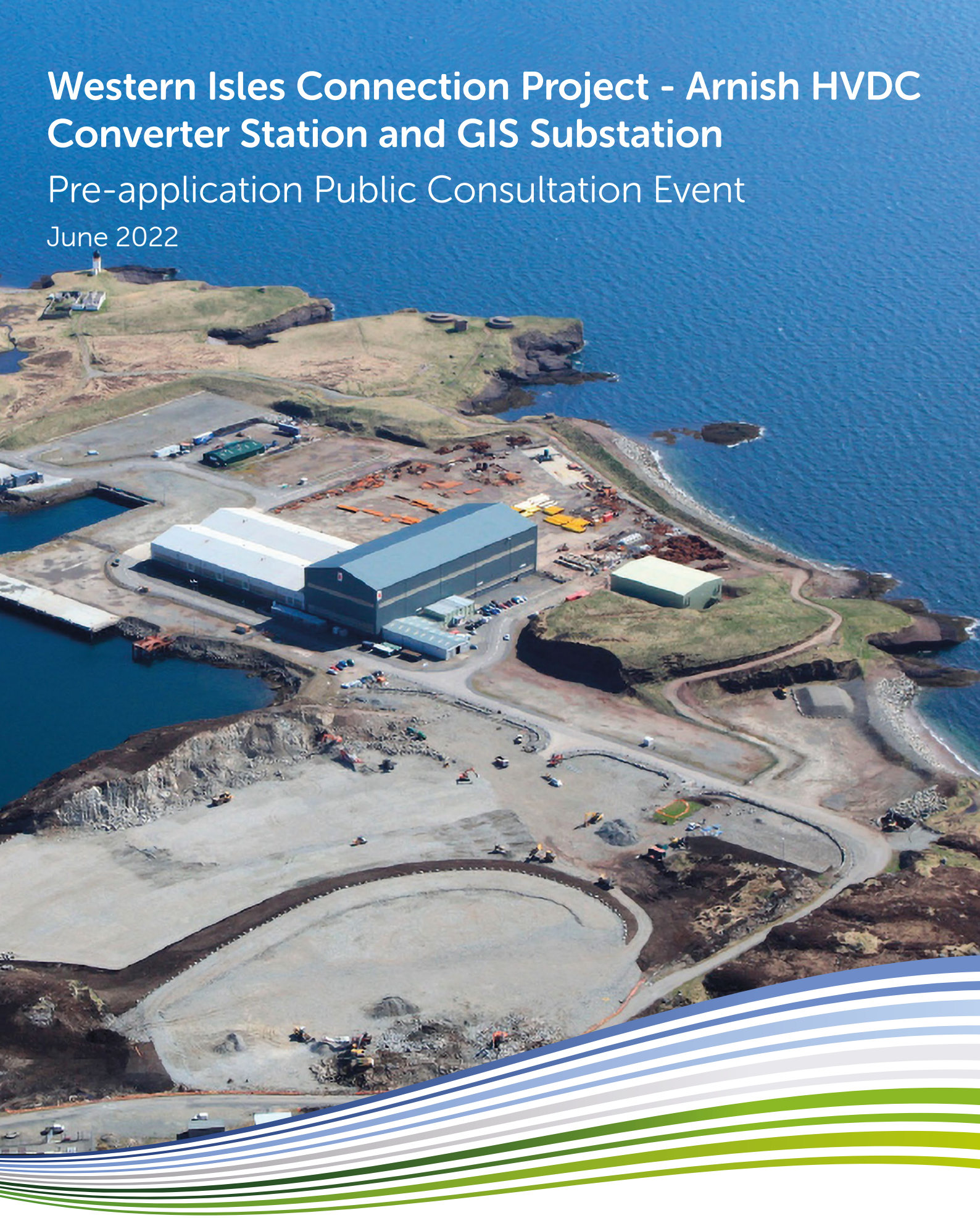
Western Isles Connection Project - Arnish HVDC Converter Station and GIS Substation

Pre-application Public Consultation Event

June 2022



Scottish & Southern Electricity Networks

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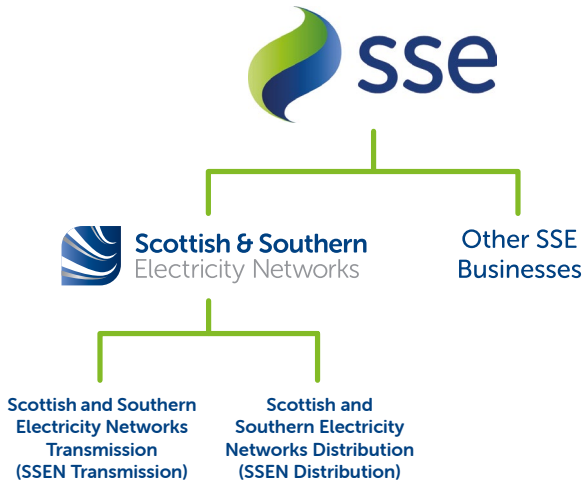
Who we are

We are Scottish and Southern Electricity Networks Transmission (SSEN Transmission), 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.

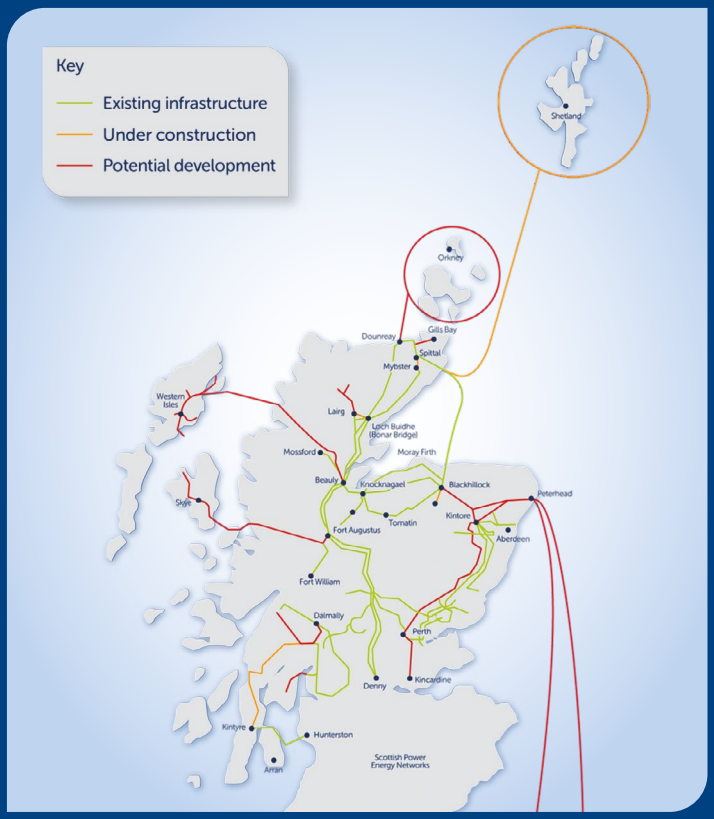
What is the difference between transmission and distribution?

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



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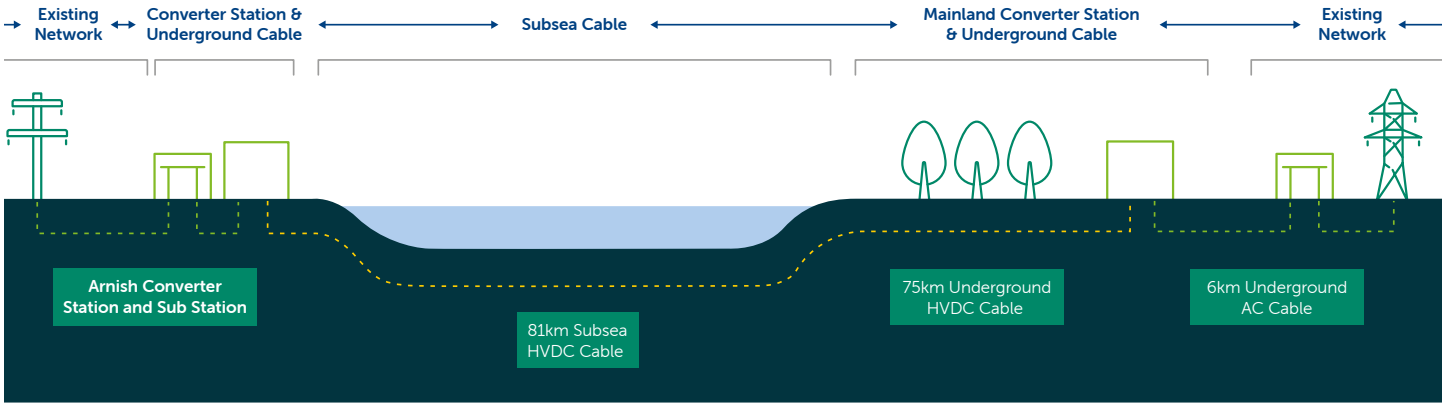
Project need and overview

Project need

The Arnish HVDC Converter Station and GIS Substation form an essential part of SSEN Transmission's proposed Western Isles connection; a critical strategic investment in our grid network.

The Western Isles is home to some of Scotland's greatest wind resource and following the growth in small-scale renewable electricity generation over recent years, the existing Western Isles electricity network is at full capacity meaning no further generation can connect without significant network reinforcements. The connection, which is expected to bring local and national socio-economic benefits, is required to connect renewable electricity generators on the island to the main GB transmission system, maximising the significant renewable potential of the Western Isles.



Project overview

The Western Isles Link Project comprises the following:

- High Voltage Direct Current (HVDC) Converter Station and Gas Insulated Substation (GIS) located at Arnish Point, Stornoway.
- 81km of HVDC subsea cable from Arnish Point, Stornoway to Dundonnell (Scottish Mainland).
- Circa 75km of underground HVDC cable from Dundonnell to mainland HVDC Converter Station.
- Underground AC (Alternating Current) cable from mainland HVDC Converter Station to the mainland Transmission System.

Today we are consulting on the Arnish HVDC Converter Station element of the Western Isles Connection Project, further consultation events will be held at a later date for other key elements of the Western Isles Connection Project. Please see our website for the latest information and sign up for project updates.

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

Arnish HVDC Converter Station and GIS Substation

Proposed permanent infrastructure at Arnish Point:

The following permanent infrastructure will be constructed at Arnish Point, Stornoway:

- A new HVDC Converter Station and GIS Substation with a site operational footprint of approx. 6.5ha within an overall development area of 8.2ha over a split-level site at Arnish Point, Stornoway; within the overall site the following will be constructed:
  - Main HVDC Converter Station Building compromising Valve Hall, Direct Current Hall, Reactor Hall, and Control Rooms (max building size 50m x 110m x 20m high) located on the lower level.
  - GIS Substation (24m x 43m x 14m high) located on the upper level.
  - Smaller ancillary and support buildings.
- New subsea cables and associated landfall from Arnish Point, Stornoway to mainland Scotland.
- The site will be surrounded by a 2.4m high metal palisade security fence and internal access roads within the site boundary will be provided.
- Landscaping and biodiversity requirements.

Construction activities:

In addition to the construction of the permanent infrastructure referenced above, other construction works and activities at Arnish Point, are anticipated to include:

- Early civil works.
- Establishment of a temporary construction compound including site offices and laydown area for materials.
- Delivery of components and materials to the site.
- Site drainage requirements.
- Inspection, testing and commissioning.

The proposed permanent infrastructure and activities detailed above are the subject of this pre application event (PAN). We welcome your feedback on these proposals at this time. The PAN process is a key first step in the town and country planning process for the site and kick starts a 12 week consultation period for feedback and comments.

Pre-Application Notice (PAN) the process

A proposal of application notice (PAN) was submitted to Comhairle nan Eilean Siar in early May 2022. The proposed development is classed as "National Development" because it is a Converter station and Substation linking directly to high voltage electricity transmission lines. This public event forms part of the 12 week pre-application consultation and feedback received will inform the forthcoming planning application.

Project timeline

2022

- Public consultation event: Spring 2022.
- Planning application submission: Summer 2022.

2023

- Planning in principle decision: Spring 2023.
- Planning discharge conditions: Summer 2023.

2024

- Early works construction: Early Summer 2024.
- Construction: Summer 2024.

2025

- Subsea route preparation.

2026

- Construction complete: Summer 2026.
- Trial operation complete: Summer 2026.
- Subsea cable installation: Summer 2026.
- Stage 1 commissioning complete: Winter 2026.

2027

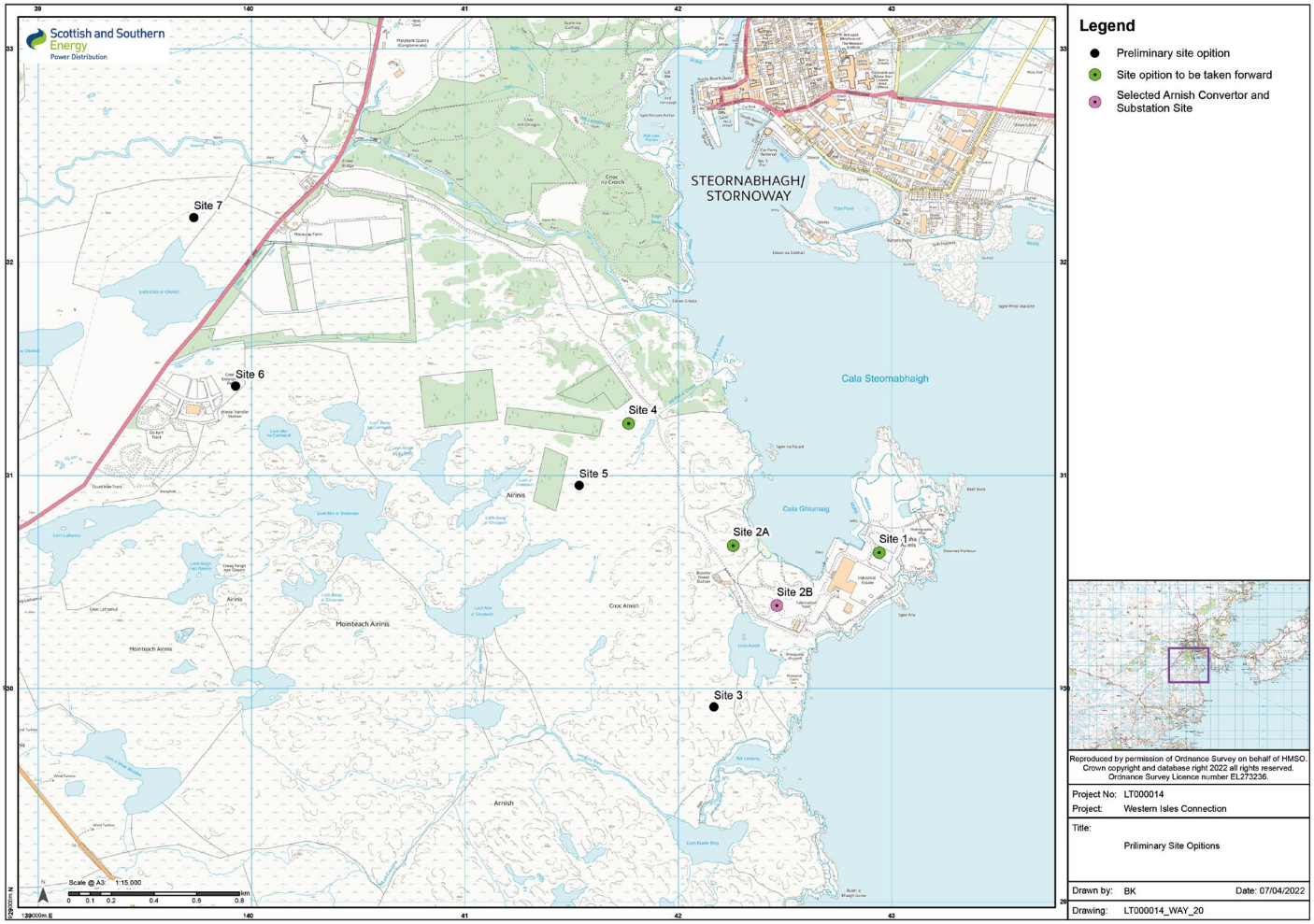
- Stage 2 commissioning complete: Spring 2027.
- Connection: Spring 2027.

Base Case Programme

Selection of the Arnish site

SSEN Transmission has previously undertaken an extensive site optioneering exercise which identified Arnish as the most co-ordinated, economic and efficient location for siting the Island's HVDC Converter station.

This map shows the initial locations in the Arnish and Stornoway area, selected as potential sites for the converter station development. These sites were the subject of a preliminary, high level desk-based site assessment. Four sites were then identified as potential options to take forward to more detailed studies and were consulted on in October 2015.

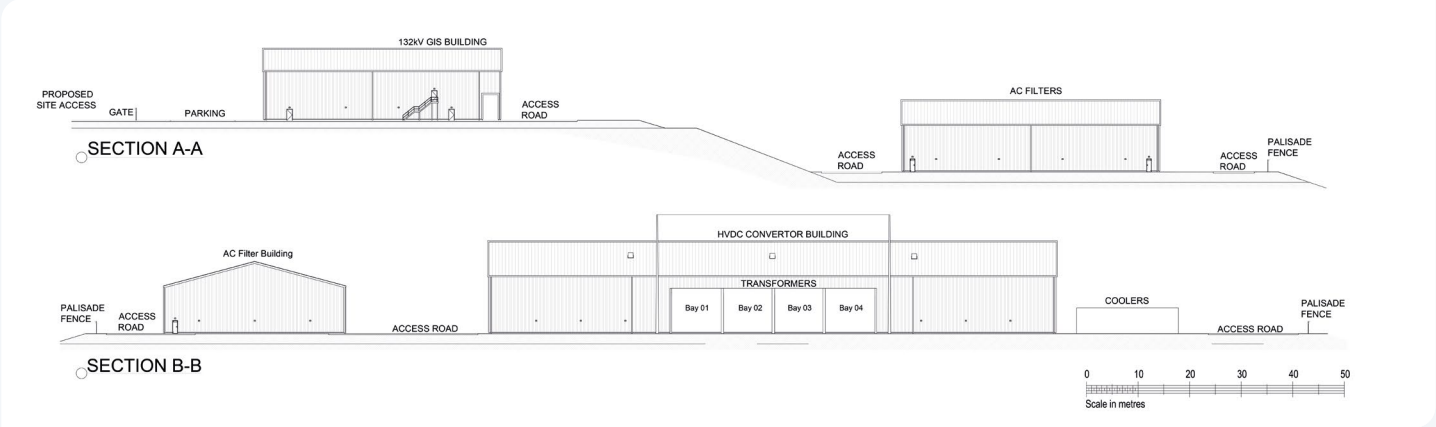


The four sites were then subject to a more detailed assessment considering environmental, economic and technical factors. Of these, site 2B, in the Industrial Estate emerged as the preferred site for the development.

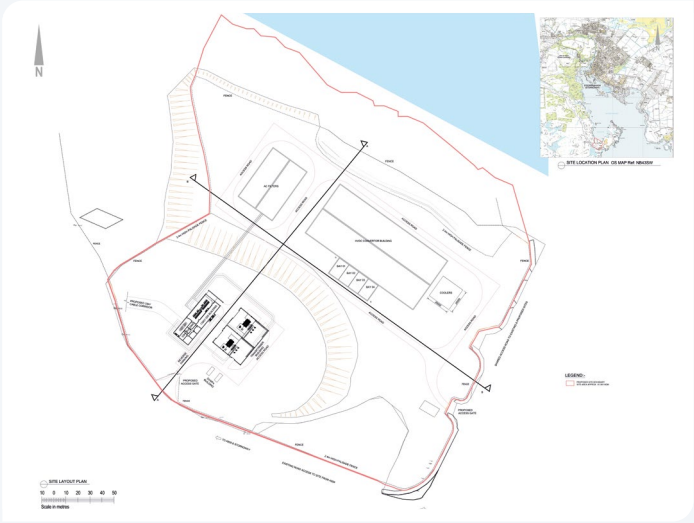
There are only limited sensitive features present at Arnish Point in the area surrounding the proposed site. These include a scheduled monument (dun within Loch Airinis) and a listed building (Arnish Monument). As the site 2B is already prepared for development, it is considered to have the least environmental impacts during construction and operation along with technical and economic benefits for construction.

HVDC Converter site, HVDC building and GIS Substation

Layout drawing



The subsea and underground cable at the heart of SSEN Transmission's proposals would use a technology called High Voltage Direct Current (HVDC). This is different to the existing island electricity network, which carries high voltage electricity as Alternating Current (AC). The HVDC Converter Station (a large substation-type installation) is required to convert AC electricity to HVDC, and vice versa, to connect the subsea cable to the Island's electricity network.



HVDC is a well established technology that allows the efficient transmission of large quantities of electricity across long distances – with much reduced electrical losses compared with AC. It also introduces greater flexibility and resilience in the operation of the island network and the management of variable output from renewable generation.

The Converter Station would require a large area of generally level ground in the order of 250m x 150m. The majority of the equipment would be contained within a large metal clad building of approximate dimensions 110m long by 50m wide, with other smaller buildings also required on the site, including an associated 132kV Gas Insulated Switchgear (GIS) substation. The proposed rating of the transmission link would result in a maximum building height of around 20m.

The converter station building would consist of steel cladding with a pitched roof and the building would be finished in a light grey colour (to be agreed with CnES).

We are seeking feedback on the proposed works at Arnish to assist us with the planning process and subsequent application.

Environment

Updated environmental assessments and site surveys will be undertaken as we move through the consenting process to support a Planning Application. This includes assessing the landscape and visual amenity, ecology/habitats, ornithology, geology/hydrogeology, hydrology, and cultural heritage of the site at Arnish Point.

Ecology, habitats and ornithology

The site development although on an existing brownfield site has the potential to interact with protected species (otters) and habitats within the site boundaries.

It has however been selected to avoid many of the environmental designations and other sensitive flora and fauna around Stornoway.

The project has assessed and will continue to assess the risk to species and habitats in the area and in consultation with the key stakeholders provide the appropriate mitigation where necessary.

Bird surveys have been ongoing in the area since March 2021 and will continue into late Spring 2022. This data set in consultation with Nature Scot will help inform us of any mitigation that may be required.

Cultural heritage

Cultural heritage features in the vicinity of the site include the Lews Castle and Lady Lever Park GDL, Stornoway Conservation Area, two scheduled monuments (Arnish gun emplacements and a dun within Loch Airinis) and three listed buildings: the Arnish monument (category C) and two buildings associated with the lighthouse on Arnish Point (category B).

Any potential to impact the cultural heritage of the site and its setting will be assessed and reported in the supporting documentation of the future planning application.

Environment

Landscape and visual amenity

The site is currently placed within an industrial setting. Visual amenity may be affected by the works for receptors located close to the site, in particular visitors to the Arnish Monument, users of the local access road and users of the ferry service as it passes this area.

However, the impact on the landscape and visual amenity of the site will be assessed and included in the supporting documentation for the planning application. Visualisations will be developed to support this from viewpoints around the site.

Hydrology, hydrogeology and geology

There are no mapped watercourses or water bodies within the site. Any potential for flooding to the site is limited to coastal flood risk. The risk from tidal/coastal, pluvial/ overland flow, sewers and drains and groundwater is considered to be low but will be further assessed.

A Construction Environmental Management Plan (CEMP) will be prepared to manage any potential contamination of the water environment from construction activities.

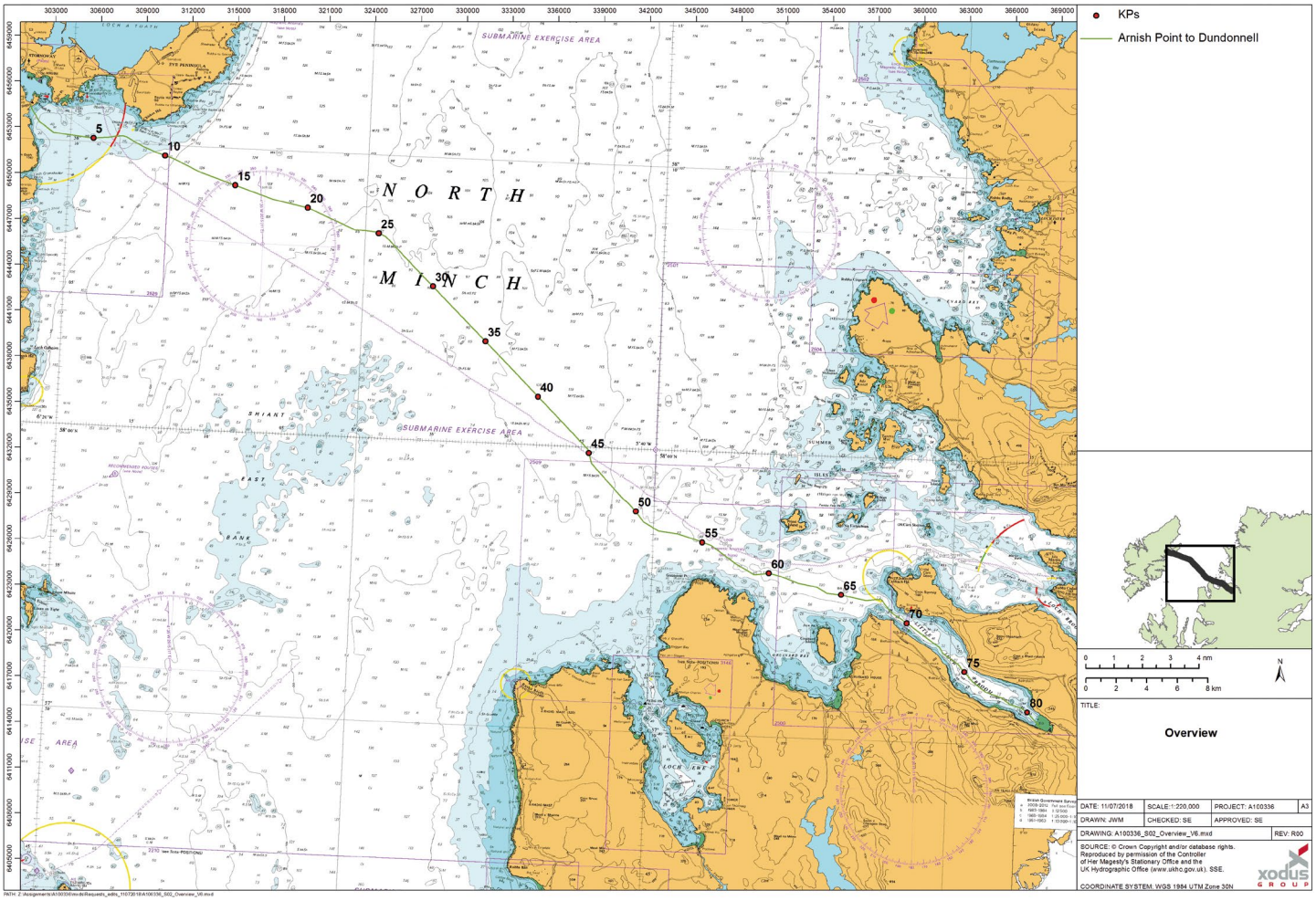
Marine route

A Marine License to install and operate an HVDC connection between Arnish on Lewis and Dundonnell on the Scottish mainland has been granted by Marine Scotland. The licence allows for the installation of the cable system and its associated protection, crossings and landfalls within a 200m wide corridor.

A detailed marine survey was undertaken to map the seabed, both depth and habitat data were collected and used to develop the cable route and subsequently, Marine Environmental Appraisal was drafted. Following application, to Marine Scotland, the route was refined to avoid, as far as possible, areas of shallow gas and Maerl beds. The final subsea route was granted consent in 2021.

A Horizontal Direction Drill (HDD) will be drilled from a land based drilling rig near the Arnish converter site. The HDD bore will pass through the bedrock to emerge on the seabed in approximately 22m of water. An HDD will be drilled for each of the cables to be brought ashore along with a spare duct.

Following the engagement of an installation contractor, the route will be reviewed and a pre-lay survey completed, the pre-lay survey will allow for the refinement of the installation engineering and route.



Notes

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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 will shortly be submitting our Town and Country Planning Application and we are seeking formal comments ahead of submitting an application to the Comhairle nan Eilean Siar. General comments on the proposal can be made throughout the 12-week PAN period. We seek feedback on this event by Friday 22nd July 2022.

To provide feedback on the proposal or to gain further information on the project, please complete a feedback form, or contact our Community Liaison Manager. Any comments made to Scottish Hydro Electric Transmission plc are not representations to the planning authority.

Once planning applications have been submitted, the public will have an opportunity to make formal representations to Comhairle nan Eilean Siar for the proposed Arnish HVDC Converter Station and GIS Substation before a decision is made on our application.

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

- Has the requirement for the project been clearly explained?
- Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team?
- Do you have any other comments regarding the site project?
- Following review of the provided information, how would you describe your understanding of the Arnish project?
- Overall how do you feel about the Arnish project?
- And finally, from your experience to date, can you rate the quality of consultation undertaken on the Arnish 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 feedback received will be assessed.

Feedback

We will be seeking feedback from members of the public on this exhibition until Friday 22nd July 2022.

Community Liaison Manager, Lisa Marchi

lisa.marchi@sse.com

01463 728 072

07825 015 507

Lisa Marchi
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/western-isles/

Follow us on Twitter:
@SSETransmission

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 requirement for the project been clearly explained?**

☐ Yes ☐ No ☐ Unsure

Q2 **Are there any additional factors, or environmental features, that you consider important and should be brought to the attention of the project team? Comments:**

Q3 **Do you have any other comments regarding the site project? Comments:**

Q4 **Following review of the provided information, how would you describe your understanding of the Arnish project?**

☐ I am very well informed ☐ Know a lot ☐ Know a little

☐ Know very little ☐ Know nothing at all

Q5 **Overall how do you feel about the Arnish project?**

☐ Support ☐ Neither support or object ☐ Object

Q6 And finally, from your experience to date, can you rate the quality of consultation undertaken on the Arnish project?

- ☐ Excellent
- ☐ Quite good
- ☐ Neither good nor poor
- ☐ Poor
- ☐ Very 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: lisa.marchi@sse.com

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

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/western-isles/

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.