

International Wind Energy Development World Market Update 2004 Forecast 2005-2009

The total capacity of global wind power grew to almost **48,000 MW** during 2004. This was an increase in cumulative installation of **20%**. With new capacity of **8,154 MW**, however, **there was a decrease in annual installation of 2.3%** compared to the record year 2003. This is the first time since 1996 that stagnation in new installation has been observed, a temporary event mainly caused by the drop in the US market. The industry has shown an **average growth of 15.8% over the past five years**.

Europe maintained its role as the largest wind power continent in 2004, with **73%** of all new installation. **Asia** registered strong development, mainly driven by the markets in India, Japan and China. The region as a whole accounted for **20.2%** of the year's world wide total. These are among the findings in the latest World Market Update, produced by BTM Consult. Other key features of the report are:

Demand side market

- **8,154 MW** of newly installed wind power capacity.
- Cumulative installed capacity reached **47,912 MW by the end of 2004**, consisting of around 74,400 wind turbines dispersed in more than 60 countries.
- The **Americas** declined from their peak of 1,818 MW in 2003 to only 516 MW in 2004. The reason for this was the absence of the PTC (Production Tax Credit) in the US market in 2004. The **Americas** accounted for **6.3%** of the world's installation in 2004.
- **Asia** showed significant growth. Including OECD Pacific, Asia almost doubled its installation, from 873 MW in 2003 to **1,648 MW**. India was by far the leading country, with 875 MW. China also showed progress, with almost 200 MW of new installation.
- Among the Top 10 markets there has been a shift. **Germany**, the world's largest market for a decade, saw a setback for the second year – **installing 2,054 MW** - and was overtaken by **Spain**, with **2,064 MW**, making it the largest market in Europe. **Italy** and **Portugal** showed remarkable growth. Portugal entered the Top 10 list for the first time, in sixth position.
- Penetration of wind power in the world's electricity supply reached **0.57%** by the end of 2004.
- Offshore development lost pace. **Only one** new project was installed in the UK.

Supply side market

The Top 10 suppliers in the world maintained their overall position by supplying almost 96.1 % of the 2004 installations. Other key findings in relation to the supply market in 2004 were:

- **Vestas** maintained its leading position and increased its market share to **34.1%**. This was 2.2% more than NEG Micon and Vestas together had in 2003. The two companies were merged in spring 2004.
- **Gamesa Eólica** advanced to second position, which was held by GE Wind in 2003. **GE Wind** lost momentum due to the weak US market.
- **Suzlon** of India became a surprising No. 6 in the Top 10 manufacturers' list, with a market share of **3.9%**.
- Germany's **Enercon GmbH** maintained its third position, with a market share of **15.8%**.
- **Siemens Wind**, the successor to Bonus Energy, became number five supplier in the market.
- The **four largest manufacturers account for 79.3%** of total supply.

There were some 20 suppliers of wind turbines in the world. The ten companies below the Top 10 shared 4.1% of the total market in 2004.

Short term Forecast 2005-2009

The BTM Consult WMU 2004 Report includes the strongest short term forecast since 2000. This year's Forecast for the period up to 2009 indicates an **average growth rate of 16.6% p.a.** for new installed capacity. This growth is not, however, evenly distributed over the period. **For 2005** a very high growth is expected – around **26%**. This upgrade in the forecast, compared to last year's outlook, is justified by high expectations for the US market (extended PTC) and high growth in key Asian markets. The more uncertain **Prediction for the period from 2010 to 2014** indicates an average **growth of 10.4% beyond 2009**. Other key figures from the Forecast and Prediction are:

- **Europe** will maintain its leading role until 2009 and account for **58%** of the cumulative demand. The **Americas**, particularly the US, will increase their contribution by the end of the forecast period. **South and East Asia** will see a rapid increase, particularly in India and China.
- **By the end of the forecast period in 2009**, cumulative installations in the world will have reached **117,142 MW**, of which 74,600 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 2009 will make up some 24% of total demand in Europe (globally, about 15%). The offshore forecast up to 2009 is reduced compared to previous versions.

Long term Prediction to 2014

The increased competitiveness of wind power will justify an improved growth rate beyond 2009. Apart from better economics, the main driver will be the use of flexible mechanisms for cutting greenhouse gases under the Kyoto Protocol. Another important driver will be security of supply, expected to play an increasingly dominant role in the global energy debate.

By the end of the Prediction period **in 2014**, cumulative global installations will reach **235,000 MW**, and the **world-wide penetration** of wind generated electricity will then be around **2.3%**, assuming the general electricity market grows according to projections presented by IEA in its World Energy Outlook 2004 (*The 2.3 % penetration level was achieved in Europe by the end of 2004!*) The **Kyoto Protocol, in force from 16 February 2005**, may have an impact on the wind power market in the short to medium term. The opportunities under the so-called *flexible mechanisms* will surely include wind power in regions where it is not used today.

The WMU 2004 report deals with other aspects of development as well, including **segmentation** of the commercial markets by turbine and capacity, as well as a listing of major operators/developers on the demand side. **The special theme** this year is a review of **repowering- a growing market segment**, illustrated with case studies from Denmark and Germany.

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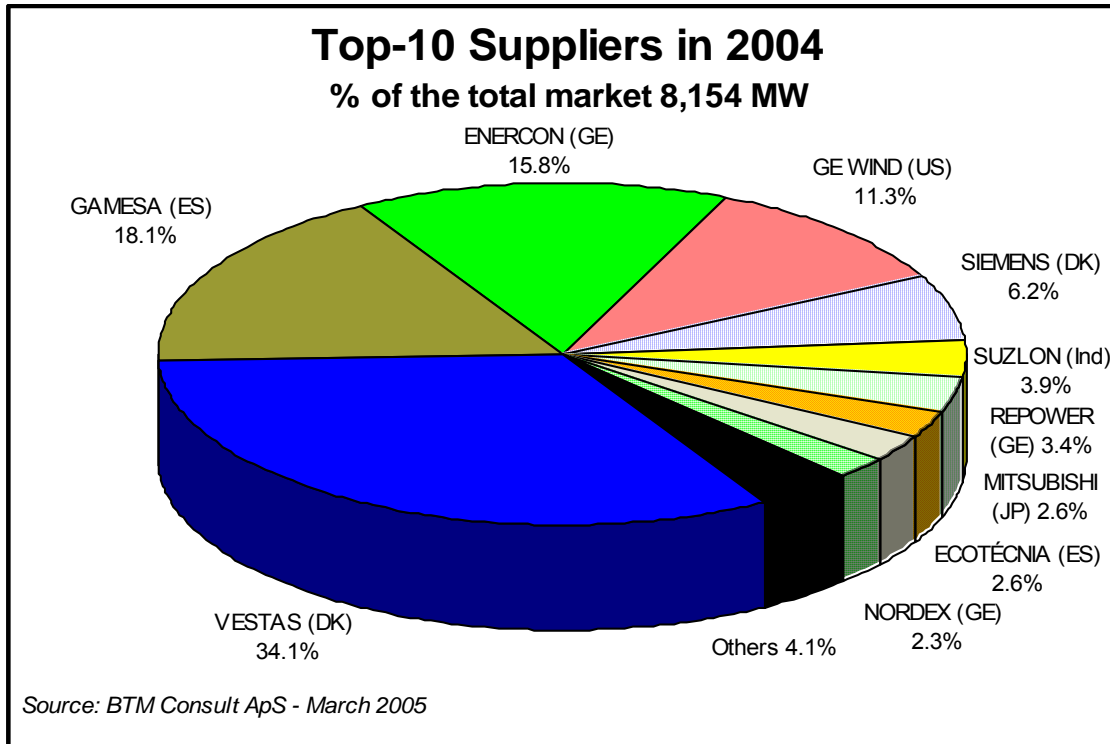
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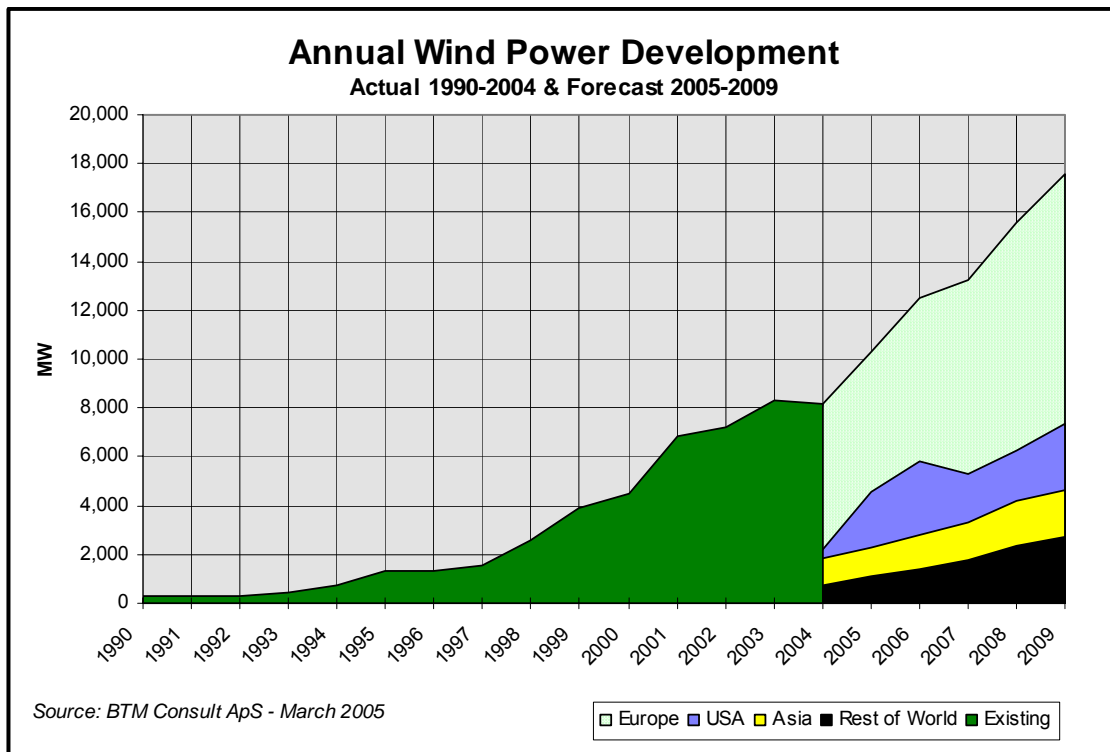
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Attached illustrations from WMU 2004 (see next page)

The Top-10 list of suppliers 2004



Forecast for 2005-2009



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