

Beatrice Wind Farm – Case Study

Scottish Offshore Wind Farm Project relies on Global Marine for subsea cable expertise

Environmentally friendly implementation takes into account sea, bird and land life

Impending Energy Shortage

In July 2006, the Department of Trade and Industry (DTI) Energy Review highlighted that up to a third of the UK's oil and gas generating capacity will reach the end of its life over the next 20 years.

It is trying to tackle this major problem by increasing the proportion of electricity generated from renewables to 20%. This would mean the UK generating five times more renewable energy than it is today.

One flagship project helping to address the shortfall is the Beatrice Wind Farm Demonstrator Project (Beatrice) - a €41 million project involving the installation of two demonstrator wind turbines adjacent to the Beatrice oil field, 25 km off the east coast of Scotland.

The project is being run by Talisman Energy, an independent upstream oil and gas company headquartered in Calgary, Canada in partnership with Scottish & Southern Energy and the Department of Trade and Industry.

The 'underlying' challenge

The first phase of the Beatrice project involved the installation of two wind turbines. Lasting for approximately five years from now, the project will be used to examine the feasibility and benefits of creating a commercial deepwater wind farm at this site.

Talisman Energy was aware that one of the greatest technical challenges of the project would be laying the subsea cables that connect the wind turbines to the Talisman's oil platform.

In order to tackle this issue, Talisman contracted Global Marine Systems Limited, a leading provider of sub-marine cable installation and maintenance.

An Environmental Implementation

Using Sovereign, Global Marine installed the two main cables, each comprising a power and fibre optic cable, to connect the two five megawatt turbines to Talisman's Beatrice oil platform.

The company needed to pay particular attention to the surrounding environment - taking into account the fact the cable laying installation and noise could upset the sea life and bird life in this coastal region.

This cable installation will enable Talisman to power the oil platform, known as Beatrice Alpha, using energy generated from the turbines. It will also remotely control and monitor certain aspects of the turbines' performance such as altering blade pitch and sending back turbine performance data for analysis.

Resources:

Our Ship: Sovereign is one of the most advanced off-shore engineering ships of its kind in the world. At 130 metres in length, Sovereign is capable of handling the wide variety of subsea tasks required by such diverse industries as Telecommunications, Oil and Gas, Renewable Energy and Deep Sea Research. As part of an ongoing equipment investment program, Sovereign was upgraded to DP2, fitted with a 100 tonne underroll winch, and a 10 tonne handling crane. The cable tanks on Sovereign can utilise specially designed loading arms for stiff power cables, as well as all types of conventional telecommunications cable. Sovereign has an additional synchronized 6-wheel pair of cable engines for parallel laying.

Our Submersibles: Super Mohawk is a light work class vehicle equipped to carry out the tasks associated with light intervention and inspection works in the Oil and Gas arena.

Atlas is a state of the art, ultra-heavy work class ROV designed for intervention, trenching, umbilical and power cable maintenance and post lay and inspection roles. With 400Hp of installed power Atlas ROVs have substantial intervention capabilities, and an operating depth range down to 2,000m.

Ship-side team: This project was led by Captain Chris Neave and he was assisted by:

- Chief Officer - Bill Richardson
- Offshore Superintendent Ian Griffiths
- Chief Engineer Tam Peters
- Chief Submersible Engineer (C) Gareth Roberts
- Chief Submersible Engineer (S) Mike Dale

Additionally there were 2 Senior DP Operators, Simon Hibberd and Dave Sanders.

Shore-side team: The Project Director for the Estlink project was John Pattison who is responsible for the successful delivery of the wide variety of Installation and Maintenance Projects for our Customers

The Project Manager was Chris Berridge. Chris has worked on a number of high profile Wind farm Installations including the Danish wind farm Horns Rev, and Kentish Flats the UK's wind farm located off the coast of Kent.

The Beatrice Benefits

The Beatrice project will enable better understanding of the environmental impact of deepwater wind farms, whilst also exploring the cost-effectiveness of such sites in terms of using less fossil fuels, and reducing the harmful emissions that they generate.

Present offshore wind farms are located in relatively shallow water close to the shore, and are visible from land. Extending the area in which commercial wind farms may be located into deeper waters will have significant benefits.

Access to such areas will provide developers and governments with greater choice of locations for large wind farms. Large areas of the coast of northern Europe may be available, and this will encourage development in areas where there are considerable resources (in terms of physical space

and wind energy), and, potentially, fewer environmental and societal concerns. In particular, it will allow the development of offshore wind at sites on the UK continental shelf, distant from the shore.

Ian Gaitch, Renewable Energy Manager at Global Marine commented, “Beatrice is an important project involving industry, academia and government collaboration of which we are pleased to be part. This is a milestone project in terms of determining the future of deepwater offshore wind farms and could encourage the development of other similar projects around the world to drive the renewable energy market.”

Allan MacAskill, Wind Farm Project Director at Talisman Energy added, “Global Marine has a significant track record in providing cable installation to the renewable energy sector which, when coupled with its industry leading expertise and technology, made it a natural partner of choice for this project. We are proud that Beatrice Oil field project will serve as a benchmark for future offshore development.”

3

For more information on Global Marine’s capabilities please contact Ian Gaitch, Sales Director for Global Marine Systems, Energy, ian.gaitch@globalmarinesystems.com

For further information on Global Marine Systems, Energy projects, please visit our website: globalmarinesystemsenergy.com