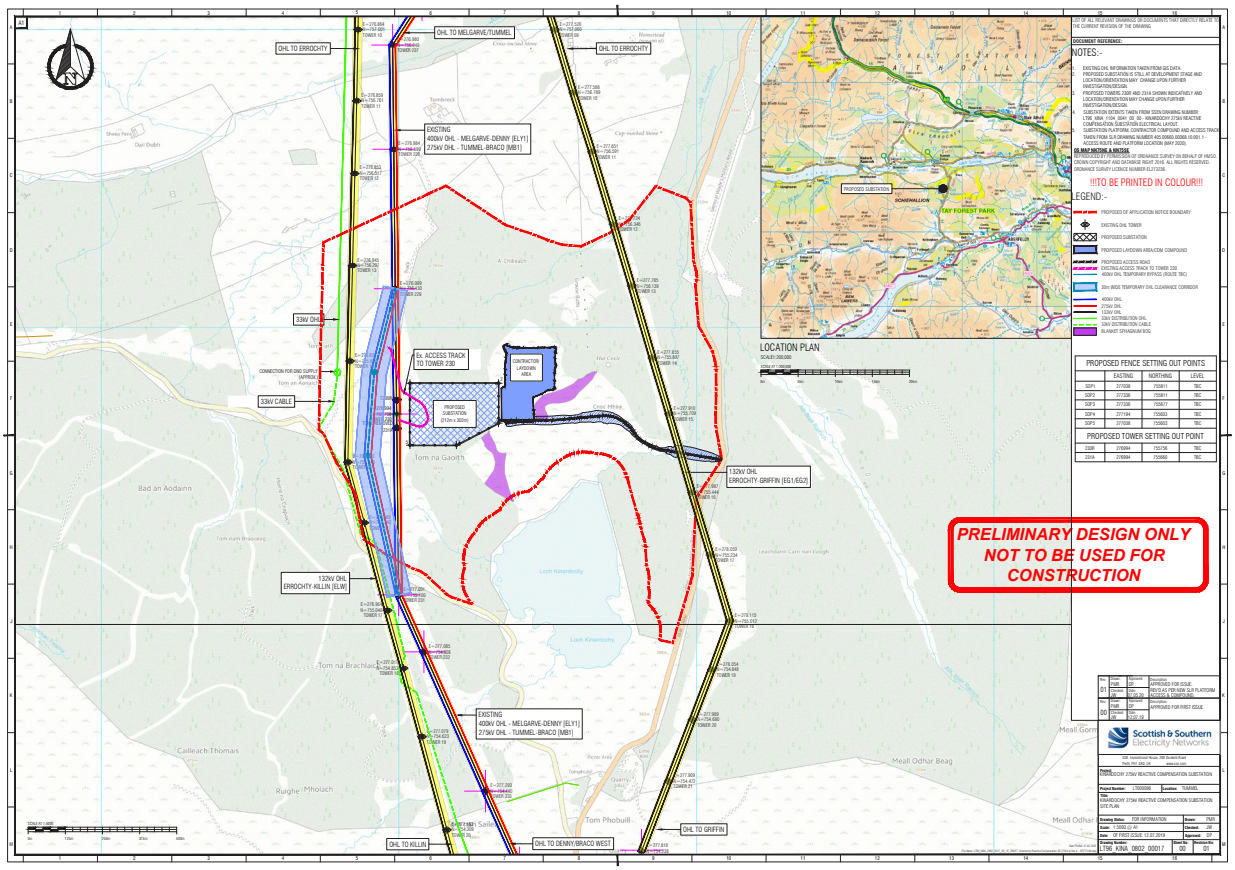


Figure 1

Proposed Kinardochy layout

- Landscaping proposals have been pulled together, outlining the conceptual approach to managing the visual impact and biodiversity at the site.
- Following the above refinements, small internal changes have been made, for example the rationalisation of internal access roads, clearance areas around plant and the configuration of overhead line gantries. There has been no change to any proposed plant or equipment. Our most recent layout and proposed elevations are provided in Figure 2.
- We submitted a request for an Environmental Impact Assessment (EIA) screening opinion to Perth and Kinross Council in November 2019 to determine whether an EIA Report would be required to support our planning application. In December 2019 Perth and Kinross Council determined that an EIA Report will be required to support our application. We are in the process of agreeing the scope of this EIA with the council.

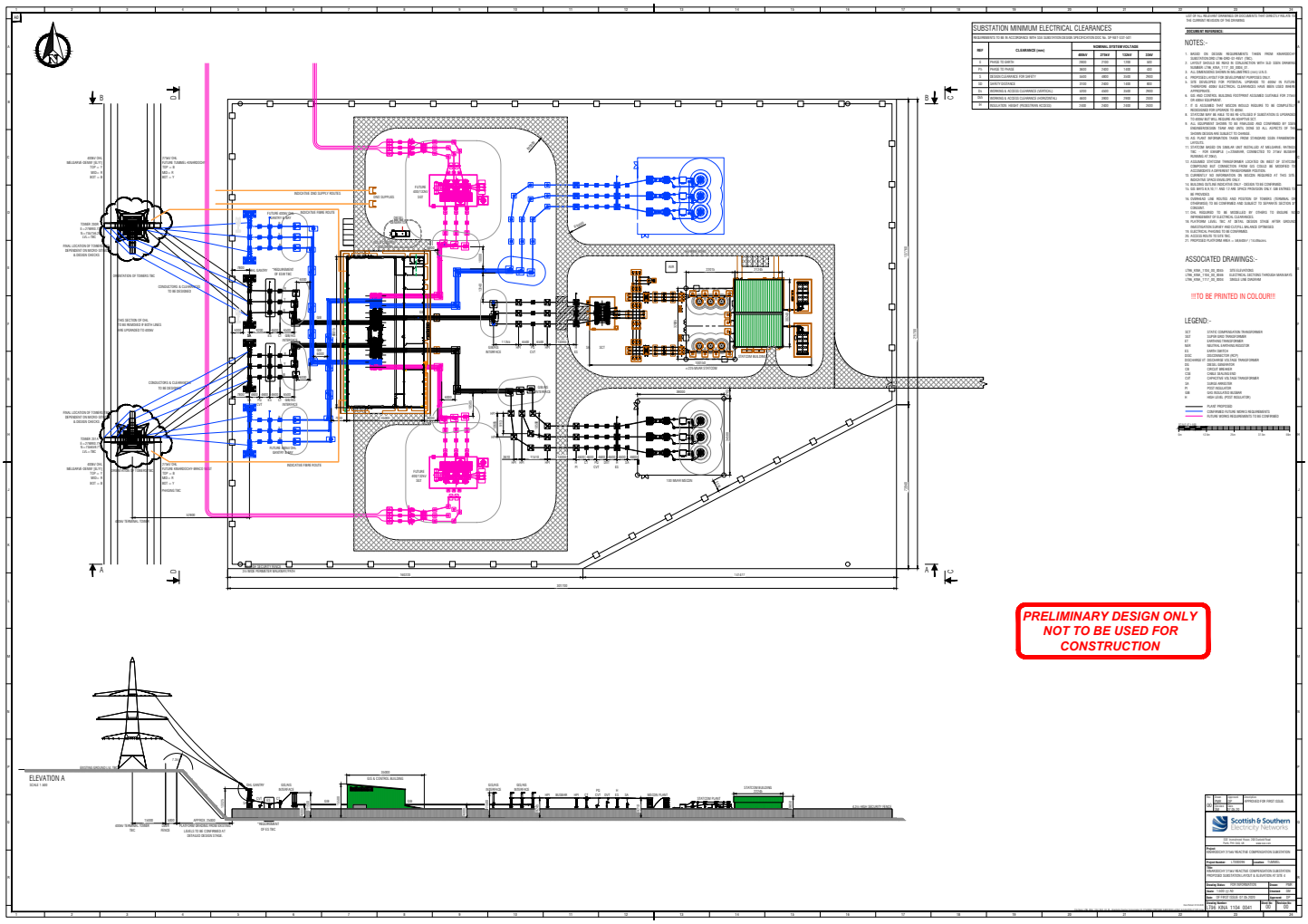
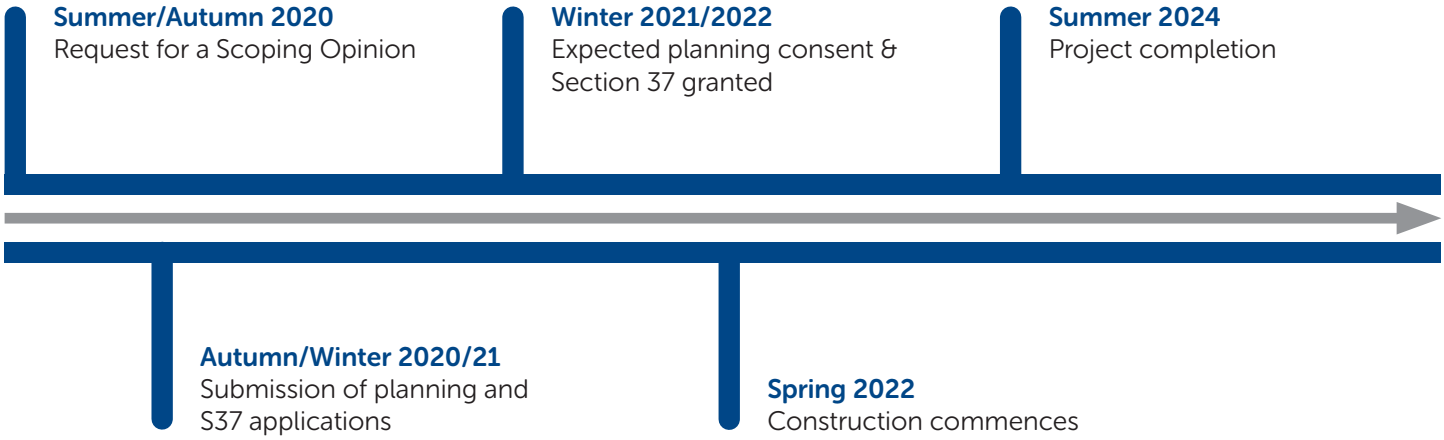


Figure 2

Planning applications and overview

Project timeline



Substation planning application

A planning application will be submitted to Perth and Kinross Council which will cover the main substation works comprising the platform area, control building, associated plant and infrastructure, ancillary facilities, access track(s), laydown area and landscape works. We are aiming to submit the planning application in Autumn/Winter 2020/21. The planning application will be accompanied by an Environmental Impact Assessment (EIA). The scope of the EIA will be agreed in advance with Perth and Kinross Council.

Overhead line planning application

In addition to the proposed substation there are changes required to the existing overhead lines and towers in order for them to tie into the proposed substation. These changes will be dealt with via a separate application under Section 37 of the Electricity Act 1989. This application will be submitted to the Scottish Government's Energy Consent Unit in Autumn/Winter 2020/21.

Public road improvements

Separate Town and Country Planning application(s) will be submitted to Perth and Kinross Council which will cover road improvements which will be required to facilitate abnormal load movements (i.e. transformer delivery) to the site.

Key considerations

Transport, infrastructure and construction methods

Construction of the substation will require plant and machinery, along with vehicles to transport materials and workers to the site. We anticipate that normal construction traffic will utilise the existing road infrastructure.

However, we are undertaking investigations to confirm if improvements are required. A construction traffic management plan shall be produced to outline manage vehicle movements associated with the development.

The largest plant item to be delivered to the substation will be a Static Compensator (STATCOM) transformer. We are undertaking investigations along various routes to identify the most feasible Abnormal Indivisible Load (AIL) route.

Earthworks

Building the substation platform will require significant volumes of graded stone. Our intention is to retain as much material on site as possible.

This would mean there would be a mass balance of material on site to minimise vehicle movements in the local area, however local sources of stone will be required as part of our development works for the platform design.

The volume of stone required and vehicle movement numbers will be established during the detailed design stage.

Landscape and visual amenity

A Landscape and Visual Impact Appraisal (LVIA) is currently being undertaken, which helps inform the final substation design and ensures appropriate landscape mitigation is incorporated. Mitigation will include using the existing landform features and the creation of sympathetic hard and soft landscaping.

Since the last public event an initial landscape concept plan has been produced. A detailed landscape plan will be submitted as part of the planning application, our preliminary landscape plan is on the following page.

The appearance of the substation within the landscape has been considered at the site selection stage, and includes how it would be seen from nearby homes, roads, and within the wider landscape. Input from this assessment has been used to develop an appropriate and specific landscape plan.

The substation would increase the extent of electrical infrastructure within the landscape, however it is not considered to affect any designated landscape or wild land areas and any views from the surrounding summits will be at long range.

The proposed site also offers opportunities to use the natural landform features (topography and woodlands) and any views into the proposed development from the nearest residential and amenity areas will be further minimised by appropriate use of landscaping, which may include tree planting and sympathetically designed earth bunds.

The substation design is currently under development and the photomontage illustrated below is based on an earlier version of the design. We do not anticipate the final design will vary significantly from this representation.

Indicative Planting Lists

Scrub Mix

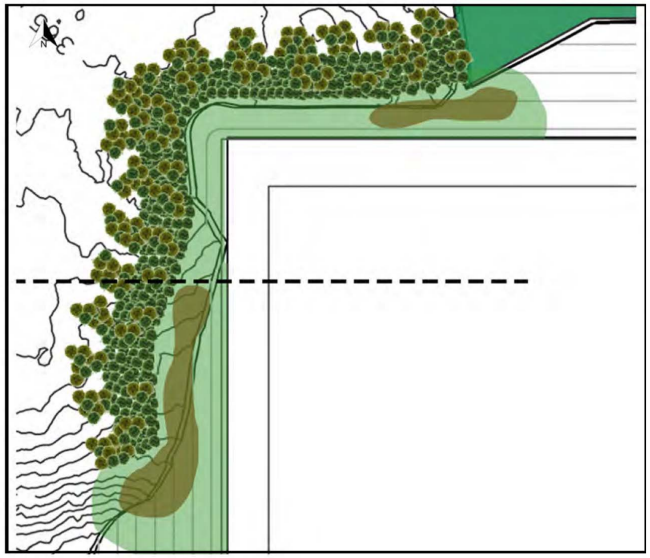
Hawthorn *crataegus monogyna*
Blackthorn *Prunus spinosa*
Dog rose *Rosa canina*
Bramble *Rubus fruitcosus*
Broom *Cytisus scoparius*
Buckthorn *Rhamnus catharticus*
Dogwood *Cornus sanguinea*
Gorse *Ulex europaeus*

Grassland Mix

Common Bent Trey *Agrostis capillaris*
Meadow Foxtail *Alopecurus pratensis*
Sweet Vernal *Anthoxanthum odoratum*
Crested Dogstail *Cynosurus cristatus*
Chewings Fescue *Festuca rubra*
Heather *Calluna vulgaris*
Cotton Grass *Eriophorum angustifolium*

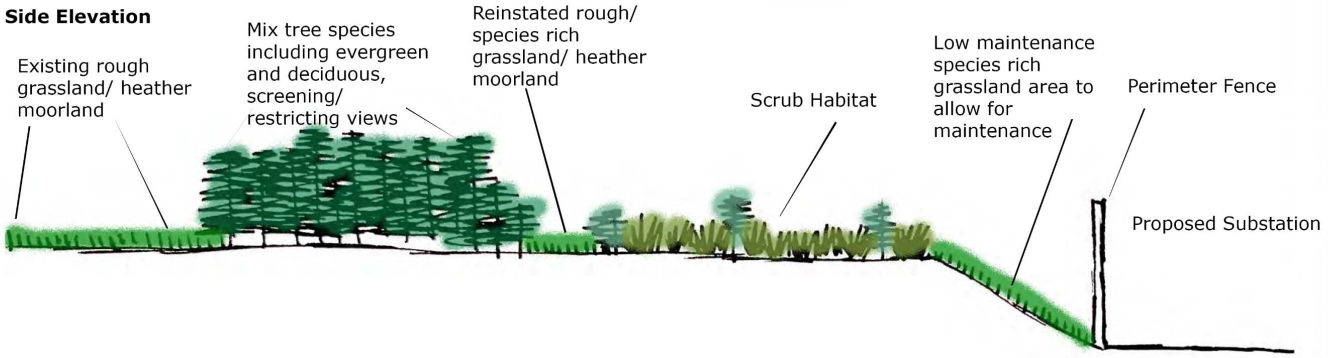
Mixed Woodland

Scots Pine *Pinus sylvestris*
Douglas Fir *Pseudotsuga menziesii*
Common Alder *Alnus glutinosa*
Birch *Betual pendula*
Field Maple *Acer campestre*
Alder *Alnus glutinosa*
Willow *Salix alba*
Rowan *Sorbus aucuparia*
Juniper *Juniperus communis*



Landscape Concept Sketch

Side Elevation



Key:

- Existing Coniferous Forestry
- Moorland Grass
- Proposed scrub habitat
- Proposed mixed woodland species
- Section Line

Figure Title:
Kinardochy Preliminary Landscape Plan

Project Name:
Kinardochy Substation

Project Number: 1700003966	Figure No: 1B
Date: April 2020	Prepared By: KL
Scale: NTS	Issue: A

Client: Scottish & Southern Electricity Networks

RAMBOLL

Environment

Forestry

The site is located within an area of coniferous woodland plantation and felling some of the woodland will be required to facilitate the development. A woodland assessment will be completed as part of the detailed environmental impact assessment.

Where the permanent removal of trees is required we are obliged to replace them with an equivalent area of tree planting. At present we are exploring opportunities to deliver replacement planting either on site as part of the landscape plan or by working in partnership with other organisations within the local area to deliver our obligations.

The long term management of woodland within our land ownership will be managed by way of a woodland management plan.

Noise

Construction noise is considered to be short term and intermittent and can be controlled through the implementation of a noise management plan, which would include working hours agreed with Perth and Kinross Council.

Noise monitoring surveys have been undertaken at noise sensitive receptors within the vicinity of the proposed development to establish a pre-development baseline. This information was used to produce a noise propagation model to ascertain if there would be any likelihood of concerns with operational noise at noise sensitive receptors as a result of this development.

Even when using a worst-case scenario the model showed that operational noise will not be a concern and confirmed that no operational noise mitigation measures will be required.

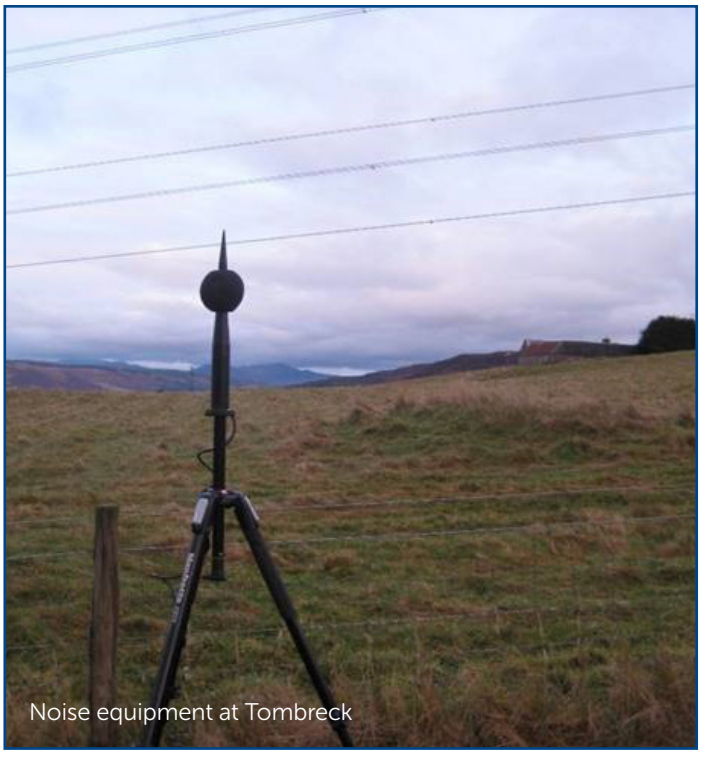
Habitats/Hydrology

There are no sites designated for habitat conservation located either on or close to the site. Loch Kinardochy is located south of the site boundary, and a number of watercourses are noted nearby.

Sensitive peatland and blanket bog habitats have been identified on site. Through a collaborative approach between the environmental and engineering teams the substation has been redesigned to avoid or minimise the potential effects on these habitats where possible.

An appropriate site drainage plan for both the construction and operational phases is being developed to ensure no adverse impacts on the surrounding water environment.

A Construction Site License will be required from the Scottish Environment Protection Agency (SEPA), which includes the requirement to submit a detailed Pollution Prevention Plan (PPP) prior to commencement of construction. The PPP will demonstrate how our contractors will prevent pollution of the water environment during construction.



Noise equipment at Tombreck

How do I have my say?

Your views and comments on the information provided in this booklet can be provided to the project team by contacting Louise Anderson, Community Liaison Manager

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

Additional information

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

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

Follow us on Twitter:
@ssencommunity

Follow us on Facebook:
@ssencommunity

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

Thank you for taking the time to read this information booklet.

Please send any comments by one of the methods below:

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

Email: louise.anderson@sse.com

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

Download: All the information from the booklet will also be available to download from the project website:

www.ssen-transmission.co.uk/projects/kinardochy-substation