



# The European offshore wind industry - key trends and statistics 1st half 2014

# Contents

Mid-year European offshore wind energy statistics .....	3
Summary of offshore work carried out during the first half of 2014.....	4
Developers.....	5
Wind turbines.....	5
Financing highlights in H1 2014 and outlook.....	6

## Data collection and data analysis:

**Author:** Giorgio Corbetta, European Wind Energy Association (EWEA)

**Contributing authors:** Iván Pineda, Justin Wilkes (EWEA)

**Financing highlights:** Jérôme Guillet (Managing Director, Green Giraffe Energy Bankers)

**Revision and editing:** Zoë Casey (EWEA)

**Design:** Clara Ros (EWEA)

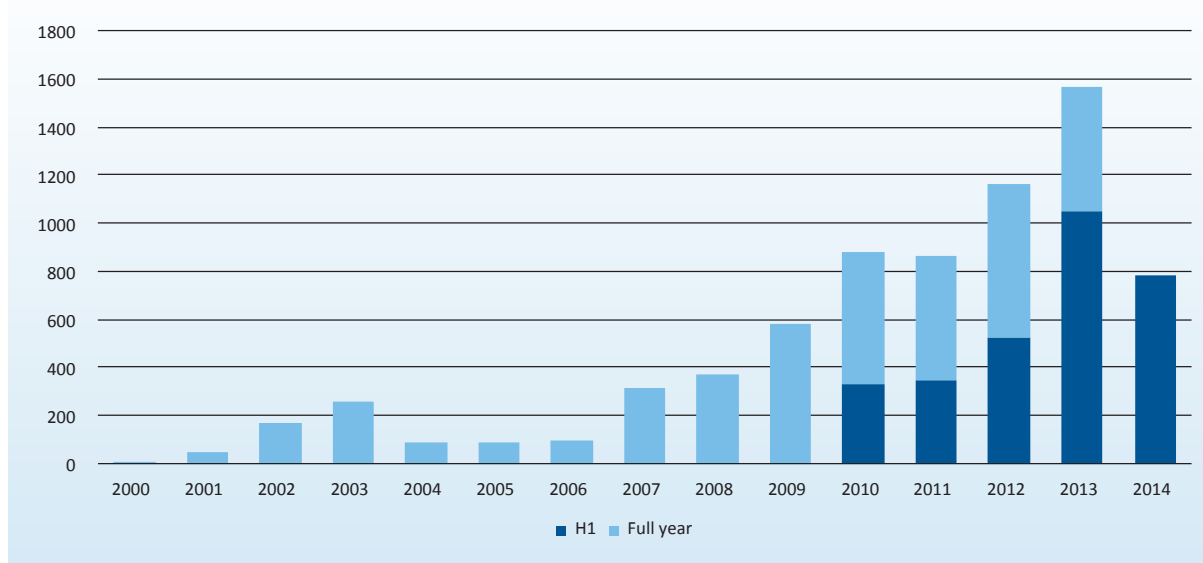
**Cover photo:** Siemens AG Energy Sector

## Mid-year European offshore wind energy statistics

In the first six months of 2014, Europe fully grid connected 224 offshore wind turbines in 16 commercial wind farms and one offshore demonstration site with a combined capacity totalling 781 MW. There are 310 wind turbines awaiting grid connection. Once connected, these will add a total capacity of over 1,200 MW. The total capacity of all the wind farms under construction is over 4,900 MW when fully commissioned.

New offshore capacity installations during the first half of 2014 were down 25% compared to the same period the previous year.

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



Source: EWEA

The work carried out in European offshore wind farms during the first six months of 2014 is detailed below:

- **224 wind turbines were fully grid connected**, totalling 781 MW (down 25% compared to the same period last year) in five wind farms: Gwynt y Môr (UK), Northwind (BE), Riffgat (DE), West of Duddon Sands (UK) and the Methil Demo at Energy Park Fife (UK).
- **233 foundations** (35 units fewer than the same period last year) were **installed in 13 wind farms**: Amrumbank West (DE), Borkum Riffgrund I (DE), Borkum West 2.1 (DE), Butendiek (DE), Dan Tysk (DE), Global Tech 1 (DE), Gwynt y Môr (UK), Humber Gateway (UK), Meerwind Sud/Ost (DE), Nordsee Ost (DE), Northwind (BE), Westernmost Rough (UK) and the Methil Demo - Energy Park Fife (UK).

- **282 turbines** (28 units or 10% more than during the same period last year) were **erected in eight wind farms**: Borkum West 2.1 (DE), Dan Tysk (DE), Global Tech 1 (DE), Gwynt y Môr (UK), Meerwind Sud/Ost (DE), Nordsee Ost (DE), Northwind (BE) and West of Duddon Sands (UK).
- **Preparatory work** has begun at the 600 MW Gemini wind farm off the coast of the Netherlands.

In total, there were, on 1 July 2014, 2,304 offshore wind turbines with a combined capacity of 7,343 MW fully grid connected in European waters in 73 wind farms across 11 countries, including demonstration sites.

## Summary of offshore work carried out during the first half of 2014

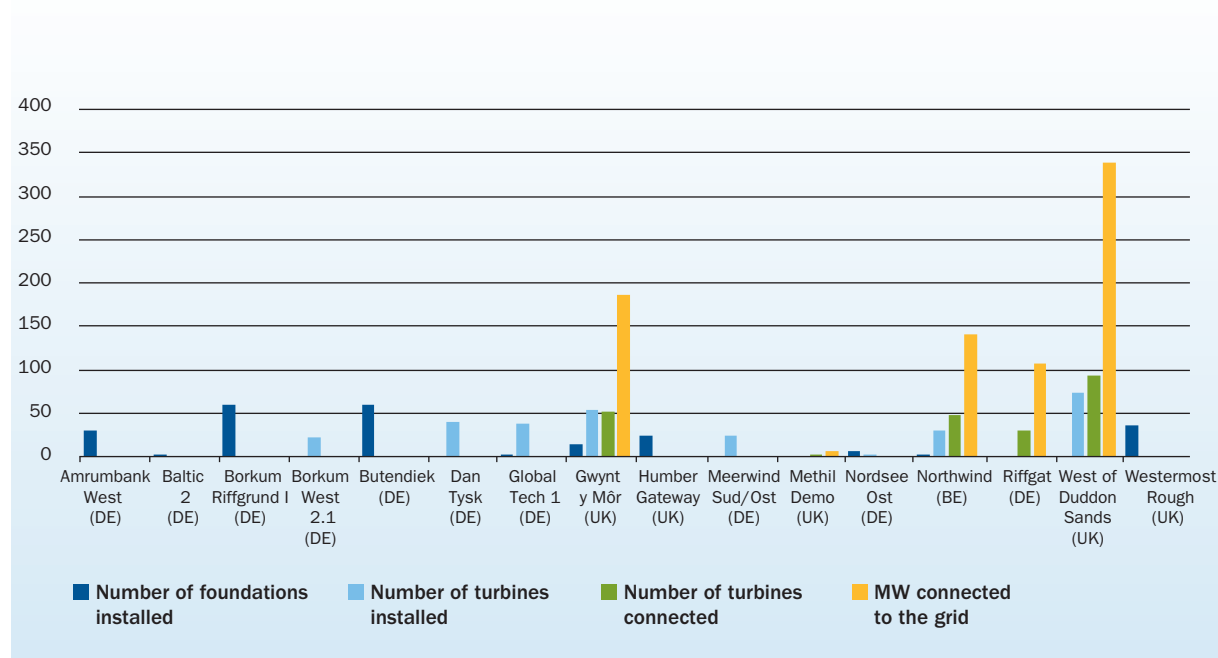
During the first six months of the year, work was carried out on 16 offshore wind farms and one demonstration site. Foundations and turbines were installed and/or grid connected in 15 of these and in one demonstration site in three countries: Belgium, Germany and the United Kingdom.

TABLE 1: SUMMARY OF WORK IN OFFSHORE WIND FARMS BETWEEN 1 JANUARY AND 30 JUNE 2014

	BELGIUM	GERMANY	UK	TOTAL
Number of farms	1	10	5	16
Number of foundations installed	1	159	73	233
Number of turbines installed	30	126	126	282
Number of turbines connected	47	30	147	224
MW fully connected to the grid	141	108	532	781

Source: EWEA

FIGURE 2: INSTALLATION OF FOUNDATIONS, TURBINES AND GRID CONNECTION OF WIND TURBINES IN OFFSHORE WIND FARMS BETWEEN 1 JANUARY AND 30 JUNE 2014



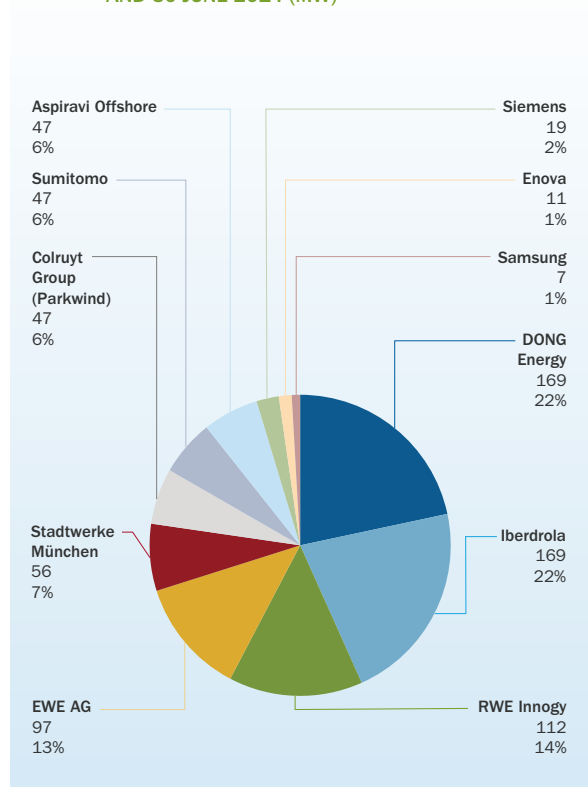
Source: EWEA

## Developers

Four commercial wind farms and one demonstration project connected wind turbines to the grid totalling 781 MW.

Figure 3 shows the share of connected MW per developer from 1 January to 30 June 2014 taking into account each company's share in the projects. Power producers account for over 78% of the installed capacity (over 600 MW).

FIGURE 3: OFFSHORE WIND DEVELOPERS' SHARE OF NEW GRID CAPACITY CONNECTED BETWEEN 1 JANUARY AND 30 JUNE 2014 (MW)



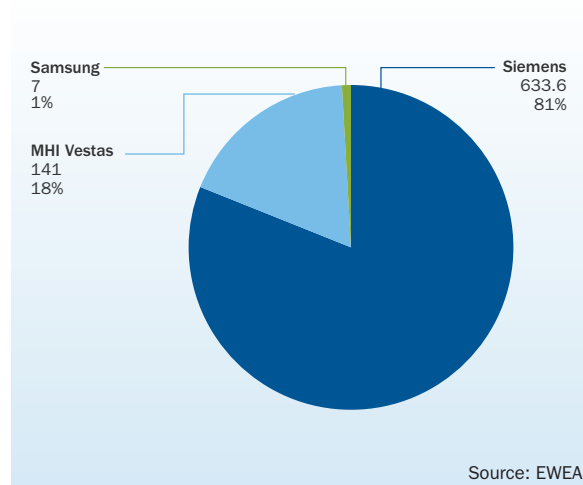
Source: EWEA

## Wind turbines

During the first six months of 2014, 223 offshore wind turbines and one offshore demonstration wind turbine were connected to the power grid, or around 25% fewer than during the same period in the previous year. The average size of the wind turbines was 3.5 MW, slightly less than during the first six months of 2013.

Units made by three turbine manufacturers were connected to the grid during the period: Siemens, MHI Vestas and Samsung. The former has the largest share of newly connected capacity (633 MW, 81%), followed by MHI Vestas (141 MW, 18 %) and Samsung (7 MW, 1%) which connected its 7 MW demonstration wind turbine to the grid.

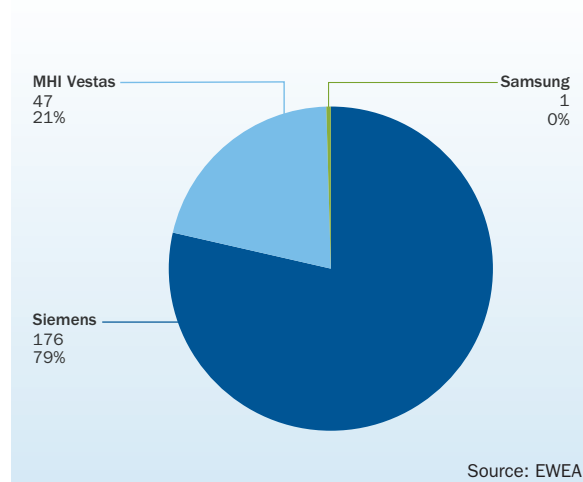
FIGURE 4: WIND TURBINE MANUFACTURERS' SHARE OF GRID CONNECTED CAPACITY (IN MW) IN EUROPE BETWEEN 1 JANUARY AND 30 JUNE 2014



Source: EWEA

In terms of units, Siemens grid connected 176 turbines (79%), MHI Vestas 47 turbines (21%) and Samsung one turbine.

FIGURE 5: WIND TURBINE MANUFACTURERS' SHARE OF GRID CONNECTED TURBINES IN EUROPE BETWEEN 1 JANUARY AND 30 JUNE 2014 (IN UNITS)



Source: EWEA

## Financing highlights in H1 2014 and outlook

There was considerable financing activity in the offshore wind farm sector in the first half of 2014, with multiple transactions on the equity side and the largest offshore wind financing to close to date: the 600 MW Gemini project in the Netherlands.

The Gemini transaction, which closed on 13 May 2014, included both equity and debt funding, with independent power producer Northland Power, a Canadian developer, acquiring 60% of the project, alongside contractors Siemens (20%) and Van Oord (10%), from developer Typhoon Offshore, with initial investor HVC, the Dutch waste-to-energy company, keeping its original 10% stake. The €2.8 billion transaction included a senior debt<sup>1</sup> financing of €2.1 billion provided by a consortium of 12 commercial banks and four public funding institutions, as well as a mezzanine<sup>2</sup> tranche provided by Danish pension fund PKA alongside Northland Power.

Commercial funding topped one billion euros, with large individual commitments from banks, showing a healthy appetite from the lending market for the offshore wind sector, including construction risk. This appetite will be further confirmed in the second half of the year with several transactions currently in the market and expected to close in the coming months, including Westernmost Rough (UK, 210 MW), MEG1 (DE, 400 MW), Nordsee 1 (DE, 330 MW) and Galloper (UK, 340 MW), plus Cape Wind (370 MW) and Deepwater (30 MW) in the US. Several of these transactions are backed by power producers, demonstrating their growing appetite for non-recourse debt in offshore wind.

On the equity side, the market has also been dynamic with the following transactions closing (in addition to the equity sale that took place on the closing of Gemini):

- DONG Energy sold half of its 50% stake in the 630

MW London Array project to Caisse de Dépôt et Placement du Québec (CDPQ) in January<sup>3</sup>;

- Wpd sold half of its remaining stake in Butendiek (288 MW, DE) in January to Switzerland's Elektrizitätswerk der Stadt Zürich (EWZ) reducing its participation in the project to 5%<sup>4</sup>;
- DONG Energy sold 50% of Westernmost Rough (210 MW, UK) to Marubeni (25%) and to the UK Green Investment Bank (25%) in March<sup>5</sup>;
- RWE sold a 10% stake in Gwynt y Môr (576 MW, UK) to the UK Green Investment Bank, in March<sup>6</sup>.

In the UK, Statoil and Statkraft have reached a final investment decision (FID) on their Dudgeon offshore wind farm (402 MW), agreeing to invest €1.9bn in the construction of the project. Dudgeon is the first wind farm reaching FID under the new UK Contract for Difference mechanism<sup>7</sup>.

A number of other equity transactions have been reported as being under way as owners of operating projects seek to recycle capital in light of a growing interest from financial investors, in particular infrastructure funds and pension funds for operational offshore wind assets. But as the Gemini and Westernmost Rough transactions show, investors are also increasingly looking at projects under construction and most such transactions are likely to happen before the end of the year.

Overall, while transactions remain complex and take time to close, there is an active market for offshore wind projects and a strong pipeline of new deals. Projects with a well-designed commercial and/or financial structure are able to find funding for construction or refinancing, allowing the sector to benefit from competitive capital costs.

<sup>1</sup> Senior debt takes priority over other unsecured or "junior" debt owed, consequently, it is repaid before other debts in case of bankruptcy.

<sup>2</sup> Mezzanine debt is an equity instrument secured by a claim on a company's assets.

<sup>3</sup> DONG Energy, 31/01/2014, available at [http://www.dongenergy.com/EN/Media/Newsroom/Pages/Company\\_announcements\\_details.aspx?omxid=735456](http://www.dongenergy.com/EN/Media/Newsroom/Pages/Company_announcements_details.aspx?omxid=735456)

<sup>4</sup> Bloomberg, 08/01/2014, available at <http://www.bloomberg.com/news/2014-01-08/zurich-buys-stake-in-german-north-sea-wind-farm-developed-by-wpd.html>

<sup>5</sup> DONG Energy, 31/03/2014, available at [http://www.dongenergy.com/EN/Media/Newsroom/Pages/Company\\_announcements\\_details.aspx?omxid=745172](http://www.dongenergy.com/EN/Media/Newsroom/Pages/Company_announcements_details.aspx?omxid=745172)

<sup>6</sup> Windpower Monthly, 31/03/2014, available at <http://www.windpoweroffshore.com/article/1287945/green-investment-bank-takes-gwynt-y-mor-stake>

<sup>7</sup> Dudgeon Offshore Wind Farm, 01/07/2014, available at [http://dudgeonoffshorewind.co.uk/news/news01\\_07\\_14.php](http://dudgeonoffshorewind.co.uk/news/news01_07_14.php)



# Latest statistics published by EWEA

## Offshore statistics



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

418 offshore turbines came online in 2013 in Europe, making a record 1,567 MW of new capacity. This is one-third more than the capacity installed in 2012. This makes a new total of 6,562 MW of offshore wind power - enough to provide 0.7% of the EU's electricity.

PUBLICATION DATE: January 2014

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-offshore-2013](http://www.ewea.org/stats/eu-offshore-2013)



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

277 new offshore wind turbines, totalling 1,045 MW, were fully grid connected in Europe during the first six months of 2013. This is double compared to the same period in 2012 when 523.2 MW were installed. In addition, 268 foundations were installed and 254 turbines erected, all during the first 181 days of the year.

PUBLICATION DATE: July 2013

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-offshore-1st-half-2013](http://www.ewea.org/stats/eu-offshore-1st-half-2013)

## Annual statistics



### Wind in Power. 2013 European statistics

At the end of 2013 there were 117.3 GW of installed wind energy capacity in the EU, 6.6 GW of which were offshore. The EU installed 11,159 MW of wind power capacity (worth between €13 billion and €18bn) during 2013, a decrease of 8% compared to 2012 installations. The wind power capacity

installed by the end of 2013 would, in a normal wind year, produce 257 TWh of electricity, enough to cover 8% of the EU's electricity consumption - up from 7% the year before.

PUBLICATION DATE: February 2014

DOWNLOAD THE PDF HERE:

[www.ewea.org/stats/eu-annual-2013](http://www.ewea.org/stats/eu-annual-2013)



### Wind in Power. 2012 European statistics

The EU wind energy sector installed 11.6 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

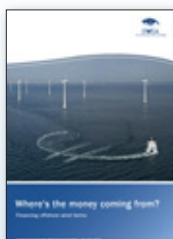
meeting 7% of Europe's electricity demand – up from 6.3% at end 2011.

PUBLICATION DATE: February 2013

DOWNLOAD THE PDF HERE:

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

# Other EWEA reports about Offshore



### Where's the money coming from? Financing offshore wind farms

The European offshore wind energy industry needs to attract between €90 billion and €123 billion by 2020 to meet its deployment target of 40 GW.

PUBLICATION DATE: November 2013

DOWNLOAD THE PDF HERE:

[www.ewea.org/report/financing-offshore](http://www.ewea.org/report/financing-offshore)



### SEANERGY 2020 Report

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

PUBLICATION DATE: July 2012

DOWNLOAD THE PDF HERE:

[www.ewea.org/report/seanergy-2020](http://www.ewea.org/report/seanergy-2020)

EWEA is the voice of the wind industry, actively promoting wind power in Europe and worldwide. It has over 600 members, active in over 50 countries, including wind turbine manufacturers with a leading share of the world wind power market, plus component suppliers, research institutes, national wind and renewables associations, developers, contractors, electricity providers, finance and insurance companies, and consultants. This combined strength makes EWEA the world's largest and most powerful wind energy network.

SUPPORT EWEA  
BECAUSE WE  
SUPPORT **YOU**