



Scottish & Southern
Electricity Networks

TRANSMISSION

Northern Substation Hub

Public Information Session

October 2025



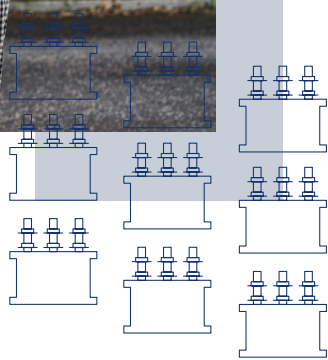
ssen-transmission.co.uk/shetland2

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The consultation event will be taking place on:

9 October 2025, 3–7pm
Brae Community Hall, Brae, Shetland, ZE2 9QJ



Powering change together



The time has come to further enhance Scotland’s energy infrastructure, providing power for future generations as we move towards net zero.

The shift to a cleaner, more sustainable future is about more than climate change. It’s about ensuring future generations have the same opportunities to thrive as we have all had.

Countries around the world are investing in their energy infrastructure to support the demands of modern economies and meet net zero targets. The UK is leading the way in building a modern, sustainable energy system for the future.

We all have a part to play

When it comes to net zero, we have to be in it together. The UK and Scottish governments have ambitious net zero targets, and we’re playing our part in meeting them.

We work closely with the National Energy System Operator (NESO) to connect vast renewable energy resources—harnessed by solar, wind, hydro and marine generation—to areas of demand across the country. Scotland is playing a big role in meeting this demand, exporting two thirds of power generated in our network.

But there’s more to be done. By 2050, the north of Scotland is predicted to contribute over 50GW of low carbon energy to help deliver net zero. Today, our region has around 9GW of renewable generation connected to the network.

At SSEN Transmission, it is our role to build the energy system of the future.

We’re investing £20 billion into our region’s energy infrastructure this decade, powering more than ten million UK homes and 20,000 jobs, 9,000 of which will be here in Scotland.

Who we are

We’re responsible for maintaining and investing in the electricity transmission network in the north of Scotland. We’re part of SSE plc, one of the world’s leading energy companies with a rich heritage in Scotland that dates back more than 80 years. We are also closely regulated by the GB energy regulator Ofgem, who determines how much revenue we are allowed to earn for constructing, maintaining, and renovating our transmission network.

What we do

We manage the electricity network across our region which covers a quarter of the UK’s landmass, crossing some of the country’s most challenging terrain. We connect renewable energy sources to our network in the north of Scotland and then transport it to where it needs to be. From underground cables, subsea cables and overhead lines to electricity substations, our network keeps your lights on all year round.

Working with you

We understand that the work we do can have an impact on our host communities. So, we’re committed to minimising our impacts and maximising all the benefits that our developments can bring to your area. We’re regularly assessed by global sustainability consultancy AccountAbility for how we engage with communities. That means we provide all the information you need to know about our plans and how they will impact communities like yours. We want to hear people’s views, concerns, or ideas and harness local knowledge so that our work benefits their communities, today and long into the future. You can share your views with us at: ssen-transmission.co.uk/talk-to-us/contact-us

The story so far

The Shetland Islands have a vital role to play in the UK’s clean energy future. This has been formally recognised through independent national planning. In March 2024, the National Energy System Operator (NESO) Beyond 2030 report confirmed that additional transmission infrastructure is needed, both on Shetland and to the Scottish mainland to connect future renewable generation and to support security of electricity supply across Great Britain.

This assessment forms the basis of the Shetland Strategy - NESO and Ofgem have tasked us with providing coordinated response to a confirmed need.

From National Plan to Local Action

- NESO’s findings were based on a comprehensive assessment of how the electricity network must evolve to:
- Meet net zero targets;
 - Manage increasing demand;
 - Support economic growth and
 - Maintain resilience

Shetland was identified as a strategically important location, not because of any one single project, but due to its long-term potential and critical role in the future energy network.

In December 2024, Ofgem, the GB energy regulator, endorsed this position by approving funding for early-stage development works in Shetland. This sits alongside Ofgem’s assessment of NESO’s broader Clean Power 2030 recommendations, with a final determination expected in December 2025.

Why this matters

The Shetland Strategy proposes a technologically robust solution, that is coordinated across the region and is shaped by local engagement and insight. The strategy serves Shetland’s known energy needs as well as provision of headroom for future growth. We have looked to minimise the amount of infrastructure to reduce the impact on communities and the environment.



March 2024

NESO publishes transitional Centralised Strategic Network Plan (tCSNP2) (Beyond 2030) confirming Shetland requirements



December 2024

Ofgem funds early-stage development



July 2025

Ofgem publishes Clean Power 2030 minded to position.



December 2025

Ofgem Clean Power 2030 determination expected.



You can read the NESO Beyond 2030 report here

The Shetland Strategy

We are leading some exciting projects to power change in the UK.

The Shetland Islands are uniquely positioned to support Great Britain’s journey to net zero, with a growing number of renewable energy projects, such as both onshore and offshore wind farms, and emerging demand projects, e.g. hydrogen production.

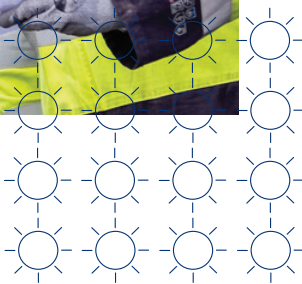
However, the existing electricity transmission infrastructure on Shetland requires investment to meet this growing demand. While the first Shetland High Voltage Direct Current (HVDC) link was the largest that could be installed at that time without overloading other parts

of the transmission system, it is no longer sufficient to support the scale of generation and demand now progressing through the development pipeline.

To address this, we have taken a strategic, long-term view of the network, one that recognises that these projects cannot be developed in isolation. Rather than respond to each connection need individually, the Shetland Strategy approach aims to design an integrated transmission solution that supports both near-term developments, and future growth across Shetland.



ssen-transmission.co.uk/shetlandstrategy



Shetland projects overview

- 1

Yell wind farm connections
Connects the wind farm projects to Yell Substation.
- 2

Yell Substation
A substation to connect the two wind farm projects, and also offers opportunity for further expansion and resilience to the Distribution supply on the island.
- 3

Yell Marine link
A subsea cable, with associated onshore circuit to connect Northern Substation Hub to Yell Substation.
- 4

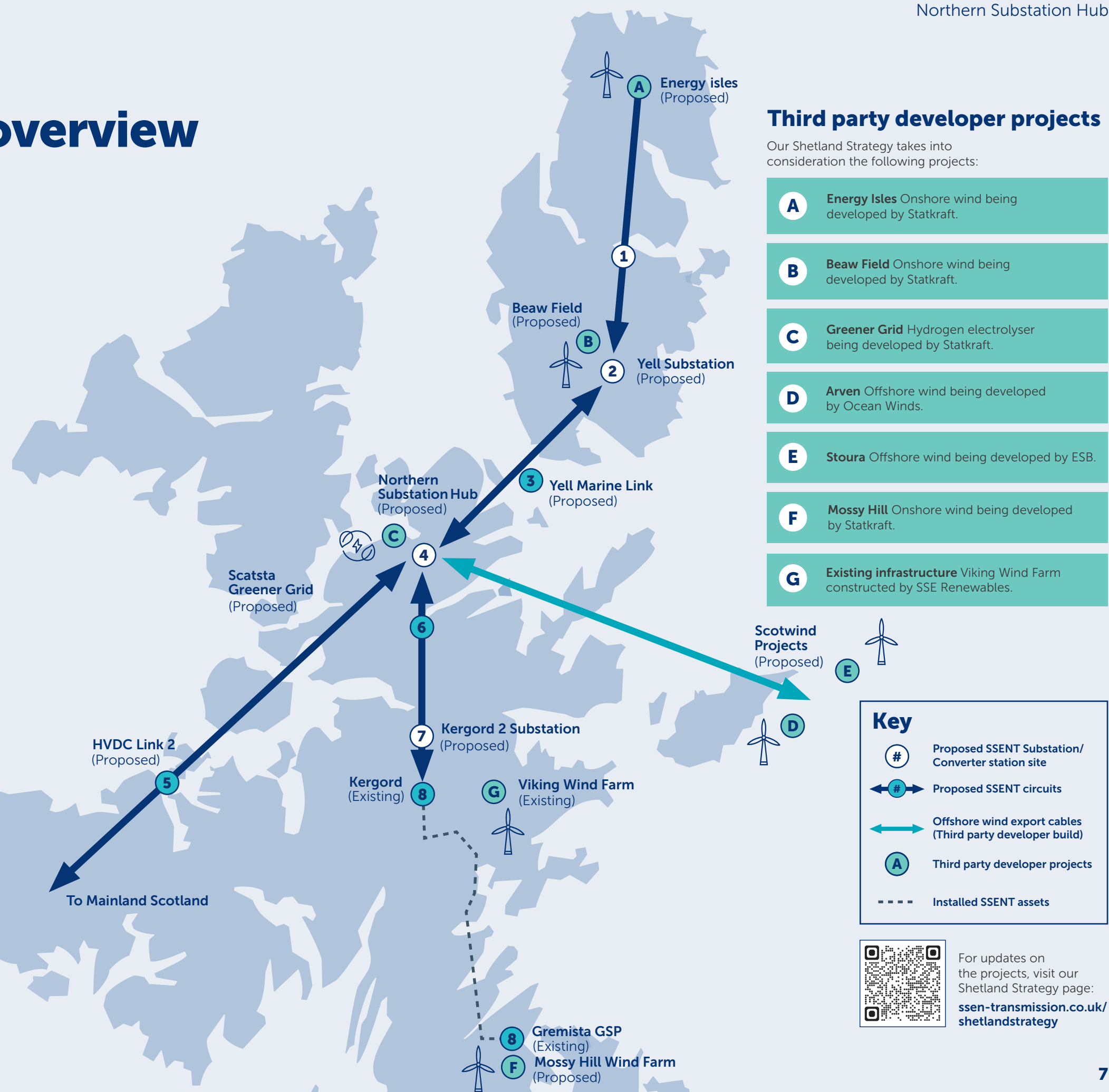
Northern Substation Hub
A 2GW HVDC converter station which connects to a 2nd subsea link to mainland Scotland. This will also be the site of substations which allow the island of Yell and the Scotwind and Greener Grid projects to connect to the Transmission Network. This site will also have capacity to support future unconfirmed projects like electrification of oil and gas platforms.
- 5

HVDC subsea link
A subsea cable connecting the new converter site at the Northern Substation Hub on Shetland with a new converter site on the Scottish mainland.
- 6

Connection from Northern Hub to existing Kergord
Circuits running between Kergord, Kergord 2 and the Northern Substation Hub.
- 7

Kergord 2 substation
A substation which changes the network voltage from 132kV to 220kV. A higher voltage means less circuits north of this point, minimising our impact on communities and the environment.
- 8

Existing infrastructure
The Kergord site is home to our existing HVDC converter station, connecting Shetland to mainland Scotland for the first time through a subsea transmission link. It is also where the Viking wind farm connects. Under construction currently is a transmission link to Gremista, where it will connect into the Distribution network.



Third party developer projects

Our Shetland Strategy takes into consideration the following projects:

- A

Energy Isles Onshore wind being developed by Statkraft.
- B

Beaw Field Onshore wind being developed by Statkraft.
- C

Greener Grid Hydrogen electrolyser being developed by Statkraft.
- D

Arven Offshore wind being developed by Ocean Winds.
- E

Stoura Offshore wind being developed by ESB.
- F

Mossy Hill Onshore wind being developed by Statkraft.
- G

Existing infrastructure Viking Wind Farm constructed by SSE Renewables.

Key

#

Proposed SSENT Substation/ Converter station site

↔ #

Proposed SSENT circuits

↔

Offshore wind export cables (Third party developer build)

A

Third party developer projects

Installed SSENT assets

For updates on the projects, visit our Shetland Strategy page:
ssen-transmission.co.uk/shetlandstrategy

Project need and overview

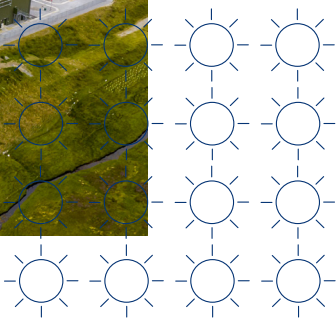
Since recognising Shetland as a key location for transmission infrastructure, we are proposing a new Northern Hub to the north of Mainland Shetland.

The Hub will consolidate all major infrastructure on a single site—within a single platform size of approximately 40 hectares in size—minimising local impact while supporting the UK’s wider energy strategy. It will include substations, an HVDC converter station, control buildings, access roads, drainage, landscaping, and temporary construction facilities.

To withstand Shetland’s harsh environment of high winds, salt spray, and severe weather, the switchgear and related equipment will be housed indoors. This design improves reliability, reduces maintenance, protects critical assets, and lessens visual impact by containing most infrastructure within buildings rather than exposed outdoor structures.

Overview

- **400kV Substation** - A 400kV substation is required in the Northern Shetland area to support offshore and onshore electricity generation connections as well as onshore and offshore transmission infrastructure in the area. The substation, to be commissioned in 2034, will be housed in a building.
- **220kV Substation** - A second substation is required in the Northern Shetland area to support further future generation and storage connections from third party developers. The substation, similar to the 400kV substation will be housed in a building.
- **Shetland 2 HVDC Link Converter Station** A 2GW bi-pole, 525kV HVDC link is proposed between Northern Shetland and Scottish Mainland, enabling the efficient, high-volume transmission of renewable electricity from Shetland and the far north of Scotland directly into the wider UK transmission network. This project element consists of two HVDC converter stations, one at each end of the link with subsea and underground HVDC cable route along with the associated AC cable to the connecting substations.



Help shape our plans

At SSEN Transmission, we are committed to delivering a robust and transparent consultation process underpinned by inclusion and accessibility. As a stakeholder led business, we understand the importance of involving communities and key stakeholders throughout each stage of our development process.

This period of engagement in the development phase is vital in shaping our proposals and to do this effectively, we need to capture feedback from stakeholders, harness local knowledge to identify risks in key areas of the corridor and explore potential community benefit opportunities. Today we are presenting our approach to developing this project, including technology options, environmental considerations, the routing process, corridor selection and presenting maps which aim to give stakeholders and community members a better visual representation of the work on the project to date.

If you require additional support to submit your views, please contact our Community Liaison Team on ShetlandEngagement@sse.com who will happily assist you.

What we are consulting on today

Desktop surveys and early analysis have enabled us to identify our proposed technology and proposed substation site within our study area. Sharing our approach to developing this project and the rationale behind our early proposals, we are keen to hear stakeholder views regarding our proposed site and if there are further considerations you believe need to be taken in to account during the next stage of the development process.

Who we are consulting with

We are keen to hear feedback from a broad range of stakeholders including but not limited to local residents, landowners, businesses, non-statutory consultees and statutory consultees such as local authorities, Nature Scot, SEPA and Historic Environment Scotland. We would encourage all those with an interest to submit their views through this consultation by submitting a feedback form.



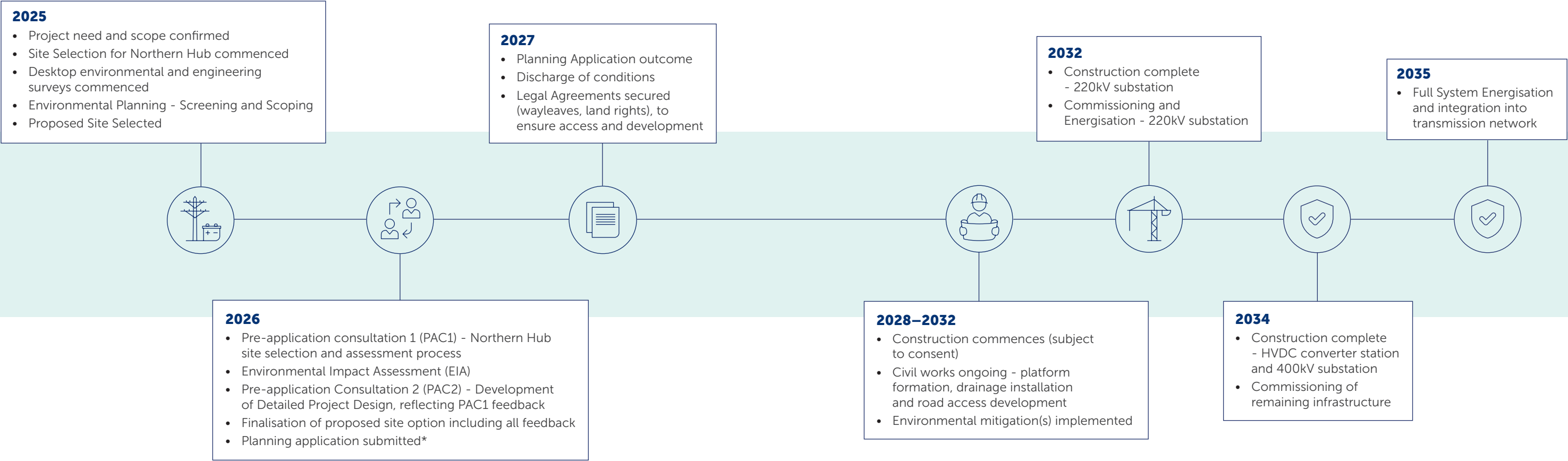
Project timeline

We are currently in the Site Selection stage, which includes environmental assessments, technical studies, and early engagement with stakeholders and communities. While timelines may shift as the projects progress, our commitment to a collaborative approach will remain constant throughout every stage.

*Northern Substation Hub will require an application for planning permission to be submitted to the relevant Local Planning Authority (Shetland Islands Council) under the Town and Country Planning (Scotland) Act 1997.

This large scale project may be subject to Environmental Impact Assessment (EIA). This requires an application to be supported by a formal EIA Report together with robust consultation and mitigation proposals.

Should the proposed development be deemed non-EIA (due to its scale or potential environmental impacts), a voluntary Environmental Appraisal will be produced by SSEN Transmission to support the application.



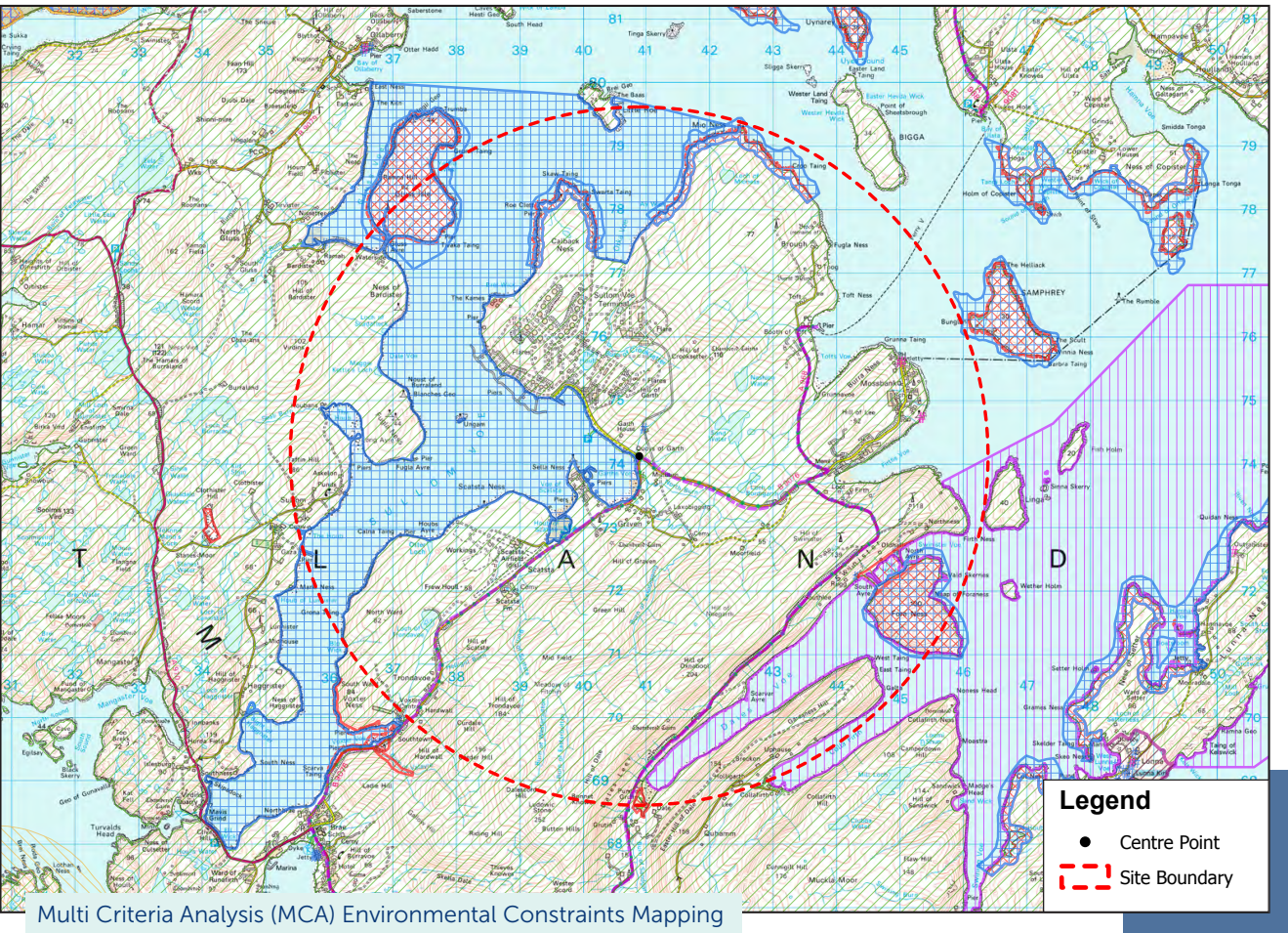
Hub site selection process

Our site selection process ensures that the design, consenting, construction and operation of our projects are undertaken in a manner, which on balance, causes the least disturbance to the local community and environment, while ensuring the solution taken forward is economically and technically practical.

Stage 0: Strategic options appraisal

A 5km search radius was applied to offer suitable land coverage due to limitations of landform and coastal geography. Within this area, several key parameters guided the search: proximity to Yell and future connections such as offshore generation and hydrogen production; availability of a site of sufficient scale; capacity to accommodate AC and HVDC cable corridors; and topographical and infrastructure considerations.

Drawing on expert judgement, local knowledge, and technical requirements, these parameters formed the basis for a Multi-Criteria Analysis (MCA), ensuring a consistent and transparent comparison of potential sites. Using the MCA framework, high-level constraints mapping and desk-based review identified land parcels capable of supporting the development. This exercise produced an initial long-list of 11 sites, each meeting the core siting criteria and therefore progressing to the next stage.

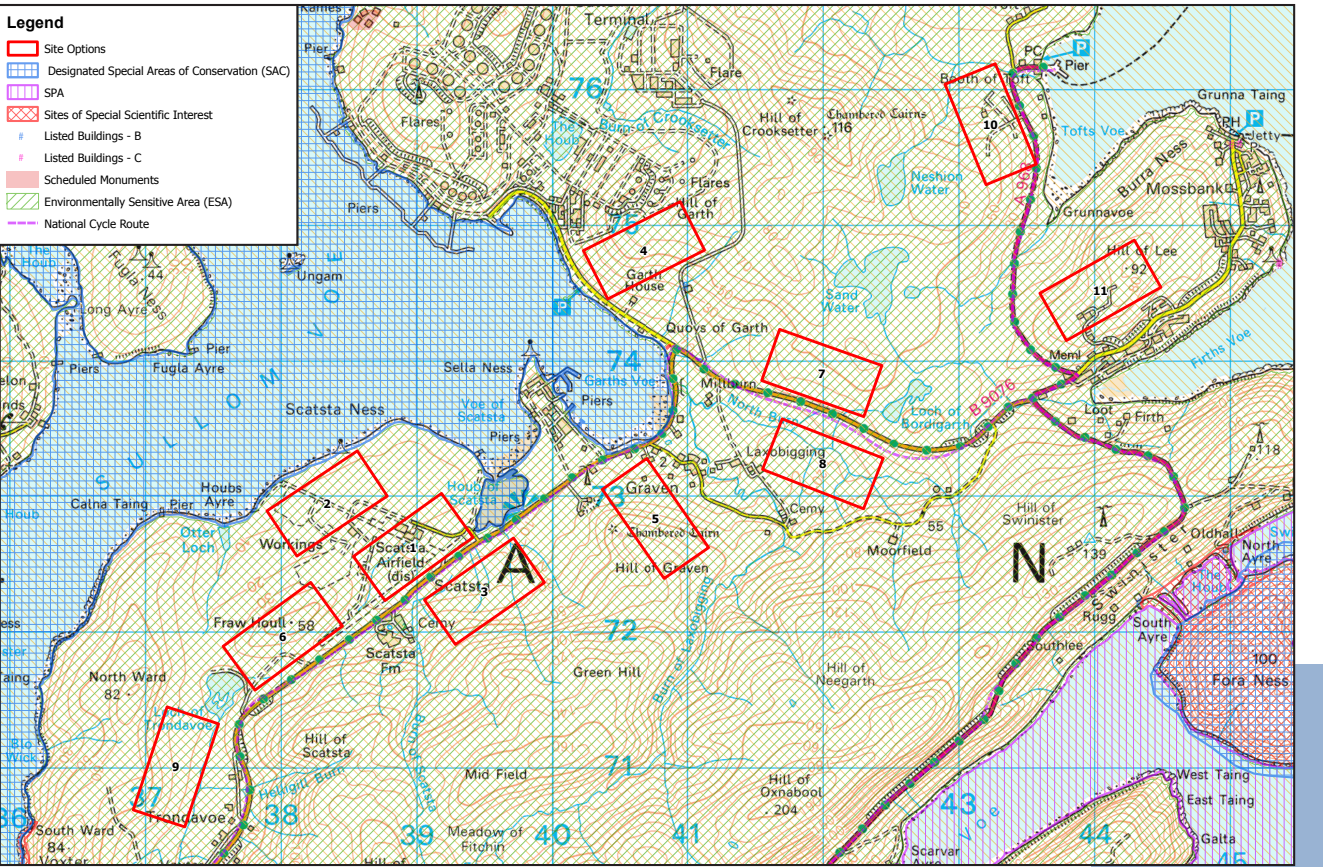


Stage 1: Site Selection

A comparative assessment of these options was then carried out against refined selection parameters. Scatsta Farm, Garth House, and Graven were discounted primarily because of extensive priority peatland coverage, challenging topography, and significant cultural or historic environment sensitivities, alongside limitations for future development. Sand Water, Laxobigging, and Trondavoe were excluded on similar grounds, with all three located on extensive priority peatland and subject to notable landscape and visual impacts, separation from the established industrial footprint, and potential conflicts with heritage settings and nearby residential receptors. Collectively, these factors rendered the six sites unsuitable for progression compared with alternative locations with fewer environmental and planning risks, leaving a shortlist of five preferred sites within three broad locations—Scatsta, Toft and Hill of Lea.

These shortlisted sites demonstrated the strongest alignment with the project’s operational and strategic requirements and will be taken forward for further analysis in the Stage 2 site selection process.

| Site | Area | Proceed |
|------|------------------|---------|
| 1 | Scatsta Airfield | Yes |
| 2 | Scatsta Ness | Yes |
| 3 | Scatsta Farm | No |
| 4 | Garth House | No |
| 5 | Graven | No |
| 6 | Fraw Houll | Yes |
| 7 | Sand Water | No |
| 8 | Laxobigging | No |
| 9 | Trondavoe | No |
| 10 | Toft Camp | Yes |
| 11 | Hill of Lea | No* |



Stage 2 site selection: What's next?

*Hill of Lea was since discounted due to its prominent hilltop position, strong visual impact, proximity to large residential populations, and competing land uses such as housing and community allotments.

The four remaining shortlisted options across two locations (Scatsta and Toft) have been passed on to an environmental consultant for further environmental assessment, alongside further engineering and development suitability reviews.

Design development of the Northern Hub site is ongoing and we remain committed to engaging with stakeholders and the local community, incorporating feedback wherever feasible. We will be holding pre-application consultation events in Spring 2026 where we will share feedback from this public information session together with additional level of design detail ahead of submitting a planning application to the Shetland Islands Council.

Building a lasting legacy

Our community benefit funds

Following an extensive stakeholder consultation exercise in 2023, we launched our first community benefit fund in 2024, to fund a range of community projects across the north of Scotland and the Shetland islands. These funds are open to applications from not-for-profit, constituted groups and organisations. There are two types of funds available:

Local funds

In anticipation of the expected UK government's guidance on community benefit funding, we have launched four preliminary local funds connected to projects recently completed or currently under construction. These funds will vary to reflect the differing needs, wishes and priorities of each of the local communities.

Local Community Benefit Funds are intended for local communities close to our transmission infrastructure works. We will work with those communities to design a fund that can make a positive local impact. We will work with independent panels to make funding allocation decisions, and we will support local communities to ensure best use of the funding opportunities.

Regional funds

This fund is to be used to provide support for strategic projects in the region, and must meet one or more of the following themes:

People: Focusing on skills, training and employability;

Place: Emphasising the community and culture of the north of Scotland and the Shetland islands;

Alleviating fuel poverty: Looking at strategic ways to help people across the region.

Local impact in focus

In Shetland, community benefit funds are already being put to work. A total of **£338,625** was awarded through SSEN Transmission's new cable community fund linked to the first Shetland-Scottish mainland HVDC cable.

Shetland's allocation, being delivered via the local charity Win Furt is earmarked for community-driven infrastructure, such as footpaths and cycle routes in Tingwall, Whiteness and Weisdale, as identified through local consultation.

Indicative funding levels

UK government guidance sets out indicative levels of community benefit funding for transmission infrastructure. These figures provide a useful benchmark for the types of investment local communities should expect:

Overhead lines: £200,000 per km
Converter stations/substations: £530,000 each

Based on this guidance, the Shetland strategy projects are poised to deliver over **£2 million** in community benefit funding, helping to support tangible long-term improvements for local people in Shetland.



Next steps

We value community and stakeholder feedback. Without this, we would be unable to progress projects and reach a balanced proposal.

The feedback period

Following our events, a consultation period will open until **Thursday 6 November 2025**.

How to provide feedback

You can complete our feedback form online, using the feedback form at the back of this booklet or submit feedback in writing or email. The feedback will be analysed by the project team and a report on consultation produced and published on our website detailing our response to your feedback.

The second round of consultation, in **Spring 2026** will detail how the feedback has been taken on board as we continue to progress through the site selection process.

Our Community Liaison team

Each project has a dedicated Community Liaison Manager who works closely with community members to make sure they are well informed of our proposals and that their views, concerns, questions or suggestions are put to our project teams.

Throughout the life of our projects, you will hear from us regularly. We aim to establish strong working relationships by being accessible to key local stakeholders such as community councils, residents' associations and development trusts, and regularly engage with interested individuals.

What we're seeking views on

We want to know your thoughts on the routes under consideration. We'll be actively looking to mitigate the impacts of the project as much as possible over the coming months, but it would be helpful to understand what you believe we should be doing to help minimise these impacts and if there are any opportunities to deliver a local community benefit you would like us to consider.

We encourage all interested community members to fill in a feedback form when submitting feedback, however if you prefer, you can email us to provide your feedback or ask any questions.



To support everyone online, we provide accessibility and language options on our website through 'Recite Me'. The accessibility and language support options provided by 'Recite Me' include text-to-speech functionality, fully customisable styling features, reading aids, and a translation tool with over 100 languages, including 35 text-to-speech.

Please select "Accessibility" on our website to try out our inclusive toolbar."

How to get in touch

 SSEN Transmission, Stewart Building, Lerwick, Shetland, ZE1 0LL

 shetlandengagement@sse.com

Additional information:



The best way to keep up to date is to sign up to project updates via the project webpage:
ssen-transmission.co.uk/shetland2

You can also follow us on social media:



@sentransmission



@SSETransmission

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

☐ Yes

☐ No

☐ Unsure

Comments:

Q2. Have we adequately explained the need for the Northern Substation Hub?

☐ Yes

☐ No

☐ Unsure

Comments:

Q3. Are you satisfied that our approach taken to selecting our site options has been adequately explained, and do you agree with it?

☐ Yes

☐ No

☐ Unsure

Comments:

Q4. Are there any factors, or environmental features that you consider may have been overlooked by the project team?

☐ Yes

☐ No

☐ Unsure

Comments:



Q5. Do you have any other comments or concerns in relation to the project?

Comments:

Full name: **Email:**

Telephone: **Address:**

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 stakeholder.admin@sse.com or by clicking on the unsubscribe link that will be at the end of each of our emails.

☐

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 submit your completed form by one of the methods below:

Post: SSEN Transmission, Stewart Building, Lerwick, Shetland, ZE1 0LL

Email: shetlandengagement@sse.com

Online: ssen-transmission.co.uk/shetland2

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: ssen-transmission.co.uk/privacy

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

We intend to use Artificial Intelligence (AI) to assist our experienced teams in the analysis of your feedback, so we can categorise key points raised more quickly. You can learn more about how we're utilising AI at: ssen-transmission.co.uk/AIFAQ

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

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