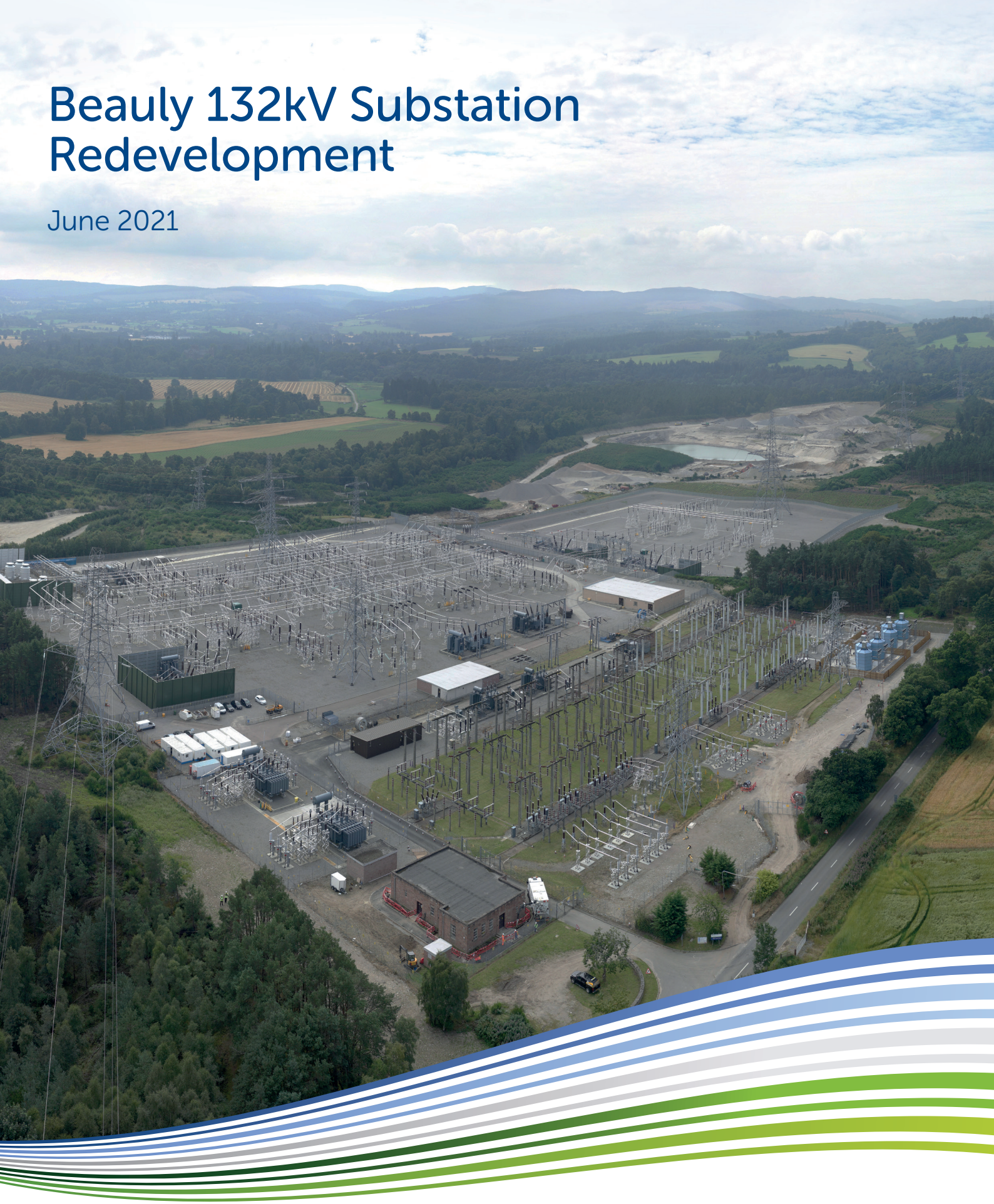
Beauly 132kV Substation Redevelopment

June 2021

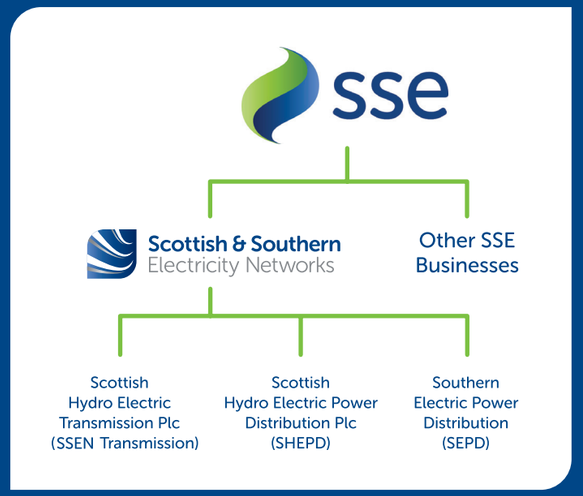


Scottish & Southern Electricity Networks

TRANSMISSION

Who we are

We are Scottish and Southern Electricity Networks, operating under licence as Scottish Hydro Electric Transmission plc (SSEN 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.

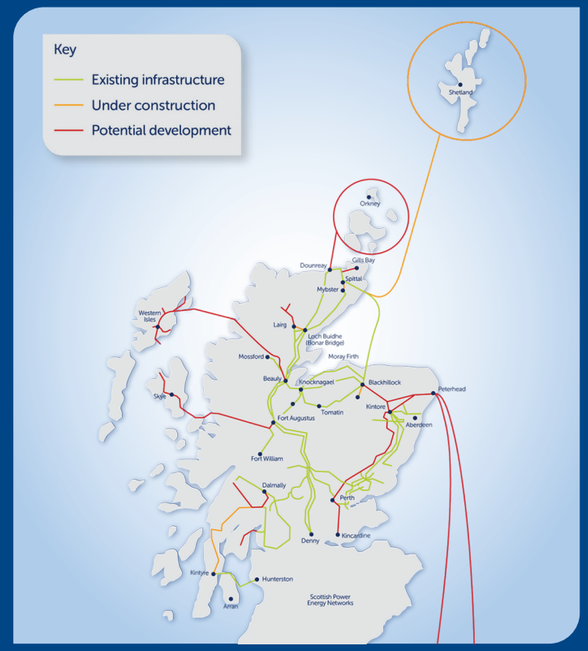
Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

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



The planning process during COVID

As the transmission network operator in the north of Scotland, SSEN Transmission play a vital role in powering the country, providing a safe and reliable supply of electricity at local, regional and national level on which the people and organisations whose work is critical to the Coronavirus response depend.

This second virtual exhibition is being held as part of the statutory Pre-Application Consultation (PAC) requirements for a major planning application due to be submitted in late Summer/ early Autumn 2021. The process requires a 12-week period for consultation and comment on the proposed development, the Proposal of Application Notice (PAN) which commences that period was submitted on 24th February 2021. We are holding this second consultation event within an extended PAN period, lengthened in order to progress the design solution and provide clarity on associated works. This event seeks to provide feedback on key issues raised during the first consultation event held March 2021 and to give detail on the design development for the project.

The approach to consultation for the PAC process usually involves at least one face to face public event. Due to the ongoing COVID pandemic the Government issued Statutory Instrument 2020 No. 124 The Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 on 24th April 2020. The regulations formalised the removal of face to face events and requires the replacement of consultation with the community and interested parties by alternative means.

The standard and accepted approach since that time has been to hold virtual events which are interactive and enable visitors to ask questions and engage with the project team via a live text chat function.

SSEN Transmission have developed a consultation platform to reflect the guidance provided by the Regulation together with advice issued by Scotland's Chief Planner. We are committed to continuing quality engagement with all stakeholders as we all respond to these challenges and you have our commitment that we will keep our customers, communities and stakeholders up to date.

Upon completion of the Pre-Application Notices' statutory minimum consultation period (usually 12 weeks extended in this case to enable a delayed second event due to design evolution), a formal planning application can be submitted to the Council. It is our intention to submit an application for full planning permission in late Summer/early Autumn 2021.

At that point interested parties can can make comments directly to the Council. Prior to this, comments can be submitted to the project team either via the feedback form or via email to the Community Liaison Manager.

Project overview

There has been a sustained increase in generation in the Beauly area which is pushing the 132kV substation beyond its existing capacity. The condition of the existing substation is a concern with various elements showing signs of deterioration which requires remedial works to be done.

Following the completion of a technical options assessment exercise, it is recommended that the existing Air Insulated Switchgear (AIS) busbar (outdoor substation) arrangement is replaced with a new Gas Insulated Switchgear (GIS) double busbar (indoor substation).

This will be located within a new building to be constructed adjacent to the existing site area.

The high quantity of circuits at Beauly is a particular driver for a Gas-insulated Substation at Beauly 132kV, as the area of land required for an AIS solution is considered impractical due to the land constraints and development limitations in the area.

Furthermore, as SF6-alternative products are now available for 132kV equipment, the risk of leakage (greenhouse gas emissions) associated with traditional GIS solutions is significantly reduced. This also benefits our aims of minimising our overall carbon footprint of network assets.

As part of these works, the entire existing area of 132kV outdoor switchgear towards the north of the site will be decommissioned and removed. Within the existing substation boundary, this will include equipment associated with two cable circuits and one overhead line circuit, which will instead be rerouted via cables into the new switchgear building.

Three transformers that have been on the site for many years will be removed and replaced with brand new transformers, housed in bespoke noise enclosures. We are also proposing to decommission four spans of overhead line that currently run into the substation from the north. These will be replaced by one shorter span to new terminations, which will then run via underground cable into the substation.

Additionally, the proposed reinforcement works are being driven by the Loch Luichart Extension II wind farm, which signed their connection offer in February 2019. The current offer states that this connection is to be provided by October 2024.

Existing AIS equipment required to be replaced

Project details

Delivery of this project will involve the following elements:

- Decommissioning parts of the existing 132kV substation.
- Construction of a new 132kV GIS substation building.
- Decommissioning of three existing transformers within the existing 132kV substation.
- Their replacement with three new transformers, all installed with noise enclosures.

Outwith the planning application and to accommodate these works, a section of one of the existing overhead lines will be replaced by underground cable to the new GIS equipment.

Some of the existing towers (pylons adjacent to the substation) will be removed and replaced by new terminations, which transitions an overhead line into cable.

Construction timeline

November 2020
Initial consultation period starts

Late Summer/early Autumn 2021
Planning submission

Spring/Summer 2022
Contractor award

Late 2022
Construction starts on site

Late 2025
Construction finishes

Beauly Substation - Before

Beauly Substation - After

What else is happening at Beauly Substation?

There are currently several projects at Beauly over and above the Beauly 132kV Redevelopment discussed in this booklet both current and expected in the future.

Noise Mitigation

The physical noise mitigation works are complete, with the aim of reducing the noise of a piece of apparatus within the substation, by means of the installation of acoustic barriers and reactor jackets. Noise monitoring to assess the results of these physical works are being undertaken, while software modifications are progressing.

Beauly Security Fence upgrade

The "Centre for the Protection of National Infrastructure" (CPNI) has deemed Beauly to be a critical part of the transmission network and as such the existing perimeter fence is to be upgraded to meet security requirements.

Western Isles Converter Station

Progression of the Western Isles HVDC link remains subject to Ofgem (the GB energy regulator) approval and developer commitment, with an outcome not expected until early 2022. Whilst the project relates to the Western Isles, the works involve the installation of a HVDC converter station in the Beauly area.

A site selection review is currently underway, which may result in the identification of a suitable, alternative site. The outcome of this review is expected later this year.

Further details can be found at the project website:

www.ssen-transmission.co.uk/projects/western-isles

NOA projects

Two projects at Beauly have been given a proceed recommendation by National Grid Electricity System Operators Network Options Assessment (NOA) report.

Beauly to Blackhillock
Construction of a new 400kV double circuit overhead line between Beauly and Blackhillock substations by 2030.

Beauly to Loch Buidhe 275kV Reinforcement
Replaces the existing Beauly – Shin – Loch Buidhe 132kV double circuit OHL with a 275kV double circuit OHL.

As these projects develop, SSEN Transmission will continue to engage with the local community to ensure they are well informed and provided the opportunity to share their views.

The Proposed GIS Building - Colour Options

GIS Building Location and Colour

Four potential locations were considered for the new 132kV GIS building, all close to the existing Wester Balblair Substation, to limit the length of cable connections and associated environmental impacts and costs.

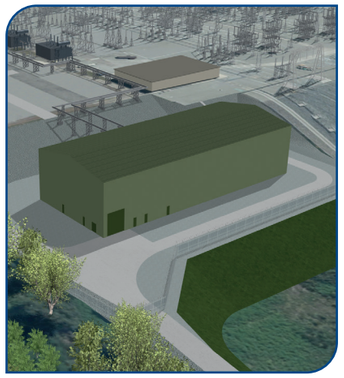
Each option was considered in detail in terms of environmental, technical, cost criteria and network security. The optimum location for the new development is to the immediate West of the existing 132kV substation at Wester Balblair.

These options were presented to stakeholders and the public in October 2020 and March 2021. In order to reduce its visibility from the road, the proposed position of the building is at a lower level than the existing 132kV platform, though still higher than the existing 400kV platform.

The chosen level is a balance that reduces visibility, whilst still achieving key technical aspects such as appropriate cable routes and road gradients.

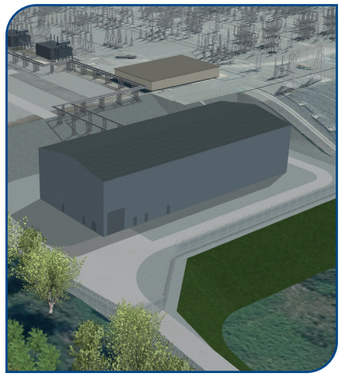
Following previous comments and feedback on the appearance of the building we are now seeking feedback on colour preferences for the proposed new 132kV GIS substation building.

Potential options include green, light grey, dark grey, and two tone green.

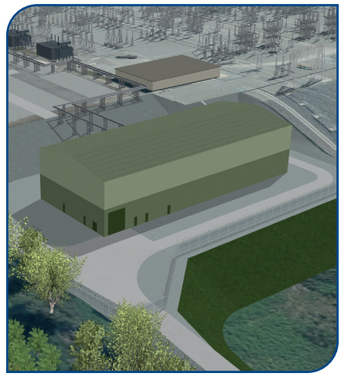


Green GIS building

Light grey GIS building



Dark grey GIS building



Two-tone green GIS building

Construction Considerations

Construction traffic for the project will be carefully managed to minimise disruption to the local road network.

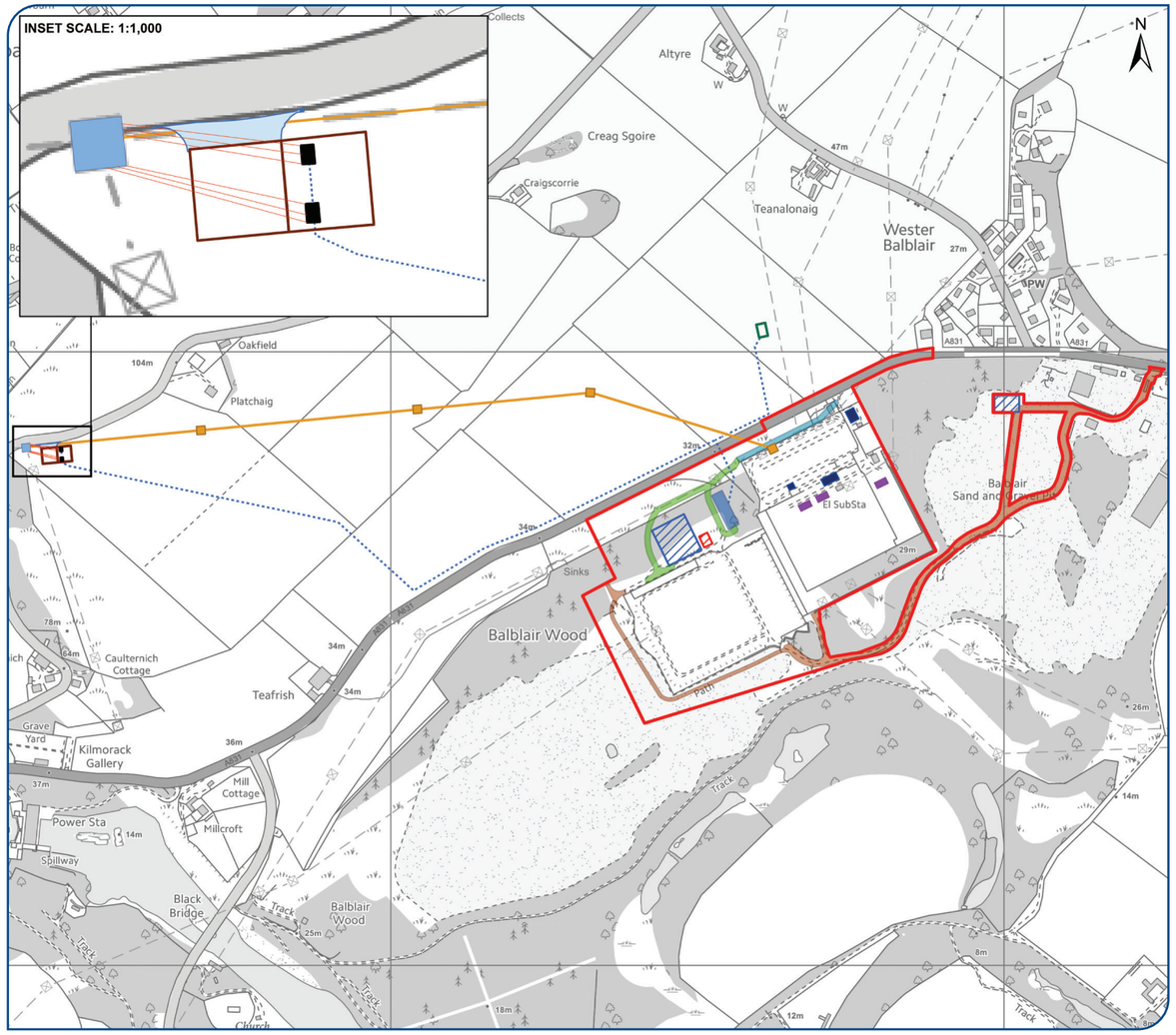
A detailed Construction Traffic Management Plan will be developed for the project in conjunction with the Highland Council agreeing appropriate and safe routes to and from the site.

All construction vehicles will be required to use approved access routes. It is currently proposed to use the Balblair quarry entrance as the main site construction access point for most of the construction traffic in order to avoid queuing vehicles at the existing substation entrance on the A831.

As with previous projects it is anticipated that the heavy abnormal loads, such as the transformer deliveries, will be routed from Invergordon via the A9, A832, A862 and A831 roads via Beauly.

Movement of abnormal loads will be restricted to take place outside peak flow hours to minimise disruption to general traffic flows. Appropriate signage warning motorists of the presence of construction vehicles will be implemented, where appropriate. Measures will also be put in place to minimise dust and dirt being deposited on the local roads due to the construction operations.

Site Layout



Legend

- Pre-Application Notice (PAN) Red Line Boundary
- Existing Tower
- Overhead Line Conductors to Cable Sealing End Gantry Tower
- New Bellmouth Junction and Lay-by for access to Cable Sealing End Gantry Tower
- Proposed Cable Sealing End Platform
- Proposed 132kV Wooden Pole Sealing End Gantry Tower
- Proposed Underground Cable Routes
- 132kV Overhead Line to be Decommissioned
- Existing Tower to be Decommissioned
- Proposed Cable Joint
- Proposed Construction Access (Temporary)
- Proposed Permanent Access Track
- Proposed Construction Access (Permanent)
- Construction Compound and Laydown Area
- Proposed Area Allocated for Drainage (SUDS)
- Proposed 132kV GIS building
- Proposed Buildings to be Demolished (To Be Confirmed)
- Replacement of Supergrid Transformers

0 50 100 150 200 Metres

GIS Substation 3D images

Beauly Substation - Before

Beauly Substation - After

Acoustic Noise

It is recognised that acoustic noise is a key concern for the community around the Beauly substation. The project is therefore being developed with this in mind.

Transformers are known to be one of the key sources of noise inside substations. The scope of this project includes the direct replacement of three existing transformers. These units date from the 1970's and two of them do not currently benefit from any external noise mitigation. The third is contained within a retrofitted acoustic barrier. All three will be replaced by brand new transformers, which will each have bespoke noise enclosures closely fitted around its main body.

Green transformer

Grey transformer

We are seeking feedback on colour options for the proposed acoustic enclosures for the new transformers. Options include green or grey.

An independent consultant has been appointed to model the potential noise impact of the project, to ensure the development achieves the aim of not adversely affecting key property receptors in the surrounding area.

Initial modelling indicates that:

- For overall noise emissions, the project will have low impact.
- The equipment being replaced by the project, notably the transformers, will benefit from a significant reduction in noise.
- Noise emissions from Beauly substation will receive a net benefit as a result of the project.

This modelling will be updated with the new baseline noise information following the completion of the SVC noise enclosure installation works in the 275kV substation.

Detailed information on construction and operational noise will be provided as part of the planning application for the development.

Transformers

To accommodate the additional load, three existing 120MVA transformers will be replaced by three new 360MVA transformers, which will be housed in specialist noise enclosures. The new transformers will be situated in similar locations to the existing transformers.

Existing transformers to be replaced

Environmental Considerations

The impact of the proposed development on the environment and ecology has been considered at every step in the site selection and the design process.

Environmental Impact Assessment

The project team are in the process of preparing an environmental impact assessment to support the planning application for this development. This will include a detailed assessment of a number of environmental topics, including:

- Landscape and visual impact, including effects on visual amenity of the immediate and surrounding area;
- Ecology and ornithology, including the effects of the development on habitats and species at the site and in the wider area (including badger, bats, pine martin, red squirrel and reptiles);
- Cultural heritage, including archaeology;
- Traffic and transport, including potential disruption to road users during the construction phase;
- Hydrology, hydrogeology, geology and soils; and
- Noise and vibration, including an assessment of the potential effects of noise and vibration on sensitive receptors during both construction and operation.

The report will also consider the cumulative effects of the development, looking at the impacts of this development together with other foreseeable developments in the area.

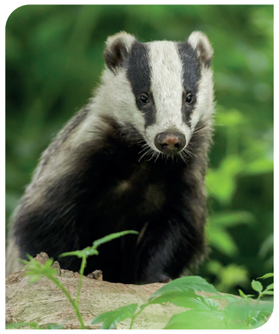
Environmental surveys

To support the production of the Environmental Impact Assessment, further ecology surveys have been carried out in Spring 2021, including breeding bird surveys, badger bait marking surveys (to establish the movement of badgers in the vicinity of the development) and bat roost surveys.

These surveys, and previous ecology surveys carried out in 2020, will help to ensure that baseline environmental conditions are well understood, and will allow us to put measures in place to minimise the impact of the development on wildlife and the environment.

Trees and Planting

Detailed feedback on trees and planting was received during our March 2021 consultation event. We are looking in detail at how to improve the appearance and screening of the entrance to the existing 132kV substation. We can commit to providing additional planting where space allows, to further screen the development as viewed from the A831. An off-site location will also be sought to provide compensatory planting to replace the mature trees lost as part of the development.



What happens now?

As described within 'The Planning Process During Covid' information, the 12-week formal consultation period for the Pre- Application Notice (PAN) commenced on submission on 24th February 2021.

Following the planned public event on 22nd June we welcome feedback for a further 14 days until 7th July 2021. We will collate responses and consider how best to respond including amending design/project proposals where appropriate. Feedback on our consideration of comments will be collated within the statutory PAC Report which is a requirement for a formal planning submission. This document will set out the consultation steps undertaken, outline how we considered the issues raised and set out our responses. Thereafter, it is our intention to prepare final documents for a formal planning submission in late summer/early Autumn. At that time interested parties will have an opportunity to make formal submissions to the Council to support or object to the proposals.

Please see our planning application timeline below:

Carry out detailed design, ecology and environmental surveys and other assessments needed to inform planning application.

First pre-application consultation event. **25th March 2021.**

Consider all feedback on proposals. Continue to progress detailed design and Environmental Appraisal/Environmental Impact Assessment.

Second pre-application consultation event. **22nd June 2021.**

Consider all feedback. Finalise detailed design and Environmental Appraisal/Environmental Impact Assessment.

Submit planning application to Highland Council. **Late Summer/early Autumn 2021.**

Statutory Consultation
Highland Council will carry out a statutory consultation following submission during which time representations can be made directly to the planning authority.

Determination of planning application.

Subject to receiving planning consent, and any other consents, construction commences. **Autumn 2022.**

Construction Complete **2025.**

How do I have my say?

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

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

- Has the project information provided explained the need for the Beauly 132kV Redevelopment project?
- Have we responded to previous comments/concerns relating to these project proposals?
- What is your colour preference for the proposed GIS building?
- What is your colour preference for the transformer noise enclosures?
- Do you have any comments in respect of trees/planting for this proposed development?
- Do you have any further comments you would like the project team to consider?
- Following review of the Consultation material displayed today and the project information materials, how would you rate your understanding of the Beauly 132kV Redevelopment project.

Comments

Your views and comments can be provided to the project team by completing the feedback form or by writing to our Community Liaison Manager. All received feedback will be assessed and the proposed options adapted where necessary.

Feedback

We will be seeking feedback from members of the public on this exhibition until 7th July 2021.

To provide feedback on the proposal or to gain further information on the project, visit our virtual event or contact our Community Liaison Manager. Once planning applications have been submitted there will be an opportunity for the public to make formal representations to The Highland Council for the proposed Beauly 132kV Redevelopment before a decision is made on our application.

Community Liaison Manager, Sally Cooper

sally.cooper@sse.com

07918 470281

Sally Cooper
Scottish and Southern Electricity Networks,
10 Henderson Road,
Inverness IV1 1SN

Additional information

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

Project Website:
www.ssen-transmission.co.uk/projects/beauly-132kv-reinforcement-project

Follow us on Twitter:
@ssencommunity

Follow us on Facebook:
@ssencommunity

Your feedback

Thank you for taking the time to read this consultation booklet. 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 project information provided explained the need for the Beauly 132kV Redevelopment project?**

Yes ☐ No ☐ If No, please provide information

Q2 **Have we responded to previous comments/concerns relating to these project proposals?**

Yes ☐ No ☐ If No, please provide information

Q3 **What is your colour preference for the proposed GIS building?**

Green ☐ Two tone green ☐ Light grey ☐ Dark grey ☐ No preference ☐

Q4 **What is your colour preference for the transformer noise enclosures?**

Green ☐ Grey ☐ No preference ☐

Q5 **Do you have any comments in respect of trees/planting for this proposed development?**

Yes ☐ No ☐ If Yes, please state preferences/comments

Q6 **Do you have any further comments that you would like the project team to consider?**

Yes ☐ No ☐ If Yes, please comment

Q7 **Following review of the Consultation material and the project information brochure, how would you rate your understanding of the Beauly 132kV Redevelopment project.**

Excellent ☐ Good ☐ Average ☐ Poor ☐

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 submit your completed form by one of the methods below:

Post: Scottish and Southern Electricity Networks, 10 Henderson Road, Inverness, IV1 1SN

Email: sally.cooper@sse.com

Online: www.ssen-transmission.co.uk/projects/beauly-132kv-reinforcement-project

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

The feedback form and all information provided in this booklet can also be downloaded from the dedicated website:

www.ssen-transmission.co.uk/projects/beauly-132kv-reinforcement-project

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.