

Executive summary

This summary highlights the development in the international wind power market during 2007 and the new Forecast until 2012, as described in this report. Furthermore a long term Prediction is made up to 2017. The report special theme assesses the development in the booming Chinese market.

Demand and market growth in 2007

With **19,791 MW** of new installations, the total installed capacity of wind power grew to around **94,000 MW**. This was an increase in cumulative installation of **27%**. Looking at the annual installation of **19,791 MW** there was an increase of 32%. This is on top of a 2006 growth of 30%. The key figures for development during 2007 were:

- **19,791 MW** of newly installed wind power capacity.
- Cumulative installed capacity by the end of 2007 reached **94,000 MW**. The 2007 supply amounted to around 14,800 wind turbines dispersed in 35 countries.
- **Europe** maintained its role as the largest wind power continent. **41.9%** of all new installation in 2007 took place in Europe. But Europe's share is decreasing, in 2006 the European share was 51%.
- The **Americas** had a record year thanks to the development in the **US**, where **5,244 MW** of new capacity was added. That was more than twice of that for 2006. The reason is the PTC (Production Tax Credit) in the US market in force and will be so until end of 2008. The **Americas** accounted for **29.4%** of the world's installation in 2007.
- **Asia** showed significant growth. Including OECD Pacific, Asia doubled its accumulated installation, from **11,591 MW** in 2006 to **17,193 MW** by the end of 2007. China was by far the leading country, with 3,287 MW of new capacity in 2007. India saw a slight decrease, with 1,617 MW of new installation. The region as a whole accounted for **25.3%** of the year's world wide total.
- Among the Top Ten markets **USA** maintained its position as largest market in 2007. China became No.2 with 3,287 MW in 2007 followed by Spain with 3,100 MW. **Germany**, the world's largest market for a decade, became No. 4 with installation of **1,667 MW**. **France & Italy** improved their installations with **888 MW** and **603 MW** respectively
- Penetration of wind power in the world's electricity supply reached the **milestone of 1.0%** to be produced in 2008.
- On Offshore two new project were installed, **Burbo Bank** (UK) and **Lillgrund** (S). Totally the two projects contributed with **200 MW** (1.0% of the world market).
- The 2007 market saw continued increase of WTG prices – some 10% - the value of the 2007 market in terms of turn-key cost/turnover reached around **27 EUR billion**

The supply side - Top 10 suppliers (hereof two Chinese companies)

Ten of the worlds roughly 20 suppliers of wind turbines are responsible for more than 91% of the total supply in the global market. This was lower than in the past and indicates that there are more large suppliers among the group of suppliers beyond the Top-ten ranking. The entrance of Chinese suppliers was significant with two suppliers among the Top-ten. Other key findings in relation to the supply market in 2007 were:

- **Vestas** maintained its leading position, though with a significant drop in market share down to 22.8%. Suzlon was the winner among those gaining their market share. GE-Wind became No.2 with 16.6% market. The Top ranking companies in 2007 are: VESTAS, GE-Wind, GAMESA, ENERCON and Suzlon. The positions from No. 2 to No. 4 had market share from 14.0 to 16.6%.
- **Suzlon** of India maintained its position as No. 5 in the world with an increase of market share to 10.5%. Suzlon acquired **REpower** in 2007. REpower's market share was 3.3%, but it was not enough for qualifying for a Top-ten position. **Siemens Wind** got 7.1% slightly below its 2006 share of the market.
- A new name appeared on the Top-10 list. It is the Chinese company **Sinovel**. There are now two Chinese companies among the Top-ten, **Goldwind** and **Sinovel**. **Acciona** (ES)

advance from a No 9 position to No.7 in 2007.

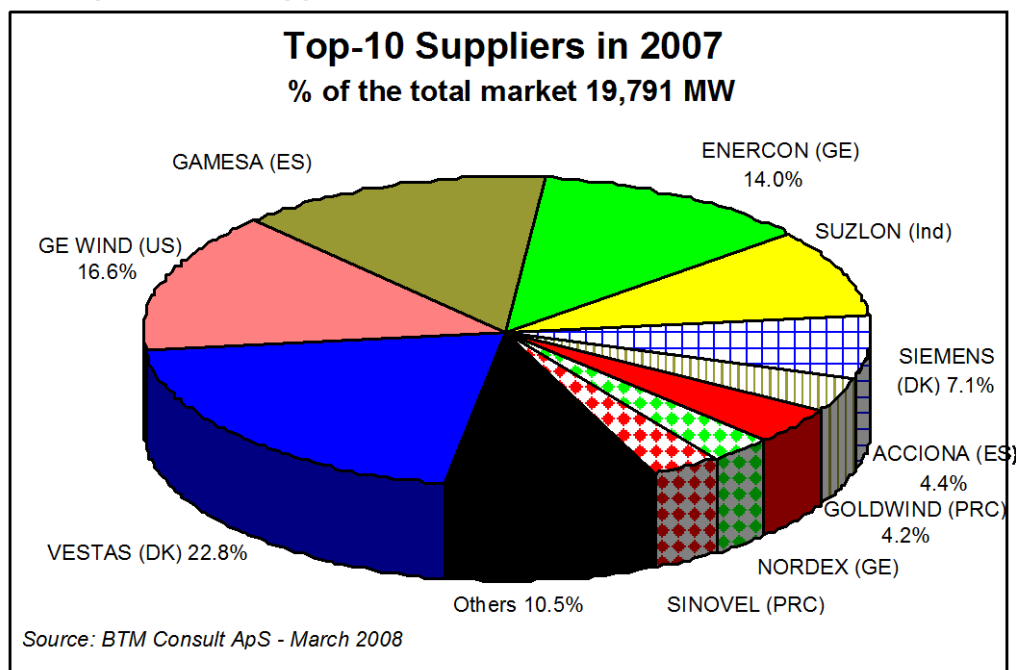
- **Repower**, **MHI** (Mitsubishi Heavy Industry) and **Ecotécnia** (ES), acquired by **Alstom SA** in 2007, are just after the Top-10 ranking companies.

Significant trends in the market

The most significant trend in the market place was the tight supply situation. In spite of that, the industry as a whole supplied some 22,000 MW to the market, meaning that some 2,200MW of wind power were in transit by end of the year 2007.

- Along with modest up scaling from more supply of Multi-MW turbines for use on-land, the demand for offshore wind turbines was stable with **200 MW** in 2007. The **average turbine size** delivered in the market during 2007 was **1,492 kW**, about 70 kW above that of 2006.
- The size range: **1,501-2,500 kW** turned into a position as “**Main Stream**” in 2006. That size segment counted for **47.6%** of the total capacity delivered in 2007.
- In the Asian markets smaller turbines are preferred. The average size delivered in India in 2007 was therefore 986 kW, whereas the average delivered to UK market reached 2,049 MW. In the US the average size delivered was almost as in 2006: 1,669 kW.
- **Utilities and IPPs** are the dominating customer group in to-day’s market. The major players within this customer segment possess around 37% of the aggregated capacity in the world as of end 2007. They *build* and in many cases *own and operate* the largest new wind farms in the US, Spain, China and the UK.

The Top-10 list of suppliers 2007



Forecast 2007 to 2012 and Prediction for 2013 to 2017

The global drivers have been stronger than ever, but the nature of driver differs from region to region: In **Asia** (India & China) **strong economic growth and need for electricity**, **Europe** determined political action to **combat global warming** and in the US a mix of “**global warming**” and “**security of supply**”. This year’s Forecast for the period up to 2012 indicates an overall expansion, with an **average growth rate of 20.7% p.a.** for new annually installed capacity. In 2012 the annual new capacity is expected to surpass 50,000 MW per year. The total cumulative installation expected for all five years is 193,900 MW, meaning more than a doubling of the cumulative installation by now. This year, **2008**, a **growth of 34%** over 2007 is expected. The upgrade of the forecast, compared to last year’s five year forecast, is justified by the strong global drivers, not at least the strong economic growth in Asia (China & India). The more uncertain **Prediction for the period from 2013 to 2017**

indicates an average **growth of 15.4%** also justified by the political decisions taken on international level now. Other key figures from the Forecast and Prediction are:

- **Europe** will maintain its leading role until 2012 and account for **37%** of the cumulative demand over the forecast period of time.
- The Americas, particularly the US and Canada, will increase their contribution by the end of the forecast period.
- South and East Asia will see a rapid increase, particularly in China and India.
- OECD Pacific will see stable growth, led by Japan and Australia.
- By the end of the forecast period **in 2012**, cumulative installations in the world will have reached **287,900 MW**, of which 129,000 MW will be in Europe.
- Offshore installation of wind power will grow by the end of the forecast period. The expected installation of offshore wind power in 2012 will make up some 4.7% of total demand in the World. The progress in offshore installations has been significantly lowered in this years forecast.
- By the end of the Prediction period in **2017**, cumulative global installations will reach around **690,000 MW**, and the world-wide penetration of wind generated electricity will then be around **6%**, assuming the general electricity market grows according to projections (*Reference Scenario*) presented by IEA in its World Energy Outlook 2007.
- The **Special Topic** in WMU 2007 is an assessment of the emerging Chinese market. The formation of a domestic industry runs at a high pace. Wind Turbine suppliers and suppliers of key-components, operating in China, have reached a number of more than 80 companies.

Forecast for 2008-2012

