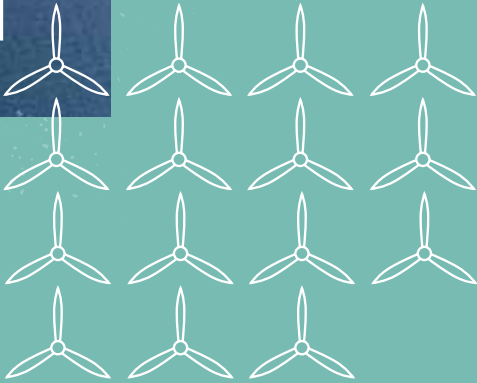


Building Shetland's energy future

JUNE ISSUE 2023



SSE Renewables are proud to be one of the Lerwick port sponsors of the event this year.



TRANSMISSION

About SSE Renewables

SSE Renewables is a 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 in the autumn of 2020.



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.

We are committed to inclusive stakeholder engagement, and conduct this at an 'Accomplished' level as assessed by AccountAbility, the international consulting and standards firm.

AA update

SSEN Transmission works to achieve the externally accredited AA1000 Stakeholder Engagement Standard. This is considered the 'gold standard' in stakeholder engagement accreditation. Our AA1000 Stakeholder Engagement Standard score as of June 2022 is 82% with a top-tier rating of "Advanced" in the AccountAbility Stakeholder Engagement Maturity Ladder. This is a 20% increase on our 2019/20 score and demonstrates our commitment to continuously improving our stakeholder engagement practice.

Keeping in touch

We are keen to hear your feedback, so if you have any questions about the newsletter or the works currently underway please contact:

SSEN Transmission Community Liaison Manager Thea Groat thea.groat@sse.com / 07901 127 205

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

To find out more about the projects and to register for updates please visit:

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

Construction update: Viking Wind Farm



Turbine erection

Shetland is statistically the windiest place in the UK and looking ahead at weather forecasts is consequently a way of life for Shetlanders. That wind resource is expected to bring exceptionally high levels of productivity of clean electricity, resulting in a relatively rapid calculated carbon payback from the completed Viking Wind Farm of less than two years. At the same time, it also means that the process of turbine erection needs to be carefully planned to maximize the benefits of weather windows.

At the time of writing, over 30 wind turbines have been fully erected and over 50 others have been partially erected. The first fully erected turbines, with all components fitted, started to appear around the landscape of the central Mainland in mid-April 2023. This was another hugely significant milestone for the project, coming twenty years after its original inception.

As explained in the last edition of the newsletter, the process to begin assembling the turbine components begins with the bottom two tower sections being lifted into place (pre-assemblies). Once a number of these lower sections are in place, then a larger crane is mobilized to begin the higher lifts to fit the top two tower sections; nacelles; drivetrains (gearboxes and generators); hubs (which the blades are attached to); and the blades (three in each finished turbine). There are four of the larger cranes on site and to increase availability in weather windows, two of these can operate at night, under lights, to utilise calm overnight conditions.

All 103 turbines are programmed to be fully erected during calendar year 2023, weather permitting, and current projections continue to pinpoint that erection is on schedule.

Turbine component deliveries

Turbine components continue to be shipped into the Greenhead Base, in Lerwick, and delivered to site from there under a convoy operation which is expected to

Liam Macdonald 1998 - 2022

Our workmate and colleague, Liam Macdonald (23), from Tain, tragically died on Viking Energy Wind Farm's substation site at Upper Kergord on Sunday 5 June 2022.



An acutely felt moment of silence and reflection was observed by everyone working on the Viking Energy Wind Farm and the Shetland HVDC link projects on 5 June this year, in Liam's memory and as a mark of everybody's respect.

A permanent memorial to Liam is planned on site, once both projects are completed in 2024.

continue until July. The convoys, which operate 3 times a day and six days per week (Mon – Sat), are operating efficiently under the control of Police Scotland, seeking to minimize disruption to other road users.

The time windows when the convoys continue to be expected to leave the port on weekdays (Mon-Fri) are between:

- 6am – 7am
- 11am - 12noon
- 1pm – 2pm

The time windows when the convoys continue to be expected to leave the port on Saturdays are between:

- 6am – 7am
- 10am – 11am
- 12 noon – 2pm

Direct local spending, now close to £53 million

Shetland contractors, suppliers and employees are continuing to directly benefit from wind farm construction. Direct construction spend with the local supply chain continues to stand at around £53 million, a figure which will rise again when tallied up in months to come. There remain around 70 local suppliers engaged, including 26 local contractors directly involved on the site.

Workforce

As the civil construction works start to tail off through 2023, RJ McLeod's workforce is now reducing accordingly. However, with around 200 Vestas staff and subcontractors on site, the overall wind farm construction workforce still sits at more than 400. Vestas continues a process of recruiting and training/retraining local operation and maintenance teams and now also has six local apprentices at different stages in their programmes.

What's happening elsewhere on site?

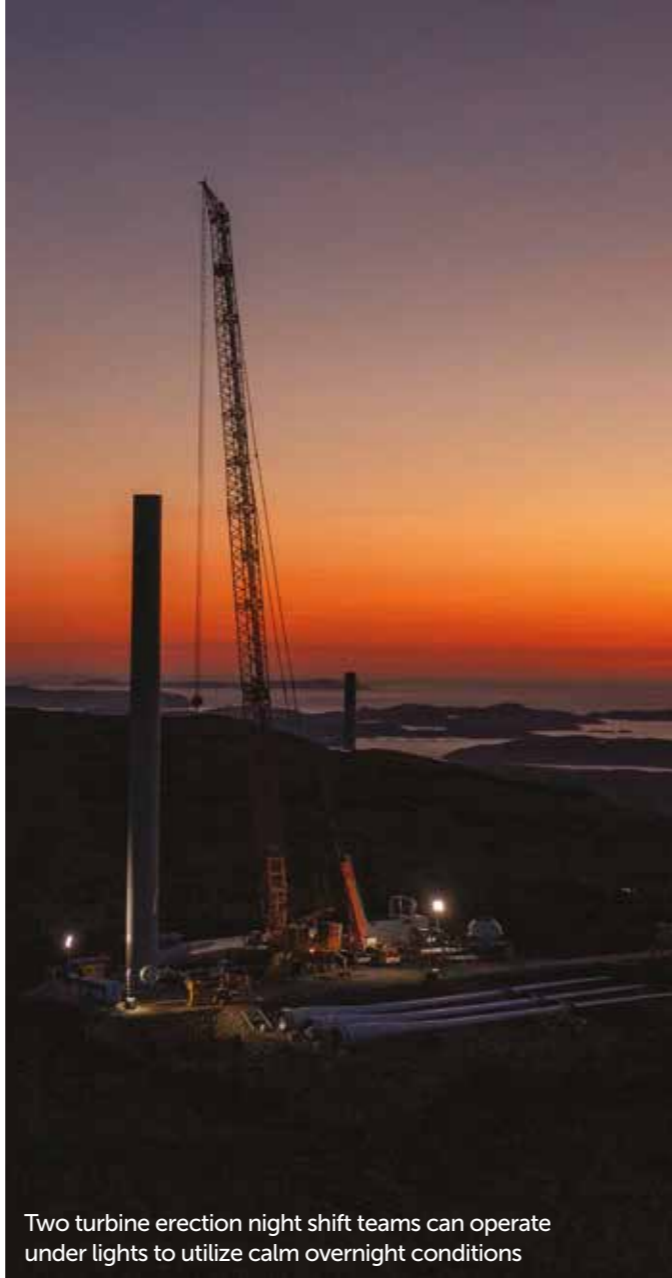
All 103 crane pads/hardstands and the 70km of tracks providing access to these are all long since in place. Some of these, principally in the South Nesting part of the site, are still in the final stages of being capped off ahead of the final turbine component deliveries to site.

Cable deployment continues, at pace. Cross-country cable routes, which consolidate cable arrays from different geographical parts back to the substation at Upper Kergord, are the next big priority for cable deployment, backfilling and completion.

Once cable work in the different turbine arrays completes, then this allows final track and crane hardstand surface capping to be completed; verge reinstatement/landscaping to be completed; and installation of permanent drainage around the site to continue.



Borrow pit KBP02, West of Kergord. Layers of peat are being applied to exposed rock seams, ahead of final reinstatement.



Two turbine erection night shift teams can operate under lights to utilize calm overnight conditions

Borrow pits

Whilst the site is being finished off, there will be some additional requirement for processed rock and aggregates in the various geographical segments, related to cabling, capping, verge reinstatement and permanent drainage. However, phased closure and reinstatement of all the borrow pits is now the priority. Borrow pit KBP02 in the northwest of the overall site has had layers of peat applied to an exposed seam of rock responsible, via oxidisation, for some sediment appearing in two upper tributaries of the Burn of Lunklet. Other remedial measures, and hydro chemical analysis, are also ongoing to ensure that, what was a geographically localised issue related to KBP02, is permanently resolved.

Immense pride

It's a source of great pride to all involved in the project to see the turbines going up so quickly and to have the fully finished/landscaped/reinstated wind farm now within touching distance. The Viking Energy Wind Farm will sit as a tangible standard bearer, at the vanguard of Shetland's economic diversification, energy transition and its ability to deliver on Net Zero.

Wind turbine update May 2023

Construction of the 103 wind turbines at Viking Wind Farm is well under way. As was described in the previous newsletter, wind turbine erection is carried out in two main phases. First there is the "pre-installation phase" where the wind turbine is partially erected. This involves the bottom two (of four) tower sections being installed by the pre-assembly crane. The second phase is known as "main installation", whereby the much larger main installation crane comes in and fully erects the wind turbine by installing the remaining two tower sections, nacelle, hub, drivetrain and three blades. To date, over 30 wind turbines have been fully erected and over 50 others have been partially erected.



A partially installed wind turbine



Main installation of the top tower section



View from one of the fully erected wind turbine roof hatches

Once the wind turbines have been fully erected, they are handed over to a commissioning team who begin work installing and testing many of the internal components inside the wind turbine, including the ladders and lift, safety equipment, lighting, electrical cable terminations, general wiring, and many other tasks. There are several commissioning teams currently on site working hard to deliver the wind turbines as efficiently and as safely as possible. After commissioning works have been completed, each wind turbine is subjected to a thorough inspection by engineers, known as a "walkdown".



View from inside one of the wind turbine towers



Sooth Shuns. Pre-existing peat erosion is a threat to this and other lochans. VEVF's HMP seeks to provide remedies.

HMP ornithology

HMP ornithological progress

With "Phase Two" of VEVF's peatland restoration works well underway, and six areas of establishment works completed, the team's focus is turning towards the package of commitments to improve the habitats of Red-throated divers, Whimbrel and Merlin.

Red-throated diver (Raingoose)

The team has spent a lot of time establishing the precise scope of works to fulfil the commitments on Red-throated divers. The original proposals have been built upon by our Ecological Clerk of Works and then by our Habitat Management Planning Officer (HMPO). The HMPO is a local ecologist and keen ornithologist, with excellent connections to local experts in this field. He has been at lengths to draw on this wealth of local knowledge to ensure a programme of works is developed to suit the Shetland habitats and surroundings.

Originally there was a view to remove some of the small (sub-optimal) lochans which are eroded to a point where they can't sustain successful breeding. However, through further observations, and the apparent tolerance of the divers during construction, the team have decided not to progress those downgrading works. Instead, the number of improvement areas has been increased by targeting lochans on the periphery of the wind farm arrays, without compromising the birds' flight paths to the coast.

Fifteen lochans have been identified as being suitable for enhancement works, some of which will improve

on existing habitat conditions, and others will enhance what are currently sub-optimal locations by making improvements suitable for the needs of prospecting divers. The nature of works will include the control of water flow to raise water levels, reprofiling of banks to allow easier means for the birds to get on and off the lochan, as their legs aren't well suited for the land, and potentially the creation of small artificial islands on lochans. Works are expected to commence autumn 2023 and will continue into the pre-breeding season of spring 2024. Any outstanding works will carry over into autumn 2024.

Whimbrel (Peerie Whaap)

Whimbrel are ground breeding waders similar to a Curlew ("Whaap") but far rarer in the UK. There are returning colonies within the wider wind farm site, but the target areas for enhancement lie west of the main wind farm. Six areas were originally identified for consideration, three of which have since been earmarked as needing intervention works to improve conditions, making them conducive to Whimbrel breeding. These are already utilised by some Whimbrel and other wading breeds. It is expected that works will enhance the habitat for all species, but the hope is that Whimbrel will particularly flourish once the works are complete. The target areas are relatively large, but not all parts of the area will be suitable for improvement. To establish the initial extents, detailed drone surveying was carried out, picking out flat vegetated areas in close proximity to wetlands or in areas where wetland could be created. Using this information, a detailed scope of works will be drawn up with the present intention to start works in autumn 2023 to spring 2024.

This work is unproven, having never been carried out for this purpose and, as such, the plan is to focus on only one of the three areas for now and assess success, before committing to the next. Drone surveying of the next two areas will be carried out this year so that the initial assessments and scope can be set out. VEVF's contracted ornithological consultant, and Whimbrel expert, is attending site this summer and will help in refining the programme of works. Local resources, with an understanding of the land, will be utilised for this work on the ground, under the direction of the HMPO.

Merlin (Peerie Hawk)

The final species of interest is Shetland's only bird of prey, the Merlin. Merlin are small ground nesting hawks which prefer a longer sward than say a Whimbrel, Shalder or Whaap. Four areas where Merlin have been sighted, and which meet their hunting requirements, have been identified as target areas. The enhancement plan is therefore simple; allow the sward to grow and manage that so that it is not grazed or cut. To achieve that, the areas will be fenced off and a means to manage growth established. The final extent of areas will be defined this summer by the HMPO, and the services of a local fencing contractor will be employed to undertake works.

Measuring success

In keeping with other aspects of the environmental works' package at Viking, a period of post-construction and operational monitoring is planned. A monitoring scheme of bird surveys will be put in place, focussing on the three species listed here and other moorland species.

The impact of the wind farm on our feathered friends has been an important consideration in the project design, construction and eventual operation. The turbines are positioned so as to seek to minimise impacts on breeding bird populations and the assessment models suggest a very low effect on Whimbrel and negligible effects on Red Throated Divers and Merlin. Despite the expected fairly minimal effects, the above measures are being put in place not only to offset any theoretical loss of breeding bird populations, but also to enhance areas where previously there was no will or way to make habitat improvements. The expectation is a biodiversity net gain brought about by the existence of the wind farm. As an added bonus, a system of tracks will allow the public to spot some of these species, in a responsible manner of course, as the birds are protected by law.



Red-throated diver (Raingoose)

VEWF electrical cabling works

Viking Energy Wind Farm (VEWF) consists of sixteen 33kV high voltage (HV) electrical circuits which have 6 or 7 turbines on each circuit. Each circuit of turbines is called an array and there are 103 turbines in total split over 16 arrays. Each circuit has 3 single core HV power cables and a separate earth cable to each turbine, these are known as three phase circuits. These cables conduct the generated electricity back to the main 33kV substation at Kergord for transmission onto the national grid and/or switching into Lerwick and eventually into your homes. A fibre optic cable is also installed to each turbine. These fibre cables are for control and communication and allow the turbines to be monitored and operated remotely through the control systems back at the SSE Renewables' wind operations control centre.

The cables installed on the wind farm have either aluminium or copper conductors, dependent on the electrical load of the circuit, with the type and size of cable being determined by our cable design team. The HV cables are laid in 500m lengths. Every length installed over 500m requires to be jointed, with the HV jointing being undertaken by specialist HV jointing teams. In total there will be around 1300 HV cable drums installed, giving a total length of 650km. The fibre optic cable is supplied in 3km drums to limit the amount of jointing required and the earth cable comes in 2km drums and are jointed, as required. The fibre optic cable jointing is also carried out by specialist jointing teams. The cable drum lengths and sizes are determined by the weight and the manageability of these for the cable installation teams.

The power, fibre and earth cables are laid underground in cable trenches. These trenches run from the 33kV Sub Station at Kergord to the west of the site which has 5 arrays, to the east of site which has 6 arrays, and to Mid Kames and



Cable track and separation of cables for 4 circuit trench



Cable entering turbine ducts from cable trench

north of the site which have 5 arrays. Each cable trench will differ in width depending on how many circuits are installed. The HV cables have specific separation requirements to prevent electrical losses. There are a number of factors that determine the spacings, with the main factor being the type of backfill material being used around the cables. The separation distance is determined by a specialist design team.

The power, fibre optic and earth cables enter the turbine base through cable ducts, and these cable ducts are installed as part of the turbine base construction. When all power, fibre optic and earth cables are installed, they undergo routine testing to meet specific testing criteria. When testing is complete, the backfilling of cable trenches can progress.

Rigorous quality inspections are also undertaken on the cables during the cable installation. During one of these inspections, the cable installation contractor identified some outer sheath abnormalities on a section of cable. The cable was removed and sent for inspection/dissection by the cable supplier, and to date no further abnormalities have been identified.

Over time when the vegetation has regenerated over the cable trenches, it will be virtually impossible to see where the cables have been installed, and over ground cable marker posts are used to identify the cable route. These markers are installed on completion of the cable trench back filling.

Once a turbine is fully erected, the HV cables will be terminated onto the HV electrical switchgear installed in the basement of each turbine, the fibre optic cables will be terminated into the fibre communication panel, and the earths will be terminated onto the internal earth bar

providing earth connections to switchgear and turbine components. When all cables have been terminated in the turbines and back at the 33kV Sub Station, including all final cable testing, then this circuit is ready to be energised.

Prior to energising the turbine, the turbine supplier commissions and completes pre-energisation checks on the turbine. Co-ordination and interaction with electrical and turbine commissioning teams is essential prior to first energising a turbine, ensuring that all safety checks and safety documents are in place before that big moment of switch-on. Once this work is complete, the turbines are in a position to generate power back onto the grid.

Cable drum fun

Local primary schools in Shetland have been having extra fun in their playgrounds after cable drums were delivered to their playgrounds. Nexans, who are the supplier of cables to the Viking Energy Wind Farm, have provided empty drums so they can be repurposed in playgrounds.



Skeld Primary School

RJ McLeod, Viking Wind Farm's principal contractor, also donated a range of other items including tarpaulins, plastic ducting and old tyres to bring even more fun to playtime at Skeld School.

"Nexans are pleased to be able to support such a worthwhile cause."

- Max Williams,
Utilities Sales Director, Nexans



Cable entering turbine foundation

This initiative was set in motion by Kenny Robertson, Electrical Package Manager for SSE Renewables who liaised with Nexans and took part in the deliveries.

"To see such a simple donation of various things put smiles on the kids' faces was great to witness and personally very overwhelming."

- Kenny Robertson
Electrical Package Manager SSE Renewables



North Roe Primary School

Making a difference: providing unique community opportunities

We often get contacted by people and groups who are looking for a visit to the Viking Wind Farm site as we have a good reputation for getting involved with the community and being accommodating where possible. So, when we were asked to enable some filming to go ahead with a local film maker and a young person with an interest in the wind farm; it was definitely one for discussion.

As it turned out, the filming was part of the Embrace Film project which includes participants between (8-27 years) from various parts of Shetland. The young people have come together to make a film that celebrates and promotes an understanding of neurodiversity (the fact that we all learn and experience the world in unique ways).

All of the participants have contributed to the film in different ways, including sharing their interests, strengths and challenges. Keiba Clubb, the film maker, has filmed the young people in various locations in Shetland that are meaningful to them.



Dougray having the time of his life during "Embrace" filming at VEWf



We were lucky enough to invite Dougray to the Viking Wind Farm site for a two-hour visit due to his longstanding interest in the progress of construction over the past few years. After the usual Health & Safety induction was over, we all donned our PPE and headed out onto site in a couple of 4x4s. To say Dougray was excited would be an understatement! His enthusiasm for everything was infectious and we found ourselves seeing the site differently and certainly with more awe at what we were part of building. Dougray had the time of his life and left site with a bag of Viking goodies that we know will take pride of place.

It is important to accommodate requests like this, we may have to work a little harder to make it happen, but it makes a real difference. Not only to the person getting in touch but to those that help facilitate the opportunity. We're committed to forging lasting connections with the communities in which we work and live, and taking the time to be creative with opportunities, might just make someone's day.

Tall Ships trainee - Ellie Lawton

With the Tall Ships race fast approaching we have, as part of our sponsorship package, the ability to have 2 trainees aboard a vessel during a race leg. One trainee will be a local young person from here in Shetland and the other will be a Renewables' colleague. We placed an ad on Yammer which asked for people who were interested to write 200 words as to why they would like to take part.

We're happy to say that a young graduate engineer wrote a submission that was inspiring and since having met them we know they will get the very most out of this experience. Eleanor (Ellie) Lawton will be joining Swan a Shetland vessel to sail from Lerwick to Norway setting off on Friday 28th July 2023 returning to Shetland, by sea, on August 10th. She recently took part in a sail training day here in Lerwick and is now even more excited by her upcoming voyage.

As part of her submission Ellie shared:

"I am 23 and I've never felt as though I am outside my comfort zone or should I say, the wind has never been taken out of my sails."

"Ultimately, I have never experienced a real-life adventure with no knowledge of what lies ahead in an alien environment, working so closely with a group of strangers to develop and work as a team battling the elements."



"I welcome the opportunity to push myself to discover hidden strengths. Equally I am excited to discover hidden weaknesses because I know that by recognising these and challenging them, it will help me with my self-confidence."

The journey Ellie is embarking on will not be an easy one and will test her every step of the way, but having met her we know that she will rise to the challenge as she is a tenacious young woman!

You will be able to follow Ellie's adventure as she will be filming the trip so look out for updates on our website vikingenergy.co.uk

Brae Young Enterprise Scotland



Young Enterprise Scotland offers a wide variety of enterprise & financial education programmes and development opportunities for young people across all of Scotland. So, it was a huge compliment to be asked to support the Brae High School team undertaking the 'Company Programme' as their Business Advisor.

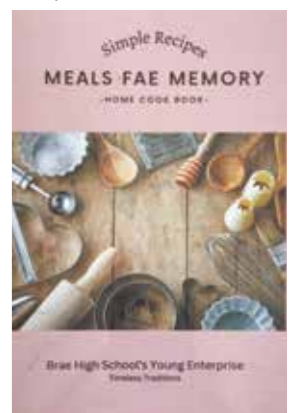


Young Enterprise company "Timeless Traditions" with SSER's Julie Graham

This programme, for young people from S5 & S6 empowers them to discover and develop skills outside of academic education. It motivates them to investigate and be ready for the world of work by encouraging positive attitudes to both learning and work, through real life experience.

The students at Brae High School started up their own student company, running through the process of developing their idea, conducting market research, creating and promoting their product and ultimately producing and selling it. They even worked with a graphic designer (25West Design) to design a logo with a sustainable business image in mind, and Timeless Traditions was born.

Their first foray into the business world is a super little cookbook – **'Meals Fae Memory'**





Topographic workshop at South Newing, September 2022

Heritage strategy and opportunities for involvement

Headland Archaeology has been undertaking archaeological works on behalf of SSE Renewables throughout the wind farm's construction as the archaeological contractor. This work ensures that any archaeological sites have been recorded and/or excavated, to better understand how the land was used in the past and ensure that this information isn't lost. The need for archaeological works is determined as part of the planning process. This is done in consultation with the Local Planning Archaeologist, who advises local councils on archaeological matters and ensures that works are carried out in accordance with standard procedure and methodology.

Headland Archaeology has also been working on some other projects associated with the wind farm, including the launch of the interactive web map of sites across the wind farm and the wider central Mainland, which can be found here: bit.ly/Viking_ArchaeologyExplorer

You may also have seen that last year in September we partnered with Mind Your Head Shetland to deliver a series of community archaeology workshops including undertaking a Community Survey at the Scheduled Monument of South Newing – a prehistoric homestead enclosure. Volunteers from the local community and staff from both Headland Archaeology and Mind Your Head Shetland braved the weather to learn about archaeological survey techniques and site recording and collect the data needed to improve the understanding of the site.

These events form part of a Heritage Strategy that Headland Archaeology is delivering alongside work at the wind farm to contribute to Shetland's legacy of valuing, interpreting, and sharing its outstanding history and heritage.

The Heritage Strategy was developed in conjunction with Viking Wind Farm and Shetland's Local Planning Archaeologist to facilitate and encourage the local community in the central Mainland to be involved in the discovery, management, enhancement, and display of their cultural heritage through interaction with the rich heritage in the study area.

One of the aims of the Heritage Strategy is to undertake a programme of community archaeology, to develop skills within the community in the use of a variety of excavation and recording techniques and contribute to regional research. Our community events in September 2022 covered walkover survey, photogrammetry, topographic survey, and the processing of topographic and photogrammetric data, and contributed to the understanding of prehistoric settlement in the western Mainland.

This summer we will be continuing our community archaeology programme and are hoping to undertake geophysical surveys in the study area, which we hope will inform a community excavation to follow!

You need no experience or special equipment to be involved with our community archaeology events, all training and equipment will be provided.

If you are interested in being involved in our community archaeology events this summer or in the future, please email vikingheritage@headlandarchaeology.com to be added to our contact list!

Shetland women's senior hockey team

The Shetland women's senior hockey team have become the latest sports team in Shetland to gain sponsorship from SSE Renewables and the Viking Energy Wind Farm.

Shetland women's senior hockey team is the most northerly side in the British Isles and have just won the Scottish National District cup finals. This took place at the national stadium in Edinburgh where they realised their dream of bringing the cup home to Shetland.



Shetland Community Benefit Fund

The Shetland Community Benefit Fund was launched on February 14th 2021.

As of April 30th 2023, £741,780 has been allocated to 343 projects covering all of Shetland, from Fair Isle to Unst. 412 applications in total have been received with the current most common theme being social inclusion and wellbeing.

Early in the project an additional £200k was advanced on the main Shetland Community Benefit Fund to MRI Scanner Appeal.



Sustaining & developing Shetland communities

IBP have undertaken a community consultation to gain an understanding on where the Shetland community would like to see the main fund spent. The main fund will be worth £2.2 million per year (indexed). IBP have extended the deadline for the consultation and have had an increase in response in the last few weeks. The findings of the consultation will be presented to SCBF in mid-June.

A full list of the grants awarded under the scheme and how to apply for a grant are available at scbf.org.uk/ags

Kergord HVDC update

SSEN Transmission's civils contractor, BAM Nuttall, are currently carrying out their remaining works at the HVDC Converter Station at Kergord.

The main focus during this period is on the last of the external works, these include fencing, footpath kerbing and landscaping.

BAM Nuttall are also carrying out internal works, which include the commissioning of the mechanical and electrical systems as well as closing out any snagging necessary



Landscaping works ongoing and water tank installation



Water tank installation

Lookahead:

- External Civils works including road surfacing, watercourses, landscaping and watermain installation as well as final M&E testing and commissioning.
- Service building and external snagging.



Clean working procedures relaxed in GIS Hall as assembly of 132kV GIS is fully complete

AC Substation update

Commissioning

The commissioning on the 132kV AC Switching Station is now in full swing & we are progressing well with the stage 1 commissioning of all the 132kV equipment that needs to be proven prior to our later stage 2 energisation phase.

We are moving through this very important stage of the commissioning in liaison with our contractor, Siemens Energy, who are delivering this part of the project to our exacting standards ensuring everything is installed & commissioned as per design & will be functional & ready for service when we move onto the energisation phase of the project.

The HV (High Voltage) testing (which is done to ensure the integrity of the equipment) of the 132kV GIS switchgear is also now starting to be prepared, with the equipment all on site.

We are also now liaising with Hitachi Energy (HVDC delivery partner) & SSE Renewables teams (Viking Energy Wind Farm) in preparation for the substantial & intricate interface testing required between each parties interconnected equipment, this is progressing well & will be starting soon.



Painting gas tight barriers

Hitachi Energy update

In the final week of May Hitachi (HE) hit a substantial milestone and have now connected the Converter Station panels to the incoming distribution network supply. This involved ensuring that substantial checks were carried out on the technology packages installation prior to going live. This involved SSE Networks and Hitachi Energy inspecting and testing in detail, cables, panels, terminations and HVDC equipment elements prior to connection. The incoming 33KV supply can now be used to power and test the sub-systems and progress the scheme through commissioning activities. With a live supply of electricity now in the building, the Converter Station site is now formally under Hitachi Electrical Safe System of Works, a set of operational safety rules for working on an electricity system.



Live low voltage panels



Earthing of HV equipment

Additionally, over the last few months HE has been busy with the subsequent activities:

- Completing the earthing of the HV technology equipment, this ensures there is a controlled path for any build up of electric charge to escape during operation.
- Removing the protective coverings from the HV Converter equipment within the Reactor and Valve Halls to allow cleaning and preparation for further testing.
- General snagging and defect rectification works to the panels and cable terminations.
- The high-speed switches and associated equipment have been filled with highly insulating gas to allow the HV switch gear to operate safely.

Lookahead:

The key activities over the coming months will be focused around progression through the Stage 1 Commissioning programme, with HE and SSEN working collaboratively to ensure the Technology Package is thoroughly, tested and witnessed prior to Energisation.



Planning of haul road

Noss Head update

The Noss Head Switching Station has now completed Stage 2 Commissioning and was handed back to National Grid on the 2nd of June. This has been another major milestone for the project and has been an accumulation of dedicated hard work from over 50 contractors for over 131 weeks to get the project to this point.

The reinstatement phase has now commenced with the existing site offices/laydown area now been removed and being reinstated to the original condition. Final snagging and defects are being closed out with all handover documentation being ready for handover to the Service Contractor.



Haul road

Lookahead:

- Completion of all snagging & defects
- Completion of all reinstatement works
- Site handed back to landowner



Haul road being removed



View from the Grand Canyon III helideck into the voe at Weisdale Voe, Shetland

Cable installation works

Following on from the successful cable pull-in and subsequent lay in March, the NKT Victoria Cable Lay Vessel was able to complete her scope as scheduled and returned to Sweden in advance of Campaign 3 for the Shetland HVDC Project.

The Grand Canyon III then mobilised in Blyth, Northeast England on the 27th March to perform the trenching scope. She managed her scope and worked with the weather to complete as per schedule. The shallow



Cable pull-in with the NKT Victoria Cable Lay Vessel in the background

water trenching was performed in April but, due to soil conditions on the seabed, was not successful in burying the cable.

Managing the trenching scopes as scheduled meant we were able to use the Helix Grand Canyon III to come closer into shore, leaving us just a short (approx. 150m) distance of cable left to bury. SSENT are currently working with their Contractor and their subcontractors to develop a scope to ensure the cable is suitably buried. This scope detail is not yet confirmed but is expected to be a diving scope managed from a vessel in the Voe and will take place approx. end of August.

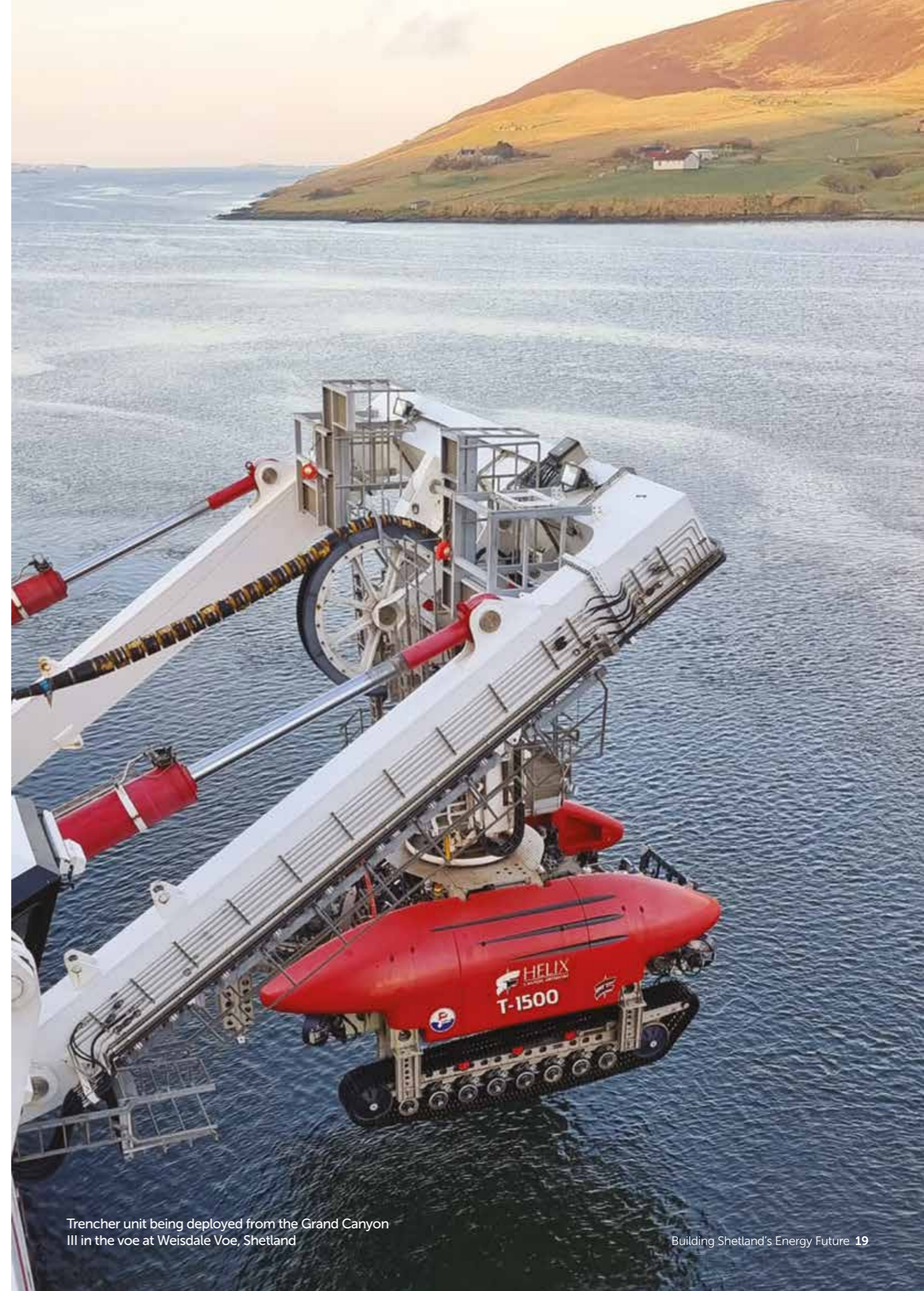
Lookahead:

Campaign 2 – works remaining are:

- Nearshore cable burial (end of August)
- Rock placement (September)

Campaign 3 – cable loadout is due to begin mid-June and then the NKT Victoria will return to pick up the cable end from Campaign 2 and perform an inline joint with the Campaign 3 cable at the beginning of July. She will then go on to lay the final section of cable and perform the final joint to connect with the cable end from Campaign 1.

Again, trenching with the Grand Canyon III will follow on, with the vessel mobilising at the end of July and trenching throughout August and into September. Rock placement will follow on once Campaign 2 rock placement has been completed, which is the final activity of the offshore campaign.



Trencher unit being deployed from the Grand Canyon III in the voe at Weisdale Voe, Shetland



Shetland Renewable Connections update

Gremista Grid Supply Point (GSP)

SHEPD are continuing to make good progress with the earthworks and platform formation for the new Substation at Gremista which remains on track for a handover to SSEN transmission in July.

Kergord to Gremista Transmission Link

The Kergord-Gremista link involves creating a 22km connection between the Gremista Grid Supply Point (GSP) and Kergord Substation, which is currently under construction as part of the Shetland HVDC link, using a combination of overhead line and underground cabling. Upon completion, the Kergord-Gremista link will provide a connection to Shetland's local electricity distribution network, connecting the islands to the GB energy system for the first time and helping to secure Shetland's future security of supply.

The approval of SSEN Transmission's Section 37 application for the overhead line section of its Kergord-Gremista link provides the green light to progress into the delivery phase of the project. The connection will consist of two 22km circuits, which will be a combination of 132kv overhead line and underground cabling. The first phase involves a section of around 4km of underground cabling from Gremista to connect with the start of the overhead line. From there approximately 12km of overhead line will continue in the direction of Kergord, before undergrounding again near Sandwater House for around 5km towards its termination point at Kergord substation.

The approval of the Section 37 consent application by the Scottish Ministers represents a key milestone in the project that is a culmination of over two years of work that has involved extensive local consultation amongst other activities. The feedback received from the community and other key stakeholders during the consultation period helped to shape the final design of the project. The project team are now engaged with the activities that will enable the implementation of the Section 37 consent and its associated deemed planning permission. This includes submitting additional information to Shetland Islands Council to discharge planning conditions. Once the relevant conditions have been discharged, construction works for the overhead line can commence in accordance with the mitigations set out at the time of the consent application.

Lookahead: OMSI

- Site establishment at Ladies Drive
- Ground investigation works for the underground cable installation
- Planning submissions to Shetland Island Council for bell mouths
- Preparation for establishment at the GSP location

Norpwer

- Site establishment at Ladies Drive



South Yell Switching Station Event

We recently held an information event for the proposed South Yell Switching Station at the Burravoe Public Hall, where we invited the public along and provided them with updated information and visuals of the Switching Station. The event was well attended and we would like to thank everyone who made it along to meet the project team.

You can read more about the wider Shetland Renewable Connections project here:



Scan the
QR code to
read more.

Next steps

We will consult extensively with the local community and key stakeholders to help inform the development of this project, with the first stages of consultation for the main Yell to Kergord switching station underway, with further consultations planned for later in the year on route definition.

Cul Ness to Yell

The marine survey works have commenced between Cul Ness and Yell. The geophysical survey was carried out in May and the collated data is under review. This information is vital and will be used to inform the upcoming Geotechnical survey which is planned for the summer. Once all survey works are complete, a final route will be selected for the proposed subsea cable which will link Kergord HVDC Station to Yell.

Kergord to Cul Ness route survey

In June, Norpwer will be conducting a survey of potential routes between Kergord and Cul Nes. This will involve peat probing and GPS mapping and will provide valuable data to inform route selection studies.



Shalder chick

Environment update

After a long, cold winter and a couple of false starts, spring has finally arrived in Shetland. For the birds of Shetland this means it's time to look for a nest site and take advantage of the long summer days to raise a family.

All birds' nests are protected under the Wildlife and Countryside Act 1981 and as a project we are committed to making sure we don't disturb any nesting birds. If a bird does make a nest, then works in that area will stop until the ecologist informs the project team that the birds have fledged.

Our ecologists began looking for nests in March and continue to make regular checks throughout the breeding season. In areas of critical work, we install bird scarers to deter ground nesting birds such as oystercatchers (shalders in the local Shetland dialect) from making nests in locations we need to work in. Birds that nest in areas we are not planning works are left alone and the ecologist will inform the site team of their locations so they aren't disturbed.

Sometimes, birds chose the oddest places to nest. For example, pied wagtails seem to have a preference for cable drums as a nesting locations, so we block the centre holes to prevent this from happening. Last year

the local starlings developed a liking for our plant and machinery and were often observed nest prospecting and trying to bring nesting material into the excavators.

Through regular monitoring we were able to ensure no nests were disturbed or harmed last year and we plan on doing the same this year.

Andrew Whitelee – NKT



Shalder nest



One of the completed projects

Spotlight on:

Hitachi Energy donates wood to Northmavine Community Development Company

Over 1400 wooden packing crates were shipped to Shetland from different suppliers across Europe containing specialist equipment for the mechanical and electrical build of the HVDC Converter Station at Kergord. As an initiative to reuse the wood, Hitachi Energy contacted the Northmavine Community Development Company to determine interest from the local community. After an overwhelming response, they worked closely with the team at NCDC so that the wood could be collected at one location.

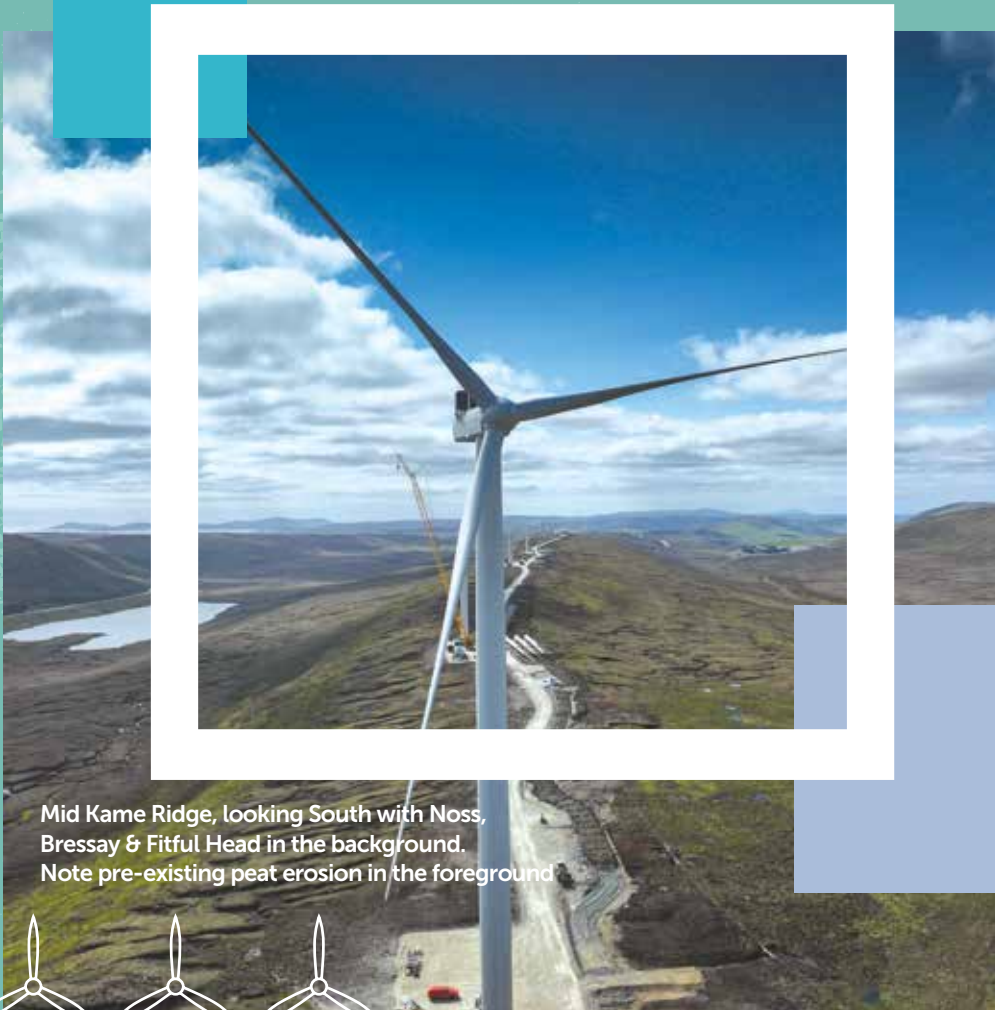
Seeing the various uses of what could have been waste material in DIY and community projects, it has encouraged Hitachi Energy to look at similar initiatives across their HVDC projects globally. They are also looking at other ways in which they can support the local community in Shetland before completion of the Shetland HVDC Link Project.



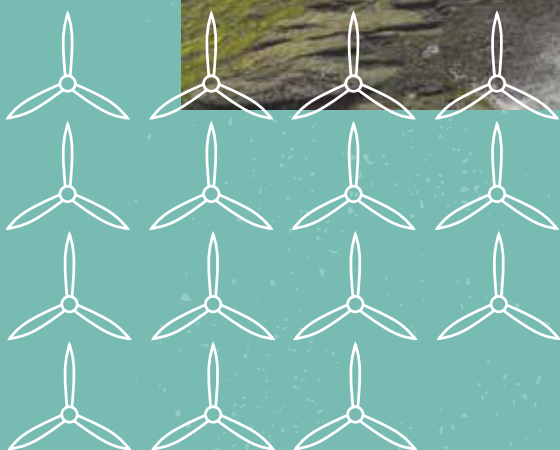
Neil Leask alongside the working defibrillator

People

Since our previous newsletter we were contacted by Tingwall, Whiteness and Weisdale Community Council to ask whether we could help to repair the defibrillator located at the Weisdale shop. The project team at the HVDC Converter Station SSENT donated new parts to the defibrillator which is now back in service. We are delighted to have received this photo of Community Councillor Neil Leask alongside the working defibrillator.



Mid Kame Ridge, looking South with Noss, Bressay & Fitful Head in the background. Note pre-existing peat erosion in the foreground



To find out more about the projects and to register for updates please visit:
www.ssen-transmission.co.uk/projects/Shetland/
www.vikingenergy.co.uk/

