



▶ The North Norfolk coastline close to Weybourne Hope

DUDGEON

Offshore Wind Farm

Spring 2014



We are making good progress as we move towards the Final Investment Decision (FID) for the Dudgeon Offshore Wind Farm and, as a UK energy generator, we will ensure that the project benefits the UK as much as possible.



*Halfdan Brustad, Vice President,
Statoil Renewables Offshore Wind and
Chairman of Dudgeon Offshore Wind Limited.*

Dudgeon makes strong headway... ...at sea and on land

The Dudgeon Offshore Wind Farm has made significant advances over the last four months by securing financial support, undertaking surveys and signing important supply contracts. These are all major milestones towards a Final Investment Decision (FID) this summer.

In December 2013 the Department of Energy and Climate Change (DECC) approved the request to vary the offshore consent for the Dudgeon Offshore Wind Farm. This means that the wind farm will consist of 67 turbines, each one sited so as to minimise the wake effects of placing turbines too closely together. The revised design for the site also takes into account the foundation stability issues associated with areas of mobile sand waves across the site and the chalk structure of the subsea bed.

The receipt of this planning consent enabled several important contracts to be finalised during the first three months of 2014. Contracts for Wind Turbine Generators (WTG), the Monopile Foundations, the Export Submarine Cables, the installation of the foundations and the Offshore substation have all been awarded. Details of these contracts can be found on page 2 of this newsletter.

On land, an intense programme of survey activity has continued along the onshore cable corridor, and also at the substation site at Necton. These surveys resulted in Dudgeon Offshore Wind being granted planning

consent for a number of changes along the route of the onshore cable, all of which were designed to improve the existing consented scheme and help minimise the impact on individual landowners.

The choice of Great Yarmouth in Norfolk as the preferred harbour location for the O&M Base is resulting in a growing level of activity with key stakeholders in this busy port town; this will be the wind farm's 'home' in the years to come and Dudgeon Offshore Wind is anxious to play a positive role in the community.

This exciting renewable energy project was further strengthened in late 2013, when DECC announced that the Dudgeon Offshore Wind Farm was one of only four offshore wind farm projects to have been chosen as being 'provisionally affordable' in the Final Investment Decision Enabling for Renewables (FIDeR) process. Success in the final selection of FIDeR projects will provide Dudgeon Offshore Wind with the sustainable and long term basis for significant investment needed to construct the Dudgeon offshore Wind Farm.

The indicative timetable for the commencement

of the main construction activities associated with this project is currently:

- Q3/2014 - onshore substation at Necton
- Q4/2014 - onshore cable corridor
- Q1/2016 - offshore works

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First construction and installation contracts awarded

The Siemens 6 MW Wind Turbine Generator (WTG) has been chosen for the Dudgeon Offshore Wind Farm, and two contracts valued at more than £500 million have been awarded to Siemens plc, whilst ABB has been awarded the contract for the two submarine export cables and Seaway Heavy Lifting will install the foundations.

The wind turbine generator (WTG) supply contract will cover the engineering, procurement, assembly and offshore commissioning of 67 WTGs. Each turbine consists of a tower section, a nacelle and three separate rotor blades. The first batch of turbines will be ready for installation in January 2017. The service contract will cover operations and maintenance of the WTGs for the first two years following the

completion of the installation, followed by three years where Siemens plc provides Dudgeon with technicians and other agreed services.

"Siemens is proud to have signed this contract with Statoil and to continue our good business relationship following up on both the Hywind and the Sheringham Shoal project. We have recently announced to invest in wind turbine blade production and nacelle assembly facilities in Hull as we see a growing market for offshore wind in the UK. The Dudgeon contract is an important commitment in this market," said Siemens Offshore CEO Michael Hannibal.

The installation of the monopile foundations for the wind turbine generators, and their associated offshore substation, will be undertaken by Seaway Heavy Lifting. The installation will be performed by the vessel



▶ Each submarine export cable is over 26 miles long

'Oleg Strashnov', which was also used for the successful installation at the Sheringham Shoal Offshore Wind Farm.

The electricity generated by the Dudgeon Offshore Wind Farm will be brought to shore by two Export Submarine cables, the £33 million supply contract for which has been awarded to ABB in Sweden (ABB AB). The contract covers the engineering, manufacture and assembly of two 132kV cables, each one being 42 km (26.25 miles) in length. These cables, which are amongst the longest offshore cables so far ordered for a UK offshore wind project, will run from the Dudgeon Offshore substation to Weybourne Hope on the North Norfolk coast, where an onshore joint will connect them to the onshore cables.

The first cable is scheduled for delivery and load out in 2016 ■

Great Yarmouth is chosen for O&M base

In late November 2013, the Dudgeon Team announced that following an extensive evaluation of the facilities offered by four east coast ports, Great Yarmouth in Norfolk had been selected as the preferred harbour location for the operation and maintenance activities for the Dudgeon Offshore Wind Farm.

It is hoped that the O&M base, from where between 50 -70 people could be employed, will be located on the river harbour quayside, and a number of options are currently being discussed.

Operations and maintenance of the wind farm will be performed by technicians taken to site either by smaller vessels on a daily basis or using a larger ship which will stay on site for

up to two weeks at a time. So far Dudgeon is the offshore wind farm which is located furthest from the UK's east coast, being 20 miles north of the seaside town of Cromer in North Norfolk; this raises special requirements relating to vessel performance, and several alternatives are under consideration.

"We need a harbour which offers the flexibility to meet the range of concepts currently

under consideration and to accommodate the changes anticipated in vessel solutions as technology develops over the 25-30 years lifetime of the wind farm", said Rune Rønvik, Dudgeon's Operations Manager. "Great Yarmouth can provide a good location for offices and warehousing on the quayside, and the 24 hour/7 days per week harbour will be able to handle the range of vessel categories under consideration." ■



▶ Great Yarmouth river harbour



▶ The new Siemens 6MW wind turbine generator
Image from siemens.com Global Website

Supporting the GROW: Offshore Wind supply chain initiative

The rapidly developing offshore wind energy industry offers manufacturers a significant and sustained growth opportunity, and GROW: Offshore Wind is an initiative where the UK Government is working in partnership with industry leaders to ensure that UK manufacturers benefit from this once-in-a-business- lifetime opportunity.

In January 2014, Statoil, along with Dong Energy and Siemens, participated in a GROW: Offshore Wind event in London which was designed to explain to key regional and industry organisations how their members can supply the offshore wind market over the coming 3-5 years, and in particular it was aimed at generating jobs and growth in the UK.

Together DONG and Statoil represent all the UK offshore wind projects with provisional UK Government investment contracts and the UK company Atkins Limited has won the contract to provide all the monopile foundation engineering work.

In early April 2014, the focus switched to East Anglia with a GROW: Offshore

Wind Meet the Buyer event held in the Orbis Energy centre in Lowestoft. As Great Yarmouth has been chosen as the preferred location for the Dudgeon O&M base, Dudgeon's Asset Manager Bjørn Ivar Bergemo was delighted to be invited to give a presentation at this well attended event ■



▶ The Orbis Energy building in Lowestoft, Suffolk

Offshore surveys in 2014

Two offshore surveys associated with the Dudgeon Offshore Wind Farm commenced in March 2014, both of which are scheduled to be completed by late April/ early May 2014 depending upon weather conditions and sea state.

The surveys include a core penetration test and a borehole survey, which will both be contained within the main wind farm site. It may also be necessary to carry out a benthic survey at the site of the wind farm and along the export cable corridor later this year.

The character of the surveys is such that it will not be necessary for the fishermen to be asked to remove any of their fishing equipment, but all the fishing associations, societies and independent fishermen who are known to fish in the areas concerned have been notified of the survey programme ■

The onshore cable route to Necton

During 2013 surveys were conducted along the onshore cable route from Weybourne Hope to Necton, and also at the substation site at Necton. These surveys resulted in Dudgeon Offshore Wind requesting planning consent for a number of changes to the onshore route; these changes were designed to improve the existed consented scheme and to help minimise the impact on individual landowners, and in late Autumn last year they received local authority consent.

Recently, a further planning consent for amendments to the already consented route for the cable corridor and construction compounds has been submitted to the for local authorities. The majority of the



▶ Undertaking a geo-physical survey

changes being proposed will satisfy technical requirements following further surveys and discussion with the landowners.

"The amendments we are now requesting are all limited to changes within the existing landowners property boundaries, and do not represent any material change to the potential environmental impact of the permitted cable route," said Asset Manager Bjørn Ivar Bergemo.

He continued: "My colleagues and I are very grateful to the landowners for all their co-operation, particularly during the unusually wet weather of the last few months when we have been undertaking intrusive surveys, including archaeological trenching."

Discussions with landowners have shown that field drainage during cable construction activity and the re-instatement of field drainage

systems at the end of the construction phase are of considerable concern to many landowners. This is a particular issue for those who farm on the heavy clay soil which is found away from the coast.

In order to address these concerns, and to ensure that a detailed drainage plan for the onshore cable route is drawn up for discussion with individual landowners prior to the appointment of a cable construction contractor later this year, Suffolk based Miles Drainage Limited has now been appointed as the drainage consultants to Dudgeon Offshore Wind.

Although excellent progress has been made relating to many aspects of the onshore cable route over the last six months, there is still one landowner who has felt unable to enter into an agreement with Dudgeon Offshore Wind, and a Compulsory Purchase Order is currently being sought in respect of this land ■



▶ An archaeological survey trench

The Dudgeon Team:



An interview with Kari Hege Mørk

What does being Stakeholder Manager involve?

Kari Hege Mørk is the Stakeholder Manager of the Dudgeon Offshore Wind Farm project, a role which involves her working with many different groups of people within Norfolk and the wider community. She is no stranger to Norfolk, having successfully fulfilled a similar role from 2008 - 2011 during the development and construction of the Sheringham Shoal Offshore Wind Farm.

When asked what she most enjoys about her role, Kari Hege is quite clear: *"Being part of a project which is building something for a better future, whilst having respect for the existing environment and culture, is both challenging and exciting. Often people are both curious and concerned about the way in which the project is progressing, and I always appreciate the opportunity for face-to-face meetings in order to really understand their concern and create a mutual understanding of the situation."*

She commented: *"I have worked with the supply of energy to Europe for a long time. Before the Sheringham Shoal project, I was involved in the management of the Norwegian gas infrastructure system, which transports gas from Norway to the UK and to mainland Europe. My role was to investigate future developments; this involved assessing how the existing gas transport system might be improved so that it could be utilised for the future supply of gas from the Norwegian Continental Shelf."*

Immediately prior to joining the Dudgeon team, Kari Hege was the Stakeholder Manager for Statoil's two pilot floating offshore wind farm projects - one off the coast of Maine, USA and the other off the coast of Peterhead in Scotland. *"I came to know the coastal community of Maine very well, and to appreciate the importance of the lobster fishermen to their culture,"* said Kari Hege. *"Maine and North Norfolk have many features in common; both communities see the benefits of being part of a renewable future, but both are also highly aware of the value of their beautiful countryside and lively coastal community."* ■



▶ The Kari Hege harbour dredger at Wells-next-the-Sea in North Norfolk is named after Kari Hege Mørk

Dudgeon and the Community



▶ Great Yarmouth Town Hall

There has been much coverage in the Norfolk media in recent weeks about offshore wind, and its importance to the economic and community life of East Anglia in the years ahead. It is forecast to create up to 30,000 new jobs in the region over the course of the next eight years, but there is considerable concern that there will be insufficient skilled local personnel to satisfy the demand of this young, but rapidly growing renewable energy industry.

It is planned to launch the Dudgeon Community Support Fund in early 2015 and, as has already been stated, the application criteria for grant awards from this Fund are likely to be influenced by the need to enhance workforce education and skills to help ensure that Norfolk can take full economic advantage of this opportunity.

It is hoped to be able to publish more detailed information about the Dudgeon Community Support Fund in the Autumn 2014 issue of this newsletter.

About the Owners

Dudgeon Offshore Wind Farm is owned by two Norwegian companies, Statoil (70%) and Statkraft (30%).

Statoil is an international energy company headquartered in Norway, with 21,000 employees and operations in 36 countries. Building on 40 years of experience from oil and gas production, the company is committed to accommodating the world's energy needs responsibly, applying technology and creating innovative business solutions.

Statkraft is Europe's largest generator of renewable energy and is the leading power company in Norway. The company owns, produces and develops hydropower, wind power, gas power and district heating. Statkraft is a major player in European power trading and has 3600 employees in more than 20 countries ■

Contact details and more information:

Dudgeon Offshore Wind Limited
One Kingdom Street
London W2 6BD

0047 9520 9191
info@dudgeonoffshorewind.co.uk
www.dudgeonoffshorewind.co.uk

