



# *Lost at sea*

Photo: Vestas

Once a beacon of hope for the renewable industry, offshore wind has run into trouble all over Europe. The financial crisis has hit the industry hard, with banks increasingly unwilling to finance the multi-billion-euro projects. There are signs, however, that the worst is over – not least because governments are stepping in.

| by *Stefan Nicola*

In 2007 and 2008, offshore wind was on everybody's lips. Large utility companies entered the promising market by investing in offshore technology firms and announcing plans for offshore wind parks. The German governments announced that it wants to have 20,000 to 25,000 MW of offshore capacity installed by 2030, enough to power about 25 million homes. Britain wants to build 33,000 MW by 2020, the Netherlands 6,000 MW – hugely ambitious targets, considering that only 1,500 MW of offshore capacity is currently in operation all over Europe, mainly in Scandinavian waters.

The hype is not without reason. Compared to onshore turbines, wind towers at sea produce roughly 40 percent more energy because of stronger and steadier winds. Promises of large government subsidies have also interested companies in offshore projects.

There are several large projects now in the pipeline across Europe. Britain will be home to the world's biggest wind farm, the 1 GW London Array. Upon completion, it could produce electricity for 750,000 homes. Several other offshore farms are in the planning, with capacities ranging from 100 MW to 750 MW. In Germany, authorities have given the green light for 21 offshore farms, including Alpha Ventus, a small but prestigious North Sea project planned in cooperation by the country's largest utilities.

The problem with all these grand plans: they are lagging seriously behind schedule. With most of them, construction hasn't even started yet. They all have a common problem. Since the financial crisis hit, banks are increasingly axing funding for offshore wind.

For one, the credit crunch has left banks with little money to invest. The bigger offshore projects often need investments of one to several billion euros – banks simply don't have that kind of cash these days.

Second, investors are shying away from the uncertainties linked to the projects. While winds at sea may be stronger, offshore construction costs are significantly higher.

Experts say they are almost double, not only because of the units itself, but because of the costly infrastructure needed to bring the electricity back on land – transformer stations, sea cables. These issues have previously sunk plans for offshore parks in the US. The Dutch Ministry of Economic Affairs published

*Building can only proceed when the weather is favourable – when there is no wind*

a report in June that the construction of a "socket" at sea, to connect the planned 6,000 MW of windmills, will cost between €5 and €11 billion.

Moreover, construction can't be planned easily. Because of security issues, building can only proceed when the weather is favourable – and that means, ironically, when there is almost no wind.

### Second thoughts |

News agency Bloomberg reported in early June that some €100 billion worth of offshore financing is in jeopardy in Germany because of the financial crisis. Small wind farm operators now have to fund as much as 40 percent of their projects alone – roughly double the amount than before the crisis hit. 'Offshore wind has a serious financing problem,' Ralf Bischof, the managing director of German Wind Energy Association, said recently in Berlin.

Energy companies are also having second thoughts. At the end of March, Spain's Iberdrola Renewables, the world's biggest investor in wind farms, said it would slash investment in British wind by 40 percent. A week earlier, Shell had announced that it was shifting its clean energy focus away from wind and solar toward biofuels and carbon capture and storage (CCS). Shell had already handed a huge blow to London Array in 2008, when it decided to pull out of the project. In the Netherlands, Econcern, one of the largest producers of renewable energy in Europe, filed for bankruptcy in May, leaving prestigious investment firms

and banks with hundreds of millions in losses.

'The development of offshore wind is slower and more difficult than we had anticipated,' Herrmann Albers, the president of the German Wind Energy Association and one of the country's leading experts on the

technology, tells EER in an interview. This is true especially for Albers' native Germany. Here, several dozens wind farms are in the planning, but not a single one has been completed yet.

The credit crunch has affected mainly regional and local utilities that have teamed up to build offshore wind parks. HSE, a regional utility from south-western Germany, told Bloomberg that its North Sea wind farm could be delayed by up to two years because it couldn't yet secure funding for the €1.3 billion project. The park, Global Tech 1, could eventually power 400,000 German homes.

The bankruptcy of Econcern may delay yet another German offshore project. The Dutch financier had a 90% stake in Gode Wind I, a 400 MW North Sea park, for which it had to come up with €1 billion. A spokesman of Plambeck Neue Energien, the German company planning the wind farm, told a Hamburg newspaper that it won't order the turbines until financing is 100% secured.

'The appetite per project has fallen,' Thomas Rueschen, who organizes funding for wind farms at Deutsche Bank, told Bloomberg in early June. 'Finding creditors for the financing has become a bigger challenge.'

Another project called Alpha Ventus was scheduled to go online in 2008, but still has not finished building its twelve 5MW wind turbines. A first attempt was made last year, but was cancelled due to bad

weather. This has increased the project's overall costs. Huge crane ships had already arrived in Germany from the Gulf of Mexico, but had to leave after extensive waiting, costing the consortium six-figure sums each day.

Albers tells EER that he believes the project's budget has already been exceeded. 'I fear the targeted production costs for a kilowatthour likely can't be realized anymore,' he says. 'But I expect the park to be finalized this year. As a showcase

to cover for Shell, but the project was still in jeopardy for months. Eon and Masdar mulled dropping London Array, citing rising costs and the credit crunch. Now, the British government, in its 2009 budget, released in May, has increased its subsidies for offshore to £525 million, doubling the number of renewables obligation certificates, or ROCs, for offshore wind generation. ROCs are the main support scheme for renewable electricity projects in the UK. Utilities are obliged to get an increasing proportion of their electricity

Following the government's decision, the London Array consortium in mid-May announced it would go ahead and build the wind park. The additional government support was a life-saving shot in the arm for London Array, said Paul Golby, the chief executive of Eon UK. 'The project was on a knife's edge but the changes to the incentive regime tipped the balance. The London Array would not have been economic without the additional support.'

Observers say the additional incentives could convince other consortia to give the green light to their projects, including the npower renewables' 750MW Gwynt y Mor farm; the 500 MW West of Duddon Sands project, to be built by Dong Energy, ScottishPower and Eurus Energy; Dong Energy's 450MW Walney project; Centrica's 200MW Lincs project and EDF's 90MW Teesside development.

There are further signs of a turnaround. Construction has recently started on the 300 MW Thanet Offshore Wind Farm, near London Array. Operator Vattenfall has ordered 100 turbines with Danish producer Vestas. The farm could eventually power 240,000 homes.

And in Germany, Alpha Ventus has by now installed 12 tripod foundations that will hold the turbines, to be constructed this summer. A company spokesman said the blades will be turning by October.

But don't pop the champagne just yet. Experts have warned of possible supply chain constraints once all these projects go ahead after months of insecurity. London Array, for example, represents real pioneering work. A project of this magnitude simply has not been realized before, and there may be shortages in turbines, blades or other parts once construction of other wind parks across Europe starts almost simultaneously.

The offshore industry, observers say, may simply not be equipped to handle a post-shock boom. ■

## *Since the financial crisis hit, banks are increasingly axing funding for offshore wind*

project, it remains extremely important for the German offshore wind industry. And if we want to make offshore successful and reach the German government targets for the sector, we have to be able to build ten farms like Alpha Ventus per year.'

In Germany, however, this may not be as easy as elsewhere. Denmark's Horns Rev, the world's biggest operating offshore wind park, is situated 14 km off the Danish coast, its turbines installed in water depths between 6 m and 14 m. German environmental regulations, however, require wind farms to be built as much as 40 km off the coast, in depths of up to 40 metres – significantly increasing the risks and costs related to the projects.

### **Aid package |**

Governments now seem to be stepping in to save the industry. As part of its economic aid package, Berlin handed the offshore industry €100 million in subsidies. As an additional measure, starting this year, the guaranteed feed-in-tariff for power from offshore wind will be 15 cents per kWh (as against 9.2 cents for onshore).

Another huge push for offshore came from London. Politicians there knew that their flagship project, London Array, was about to go under. Abu Dhabi's state-owned green investment company Masdar stepped in

from renewable sources – from 9.7% this year to 15.4% by 2016. Suppliers meet their obligations by presenting ROCs or by paying into a buyout fund. London will now issue two ROCs, instead of one, for every MWh of offshore wind power produced.

London left no doubt why it had boosted support for the sector. 'The London Array is a flagship project in our drive to cut emissions by 80 percent by 2050 and meet future energy needs,' British Prime Minister Gordon Brown said in a statement. 'The UK is a world leader in offshore wind farms, creating jobs and prosperity for the economy. That's why we have increased our support for this technology as we move toward a low carbon future.'



Photo: Benelux/Corbis