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THE EUROPEAN WIND ENERGY ASSOCIATION



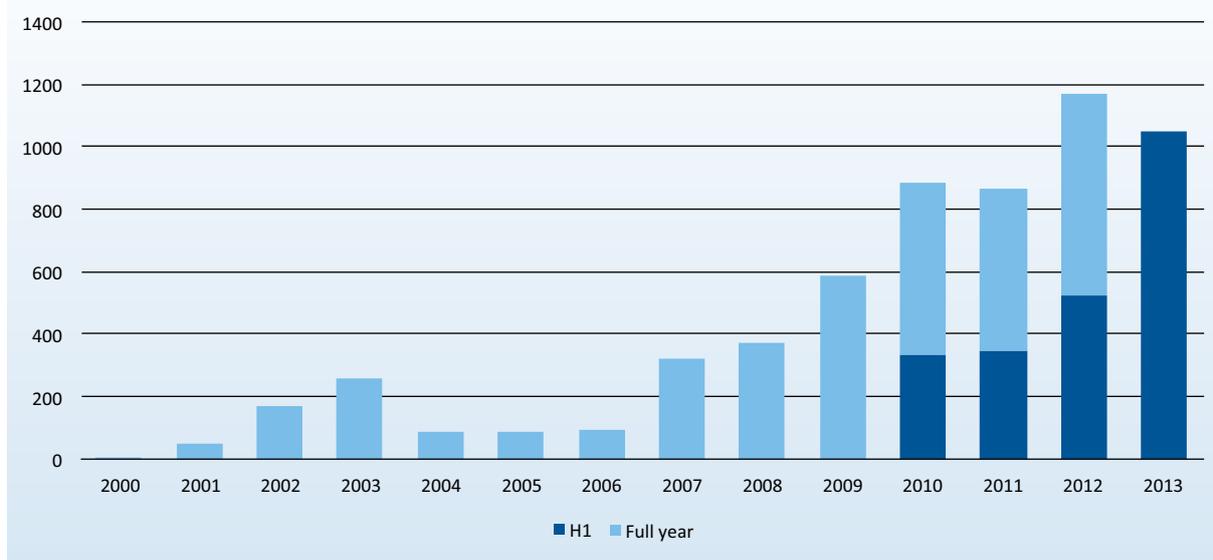
# The European offshore wind industry - key trends and statistics 1st half 2013

## Mid-Year European offshore wind energy statistics

In the first six months of 2013, Europe fully grid connected 277 offshore wind turbines, with a combined capacity totalling over 1 GW. Overall, 18 wind farms were under construction. Once completed these wind farms will have a total capacity of 5,111 MW.

New offshore capacity installations during the first half of 2013 doubled compared to the same period the previous year and was just 121 MW less than total 2012 installations.

FIGURE 1: ANNUAL INSTALLED OFFSHORE WIND CAPACITY IN EUROPE (MW)



Source: EWEA

The work carried out on these wind farms during the first six months of 2013 is detailed below:

- **277 wind turbines were fully grid connected, totalling 1,045 MW (up 522 MW or double installations during the same period last year) in seven wind farms:** Thornton Bank (BE), Gunfleet Sands 3 (UK), Lincs (UK), London Array (UK), Teesside (UK), Anholt (DK), BARD Offshore 1 (DE). A further 130 turbines, totalling 484 MW, are installed but awaiting grid connection.
- **268 foundations (2 units less than during the same period last year) were installed in 10 wind farms:** NorthWind (BE), Gwynt y Môr (UK), West Of Duddon Sands (UK), BARD Offshore 1 (DE), Dan Tysk (DE), MeerWind (DE), Nordsee Ost (DE), Global Tech 1 (DE), Trianel (DE), Arinaga Quay (ES).

- **254 turbines (43 units or 20% more than during the same period last year) were erected in 10 wind farms:** Thornton Bank (BE), Gunfleet Sands 3 (UK), Lincs (UK), Gwynt y Môr (UK), Teesside (UK), Anholt (DK), Bard (DE), Riffgat (DE), Kårehamn (SE), Arinaga Quay (ES).

- **Preparatory work has begun in three further wind farms,** two in German waters and one in the UK: Amrumbank West (DE), Baltic 2 (DE), Methil (UK).

In total, there are, at 30 June 2013, 1,939 offshore wind turbines, with a combined capacity of 6,040 MW fully grid connected in European waters in 58 wind farms across 10 countries.

TABLE 1: SUMMARY OF WORK IN OFFSHORE WIND FARMS BETWEEN 1 JANUARY 2013 AND 30 JUNE 2013

	BELGIUM	DENMARK	GERMANY	UK	SWEDEN	SPAIN	TOTAL
Number of farms	2	1	7	6	1	1	18
Number of foundations installed	25	0	155	87	0	1	268
Number of turbines installed	18	93	52	82	8	1	254
Number of turbines connected	12	98	21	146	0	0	277
MW fully connected to the grid	73.8	352.8	105	513.5	0	0	1,045.1

Source: EWEA

Preparatory offshore work has started on three new offshore wind farms. Once completed, they will increase installed capacity in Europe by a further 583 MW.

TABLE 2: OFFSHORE WIND FARMS WHERE PRELIMINARY CONSTRUCTION WORK HAS STARTED IN EUROPE

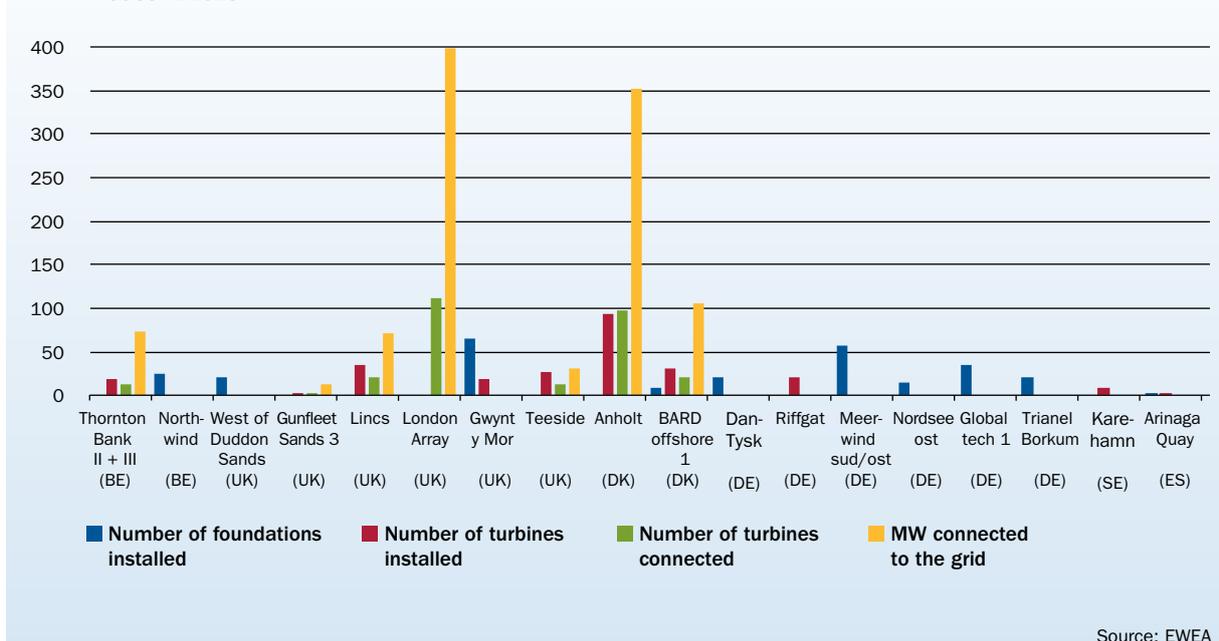
COUNTRY	WIND FARM	CAPACITY (MW)
Germany	Amrumbank West	288
	Baltic 2	288
United Kingdom	Methil	7
<b>Total</b>		<b>583</b>

Source: EWEA

## Summary of offshore work carried out during first half 2013

During the first six months of the year, work was carried out on 21 offshore wind farms. Foundations and turbines were installed and/or grid connected in 18 of these in seven countries: Belgium, Denmark, Germany, the United Kingdom, Sweden and Spain.

FIGURE 2: INSTALLATION AND GRID CONNECTION OF WIND TURBINES IN OFFSHORE WIND FARMS BETWEEN 1 JANUARY 2013 AND 30 JUNE 2013



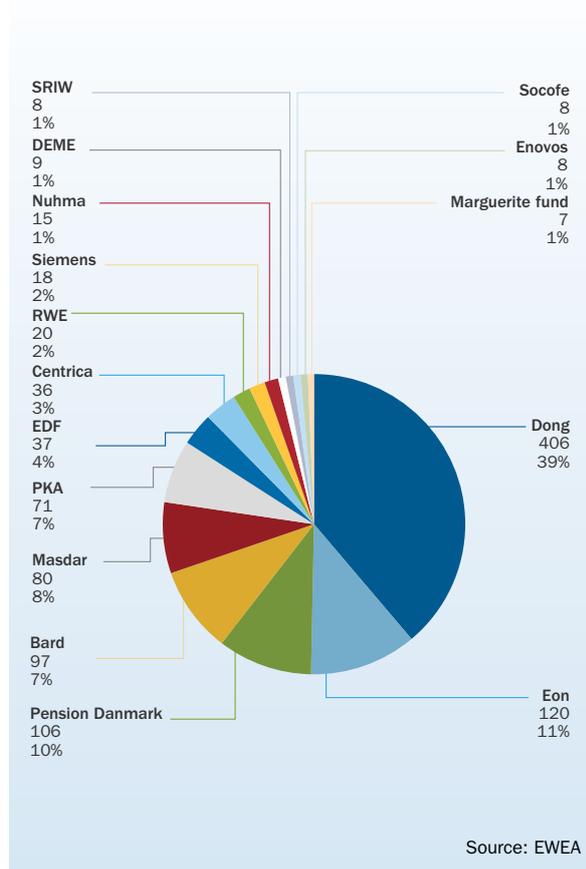
Source: EWEA

## Developers

Of the 21 wind farms where construction work was undertaken, during the first six months of 2013, seven had turbines connected to the grid, totalling 1,045 MW.

Figure 3 shows the share of connected MW per developer from 1 January 2013 to 30 June 2013 taking into account each company's share in the projects. Utilities account for 60% of the installed capacity (627 MW).

FIGURE 3: OFFSHORE WIND DEVELOPERS' SHARE OF NEW GRID CAPACITY BETWEEN 1 JANUARY 2013 AND 30 JUNE 2013 (IN MW)

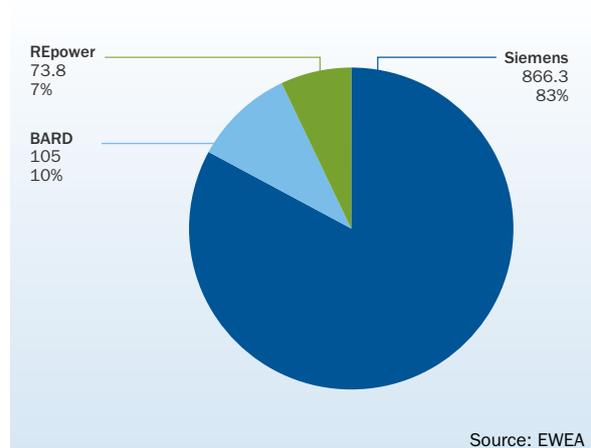


## Wind turbines

During the first six months of 2013, the average size of wind turbines connected to the grid was 3.8 MW. The average size is similar to the previous year. During the first half of 2013, more than twice the amount of turbines were grid connected than during the same period the previous year; 277 units compared to 132.

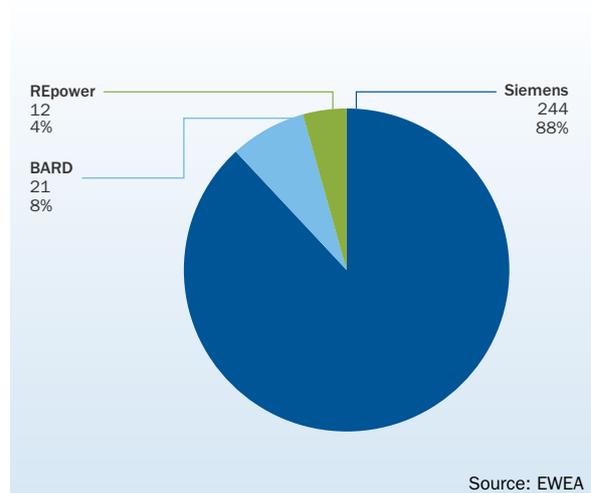
Units made by three turbine manufacturers were connected to the grid over the period: Siemens, REpower and BARD. The former has the largest share of newly connected capacity by far (866 MW, 83%), followed by BARD (105, 10%) and REpower (74 MW, 7%).

FIGURE 4: WIND TURBINE MANUFACTURERS' SHARE OF GRID CONNECTED CAPACITY IN EUROPE BETWEEN 1 JANUARY 2012 AND 30 JUNE 2012 (IN MW)



In terms of units, Siemens grid connected 244 turbines (88%), BARD 21 turbines (8%) and REpower 12 turbines (4%). As the installed Siemens machines have lower rated capacity to REpower's and BARD's (3.6 MW and 2.3 MW compared to 6.15 MW and 5 MW respectively), Siemens has a higher share of installed units than installed capacity. However, two 6 MW Siemens turbines were grid connected at the Gunfleet Sands 3 demonstration project in the UK.

FIGURE 5: WIND TURBINE MANUFACTURERS' SHARE OF GRID CONNECTED TURBINES IN EUROPE BETWEEN 1 JANUARY 2012 AND 30 JUNE 2012 (IN UNITS)



## Financing highlights and developments in H1 2013 and 2013 outlook

Financing activity for offshore wind farms slowed down in the first half of 2013, after a busy end of year in 2012. Nevertheless, several trend setting deals took place.

The only transaction to have reached financial close to date this year is the 288 MW Butendiek project in Germany. It is the first transaction to take place in Germany since the grid delays issue appeared in late 2011 and it closed just a few weeks after the new grid law came into force. The deal is also notable in that it involved a simultaneous equity transaction, with the Marguerite Fund, Industriens Pension, PKA and Siemens Financial Services acquiring 90% of the project from the developer wpd. It is also the first time that pension funds and infrastructure funds take full construction risk in offshore wind, a welcome development for the industry as it seeks to attract more investors, and a sign of both the increased sophistication of the investors and the improved understanding by the financial markets of the risks associated with construction at sea.

The transaction involved the EIB, the Danish export credit agency EKF and KfW (under its offshore wind programme) as well as 9 commercial banks, following the traditional pattern of mixing public and private funding under a market-tested structure.

Further activity is expected later this year on the debt side, with on-going negotiations for the refinancing of Masdar's stake in the London Array project (20% of 630 MW, UK) as well as likely launches on the banking market for the Gemini (600 MW, NL), MEG 1 (400 MW, DE) and Innogy Nordsee 1 projects (295 MW, DE).

Activity in the UK is unlikely to pick up for the rest of the year as the industry awaits the results of the Electricity Market Reform and, in particular, the strike prices for the contracts for differences (CfD) that will replace the existing certificate system (Renewable Obligation Certificates) before taking projects to the stage where financing is required. Draft strike prices were published in June and are expected to be adopted by year end.

On the equity side activity has, similarly, been low with only two major transactions announced apart from the sale of equity stakes in Butendiek:

- In March Greencoat and the Green Investment Bank jointly acquired a 49% stake from RWE in the operational 90 MW Rhyl Flats wind farm in the UK; this was announced at the same time as Greencoat's successful IPO as a renewable energy IPP pure player, marking the first exposure of the general investing public to offshore wind.
- In January Mitsubishi bought 50% of the Luchterduinen 129 MW wind farm in the Netherlands from the developer Eneco (along with an agreement to fund 50% of other ENECO projects).

Additionally, Mitsubishi also bought 49% of a portfolio of German interconnector systems (BorWin1, BorWin2, Helwin2 and BolWin2) from Tennet, showing that offshore grid connection assets are also able to attract financing.

A number of sale processes are currently under way but have not formally closed. Other pending equity transactions expected for 2013 include Gemini (NL), MEG 1 (DE), Neart na Gaoithe (UK), Race Bank (UK), and Veja Mate (DE).

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## Offshore statistics



### The European offshore wind industry - key trends and statistics 2012

Europe installed and grid connected 293 offshore wind turbines in 2012 - more than one per working day. This brings the total to 1,662 turbines, in 55 offshore wind farms in ten European countries.

PUBLICATION DATE: January 2013

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-offshore-2012](http://www.ewea.org/stats/eu-offshore-2012)



### The European offshore wind industry - key trends and statistics 1st half 2012

The aim of the TWENTIES project is to advance the development and deployment of new technologies which facilitate the widespread integration of more onshore and offshore wind power into the European electricity system by 2020 and beyond.

PUBLICATION DATE: June 2012

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-offshore-1st-half-2012](http://www.ewea.org/stats/eu-offshore-1st-half-2012)

## Annual statistics



### Wind in Power. 2012 European statistics

The EU wind energy sector installed 11.6 gigawatts (GW) of capacity in 2012, bringing the total wind power capacity to 105.6 GW. Wind energy represented 26% of all new EU power capacity installed in 2012, and investments of between €12.8 billion and €17.2 billion. It is now meeting 7% of Europe's electricity demand – up from 6.3% at end 2011.

PUBLICATION DATE: February 2013

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-annual-2012](http://www.ewea.org/stats/eu-annual-2012)



### Wind in Power. 2011 European statistics

132 new offshore wind turbines, totalling 523.2 megawatts (MW) were fully grid connected in Europe in the first six months of 2012. This is a 50% increase compared to the same period in 2011 when 348.1 MW were installed.

PUBLICATION DATE: July 2012

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-annual-2011](http://www.ewea.org/stats/eu-annual-2011)

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### SEANERGY 2020 Report

Spatial planning of offshore renewable energies and electricity grid infrastructures in an integrated EU maritime policy

PUBLICATION DATE: July 2012

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### Wind in our sails

'Wind in our Sails' is about offshore wind energy and provides a detailed analysis of the sector's rapidly developing supply chain.

PUBLICATION DATE: November 2011

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