

## **World Market of the Offshore Wind Industry**

A logical evolution of onshore wind energy that has reached all parts of the world with constant growth rates with double-digit percentages, offshore wind energy is for the time being mostly a European application. Main countries for offshore wind energy are United Kingdom, Ireland, Denmark, Sweden, The Netherlands, Germany and Belgium. Other European countries have prepared their own projects (France, Italy). Today about 940 MW of offshore wind power is installed. Germany has 20 permitted applications in North and Baltic Sea representing a total of ~6,500 MW rated power. Outside Europe there are developments in the US, Japan, China, India and Brazil.

Following table shows the offshore wind energy in detail:

Nation	online (MW)	permitted (MW)	planned (MW) until 2020
Denmark	426,25	0	~ 2.300
United Kingdom	494	~1100	~ 33.000
The Netherlands	258,2	0	~ 6.000
Ireland	25	0	~1.000
Sweden	132,5	610	~ 1.900
Spain	0	0	~ 500
Germany	12,5	~6.500	~ 12.000 (2020)
Belgium	30	~450	~ 50
France	0	0	~ 3.000
Italy	0	~120	~ 500
Greece	0	0	~ 500
Japan	1,2	?	?
China	0	?	> 2.000
USA	0	0	~1.700
Canada	0	0	~2.100
Total	1379,65	~8.780	~66.550

**Table1: Overview about Offshore Wind Energy**

In total Table 1 shows that about 60 GW of offshore wind power are planned by 2020. This result is consistent with the result from the BTM-Consult Study „World Market Update 2006“ (48 GW) and the expectations of the European Wind Energy Association EWEA (60 GW).

Inevitably, there will be a difference between plans and installations, but these numbers already indicate the market's development for the next decade. Markets such as US and China have just started their development and this makes the numbers in Table 1 more credible.

### **1.1 *Manufacture's growth***

The market for offshore wind turbines has to be seen separated from the onshore market. Different turbine sizes, the harsh offshore environment together with limited access for service and maintenance require specially designed offshore wind turbines. Traditional wind power manufacturers like Enercon or Nordex see offshore wind power as too demanding for them and even no necessity to invest in this technology because the future of wind power onshore is brilliant and their order books are full for the next two years.

Today only five manufacturers offer offshore wind turbines, two of them, Bard and Multibrud are specialized offshore wind turbine manufacturers whereas Vestas, Siemens and Repower offer on- and offshore wind turbines.

Table 2 shows the growth of these 5 manufacturers. Until 2010 public available information has been gathered to estimate the production. From 2011 an average growth of 30% was estimated. From our point of view 30% annual growth is the maximum possible growth in wind energy that can be sustained for more than one or two years. Therefore this table shows the upper limit of the offshore wind turbine production from the manufacturers.

production (MW/a)	Bard	Multibrid	Repower	Siemens	Vestas	Total
2008		27	6	54	60	147
2009			42	281	80	403
2010	80	80	36	200	150	546
2011	104	104	46.8	260	195	710
2012	135	135	61	338	254	923
2013	176	176	79	439	330	1200
2014	228	228	103	571	428	1559
2015	297	297	134	743	557	2027
2016	386	386	174	965	724	2635
2017	502	502	226	1255	941	3426
2018	653	653	294	1631	1224	4454
2019	848	848	382	2121	1591	5790
2020	1103	1103	496	2757	2068	7527
<b>Cumulated</b>	<b>4512</b>	<b>4539</b>	<b>2079</b>	<b>11616</b>	<b>8601</b>	<b>31347</b>

**Table2: Manufacturer´s growth until 2020**

Before round 3 was announced these production figures correlated sufficiently with the World market outlook. Now there is a gap between the estimated production and the market demand of appr. 35 GW (cumulated) until 2020, more than the Volume of round 3.

**Own research, Sources:**

-BTM “World Market Update 2007”

-EWEA: published before the announcement of round 3

[http://www.ewea.org/fileadmin/ewea\\_documents/images/publications/offshore\\_report/ewea-offshore\\_report.pdf](http://www.ewea.org/fileadmin/ewea_documents/images/publications/offshore_report/ewea-offshore_report.pdf)

-<http://www.offshorecenter.dk/>

and Internet investigations

December 2008