

Building an Industry Takes Time

by Gordon Edge, Head of Offshore

With only about 700 MW of offshore wind power installed world-wide compared to over 52,000 MW onshore, it is clear that this is a sector in relative infancy. The UK has one of the largest programmes of offshore wind development in the world currently being investigated, but being a pioneer also means that the industry in this country is encountering first the problems that other countries will find later. While this is proving painful in the short term, by going through these 'growing pains', the offshore wind industry in the UK will have experience that it can sell abroad when Germany, Spain and the US (among others) start to build in earnest.

There are about 1,000 MW of the initial Round 1 offshore projects with consents already, of which 300 MW are built or under construction. This makes the UK the number two offshore wind generator, after Denmark, and as more Round 1 projects are built in the next few years, this country will become world leader in this exciting new field. However, difficulties in contract negotiations for some Round 1 projects have forced a rethink of the form these deals take.

Up to now, projects have been built under Engineer, Procure and Construct (EPC) contracts, sometimes referred to as 'turnkey' contracts as the prime contractor is expected to deliver a fully working project to the client, so all the latter has to do is turn the 'on' key. Under this arrangement, a lead contractor (or more likely a consortium) agrees a fixed price with the client and takes on all the risks associated with the construction. This arrangement has proved problematic, with issues such as joint and several liability (where all partners in a consortium have to bear all the risks equally, even when they are outside of their competence) being difficult.

Generally risks have been poorly allocated, leading to higher costs than necessary, and sometimes firms being required to take on risks when they are the least capable of bearing them.

Issues with the form of contracting have also been compounded by world market conditions in the wind business: currently the US is experiencing a wind boom, and this is tightening the market for turbines, with key components such as gear boxes in short supply. Turbine manufacturers are consequently being more selective about which projects they supply: offshore wind, being new, has higher risks than onshore, and is thus regarded as less attractive business at the moment.

Moving towards new contracting arrangements

What is happening now is a move to 'multi-contracting', where the developer has a much more active role in the construction process: instead of one contract being let to a lead company, a number of contracts – for turbine supply, foundation design and fabrication, installation, etc – are signed with different firms, with the management of the interfaces and the overall project resting with the developer. This requires developers to have considerable technical expertise in-house: one reason for the EPC approach was that developers did not have enough staff with suitable expertise to manage a multi-contract approach. Developers have been recruiting staff, or in the case of Danish firms Elsam, DONG and Energi E2, they have developed such expertise through experience in their home market. Elsam, for instance, is leading a multi-contracting process for the Burbo Bank Round 1 project, which will start construction in 2006.

While multi-contracting appears to be the way ahead for the next few years at least, there is much that has to be done to manage this new approach. BWEA is bringing together developers and contractors for an initial workshop, out of which workstreams will be emerging to ensure closer

working between both sides of the sector.

The Round 2 projects should be able to take advantage of these new contracting arrangements in the future. In the meantime their developers are seeking to accommodate all the stakeholder concerns affecting the sites in order to secure consents. One way that they are allowed to ensure this is the window of opportunity to move sites that the landlord, the Crown Estate, has afforded Round 2 projects. If developers can show that the site as awarded cannot be developed to meet the minimum capacity requirement of 75% of the original figure, then a move may be possible. Issues such as navigational problems and populations of protected bird species have led to applications to change sites.

Two projects, Westernmost Rough in the northern Wash and Greater Gabbard in the Thames, have been allowed to move to sites near to their original locations. Two other projects in the Wash, Triton Knoll and Dudgeon East, are still seeking to secure new sites; the difficulty in finding suitable spots is the interaction with other projects that have decided to stay put. Changes to the Round 2 sites in the northwest strategic area, primarily to deal with navigational issues, are being consulted on.

Three more sites enter submissions

In addition to the option to move sites, there is flexibility to adjust the sites by up to 40% prior to submission for consent. This opportunity has been used by the developers of the London Array and Thanet sites in the Thames ahead of their recent submissions. In addition to the application by Greater Gabbard, this means that all three major Round 2 sites in the Thames, totalling 1,800 MW, have submitted the Environmental Statements to Government. The last Round 2 site in the area is a 64 MW extension to the already consented Gunfleet Sands Round 1 site; it is still being investigated by owners Deltaic.

The three sites, should they all be constructed to their full extent, would generate the power required by nearly half of all the homes in London.

Making economics add up

However, getting a consent is only a precondition to building a project. For a developer to bring a Round 2 project to financial close requires that it will make a suitable return on the investment. BWEA is currently working with Government to find ways to make this possible, since as things are the economics do not add up. The aim is to secure a commitment within the Climate Change Programme Review to find a solution – the CCPR has been delayed and is now due to report in the new year. Failing this, new policy could be made in the recently announced Energy Review, though were completion of this to drift beyond the target end date of July 2006, delivery of Round 2 projects by 2010 would be in jeopardy.

Key to this effort has been a willingness to entertain new ideas for supporting offshore wind. BWEA has been actively relaying possible interventions to all sections of Government, including directly to Number 10, over the past few months. As well as established means to intervene to help close the current offshore economic gap members have also been coming forward with options. One such is the Pioneer ROC Purchase Agreement idea floated by npower renewables at BWEA27 in Cardiff. This would place an agency between the projects and the market, buying ROCs at a fixed price and then auctioning them to suppliers at six-monthly intervals, much as the NFPA deals with the output of the NFFO3, 4 & 5 projects. Government would be underwriting the price risk for the projects, though if the deal was pitched correctly there should be no net cost to the taxpayer. This or other innovative schemes could make the sector feasible and pave the way to building a new industry for Britain.

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Wind Farms of the UK

Operational Wind Farms

Onshore	Projects	MW	Offshore	Projects	MW
England	49	210.92	England	3	153.80
Northern Ireland	11	89.70	Wales	1	60
Scotland	31	568.84			
Wales	22	253.90			
	113	1,123.36		4	213.80

Total operational wind farms: 117 (1,337.16 MW)

Wind Farms Under Construction

Onshore	Projects	MW	Offshore	Projects	MW
England	6	104	England	1	90
Northern Ireland	1	16.90			
Scotland	9	451.35			
Wales	4	47.55			
	20	619.80		1	90

Total wind farms currently under construction: 21 (709.80 MW)

Consented Projects

Onshore	Projects	MW	Offshore	Projects	MW
England	34	475.75	England	5	486
Northern Ireland	2	20.45	Scotland	2	180
Scotland	26	676.80	Wales	2	189
Wales	4	26.60			
	66	1,199.60		9	855

Total consented projects: 75 (2,054.60 MW)


Schemes in Planning

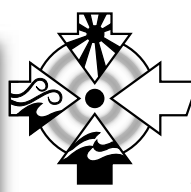
Onshore	Projects	MW	Offshore	Projects	MW
England	42	755.78	England	5	1,968
Northern Ireland	29	591.45			
Scotland	74	5,185.00			
Wales	14	183.78			
	159	6,726.41		5	1,968

Total projects in planning: 164 (8,694.41 MW)

Up to date summaries of UK wind energy statistics are available at www.bwea.com/ukwed

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Big Plans ahead for Offshore in Europe

The recent conference and exhibition in Copenhagen focusing on offshore wind showed the size of the plans that other countries in Europe have for the continent's waters. While the ideas are big, there is much that has to be done in other markets before large-scale installation can happen. All other countries are watching the UK closely to see how the issues are dealt with here and how solutions Britain develops can be transferred abroad.

Denmark

The original home of offshore wind, and still the country with the largest installed capacity in the sea, Denmark is striving to leverage its onshore wind expertise into the marine environment, for the benefit of its economy.

The Copenhagen event showed the commitment of the whole country to the business, with the Confederation of Danish Industry being one of the main sponsors, and the Crown Prince and the deputy prime minister of Denmark both attending the opening ceremony.

Having installed the two largest offshore wind farms, the 160 MW Horns Rev and 165 MW Nysted, the country is now tendering for companies to build extensions of 200 MW to each of these projects. These will be installed in 2008 at the earliest, and will likely provide a further showcase for Danish firms' skills in the sector. Further projects are likely after these two, but not until next decade.

Germany

As befits the country with the largest installed capacity of onshore wind turbines, Germany is seeking to have the largest fleet of offshore turbines as well.

The difficulty with this ambition is that it has limited sea space in which to carry it out, and the entire length of its North Sea coast is a nature reserve, within which development is not allowed. Projects are thus sited well out to sea, which means they are in deeper waters and with longer cable runs to shore: both of these factors increase the cost.

Consequently, German offshore projects are dependent on the development of larger turbines, of 5 MW or more, which can justify the expense of sophisticated foundations such as tripods or quadropods; projects in shallower waters, such as the large majority of the UK developments, can use driven monopile designs which are cheaper and thus allow the use of the smaller turbines that are already available. Recognising this, a collaborative project to test-run a number of turbines in the 5 MW class fully out at sea has been initiated. This should help develop the machines necessary for the German programme. It will consequently be some time, however, before the ambitious projects being mooted can start to be built.

The Netherlands

After considerable time in development, the Noord Zee Wind near-shore project off Egmond on the Dutch coast is finally moving to construction. This 108 MW development will consist of 36 Vestas V90-3MW machines, which are the

same as those installed at the Kentish Flats and Barrow projects in the UK.

Another project, the Q7 development, has all required permits and will be built in the next few years, but for developments beyond these there is some confusion about Government policy. Mixed signals have given developers headaches: a stable policy environment is required, especially for a new and relatively risky endeavour such as offshore wind.

Sweden

Recent Government moves to give more certainty to wind power in Sweden have brought more confidence to the offshore sector in the country. State power company Vattenfall has bought into the business, acquiring the Krieger's Flak sites in the Baltic, one in Swedish and one in German waters. The Lillgrund project is also moving forward, with construction company Hochtief being awarded the installation contract recently.

Belgium

With limited sea area to exploit, there is relatively little action in Belgian waters. However, the C-Power project on the Thornton Bank is being offered generous terms from the Government of €107/MWh (£73/MWh) for 20 years, plus a grant to cover one third of the cable cost, up to a ceiling of €25m (£17). The first phase of the project would be 216 MW.

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