

## WindEnergy Study 2008

### Market Assessment of the Wind Energy Industry up to the Year 2017

Berlin/Hamburg/Husum, 26 May 2008 - The industry holds a very positive view of the development of the international wind energy market in the coming years - this is the most important result of the WindEnergy Study 2008, commissioned by HusumWindEnergy 2008 in the run-up to the leading international trade fair (9 to 13 September 2008). For the year 2012, the globally installed power is expected to reach 288,000 MW (at present at the end of 2007: 94,000 MW). These figures are complemented by a scenario of the German wind market up to the year 2030 which is based on a survey carried out in April 2008 by DEWI GmbH - Deutsches Windenergie-Institut, who were in charge of the study. Companies involved in the international wind energy market were asked to give an assessment of the medium-term development of the market. The result of the survey signals a clearly more positive trend than two years ago, which means that the growth forecast up to 2014 published in the WindEnergy Study 2006 can be revised upwards significantly because of the strong growth of the markets in USA and China in 2008. Based on these figures the global installation by the year 2017 would be around 718,000 MW (Fig. 2).

“This survey gives the companies in the industry a vital preview of the markets of the future. Its results are also reflected in the structure of the leading international trade fair of the wind energy industry, Husum WindEnergy, with exhibitors from 35 countries, including national pavilions from the USA, Canada, France and the UK, and with visitors from 40 countries, that is from the growth markets,” says Hanno Fecke, Managing Director of the Husum Trade Fair. “The WindEnergy-Study has provided a continuous set of data over the years, giving the industry an outstanding overview and a valuable forecast of the development of the global wind energy market,” says Bernd Aufderheide, Chairman of the Management Board of Hamburg Messe und Congress, which is the cooperation partner of Husum Trade Fair.

### Market development in the year 2007

With a plus of around 20,000 MW in newly installed wind turbines world-wide, the annually installed power in 2007 increased by over 32 per cent compared to the year 2006 (15,197 MW). Remarkable in particular is the market growth outside Europe with about 52 percent, which is almost five times as high as in Europe. The European wind market, too, has experienced a substantial increase in 2007. With a growth from 7,708 MW to 8,662 MW the newly installed capacity rose by 12 percent as against 2006. In spite of the consolidation of its domestic market, Germany with 22,247 MW installed power remained the leading market on the European continent (and worldwide), followed by Spain with around 15,145 MW. The 6,995 MW capacity of newly installed wind turbines in Europe (without Germany) mean a growth in market volume of about 28 percent as against the year 2006, which reflects the positive development in the other European markets (Fig. 1).

This means that world-wide, the installed power increased by 27 percent from a total of 74,517 MW in the year 2006 to 94,593 MW in 2007 (fig. 2). A large part of the additional growth worldwide was contributed in particular by the USA, China, Spain, Germany and India, in which around 78 percent of the newly installed capacity was erected. According to the WindEnergy Study 2008, especially the USA, China and Spain have a large potential for growth in the future. Because of the extension of the tax benefits for wind energy (PTC) until the end of 2009, which has already been passed by the US senate (approval by the US congress is still pending), the growth of wind energy in the USA will probably reach a new record high this year and next year. In the first quarter of this year alone a total of 1,400 MW were newly installed in the USA, and by the end of the year this value could reach more than 6,000 MW. This means that the non-European markets are catching up fast with the previously leading Europe in the use of wind energy. Already in 2012, around 55 per cent of the wind turbine capacity worldwide will be installed outside Europe, whereas in the year 2007 this was only 39 percent.

### **718,000 MW predicted until the year 2017**

With market volumes (annual new installations in MW) continuously rising according to this scenario from about 20,000 MW (2007) to about 107,000 MW (2017) the wind energy industry has excellent and sustainable prospects for development (Fig. 1). If this scenario can be realised as expected, the global capacity installed in wind turbines will reach 718,000 MW by the year 2017 (today 94,000 MW) (Fig. 2). The increasing importance of non-European countries is also reflected in figs. 6 and 7. For Europe a more or less constantly rising market volume is expected in the years 2008 to 2012 (about 129,000 MW in installed wind turbine capacity in 2012 and about 253,000 in the year 2017), whereas in non-European countries a significant increase of the wind power installed per year is expected in the long run. The expected strong global growth in the years 2008 to 2012 must be attributed in the respondents' opinion to the markets in USA, China and Spain, which are rated more positive by the respondents compared to the annual new installations given in the questionnaire (source: BTM Consult).

### **Market Development in Germany: Onshore continues to grow, Offshore is starting gradually**

With respect to the further development of the market in Germany, the WindEnergy Study shows that there is some degree of uncertainty about the prospects of the industry, which is reflected by the diverse statements given by the companies polled about the development of wind energy in Germany. This is probably due to the fact that at the time the survey was carried out, a decision about a revision of the framework conditions for wind energy (especially the feed-in tariff) by an amendment of the Renewable Energies Law had not yet been made. Under the conditions expected at the time of the survey, the total installation for Germany until the year 2012 could reach about 31,900 MW, divided into about 28,100 MW installed capacity onshore and about 3,800 MW offshore (by comparison end of 2007: 22,247 MW onshore and 0 MW offshore). For 2017, another five years later, the respective value is about 44,000 MW, of which about 32,500 MW will be installed onshore and 11,500 MW in the North Sea and the Baltic Sea. The onshore development in the medium term will be about 13 percent higher according to the current scenario than predicted two years ago (figs. 3, 4).

The study also shows a rather conservative assessment of the offshore development in Germany with regard to the scenario represented in the questionnaire (4,350 MW until 2012 based on the estimated required capacities for the North Sea and Baltic Sea from 2007). According to the survey, the development of wind farms at the far-offshore sites typical for Germany will start in 2008 and proceed much more slowly than previously expected. A more positive assessment with regard to the scenario presented in the questionnaire is seen from 2011 onwards.

### **In 2030, 31 percent of German power consumption could be covered by wind energy**

The WindEnergy study 2008 (figs. 3 and 4) also shows the possible development in Germany up to the year 2030. By the end of this period, with suitable framework conditions, the total installed capacity (on- and offshore) could reach approx. 65,000 MW, which cover about 31 percent of the gross electricity consumption of the year 2030 (source for gross electricity consumption: BMU Leitstudie 2007). By this time, about 35,100 MW will be in operation onshore - which is about 7,200 MW more than predicted in 2006. A possible offshore scenario would amount to about 30,000 MW wind turbine capacity installed at sea by the year 2030. It is remarkable that because of the initial delay in the offshore development a market peak could occur in the years 2020 to 2023 (fig. 3), because it is assumed that in this period also a large portion of the wind turbines onshore from the record years 2001 to 2003 will be up for replacement (after 20 years' operating time).

### **Offshore application world-wide**

Asked which application of wind energy would be important for their own company and when, the companies' answers concerning the offshore segment showed an increasing tendency towards 'currently important' compared to the study of 2006. In the year 2006, 34.1 percent stated that offshore wind energy was already an important segment for their company, in 2008 already 44.8 percent of the respondents were of this opinion (Fig. 5). On the whole, the offshore market is considered to be fairly important; for their own company, however, some of the respondents think it will become important only after 2012, which has to do with the international onshore market currently booming.

### **Large offshore wind turbines ready for use**

An important factor for the start of a future application of wind energy at sea is the question when the multi-megawatt wind turbines will be really ready for use. The answers to this question revealed that wind turbines between three and five MW installed capacity are already considered as fully developed. This is also in line with the present planning status of the German offshore projects in which wind turbines of that size category are to be erected in the coming years. Wind turbines between 5.1 and 7.5 MW are regarded as fit for application after 2010. In these size categories there are already prototypes operating today, so that the estimation of their readiness for serial production harmonises with the current state of development. Turbines with more than 7.6 MW installed capacity are assessed by the vast majority of respondents to be fully developed only after the year 2012 (fig. 6).

### **International market development: new future markets**

The companies polled in the survey listed altogether 43 different countries/regions which could be interesting as future markets. The companies were asked to list the five most important countries. Then the countries were weighted according to these listings. Figs. 7 and 8 show the resulting thirteen most important current and the twelve most important future

markets. As a result it can be established that the importance of the markets China, USA and Great Britain for the companies asked will increase in future, whereas the importance of other markets is rather decreasing (e.g. France and Netherlands). On the other hand new countries were mentioned, which may become important in the next few years (Greece and South Korea) (fig. 8).

### **Opening up new markets: starting up a new company preferred**

Asked for the preferred solution in opening up a foreign market, the majority of companies polled stated that they would prefer to start up a new company locally. When compared to the previous study, the share of companies preferring a joint venture has gone down from 59 to about 43 percent. 46 percent - compared to 31 percent two years ago - now prefer to establish a new company locally. The opinion that a foreign market could best be served exclusively by exporting is shared by about eleven percent of the respondents, as against 9.5 percent in 2006 (Fig. 9).

### **Other applications gaining in importance**

Today, wind energy is used for generating electricity, onshore and offshore, which is fed into the public supply grid. In the medium and long term, however, there are other possibilities, too, such as using wind energy for water desalination, for saving fuel by integrating wind turbines in small diesel-electric grids, or for the production of hydrogen. In our survey, we therefore asked the companies when they would think that these applications could become interesting as additional market elements. In contrast to the previous survey, in which the respondents stated that wind-diesel systems could become interesting from 2010 onwards, this is considered to be important already today in the current study. The other areas of application are considered to become a new option perhaps after 2010/2012, as in the survey of 2006 (fig. 10).

### **Long-term contracts preferred**

At present there are bottlenecks in the supplying industry for major components of wind turbines (supply chain) such as bearings, gearboxes, generators etc. . In order to find out how the companies would react in order to compensate for the current constraints of the supply chain, they were asked which action they would consider suitable. 35 percent stated that they would prefer to sign long-term contracts. In the second position, 33 percent mentioned a broad range of suppliers, followed by vertical production by building up in-house production (23 percent) and vertical production by taking over component manufacturers (8 percent).

### **US market able to survive without the Production Tax Credits, but on a lower level**

According to the companies polled (about 69 percent), the US market will be able to survive even without an extension of the PTC. However, 76 percent are of the opinion that in such a case a significantly lower growth is to be expected. In the respondents' view the main reason for the survival of this market are the regulations and tax benefits for wind energy passed or still to be passed by individual federal states. In mid-April 2008 the US senate passed the extension of the Production Tax Credits (PTC) for wind energy until the end of 2009 (approval by the US congress is still pending) and thus gave a general signal for the further development of the wind market in the USA.

## **Market in China of growing interest**

Another growing market, apart from the USA, is the People's Republic of China where in 2007 a capacity of 3,499 MW in wind turbines by a total of 44 manufacturers was installed. The companies were asked whether they saw a chance to participate in the Chinese market in future under these conditions. 62 percent of the respondents saw such a chance for their company. 19 percent of the companies participating in the survey see for themselves the possibility to develop wind farms projects in China, largely in the form of joint ventures. As from the year 2010 the companies polled expect the Chinese wind turbine manufacturers and independent Chinese rotor blade manufacturers to enter the world market as competitors.

## **Conclusion: Prospects remain excellent, also in the long term**

The WindEnergy study 2008 clearly and impressively confirms the rapid growth of the global wind energy market, which offers excellent, long-term prospects for the industry. The development of the international onshore and in the medium term also the offshore markets is making good progress, which means that the existing production capacities will also be expanded further. Equally important: wind energy will remain the most important sector of renewable energies in the achievement of climate targets.

HUSUM WindEnergy 2008 – the leading international wind industry fair – has for the first time been organised as a cooperation venture between the Husum Trade Fair and the Hamburg Trade Fair. From 9 to 13 September, some 700 exhibitors from 35 countries will present their products and services at the Husum trade fair site, including the world's leading wind turbine manufacturers and their equipment suppliers. This fair is dedicated to the wind industry, and will be the international meeting point and forum for companies and trade visitors for five days.

For further information see: [www.husumwindenergy.com](http://www.husumwindenergy.com)

The complete WindEnergy Study 2008 can be ordered by the media by e-mail to [presse@hamburg-messe.de](mailto:presse@hamburg-messe.de).

Contact: Gudrun Blickle, phone: +49 (0)40-3569-2442, [gudrun.blickle@hamburg-messe.de](mailto:gudrun.blickle@hamburg-messe.de)  
Klaus Lorenz, phone: +49 (0)2182-578780, [presse@messehusum.de](mailto:presse@messehusum.de)