





BUILDING Shetland's Energy future

Contraction and



About SSEN Transmission

SSEN Transmission, operating under licence as Scottish Hydro Electric Transmission, owns, operates and develops the high voltage electricity transmission network in the north of Scotland. Its network consists of underground and subsea cables, overhead lines on wooden poles and steel towers, and electricity substations, extending over a quarter of the UK's land mass crossing some of its most challenging terrain.

SSEN Transmission powers the communities its network serves by providing a safe and reliable supply of electricity, taking the electricity from generators and transporting it at high voltages over long distances through the transmission network for onwards distribution to homes and businesses in villages, towns and cities.



About SSE Renewables

SSE Renewables is a leading developer and operator of renewable energy across the UK and Ireland, with a portfolio of around 4GW of onshore wind, offshore wind and hydro. Part of the FTSE-listed SSE plc, its strategy is to drive the transition to a net zero future through the world class development, construction and operation of renewable energy assets.

SSE Renewables owns nearly 2GW of operational onshore wind capacity with over 1GW under development. SSE Renewables also has the largest offshore wind development pipeline in the UK and Ireland at over 6GW, of which around 3GW is in construction or consented.



About Viking Wind Farm

Viking Energy Wind Farm (VEWF) is a 103-turbine onshore wind farm set around the central Mainland of Shetland. The £580m project is owned by SSE Renewables and construction began earlier this year. When completed in 2024, VEWF will become the UK's most productive onshore wind farm in terms of annual electricity output, playing a crucial role in contributing towards the UK and Scotland's net zero targets.

WELCOME TO OUR NEWSLETTER

About this newsletter

With the Shetland High Voltage Direct Current (HVDC) transmission link and Viking Wind Farm now in construction, both projects have come together to prepare this joint newsletter to keep the Shetland community updated as both projects progress throughout construction over the next four years.

This first edition provides background to both projects, progress so far and the timeline for future construction activities. You can read more about the transmission works on pages 4-8 and Viking Wind Farm on pages 9-14.

Keeping in touch

Both projects will be sharing regular updates on their individual project websites, where you can also register for updates and find contact details to get in touch with both project teams:

www.ssen-transmission.co.uk/projects/Shetland/

www.vikingenergy.co.uk/

Community Liaison

Both projects have dedicated and local community managers who act as an interface between the local community and respective project teams. Contact details for both projects can be found below:

SSEN Transmission Community Liaison Manager

Lesley.Dow@sse.com / 07876 837490 (until January 2021) Sharon.Powell@sse.com / 07765 184846 (starts in January 2021)

Viking Wind Farm Community Engagement Manager Julie.Graham2@sse.com / 07586 282236

Community Liaison Group

A Community Liaison Group has been established that brings together representation from both projects and the four Community Councils and local Councillors representing the main area to be impacted by construction works. These are Delting, Nesting and Lunnasting; Tingwall, Whiteness and Weisdale and Sandsting and Aithsting.

The group, which has already met twice, will meet regularly throughout the construction phase and is chaired by Andrew Archer, chair of Tingwall, Whiteness and Weisdale Community Council and the vicechair is James Garrick of Sandsting and Aithsting.

Residents of the four areas can submit questions and feedback either through their community council clerks (see contacts table below) or directly to either project team (contact details on respective websites).

Your community liaison group contacts

Delting Community Council	dccalison@btinternet.com
Nesting & Lunnasting Community Council	evaganson@gmail.com
Sandsting & Aithsting Community Council	clerk.sandacc@gmail.com
Tingwall, Whiteness & Weisdale Community Council	twwcommunitycouncil@googlemail.com



Following years of development, the Shetland HVDC transmission link received final approval from Ofgem in July this year. The 600MW transmission link will connect Shetland to the main GB power system for the first time, facilitating the connection of renewables and delivering a whole system solution to meet Shetland future energy needs, supporting a secure supply of clean power for Shetland.

Blackhillock,

Moray

Scottish & Southern Electricity Networks

Kergord,

Shetland

Spittal,

Caithness

4 || SHETLAND HVDC TRANSMISSION LINK

WHAT WILL THE CONSTRUCTION INVOLVE?

Following the successful start of construction in September 2020, the link is expected to be energised and commissioned for export capability in 2024, with import capability scheduled for the following year. With a project of this size there are a number of elements involved in its construction which we manage by splitting the main project into five individual smaller projects, located onshore in both Shetland and Caithness, as well as offshore.

Let's have a look in more detail at the different elements involved in connecting Shetland to the GB transmission network.

132kV Kergord AC Substation

Work on site started in September 2020 as the team commenced earthworks to form the site compound and platform for both the AC132kV Gas Insulated Switchgear (GIS) substation and HVDC Converter Station.

HVDC Converter Station

The 600MW HVDC Converter Station at Kergord will connect to the new Kergord AC Substation. This is a highly specialist type of infrastructure which converts the energy from Alternating Current to Direct Current so it can be transported efficiently along the 260km subsea and land cable to connect to the GB transmission system.

HVDC Land/Subsea Cable

Installation of the 600MW HVDC cable will be a combination of land and subsea cables between the HVDC Converter Station at Kergord and the HVDC Switching Station at Noss Head. This will consist of 10km of land cables in Shetland, 250km of subsea cables and 2.5km of land cables at Noss Head.

HVDC Switching Station

A HVDC Switching Station will be constructed at Noss Head in Caithness close to where the subsea cable makes ground. A world first outside of China, this will act as a junction point, collecting energy from Shetland and Spittal HVDC circuits and then transporting that energy via subsea and land cables to Blackhillock in Moray to allow further transmission to areas of demand across GB.

CM Cable Tie-ins

This part of the project will see the connection of the Shetland link to the existing Caithness Moray circuit by connecting a new 1200MW cable from the HVDC Switching Station at Noss Head to the existing 1200MW Caithness Moray subsea cable.



HVDC converter Station at Blackhillock, Moray

Project time line





OUR TEAM

Our team

As an experienced and responsible developer, we bring to this project a highly skilled team, many of which have come from working on the successful Caithness to Moray project which connected renewable generation from Caithness to Moray via a HVDC subsea link.

Working alongside us throughout the construction of the project will be our principal contractors Hitachi ABB Power Grids, NKT, Siemens and BAM Nuttall.

All four contractors are specialists in their field and played a major role in the successful construction of the Caithness to Moray HVDC link, which has been operational since January 2019 and continues to provide highly reliable and efficient transmission of renewable electricity from the north of Scotland to areas of demand.



ENGAGING WITH THE LOCAL SUPPLY CHAIN

Over the last 18 months we have been working with our contractors to engage with the local supply chain about upcoming opportunities that could be available throughout construction.

These opportunities range from construction services and machine hire, to transport and accommodation, as well as direct employment opportunities on a variety of construction and support roles.

On 25 August, along with one of our principal contractors BAM Nuttall we joined Viking Wind Farm at a Highlands and Islands Enterprise virtual supply chain event. At the event both projects presented some of the contract opportunities available in each of the phases of the works and how local businesses can seek opportunities through the Open4Business portal where the contracts will be advertised.

Around 180 attendees had the opportunity to ask any questions about the types of contracts available, the timescales and how to access them with several local companies and residents already benefitting from contract and employment opportunities.

To find out more about the supply chain opportunities available on the project and how to register for the Open4Business portal, please visit **www.o4b-highlandsandislands.com**

MAJOR MILESTONE: BREAKING FIRST GROUND

Construction works at the Kergord site started in September 2020. Once complete the converter station will facilitate the connection of renewable energy from Shetland to the GB transmission system via a 250km subsea cable.

The initial works are focussed on preparing the site for the construction of the converter station and substation. This includes setting up a temporary site compound and welfare facilities, along with some minor watercourse diversion work and the installation of environmental mitigations, ahead of commencing general earthworks.

Work has also started on the archaeology investigations and other survey work on the cable route from Kergord to Weisdale Voe ahead of the commencement of cabling works, scheduled to start early next year.





3D VISUALISATION OF THE COMPLETED TRANSMISSION WORKS







VIKING WIND FARM

When completed in 2024, the 443 Megawatt (MW) wind farm will become the UK's most productive onshore wind farm in terms of annual electricity output. It will produce enough energy to power almost half a million homes, including every home in Shetland, while saving around 0.5 million tonnes of CO2 emissions each year. The wind farm's carbon payback period will be less than two years.

Viking will make a significant economic contribution to Shetland, diversifying the economy and creating hundreds of jobs during the construction phase and 35 long term jobs during the 25 years of operation. The project will also contribute around £72m in community benefit funds during its lifetime which will fund projects across all the communities in Shetland.



VIKING WIND FARM



The new Kergord access track nears completion by Tulloch Developments

The Viking wind farm underpins the Shetland HVDC link, unlocking Shetland's renewable energy potential and helping to diversify Shetland's economy. For example, Shetland Islands Council estimates that its Energy Hub initiative at Sullom Voe, of which Viking and the Shetland HVDC links are vital constituent parts, could create up to 1700 jobs as part of transitioning the Shetland economy away from an over-dependence on oil and gas and delivering on net-zero by 2050.

SSE Renewables decided in June to invest £580m to build Viking, which was originally consented by Scottish Ministers in 2012 and renewed in 2019. The wind farm in the Central Mainland will create around 400 jobs at peak construction with a further 35 full-time local operation and maintenance jobs throughout its life.

The 103 turbines will be manufactured and installed by Vestas, which will establish a service organisation in Shetland, providing high-quality jobs supported by an apprentice programme.



Good progress being made along the Mid-Kame ridge

A programme of environmental improvements called the Habitat Management Plan will be carried out during the lifetime of the wind farm, including 260 hectares of peatland restoration and a string of measures to help key bird species, such as whimbrel, red-throated diver and merlin. An independent body called the Shetland Windfarm Environmental Advisory Group has been set up to monitor and advise on these measures.

Viking is committed to a community benefit fund worth around £55.4m (£70m when indexed) over the 25-year lifetime of the wind farm with an additional £1.6m paid during the construction phase. The four community council areas which play host to Viking's turbines will get priority access to these benefits.

The people of Shetland will benefit from a preferred return on Shetland Charitable Trust's initial financial stake in Viking each year for the lifetime of the wind farm. Shetland Islands Council will benefit directly as a landowner on the site and 200 crofting families will receive half the rental payments due to crofted estates.

Sse Renewables



WHAT IT TAKES TO BUILD THE WIND FARM



Construction Phase: The main contractor to build the wind farm is RJ McLeod (RJM). The company has a strong history of working successfully with SSE, including on the wind farms at Dunmaglass, Stronelairg and Strathy North in the Scottish Highlands.

RJM's approach to Viking is to maximise the amount of work offered to island-based businesses and workers, including full use of available plant from around Shetland, such as diggers, lorries, rollers and crushers.

A works programme for the next four years is in place. Construction of the site tracks, turbine bases and crane pads is expected to last until 2023. Many sections of the 75 kilometres of internal tracks will be of floating road construction, avoiding the need to excavate peat. Once the wind farm is operational, the network of tracks will be open for public access on foot, bicycle, wheelchair and horseback as well as access by local crofters and their vehicles.



Public access during construction In the interests of safety, people are asked to stay away from areas where works are taking place or where site vehicles might be operating. A safe distance of 300m from these areas is recommended.

Wind Turbines: Early in 2023, the towers, blades, nacelles and hubs for the turbines will arrive in Lerwick for delivery to the wind farm site on specially designed lorries. Discussions are continuing with Police Scotland and Shetland Islands Council to minimise inconvenience to other road users.

The turbine selected for the extreme wind conditions experienced in Shetland is an optimised Vestas 4.3MW model with a tip height of up to 155 metres. It is planned to have all 103 turbines in place for commissioning in early 2024 before going into full production. They will be connected to a substation at Upper Kergord via a network of underground cables.

The Vestas V-117 turbine

THE WORK **Sofar**

RJM started on site in August with a tapered build-up of activity, initially concentrating in three areas close to Sandwater:

- East of Sandwater: an access track with floating road sections is being laid towards the Nesting section of the wind farm along with the creation of the main construction compound where workers will be based by the end of this year, vacating their short-term compound nearby in the Sandy Quarry;
- Mid Kame: an access track is being built along the hill ridge. A cut is being made for the new Sandwater Road
 and sections of its carriageway are being constructed westwards to join into the Kergord access track and
 eastwards towards the Burn of Petta Water where a new bridge will be installed;
- Sandwater Road: a temporary car park has been formed and sections of new road are being laid to join into the main A970. This new Sandwater Road will be used to keep construction traffic separate from other road users until the wind farm is complete when it will become the new double-track B9075 public road.



Work continues on the road cutting required to flatten the gradient of the new Sandwater Road. The new road, once fully completed, will be adopted for public use.

Other parts of the wind farm site will start to see activity in the coming months. During November work has commenced on an access track which will link Kergord with Scallafield in the west. A temporary compound will be formed at Scar Quilse, south of Voe, around the turn of the year. All compounds will be dismantled, and the sites reinstated within five years.

Much of the rock which will be used to form the first site tracks and Sandwater Road is being retrieved from small blasts onsite, which reduces the amount of aggregates brought in over public roads. As progress is made into the site, rock will be excavated from borrow pits, which will be reinstated afterwards.

Within the site boundaries, the workhorse for the rough terrain is the 30-tonne carrying ADT or articulated dump truck, often referred to as a Moxy, which was last seen in Shetland on construction of the gas plant at Sullom Voe. Work that may create noise is restricted to 7am-7pm Monday to Friday and 7am-4pm on Saturdays.



EARLIER WORKS

The first major contract to be completed was the successful construction of the 1.3-mile Kergord Access Track by local contractor Tulloch Developments.

SSEN Transmission required the track to be ready at an early stage so its main contractor BAM Nuttall could move vehicles and plant up to build the HVDC converter station.

SSER is delighted with the quality of this work particularly the sections of floating road over peat and the high standard of landscaping and peat reinstatement.



A section of floating road laid over the peat at Kergord using a geotextile membrane



The new bridge installed by Tulloch Developments over the Burn of Weisdale

Another positive at Kergord was the success in minimising the amount of peat removed from site, which was around 40 per cent less than projected.

The wind farm workforce

Over 60 of the 100 people working in Shetland on the wind farm project at the end of October were local to Shetland, including half of RJM's 60-strong workforce. Many more islanders and local businesses are providing support services, such as accommodation, vehicle hire and equipment. To date, 15 local contracting businesses, a further 18 local supply companies and numerous local accommodation providers have been directly engaged by RJM in their delivery of the main construction contract. The scale of activities will ramp up early in 2021 and, when combined with workers on the Shetland HVDC Link, the number of jobs could reach a peak of up to 600 between autumn 2021 and the summer of 2023. During the first few weeks onsite, RJM took on four local workers through the Moving On Employment Project, a Shetland charity which helps young people overcome barriers to finding and retaining jobs. Viking is also committed to sponsoring local apprentices and rolling out STEM skills initiatives in local schools.





SSE RENEWABLES HELPS FUNDRAISERS EXCEED SHETLAND MRI SCANNER APPEAL TARGET

Fundraisers in Shetland have been celebrating the news that the Islands' MRI Scanner Appeal has exceeded its £1.65 million appeal target following three donations totalling £300,000.

As well as £200,000 already committed from the Shetland Community Benefit Fund, SSE Renewables has donated a further £50,000, an amount which has been matched by local wind energy business, Shetland Aerogenerators Ltd.

The donations build on the fantastic fundraising achievements of many hundreds of Shetlanders

who have selflessly contributed their time and money over the last two years.

Including local sub-contractors there are over 60 locally based staff currently working on the Viking Wind Farm, a number which will continue to grow, and we know how important the appeal is to them, their families and their communities.

Locating a scanner at the Gilbert Bain Hospital to bring quicker access to diagnostic tests and reduce unnecessary patient travel, stress and inconvenience is a perfect example of how we want to support people throughout Shetland.



How the turbines will look from Kergord, looking towards Scallafield.

Thank you

Thanks for reading, the Shetland HVDC Link and Viking Wind Farm project teams look forward to keeping you updated on our progress as our respective projects move forward.