

Investors head where wind blows

Offshore windfarms in the US and UK have been attracting big money — some of it from those traditionally linked with the maritime world



Barry Parker

“BLOW, baby, blow” has replaced “drill, baby, drill” as the mantra for US-based energy watchers.

Google, along with more traditional players including Marubeni Corp, announced plans to join a project called the Atlantic Wind Connection, described as a 6,000 MW project costing \$5bn. Its turf, ironically, is not far from areas off the New Jersey and Virginia coasts that had been flirting with offshore oil exploration as recently as April this year.

Shipping is intertwined with offshore wind. As Atlantic Wind was making its announcement, the well-known Newport News Shipbuilding (part of Northrup Grumman) said it was teaming up with Gamesa, a Spanish turbine manufacturer, to build a large demonstration turbine to be deployed off the US east coast.

In early October, Cape Wind, a project that would produce 420 MW (using 130 turbines in waters south of Cape Cod, near Nantucket Island), obtained important approvals after navigating a nine-year regulatory gauntlet. The State of Massachusetts estimates the cost of the project at \$2.5bn.

The maritime aspects, in the US, are not straightforward. Charlie Papavizas, a partner in the Maritime Group at Washington, DC-based lawyers Winston & Strawn, told Lloyds List: “There is some uncertainty as to whether the Jones Act, which requires US construction as well as US manning and ownership, would apply to vessels going back and forth to wind facilities outside US territorial waters. Even for projects within US territorial waters, the Jones Act has been determined not to apply to acts of installing or constructing structures like wind towers.

“Congress has been considering clearing up the uncertainty regarding wind facilities outside territorial waters. But even if that happens, it would appear that foreign vessels could perform certain wind farm installation functions.”

Shipyards figure prominently in the offshore business; they are ideal fabrication and assembly points for the big turbines that can be floated out on barges, or loaded on project carriers. Sounding a lot like an offshore rig contractor, Gamesa says Newport News was chosen as a partner at least partly because of experience in building structures that can withstand “harsh conditions”.

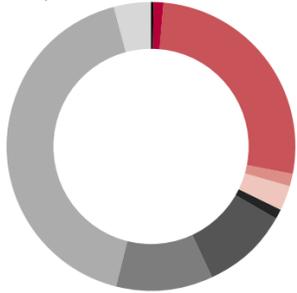
The last commercial vessels built there were the ill-fated Double Eagle tankers in the late 1990s. Unsaid, though vital, is Northrup Grumman’s spot among top-tier US military defence contractors. Privately financed multi-billion dollar projects, even with sponsorship of Google, will always need co-operation at high levels of government.

In the US, connections with the Departments of Interior, Energy and probably Defense (concerned with security of underwater cables, among other matters)



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CAPACITY OF OFFSHORE WIND PROJECTS (1991-2010)



- Belgium (30 MW)
- Denmark (664 MW)
- Finland (30 MW)
- Germany (72 MW)
- Ireland (25 MW)
- Netherlands (247 MW)
- Sweden (163 MW)
- UK (1041 MW)
- China (12 MW)
- Others (7 MW)

Source: EWEA

are crucial. The imprimatur of a top defence vendor can only help.

In the UK, work is under way off the Suffolk coast on the Greater Gabbard wind farm development, with erection of some 140 turbines, supported by a small armada of vessels. *Bourbon Enterprise* is handling hookup operations, while Middle East Navigation’s *Relume* is handling diving support. The subsea support vessels *Far Sovereign* and *Polar Prince* are on scene (assisting with cable laying), as are a host of personnel carriers.

According to Southern Scottish Energy, Greater Gabbard (with an estimated cost around \$1.5bn) will produce 500 MW of power. Norway’s online Trade Portal adds *Polar Prince* will later be used on the Vattenfall Thanet project off the northeast coast of Kent to help lay power cables.

Such projects underscore the UK’s position at the centre of the offshore wind power business. According to company plans, success for Gamesa in the US Atlantic would set the stage for a run at the large UK offshore energy initiative dubbed Round 3. Also in European waters, 10 countries are set to sign a memorandum of understanding addressing the framework of the North Sea Offshore Grid project, in early December.

Familiar names from the offshore and drilling businesses are also very sensibly



The subsea support vessel *Polar Prince* is on scene at the Greater Gabbard wind farm development.

putting down stakes in the wind sector. Earlier this year, Fred. Olsen Windcarrier (tied to the Oslo-listed energy specialist, whose holdings include Dolphin Drilling and Dolphin) ordered two lift vessels from the Lamprell yard in Dubai, said to cost around \$160m each. Onboard cranes are rated at 800 tonnes (at 24 m reach) on the two vessels, both slated for 2012 delivery.

Big money is already chasing the sector. A purpose-built jack-up vessel, designed to support assembly of turbines offshore, has been ordered by a joint venture of Hochtief Construction and project specialist Beluga Shipping. With delivery expected in 2012, the vessel is to be built at the Crist yard (in Gdynia), which has recently built project vessels for Combi Express.

The assembly vessel, designed for erecting wind turbines in depths of up to 50 m, is backed by deep pockets. Hochtief, an international infrastructure player, employs 60,000 people worldwide. Media-savvy Beluga is backed by well-known US private investor Oaktree Capital, a long-time investor in General Maritime and other Georgiopoulos companies.

Lamprell, the same yard where Windcarrier has placed its order, has built similar vessels previously, having delivered the lifting vessel *Seajacks Leviathan* to Seajacks, a UK owner, at a cost of \$112m, in early 2009. It is now being used by contractor Flour, assembling turbines at Greater Gabbard.

Two additional vessels are on order for owner Seajacks, which is backed by a renewable energy fund in the Riverstone Holdings family. The New York fund is closely tied to the Washington, DC-based (and well connected) Carlyle Group.

Another turbine assembler, A2Sea, has deep pocketed parents, the Danish government-owned company Dong Energy, now joined after recent regulatory approvals, by Siemens, a major player in the wind turbine market, which will be taking a 49% holding in A2Sea.

Financial investors are familiar with shipping. Riverstone Holdings, which packaged Seajacks’ equity in a renewable energy fund, was at one time the owner of Seabulk International, before its 2003 sale to Seacor. Seabulk’s fleet of US flag chemical and product tankers included several of the Double Eagles. Alongside

Carlyle and other investors, one of Riverstone’s private equity funds also sold its holding in Frontier Drilling to driller Noble Corp, in July, 2010.

Funding is by no means a certainty. Money for start-up projects could well come from government, sometimes jump-starting development before PE funds will jump in. The Aker Philadelphia shipyard, had drawn up plans for building turbine installation vessels, costing \$150m each, in connection with an offshore wind project off the Delaware coast. The yard is well known as the builder of OSG’s shuttle tankers *Overseas Chinook* and *Overseas Cascade*, set to serve Petrobras’s ultra-deepwater production in the US Gulf.

An abortive effort by the port authority in Philadelphia to secure US government funding under its Tiger infrastructure grant programme put a halt to plans to build the vessels for another US east coast project, Bluewater Wind (also going through a

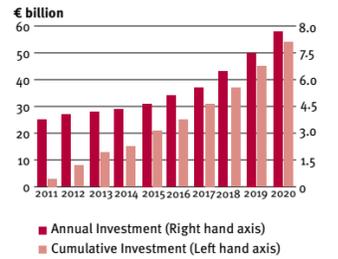
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lengthy approval process). Bluewater Wind had briefly been tied to Babcock & Brown — a once-mighty infrastructure investor that went into liquidation last year. The same Tiger programme in the US is set to benefit the Cape Wind project. The port at Quonset Point (south of Providence) received \$22m, which will help it become a logistical hub for the windfarm.

Economics, politics, emotionalism, opinion and correct information are all muddled when the subject is offshore wind energy. “Spin, baby, spin,” is an apt characterisation of any conversation on the subject. However, the cost of wind energy exceeds that of electricity generated at coal or gas-fired fixed power stations.

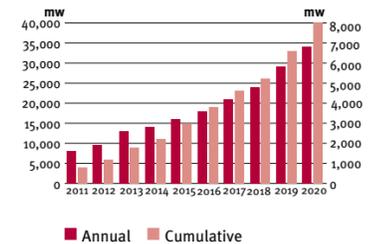
A study released by the National Renewable Energy Laboratory, looking at offshore deployments in Europe, said: “The levelised cost of energy of offshore wind plants is about double that of comparable land-based plants using 2009 market prices.”

OFFSHORE WIND POWER Annual & cumulative investments 2011-2020 (€b)



Source: EWEA

OFFSHORE WIND ENERGY Annual & cumulative installations 2011-2020 (MW)



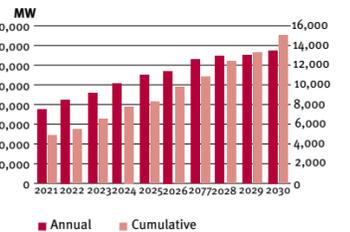
Source: EWEA

HISTORICAL ONSHORE GROWTH 1992-2004 Compared to EWEA's offshore Projection 2009-2020



Source: EWEA

OFFSHORE WIND ENERGY Annual & cumulative installations 2021-2030 (MW)



Source: EWEA

The levelised cost includes both upfront capital expenditure and then periodic costs.

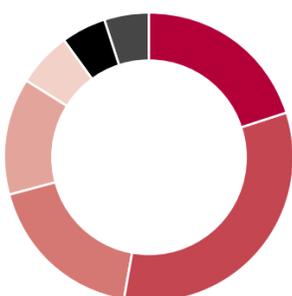
Onshore power’s cost advantage is stark. A 2008 consultant study of a now-shelved project south of Long Island, New York, estimated an overall project cost of \$811m for a 140 MW generating capability (requiring several dozen turbines). Working back the numbers, energy derived from the windfarm (near the Fire Island seacoast) would cost \$291/ megawatt-hour, versus \$137 for energy produced at an onshore electricity plant fuelled by natural gas.

If further regulatory hurdles are passed, Cape Wind expects to enter into a 15-year contract to sell electricity to National Grid (a UK-based utility with an extensive electricity distribution business in the Northeastern US) for prices beginning at \$187/ MWh, with 3.5% annual escalations. A contract, in turn, will support project style financing. In the absence of firm deals — and given regulatory uncertainty — no US flag jackups for turbine installation have advanced past the idea stage.

The report by NREL, looking at European wind turbine installations, cited a group of other studies showing “logistics and installation” could range up to about 20% of their total capital cost. On a lifecycle cost basis, logistics (more concentrated in the assembly phases) accounts for as much as 15% of costs. In rough numbers, if the total capital spend on shallow water windfarms were €10bn (\$13.8bn) over the next four years in the EU alone (if the European Wind Energy Association forecasts hold true), then circa €2bn might be spent on logistics.

For participants who have staked out positions in such activities, as they go forward, the mantra is “Win, baby, win.” ■

EUROPEAN OFFSHORE MARKET SHARES INSTALLED CAPACITY (end 2009)



- DONG Energy (33%)
- Vattenfall-NUON (18%)
- E.ON (13%)
- Centrica (6%)
- Eneco (5%)
- RWE Innogy (5%)
- 15% other (20%)

Source: European Wind Energy Association (EWEA)