Sloy Power Station Transformer Replacement Project

Pre-application consultation event

June 2023

Scottish & Southern Electricity Networks

TRANSMISSION

Come meet us at the following location and date:

Tuesday 6th June
1.30pm – 6.30pm
Three Villages Hall,
Shore Road,
Arrochar, G83 7AB

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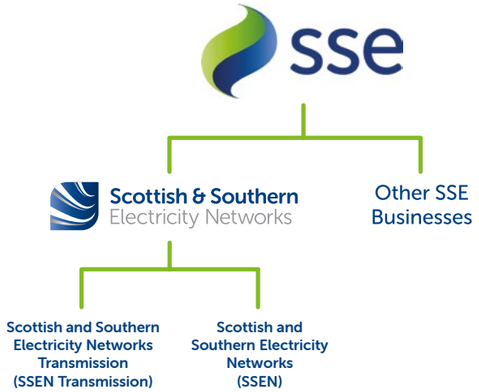
Who we are

We are Scottish and Southern Electricity Networks Transmission (SSEN Transmission), operating under license 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 OHL 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 750 metres 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 networks (SSEN) to provide a physical link between the new sources of power and electricity users. SSEN 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 license for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator Ofgem.

Our license stipulates that we must develop and maintain an efficient, coordinated and economical system of electricity transmission.

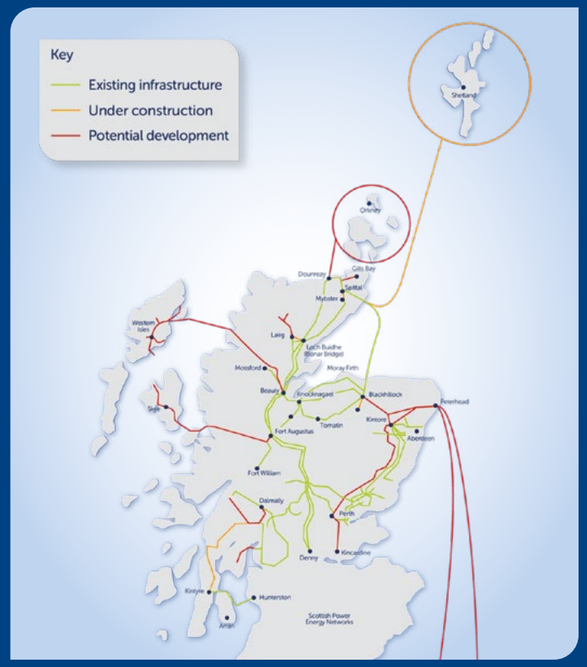
What is the difference between transmission and distribution?

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 (OHLs), underground cables and subsea cables. Our transmission network connects large scale generation, primarily renewables (e.g. onshore and offshore wind) 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 OHL or underground cables.

Overview of transmission projects



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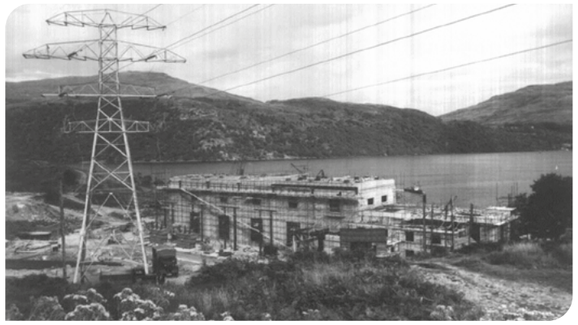
Project need and overview

Sloy hydro power station was constructed in 1950 and is located next to the A82 - along the western shore of Loch Lomond near Inveruglas, Argyll and Bute. The power station is a Category A listed building located within the Loch Lomond and The Trossachs National Park (LL&TNP).

The existing SSEN Transmission substation is located to the immediate rear of the hydro power station and is a four transformer site which transforms 11kV output of the power station to 132kV for export to the Transmission network. It also provides a connection to the distribution network. Sloy power station is a key generating asset on the network producing around 150 megawatts of renewable power, contributing to Scotland`s target of reducing carbon emissions.

The existing transformers were installed between 1995-1998 and are nearing the end of their operational life and need replacing.

The deterioration in their condition poses a risk of failure, meaning that the power station would no longer be able to generate renewable energy and poses a risk to the reliability of supply to local customers.



Engineering standards were very different when the transformers were installed in the 1990s. Modern transformers are quieter and more efficient but also require more space around them for cooling and for safe maintenance access.

This means that the new, replacement transformers cannot be positioned in the current location behind the hydro power station.

This, together with the need to keep the power station connected to the electricity network, means that a new substation site needs to be identified out with the existing substation compound but close to it.

The proposed substation will accommodate replacement grid transformers with buildings and other electrical infrastructure, with underground cable connections back to the power station and to the existing underground cables to the west. The proposals are fully explained on page 9.

Substations

What is a substation?

A substation is an essential component in the electricity network; substations connect sources of electricity generation, such as hydro power stations to the network. Substations manage electricity flows within the network which can include connection and disconnection of circuits to direct the flow, transform voltages to higher or lower ratings, manage the frequency and increase efficiency and reliability of the power supply.

Other key substation functions

Substations are critical in maintaining an efficient and healthy energy network, as they monitor and report back to operators on statistics and events to provide live information on our network. This allows the following functions:

- Fault monitoring and identification which allows for isolation to protect the network and allow repairs.
- Allow for redirection and disconnection of electricity to allow for demand and / or maintenance.
- Provide data such as voltage, current and power flow to allow for efficient running and future predictions.

The new substation has been proposed as an Air Insulated Switchgear (AIS) site.

An AIS substation is constructed with switchgear that relies on open air components, these components are readily available on the market and are used in many of SSEN Transmission's substations across the network.

Using these components allows us to minimise the use of gases which are harmful to the environment.

Site selection

A proposed site for the new substation was identified following a substation site selection process that took place throughout 2021/22. This phase included the publication of a Substation Site Selection Consultation Report by SSEN Transmission in August 2021 and consultation with key stakeholders, statutory consultees, and members of the public during August/September 2021, including a virtual consultation event on the 24 August 2021. The search areas were constrained by the A82 / Loch Lomond to the east, the railway / steep hillsides to the west, the A82 trunk road and woodland cover to the north and Loch Lomond Holiday Park, Inveruglas Farm and woodland cover to the south. The sites considered are shown on the plan opposite.

The overall feedback received was that Site F was most appropriate as this maintained a suitable distance from the listed building and used an open field area to minimise the impact on the existing trees which were partly classified as Ancient Woodland. It was noted that to form connections back to the power station, there would inevitably need to be some tree felling.

The key comments raised were:

- In cultural heritage terms, Site F would provide adequate buffer from the listed building to minimise and mitigate any adverse impact.
- In habitat terms, the loss of Ancient Woodland would be of concern in its own right and in terms of wider connectivity. This should be avoided / minimised or otherwise suitable compensation provided.
- Protected species should be surveyed and impacts on habitat avoided / minimised or otherwise suitable compensation provided.
- In landscape terms, tree retention in proximity of sites E/F should be prioritised and assessed via photomontages.
- In hydrological terms, suitable buffers from water courses should be sought, and appropriate consideration of SuDS (Sustainable Drainage Systems) and further assessment of Groundwater Dependent Terrestrial Ecosystems required.

The project team have sought to ensure that comments or concerns raised by statutory and non-statutory consultees and other respondents have helped to inform, where possible, the substation location and design.

Site A was initially preferred by SSEN Transmission due to proximity with existing site but this was reassessed in light of land availability.

Since the site selection exercise, the size requirements of the platform have been increased to accommodate required separation between infrastructure and achieve business separation requirements Therefore, a combined site E/F is now being taken forward.

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Project progress

Since the public consultation event in August 2021, the project team have completed the following:

- Site selection.
- Engineering surveys.
- Ground investigations.
- Environmental surveys.
- Appointment of contractor to produce design for planning application.
- Appointed an environmental consultant to commence the Environmental Impact Assessment (EIA).
- Progressed design.

Out with the formal consultation period and events, we have continued to provide a dedicated web page for the projects and liaise with a wide range of stakeholders to help inform the project development and design.

What we're consulting on today

As the proposed development will be classed as a 'National Development' by the planning system, there is a formal process which must be adhered to by the submission of a 'Proposal of Application Notice' (PAN) to Loch Lomond and the Trossachs National Park Authority (LLTNPA) at least 12 weeks prior to a planning application being submitted.

The PAN was submitted to LLTNPA on 27th April 2023, and included a description of development and the extent of land within which further design development may occur. This is indicated below.

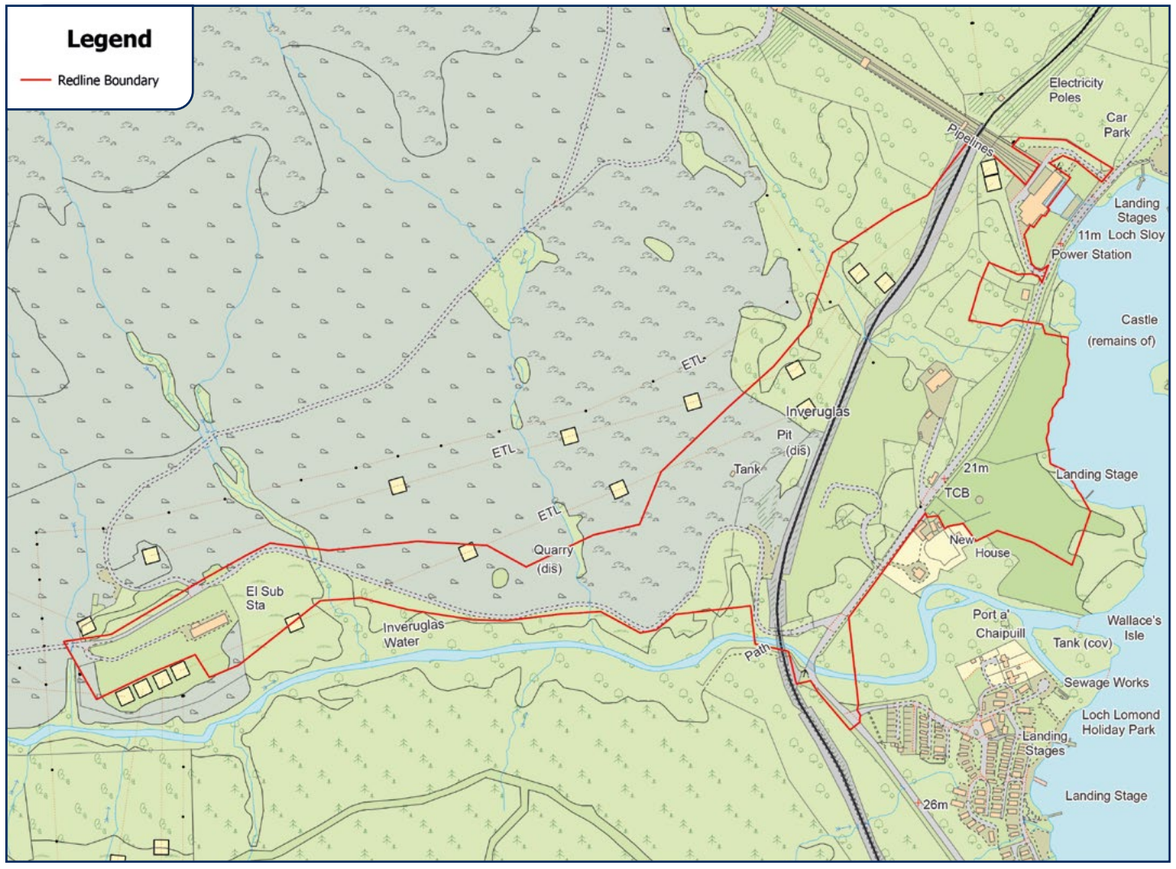
This consultation event is the first of two events planned over the coming months, the initial event is intended to present the emerging design and to seek comments on this with the second event intended to provide feedback on any comments received and consequent design changes arising.

We are keen to hear feedback from members of the public and other interested parties.

All comments and changes arising will be documented in a Pre Application Consultation (PAC) report which forms an important part of the forthcoming planning application as it details the comments and feedback received from stakeholders during the consultation process and sets out what changes we have made in terms of site design and layout as a result of that feedback. We are aiming to submit the planning application to LLTNPA in early Autumn 2023.

SSEN Transmission submitted an Environmental Impact Assessment (EIA) Screening / Scoping report to LLTNPA in October 2022 to ascertain if a EIA Report would be required under the confines of the Town & Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. The need for an EIA was confirmed and an EIA Report is in preparation, informed by survey works to understand the environmental baseline and ensure that the design responds to these constraints wherever possible or proposes suitable mitigation / compensation. SSEN Transmission will submit a variety of plans and supporting submissions (including the PAC Report and EIA Report) as part of the planning application.

The plans will show the extent of the site, as well as the structures, buildings, fencing, drainage, electrical equipment and access proposals. This will clearly demonstrate the impact of the proposals on the surrounding environment and especially the surrounding trees.



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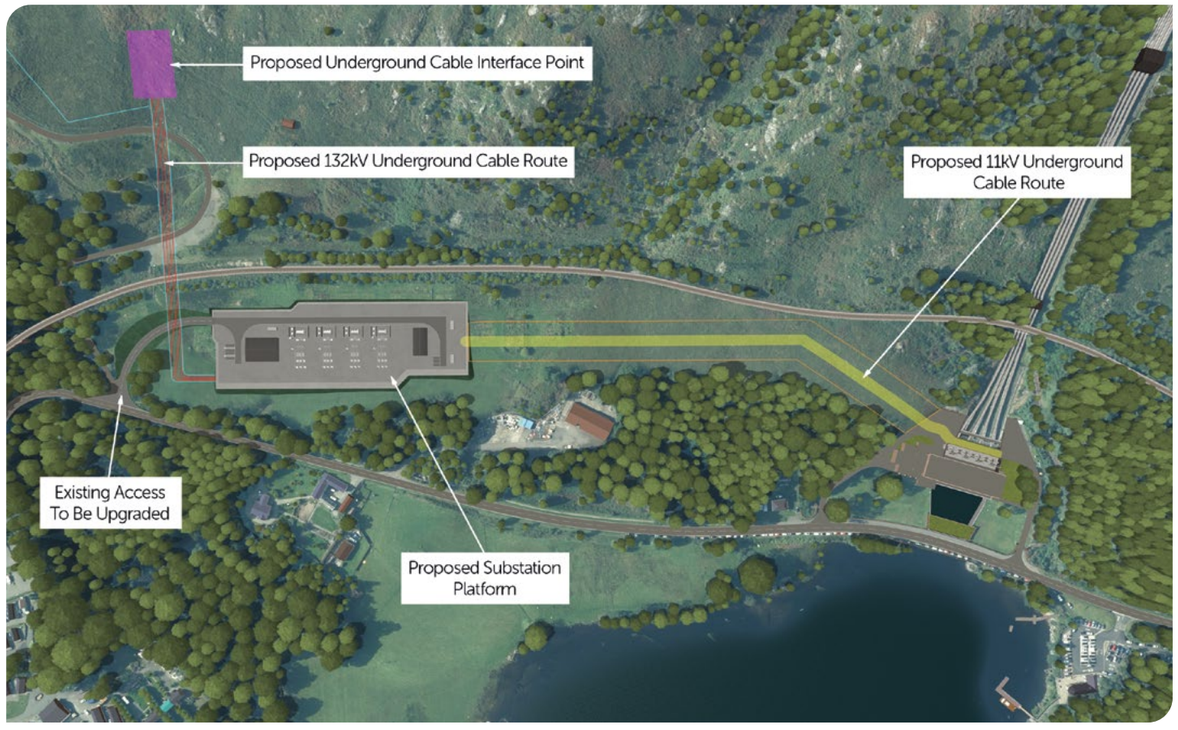
Indicative substation layout and elevations

The indicative substation layout view below, shows the emerging design of the proposals. It has been developed to incorporate the site specific engineering requirements, environmental constraints and land restrictions. The design remains under development, with some elements such as the cable corridor yet to be fully confirmed.



The mapping is based on the most up to date data available.

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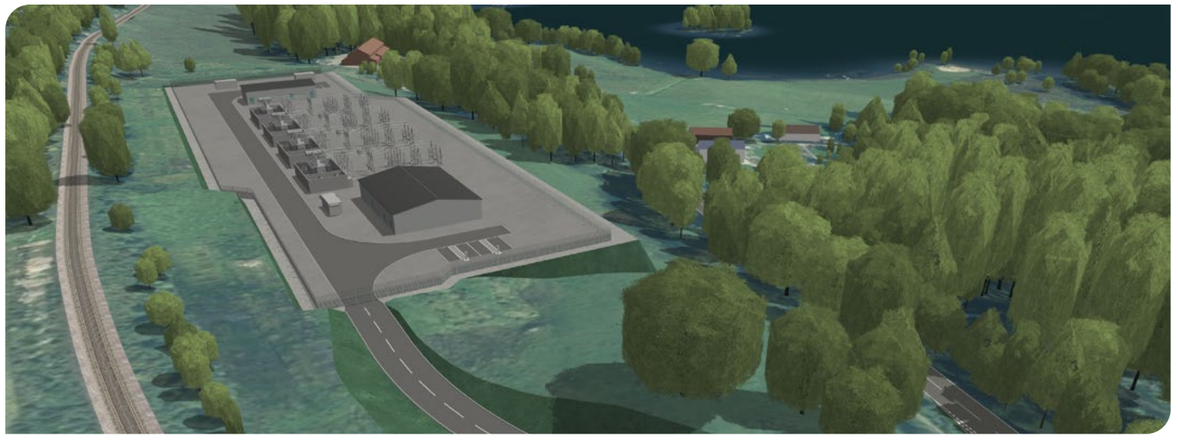
Project overview

The project will include the following requirements

- A new substation platform, indicatively 63 x 192 metres (m) in size, surrounded by a 2.4m high metal palisade security fence.
- Installation of four new 132 / 11kV transformers with Air Insulated Switchgear (AIS).
- Installation of two regulating transformers for connection to the distribution network.
- A new control building – indicatively 18m x 24m – with a maximum height of approx. 7m. The design details including finalised position and colour is under development.
- A new 11kV switchgear building – indicatively 20 x 10m – with a maximum height of approx. 5m. The design details including finalised position and colour is under development.
- Existing access point from the A82 to be used, to provide access to the new substation, subject to some upgrades.
- 11kV UGC connections from the new substation to the Sloy Hydro power station (to the north) including a possible cable bridge over the watercourse. Details of connection into the power station are still to be determined.
- Access tracks created along the 11kV UGC (Under Ground Cable) route to the power station (approx. 10m in width required for temporary construction period, with a likely reduced width track retained permanently along the UGC route).
- 132kV UGC connections from the new substation under the railway (including via Horizontal Directional Drilling) to connect to a new joint bay on the existing underground cables to the west.
- Site drainage infrastructure.
- The existing transformers and associated equipment at the hydro power station will be decommissioned and removed.
- Temporary access track created to the west of the railway, to access / remove the redundant overhead line.
- Temporary construction compounds – size and locations of these still to be determined and agreed with landowners.
- A fibre optic telecoms cable connection between the power station and the new substation, alongside the new 11kV cable route.
- Fibre optic connection between the new substation and the existing Sloy switching station – expected to roughly follow the route of the existing cables.
- Tree felling to facilitate works, with landscaping proposals when works completed.

The elevation drawings below, show the following elements:

- Control building.
- 11kV Switchgear building.
- Transmission transformer bays and associated switchgear.



Engineering and economic considerations

Our transmission operators licence requires us to provide best value for customers and GB consumers. As a natural monopoly, SSEN Transmission are closely regulated by the GB energy regulator Office of Gas and Electricity Markets (OFGEM) who determine how much revenue we are allowed to earn for constructing, maintaining, and renovating our transmission network.

These costs are shared between all those using the transmission network, including generation developers and electricity consumers. We therefore work to strict price controls which means the following engineering and economic considerations form a key part of our site.

Construction

It is essential that our substation design is buildable. This is why we have engaged early with a Construction Contractor through the design phase of the project. The design of the substation has been informed by local factors such as ground conditions, topography and geology. This information has been ascertained in part, by Ground Investigations, that were completed on site in Spring 2023. Other considerations that have informed the design have been access, drainage, proximity to the railway line and A82 road. The level of the platform is currently shown as 1.5 meters below the current ground level at the western part of the site. This is because of the ground conditions and drainage, but also in order to minimise the import and export of large quantities of material to/from the site as this is expensive and not environmentally friendly. Construction is anticipated to start in Summer 2024 and end in Spring 2026.

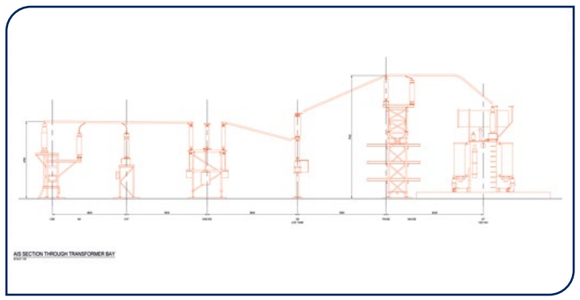
Access into the site will be taken off an existing access off the A82, which is understood to require some upgrade works. The extent of any works will be developed and agreed with Transport Scotland to ensure that this provides a safe access, but not one that is 'over engineered' impacting on more boundary trees than is required. Where new temporary access tracks are required as part of the proposals these will be as low impact as possible – similar to forestry tracks and where possible reinstated after construction.

A Sustainable drainage systems (SuDS) approach will be followed to manage surface water and ensure that the proposed development can be delivered without causing an adverse impact to local hydrology; this will be discussed and agreed with relevant consenting bodies (SEPA) as the design develops.

Operations

Our sites will be operational for a long time and will require ongoing maintenance and repairs by our operations team. Considerations during the operational phase are:

- **Access** - our Operations team will need to be able to access the site easily and safely in all weathers.
- **Lighting** - the site will only be lit when personnel are on site for maintenance purposes (in normal operation this will be infrequently) or if the security lights are triggered. At other times it will be a dark site.
- **Noise** - it is unlikely that any significant noise mitigation will be required at the site due to the relatively small size of the transformers and surrounding background noise levels relative to receptors. However, should operational levels and background studies show a need, then mitigation would likely be in the form of enclosures or walls that are designed to absorb any noise above acceptable levels.



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Environmental considerations

Due to the location of the project, there are several key environmental considerations including:

- Located within the Loch Lomond and the Trossachs National Park (LLTNPA) and Loch Lomond National Scenic Area (NSA).
- Proximity to Loch Lomond waterbody.
- Proximity to Listed Buildings, a Scheduled Monument and other Cultural Heritage interests.
- Proximity to Loch Lomond holiday park.
- Close to key environmental sensitivities & designations such as: Loch Lomond Woods Special Area of Conservation (SAC) and Ancient Woodland habitat.
- Proximity to nearby residential properties.

These factors will be considered in the preparation of the EIA Report referred to above - which will assess the following topics.

Landscape and visual impact assessment

The appearance of the substation within the landscape and where it will be seen from is being carefully considered. A landscape and Visual Impact Assessment (LVIA) is required as part of the EIA process, to assess the impact of this substation development on this nationally valued landscape. Any impacts will be minimised and / or mitigated where possible.

This recognises the importance of the area including:

- Loch Lomond and Inveruglas are key visitor destinations.
- The A82 is an important visitor route through the National Park.
- The Three Lochs Way long distance footpath runs adjacent to the site.
- Landscape character, visual amenity, and heritage assets (including the Inveruglas Castle Scheduled Monument and several Listed Buildings) contribute to this.
- The impact of long distance and higher level / summit views must be considered.

Key viewpoints of the new substation site from the surrounding area have been selected, in consultation from the LLTNPA. Photomontages will be generated by experts, showing what the new substation will look like from these key viewpoints. This information will help inform the final substation design, to reduce the visual impact of the new substation as far as possible. The created photomontages will be included as a part of the EIA report.

Mitigation might include using the existing land form features, to increase screening, reduce the size of the substation platform as far as possible, to retain as many trees as possible, move tall pieces of equipment to the back of the substation platform so they are less visible from the road, and the creation of sympathetic hard and soft landscaping.

Cultural heritage

The site has the potential to impact on the setting of the Category A Listed hydro power station and the setting of the nearby Scheduled Monument of Inveruglas Castle.

The EIA will undertake an assessment of both the operational effects of the new substation on the setting of cultural heritage assets as well as direct impacts from the construction process. This will include assessment of key viewpoints. Where there may be a direct impact on the hydro powerstation this will also be subject of a separate listed building consent application. Any potential setting impacts will be considered as part of the ongoing substation design development process with screening measures potentially proposed to reduce the visual intrusion.

There is also the potential for impacts on known and unknown archaeological remains. This will be taken into account in any proposals, and appropriate investigative works undertaken as required. The outcomes of the recent ground investigation works will feed into this assessment.

Environmental considerations

Ecology

A lot of survey work has been carried out since the Proposed Site has been identified, to understand the type and nature of habitats which could be affected. Whilst the main substation site is predominantly in a field / clearing the cable route and potential access points / drainage will impact on the surrounding woodland, some of which is classified as Ancient Woodland.

Ancient Woodland tends to support a wide variety of protected species, most notably here are bats. Bat surveys were undertaken in Summer / Autumn 2022, to identify any trees with bat roosts or a high / medium / low habitat potential. The evolving design will respond to this to avoid / minimise the impact of the substation project and license / compensate for any unavoidable impact. NatureScot has been consulted and they indicated that felling of trees would be appropriate in certain months of the year and under licence.

Other habitat surveys have been completed and identified the use of parts of the surrounding woodland by otters and red squirrels in particular. Further survey works are underway, including lichen / lower plant and Ground Water Dependent Terrestrial Ecosystems surveys and this will be detailed in the EIA Report.

For all protected species / designations the design will seek to avoid / minimise impacts and where this is not possible provide appropriate levels and types of mitigation / compensation. Where necessary, relevant species licenses will be sought.

It is likely that the 11Kv cable route (that will join the new substation back to the hydro powerstation), will need to go through the ancient woodland, this will mean felling some trees. That said, we are exploring other options to avoid the cables going through the woodland, however these alternatives have significant technical issues. All options considered and justifications will be set out in the EIA report.

Hydrology and geology

The following hydrological aspects are being investigated as part of the ongoing EIA:

- Potential for flood risk - a Flood Risk Assessment is being produced and will form part of the EIA Report.
- Site drainage - A Drainage Impact Assessment is being produced and will form part of the EIA Report.
- Public and private water supplies.
- Drinking water protection areas.
- Groundwater dependent terrestrial ecosystems.
- If any, designated sites are hydrologically linked to the site.

An appropriate site drainage plan for both the construction and operational phases will be developed to mitigate impacts on the surrounding water environment.

Forestry and biodiversity net gain

It is recognised that the project is likely to affect areas of Ancient Woodland and Veteran Trees which in planning terms is considered to be an Irreplaceable Habitat. Ways to minimise impact have been explored and options are being considered to mitigate / compensate for losses where this is unavoidable; this reflects SSEN Transmission's commitment to achieving a 'Net Gain' in biodiversity terms.

Discussions have begun to identify any opportunities for mitigation / compensation both in immediate proximity of the site and if required in addition more widely in the LLTNPA. This is at an early stage but has the potential to make compensatory provision within larger projects as part of the wider SSEN Transmission network of projects.

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Project timeline

Below is a timeline for the overall project. Current ongoing discussions may result in minor changes.

2021

- Site selection started.
- First consultation (virtual).

2022

- Site selection complete.
- Environmental surveys.

2023

- Ground investigations.
- Completion of environmental surveys.
- PAN submission – April 2023.
- Public consultation events x 2no. – Spring – Summer 2023.
- Design development – Summer 2023.
- Submission of planning application / other consent applications – Autumn 2023.
- Habitat licenses submitted – Autumn 2023.
- Consideration of planning application by LLTNPA and other Statutory Consultees and public consultation.
- Consideration of Habitat Licenses by NatureScot.

2024

- Planning application determined – Spring 2024.
- Habitat License determined – Spring 2024.
- Pre-development planning conditions discharged – Summer 2024.
- Habitat license conditions discharged – Summer 2024.
- Construction to start on site – Summer 2024.

2025

- Construction ongoing.

2026

- Construction complete.
- Energisation.

What happens now, 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:

1. Has the requirement for the project been clearly explained?
2. Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?
3. Do you have any other comments regarding the proposed substation location and / or layout?
4. Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?
5. Do you have any other comments or concerns in relation to the transmission infrastructure requirements or about the preferred substation location / design?

Following our event, a consultation period will remain open until **30th June 2023.**

You can submit feedback by completing our online feedback form available on our project webpage or using the feedback form at the back of this booklet. Alternatively, you may also submit feedback in writing, email or by phone.

The feedback will be analysed by the project team and a report on the consultation will be produced and published on our website detailing our response to your feedback.

A second PAN consultation event is planned for Summer 2023, where the final design will be presented, taking account, where we can, of feedback received at this event. The planning application will be based on this final design.

In you have any questions of require further information regarding either of these projects, please do not hesitate to contact the Community Liaison Manager.

Caitlin Quinn
Community Liaison Manager

caitlin.quinn@sse.com

M: +44(0)7901 135758

Scottish and Southern Electricity Networks,
1 Waterloo St,
Glasgow, G2 6AY

Additional information

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

Project website:
www.ssen-transmission.co.uk/projects/project-map/sloy-power-station-transformer-replacement-project

Find us on Facebook:
SSEN Community

Follow us on Twitter:
@ssetransmission

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Your comments

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.

The feedback form in this booklet can be detached and sent back, or you can fill them in online using the forms on the project webpages. We do request that any feedback that you wish to be included in the Report on Consultation is received in written format (feedback received via phone calls will be circulated to the project team but would not be included in reporting).

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

1. Has the requirement for the project been clearly explained?

☐ Yes ☐ No

If no, please tell us how we could provide further explanation

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

☐ Yes ☐ No

If yes, please explain

3. Do you have any other comments regarding the proposed substation location and / or layout?

☐ Yes ☐ No

If yes, please explain

4. Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?

☐ Yes ☐ No

If no, please explain

5. **Do you have any other comments or concerns in relation to the transmission infrastructure requirements or about the preferred substation location / design?**

☐ Yes ☐ No

If yes, please explain

Full name

Address

Telephone

Email

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

We would like to send you relevant communications via email such as invitations to stakeholder events, surveys, updates on projects, services and future developments from the Scottish and Southern Electricity Networks group listed below. If you are happy to receive email updates please opt in by ticking the box below. You can unsubscribe at any time by contacting us at **unsubscribe@ssen.co.uk** or by clicking on the unsubscribe link that will be at the end of each of our emails.

For information on how we collect and process your data please see our privacy notice available at today's event. This can also be obtained online at **www.ssen.co.uk/privacynotice**

If you would like to be kept informed of progress on the project 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, 1 Waterloo St, Glasgow, G2 6AY Email: caitlin.quinn@sse.com
Closing date for feedback is 30th June 2023.
The feedback form and all information provided at the event can also be downloaded from the dedicated website:
www.ssen-transmission.co.uk/projects/project-map/sloy-power-station-transformer-replacement-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.