

# Europe's ports compete for new offshore wind business

By Crispin Aubrey

Europe's coastal ports, some of which have struggled to maintain their economic viability, are enjoying a major boost from the growing offshore wind business. One estimate is that the value of wind farm construction work, excluding turbine manufacture, available to UK ports alone could be as much as £1 billion in the period up to 2020. The result has been increasing competition to gain a slice of this new business opportunity.

A classic example of a port that has turned its fortunes round is Bremerhaven in Germany. Well positioned on the North Sea coast, this is the country's second largest port. It suffered a serious decline in business at the end of the 1980s, however, as both fishing and shipbuilding

traffic dried up, leaving deep water quays and dockside facilities unused.

Spotting the emerging potential of offshore wind, the Bremen state government decided in 2002 to invest €20 million in infrastructure and other incentives to help the port benefit from the dozen or so wind parks already approved for construction in the German North Sea.

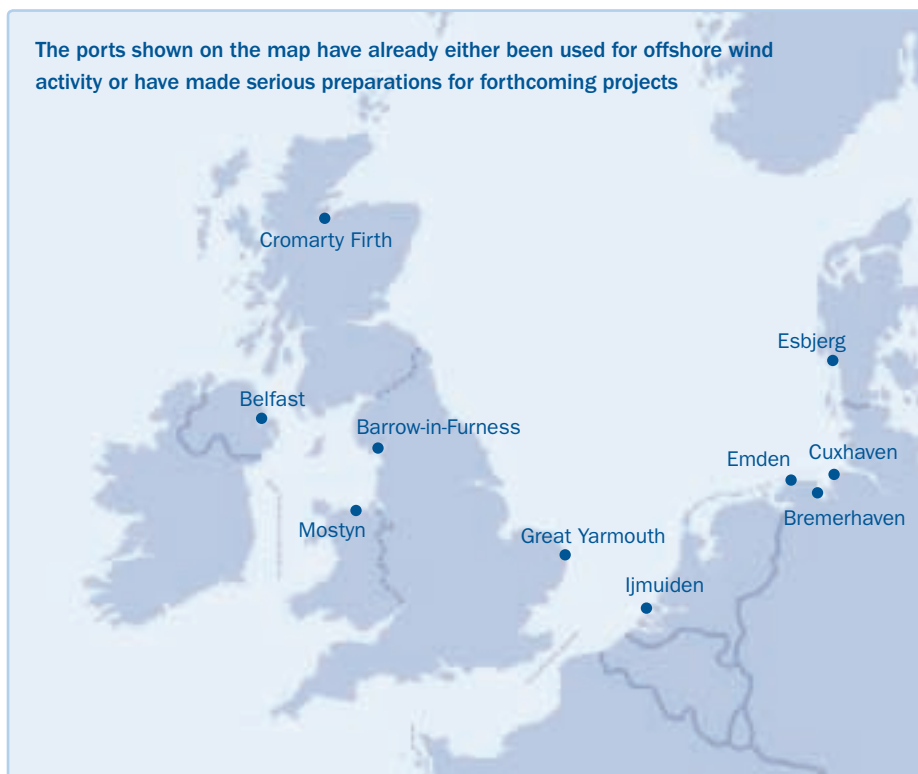
Two manufacturers of offshore turbines have since established production bases at Bremerhaven. Multibrid, now majority owned by French energy business Areva, set up shop in 2007 and has so far produced four prototypes and pre-series versions of its 5 MW offshore machine. German manufacturer REpower, owned by Indian company Suzlon, has



Bremerhaven has been transformed by the offshore wind industry

Photo: Bremenports.de

The ports shown on the map have already either been used for offshore wind activity or have made serious preparations for forthcoming projects



Source: BERR

also been producing its 5 MW turbines in the port, as well as a larger 6 MW capacity version of the same design.

In addition to this, Bremerhaven has attracted rotor blade manufacturer PowerBlades, which supplies REpower, and WeserWind, a company specialising in steel offshore foundations, making the port a potential major hub for German offshore developments.

Bremerhaven is now gearing up for the first use of its facilities to transport wind power equipment manufactured at the port for installation out at sea. Both Multibrid and REpower are each scheduled to install six of their turbines at Alpha Ventus, Germany's first far offshore wind park, during 2009 and 2010.

Announcing earlier this year the completion of further infrastructure work – to enable large turbine components to be more easily moved to the quayside – the Bremen state representative for ports, Ralf Nagel, described the investment as



Photo: Siemens

“underlining Bremerhaven’s role as a high performance centre for this cutting edge business sector.” He might have added that more than 1,000 jobs are expected to be created by wind industry-related activities.

Although Germany has a target for 25-30 GW of offshore wind capacity by 2030, it has so far been slower to progress than the UK. By the end of 2009 over 1,040 MW of offshore capacity is scheduled to be operating in UK waters, according to the British Wind Energy Association. A further eight projects, totaling over 3,000 MW, have been given approval and are in the pre-construction stage. The government’s official target is for more than 30 GW offshore by 2020.

For a small port like Mostyn, on the estuary of the river Dee – just south of Liverpool on the UK’s west coast – the wind industry has brought a welcome burst of activity. “It’s become a major part of our business,” says Jim O’Toole,

the port’s Managing Director. “We’re now the premier port for wind farm construction in the UK.”

Until recently, Mostyn’s main income came from general cargo – timber, steel, aggregates, animal feeds - and ferry boats. “We were fortunate in that we expanded in the late 1990s,” says O’Toole, “by doing some riverside berth developments which gave us the ability for ships to come in at all states of the tide. So we had the facilities already, including a heavy lift quay and 300 metres of berthing, even though they weren’t planned for wind farms.” The port also has 24 hectares of level land suitable for storing turbine parts whilst they are waiting for transport offshore.

Since 2004 Mostyn has been involved in providing services for four offshore wind parks – the UK’s first at North Hoyle (60 MW), Burbo Bank (90 MW), Rhyl Flats (90 MW) and Robin Rigg (90 MW). Turbine parts are stored at the port,

where some finishing work takes place, and then taken out for erection by jack-up barges or specialist installation ships.

The wind farms also create ongoing work in servicing and maintenance. A team of 15 people employed by Vestas, for example, is based at Mostyn to provide operations and maintenance support for the North Hoyle turbines. Picking up on the demand for these skills, the port itself has recently created its own offshore wind maintenance team.

Mostyn is now looking forward to more work from the even larger wind farms being built further off the UK’s west coast, particularly the 750 MW Gwynt y Mor project. “We’re looking further afield for offshore work,” says O’Toole. “It used to be thought that you had to be within a couple of hours’ steaming time from the site. But we provided the foundations for Robin Rigg, which is 100 nautical miles away. So we now see the whole Irish Sea as our area of business.”



Esbjerg port has been handling foundations and turbines for Horns Rev II in Denmark

Photo: Risø Institute

According to a report published this February by the Department of Energy and Climate Change – “UK Ports for the Offshore Wind Industry: Time to Act” – more British ports need to follow the example of Mostyn and adapt themselves to the demands of the offshore wind business. The main requirements are a deep water berth, up to 300 metres of quayside and more than eight hectares of level storage space. The prize could be a share in up to £1 billion of income, including O&M work, expected to flow in the period up to 2020 alone.

The extent to which UK ports can benefit from the offshore boom is limited, however, by two important factors. One is that there is no manufacturer of offshore turbines based in Britain. The other is that many of the vessels used for offshore installation, such as the A2SEA fleet of jack-up barges and other vessels recently acquired by DONG Energy, are also based elsewhere.

If there is a weakness in the installation supply chain, it is the lack of enough suitable vessels to install both

foundations and turbines, especially if the offshore market takes off as the ambitious targets for the UK and Germany suggest it could. A new report for the UK’s Crown Estate, which leases areas of the sea bed to wind developers – “Towards Round 3: Building the Offshore Wind Supply Chain” – gives the lead time for modifying an existing vessel as nine months and for commissioning a new jack-up barge as 2 to 2 ½ years. The recent preference has been for fast self-propelled crane ships rather than towed platforms.

As far as offshore turbines are concerned, the market is currently dominated by Siemens and Vestas. It remains to be seen how quickly the larger 5 and 6 MW designs of REpower, Multibrud and Bard, as well as others in the 3-4 MW range, can catch up.

This has been good news for the port of Esbjerg in Denmark, which is currently experiencing its busiest period ever for offshore wind traffic. It has not only been handling the foundations and turbines for the 200MW second phase of the Horns

Rev wind farm, in the Danish North Sea, but is shipping turbines for two wind parks off the UK’s eastern coast – Gunfleet Sands (108 MW) and Greater Gabbard (500 MW), the largest yet built anywhere offshore – both of which are reaching the installation stage.

If Bremerhaven offers a vision of the future, meanwhile, then it is one in which the whole production chain related to offshore wind, including turbine manufacture, is based as close as possible to the port from which construction activities are launched. One of the most interesting recent announcements came from the municipality of Esbjerg, which said it was in discussions with Siemens, the largest manufacturer of turbines for the offshore market, about the company locating a major production centre on land next to the port. A final decision has yet to be made.

For more information: [www.portofmostyn.co.uk](http://www.portofmostyn.co.uk); [www.windenergie-agentur.de](http://www.windenergie-agentur.de); [www.decc.gov.uk](http://www.decc.gov.uk); [www.thecrownestate.co.uk](http://www.thecrownestate.co.uk)