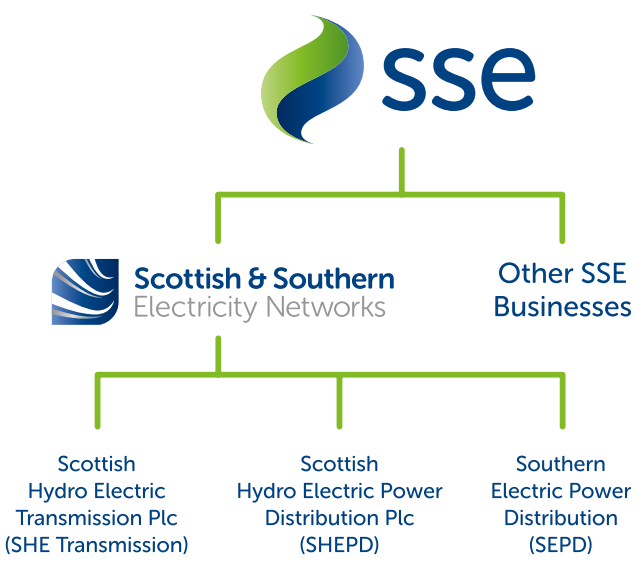
Scottish & Southern Electricity Networks

TRANSMISSION

Who we are

We are Scottish and Southern Electricity Networks, operating under licence as Scottish Hydro Electric Transmission plc (SHE Transmission) for the transmission of electricity in the North of Scotland.



In total we maintain about 5,000km of overhead lines and underground cables – easily enough to stretch across the Atlantic from John O'Groats all the way to Boston in the USA.

Our network crosses some of the UK's most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

The landscape and environment that contribute to the challenges we face also give the area a rich resource for renewable energy generation. There is a high demand to connect from new wind, hydro and marine generators which rely on Scottish and Southern Electricity Networks to provide a physical link between the new sources of power and electricity users. Scottish and Southern Electricity Networks is delivering a major programme of investment to ensure that the network is ready to meet the needs of our customers in the future.

Our responsibilities

We have a licence for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator the Office of Gas and Electricity Markets (Ofgem).

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

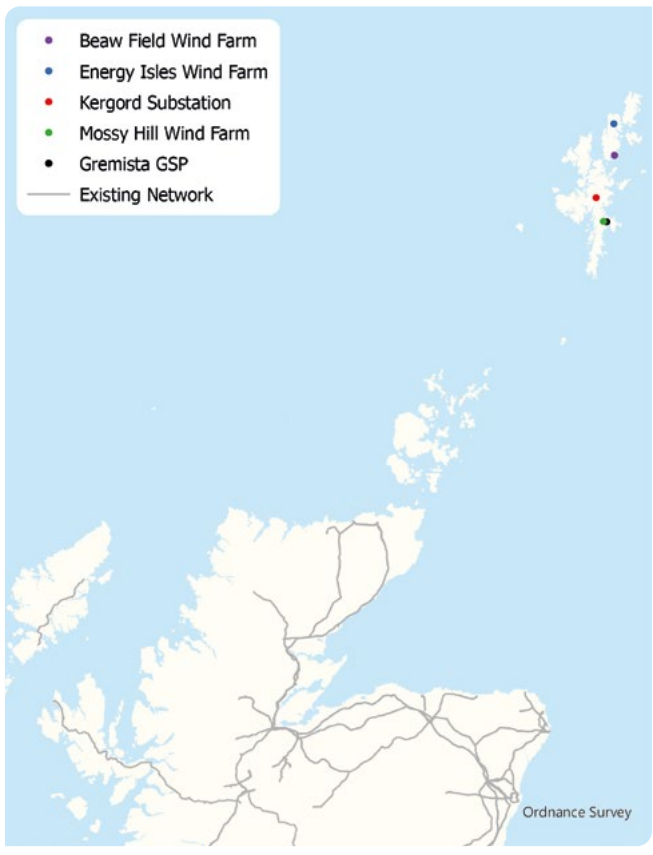
What is the difference between transmission and distribution?

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 (OHL), underground cables (UGC) 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 Background

As Transmission operator for the North of Scotland, we have a license obligation to provide connections for generators looking to connect to the GB transmission network.

There is currently significant renewable generation contracted on Shetland. To provide these generators with a connection we will need to create a new transmission network to connect from each wind farm to Kergord Converter Station. This will be a new High Voltage Direct Current (HVDC) Link which will enable power generation from Shetland to be transferred to the UK mainland via a 260km subsea cable connecting to a new Direct Current (DC) Switching Station at Noss Head in Caithness.

We are also contracted to provide a new 32kV Grid Supply Point (GSP) Substation for Scottish Hydro-Electric Power Distribution (SHEPD) which will supply Shetland Island demand. The location of the GSP is still to be determined but it will be near to the existing 33kV Substation at Lerwick Power Station. A connection from Kergord will enable island demand to be supplied from renewable wind generation.

To enable these connections, the following project elements are required:

- A new 132kV Switching Station located on Yell to connect Energy Isles and Beaw Field Wind Farms;
- New 132kV connections from the proposed Yell Switching Station to Energy Isles (Yell) and Beaw Field Wind Farms, likely to be overhead line with sections of underground cable;
- A new 132kV transmission connection from Yell Switching Station to Kergord 132kV Substation and HVDC Converter Station. This will consist of a combination of 132kV land cable, overhead line and a subsea cable between Yell and Mainland Shetland;
- A mixture of new 132kV UGC and OHL to connect Mossy Hill Wind Farm to one of the Gremista connections to form a tee connection;
- A mixture of new 132kV UGC and OHL to connect Gremista GSP to Kergord.

Shetland HVDC Project
Once complete the Shetland Project will allow for the export of renewable generation from Shetland to the UK mainland, connecting Shetland to the Nation's Electricity Transmission System for the first time.

Project Elements: The project consists of:

- A 132kV Gas Insulated Switchgear (GIS) substation using 'clean-air' technology for the first time and a ±320kV HVDC convertor station at Upper Kergord on Shetland;
- A ±320kV DC cable approximately 260km long, of which approximately 10km is land cable and 250km subsea cable, connecting Kergord converter station to a DC Switching Station on mainland Scotland at Noss Head which is in Caithness, Moray; and
- A ±320kV Noss Head DC Switching Station which will break into the existing Caithness-Moray HVDC Link, completed in January 2019, connecting to the existing Blackhillock and Spittal converter stations to form a new three-terminal HVDC Link.

For further information on the project please follow the link:
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Subsea Cable Route Optioneering

Two subsea cable corridor options (preferred and less preferred) have been identified during a desk-based route selection study, which also incorporated bathymetric survey data for the area.

The aim of this route selection process was to identify a route corridor which represents the optimal balance between environmental, technical and cost constraints. This was an iterative process, with additional landfalls and corridors being identified as the route selection study progressed.

The route selection process included:

1 **Initial high-level desktop study to identify potential route corridor options**

Seven route corridors were developed within a broad search area through a high-level review of key environmental and technical constraints. These connected suitable landfall options on Mainland Shetland and Yell, which were nearby to the planned onshore infrastructure. Bathymetric survey data was only partially available for the broad search area and to fill this knowledge gap, a reconnaissance survey was conducted in 2020.

2 **Black, Red, Amber, Green (BRAG) assessment**

Each potential route option was assessed in more detail, using a BRAG approach. This approach considers the environmental and technical constraints relative to each route corridor option. Environmental constraints included designated sites, sensitive habitat types, other sea users (aquaculture sites, fishing activity and existing seabed assets) archaeological features, while technical constraints included seabed slopes and sediment types. Constraints relevant to each route option were identified, and resulting consenting and technical risk categorised as: Black (very high risk), Red (high risk), Amber (moderate risk) and Green (low risk).

3 **Identification of preferred and less preferred route corridors**

Each route corridor option was compared based on the BRAG assessment. Two potential route corridors (one preferred and one less preferred) were selected as being the most technically and commercially viable options with the lowest environmental impact.

Figure 1 - Route Options

Figure 2 - Preferred route options

Preferred Corridor: Firth Ness to Burravoe

Next steps
The route selection and engineering process will continue as the development progresses. The preferred option will be selected, and the corridor/landfall area refined based on the results of the planned surveys and stakeholder feedback.

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Subsea Corridors

Two cable corridors are being considered at this stage which were identified during the route selection workshops, one preferred and one less preferred. The details of the corridors are:

Cable corridors and landfalls

- **Preferred cable corridor:** Firth Ness (Shetland Mainland) to Burravoe (Yell)
- **Alternative Landfalls:** For both corridors, alternative landfalls are being considered at Copister (Yell) and Lunna Voe (Shetland Mainland)

Cable lengths:
9 – 11km, depending on the selection of the subsea corridor and landfall.

Key Environmental Sensitivities Ecology

- **Benthic ecology** including maerl beds and potential reef habitat; and
- **Designated sites** including Yell Sound Coast Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI) and East Mainland, Sheltland Special Protection areas (SPA).

The subsea cable route for the Shetland-Yell High Voltage Alternating Current (HVAC) Link is expected to lie within the subsea corridor/landfall options. The final Shetland-Yell HVAC Link corridor will be selected based on stakeholder feedback and the results of the proposed surveys.

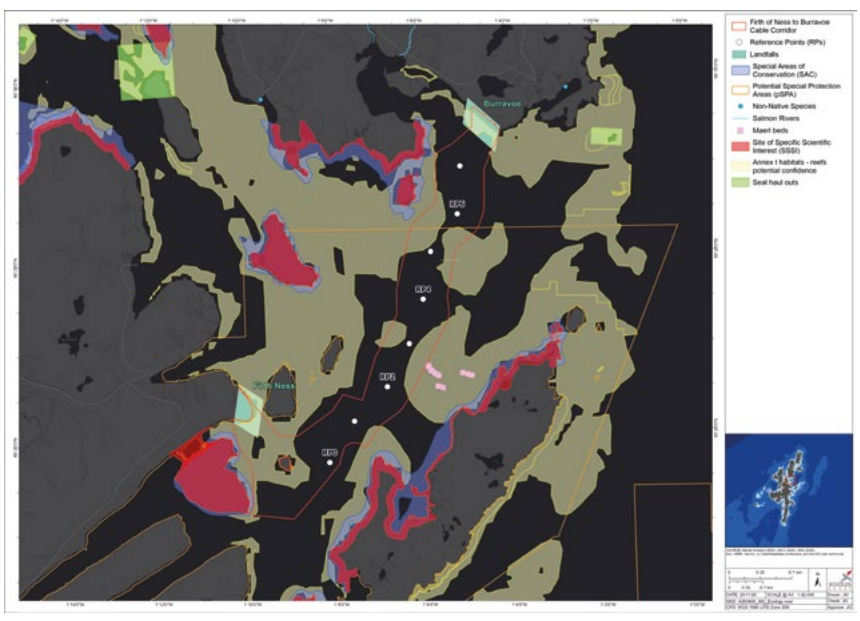

Figure 3 - Ecological Sensitivities

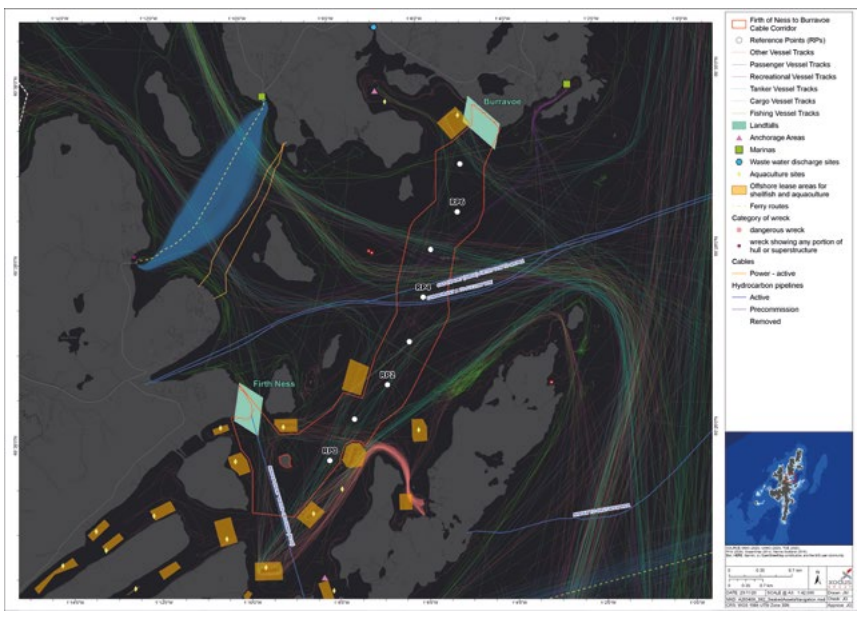

Figure 4 - Other Sea Users

Other Sea Users

- **Existing infrastructure** (including aquaculture sites and pipelines);
- **Anchorage areas;** and
- **Commercial fishing activities.**

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Proposed Marine Surveys

Marine surveys will be conducted to inform the development of the subsea cable route.

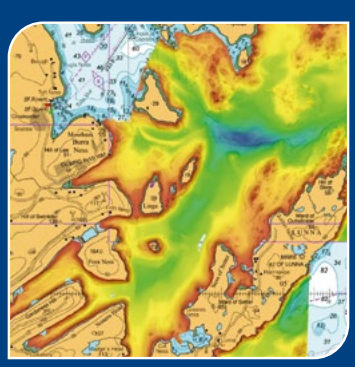
Initial bathymetry data is already available, however, the surveys planned to be undertaken in Quarter 3 2021 will gather further information on bathymetry, seabed sediments, tidal currents, biological features and marine archaeology within the proposed route corridor. The information obtained by these surveys will be used alongside information gained from desk-based studies and stakeholder consultation on other users of the sea (e.g. fishing, shipping and aquaculture site operators) to refine the route corridor and inform the Cable Burial Risk Assessment (CBRA) and the Marine Environmental Appraisal (MEA).

The marine survey operations will include:

1

Geophysical survey
To determine water depths, seabed features, surficial sediment types, tidal current conditions, shallow geology, object detection (including archaeological features) and the locations of existing seabed assets.

Instruments used: Multibeam Echo Sounder (MBES), Side Scan Sonar (SSS), Sub-bottom Profiler (SBP), Magnetometer and Acoustic Current Doppler Profiler (ACDP).



2

Environmental survey
Data from SSS and the MBES will be used to ascertain the benthic habitat types present within the route corridor. The focus will be to identify and determine the extent and location of potentially sensitive habitats such as Annex 1 Reefs. Habitat maps will be developed, and the findings then ground truthed using sediment grab sampling and drop down camera visual inspection to identify and quantify the benthic species present in each predicted habitat type.

Instruments used: Grab sampler and drop-down camera.

3

Geotechnical survey
To determine the structure and physical properties of the surficial and shallow sediment layers in order to inform cable protection and burial requirements. Following the analysis of the geophysical survey data, geotechnical sampling locations will be identified to further understand the properties of the seabed sediments present with the route corridor. Core samples will be retrieved for further laboratory analysis, and in situ penetration testing conducted.

Instruments used: Vibrocorer and Cone Penetrometer Testing (CPT).

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Subsea Cable Installation

The subsea cable installation will involve a maximum of two separate cables being laid within a corridor of approximately 200m offshore and 500m at both landfalls. The corridor will be defined as the project progresses, based on the route selection study, stakeholder feedback and the proposed surveys.

The installation of the cable(s) will be split into the following campaigns:

1. **Pre-lay survey** – a detailed survey may be undertaken along the consented corridor.
2. **Pre-lay grapnel run** – a grapnel will be used to clear any abandoned cables or discarded or abandoned fishing gear from the route.
3. **Boulder/Debris Clearance** – any boulders/ debris that present a threat to subsea operations that cannot be avoided by route refinement will be removed.
4. **There are two main options to enable cable burial:**
   a. Pre-lay trenching – a plough is used to create a trench into which the cable is laid prior to the trench being backfilled.
   b. Post-lay trenching – the cable is laid on the seabed and a trenching tool follows the cable lowering it into the seabed.
5. **Cable protection** – in some areas where the seabed is very hard e.g. bedrock or where the sediment is very thin, the cable may be protected using rock placement, concrete mattresses or ducting.
6. **Post-Installation surveys** – detailed surveys will be undertaken to confirm the location of the installed cable and any areas of external cable protection.
7. **Shore approaches** – at both landfalls, the cable will be brought ashore through pre-installed Horizontal Directional Drilling (HDD) ducts which will emerge on the seabed at a suitable distance offshore up to 1000m).

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Marine Consenting & Consultation

Consents & Licences

The following consents and licences will be sought for the Shetland-Yell HVAC link:

- **Marine Licence from Marine Scotland Licensing Operations Team (MS-LOT);**
- **Marine Works Licence from Shetland Islands Council (SIC);**
- **Seabed Lease from Crown Estate Scotland (CES); and**
- **European Protected Species (EPS) licences from MS-LOT for geophysical survey operations (pre-construction and installation).**

The Marine Licence and Marine Works Licence will be supported by a ME and Digital MEA.
The scope of the MEA will be guided through specific consultation with MS-LOT, SIC and relevant statutory and non-statutory consultees. The MEA will assess the potential environmental impacts of the Shetland-Yell HVAC Link, with a focus on key environmental sensitivities identified through desk-based analyses, stakeholder feedback and the results of the proposed surveys.

Stakeholder Consultation

The views of marine stakeholders and the community will be sought for various aspects of the development and this will directly inform the project development and the associated consenting process.

The key stakeholder consultation activities for the development include:

1. Public Consultation:
Further public consultation events will be conducted throughout the development and consenting phase of the Shetland – Yell HVAC Link which will inform the local community of current progress, and seek your views on the project. These events will also meet the requirements of the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013. The next public consultation event is planned for September 2021.

2. Targeted Consultation:
Targeted consultation will include topic-specific consultation with the project's key marine stakeholders. Stakeholder groups that will be a focus for the targeted consultation include the operators of aquaculture sites and pipelines in the vicinity of the corridors, local harbour authorities, nature conservation organisations (e.g. NatureScot), recreational water users and local fishing vessel operators and representatives.

At the current stage of the development, stakeholder consultation is focussed on identifying and understanding environmental constraints and stakeholder concerns for the Shetland-Yell HVAC Link and the preferred and less preferred subsea cable corridor options. The responses from this initial stakeholder consultation will directly inform the next stage of the route selection/refinement process, in combination with the information gained from the proposed surveys.

We will continue to seek views from the community and stakeholders as the route corridors are refined. Future consultation will also focus on the MEA and more detailed aspects of the subsea cable installation (e.g. proposed installation and protection techniques).

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Onshore Connection Routeing Process

SHE Transmission's approach to identifying where a new onshore transmission connection is to be located follows a detailed process where technical, environmental and cost criteria are assessed and considered in balance. Stakeholder, public and landowner feedback is also an important part of his process.

The overall aim is to reach a final preferred alignment for both overhead lines and underground cables, which is typically between 30 – 100m in width.

This project is currently at routing stage, and preferred connection routes are being taken to stakeholders and the public for comment, ahead of work on alignment selection.

The purpose of this stage is to agree the proposed route to be taken forward to design of alignment.

Connections are likely to be a combination of overhead lines and underground cables, with underground cable sections designed to avoid particular technical constraints (e.g. wind turbine toppling distances and interaction with existing infrastructure).

Overhead Line/Cable Routeing Process

SHE Transmission's approach to identifying where a new overhead power line is to be located follows the four stages illustrated below. This project is currently at Stage 2 - Route Selection.

At each stage in the process,studies are increased in detail and resolution to enable us to determine the best balance of cost, technical and environmental considerations.

This staged process leads to the eventual identification of a proposed alignment to be taken to consent application stage. Consultation with relevant stakeholders is carried out at every stage of the process.

The objective of Stage 2 is to identify a "Preferred Route" for further appraisal and consultation. Preferred routes are typically 1km wide, although may be narrower or wider in specific locations in response to certain constraints.

Baseline Routes are identified following technical engineering factors:

- **Environmental design**
  - altitude and proximity to coast
- **Topography**
  - terrain, waterbodies and slopes
- **Ground conditions**
  - peat, rock and flood zones
- **Access**
  - existing road networks and access tracks
- **Existing infrastructure**
  - roads, pipeline
- **Existing electricity network**
  - proximity to exisiting overhead lines, connectivity and crossings
- **Operational**
  - maintenance, flexibility and fault finding.

The land and environmental teams then systematically evaluate these baseline routes and identify preferred route options that reduce impacts on the environment, residents and landowners. The preferred Routes are appraised by engineering, environment, land and the project management teams.

The Preferred Routes are what we are presenting for consultation and represents our best opportunity to achieve an economically viable, technically feasible and environmentally sound solution. Following consultation with the public, statutory bodies and landowners the Preferred Route will be taken into the next Alignment stage of the project.

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Preferred Routes

Onshore Connections

Selecting new hybrid overhead line and underground cable connection routes follows a detailed site selection process, with environmental and technical criteria examined in detail, and cost comparisons also completed for the routes.

Technically feasible routes are assessed to identify the optimum solution for the project. Once a preferred route has been selected, this is taken to the stakeholders, the public and landowners to gain feedback. Information on the preferred onshore routes are given below, and we are inviting comments on these route proposals.

Kergord to Gremista Grid Supply Point and Mossy Hill Wind Farm

Onshore routes have been carefully considered between Kergord Converter Station and Gremista GSP and Mossy Hill Wind Farm. Two trident low profile support overhead lines will be needed between Kergord and Gremista/Mossy Hill, and some sections may require to be underground cable, particularly on approach to Kergord and close to the connection point at Gremista.

Three technically feasible routes were identified and considered in detail against environmental, technical and cost criteria. KG1A was chosen as the preferred route option, and we would welcome any feedback and comments on this preferred route.

Undergrounding of some sections of existing distribution overhead lines will be needed to accommodate the new connection.

Kergord to North Mainland Shetland

Two landfall options have been identified at Firth Ness (preferred landfall) and Cul Ness (Lunna).

Onshore routes from Kergord to these landfalls have been identified and examined in detail in terms of technical, environmental and cost criteria.

KL1 has been identified as the preferred route option for a single trident low profile support overhead line between Kergord and Firth Ness, although sections of this connection are also likely to be via underground cable.

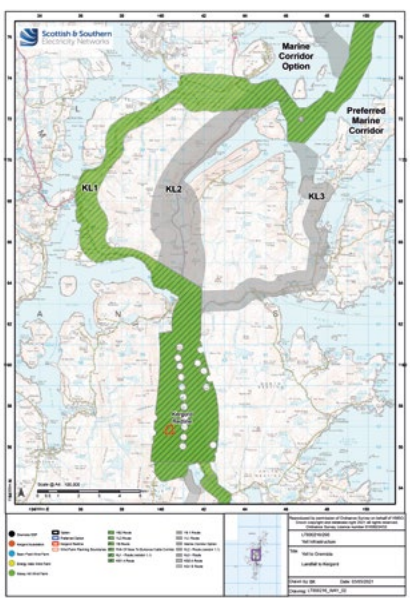
Undergrounding of some sections of existing distribution overhead lines may be needed to accommodate the new connection.

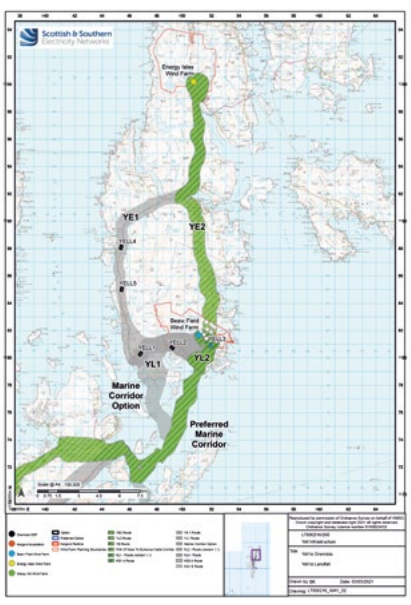
Island of Yell

A new underground cable connection will be needed between the preferred landfall at Burra Ness on Yell, and a new Switching Station, to be located in the south of Yell.

A preferred site for the switching station has been identified at YELL 3.

Connection routes have been identified between YELL 3 and Beaw Field Wind Farm, and between YELL 3 and Energy Isles Wind Farm. The connection to Beaw Field is likely to be short section of underground cable. The main benefit of using an UGC for this Route is that it is possible to avoid the OHL constraints of proximity to wind turbines operation & maintenance clearance distances within the boundary of Beaw Field Wind Farm and potential visual impact.





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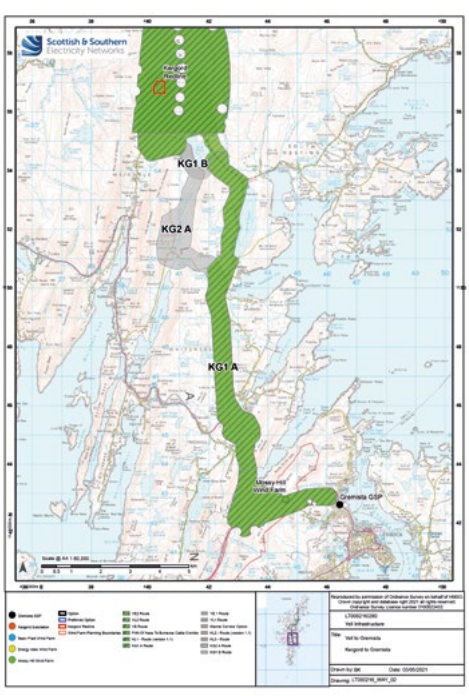
Engineering – OHL and Cable Routing

There were three feasible Route options identified from Kergord to Gremista, these have been identified as KG1A, KG1B and KG2A.

All potential Route variants identified for the new infrastructure connection between the new 132kV substation at Kergord and the new SHEPD GSP at Gremista and connection between Kergord substation and Mossy Hill Wind Farm and Mossy Hill and Gremista GSP have been assessed in order to find the Route preference. Sections of UGC will be required for all the assessed Routes to mitigate multiple technical constraints. Routes with a mix of technology options OHL are referred to as "Hybrid" Routes. The Route options that have been considered are shown below.

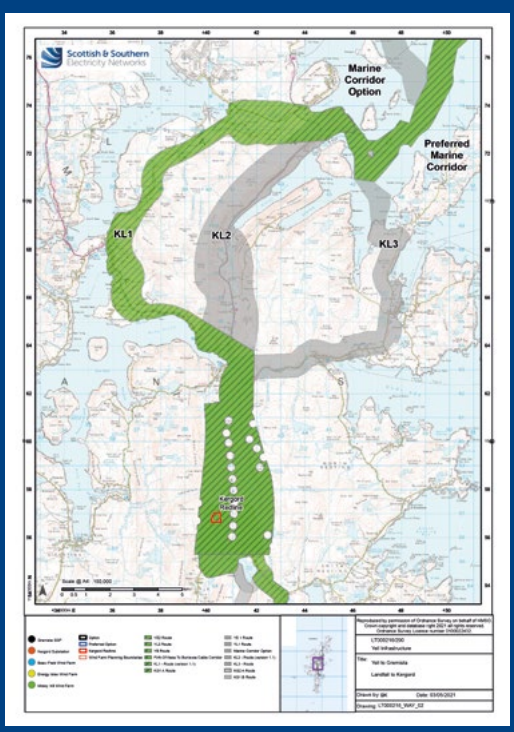
KG1 A Hybrid Route comprising of OHL and UGC sections has been identified as the preferred Route for the connection between the new 132kV substation at Kergord and the new SHEPD GSP at Gremista and Mossy Hill Wind farm.

This option has fewer technical constraints and therefore the greatest potential to avoid and/or limit interactions with the environment and communities within it. The overall preferred KG1 A Hybrid Route will be taken forward into the next stage of detail to find a suitable Alignment within the Route.



Due to the two potential landfall locations at Firth Ness and Cul Ness (Lunna Voe), there were three potential Route options identified from Kergord to Landfall in Shetland Mainland.

These Routes have been proposed for the new infrastructure connection between the new 132kV substation at Kergord and the new 132kV switching station on Yell. Hybrid Sections of OHL and UGC will be required for all the assessed Routes to mitigate multiple technical constraints. The Route options that have been considered are shown opposite.



From reviewing the Hybrid Routes, KL1 Hybrid Route comprising of OHL and UGC sections has been identified as the preferred Route for the connection between the new 132kV Kergord substation and Landfall at Firth Ness.

This option has fewer technical constraints and therefore the greatest potential to avoid and/or limit engineering concerns and interactions with the environment and communities within it.

The information obtained from this initial consultation will be used by SHE Transmission to develop a preferred overhead line alignment, for which we will seek your opinion. The overall preferred KL1 Hybrid Route will be taken forward into the next stage of detail to find a suitable Alignment within the Route.

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Technology Options

In order to achieve the necessary capacity requirements, various technology options were considered.

Technology options were assessed against a range of criteria including system requirements, technical, environmental, programme, health and safety and cost. Based on the results from undertaken Technology Options Appraisal, the following options have been identified as the preferred technology for the Shetland Renewable Connections Project.

The preferred solution is single circuit trident low profile OHL with conductors. Support material is to be confirmed at the later stage of the Project. This could be made of wood, steel or a composite material. Sections of Underground Cable (UGC) may be required in some of the areas to accommodate environmental and technical constraints.

For sections in which overhead lines are not appropriate, power cables will be used.

Single Circuit Trident Low Profile OHL. Standard Pole height is between 11-17m and pole spacings are in the range 70-100m.

Two Single Circuit Trident Low Profile OHLs To be utilised for the connection between Kergord – Gremista/ Mossy Hill. These would be positioned in parallel, approx. 30-50m apart.

UGC power cables; either ducted or directly buried, in an underground trench nominally 1m below ground level.

Subsea Cable to be utilised for the connection between Shetland Mainland Landfall and Landfall position in the South of the Island of Yell.

Example of Single Trident Support

Construction of a 'H' Pole

Construction of an overhead line

A typical single trident overhead line is formed of a H pole, an example of this is shown above.

The installation generally requires foundations of approximately 2.5m by 3m and to a depth of 2m. Access tracks are kept to a minimum wherever it is possible to help reduce the impact of the construction.

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Installing Underground Cables

Methodology

Cables are generally installed using an open cut technique laid at 1.2m to the top of the cable. A construction corridor of 50m is required to faciltate the main works whichwill be reinstated after use. Due to the long length of the cable circuit there will be several joint positions evenly spaced along the route with link pillars sited above ground or buried in underground chambers to house the earth connections and fibre for system monitoring.

Cross Country Cable Installation

- Conduct surveys and ground investigation
- Install Wayleave fencing
- Construct temporary drainage and environmental mitigations
- Expand existing roads or install haul roads
- Remove vegetation and soils for storage
- Excavate trench
- Construct ducts, backfill and reinstate
- Install joint bays and pull cables
- Conduct testing and once completed undertake reinstatement.

Road and Roadside Cable Installation

- Conduct surveys and ground investigation
- Pinpoint existing services and drainage
- Set up traffic management (e.g. 300m long 10km apart)
- Construct temporary drainage and environmental mitigations
- Remove vegetation and soils for storage
- Excavate trench and install supports
- Construct ducts, backfill and reinstate
- Move traffic management and repeat steps 1-8
- Set up stop/go board traffic management
- Dig joint bays at roadside and establish temporary barriers
- Pull cables between joint bays
- Conduct testing and once completed undertake reinstatement.

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Switching Station

The search for sites – what has happened so far?

A preliminary search for switching station sites was carried out in 2019. This involved site visits to identify potential options. Potential site options identified during the site visits were then examined against known environmental constraints. This desk-based assessment used information obtained from the statutory authorities and other recognised sources of environmental data.

This process led to five potential site options being identified, which were subject to further site visits to confirm their suitability and were assessed in terms of technical, environmental and cost criteria, and then taken to public and stakeholders for consultation in July 2020. Technical engineering requirements, financial considerations, environmental issues, landscape and visibility impacts, as well as feedback from the public and stakeholders were considered when selecting the preferred site at YELL 3.

A summary of the site selection findings is given below:

Site Option	Advantages	Disadvantages
YELL 1	• Close to the existing ferry terminal, with good access • Close to existing Distribution lines – good connectivity for auxiliary supplies • Large and level unconstrained area available	• Peat depths in excess of 2m were identified across much of the site, so the environmental impact of the development could be significant • Site overlooked by a number of properties
YELL 2	• Site visible from the road, but not directly overlooked by properties • Favourable ground conditions and level site for minimising extents of earthworks and construction timescales • Close to existing Distribution lines – good connectivity for auxiliary supplies	• Springs at the site • More visible due to open landscape • Access is from a B-class road, and some road improvements may be needed to improve access for construction traffic and plant delivery
YELL 3	• Limited peat at the site, and by micro-siting the switching station building, this could be avoided • No nearby residences and hill backdrop minimising any visibility impact • Ground conditions look to be favourable • Shortest connection length for highest rated circuit to subsea cable landfall location • Minimises length of circuits providing economically favourable location	• Access is from a B-class road, and some road improvements may be needed to improve access for construction traffic and plant delivery
YELL 4	• Good accessibility from Class A Road • Relatively level site minimising requirements for cut and fill civil works	• In an elevated position so highly visible from roads, properties and the surrounding area • Some non-designated cultural heritage features close by
YELL 5	• Not directly overlooked by properties • Good accessibility from Class A road • Relatively level site minimising requirements for cut and fill civil works	• Highly sensitive groundwater dependent terrestrial ecosystem • Desk studies indicated presence of peat in this area which carries risk of significant environmental impact

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Switching Station

What happens next?

A basic layout and building design has been developed including space for temporary construction works, and an allowance for earthworks and planting of native species and to provide opportunities to enhance biodiversity on the site.

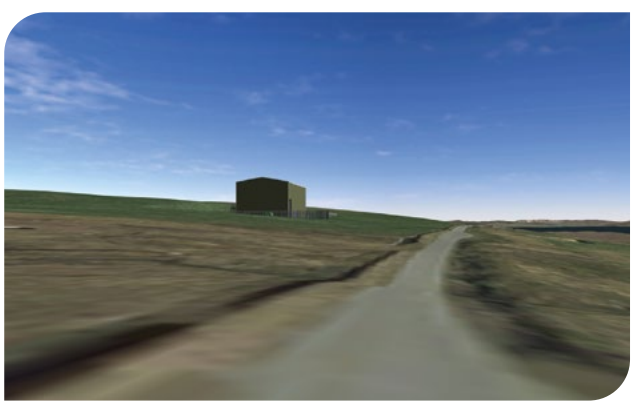
Detailed design will continue to be developed for the site, including the electrical layout, access tracks, drainage, and fencing, with ground investigations carried out to allow earthworks to be designed.

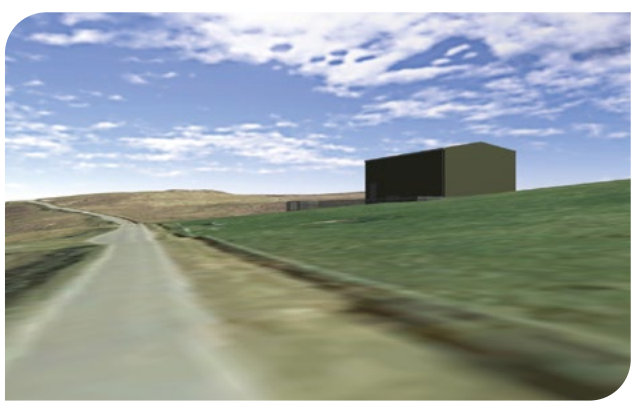
Further environmental surveys will also be carried out to understand the baseline conditions, and this will include background noise surveys. It is intended that a planning application will be submitted for the site in Spring 2022.

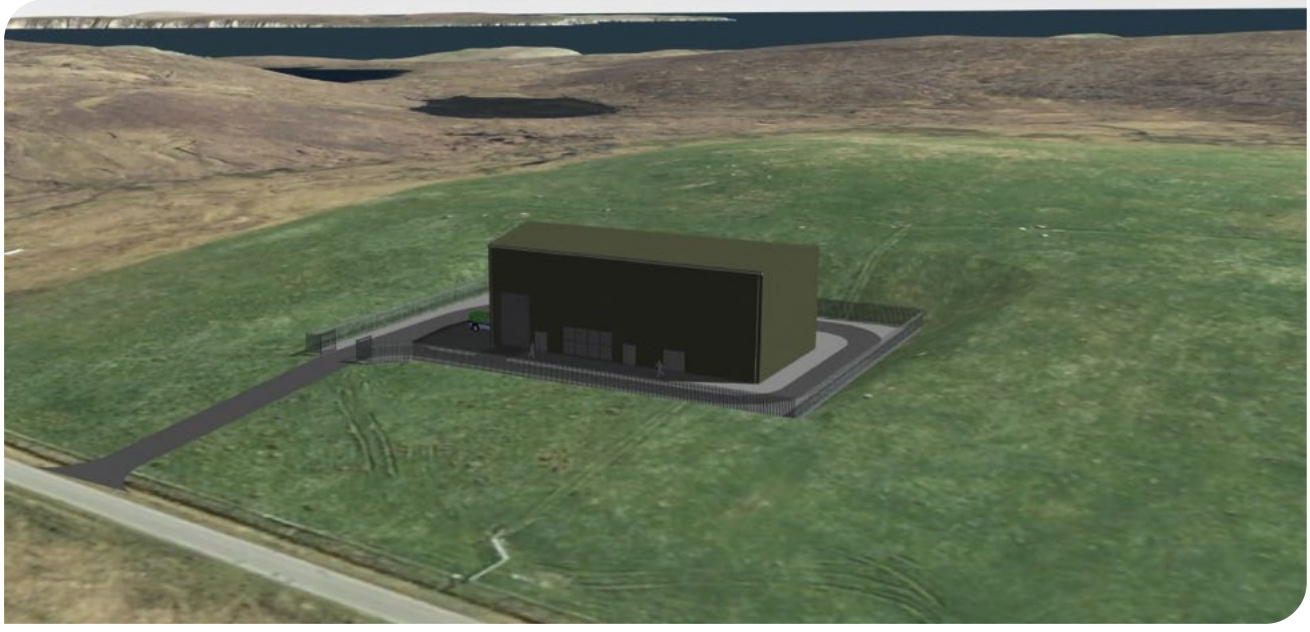
Preliminary design

The switching station will be enclosed within a building due to the proximity to the coast and the saline environment. A design using Gas Insulated Switchgear (GIS) with SF6 gas free technology has been proposed for the switching station as this provides the best compromise on cost, engineering and environmental considerations. The GIS design has a smaller footprint and smaller building size compared to an equivalent design using Air Insulated Switchgear (AIS) technology.

The overall platform proposed in the design are approximately 60m x 45m, and the building size is approximately 32m long x 16m deep x 13m high. Space will be reserved directly adjacent to the site to accommodate a building to house equipment for a Grid Supply Point should this ever be required in the future. It is proposed this area be used as a temporary compound during construction of the switching station.







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Planning and Consents

Shetland terrestrial consenting proposals – consultation boards and newsletter.

Project Element	Consenting comments	Timescales
Gremista to Kergord Converter Station	Between the new Gremista Substation and the Kergord Converter Station, there will be a mix of 132kV underground cable (UGC) and overhead line (OHL). The OHL element will require s37 consent from the Scottish Government's Energy Consent Unit (ECU). Any sealing end compounds/towers will be included in that consent. The UGC elements will be installed using our Permitted Development Rights.	A S37 application for OHL element due for submission December 2021/January 2022 with consent hoping to be in place 12 months later.
Mossy Hill to Kergord Converter Station	This project will run on the same alignment as the Gremista project but on a separate 132kV OHL circuit.	A S37 application for OHL element due for submission December 2021/January 2022 with consent hoping to be in place 12 months later.
Kergord Converter Station to Yell	Between Kergord and landfall around Firth Ness, there will be a mixture of 132kV UGC and OHL. There will then be a subsea cable from Firth of Ness to Yell (likely around Burravoe). From landfall on Yell, there will be an UGC installed up to the new switching station which will be constructed near to the Beaw Field Wind Farm. The OHL element will require s37 consent from the ECU. Any sealing end compounds/ towers will be included in that consent. The UGC elements will likely be installed using our Permitted Development Rights. The new switching station will require planning consent from SIC.	A S37 application for OHL element due for submission Spring 2022 with consent hoping to be in place 12 months later. The planning application for the switching station will be submitted at the same time and should take around 9 months to be determined as it will be classed as a 'national' development.
Yell Switching Station to Beaw Field Wind Farm	The connection will likely be via 132kV UGC which will be installed using our Permitted Development Rights. If there are any OHL requirements, then a s37 consent will be submitted to the ECU.	No application required.
Yell Switching Station to Energy Isles Wind Farm	The connection will be via 132kV UGC and OHL. The OHL element will require s37 consent from the ECU. Any sealing end compounds/ towers will be included in that consent. The UGC elements will likely be installed using our Permitted Development Rights.	A S37 application for OHL element due for submission in 2024 with consent hoping to be in place 12 months later.

Yell 132kV Switching Station

The proposed switching station will become part of a new 132kV electricity transmission network on Shetland, so will be classed as a 'National' development for planning purposes. Once the preferred location for the switching station is confirmed, a Proposal of Application Notice (PoAN) will be submitted to SIC, after which further public engagement will take place to gather feedback on topics such as location, design and amenity. That feedback will be reported to SIC along with the detailed plans and reports in support of our planning application.

An Environmental Impact Assessment (EIA) Screening Opinion will also be submitted to SIC in advance of the planning application so that the Council's views can be taken into account and incorporated into our Environmental Report. The planning application process for the switching station is anticipated to take around 9 months.

132kV Overhead Lines

In order to facilitate the connection of substations, new 132kV overhead lines will be constructed. Once we have a preferred route and alignment, the public shall be further consulted to take account of feedback before the final route is selected. Similar to the switching station, an EIA screening option will be submitted to the Scottish Governments Energy Consents Unit (ECU) to ensure their views can be taken into account and included in our Environmental Report. The proposed new overhead route will need to be determined under a Section 37 (s37) application which will be submitted to the ECU. That application will also include all supporting information to justify the selection of technology, location and routing proposed. It is anticipated that the s37 consenting process for overhead lines will take around 12 months. In relation to any sections of underground cable, these do not require planning consent and therefore will be installed using our Permitted Development Rights under Class 40 (1) (a) of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992. Note though that the cabling aspect will undergo the same environmental assessment as any of the formal planning consents.

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Project timeline

The chart below shows the key stages of the development and delivery process and opportunities for members of the public to give feedback to inform the design prior to submission of planning applications.

July 2020

- Public consultation – introduction to the Shetland Connections Project.

September 2021

- Pre-application public and statutory body consultation on selection of technology, connection alignments and Yell Switching Station location
- Pre-application public and statutory body consultation on selection of Yell subsea cable route and landfall locations.

Q3/Q4 2023

- Commence construction of connections for Gremista GSP, Mossy Hill Wind Farm, Yell Switching Station, Beaw Field Wind Farm.

April 2025

- Energisation of Yell Switching Station and connection
- Energisation of Mossy Hill Wind Farm and connection
- Energisation of Beaw Field Wind Farm and connection.

April 2027

- Energisation of Energy Isles Wind Farm and connection.

June 2021

- Public and statutory body consultation on technology, routing and Yell Switching Station location options for Shetland connections
- Public and statutory body consultation on Shetland mainland to Yell subsea cable route options, including landfall locations.

Q1/Q2 2022

- Yell Switching Station planning application submission
- Subsea cable Marine Licence application submission
- S37 planning applications for connections.

November 2024

- Energisation of Gremista connection and GSP.

Q3 2025

- Commence construction of connection for Energy Isles Wind Farm.

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Feedback

Comments

We understand and recognise the value of the feedback provided by members of the public during all engagements and consultations.

At this early stage of development, we are keen to receive your views and comments which can be provided to the project team by completing a feedback form at the back of this booklet, filling out the online feedback form or by writing to Sharon Powell, Community Liaison Manager.

We will be seeking feedback from members of the public and Statutory Bodies until 25 June 2021.

We will be holding another consultation event in September.

The purpose of this is to consult on the selected routes, location and technology having taken on board the comments of this June consultation.

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

Next Steps

Upcoming activities June – September:

- **Breeding bird surveys**
- **Ecology surveys**
- **Peat probing and ground investigation**
- **Overhead line and underground cable alignments**
- **Detailed design of the yell switching station**
- **Consideration of feedback forms from June public event.**
- **Ongoing stakeholder and landowner engagement.**

September 2021:

- **Public consultation to confirm the detailed routing, alignments and locations prior to submission of planning applications.**
- **Detailed design and alignment of marine cable.**

Community Liaison Manager: Sharon Powell

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Sharon Powell
Scottish and Southern Electricity Networks,
Lerwick Power Station,
Gremista,
Shetland, ZE1 OPS

Additional information

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

Project Website:

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