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OPINION: China's Wind Power Development Exceeds Expectations

by Junfeng Li on June 2, 2008

A recent boom in Chinese wind power development has surpassed the government's original target and forced policymakers to set a new goal that might still be too modest.

In 2007, cumulative wind installations in China exceeded 5 gigawatts (GW), the goal originally set for 2010 by the National Development and Reform Commission (NDRC), China's top economic planner. The Commission had set the target in its 2006 mid- and long-term development plan for renewable energy. The plan's target for 2020 was 30 GW, a level that is now projected to be reached by 2012, eight years ahead of schedule.

In March, the NDRC revised its mid-term target, doubling it from 5 GW to 10 GW for 2010. Yet this new goal is still too modest, with wind installations likely to reach 20 GW by 2010 and 100 GW by 2020. China is witnessing the start of a golden age of wind power development, and the magnitude of growth has caught even policymakers off guard.

China's wind power sector has experienced tremendous development since early 2005, when the government enacted its landmark [national renewable energy law](#). Added installed capacity grew by over 60 percent in 2005, and it more than doubled in both 2006 and 2007. By the end of 2007, cumulative capacity had reached roughly 6 GW, ranking China fifth in the world in wind installations. The country added 3.3 GW in 2007 alone, trailing only the United States and Spain. In total, the world installed 94 GW of wind power that year, with

Germany accounting for about 20 GW and the United States 16 GW.

The breathtaking growth of Chinese wind power illustrates how effective government policy can influence the market. Since the issuing of the renewable energy law, the government has enacted a series of policies to facilitate wind power development. One important step has been to improve the [wind power pricing regulation](#), which uses a competitive bidding process to determine the price of wind power. Through five rounds of public tendering to issue wind concessions, policymakers have explored ways to further improve pricing and disperse worries in the industry about excessively low bidding hindering further development.

By 2007, the NDRC had evaluated and approved pricing schemes for more than 60 projects, taking into consideration local conditions and other major benchmarks, including a provision that a minimum of 70 percent of a wind turbine's components be manufactured locally. The more sophisticated pricing schemes have stabilized China's wind power market, while the benchmark of turbine localization has provided market-entry opportunities for fledgling domestic manufacturers. The government also supports wind power through tax incentives and subsidies.

In addition to policies and regulations related directly to renewable energy and wind power, climate change considerations have played a major role in encouraging China's wind sector. As the only country in the world that has set up a national leading group for responding to climate change, headed by Premier Wen Jiabao, China is stressing measures to tackle the challenge through all levels of government. Developing a low-carbon economy and using cleaner, renewable energy sources provide an attractive option. As a result, regions with rich wind resources are readily embracing wind power development; Inner Mongolia, Gansu, and Jiangsu are all embarking on constructing 10 GW wind power bases.

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Policy incentives and government prioritization have sent a clear signal to the market, and investors are springing into the nascent realm for big growth. What has surprised even policymakers is the exponential growth of China's domestic wind turbine manufacturing industry. Only a few small turbine manufacturers existed before 2005, and most turbines and key components were imported. Over the past three years, however, domestic manufacturers have increased their

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investment and expanded quickly, while all major international wind turbine manufacturers have started to set up local factories.

By 2007, China's turbine manufacturing capacity exceeded 3 GW. It is expected to double in 2008, roughly sufficient to meet domestic needs for the equipment. The country is projected to see 10-15 GW of wind turbine capacity by 2012-not only meeting domestic demands, but also becoming a major exporter of wind turbines.



Poll

Do you think the free market is compatible with sustainability?:

- Yes
- No

Top Ten Wind Turbine Manufacturers in China, by Cumulative Market Share, 2007

Manufacturer	Country	Capacity (kilowatts)	Share of total capacity (percent)
Goldwind	Domestic	1,497,300	25.4
Gamesa	Spain	1,044,200	17.7
Vestas	Denmark	855,500	14.5
Sinovel	Domestic	754,500	12.8
GE	United States	492,000	8.3
DEC	Domestic	237,000	4.0
Suzlon	India	218,750	3.7
Nordex	Germany	184,750	3.1
NEG Micon	United States	151,950	2.6
CASC-Acciona	Joint Venture	100,500	1.7

Source: Shi Pengfei, *China's Wind Power Installation Capacity Statistics*, 2007, China Wind Energy Association

Domestic wind turbine technology is catching up quickly. Before 2005, China was able to manufacture turbines of only up to 600 kilowatts (kW). But policy incentives have helped to accelerate technological upgrades. The country made its first 750 kW turbine in 2005, which became the mainstream market type for 2006 and 2007. In 2006, China produced its own 1,500 kW wind turbines, which entered the market in large quantities in 2007. In late 2007, the first 2,000 kW turbine was ready for testing, and it is expected to enter the market in 2008. Meanwhile, the country is developing a 3,000 kW turbine, projected to be ready for testing in 2009. The accelerated progress has narrowed the technological gap between domestic

manufacturers and top international producers.

The latest powerful push came in late 2007 from the State Council, the country's top policymaking body. In its white paper on national energy policies, the Council stressed energy diversification and prioritized clean and low-carbon energy. For the first time, it also eliminated the chronic rhetoric of "using coal as the primary energy source." China's draft energy law, currently in the comment-seeking period, will provide a more solid policy framework for renewable energy development once finalized.

Currently, coal-fired power still provides the lion's share of China's energy, at roughly 70 percent. In 2007, the country added some 88.3 GW of coal-power generation capacity, an increase of 14.6 percent. However, the country registered a decline of 9 percent in coal-power capacity in 2006.

Wind power is said to already be more cost effective than oil, natural gas, and nuclear power generation in China. As the stability and predictability of the sector attract greater investment, it is widely believed that wind power will be able to compete with coal generation by as early as 2015. That will be the turning point in China, which by then will be the world's largest energy consumer.

Junfeng Li is Secretary General of the China Renewable Energy Industries Association (CREIA) and co-author of the Worldwatch Institute Report [Powering China's Development: The Role of Renewable Energy](#). Lingjuan Ma of CREIA and Yingling Liu of Worldwatch Institute also contributed to the article.

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[One of the facts of wind](#)

Submitted by [PrasadRao](#) on June 4, 2008 - 8:48am.

One of the facts of wind power generation is the rapid growth in capacity to manufacture large capacity wind power systems. As your story reveals, manufacturers now are capable of erecting wind systems of capacity 2 MW and more. I write to point out what this means for

smaller installations, which were, in my opinion, located in some of the prime wind territories. The advance of technology and the economies of scale inherent in the production of larger systems could conceivably justify replacing the smaller wind turbines with larger capacity systems. In other words, as technology develops, there opens a possibility of 'relocating' wind systems of different capacities to match on one hand wind characteristics, and on the other transmission availability and demand/pricing regimes. Prasad Rao <http://myprofile.cos.com/gangar>

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