

INDUSTRY OVERVIEW

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OVERVIEW OF THE PRC ECONOMY

The PRC is one of the fastest growing economies in the world; between 2001 and 2008 its real GDP grew at a CAGR of 10.5%. According to the Eleventh Five Year Plan for National Economy and Social Development (the “Eleventh Five Year Plan”), the PRC government expects to achieve an average 7.5% annual GDP growth during the period from 2006 to 2010.

Since 2001, electricity generation in the PRC has grown at a rate higher than the PRC’s GDP in most years. The faster growth of electricity generation since 2001 has largely been driven by rapid industrialization and also by rising residential electricity demand as per capita income increased.

Year	Real GDP Growth Rate Over Preceding Year	Electricity Generation Growth Rate Over Preceding Year
	(%)	(%)
2001	8.3	9.2
2002	9.1	11.7
2003	10.0	15.5
2004	10.1	15.3
2005	10.4	13.5
2006	11.6	14.6
2007	13.0	14.5
2008	9.0	4.6

Sources: International Monetary Fund, World Economic Outlook Database, April 2009; BP Statistical Review of World Energy June 2009

However, as shown below, while the economic growth rate in the PRC is among the highest of that of the countries and regions presented, the PRC has the lowest per capita electricity generation among the countries and regions presented.

Year	2008 Per Capita Electricity Generation	Real GDP Growth Rate				
		2004	2005	2006	2007	2008
	(kWh)	(%)	(%)	(%)	(%)	(%)
United States	14,178	3.6	2.9	2.8	2.0	1.1
South Korea	9,533	4.6	4.0	5.2	5.1	2.2
Japan	9,040	2.7	1.9	2.0	2.4	(0.6)
Singapore	8,937	9.3	7.3	8.4	7.8	1.1
Hong Kong	5,420	8.5	7.1	7.0	6.4	2.5
China	2,586	10.1	10.4	11.6	13.0	9.0

Sources: BP Statistical Review of World Energy June 2009; International Monetary Fund, World Economic Outlook Database, April 2009

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THE PRC ELECTRICITY GENERATION INDUSTRY

Supply and Demand for Electricity in the PRC

Electricity generation in the PRC has grown rapidly in recent years. From 2001 to 2008, electricity generation in the PRC grew at a CAGR of 12.8%, faster than the PRC’s real GDP CAGR of 10.5% over the same period. In 2008, industrial consumption accounted for 74.5% of the PRC’s electricity consumption.

The PRC had an aggregate installed capacity of approximately 793 GW at the end of 2008. As shown in the following table, the PRC’s total electricity generation grew faster than its installed capacity since 2001, resulting in increasing utilization hours from 2001 to 2004. However, starting in 2005, installed capacity began to outpace demand for power throughout the PRC. This trend has caused utilization hours to decrease between 2004 and 2008.

Year	Total Installed Capacity (GW)	Total Electricity Generation (TWh)	Utilization Hours ⁽¹⁾ (hours)
2001	338.6	1,480.8	4,501.4
2002	356.6	1,654.0	4,758.5
2003	391.4	1,910.6	5,108.6
2004	442.4	2,203.3	5,285.0
2005	517.2	2,500.3	5,211.2
2006	623.7	2,865.7	5,023.7
2007	713.3	3,281.6	4,908.9
2008	792.5	3,433.4	4,560.2

Sources: China Electric Power Yearbook 2008; China Electricity Council; BP Statistical Review of World Energy June 2009

(1) Total electricity generation of a year divided by the average amount of the total installed capacity for the same year and the previous year multiplied by 1,000

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The following table sets out, as of June 30, 2009 and in each province and municipality in the PRC, the total power installed capacity (with unit capacity over 6,000KW), wind power installed capacity, and net power generation by all power sources.

	Total power installed capacity (with unit capacity over 6,000KW)	Wind power installed capacity	Net power generation by all power sources
	(MW)	(MW)	(GWh)
Beijing	5,820	50	30,440
Tianjin	7,510	—	21,927
Hebei	34,480	990	94,165
Shanxi	37,040	40	44,030
Inner Mongolia	49,900	3,320	51,195
Liaoning	23,270	1,390	54,676
Jilin	14,290	1,260	18,975
Heilongjiang	18,190	970	24,442
Shanghai	16,850	40	41,483
Jiangsu	54,480	760	119,264
Zhejiang	48,430	180	93,394
Anhui	27,940	—	33,134
Fujian	24,960	300	43,771
Jiangxi	11,670	60	21,321
Shandong	58,070	480	95,952
Henan	46,550	—	79,416
Hubei	42,300	10	39,852
Hunan	23,350	—	36,141
Guangdong	53,490	280	141,532
Guangxi	23,310	—	31,542
Hainan	2,850	60	4,790
Chongqing	10,430	—	18,812
Sichuan	31,920	—	44,155
Guizhou	25,300	—	50,771
Yunnan	20,560	80	39,397
Tibet	—	—	—
Shaanxi	19,840	—	27,469
Gansu	16,200	600	26,524
Qinghai	9,120	—	12,637
Ningxia	9,590	420	15,518
Xinjiang	10,930	520	13,968

Source: China Electricity Council 2009, July 17, 2009

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Fuel Sources and Supply

The PRC is a country rich in coal resources, but with relatively limited oil and gas resources. As such, coal electricity generation units have accounted for the majority of electricity generation installed capacity in the PRC. In addition to coal power generation, significant new electricity generation projects that utilize hydroelectric, natural gas, wind and nuclear energy as fuel sources are under development. The average coal price at the Qinhuangdao port of the PRC increased by 15.3% from 2006 to 2007, and further increased by 80.2% from 2007 to 2008. The following table sets forth the month end price of 6,800 Kcal/g coal at the Qinhuangdao port of the PRC during the Track Record Period.

Price (USD/ton)	2006	2007	2008	2009
January	48.0	59.0	99.0	92.0
February	48.5	NA	NA	97.5
March	49.0	66.0	132.5	87.0
April	49.5	66.5	126.3	89.7
May	50.9	66.0	91.0	91.0
June	51.0	71.8	90.0	90.0
July	51.3	74.0	87.0	87.0
August	52.0	74.4	165.7	89.7
September	52.0	74.3	NA	86.4
October	52.0	74.7	120.0	
November	NA	86.0	100.0	
December	NA	93.5	87.0	

Source: Bloomberg

Some of these new fuel types such as hydroelectricity and wind do not use traditional fuels and effectively protect the generation companies against adverse impact of traditional fuel cost fluctuation. The following table sets forth total installed electricity generation capacity in the PRC by fuel type as of December 31, 2007.

Fuel Type	As of December 31, 2007 Installed Capacity by Fuel Type (%)
Coal	77.7
Hydro	20.4
Nuclear	1.2
Wind	0.6
Others	0.1
Total	<u>100.0</u>

Source: China Electricity Council

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Future Plans for the PRC Power Industry and the Eleventh Five Year Plan

Energy scarcity and environmental deterioration are major global concerns. Due to rapid economic development, rising living standards and continuous increase in per capita energy consumption in the PRC, energy shortage has been a limiting factor for China’s economic development. As such, in the outline of the Eleventh Five Year Plan published in 2005, the PRC Government suggested a number of energy conservation and environmental protection policies and national targets. Some of the PRC Government’s targets mentioned in the Eleventh Five Year Plan include reduction of energy consumption per unit of GDP by 20% and significant expansion of highly efficient energy sources, including wind, hydroelectric, natural gas, nuclear, other renewable sources and cogeneration.

The table below sets forth the Eleventh Five Year Plan’s targeted increase in installed capacity for the power industry by fuel type.

Fuel Type	Eleventh Five Year Plan Incremental Installed Capacity by Fuel Type	
	Total Incremental Installed Capacity (GW)	% of Total
Coal	87.4	53.0
Hydro	45.1	27.3
Gas	13.6	8.3
Nuclear	4.0	2.4
New Energy ⁽¹⁾	1.0	0.6
Other	13.9	8.4
Total	<u>165.0</u>	<u>100.0</u>

Source: Power Industry Eleventh Five Year Plan and 2020 Development Plan

(1) According to the United Nations Conference on New and Renewable Sources of Energy (1981), new energy primarily includes wind power, solar power, biomass power, and tidal power as well as other non-fossil-fuel-based energy sources.

Background and Restructuring of the PRC Power Industry

In January 1997, the State Power Corporation was established to take ownership of state-owned power generation assets and virtually all of the high voltage power transmission grids and local electricity distribution networks in the PRC. The State Power Corporation was responsible for the investment, development, construction, management, operation and ownership of power plants, the inter-connections of interprovincial and interregional electricity grids, and the transmission of electricity across regions.

In March 1998, the SETC was established to assume the governmental and administrative functions in relation to the power industry. The Electric Power Bureau was established within the SETC and given the responsibility of promoting reform policies and regulations, formulating development strategies, specifying technical requirements and industry practice and supervising the operation of the power industry.

As a result of further restructuring of the PRC power industry, in December 2002, the State Power Corporation was reorganized into two power grid companies and five large independent power generation groups. The two power grid companies are the State Grid Corporation of China (“State Grid”) and the China Southern Power Grid Company (“Southern Grid”). The State Grid owns and manages five regional power grid companies, namely, northeast China, north China, east China, central China and northwest China power grids, which in turn own and operate interprovincial high voltage power transmission grids and local power

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distribution networks in 24 provinces (regions). The State Grid also manages the Tibet Power Grid. Southern Grid owns and manages interprovincial high voltage power transmission grids and local power distribution networks in five provinces (regions) including Guangdong, Guizhou, Yunnan and Hainan provinces, and Guangxi Zhuang Autonomous Region.



As of 2007, the five largest electricity generation groups owned and managed approximately 42% of the total installed electricity generation capacity available in the PRC. The remaining 58% was primarily owned by provincial, local and other power companies. The table below sets out the approximate installed capacity in the PRC controlled by the five large independent electricity generation groups:

Power Generation Groups	2007 Total Installed Capacity ⁽¹⁾ (GW)
China Huaneng Group	71.3
China Datang Corporation	64.2
China Huadian Corporation	62.8
China Guodian Corporation	59.9
China Power Investment Corporation	42.1
China Resources Power Holdings Company Limited ⁽²⁾	22.1
Others	390.9
Total	713.3

Source: China Electricity Industry Annual Development Report 2008, China Resources Power Holdings Co. Ltd. Annual Report

(1) Using total consolidated installed capacity

(2) Includes capacity of China Resources Power Holdings Company Limited only; does not include capacity of other members of the China Resources group.

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Pursuant to the on-going reform of the electric power industry, a new industry regulator, the SERC, was established under the State Council in 2002. The main responsibilities of the SERC include ensuring fair competition in the electric power industry, monitoring the quality and standard of power plant production, administering electric power business permits and handling electric power market disputes.

In July 2004, the State Council issued further guidance on approval requirements for different types of power plants. For example,

- wind power plants at or above 50 MW in installed capacity need approval from the NDRC; others need approval from regional development and reform commissions or other equivalent authorities;
- coal power plants need approval from the NDRC; and
- hydro power plants on major rivers at or above 250 MW in installed capacity need approval from the NDRC; others need approval from regional development and reform commissions or other equivalent authorities.

Transmission and Dispatch

All electricity generated in the PRC is dispatched by power grid companies, except for that generated by power plants which are not connected to a grid. Power plants liaise with the relevant power grid companies annually to determine the volume of output to be dispatched. The electricity dispatched to each grid is administered by dispatch centers owned and operated by the power grid companies.

The main system for the transmission and distribution of power in the PRC consists of the five interprovincial power grids owned by State Grid and six power grids owned by Southern Grid. The table below shows the aggregate installed capacity of the power plants connected to the power grids as a percentage of the total installed capacity in the PRC, and the total electricity generated on those grids as a percentage of the total electricity generated in the PRC in 2007.

Power Grid	2007	
	Installed Capacity	Electricity Generation
	(%)	(%)
State Grid		
East China Power Grid	24.2	24.4
Central China Power Grid	22.7	20.4
North China Power Grid	19.0	21.4
Northeast Power Grid	8.2	8.5
Northwest Power Grid	6.9	7.4
Southern Grid		
Guangdong Provincial Grid	8.7	8.7
Guizhou Provincial Grid	3.2	3.2
Yunnan Provincial Grid	3.3	2.9
Guangxi Provincial Grid	2.9	2.2
Tianshengqiao Plant	0.4	0.4
Hainan Provincial Grid	0.4	0.4
Nationwide total	<u>100.0</u>	<u>100.0</u>

Source: China Electric Power Yearbook 2008

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The PRC’s energy sources, such as coal and hydroelectric resources, are principally located in the northern, central and south western inland provinces, but the provinces with the highest electricity consumption are located in the eastern and southern coastal areas of the PRC. As a result of plans to develop large power plants in areas with abundant energy sources, the expansion of the PRC’s electricity transmission capabilities is of major importance. The PRC plans to expand the interconnected power grids to enable the transmission of electricity generated by mine-mouth power plants and hydroelectric power plants over long distances to areas of high consumption.

In order to achieve a more efficient and rational dispatch of electric power, the State Council issued, with effect from November 1, 1993, the Regulations on the Administration of Electric Power Dispatch to Networks and Grids (the “Dispatch Regulations”). Under the Dispatch Regulations, dispatch centers were established at each of the five levels: the national dispatch center, the dispatch centers of the interprovincial power grid, the dispatch centers of the provincial power grid, the dispatch centers of the power grid of municipalities under provinces and the dispatch centers of the county power grid. Dispatch centers are responsible for the administration and dispatch of planned output of power plants connected to the grid. Each power plant receives on a daily basis from its local dispatch center an expected hour-by-hour output schedule for the following day, based on expected demand, the weather and other factors.

The dispatch centers must dispatch electricity in compliance with the electricity consumption schedule. The electricity consumption schedule is generally determined according to, among other things: (1) power supply agreements entered into between a power grid and large or primary electricity customers, which take into account the electricity generation and consumption plans formulated annually by the PRC Government; (2) agreements entered into between a dispatch center and each power plant subject to its dispatch; and (3) interconnection agreements between power grids and the actual conditions of the grid, including equipment capabilities and safety reserve margins.

On-grid Tariffs

An on-grid tariff is the tariff that grid companies pay to generation companies. Different on-grid tariffs are applicable to planned output, excess output and output subject to competitive bidding. In general, the on-grid tariffs for planned output and excess output are subject to a review and approval processes involving the relevant provincial price bureaus and the NDRC. Each year, the relevant provincial government agency forecasts the electricity demand in the region based on the projected economic growth to determine total electricity output. Pursuant to such estimates, each power plant and the power purchaser reach an agreement on the amount of planned output and excess output. Additional output is subject to the competitive bidding of on-grid tariffs.

The PRC Electric Power Law, which came into effect in 1996, sets out the general principles for determining on-grid tariffs in China. Under the PRC Electric Power Law, the on-grid tariffs granted to a power producer are formulated to provide reasonable compensation for costs as well as a reasonable return on investment.

In April 2001, a new on-grid tariff setting mechanism for planned output was issued. This new mechanism is based on the operating term of a power plant as well as the average cost of technologically comparable power plants that were constructed during the same period within the same provincial grid. In March 2005, the NDRC issued a new legislation with respect to the on-grid tariff setting mechanism. Under this new legislation, on-grid tariff will be determined by the provincial price bureaus based on the number of years a power plant has been in operation. The rule also seeks to provide reasonable compensation and return to the IPPs. In particular, reasonable return is determined by adding a certain premium to the long-term government bond yield.

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In order to reduce environmental pollution, the NDRC has also provided incentives for IPPs to install desulphurization equipment. In June 2006, the NDRC announced an on-grid tariff premium of RMB15/MWh for all plants which had installed and operated flue gas desulfurization equipment and had acquired the final acceptance from relevant authorities before the end of 2006.

In December 2004, the NDRC issued a power pricing reform plan to address the adverse effects on increased coal costs on IPPs. Under this reform plan, electricity tariffs may be adjusted upwards as coal prices increase. In essence, IPPs are allowed to pass through 70% of increases in coal prices to power grids through increases in on-grid tariffs. However, the actual tariff adjustment is calculated by a more complicated formula using factors such as net generation standard coal consumption rate and coal heat value. When the average coal price increases by more than 5% within a six-month period, 70% of such increases could be passed through to power grids through an increase of on-grid tariffs, while IPPs will bear the remaining 30% of the increased coal costs. If the average coal prices increase by less than 5% within such six-month period, the on-grid tariffs will remain unchanged. This new policy will use the sale prices of thermal coal as of the end of May 2004 as the base for calculating the fluctuation of the average coal prices during the following six-month period.

In 2007, despite further increases in coal price, due to the PRC government's intention to suppress inflation, there was no further increase of on-grid tariffs and retail power tariffs, which are the tariffs consumers pay to grid companies.

On July 2, 2008, the NDRC announced the details of an on-grid tariff increase by the provincial authorities. The national average on-grid tariff hike was RMB17-18/MWh. On August 19, 2008, the NDRC announced a further overall increase in on-grid tariff of RMB10-25/MWh, averaging RMB20/MWh (including 17% VAT), without adjusting the retail tariffs.

Since 1998, the PRC Government has begun to experiment with conducting electricity sales through a competitive bidding process in several provinces. For conventional coal power plants, electricity produced in excess of the planned output will be sold to the grid on a competitive basis against other plants according to a mechanism known as power pooling. The power pooling concept has been piloted in eastern China, northeastern China and southern China. Each day, power plants submit generation capacity and prices for every 15-minute slot of the following day. The grid companies will then select those plants with the lowest prices and the final on-grid tariff will be the market clearing price. The power pooling process typically results in a lower selling price than the tariffs received from the electricity dispatched as part of the planned output.

However, not all plants are under the power pooling program. According to a SERC regulatory release in March 2006, power plants are categorized into two types: Type A and Type B. Type A plants are subject to the power pooling program, while Type B plants are not currently subject to the power pooling program.

Type A plants refer to plants that own coal units with single turbine capacity above 100 MW. Type B plants refer to plants that own the following units, including:

- coal units with single turbine capacity below 100 MW;
- cogeneration units;
- gas-fired units;
- oil-fired units;
- wind power, waste and other renewable energy units;
- nuclear units;
- hydro units; and
- other non-Type A units.

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THE RENEWABLE POWER GENERATION INDUSTRY

Renewable power generation technologies include, among others, wind, solar (thermal and photovoltaic), mini-hydro, biomass, wave and tidal. According to “World Energy Outlook 2008” by the International Energy Agency, the share of renewable energy in the world electricity generation market is 18% in 2006, and is expected to account for 20% in 2015 and 23% in 2020. The principal factors which contribute to increased demand for renewable energy include:

- concern over the security of energy supply in developed countries;
- increased worldwide environmental awareness and concern for environmental sustainability; and
- renewable energy technologies becoming more economically efficient.

Overview of a Wind Farm

The principal component of a wind farm is the wind turbines. Each wind turbine comprises three blades, a nave, a gearbox, a generator, a cabin, a supporting tower and certain other secondary support systems. The remainder of the wind farm infrastructure includes access roads, concrete foundations, an electrical collection system, a step-up substation, and a box-type transformer as well as a control building.

Wind causes the blades to rotate, which spins the rotor to which they are connected. The energy generated by this rotor is then transmitted to a generator that produces electric currents, thereby transforming the force of the wind into mechanical energy, which is transformed again into electrical power. Through the electrical collection system, electric power feeds into a step-up substation, in which a power transformer converts the low/medium voltage from the collection system to the high voltage level of the local grid. The substation allows the power to flow to the grid at a pre-determined voltage.

Wind turbines are grouped into various design classes, primarily depending on maximum wind speed and the turbine’s ability to withstand turbulence. Average annual wind speeds and turbulence levels vary widely between project sites, and a wind power company’s ability accurately to select, procure and allocate the most appropriate class of wind turbine for different sites increases its competitiveness and profitability, by achieving optimal output while conforming to the technical requirements of each individual turbine. The total installed capacity of a wind farm varies from project to project, driven largely by the site characteristics, available land, grid connection and limits imposed by the relevant planning consent and other government permits and approvals governing the project’s construction.

Global Wind Power Industry

Wind is the fastest growing renewable energy technology in the world due to its cost efficiency, resource availability and the maturity of the technology in comparison to other types of renewable energy technologies. According to BTM, global wind installed capacity grew at a CAGR of 24.8% from 2003 through 2008, bringing cumulative installed capacity from 40,301 MW as of December 31, 2003 to 122,158 MW as of December 31, 2008.¹ The 28,190 MW of additional global wind capacity installed in 2008 (approximately 42% growth) set an industry record, notwithstanding wind turbine supply constraints that restricted wind farm development. The strong growth during 2008 was mainly due to the Production Tax Credit (“PTC”) in the United States, which is due to remain in force until the end of 2009. Another reason for the strong growth was a significant increase in China, which doubled its capacity compared to 2007.

¹ Founded in 1986, BTM is a private independent consultancy company based in Denmark and specialized in renewable energy including wind energy. BTM states on its website that its staff has been working with wind energy utilization since 1979. Services provided by BTM include market assessment and business development, appraisal and due diligence investigations. It publishes, among other things, International Wind Energy Development - World Market Update, a non-governmental publication, on an annual basis since 1995 containing statistics and market updates of the worldwide wind energy industry. BTM states on its website that it believes that it is vital that its advice be impartial and guards its independence carefully. It also states on its website that it has, through years of international involvement, established a technology base with a network of contacts all over the world, which enables it to follow international policy development closely. The Directors did not commission BTM to prepare any research report and BTM is an independent third party of the Group.

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BTM expects that global wind installed capacity will increase at a CAGR of 22.9% between 2008 and 2013, reaching 343,153 MW in 2013. The following table sets forth BTM’s global and regional wind capacity growth in 2008 and expectations for 2009 through 2013.

Forecast for Wind Power Development 2009-2013

Year End Installed Capacity (MW)

Region	2008	2009E	2010E	2011E	2012E	2013E	08-13E CAGR
Europe	65,971	77,551	91,056	106,956	125,036	145,186	17.1%
Americas	28,918	36,568	47,018	59,468	75,668	93,968	26.6%
South & East Asia	22,174	31,824	42,124	54,524	67,924	83,224	30.3%
OECD-Pacific ⁽¹⁾	4,256	5,356	6,706	8,306	10,206	12,456	24.0%
Other Areas	840	1,485	2,520	3,990	5,800	8,320	58.2%
Total	122,158	152,783	189,423	233,243	284,643	343,153	22.9%

Sources: International Wind Energy Development, March 2009 (BTM)

(1) Organization for Economic Co-operation and Development in Pacific region, includes Australia, New Zealand and Japan

As of year end 2008, Europe represented 54.0% of global wind installed capacity but, according to BTM, in the future the global wind power market will continue to diversify geographically from Europe to the Americas and South & East Asia Pacific regions. BTM expects the Americas and South & East Asia Pacific regions to experience greater growth in relative terms than Europe; from 2008-2013, the Americas and South & East Asia Pacific regions’ wind installed capacity are projected to grow at 26.6% and 30.3% respectively while Europe’s is projected to grow only 17.1%.

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Regional Wind Power Markets

Europe

Europe is the largest wind power market in terms of installed capacity, with 65,971 MW at the end of 2008. Within Europe, Germany and Spain are the two largest wind markets, with 23,933 MW and 16,453 MW at the end of 2008. The following table sets forth BTM’s wind capacity growth expectations for Europe on a national basis from 2008 through 2013.

Forecast for Wind Power Development 2008-2013

Year End Installed Capacity (MW)

Region	2008	2009E	2010E	2011E	2012E	2013E	08-13E CAGR
Germany	23,933	25,533	27,333	29,733	32,233	35,233	8.0%
Spain	16,453	18,453	20,453	22,953	24,953	27,453	10.8%
Italy	3,731	4,831	6,031	7,531	9,031	10,531	23.1%
France	3,671	5,271	7,071	9,171	11,671	14,371	31.4%
UK	3,263	4,863	6,863	9,063	11,563	14,363	34.5%
Denmark	3,159	3,484	3,784	3,884	4,384	4,534	7.5%
Portugal	2,829	3,729	4,729	5,729	6,729	7,929	22.9%
Netherlands	2,222	2,472	2,772	3,022	3,422	3,822	11.5%
Greece	1,102	1,302	1,502	1,802	2,102	2,402	16.9%
Sweden	1,024	1,424	1,924	2,424	3,174	3,924	30.8%
Ireland (Rep.)	1,015	1,215	1,415	1,715	2,015	2,365	18.4%
Austria	997	1,047	1,247	1,447	1,747	2,047	15.5%
Turkey	512	762	1,062	1,512	2,012	2,512	37.5%
Poland	472	772	1,072	1,572	2,272	3,272	47.3%
Belgium	385	485	915	1,015	1,345	1,545	32.0%
Norway	385	585	885	1,385	2,085	3,085	51.6%
Hungary	162	212	312	412	612	862	39.7%
Czech Rep.	138	188	238	338	488	638	35.8%
Finland	113	163	263	463	663	863	50.2%
Rumania	76	176	276	426	576	776	59.2%
Lithuania	71	121	171	246	346	446	44.4%
Estonia	67	117	167	242	342	442	45.8%
Bulgaria	66	116	191	291	391	541	52.3%
Latvia	29	79	129	204	279	379	67.2%
Switzerland	13	43	93	143	218	318	89.5%
Rest of Europe: Other East European and Baltic Countries	84	109	159	234	384	534	44.8%
Total Europe⁽¹⁾	65,971	77,552	91,057	106,957	125,037	145,187	14.4%

Source: International Wind Energy Development, March 2009 (BTM)

(1) The total numbers in this table may not match the total numbers for this region in the table headed “Forecast For Wind Power Development 2009-2013”.

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Americas

The Americas is the second largest wind power market in terms of installed capacity, with 28,918 MW at the end of 2008. Within the Americas, the United States is the largest wind market, with 25,237 MW at the end of 2008. The following table sets forth BTM’s wind capacity growth expectations for the Americas on a national basis from 2008 through 2013.

Forecast for Americas Wind Power Development 2008-2013

Year End Installed Capacity (MW)

Region	2008	2009E	2010E	2011E	2012E	2013E	08-13E CAGR
U.S.	25,237	31,237	39,737	49,737	62,737	77,237	25.1%
Canada.	2,371	3,371	4,571	6,071	8,071	10,571	34.8%
Brazil	687	987	1,287	1,687	2,187	2,687	31.4%
Mexico	332	582	882	1,182	1,582	1,982	43.0%
Other Americas	291	391	541	791	1,091	1,491	38.6%
Total Americas⁽¹⁾	28,918	36,568	47,018	59,468	75,668	93,968	26.6%

Source: International Wind Energy Development, March 2009 (BTM)

(1) The total numbers in this table may not match the total numbers for this region in the table headed “Forecast For Wind Power Development 2009-2013”.

South and East Asia

Asia is the third largest wind power market in terms of installed capacity, with 22,174 MW at the end of 2008. Within Asia, China is the largest wind power market, with 12,121 MW at the end of 2008. The following table sets forth BTM’s wind capacity growth expectations for Asia on a national basis from 2008 through 2013.

Forecast for South and East Asia Wind Power Development 2008-2013

Year End Installed Capacity (MW)

Region	2008	2009E	2010E	2011E	2012E	2013E	08-13E CAGR
P.R. China.	12,121	19,421	26,921	35,421	44,421	54,921	35.3%
India	9,655	11,755	14,255	17,755	21,505	25,505	21.4%
Taiwan.	369	569	819	1,119	1,569	2,169	42.5%
Rest of Asia: Indonesia, N. Korea, Malaysia, Philippines, Thailand, Vietnam, etc..	28	78	128	228	428	628	86.3%
Total South and East Asia⁽¹⁾	22,174	31,823	42,123	54,523	67,923	83,223	30.3%

Source: International Wind Energy Development, March 2009 (BTM)

(1) The total numbers in this table may not match the total numbers for this region in the table headed “Forecast For Wind Power Development 2009-2013” above.

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China

In China, wind power installed capacity for the six years from 2002 to 2007 was 473 MW, 571 MW, 769 MW, 1,264 MW, 2,588 MW and 5,875 MW, respectively. The newly installed capacity during 2008 reached 6,246 MW, increasing its cumulative capacity to 12,121 MW. This has exceeded the PRC government's original short term target for 5GW by 2010. In terms of national policy, the NDRC released its Medium and Long-Term Development Plan for Renewable Energy in August 2007. This sets out targets for renewables up to 2020, with a 10% contribution to total energy consumption by 2010 and 15% by 2020. To meet its commitment, the PRC government has announced its intention to invest about \$200 billion in the development of renewable energy. The Medium and Long-Term Development Plan also set a target for wind energy capacity to reach 30 GW in 2020. Because recent and forecasted high growth rate in wind energy market, the Medium and Long-Term Development Plan forecasts wind energy to reach 100 GW in 2020, exceeding the original target by 70 GW. Additionally, this plan also includes a "mandated market share" policy, which sets targets for electricity from non-hydro renewable sources at 1% by 2010 and 3% by 2020. Given that electricity generated from photovoltaics and biomass is likely to be modest given its current rate of development, achievement of this aggressive target will likely rely heavily on wind power.

In terms of industrialisation of the domestic wind power industry, China now has more than 20 turbine manufacturers and is also building its own supply chain. The PRC government plans to have most of the wind equipment made by domestic suppliers by 2010 and to encourage the development of large-scale wind farms.

With a land mass of 9.56 million square kilometers and 32,000 km of coastline (including islands), China has abundant wind energy resources with significant development potential. According to the second general measurement of wind resources conducted by the PRC government at a height of ten meters in the late 1980s, the technically exploitable wind resources on land and offshore were respectively 253 GW and 750 GW. However, with the increased height of modern wind turbines, this potential will be much greater. At a hub height of 50 meters, China's wind resource could reach 3,000 GW, according to a forecast by the United Nations Environment Program.

The PRC government believes the areas for wind energy development in the PRC are Northern China and the South-Eastern coastal areas with high potential. Additionally, some parts of inland China influenced by lakes or other special topographic conditions also have abundant wind energy resources. The most abundant wind resources in Northern China include the regions of Inner Mongolia, Jilin, Liaoning, Heilongjiang, Gansu, Ningxia, Xinjiang and Hebei. The most abundant wind resources along coastal areas and offshore are found in Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi and Hainan.

According to BTM, of the global cumulative wind installed capacity of 122,158 MW at the end of 2008, China accounted for approximately 10% and was ranked the fourth largest country in terms of cumulative wind installed capacity at the end of 2008. BTM estimates that by the end of 2013, China's cumulative wind installed capacity will increase to 54,921 MW, accounting for 16% of the global cumulative wind installed capacity at that time and will become the second largest country in terms of cumulative wind installed capacity only after the U.S. BTM also expects that China will have the highest wind installed capacity CAGR from 2008-2013 among the top five countries in terms of cumulative wind installed capacity at the end of 2008, including U.S., Germany, Spain, China and India (in descending order of their installed capacity).

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The following table sets forth the estimated cumulative installed capacity during the period from 2008 to 2013, listed by country.

Country	2008 Year End Cumulative Installed Capacity	2013 Expected Cumulative Installed Capacity	2008-2013 Expected Installed Capacity Addition	2008-2013 Expected Installed Capacity CAGR
	(MW)	(MW)	(MW)	
China	12,121	54,921	42,800	35%
U.S.	25,237	77,237	52,000	25%
India	9,655	25,505	15,850	21%
Spain	16,453	27,453	11,000	11%
Germany	23,933	35,233	11,300	8%
Other countries except China	110,037	288,232	178,195	21%

Source: International Wind Energy Development, March 2009 (BTM)

The following table sets forth the 2008 China Wind Power Report’s estimate of China’s wind resources in selected provinces.

Country	Wind Installed Capacity	Total Installed Capacity	Penetration Rate ⁽¹⁾
	(MW)	(MW)	
China	12,121	792,500	1.5%
U.S.	25,237	960,036	2.6%
Germany	23,933	123,386	19.4%
Spain	16,453	86,840	18.9%

Sources: International Wind Energy Development, March 2009 (BTM), China Electricity Council, IHS Cambridge Energy Research Associates and Platts

(1) Wind installed capacity divided by the national total installed capacity in each country

China’s Wind Resources in Selected Provinces

Province	Technically exploitable wind resources
	(GW)
Inner Mongolia	≈150
Xinjiang	>100
Gansu	>100
Hebei.	>40
Jiangsu.	>10
Jilin.	>10

The uneven distribution of wind resources in China has influenced where wind power capacity will be installed in each province. Although the coastal and offshore areas have abundant wind resources, wind power production capacity has so far been located mainly in North China. As shown in the table below, Inner Mongolia, Liaoning, Hebei, Jilin are the most developed areas. The following table sets forth an estimate of China’s cumulative wind installed capacity and gross wind power generation as of June 30, 2009 by province as a percentage of the total nationwide installed capacity.

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June 30, 2009 wind power installed capacity percentage and gross power generation in China by province

Regions	Wind Power Installed Capacity	Wind Gross Power Generation
	(%)	(MWh)
Inner Mongolia	28.1%	3,808,850
Liaoning	11.8%	1,294,230
Jilin	10.7%	1,348,410
Hebei	8.4%	1,206,220
Heilongjiang	8.2%	1,237,320
Jiangsu	6.4%	627,880
Gansu	5.1%	493,600
Xinjiang	4.4%	614,230
Shandong	4.1%	466,460
Ningxia	3.6%	355,520
Fujian	2.5%	306,870
Guangdong	2.4%	320,130
Zhejiang	1.5%	175,660
Yunnan	0.7%	114,410
Jiangxi	0.5%	39,520
Hainan	0.5%	41,210
Beijing	0.4%	81,980
Shanxi	0.3%	—
Shanghai	0.3%	34,770
Hubei	0.1%	13,510
Tianjin	0.0%	—
Anhui	0.0%	—
Henan	0.0%	—
Hunan	0.0%	—
Guangxi	0.0%	—
Chongqing	0.0%	—
Sichuan	0.0%	—
Guizhou	0.0%	—
Tibet	0.0%	—
Shaanxi	0.0%	—

Source: As of Jun 2009, China Electricity Council 2009 Jul 17th

The leading wind farms operator in the PRC

In China, China Longyuan Electric Power Group Corporation Limited is the largest wind farm operator in terms of 2008 installed capacity accounting for 24.1% of 2008 cumulative wind installed capacity in China, according to BTM.

Company	2008 cumulative installed capacity	Percentage of China wind power capacity
	(MW)	(MW)
China Longyuan Power Group Corporation Limited	2,924.0 ⁽¹⁾	24.1%
China Datang Corporation	2,154.0 ⁽¹⁾	17.8%
China Huaneng Group	1,439.2 ⁽¹⁾	11.9%
Shenhua Group Corporation Limited	650.0 ⁽¹⁾	5.4%
China Guangdong Nuclear Power Holding Co., Ltd.	450.0 ⁽²⁾	3.7%
China Huadian Corporation	376.5 ⁽²⁾	3.1%
China Power Investment Corporation	328.0 ⁽³⁾	2.7%

Sources: International Wind Energy Development, March 2009 (BTM) and company websites

(1) Total installed capacity

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- (2) Data source does not specify whether installed capacity is consolidated or total
 (3) Consolidated installed capacity

In China, China Longyuan Electric Power Group Corporation Limited is the largest wind farm operator in terms of gross wind power generation in 2008, according to 2008 Power Industry Statistics Express by China Electricity Council. The following table sets forth gross wind power generation in 2008, listed by company.

Company	Gross Wind Power Generation in 2008 (GWh)
China Longyuan Power Group Corporation Limited	3,901 ⁽¹⁾
China Datang Corporation	1,833
China Huaneng Group	1,030
China Huadian Corporation	500
China Power Investment Corporation	348

Sources: China Electricity Council

- (1) Including power generated from the Company’s associated companies in the amount of 246.3 GWh in 2008.

Offshore versus onshore

The development of offshore wind power projects globally has evolved more slowly than onshore projects due to higher operation and maintenance costs, larger required capital expenditures and larger minimum investment sizes required to compensate for the associated larger fixed costs. However, offshore wind energy technology continues to mature.

According to BTM, in 2008, of the total global cumulative wind installed capacity of 122,158 MW, offshore wind installed capacity was only 1,421 MW, representing approximately 1.2% of the total global wind installed capacity. The table below sets forth BTM’s estimated of the status of the offshore installation at the end of 2007 and 2008, listed by country.

Country	2007		2008	
	Newly Installed Offshore Capacity	Cumulative Installed Offshore Capacity	Newly Installed Offshore Capacity	Cumulative Installed Offshore Capacity
	(MW)	(MW)	(MW)	(MW)
UK	90.0	394.0	194.0	588.0
Denmark	—	397.9	—	397.9
The Netherlands	—	126.8	120.0	246.8
Sweden	110.0	133.3	—	133.3
Belgium	—	—	30.0	30.0
Ireland	—	25.0	—	25.0
Total capacity - World	<u>200.0</u>	<u>1,077.0</u>	<u>344.0</u>	<u>1,421.0</u>

Sources: International Wind Energy Development, March 2009 (BTM)

BTM expects that offshore capacity will continue to form a small part of the global installed wind power capacity. Of the total incremental installed wind power capacity of 220,995 MW that BTM expects will be added globally from 2009-2013, BTM expects that offshore wind capacity will only account for 4.7% of this. For Europe, however, the percentage is slightly higher at 11.9%.

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Leading Utilities/IPP Wind Farm Operators

The following table set out the top 15 global wind power generation companies by installed capacity, by megawatts and as a percentage of the total global wind power production capacity.

Company	Country	2008 Cumulative Installed Capacity	Percentage of global wind power capacity
		(MW)	
Iberdrola Renovables	Spain	8,960	7.3%
FPL Energy	U.S.	6,374	5.2%
EDP Renovaveis	Portugal	5,052	4.1%
Acciona Energy	Spain	4,566	3.7%
China Longyuan Power Group Corporation Limited.	P.R. China	2,924	2.4%
Datang Corporation	P.R. China	2,154	1.8%
EDF Energies Nouvelies	France	2,031	1.7%
Endesa	Spain	1,925	1.6%
E.ON Climate and Renerables	Germany	1,890	1.5%
Eurus Energy Holding	Japan	1,722	1.4%
Babcock Brown Windpartners ⁽¹⁾	Australia	1,530	1.3%
MidAmerican Energy	U.S.	1,284	1.1%
International Power	Great Britain	1,223	1.0%
AES	U.S.	1,213	1.0%
Cielo Wind Power	U.S.	1,148	0.9%
Total of the shown Companies.		<u>43,996</u>	<u>36.0%</u>

Sources: International Wind Energy Development, March 2009 (BTM)

(1) Since the release of the BTM report, Babcock Brown Windpartners has been renamed as “Infigen Energy.”

As can be seen in the table above, the global wind power market is relatively fragmented. According to BTM, at the end of 2008, the combined cumulative installed capacity of the top 15 wind generation companies was 43,996 MW, or approximately 36.0% of the global installed capacity.