

Sheringham Shoal

by Scira Offshore Energy

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NEWSLETTER



Initial works start on base

Initial preparation works have now started on the site of the Sheringham Shoal operations and maintenance base facility located on the Walsingham Estate in Egmore, three miles south of Wells-next-the-Sea.

The main scope of this early work is the diversion of existing powerlines, which will be replaced with underground cables, to enable the utilities and services to be brought on to the site prior to construction of Scira's new office building and warehousing facilities.

The work will enable electricity distribution company, UK Power Network to install the necessary electrical connections.

The main contractor for the construction of the base will be finalised shortly with work due to start on that phase of the project early in 2012. The facility should be completed by the end of the year.

It will eventually be home to the Scira team and the Siemens wind turbine technicians and coordinators responsible for the operation and maintenance of the 317MW offshore wind farm.

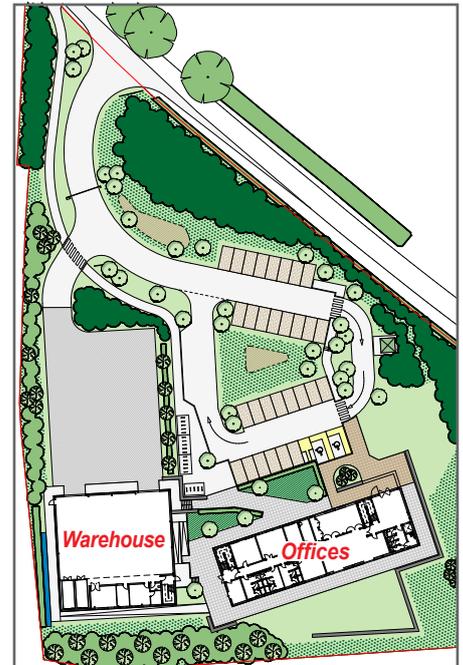


Diagram of the proposed layout.



The Egmore site for the new base.

Action under the waves

Offshore wind farms are symbolised by the white wind turbines standing tall above the waves, but of equal importance are the subsea components. These are what people do not see – the foundations, cables and associated equipment hidden below the water but vital to every wind farm project.



Smit Constructor is the base for the 60-strong team carrying out secondary works

At Sheringham Shoal, the foundations are now all in place but a huge effort is ongoing to prepare for the installation of the remaining infield cables that will transmit the power from the turbines to the offshore substations.

Based on 77m vessel Smit Constructor, riggers, divers and other workers from contractor Visser & Smit, have been busy on secondary works ensuring each foundation is ready for the arrival of the cable laying vessel. Working alongside the divers on the seabed are state-of-the-art remotely-operated vehicles (ROVs) equipped with cameras, lighting and special tools such as grabbing arms to carry out the necessary tasks.

The teams on Smit Constructor work around the clock, with both day and night



Divers back from their underwater shift.

crews lowering what are called j-tubes – the conduit for the cable and part of the yellow transition piece – into position, clearing any obstructions from the base of the foundations, and finally installing the funnel-shaped bellmouths along with lengths of polyethylene (PE) pipe through which the cables will be eventually be fed.

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State-of-the-art trencher brought in for cable burial



The trencher is remotely operated from the Toisa Warrior.

An underwater trencher specially re-engineered for the seabed conditions at Sheringham Shoal will soon begin burying the project's export cable between the wind farm and the coast at Weybourne utilising a technique tested to have the least impact on the marine environment.

Working on the seabed and remotely operated from the Toisa Warrior, the trencher – known as CT-1 – uses a high pressure/low volume jetting system whereby jets of seawater are directed downwards to soften the underlying soils, creating a trench for the cable to drop into. Backwash jets keep the trench clear to ensure the cable sinks right to its bottom

while the CT-1 continuously moves forward on a track base as the cables are buried.

The CT-1 has been trenching initial infield cables at the wind farm site to gain operational experience before it moves on to trench the two export cables that were laid earlier this year. The export cable trenching work is scheduled to take around two months, depending on weather and the equipment.

When the export cables are completed the CT-1 will return to bury any remaining infield cables while the area along the export cable will be free for fishing activity to resume. The trencher is equipped with the latest in technology including surveillance cameras, an echosounder and sonar.

Fishing concerns addressed

Concerns from fishermen about the trenching method being employed by contractor Visser and Smit Marine Contracting were addressed at a presentation prior to the work starting.

Marine trenching methods often disperse sediments, known as plume, into the water, which can have a detrimental impact on fish and the sealife. Scira presented fishermen with details about the method proposed for Sheringham Shoal, and approved by the Marine Management Organisation, to ensure they were aware that the technique known to cause the least plume had been selected.

Scira Marine Operations Manager, Meindert Jan van der Velde said that the high pressure/low volume system was chosen because it has been used elsewhere with minimal impacts and has also undergone independent plume dispersion modelling tests which showed it to be the preferred option.

“We wanted fishermen to understand more about the proposed method, which was chosen from a number of alternatives as having the least impact on fisheries and marine life,” he added. “We have a consent obligation to bury the cables, but we plan to carry the work out as efficiently as possible to be able to release the area, currently held as an exclusion zone, for fishing activity.”

A floating community

An offshore community is living and working in the Greater Wash on a floating hotel, a former Mediterranean ferry specially adapted for marine construction accommodation.

The 153m Wind Ambition, is home to 138 wind farm personnel, as well as around 40 crew, and facilities on board include a reception, lounge, games, fitness and conference rooms, cinema, single cabins with private amenities, TV area and offices.

With residents from almost 15 different European nations, each specialising in work vital to the wind farm's construction and commissioning, the vessel has become an “international floating village”.

The Wind Ambition's arrival on site has minimised boat and road traffic to and from

the Wells outer harbour as workers mostly now join or depart the vessel during its monthly port call in Harwich, Essex.



The Wind Ambition, floating hotel, home to 138 wind farm workers.

Challenging weather as wind farm progresses

Despite much waiting on suitable weather during late 2011, progress on the Sheringham Shoal Offshore Wind farm has continued with 20 turbines in position at the time of publication, more than half of the cables connecting the turbines installed and work well underway to bury the offshore cables in the seabed. The installation of both internal and external j-tubes on the foundations and work on the elastomer bearings has finished.

The two turbine installation vessels, *GMS Endeavour* and *SEA JACK* have spent waiting and preparation time in Great Yarmouth but as soon as weather conditions improve they return to the site with two turbines each.

Unsuitable weather is just one of a number of challenges the team managing the

construction of the wind farm has had to face in the Greater Wash, but as Facilities Project Manager Elly Kristine Bjerknes explains, the offshore wind industry is in a pioneering phase so challenges are to be expected, and they present plenty of opportunities for innovation.

Overseeing the whole installation, Elly's background includes managing the construction of a combined cycle power plant in Norway and involvement with oil and gas projects both in Norway and internationally. However this is her first offshore wind farm and despite similarities in terms of contract management and coordination, she recognises that the wind industry brings a whole new range of challenges.

“Working in a difficult marine environment, dealing with unpredictable weather, coordinating a number of marine activities and operational limitations due to sea



Overseeing the whole construction process is Facilities Project Manager Elly Kristine Bjerknes.

conditions – while always ensuring that safety is the first priority – has definitely been an issue on Sheringham Shoal,” Elly said. “The industry is now looking into several projects on how turbine installation methods and personnel transfer techniques can be improved.”

Sheringham Shoal has employed a number of major contractors, so effective project management is vital and Elly said that good teamwork, efficient interfaces and ensuring there is understanding of each others' roles and responsibilities has been an ongoing task.

Prior to, and during construction, the installation team faced some unexpected problems such as the need for more scour protection – to prevent seabed erosion – than anticipated; the need to install elastometric bearings to reduce loads on the grouting between the transition pieces and the monopiles, and having to change the vessels used to install the foundations.

“Each of these issues has been solved with ingenuity, excellent in-house competences within the owner companies – Statoil and Statkraft – and good relationships with suppliers who have been able to understand what was needed and implement solutions.

“Sheringham Shoal is the first offshore wind farm for both the owner companies, so it is inevitable we have found new challenges and experienced a steep learning curve,” Elly said. “But there is a huge value in these lessons that we will be able to carry forward into future projects such as the enormous offshore wind farm development, the equivalent of around 30 Sheringham Shoals, now being planned for Dogger Bank in the North Sea.”



Top: *GMS Endeavour*, one of two vessels constructing turbines on the Sheringham Shoal site while (below) workers take advantage of the good weather to install another turbine.

Visitors brave seas to view wind farm

As one of the largest offshore wind farms now under construction in the UK, Sheringham Shoal has attracted quite some visitors – both from the local area and overseas.

The BBC's John Craven headed offshore in September to prepare an item for Countryfile, while journalists from The Independent, as well as regional Norfolk press have also braved the seas. Several writers from Norway's major publications also visited the site and have written about the project. In another visit, councillors and executives from North Norfolk District Council had the opportunity to see the offshore construction up close.



From left, Statkraft's Chairman Svein Aaser, UK Managing Director Bjørn Drangsholt and CEO Christian Rynning-Tønnesen visit the wind farm.

In October, the full Board of owner Statkraft travelled to Norfolk to view the company's major UK project. They were joined by the Norwegian Parliament's Standing Committee on Business and Industry, responsible for matters relating to business, industry, and trade amongst other portfolios. This visit helped them realise the enormous scale of this project, the technical challenges it entails and the logistical problems that need to be solved.

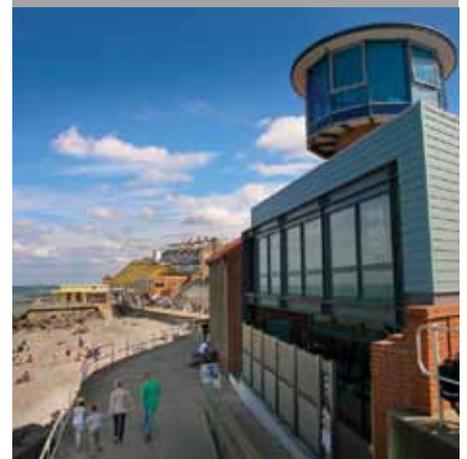
Questions from the community

What will happen to the Wells Field Study Centre once Scira leave?

When Scira took over the lease of the Wells Field Study Centre, the former school in Polka Road, earlier this year, they had a complete refit undertaken by Norfolk Property Maintenance. This work included the removal of asbestos, installation of new electrics and telecommunications, fitting of new carpets and redecorating throughout. When the lease ends in early 2013, it will be handed back to its owners, the Norfolk County Council as a significantly improved asset. The Council will decide on its future use.

Is the Visitor Centre open all year?

The Sheringham Shoal Visitor Centre is open for the same periods during the year as The Mo Sheringham Museum, where it is located. The Museum is now closed until 11 February 2012 when it opens for the week of half term. It then re-opens from 19th March until 4th November. Scira intends to utilise the Visitor Centre far more as an educational resource in 2012 and invites school groups to register their interest in a guided session at info@scira.co.uk.



If you would like a question answered in the next newsletter, please email info@scira.co.uk

Three groups awarded community grants

Three more local groups will benefit from grants awarded by the Sheringham Shoal Community Fund committee following the last round of applications.

The Bacton-on-Sea Village Hall will receive funds towards the installation of a 5 kilowatt wind turbine to help reduce the hall's carbon emissions but also to upgrade this important community asset.

The 1st Mundesley (Air) Scout Group has been awarded monies towards the installation of 20 photovoltaic panels on the roof of the new scout hut. The panels will generate enough electricity to run the entire building and will provide some additional income to enable the group to keep fees as low as possible.

Finally, the Sheringham & District Preservation Society will be granted

funds to replace the current lighting in the Heritage Centre and Shell Gallery with more efficient bulbs and additional fittings which will help reduce power consumption and operating costs as they fulfil their important role in preserving Sheringham's heritage.

The fund is now open for outline proposals from charities, community groups, parish and town councils and educational institutions in the North Norfolk area.

Interested groups can find out more or submit an outline proposal form, available from www.norfolkfoundation.com at any time. The grant panel will consider outline proposals and selected applicants will be invited to submit a full proposal for consideration. Full applications are normally considered at meetings twice a year with the next scheduled for May 2012.

Contact details and more information

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The Sheringham Shoal Offshore Wind Farm is owned equally by Statoil and Statkraft through the joint venture company, Scira Offshore Energy Limited. Statoil is the operator for the project during the development phase and Scira will be the operator of the wind farm when completed.

