Why we’re here

The aim of the Shetland HVDC Connection Project is to allow the export of renewable energy generation from Shetland to the UK mainland, connecting Shetland to the National Electricity Transmission System for the first time.

Scottish Hydro Electric (SHE) Transmission has a license requirement to provide connections for generators looking to connect to the GB transmission network. There is currently significant renewable generation proposed on Shetland and to provide those generations with a connection will require a subsea Transmission cable linking Shetland to mainland Scotland.

In early October 2018, SHE Transmission submitted a Needs Case to the energy regulator, Ofgem for the Shetland HVDC link. The Needs Case outlined the proposed solution to connect renewable generators on Shetland via delivery of a single 600MW subsea circuit from Weisdale Voe in Shetland to Noss Head in Caithness, where it will connect with the Caithness-Moray transmission link. Ofgem has confirmed it is minded to approve the link, subject to the progression of Shetland renewable generators.

Scottish Hydro Electric Power Distribution (SHEPD) has proposed making a financial contribution to the transmission link based on the value of services it would obtain if the link proceeds. Ofgem has confirmed it is minded to approve this and a decision on this is expected shortly.

The project currently remains subject to regulatory and planning approvals, as well as renewable developers demonstrating commitment to their projects.

Today’s Event

In July 2019, we held two consultation events in Lerwick and Wick to consult on our plans to install a subsea HVDC cable between Weisdale Voe on Shetland and Noss Head in Caithness as part of the wider Shetland HVDC connection project.

The aim of these consultation events was to seek comment on our proposals from stakeholders and local interested parties prior to submitting a Marine License application to Marine Scotland and an application for a marine works license to Shetland Islands Council.

We’re here today to discuss our responses to the comments we received as part of the consultation process and offer locals a further opportunity to view these proposals prior to submission.

Subsea Cable

The proposed subsea cable circuit is approximately 250km in length, between Weisdale Voe and Noss Head. The cable bundle will consist of two conductor cables and one fibre optic communications cable, to allow control of the substation and HVDC converter station.

The cables will be brought ashore through either a duct installed through the bedrock by drilling horizontally or through trench excavated through the foreshore. Once on the seabed, the cables will be buried into the seabed sediment or protected with crushed rock or protective casings.

There are a number of telecommunications cables and pipelines that the HVDC link must cross along the route, and at these locations a crossing will be designed and installed with the agreement of the asset owners.

Additional Elements

Whilst today’s event is pertinent to the subsea HVDC cables, during July’s consultation events we received some questions regarding the additional project elements from interested parties looking to find out more about the wider connection project. In recognition of this, we have created information boards containing a summary of the status of the following project elements to share with you today:

- Construction of a 132kV substation and HVDC Converter Station at Upper Kergord, Shetland
- Construction of approximately 8km of underground HVDC cable between the HVDC Converter Station at Upper Kergord and the landfill location at Weisdale Voe
- Construction of an underground HVDC cable between Noss Head, Caithness
- A new Caithness HVDC Switching Station located to the north of Wick and;
- Upgrades of existing cable circuit at Noss Head, Caithness.

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Our consultation period began from the date of our first consultation event on 23rd July and ran for a month until 23rd August. Alongside the many comments we received during discussions at the events themselves, we also received comments via email, letter and from our feedback form. These comments were received from a wide range of different stakeholders and consultees.

The comments were then collated and grouped into themes, where appropriate. The tables below present these comments and a summary of our responses. If you would like further information regarding these responses please speak to a member of the project team.

How we have addressed your feedback can be viewed in the following table:

<table>
<thead>
<tr>
<th>You Said</th>
<th>Our Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the onshore elements of the project?</td>
<td>We have included two information boards to provide an update on the onshore sections of the project.</td>
</tr>
<tr>
<td>Will there be disruption?</td>
<td>Unfortunately a project of this size will always cause some disruption, however through the measures discussed in the Environmental Appraisal (EA) we aim to keep this to a minimum.</td>
</tr>
<tr>
<td>What is the project programme?</td>
<td>We have included a project timeline on the ‘Next Steps’ board and will ensure this is also available via the project website.</td>
</tr>
<tr>
<td>Will there be a local Fisheries Industry Representative (FIR)?</td>
<td>Yes, we recognise the importance of having local FIRs and will use them on this project.</td>
</tr>
</tbody>
</table>

Shetland Islands Regional Marine Plan:
It was noted that the Shetland Islands Marine Planning Partnership is currently in the process of preparing the Shetland Islands Regional Marine Plan.

SHE Transmission has contacted the Marine Planning Partnership to begin discussion on the new plan.

| Marine Spatial Plans | It was suggested that Policies MSP CBP1 and MSP ACBP1 of the Shetland Marine Spatial Plan are of particular relevance to this project. SHE Transmission is aware of these policies and plans and will take into account in project activities as appropriate. |
| Works Licence | We were advised that the development will require a works licence. SHE Transmission has made contact with the Marine Planning Service. |
| Cable burial | A number of consultees support cable burial and other protection methods. SHE Transmission has undertaken route selection and design to optimise burial. |
| Shetland landfall | We received comment that cable burial and route selection should avoid sensitive habitats. The route has been optimized to minimize the impact on protected Benthic habitats. |
| Shetland Landfall | Consultees advised that Dury Voe has less marine natural heritage interest than Weisdale Voe and requested consideration of this landfall for the project. Alternative landfalls have been considered and identified as less preferred during the earlier stages of the project. |
| Navigation safety | SHE Transmission has undertaken a Navigation Risk Assessment (NRA) and has identified several control measures that will be put in to minimise risk. |
| Publication of the timing and location of cable laying | SHE Transmission will issue the appropriate notices to mariners and provide updates to the Kingfisher Bulletin and Kis Orca. Should you wish to be included on the NTM distribution list please provide an email address to the Community Liaison Manager. |
| Worst case scenario | SHE Transmission have based the EA on a realistic worst case and have included knowledge and experience from other projects. |
| Protected sites | Especially Nature Conservation Marine Protected Areas (MCPRAs) and Special Protection Areas (SPAs) within 5km of the route. SHE Transmission has taken these sites and specific advice into account when undertaking the EA and the Nature Conservation Appraisal. |

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Consultation responses

You Said Our Response

Information required to inform Habitats Regulations Appraisal for protected sites included in the HCA:
The benthic assessment focussed on Priority Marine Feature’s (PMFs) when considering the seabed outside of protected sites. Where Annex I has been located, consideration to its ability to host PMFs has been given. To date, oceanographic have only been recorded in low numbers along the cable installation corridor.

Priority Marine Features and Annex I habitats:
The Nature Conservation Appraisal undertaken for the project serves as a pre-screening exercise for HRA and presents all information necessary for the relevant authority in this respect. The indirect impacts on ornithological features as a result of the designated features of the East Caithness SPA and NCPA in both the EA and the Nature Conservation Appraisal. The project does not overlap with the pSPA, designated for foraging habitat. As such the project doesn’t directly impact the supporting habitat or distribution of the birds in the site. The EA concludes no wider impact to birds, prey species or habitat that there will be no indirect impact either.

Noss Head Protected Site:
The benthic habitat, so there will be no indirect impact either.

Weisdale Voe habitats and species:
Canvass was used to the potential impacts to the horse mussel bed of Noss Head MCPA and query whether the cable could be rerouted to avoid this area. A suitable assessment has been carried out to determine potential effects on the feature in both the EA and the Nature Conservation Appraisal. The project does not overlap with the pSPA, designated for foraging habitat. As such the project doesn’t directly impact the supporting habitat or distribution of the birds in the site. The EA concludes no wider impact to birds, prey species or habitat that there will be no indirect impact either.

Seas off Foula potential Special Protection Area: The requirement for a Habitats Regulations Appraisal (HRA) for this site was highlighted.

Noss Head MCPA: Consensus was used to the potential impacts to the horse mussel bed of Noss Head MCPA and query whether the cable could be rerouted to avoid this area. A suitable assessment has been carried out to determine potential effects on the feature in both the EA and the Nature Conservation Appraisal. The project does not overlap with the pSPA, designated for foraging habitat. As such the project doesn’t directly impact the supporting habitat or distribution of the birds in the site. The EA concludes no wider impact to birds, prey species or habitat that there will be no indirect impact either.

East Caithness Cliffs and MCPA: It was noted that the protected site is located approximately 5km south of the project and that some seabird species are known to travel long distances to their foraging grounds, therefore the impact of the cable installation and ongoing maintenance should be assessed along with an assessment on the benthic impacts of the cable burial on food resources and availability for the designated features of these sites.

Disturbance to seabirds: We were advised that timings of installation activities should be carefully considered to minimise disturbance to seabirds especially during sensitive times. In particular, when cable laying through areas with nesting waders, the breeding season of April to July inclusive should be avoided.

Turbidity impacts to birds: It was noted that potential impacts to bird species from increased sediment in the water column should be considered.

Burial and rock placement will not occur within the horse mussel bed, the cable and attached protection material will be surface laid across the bed. Based on previous work in the mussel bed, it is anticipated that the mussels immediately under the cable will be smothered, allowing the cable to sink into the bed; however this area represents a very small area of the horse mussel bed and re-occupation of the area is expected.

Killer whales: Consultees advise that killer whales are considered to be year round visitors to Shetland.

SHE Transmission acknowledges that certain periods are more sensitive to bird species than others. Installation activities will be kept to as short a duration as reasonably practical and the cross over with any breeding seasons will be kept to a minimum.

Impacts to birds in this respect is considered as part of the EA and Nature Conservation Appraisal, and since increased turbidity would be restricted in duration and extent it was determined to be unlikely to have a long-term impact on ornithological features. This species is not considered hearing sensitive, and the EA concluded that the individuals of this species were unlikely to experience problematic levels of noise from project activities.

SHE Transmission acknowledges the presence of killer whales in the wider areas and this has been taken into account in the EA.
Consultation responses

You Said: Consultees advise that a large part of Weisdale Voe is used extensively by creel fisheries for crabs and lobster. The proposed cable routing is within an area used for scallop dredging.

Out Response: SHE Transmission is aware of the fishing activities which take place in the cable installation corridor and engaged a specialist fisheries consultancy to support the project. The EA assessed potential impacts and concluded that no significant impacts will occur. However, the sensitivity of the static fishing operations and aquaculture developments in the area is acknowledged and ongoing consultation with individual developers where relevant will occur.

You Said: Scottish Wildlife Watching Code: SNH requested that following the code will minimise the collision risk to basking sharks, cetaceans and seals.

Out Response: SHE Transmission commit to following the Scottish Marine Wildlife Watching Code for all project activities.

You Said: Exclusion of fishing activities: There was a query as to whether the project will need to exclude access to finfish or shellfish farms during cable laying operations.

Out Response: SHE Transmission has committed to avoiding any known heritage sites during cable installation, and to industry best practice in this respect. SHE Transmission will engage further with any relevant sea user that may wish to make use of the seabed within any exclusion zones that may be established.

You Said: Impacts on tourism: Consultees strongly recommend impacts on tourism are assessed.

Out Response: Potential impacts on tourism were considered as part of the EA and no significant impacts were identified, partly due to the limited duration of nearshore activities and partly due to the absence of any permanent offshore surface infrastructure.

You Said: Recreation: It was advised that impacts to recreation should be considered as part of the ES.

Out Response: The impact on recreational users has been considered as part of the EA. It is recognised that vessel presence associated with installation activities has the potential to disrupt recreational activities. However, areas of potential disruption are either of limited importance to recreational activity, or the activity duration is sufficiently short that there will be no any long-term impact.

You Said: Marine Cultural Heritage: Consultees welcome that marine cultural heritage is assessed as part of the EA.

Out Response: SHE Transmission has committed to avoiding any known heritage sites during cable installation, and to industry best practice in this respect e.g. following the Protocol for Marine Archaeological Discovery (PAD). Where the project identifies further sites of cultural heritage within the installation corridor relevant consultees will be engaged.

You Said: Shetland Sites and Monuments Record (SMR): It was advised that records within the SMR may be relevant to the project.

Out Response: SHE Transmission may be relevant to the project. It was advised that Weisdale Voe is a shellfish water protected area and recommends further assessment of the project on shellfish protected areas and potential aquaculture sites in Weisdale Voe.

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The main switching station building will be about 124m long by 54m wide and up to 21m in height. We will however dig the building into the ground and create additional landscaping to ensure that the building will extend no more than 17m above the existing ground level at the site.

The existing land slopes from a natural low spot at Noss Head road to a high spot towards the Wick Airport boundary fence. This modest rise has been utilised with the building being located in a cutting with landscape mounds around it for visual mitigation. This will help the building “set” into the landscape so that its height is less apparent. Native shrubs will be planted around the building – with the intention that these will provide further screening of the building. We will investigate the possibility of further biodiversity enhancement within the site boundary.

To enable a proposed subsea transmission cable from Shetland to connect to the UK National Grid, we will require a HVDC switching station north of Wick in Caithness.

This will allow the flow of electricity to be managed between three underground HVDC circuits - one from a converter station at Spittal in Caithness, one from a converter station at Kergord in Shetland and one to a converter station at Blackhill in Moray.

Following consultation with local and statutory stakeholders throughout 2015/2016, a preferred site close to the low point on the minor road between the airport and Noss Farm was selected, based on review of economic, technical and environmental factors, whilst considering the views of members of the public.

This arrangement also makes use of capacity available in the Caithness-Moray subsea cable to allow onward connection to the existing onshore transmission network in Moray with minimum new infrastructure.

Following on from submission of our planning application to The Highland Council, planning permission in principle for the construction of the switching station was subsequently granted on 8th March 2017.

We are currently managing the approval of matters specified within the planning permission in principle and anticipate that full planning permission will be received by the end of 2020.

A small section of underground land cable, approximately 2km long is also required to connect the switching station to the landing point at Noss Head.

View across the site from the end of the track to Noss Farm
The purpose of a converter station

The purpose of a HVDC Converter Station (a specialised type of substation) is to convert electricity from alternating current (AC) to direct current (DC), and vice versa, for transmission purposes. HVDC systems, in comparison to AC systems, incur lower electrical losses, can be utilised over longer transmission distances and provide additional stability to their connected AC networks. An HVDC solution is therefore an ideal solution for connecting remote island generation to the mainland transmission system and is a key element of SHE Transmission’s wider Shetland HVDC Connection project.

Design

The 3D representation below is based on the design of the converter station which includes all traditional AC equipment, specially designed Converter Valves and all associated auxiliary systems including a complex valve cooling system. The main building of the HVDC converter station is approximately 110 metres by 67 metres. The approximate height of the building is circa 18 metres high. Please note however that all dimensions and the colour of the building are to be confirmed during detailed design.

The representation below also includes the 132kV Gas Insulated Switchgear (GIS) substation also required as part of the project.

The planning process

Following on from submission of our planning application to Shetland Islands Council, planning permission in principle for the construction of the converter station was subsequently granted on 16th January 2016. We are currently working towards submitting our approval of matters specified in conditions application to deal with the detail of the site, access etc which is due to be submitted in early 2020.

Underground cable

We require to install approximately 8 km of underground land cable to connect the Kergord Converter Station from Upper Kergord to the landing point of the offshore cable at Weisdale Voe. The proposed cable route runs north-south from Upper Kergord, past Greenlea Plantation and along the eastern flank of West Hill of Weisdale, then follows the A971 from Weisdale, past Hogh LIBSTER to ScorSOUND, before traversing down slope to the foreshore at Weisdale Voe. Ground investigation works on the proposed land cable route are due to commence in the upcoming weeks. These works will include excavating trial pits in the off-road section, and drilling boreholes, mostly in the camageway section. This will provide us with a better understanding of the ground conditions and archaeology along the route which in turn will inform our design.

Further information regarding these activities will be posted to the project webpage in due course.
What happens next?

Following this event, SHE Transmission will complete the information necessary to support the Marine Licence and Marine Works Licence. The applications will be submitted to Marine Scotland and Shetlands Islands council in late 2019.

The timeline opposite illustrates how the project will progress, however at this stage the timeline is indicative and may change.

Please note that any comments made to SHE Transmission plc regarding these applications are not representations to the Scottish Ministers. If SHE Transmission plc submits an application for a marine licence to Scottish Ministers, an opportunity will be given for representations to be made to the Scottish Ministers on the application.

If you have any questions or require further information regarding the Shetland HVDC Link, please do not hesitate to contact the project Community Liaison Manager:

Community Liaison Manager
Kelly Scott
kelly.scott@sse.com
07443 772 946
Kelly Scott
Scottish and Southern Electricity Networks, 1 Waterloo St, Glasgow, G2 6AY

Information
Information will also be made available via the project web page and social media channels:
Project Website: www.ssen-transmission.co.uk/projects/shetland
Find us on Facebook: SSEN Community
Follow us on Twitter: @ssencommunity