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Global Wind Power Market Guide: Economics Technologies and Opportunities

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Abstracts

With wind power leading the renewable industry, most countries are planning or implementing wind power growth strategies. This report details technology development in the global wind power market, outlines individual country programs and policies, and profiles onshore and offshore projects, and major industry players.

Among all renewable power technologies, wind power is established as a relatively mature technology and has tremendous potential for commercialization and mass production. The global wind power market recovered in 2011 setting a record for new wind power capacity of 4 GW, bringing the total to 239GW, with an output accounting for 3 percent of the total generation capacity in the world.

Data from the World Wind Energy Association shows that wind power now has the capacity to generate 430 TWh annually. Over 200 GW of new wind power capacity could come on line by December 2013. And wind power market penetration is predicted to reach 8 percent by 2018.

In many developing countries, off-grid small wind power is an efficient and cost effective solution to power supply problems in remote regions. Small-scale wind power technologies now have applications including city road lighting, mobile communication base stations, offshore aquaculture and sea water desalination in several countries.

KEY FINDINGS:

> With the federal wind production tax credit due to expire on Dec. 31, 2012, and no clear political motivation for an extension, it looks as though US wind power may stall in early 2013.

Many countries are planning their entire energy production around wind power. In 2010, Spain became Europe's leading producer of wind energy, achieving 42,976 GWh, and as of March 2011 wind was the Spain's main energy source. Germany held the top spot in Europe for installed capacity, with a total of 29 GW as of December 2011.

Together, China and India accounted for more than half of newly installed wind power in 2011. It was the second year in a row in which wind energy capacity growth was dominated by countries outside the OECD, and that trend is expected to continue in the next five years;

While the market continues to diversify across all continents, it is at the same time plagued by continued slow economic growth and budget crises in the OECD, as well as the continuing credit crunch.

The world market for wind energy experienced solid growth in the first half of 2011, recovering from weak 2010 growth. Total installed capacity worldwide reached 215 GW by the end of June 2011, and 239 GW by the end of 2011.

The current analysis of the market suggests that as much as 85 GW of new capacity could come online in the next one to two years based on the project pipeline for wind power projects already in the process of being commissioned, constructed or which have secured financing. The United Kingdom could become a significant player in the European market in the coming years.

In 2011, offshore wind power capacity in Europe grew by 866 MW, with 348 MW installed in the first half of the year. In 2011 there were 11 offshore wind farms under development in Europe, which, when all completed, will have a capacity of nearly 2.8 GW. This is likely to be just the beginning of the offshore expansion in Europe, as a total of 19 GW of offshore wind power projects have received planning approval, although it remains to be seen how much of this capacity will actually be constructed.

The Global Wind Energy Council (GWEC) projects that new capacity additions will increase through 2015. New capacity additions are projected to grow from 41GW in 2011 to 62.5 GW in 2015. If these projections are realized, global installed wind capacity will reach 460 GW by 2015, 2.3 times the total installed capacity in 2010. World Wind Energy Association projections are even higher,

anticipating a global capacity of 600 GW by 2015.

The outlook in North America is uncertain, due to legislative uncertainties and the ongoing impact of weak economic fundamentals, but new capacity additions could increase to 12 GW in 2015.

In Europe new capacity additions should increase to 14 GW by 2015 and total installed capacity to 146 GW by the end of that year.

In Latin America new capacity additions are projected to grow strongly from 0.7 GW in 2010 to 5 GW in 2015, increasing cumulative installed capacity from 2 GW to 19GW. This rate of growth is less than the excellent wind resource could support, but encouraging developments in Brazil, Mexico and Chile are offset by a lack of political commitment and supportive policy frameworks elsewhere.

The outlook for Africa and the Middle East is particularly uncertain, but new capacity additions could increase ten-fold from 0.2 GW in 2010 to 2 GW in 2015. Africa has an excellent wind resource, although it is not evenly distributed, and there is potential for Africa to see much stronger growth rates in the future.

FACTORS AFFECTING THE GLOBAL WIND POWER MARKET:

The biggest uncertainty is the future of the US Production Tax Credit, and its impact on the world's second largest wind market. Whatever happens, it seems likely that after a strong 2012, there is going to be a drop in 2013. How big a drop, how long it will last, and what effect it will have on both project and manufacturing investment, is the single largest variable affecting the overall market size in the next few years.

Uncertainty about the future of carbon markets is a factor. There is little prospect of a revitalization of the CDM markets in the next five years, other than a modest new source of demand from Australia. The European ETS is flooded with credits from too generous allocations in the earlier periods and there is no certainty that it will be 'fixed' any time soon. However, new potential markets in South Korea and China may start to have an impact by the end of this period.

TRENDS:

For the second year running, the majority of new installations were outside of the OECD, and this trend will no doubt continue. Most of the growth markets in the world now are outside the traditional markets in Europe and North America.

While the Chinese market has now stabilized for a while, the Indian market is growing strongly as are Brazil and Mexico. There are also some bright spots in new ‘emerging’ markets in Eastern Europe, as the EU continues its steady if unspectacular march towards its 2020 targets. Canada and Australia are potentially substantial markets which could add significantly to global growth figures, and South Africa has now entered the market in earnest.

Outlook for the coming period is a bit somber compared with previous forecasts, but this reflects the market realities from where the market was in late March 2012. Overall, the market should see average annual market growth rates of about 8% for the next five years, but with a strong 2012 and a substantial dip in 2013.

Total installations for the 2012-2016 period should be about 255 GW, and cumulative market growth averaging just under 16%. This is well below the 28% average for the last 15 years, but substantial growth in difficult times. Overall, a total capacity is anticipated to be just under 500 GW by the end of 2016, with an annual market in that year of just under 60 GW.

While the industry is expected to continue to grow during the coming five years, it’s not going to be easy. It will be especially tough for manufacturers, with chronic over supply adding to existing downward price pressure from general economic conditions to cut margins dramatically.

The offshore market is likely to be driven by the United Kingdom and Germany, while France and Sweden also have significant projects in the pipeline. The interest in offshore wind is also increasing in China which already has around 150 MW in the water and has plans to deploy 5 GW by 2015 and 30 GW by 2020, while the United States has also discussed significant deployment.

Asia, Europe and North America will continue to drive new capacity additions in the near future. China is likely to continue to dominate new capacity additions, as ambitious plans and supportive policies align. Although new capacity additions may not grow as rapidly as they have in recent years, China plans to reach 200 GW of installed capacity by 2020.

India is likely to emerge as an important new market, with capacity additions of 2 GW to 3 GW per year. Overall, new capacity additions in Asia could increase from 21.5 GW in 2010 to 28 GW in 2015 (GWEC, 2011). This implies that by2015 Asia could have a total of 185 GW of installed wind capacity, displacing Europe as the region with the highest installed capacity.

This research report provides a comprehensive analysis of the World Wind Power Industry including:

Overview of wind power technologies;

Analysis of the global market for wind power followed by a country-by-country analyses;

Analysis of onshore and offshore wind power by country

Analysis of the Small-wind turbine market

Profiles of major onshore and offshore wind farms;

Profiles of major industry players

Top 10 countries for wind-energy production in 2011:

Country, GWs Added in 2011, Total GW

China 17.6 62.4

US 6.8 46.9

Germany 2.1 29

Spain 1 21.7

India 3 16.1

France 0.8 6.8

Italy 1 6.7

Canada 1.3 5.3

Portugal0.4 4.1

Denmark 0.2 3.9

This Global Wind Power report also includes an in-depth analysis of the major industry players such as Acciona, Gamesa, and Vestas. Smaller and emerging wind power companies are also profiled, making this a valuable report for wind industry vendors, manufacturers, government agencies, and investors.

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