# China Wind Energy Profile Link

## China

According to the third National Wind Energy Resources Census, China?s total exploitable capacity for both land-based and offshore wind energy is around 700-1,200 GW. Compared to the other leading global wind power markets, China?s wind resources are closest to that of the United States, and greatly exceed resources in India, Germany or Spain.

**Market Developments in 2010**
Due to varied wind resources across China and differing technical and economic conditions, wind power development to date has been focused on a few regions and provinces, including: Inner Mongolia, the Northwest, the Northeast, Hebei Province, the Southeast coast and offshore islands.
China?s wind market doubled every year between 2006 and 2009 in terms of total installed capacity, and it has been the largest annual market since 2009. In 2010, China overtook the United States as the country with the most installed wind energy capacity by adding 16,500 MW* over the course of the year, a 64% increase on 2009 in terms of cumulative capacity, reaching 42.3 GW in total.
According to Bloomberg New Energy Finance, the growth in installed capacity was driven by a record level of investment in wind power in China, which exceeded USD 20 billion in 2009. In the third quarter of 2010, China?s investment in new wind power projects accounted for half of the global total. In addition, the Chinese government report ?Development Planning of New Energy Industry? calculated that the cumulative installed capacity of China?s wind power will reach 200 GW by 2020 and generate 440 TWh of electricity annually, creating more than RMB 250 billion (EUR 28 bn / USD 38 bn) in revenue.

TOTAL INSTALLED CAPACITY

| year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2 |
|---|---|---|---|---|---|---|---|---|---|
| MW | 404 | 470 | 568 | 765 | 1,272 | 2,559 | 5,871 | 12,020 | 25, |



Total Installed Capacity for China

**Chinese Wind Power Sector**
2010 was also an important year for Chinese wind turbine manufacturers, as four companies, including Sinovel, Goldwind, UnitedPower and Dongfang Electric, are part of the world's top ten largest wind turbine manufacturers, and are beginning to expand into overseas markets. Driven by global development trends, Chinese firms, including Sinovel, Goldwind, XEMC, Shanghai Electric Group and Mingyang, have entered the competition to manufacture wind turbines of 5 MW or more.
China?s wind power generation market is mainly shared among the ?Big Five? power producers and several other major state-owned enterprises. These firms account for more than 80% of the total wind power market. The largest wind power operators, Guodian (Longyuan Electric Group), Datang and Huaneng expanded their capacity by 1-2 GW each during the year, while Huadian, Guohua and China Guangdong Nuclear Power are following close behind. Most of the local state-owned non-energy enterprises, as well as foreignowned and private enterprises have retreated from the market. Access to finance is generally not a problem for wind power projects.

**The Renewable Energy Law and the Chinese Feed In Tariff**
The breathtaking growth of the Chinese wind energy industry has been driven primarily by national renewable energy policies. The first Renewable Energy Law entered into force in 2006, and gave huge momentum to the development of renewable energy. In 2007, the first implementation rules for the law emerged, giving further impetus to wind energy development. In addition, the ?Medium and Long-term Development Plan for Renewable Energy in China? from 2007 set out the government?s long term commitment and put forward national renewable energy targets, policies and measures for implementation, including a mandatory market share of 1% of non-hydro renewable energy in the total electricity mix by 2010 and 3% by 2020.
In 2009, the Renewable Energy Law was amended to introduce a requirement for grid operators to purchase a certain fixed amount of renewable energy. The amendment also requires grid companies to absorb the full amount of renewable power produced, also giving them the option of applying for subsidies from a new ?Renewable Energy Fund? to cover the extra cost related to integrating renewable power if necessary.
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**Grid Connection Problem**
The rapid development of wind power in China has put unprecedented strain on the country?s electricity grid infrastructure. This has become the biggest problem for the future development of wind power in the country, as some projects have to wait for several months before being connected to the national grid.
There are reports that a large share of China?s wind power capacity is not grid connected, but this is based on a fundamental misunderstanding, which has its source in the methodology used for calculating installed capacity. The Chinese Federation of Power Generation, which provides China?s energy statistics, only counts wind farms as operational from the moment that the last turbine of a project has become grid-connected. However, in reality, most of the installed wind turbines of a project are connected to the grid and generating power much earlier. This explains the much reported ?gap? between installation and grid connection which is often reported from China. In other markets, it is common practice to include all turbines that are grid connected, whether or not they constitute a completed wind farm.
Due to a lack of incentives, Chinese grid companies have been reluctant to accept large amounts of wind power into their systems. However, they have recently reached an agreement to connect 80 GW of wind power by 2015 and 150 GW by 2020. According to figures by the State Grid, at the end of 2010, 40 billion RMB (EUR 4.5 bn / USD 6.1 bn) had been invested to facilitate wind power integration into the national power grid.

**Outlook 2011 & Beyond**
Despite its rapid and seemingly unhampered expansion, the Chinese wind power sector continues to face significant challenges, including issues surrounding grid access and integration, reliability of turbines and a coherent strategy for developing China?s offshore wind resource. These issues will be prominent during discussions around the twelfth Five-Year Plan, which will be passed in March 2011. According to the draft plan, this is expected to reflect the Chinese government?s continuous and reinforced commitment to wind power development, with national wind energy targets of 90 GW for

2015 and 200 GW for 2020.