

19 July 2010

China Wind Power

Nice breeze blowing; initiate Longyuan/Goldwind with Buy



Deutsche Bank



FITT Research

Fundamental, Industry, Thematic, Thought Leading

Deutsche Bank Company Research's Investment Policy Committee has deemed this work F.I.T.T. for investors seeking differentiated ideas. While some overhangs have resulted in global peers' weak share performance, we are confident in China's wind power sector growth outlook in the near, mid- and long term. We believe cheaper valuations offer good buying opportunities for established Chinese wind players. We initiate coverage of Longyuan and Goldwind with Buy ratings and reiterate Buy on CHSTE.

Fundamental: operating environment remains favourable in the near term

Industry: grid connection constraint to be solved in the mid-term. Checks indicate various initiatives are underway

Thematic: wind capacity target has upside potential in the long term

Thought-leading: It is time to be selective when it comes to stock picks and we prefer established market players

Initiate Longyuan and Goldwind with Buy ratings; reiterate Buy on CHSTE



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Fundamental: operating environment remains favourable in the near term

China's wind power sector has a more favourable operating environment than its EU and US peers. The government's supportive regulation is unchanged and could turn out to be even more affirmative. There looks to be little risk of any tariff cuts in sight. Strong power demand recovery and higher coal prices are conducive for wind development. Recent share price declines vs. weak global peer performance suggest the Street is overlooking the stronger outlook for wind power in China.

Industry: grid connection constraint to be solved in the mid-term

The grid connection issue is a major obstacle for growth in wind capacity, but it should be resolved in the mid term. The Street appears to be overly concerned about this; however, our recent industry checks indicate various initiatives are underway to remove this bottleneck, such as more coordinated project planning and approval processes, concrete inter-region transmission line plans, smart grid build-out, and improving dispatch rules. We believe the grid connection bottleneck is a growing challenge, but not a roadblock, for the growing sector.

Thematic: capacity target has upside potential in the long term

We believe there is further upside potential to the current 150GW target for 2020, and a likely upward revision could come in later years. Our bullish view stems from knowledge of abundant wind resources, rising fossil fuel prices, accelerated grid infrastructure investment, challenging carbon intensity reduction targets, and technology advancements. The successful establishment of a carbon tax regime and a domestic carbon trade market would be further positives.

Thought-leading: prefer established market players

While we are bullish on the overall long-term growth outlook, it is time to be selective when it comes to stock picks. Hence, we prefer Longyuan, China's largest wind power developer, Goldwind, the second largest wind turbine maker, and CHSTE, the leading wind gearbox maker. Their competitive edge looks solid and difficult for smaller players to overtake in this gradually consolidating sector.

Initiate Longyuan and Goldwind with Buy ratings; reiterate Buy on CHSTE

We are initiating coverage on Longyuan with a Buy rating (HK\$9.0 target price). As a key beneficiary of the rapid growth in the country's wind industry, Longyuan has a competitive edge in its excellent track record, and possesses the necessary skills and technology. We are initiating coverage on Goldwind with a Buy rating (RMB19.0 target price). We like the stock, as it is the leader in quality and technology and able to withstand fierce competition, with higher order coverage and at attractive valuation. We also reiterate Buy on CHSTE (HK\$21.5 target price). Key sector risks include adverse changes in industry policies, more severe grid connection issues, decline in fossil fuel prices, and excess competition.

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Top picks

Longyuan Power (0916.HK),HKD7.09	Buy
Goldwind Sci & Tech (002202.SZ),CNY16.34	Buy
China High Speed Trans (0658.HK),HKD15.64	Buy

Companies featured

Longyuan Power (0916.HK),HKD7.09		Buy	
2009A	2010E	2011E	
P/E (x)	48.7	24.6	17.3
EV/EBITDA (x)	14.3	10.7	9.3
Price/book (x)	2.1	1.9	1.7
Goldwind Sci & Tech (002202.SZ),CNY16.34		Buy	
2009A	2010E	2011E	
P/E (x)	22.9	14.7	12.7
EV/EBITDA (x)	21.0	7.9	6.6
Price/book (x)	7.7	4.8	3.6
China High Speed Trans (0658.HK),HKD15.64		Buy	
2009A	2010E	2011E	
P/E (x)	16.0	13.1	11.3
EV/EBITDA (x)	14.5	9.8	7.7
Price/book (x)	4.8	3.1	2.3

Related recent research

Date

China Longyuan Power: Growth at reasonable price; Initiate with Buy	19 Jul 2010
Goldwind Sci & Tech: An industry leader at discount valuation; Initiate with Buy	19 Jul 2010

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Executive summary

Near term: operating environment remains favourable

The wind energy sector in the US and EU has been confronted by several headwinds in the first half of 2010, sending major players' share prices down (please refer to p.7). However, that is not the case with China's wind energy sector, although wind stocks have posted similarly weak performances. First of all, regulation stability is better, as the government's stance remains affirmative. There is little debate about the importance of wind power. Plus, deep involvement of the state reduces complexity in balancing various stakeholders' interests.

Compared to recent talk of wind tariff cuts in Europe (Reuters etc in July), we do not see such a risk for China. Yet-to-recover power demand is also to blame in the EU and the US, but China shows a different picture with strong power demand growth. In addition, while depressed natural gas prices in the US make wind power less economically attractive, rising coal-fired plant tariffs in China make wind power a more viable option. Overall, we believe China's operating environment remains favourable for wind power.

Figure 1: Longyuan vs. European wind players (3M)

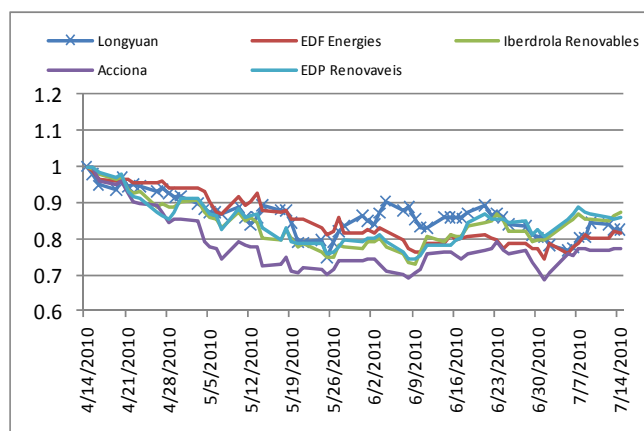
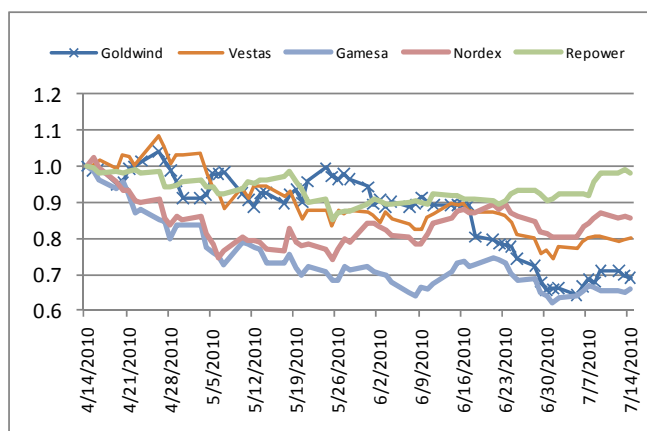


Figure 2: Goldwind vs. European wind players (6M)



Mid-term: grid bottleneck to be resolved

The grid connection issue is a major obstacle for wind capacity growth in China. The main reason is a lack of coordination between market players. However, we expect the issue to be resolved in the mid term, helped by a number of initiatives including more coordinated project planning and approval processes, concrete inter-region transmission line plans, smart grid build-up, and improving dispatch rules. The grid connection bottleneck is a growing pain, but not a roadblock, for the growing wind sector in China.

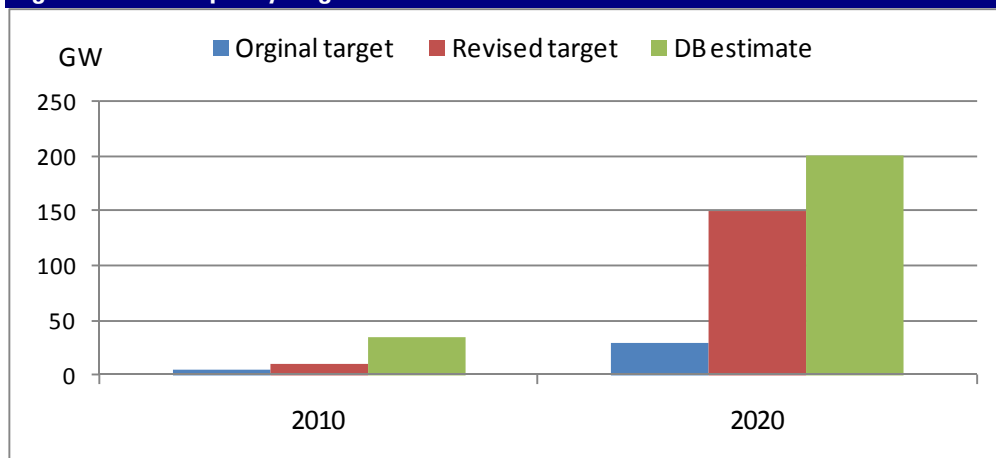
Figure 3: Planned market for the seven large wind bases in China

Wind base	2020E Capacity (GW)	Destinations
West Inner Mongolia	30	West Inner Mongolia, North Grid, Central Grid, East Grid
East Inner Mongolia	20	Northeast Grid, East Grid
Harmi, Xinjing	11	Northwest Grid, Central Grid and North Grid
Jiuquan, Gansu	17	Northwest Grid, Central Grid
Hebei	14	North Grid, Central Grid, East Grid
Jilin	18	Northeast Grid
Jiangsu	10	Jiangsu Grid
Total (GW)	120	

Source: Deutsche Bank, State Grid

Long term: upside potential to 2020 capacity target

China beat its earlier wind capacity targets of 5GW for 2010 in 2007 and looks set to exceed its 30GW target of 2020 (first established in 2007) by the end of this year. We believe there could be further upside potential to the current 150GW target for 2020, and a likely upward revision could come at some point down the line. Our bullish stance is based on: 1) China's abundant wind resources, 2) technology advances, and 3) a rise in fossil fuel prices, which could turn more resources into economically viable options. In addition, there is an urgent need for China to fulfil its commitment on c.40-45% reductions in the carbon intensity and 15% renewable energy mix by 2020. Imposing a carbon tax regime and establishing a domestic carbon trade market should be a further positive, if successfully implemented.

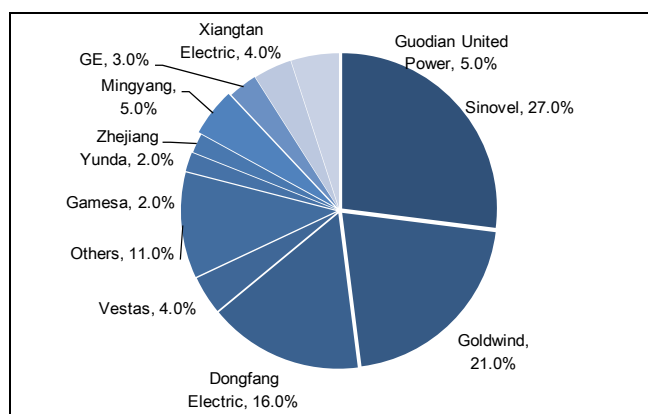
Figure 4: Wind capacity target revisions

Source: Deutsche Bank, NDRC, CEC

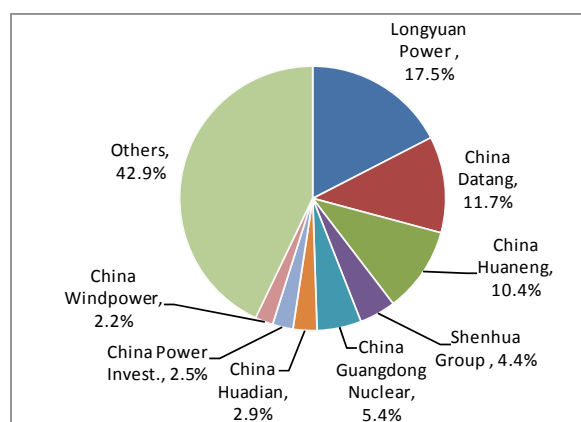
Stock picking: prefer established market players

While we are bullish on the long-term growth, we think it is time to be selective regarding stock picks. Given market concentration in the hands of big players, we believe the "Matthew effect"¹ will prevail, with those that are already ahead benefiting further. Hence, we prefer established market players such as Goldwind in the wind turbine manufacturing segment and Longyuan in the wind power generation segment, as we believe their competitive edges are established and are unlikely to be overrun by smaller players in this gradually maturing sector.

¹ The Matthew effect is the phenomenon that initial advantages tends to beget further advantages and disadvantage further disadvantages, or "the rich get richer and the poor get poorer". Sociologist Robert k Merton called this phenomenon the Matthew Effect from a verse in the Gospel of Matthew.

Figure 5: 2009 China wind turbine makers' market share

Source: Deutsche Bank, BTM March 2010

Figure 6: 2009 China wind developers' market share

Source: Deutsche Bank, BTM March 2010

Buy Longyuan Power and Goldwind

Longyuan Power

We are initiating coverage on China Longyuan Power with a Buy rating and 12-month target price of HK\$9.0. As the largest wind developer in China and one of the top five players globally, we believe China Longyuan Power will likely be a key beneficiary of the country's rapid growth in the wind industry, with a three-year earnings CAGR of 60% in 2009-12E.

With 46GW in its pipeline (ten times its wind capacity as of end-2009), Longyuan has more visibility in its capacity expansion plans than peers, while trading at attractive valuations. Despite potential new entrants to the wind development market, China Longyuan Power has a competitive edge in its excellent track record in developing wind farms, and possesses the skills and technology required in wind farm development.

On a healthy balance sheet (net debt/equity of c.105% in 2010-12E), Longyuan also presents significant upside potential to our currently assumed 2GW annual capacity additions. We believe market concerns of the continuity of its CDM revenues, grid connection and interest rate hikes are over-played.

Goldwind

We are initiating coverage on Goldwind Sci & Tech with a Buy rating and 12-month target price of RMB19.0. Goldwind is a leading wind turbine manufacturer in China and the fifth largest player in the world. We believe the long-term growth outlook for wind power is intact in China and the world. Goldwind is still blessed by growth in the area after posting an 86% CAGR in 2007-09.

We like the stock for the following reasons: 1) we believe that China's wind capacity growth could surprise on the upside again, 2) as the leader in quality and technology, Goldwind is able to withstand fierce competition, 3) its pioneering direct-driven wind turbine has been well received in China and will likely be more favoured with stricter grid codes, 4) it has growth potential from untapped overseas markets, 5) it has transformed into a total solution provider from a pure equipment maker, 6) it could benefit from government action to curb industry oversupply, 7) it has higher order book coverage and hence revenue visibility, and 8) it has been attractively valued following recent share price weakness.

On our estimates, Goldwind should grow its earnings at a CAGR of 24% in 2009-12E. We have identified a few near-term catalysts for the stock to re-rate, which include strong interim results, investment in key components, and new order momentum such as a pick-up in

exports and good tender results of offshore wind turbines. Sector-wise, the announcement of an official wind capacity target for 2020 and a more concrete smart grid investment plan will likely boost sector sentiment.

Valuation and risks

Longyuan Power

Our target price of HK\$9.0 is derived by a DCF analysis through 2020E, after which we assume 2% terminal growth. Our WACC of 9.5% incorporates a cost of equity of 13% (risk-free rate of 5.3%, a beta of 1.2, ERP of 6.5%), an after-tax cost of debt of 5%, and a 45/55 debt/equity target capital structure. We believe a 2% terminal growth rate is relatively conservative, as only 5% of China's wind resources are likely to be utilized by 2020.

Our target price of HK\$9.0 implies a FY11E and FY12E P/E of 22x and 16x, respectively, which is at a premium compared to the China IPPs and the other smaller China wind developers. This is justified, in our view, as China IPPs have a higher risk profile since their earnings are subject to changes in coal prices, and Longyuan is the market leader in China's wind power space. In addition, China's target growth for thermal capacity is significantly lower than wind power capacity at a 3.5% CAGR (2009-20) vs. 19% CAGR (2009-20), resulting in lower earnings potential for the China IPPs. Compared to global players, Longyuan trades on par in FY10-11E P/E (25.2/17.7x vs. 23.4/18.1x of global peers) but at discount in FY12E P/E terms (12.9x vs. 14.8x). This suggests a very attractive valuation for Longyuan as it has much higher long-term earnings growth prospects given its: 1) lower wind capacity base; 2) higher capacity growth in China compared to Europe or the US; 3) more visibility in its capacity expansion plans through its 46GW capacity pipeline; and 4) higher RoEs vs. peers.

The main downside risks to our valuation include: 1) grid bottleneck resulting in a less-than-expected power dispatch, 2) a potential interest rate hike, 3) uncertainty of CDM income post-2012 after the first Kyoto Protocol period expires, 4) rising competition for wind projects, 5) a potential lack of support from provincial governments due to a conflict of interest that arises from the new VAT scheme, 6) higher-than-expected fuel costs, and 7) lower-than-expected quality and reliability of its newly installed domestic wind turbines, as it lacks a long operating track record.

Goldwind Sci & Tech

Our preferred approach to value Goldwind is a discounted cash flow method, which enables us to more accurately consider the future growth outlook of the wind business over a long period. Given Goldwind's leading market position in China and its potential in overseas markets, we anticipate that the company should be able to fully participate in this industry growth. Our DCF valuation discounts the company's free cash flow over 2010-16E and assumes a 2% growth rate for the terminal value calculation. Given a long-term growth outlook for wind capacity development in China and the world, we see our terminal growth rate assumption of 2% as conservative. In deriving our WACC of 9.1%, we assume a cost of equity of 10.6%, using a beta of 1.1 and China cost of equity of 10% (4% risk-free rate and 6% equity risk premium), an after-tax cost of debt of 5.5%, and a target debt-to-capital ratio of 30%. At our target price of HK\$19.0, Goldwind would trade at FY10E and FY11E P/Es of 17.1x and 14.7x, respectively, in line with the global average.

Key downside risks include: 1) slower-than-expected wind capacity growth results in new orders for wind turbines may fall short of expectation, 2) intensifying competition on turbine oversupplies, leading to sharp ASP declines or lower order intakes, 3) margin pressure due to an inability to fully pass through an increase in input costs, and 4) less-than-expected growth in the export market either due to unfavourable market growth or execution risks.

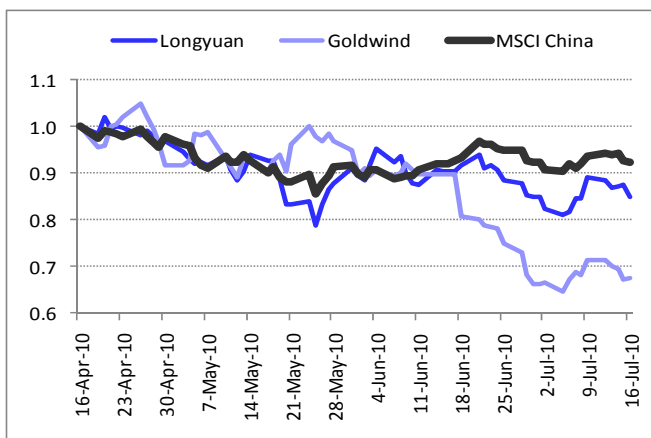
Near term: operating environment remains favourable

Key points

- Wind power is confronted by various headwinds in the EU and the US, while this is not the case for China. However, share prices of key sector players in all markets underperformed in 1H10.
- First of all, China's government stance on wind power is affirmative and stable. There is little debate on the importance of wind power. The deep involvement of the state reduces complexity to balance various stakeholders' interest.
- Against the feed-in tariff cuts in Europe, we do not see pressure for China to cut wind tariffs in the foreseeable future.
- Weak power demand is also to blame for the slowing wind capacity growth in the EU and the US, but China shows a different picture (up 21% yoy in 6M10).
- Falling natural gas prices reduce the economic attractiveness of developing wind farms in the EU and the US, but China's tariff for coal-fired plants has significant upward revision pressure.
- Access to capital is not an issue to wind farm developers and leading wind turbine makers in China.

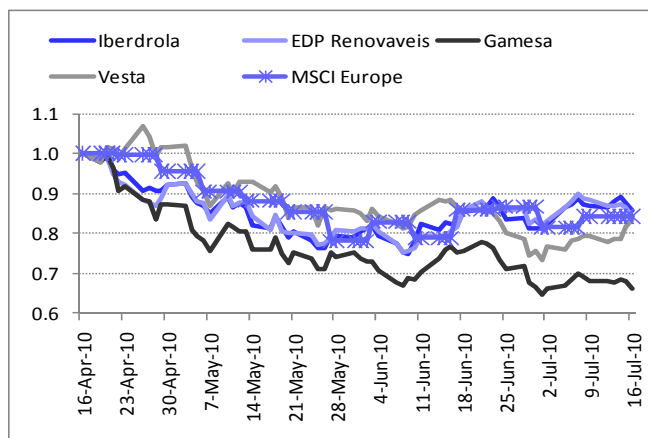
Underperformance of EU and US wind stocks

Figure 7: Longyuan/Goldwind vs. MSCI China



Source: Deutsche Bank, Datastream

Figure 8: European wind players vs. MSCI Europe



Source: Deutsche Bank, Datastream

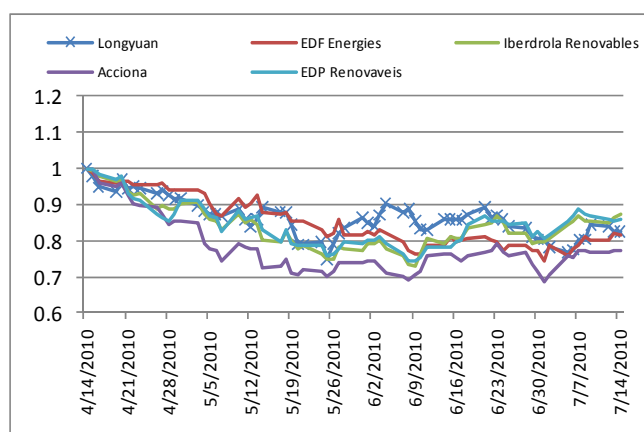
In 2009, the primary constraint on the wind power sector is access to capital due to the global financial crisis. Even though liquidity is improving in 2010, year-to-date share price performances have been weak relative to the overall market owing to concerns on other issues facing the industry. In Europe, news flows Reuters on the cut in Spain's feed-in tariff was the epicentre of concerns, as it could spread to other EU countries to help cut mounting government deficits. As a case in point, Iberdrola Renovables, the largest wind power

developer in the world with 50% wind capacity in Spain, saw its share price fall 20% in April-June 2010.

In the US, major overhangs are further delays in the passage of climate change bills (Kerry-Graham-Lieberman Bill) by the Senate, a lower gas price environment that makes utilities unwilling to sign PPAs with wind farms, and yet to recover power demand. Many large wind developers and turbine makers, such as Iberdrola Renovables, EDP Renovaveis, Vestas, Gamesa, and Suzlon, have significant project pipeline or equipment orders from the US.

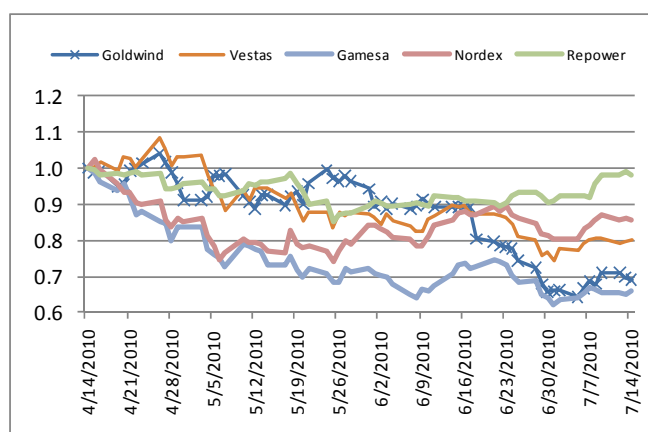
With the sector facing near-term headwinds, will Chinese players be better off? Our answer is yes. Below, we present our arguments for a better operating environment for both China wind developers and equipment manufacturers, for which we believe a concurrent share price decline for Chinese players (Figure 10) is unjustified and creates buying opportunities.

Figure 9: Longyuan vs. European wind players (3M)



Source: Deutsche Bank, Datastream

Figure 10: Goldwind vs. European wind players (3M)



Source: Deutsche Bank, Datastream

Not the case in China

China, in our view, is much better off in terms of regulatory stability which supports prospects for wind sector growth.

- **The government's commitment is unabated:** it is not an easy task for China to achieve the stated targets on carbon intensity reduction, and non-fossil fuel energy mix owing to the country's fast economic growth ahead.
- **Tariff outlook looks stable:** The feed-in tariff was announced in August 2009, which is less than a year ago. We do not anticipate any change on tariff policy
- **Power demand growth is recovering:** Power demand in China has recovered quickly from 2H09, especially in Western China where most wind capacity is located. Dispatch is less an issue compared to a year ago. Thus, grid capacity to absorb wind power has strengthened.
- **Tariff competitiveness is enhancing:** Fossil fuel prices (mainly coal) remain at a high level. We see pressure for another on-grid tariff hike for coal-fired plants, making wind power relatively more economically attractive.
- **Access to capital is not an issue:** The slowdown in bank loan growth is mainly due to liquidity tightening targeting the property sector. According to Bloomberg New Energy Finance, China attracted more assets financing in clean-energy technology in 2Q10 than Europe and the US combined. Financing of wind turbines, solar panels, and low-carbon

technology in China rose 72% yoy to US\$11.5bn, compared to US of US\$4.9bn and Europe of US\$4.5bn.

First, China's stance on wind energy is affirmative

One of the issues facing the US wind market, which is currently in the No.1 position by installed capacity, is the delay in the passage of a climate change bill this year. In April 2010, the long-awaited climate change legislation was put on hold by its authors for political reasons. Compared to the US's slowing progress in establishing a federal renewable policy, regulatory support from the Chinese government has been enhanced in recent months.

- **Challenging carbon reduction target:** The government acknowledges the difficulty of achieving its carbon reduction target of c.40-45% cut by 2020 from the 2005 level, with a fast-growing economy. Mr. ZHANG Guobao, chief of Energy Bureau of NDRC, recently commented that China needs to raise its 2020 hydropower capacity to an even higher level to achieve the target. We understand the government is in the midst of lifting its official 2020 installation target to a likely 150GW later this year.
- **Supportive grid infrastructure development plans:** We also note that the government is pushing for more investment in grid infrastructure (e.g., smart grid and long-distance transmission lines) to support development of large-sized wind power bases in West and North China, which is contingent upon viable grid transmission capacity.
- **The government is running the business:** In China, government's involvement in the wind industry is the highest among the world, i.e., the top wind power developers—China Guodian Group, China Datang Group, China Huaneng Group, China Huadian Group, China Guangdong Nuclear Power Group, Shenhua Energy are majority-owned by the state. Implementation becomes less complicated owing to the absence of various stakeholders' interests. Planning consent takes a shorter amount of time than that of other countries.

Figure 11: Global wind capacity growth forecast

(GW)	2020 Forecast				
	2009	Moderate	CAGR (2008-20)	Advanced	CAGR (2008-20)
Europe	76.2	182	8.2%	213	9.8%
North America	38.4	214	16.9%	243	18.3%
China	25.8	101	13.2%	201	20.5%
Latin America	1.3	50	39.6%	100	48.7%
Dev. Asia (ex. S. Korea)	36.3	40	0.9%	61	4.8%
India	10.9	69	18.2%	138	25.9%
Middle East and Africa	8.7	18	6.9%	42	15.4%

Source: Deutsche Bank, GWEC

Second, wind tariff to remain stable in foreseeable future

Since April 2010, there have been widespread media reports that the Spanish government may propose a cut in the wind feed-in tariff with planned retroactive application to existing wind farms. Although concerns turned into much relief in early July, this has brought the possibility of a cut in the wind tariff into the limelight amid the EU's sovereign debt crisis. For China, we see little likelihood that the government may reduce the wind tariff, which was announced less than a year ago, for a few reasons:

- **Most wind developers barely make any profit:** While profitability appears to be good for the largest player—Longyuan—this is not the case for most other wind players. Our channel checks with industry experts and wind operators suggest that the ROE of their wind farms are at only 7-8%, versus 12-15% for Longyuan. Therefore, we believe a wind

tariff cut would be unfair to the entire sector and would act as an impediment to reaching the government's 2020 capacity target.

- **Wind tariff cuts might put China's wind project at risk of qualifying for CDM (Clean Development Mechanism):** In December 2009, the CDM Executive Board (EB), the body in charge of overseeing UN-issued carbon credits, rejected ten of China's wind projects after it observed that Chinese regulators might be intentionally lowering wind tariffs so that they could be eligible for international carbon credits. Thus, we believe it is highly unlikely that the government would cut the wind tariff, as its wind projects would likely be further rejected by the CDM EB on this basis.
- **China wants to promote a stable regulatory environment for wind:** China only recently adjusted its wind tariff in November 2009, and any move to change the wind tariff regime would reduce investor's confidence in the sector, making it more difficult to achieve its target.
- **Wind farms have no exposure to spot market tariff:** Wind farms in some countries have exposure to spot electricity prices, as they only sell part of their volumes through fixed-rate contracts. Also, in some cases, the wind tariff is based on a certain premium over the pool price, as is the case in Spain. However, in China, wind tariffs are fixed and there is effectively no spot wholesale power market in the country.

Figure 12: Wind tariffs by region

Zone	On-grid tariff (Rmb/kWh, incl. VAT)	Regions within the wind resource zone
I	0.51	Inner Mongolia - All except areas included in Zone II Xinjiang - Urumqi City, Changji Hui autonomous prefecture, Klamyi city, Shiheizi city, Yili Kazak autonomous prefecture
II	0.54	Gansu - Zhangye city, Jiayuguan city and Jiuquan city Hebei - Zhangjiakoi city, Chengde city Inner Mongolia - Chifeng city, Hulun Bluir city, Xing'anmeng
III	0.58	Heilongjiang - Jixi city, Shuangyashan city, Qitaihe city, Yichun city, Suihua city, Daxingan mountain district Jilin - Baicheng city, Songyuan city Gansu - All except areas included in Zone II Xinjiang - All except areas in Zone I Ningxia - All
IV	0.61	All others

Source: Deutsche Bank, NDRG

Third, strong power demand helps absorb wind outputs

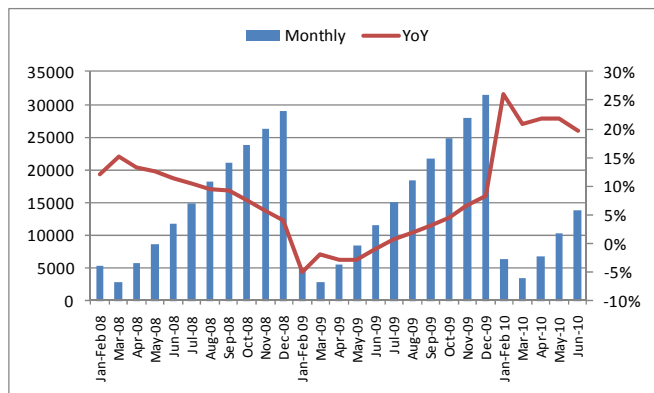
Due to the financial crisis, power demand has not returned to the levels seen in 2008 for some EU countries and US states. Some wind farms sell electricity output to a pool market that runs on the basis of real-term balance between power demand and supply. A continued weak power demand exerts pressure to the wind power dispatches.

However, China is seeing a strong power demand recovery in 1H10, up 21% yoy and daily power consumption was at record high in June. We believe this helps wind farms on several aspects:

- **Less pressure in wind dispatch.** Due to the intermittent feature of wind power, the percentage of electricity from wind cannot exceed a certain level of total supply (i.e., 15%), leading to some cap on wind output despite connection availability. Therefore, a strong recovery in power demand can lift the maximum allowance of wind power with a specific grid.
- **Strong demand pick-up in wind-rich areas:** China's wind farms are mainly located in western provinces such as Inner Mongolia, Liaoning, Gansu, and Hebei, where the local

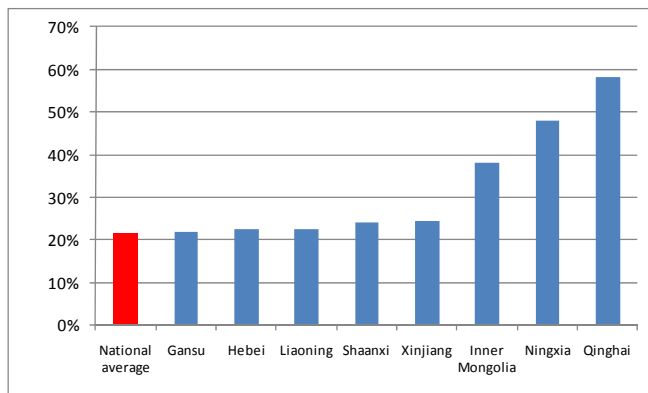
economies focus much more on heavy industries. These industries suffered most in 2009 but have shown a V-shape recovery in 1H10, leading to above-average power growth demand growth in those wind-rich areas—a further positive to the wind sector.

Figure 13: China's monthly power consumption trend



Source: Deutsche Bank, China Electricity Council

Figure 14: YoY power consumption growth by province



Source: Deutsche Bank, China Electricity Council

Fourth, high coal prices to make wind power more attractive

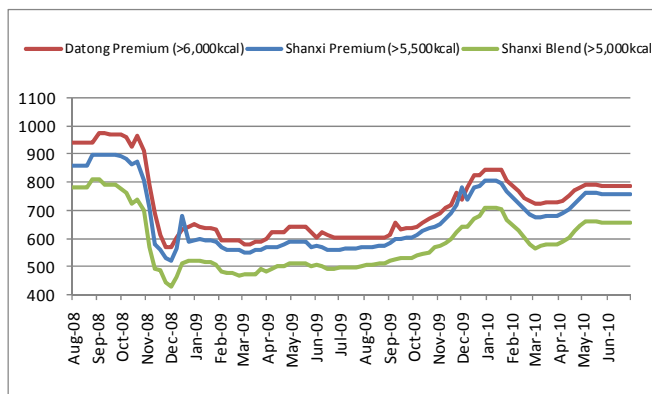
The economics of wind farms depend largely on the prices of traditional fossil fuels. The higher price of fossil fuels, the lower the subsidy needed. One of the hurdles in the US wind market is a low natural gas environment, which makes utilities have less of an incentive to develop wind farms. Moreover, the market expects the natural gas market to remain depressed for a while due to substantial findings of shale gas in the US.

In China, wind mainly competes with coal due to the dominance of a coal-fired power capacity base (75% of total national capacity). Coal prices in China have increased by 20% yoy, as indicated by the leading spot market benchmark—Qinhuangdong 5,500cal/g coals.

- **Coal-fired power tariff likely to hike:** The China IPPs have been submitting requests for a tariff hike, as coal prices have surged since the start of the year. The media reported in May that the NDRC is currently looking into the matter. Given that the coal tariff is likely to increase, the subsidy to wind power will be further reduced.
- **Wind power is sold at fixed tariff:** Unlike some wind farms in other countries, which sell wind at a premium market price, wind power in China is sold at fixed tariffs. This shields wind farm returns from the fossil fuel price volatilities.

Figure 15: Henry Hub natural gas spot price

Source: Deutsche Bank, Bloomberg Finance LP

Figure 16: Qinhuangdao spot coal price

Source: Deutsche Bank, WIND

Fifth, access to capital is easier

In contrast to liquidity concerns in the US and EU, China's wind power sector is one area where the government is encouraging banks to lend as part of the stimulus measures. Also, most wind farms are located in West China, where favourable policy measures are directed according to the recently reiterated West Development Plan.

According to Longyuan, the company can enjoy a 15% discount to the PBOC's base lending rate for corporate loans. Although the government calls for restrictive lending to the wind turbine industry given the current oversupply situation, big corporates still enjoy strong support. A case in point is the recent strategic agreement reached between Goldwind and State Development Bank, in which the latter will provide a US\$6bn credit facility to the former company for overseas expansion.

We also believe a declining turbine price trend coupled with a delayed interest rate hike bode well for wind power investment returns.

Mid-term: grid bottleneck to be resolved

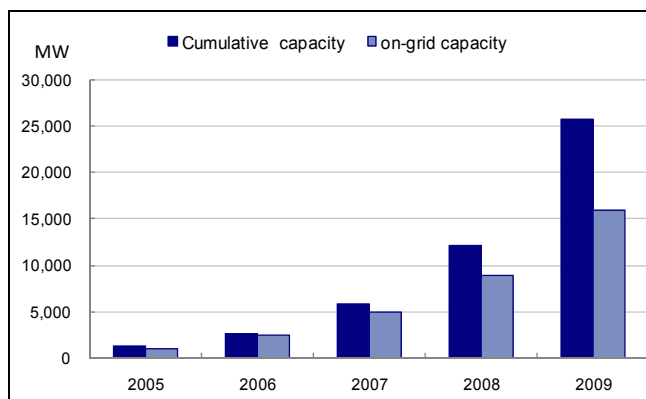
Key points

- Grid connection bottleneck is a major obstacle for wind capacity growth; it is reported that one-third of wind capacities were idle at year-end 2009
- The main reason is due to the lack of coordination between local and central governments and between wind power developers and power grid operators. In addition, the problem is exacerbated by most wind resources being concentrated in the Western and Northern parts of China, where the local grid system is weak.
- However, we expect the grid bottleneck to be resolved in the mid term after a number of initiatives, such as:
 - More centralized project planning and approval processes
 - Concrete transmission line construction plans for seven large wind power bases
 - Build-out of a smart grid to increase the ability to absorb renewable energy into the grid in a more seamless way
 - Revising dispatch rules to require more interactions between grid operators and wind farm operators to enhance the quality of wind output
- The grid connection bottleneck is a growing pain, but not a roadblock, for this growing sector.

Connection is a near-term growth constraint

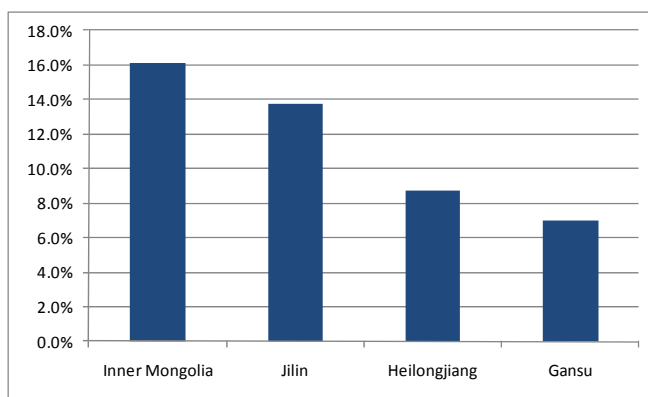
In China, grid connection bottleneck has been a major obstacle for future wind capacity growth. The gap between total capacity installed and on-grid capacity widened in 2005-09 (Figure 17).

Figure 17: Gap of total capacity vs. on-grid capacity



Source: Deutsche Bank

Figure 18: Percentage of wind capacity



Source: Deutsche Bank, CWEA, CEC

Network connectivity still a problem

In the short term, grid connection is likely to remain a key bottleneck to the development of the wind market, as most areas with rich wind resources are located in the northern region, which has relatively weak grid infrastructure. According to the China Electricity Council, at the

end of 2009, about one-third of the wind capacity was not connected to a grid. Grid connection is particularly problematic in the Gansu and West Inner Mongolia provinces, which make up most of the total installed capacity.

Key reason for network connectivity problem

The main reason for the grid connection problem is due to a lack of coordination between the provincial and central governments and between gencos and gridcos. In general, the provincial government develops the wind farm based on the wind resources in its governed area and gives only secondary consideration to the mix of fuel type transmitted through the grid, and the ability of the grid to transmit the power. Thus, in the past, more often than not, the provincial government has approved a more significant wind power development plan than the central government. As such, the grid network in place, which is planned by the central government, is not able to cope with aggressive provincial wind development.

In addition, the difference in construction lead time is also to be blame for the lag in grid connections, which usually takes about two years to construct—twice the amount of time taken to build a wind farm.

Another reason is due to the imbalance of wind resources and end demand. Wind resources are mostly in China's West and North regions, where local demand is not as strong as the eastern coastal regions. The plan to build a large-sized wind power base would be only viable if there is an inter-regional transmission network in place, considering the limitation of local dispatch abilities.

Multiple initiatives to address the connection issue

The grid connection issue is being addressed by the government. Early this year, the government stressed the necessity of a more coordinated approach in wind and grid projects planning. There is a more concrete plan in long-distance high-voltage transmission lines. The blueprint on China's smart grid has become clearer.

Coordination enhanced

NDRC is now tightening the approval of a small-scale wind power project (<50MW) by the local government. Currently, the development of seven large wind bases is being prioritized, together with corresponding grid connection plans. A centralized planning process has replaced the old fragmented process to better align the development of wind farms with grid constructions.

Inter-region super high voltage transmission line

According to a press report released in July (Shanghai Securities Journal), the State Grid in China has drafted its transition plan for the seven 10GW wind bases for 2015 and 2020, as shown in Figure 19.

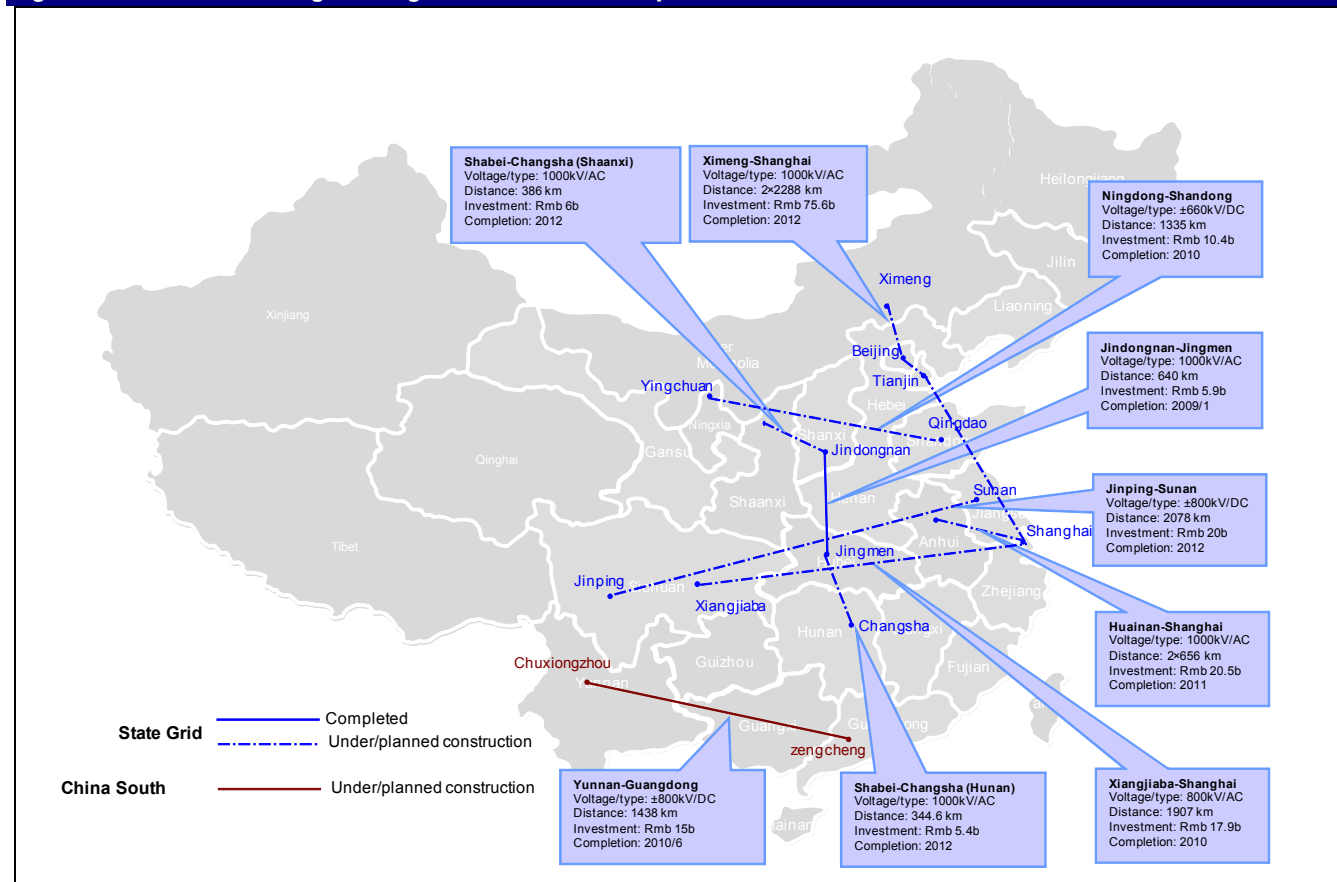
Figure 19: Planned market for the seven large wind bases in China

Wind base	2020E Capacity (GW)	Destinations
West Inner Mongolia	30	West Inner Mongolia, North Grid, Central Grid, East Grid
East Inner Mongolia	20	Northeast Grid, East Grid
Harmi, Xinjing	11	Northwest Grid, Central Grid and North Grid
Jiuquan, Gansu	17	Northwest Grid, Central Grid
Hebei	14	North Grid, Central Grid, East Grid
Jilin	18	Northeast Grid
Jiangsu	10	Jiangsu Grid
Total (GW)	120	

Source: Deutsche Bank, State Grid

Following the completion of China's first UHV (Ultra-High-Voltage) AC Demonstration Project Jindongnan-Nanyang-Jinmen in 2009, and one year's safe operation, the State Grid is more determined to build ultra-high voltage transmission lines across China. Separately, the world's first 800kV UHV DC project, "the Yunnan-Guangdong UHVDC project," built by Southern Grid, was put into operation at the end of 2009. There are currently a few more ultra-super high voltages lines being constructed and planned to serve the energy rebalance needs (Figure 20). China's recent plan to boost the development of Western China will help to push forward these plans.

Figure 20: China's Ultra-High Voltage transmission lines plan



Source: Deutsche Bank, State Grid, Southern Grid

Smart grid plan on top of agenda

Besides long-distance transmission lines, the government has also set aside a substantial budget to develop the smart grid and upgrade its grid infrastructure. The State Grid flagged as its top priority the "Strong and Smart Grid plan," released in July 2009. Under this significant mid-term plan, a "unified strong and smart grid" will be deployed across China by 2020, with a total expenditure of RMB4tr from the State Grid for 2011-20. We provide a more detailed review on China's smart grid blueprint later in the report.

Impose incentives and requirements on power gridcos

Unlike the 8% and 3% requirements of renewable and non-hydro renewable capacity mix requirement imposed on gencos, there is currently no explicit requirement for gridcos in terms of renewable output mix. For its own economic interest, gridcos lack incentives to buy more wind power as its cost is higher. We understand that NDRC is drafting rules on specific requirements of renewable energy mix for power grid companies by region to provide incentives for the dispatch of renewable by gridcos. The domestic carbon market is also

being discussed considering the disparity of renewable resources among different regions of China. In the Figure 21, we list China's regulation on wind power grid connection to date.

Figure 21: Chinese regulation on wind power grid connection

Year	Authority	Description
2009	State Grid	Wind farms should be able to adjust to normal operation when the voltage at the connection point fluctuates around 10%; wind turbine generation should be equipped with LVRT for 0.625s in normal status when voltage sags to 20%.
2009	National People's Congress	2006 Renewable Energy Law amendments took effect on 1 April 2010 with key change in grid dispatch aspect. The previous "mandatory purchase regardless of quality" is replaced with 1) all power generated by renewable energy shall be purchased by grid company as long as the power generation facilities and connection to the grid satisfy relevant technical criteria; and 2) the government sets a quota for the purchase of wind power for grid companies.
2010	National Energy Bureau	Draft for discussion on restricting requirements on six aspects: 1) wind farm design; 2) wind farm construction; 3) wind farm operation; 4) wind power grid connection; 5) wind turbine generator; and 6) wind power electric appliance.
2010	China Electricity Council/China Electric Power Research Institute	Amendment on the technical regulation of wind power grid connection released by State Grid in 2009.

Source: Deutsche Bank

Measures to strengthen the dispatch ability

Apart from transmission line investment, State Grid in China is also working on the enhancement of dispatch technology to facilitate the wind power connection in a safe and reliable way. There are several measures being implemented: 1) revision of the grid code to require better grid compliance of wind turbines, and 2) plan to build more peak-shaving capacity such as pump storage plants.

Additional obligation imposed on wind farm operators

Instead of simply purchasing all dispatch from wind farms, the power grid is asking wind farms to work with gridcos in terms of control of voltage and frequency, which requires some additional functions such as LVRT and more precise wind condition forecast. This is actually positive for the sector as it ensures the safety operation of the grid and enhances the grid's control in maximizing the wind output in the region.

The State Grid conference recently held in Jilin stated that China's State Grid may set strict requirements for wind power grid connections. The National Energy Bureau officials agreed with the necessity to set a threshold requirement for wind farm development, wind power forecasts, and a cap on wind power. Wind power equipment should be adapted to the change in electricity load as well as grid connection demand and should be equipped with active power control and a reactive power compensation function.

Plan to add more peak-shaving plants

Given the intermittent nature of wind out as well its seasonality, there is a need to have back-up capacity in the system to complement the wind capacity. We understand the government is drafting plans to build more peak-shaving plants in west China. Pump storage is the most economic choice before we see a major breakthrough in energy storage technology. State Grid currently plans to install a total 21GW and 41GW pump storage capacity by 2015 and 2020, respectively. Besides, a gas-fired plant is another option, especially after an easing of the natural gas supply situation in the years ahead.

Long term: upside potential to capacity target

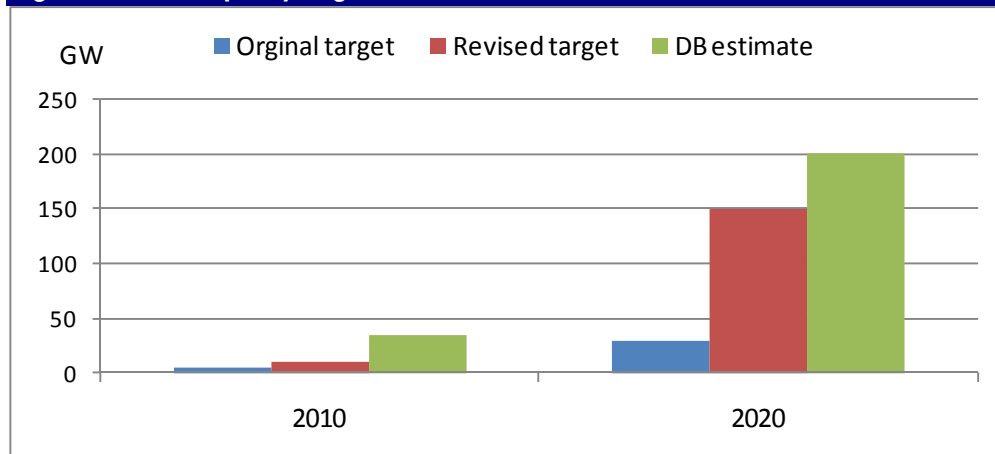
Key points

- China beat its earlier wind capacity targets of 5GW for 2010 in 2007 and is set to exceed its 30GW target of 2020 that was first established in 2007 by end of 2010. The government target is always conservative, in our view.
- We believe there is clear upside potential to the 150GW installed capacity target for 2020 at the time. A likely upward revision could come in later years. Our bullish stance stems from the following:
 - China has abundant wind resources left unutilized and technology advancement amid rising fossil fuel prices would make wind power a more economically attractive energy source.
 - There is an urgent need to fulfil its commitment to reduce carbon emission intensity by c.40-45% and raise its non-fossil fuel energy mix to 15%.
 - Down the road, we see the possibility of a more supportive environment to boost investment in wind power in China, such as imposing a carbon tax for heavy emitters and establishing a domestic carbon trade market.

Government target: always conservative

China beat its earlier wind capacity targets of 5GW for 2010 in 2007 and is set to exceed its 30GW target of 2020 that was first established in 2007 by end of this year. Consequently, the government established a more ambitious goal of 35GW by year-end 2011—seven times the original goal set in 2007. And the 2007 goal of having 30,000MW of installed wind capacity in China as of 2020 is now said to be 150GW—a fivefold increase. We do not doubt that even the 2020 goal could be reset at some point in later years.

Figure 22: Wind capacity target revisions



Source: Deutsche Bank, NDRC, CEC

Wind resources: unlikely to be a constraint

We do not view wind resources as a constraint for the country to achieve a higher installation target at 2020. According to a report published by the China Meteorological Administration at

the end of 2009, at a height of 50m, China has the potential to develop 2,380GW of class 3 wind power (average wind power density $>300 \text{ W/m}_2$) and 1,130GW for class 4 (average wind power density $>400 \text{ W/m}_2$). In addition, the offshore potential (water depth 5-25m) reaches 200GW for class 3. Nonetheless, if China were to develop 200GW of wind farms by 2020, only less than 20% of its onshore wind resources would be utilized, signalling more significant room for capacity growth.

Carbon intensity reduction: not an easy task

In November 2009, China unveiled its goal to reduce the amount of greenhouse gases emitted per unit GDP (its carbon intensity) by c.40-45% by 2020, compared with 2005. This is not an easy task, considering China's rapid economic growth state and its current heavy dependence on coal (75%) as the major form of primary energy. There could be more supportive policies to be announced to support the wind power development.

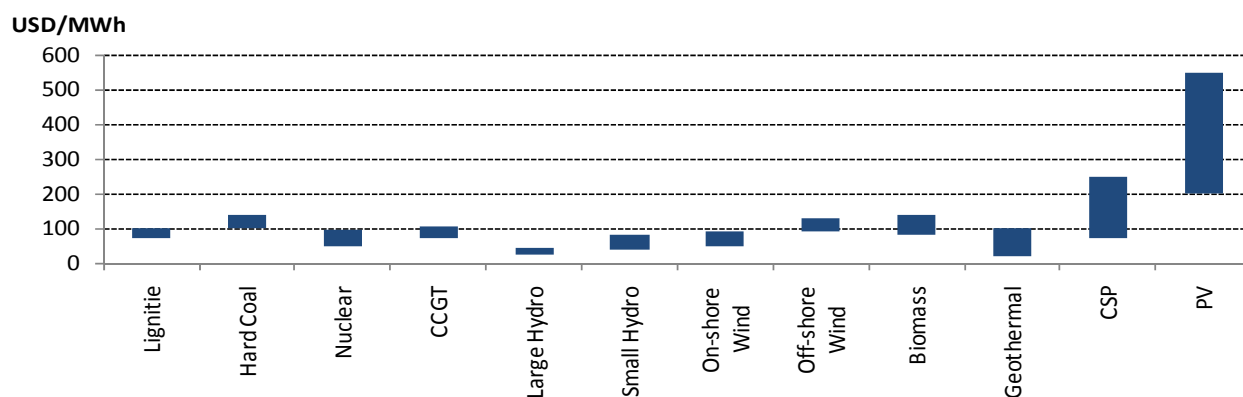
- According to Mr. Jiang Kejun, a senior researcher with the Energy Research Institute under the NDRC in May 2010, China may start to levy carbon taxes during the 12th Five Year plan (2011-15) period.
- According to Mr. Zhang Jianghua, a director of the Research Bureau of People Bank of China, said in May 2010 that China may also set up an emissions-trading market as well to help raise funds for carbon emission reduction and to establish a positive incentive mechanism.

We believe that both a carbon tax and the establishment of an emissions trading market should be a positive for wind farm operators. For one, it would increase the attractiveness of wind power relative to coal power, as coal producers will have to purchase carbon credits. Furthermore, it would increase the number of buyers, and subsequently demand for carbon credits, thus raising the carbon income of wind operators.

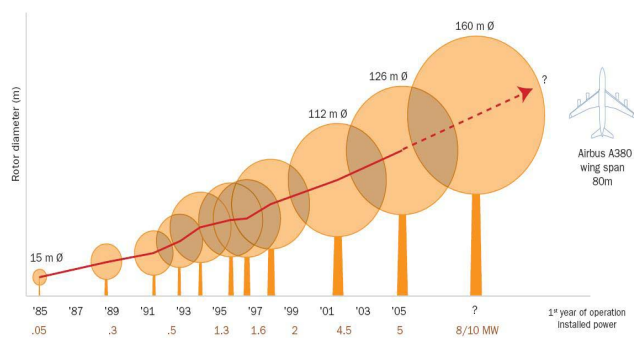
Technology advancements: opening new doors

With likely technological advances in offshore turbine, energy storage, and wind/solar complementation areas, there could be substantial upside potential to raise the capacity contribution of wind power.

- Reduction of installation and turbine costs for offshore projects has long way to go. Advancement in larger-sized turbines can clearly help reduce the cost, triggering more scalable offshore wind project development.
- Development in energy storage technology can greatly reduce the cost of electricity transmission. In particular, electric cars and charging stations can be combined with wind power development to maximize wind power's peak utilization during evening hours.
- The development of wind-solar integrated farms, which complement each other in the peak and trough of load factors.

Figure 23: Comparison of power generation cost

Source: Deutsche Bank

Figure 24: Size of commercial wind turbine designs

Source: Deutsche Bank, the European Wind Energy Association

Figure 25: Offshore wind technology development

Source: Deutsche Bank, National Renewable Energy Laboratory

Prefer established players

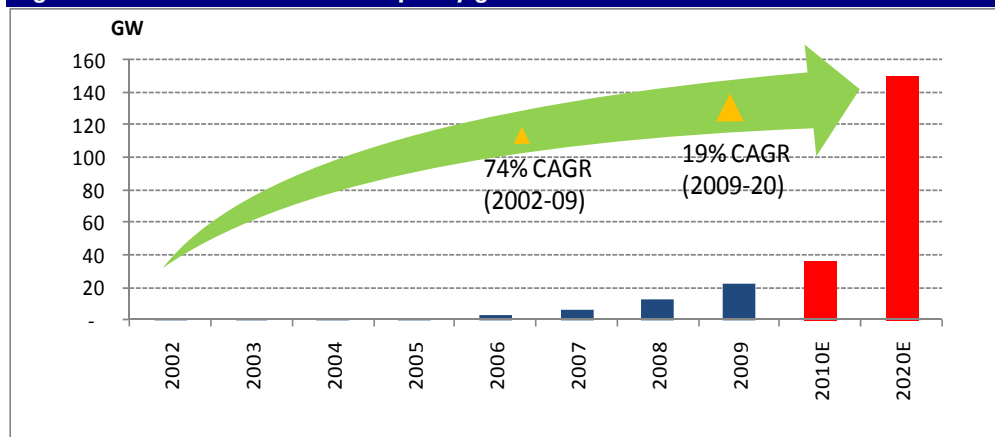
Key points

- Following a phenomenal growth phase from a low base (74% in 2002-09), China's wind power capacity looks set to grow at a slower pace (19% in 2009-20E).
- Competition has intensified in both the wind turbine supply market and the wind power development market, with many new entrants in the market.
- Top market players have cemented a strong competitive edge over smaller rivals as the wind market is evolving into a more mature stage.
- While we are still bullish on the long-term growth outlook, we think it is time to be selective when it comes to stock picks.
- The "Matthew effect" should prevail in the sector, and we prefer established players such as the largest developer—Longyuan, the second largest turbine maker—Goldwind, and the largest wind gearbox maker – China High Speed Transmission (CHSTE).

Growth rate to level off

After the phase of high growth, we do not doubt that the growth rate of wind power capacity should gradually slow down. Compared to a 74% CAGR in 2002-09, we estimate wind power to grow at 19% in 2009-20E. While we believe the 2020 government target of 150GW has potential upside, the growth momentum looks set to reduce, owing to a higher base.

Figure 26: China installed wind capacity growth and forecast



Source: Deutsche Bank estimates, China Electricity Council, NDRC

Competition is intensifying...

We see that competition is intensifying in both the wind turbine supply market and the wind power development market, as a consequence of many new entrants over the past several years.

Wind turbine market oversupply

There were nearly 70 wind turbine makers in China in 2009, and only around 15 of them had capacity of over 800MW. The rest had either just launched their products to the market or were in the R&D stage. But even total capacity of established players have already far exceeded the annual demand in China. As a result of increasing competition, the price of turbines has been decreasing since late 2008. According to CWEA, the price of wind turbines

at year-end 2009 decreased to RMB5,000/kW and below (not including the tower price) from RMB6,200/kW in early 2008. Recent orders suggest an even lower price of RMB4,500/KW for some suppliers. While part of the fall could be due to decline in material prices, there is little doubt that fierce competition is another contributing factor.

Wind farm development becomes crowded as well

Relative to wind turbine industry, completion in wind farm development is less severe. However, our industry channel checks suggest the level of competitive intensity has been on a rising trend, especially in those areas with better grid connection conditions. Meanwhile, owing to VAT policy changes in 2009, the enthusiasm of local government has abated slightly due to the absence of VAT income for the first six years of operation. Thus, the offering of wind site development rights is not as plentiful as it used to be.

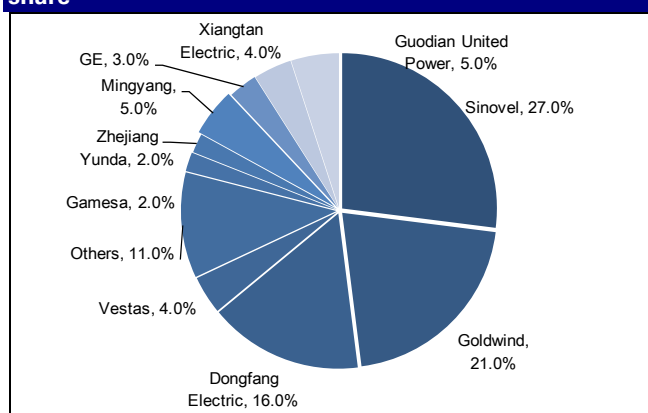
Competitive edge looks well established

The sector has evolved into a phase in which top players account for most of the market share. In the turbine manufacturing area, the top three players control a 64% market share (Figure 27). Similarly, the top three wind power developers—China Longyuan, China Datang, and China Huaneng—own 40% of the country's total wind capacity (Figure 28).

In our view, the top players have built up their strong competitive edges over many small rivals. The declining ASP for wind turbines has made it difficult for the small players to make a profit due to a lack of economy of scale. In turn, spending on new product R&D is limited due to poor financial performance. We expect the oversupply issue will be less of a concern for top players, given the high market concentration in this industry.

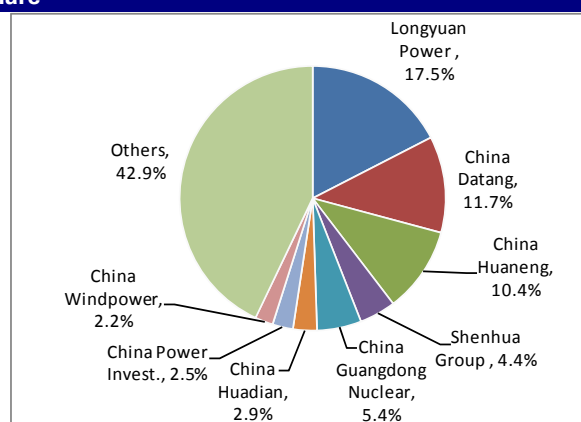
Similarly, competition of wind farms' development rights clearly favours big and established players, owing to their stronger operational track records and easier access to capital. All in all, we believe top players have built a solid position in a gradually maturing market. However, bigger players still enjoy edges in terms of turbine procurement, financing and established track record in operation.

Figure 27: 2009 China wind turbine makers' market share



Source: Deutsche Bank, BTM March 2010.

Figure 28: 2009 China wind power developers' market share



Source: Deutsche Bank, BTM March 2010

"Matthew effect" should prevail in the sector

Given market concentration in the hands of the big players, we believe that the aforementioned "Matthew effect" should play out. The government's proposed guideline for turbine makers' entry policy is likely to phase out many smaller players, leaving orders more

skewed towards bigger players. Even without that, fierce competition is likely to cause them leave the market. The growth of wind farm developers should follow a similar pattern but could leave room for some niche players, as the scale effect is slightly less important compared to turbine manufacturing.

Despite remaining bullish on the sector's long-term growth, we believe it is time to be selective when it comes to stock picking. We prefer established players such as Goldwind and CHSTE in the equipment manufacturing segment and Longyuan in the power generation segment, as we believe their respective competitive edges are solid, making it difficult for smaller players to challenge them in a gradually maturing sector with a stable growth trend, following several years of exponential growth.

Risks

Overall wind power sector

Fossil fuel price decline

As a substitute for traditional fossil fuels, the development or popularity of renewable energy is strongly correlated with the prices of fossil fuels. Low oil or coal prices make wind energy less attractive economically.

Change in government policy

In the forms of favourable feed-in tariffs, tax incentives, renewable portfolio standards, and the charge of carbon cost, government policies have played a key role in supporting the wind energy industry over the past years. Hence, any negative regulatory change may threaten the prospect of wind energy development.

Grid connections

There are mounting pressures for grid companies to increase their capex on transmission line constructions, given that most wind resources are located in remote areas with a long distance to load centres. The delay in transmission network development can deter the wind industry growth.

Capital market conditions

Wind energy is capital-intensive, which means that project viability relies heavily on access to capital markets and the cost of financing. A difficult global financial market in 2008 and 2009 has resulted into many cancellation or delays of previously proposed projects.

Wind power equipment specific

Competition

As we wrote earlier, production capacity in 2010 is set to increase to 25GW and even more in the next few years after adding up each individual company target. We believe some capacity may be used for an export base due to low production costs in China. However, this still represents a potential oversupply risk; even if annual demand for wind turbines should continue to be robust for the next ten years. According to the government target of 150GW in 2020, China largely needs to add 12GW per year, which means competition will likely heat up further. Hence, a round of sector consolidation may occur at some point, and ASPs may follow the already downside trend.

Component shortage

With rapid wind turbine capacity expansion plans, the pressure on specialized component suppliers is mounting. Even though the localization of the core turbine component has been continuously proceeding with China's strong manufacturing base, we believe that in the short term, a tight supply of core component still exists. Many turbine players rely on the import of gearbox, blades and bearings, and control system for multi-MW class wind turbines.

Rising material costs

Wind turbine manufacturing is material-intensive, with materials accounting for more than 70% of total production costs. Strong demand may push up the price of some raw materials or some special components, particularly when there is strong demand from other high-growth sectors. In such case, turbine and component makers may experience margin pressure if pricing power weakens.

Overview of China's wind power industry

China's position among the global wind capacity development circle

Over the last seven years, wind capacity in China has grown at an exponential pace of a 76% CAGR. In 2009, China added 13.8GW, more than doubling installations for four consecutive years. China's increase in new capacity was the highest in the world, followed by the US and Spain. At the end of 2009, the installed wind capacity in China was the second largest in the world.

Figure 29: China wind power capacity trend

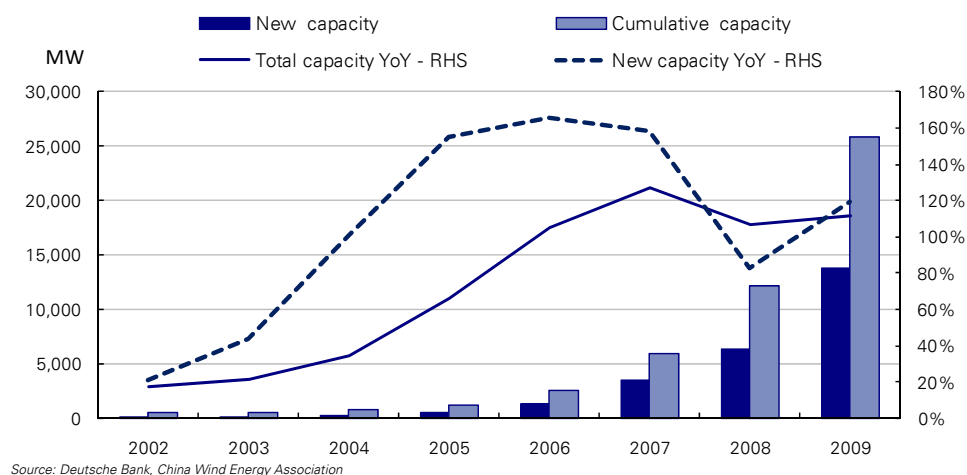


Figure 30: 2009 newly installed capacity by country

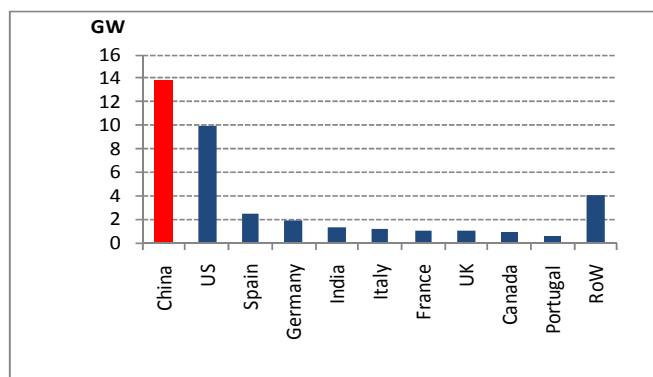
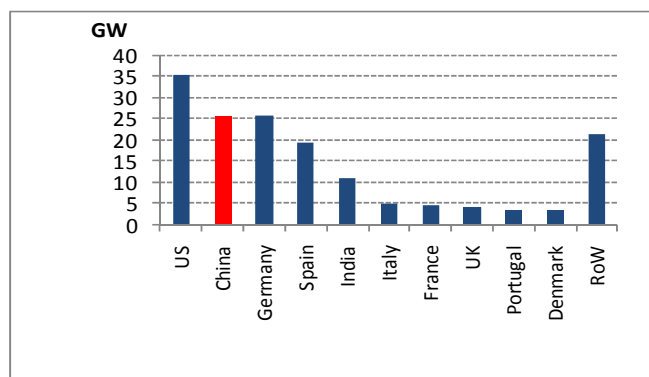
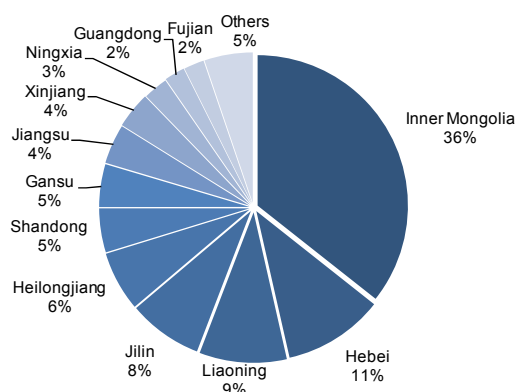


Figure 31: 2009 cumulative wind capacity by country

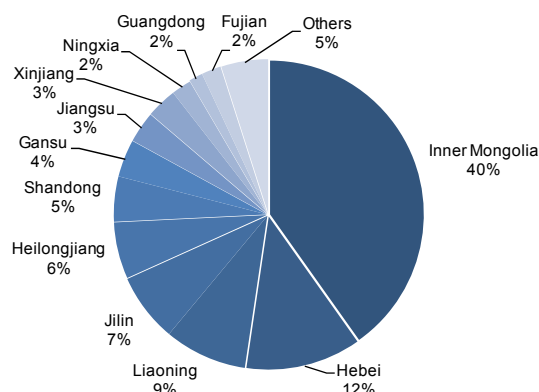


Locations of current wind farms highly correlated with wind resource

In terms of the geographical location of wind resources, China's wind resource is largely located in North China, namely East and West Inner Mongolia, Xinjiang, Gansu, Hebei, West Jilin, and the Jiangsu coastal region. Today, China's wind farms are highly concentrated in the regions where there exists an abundance of wind resource and high grid efficiency. Inner Mongolia, Liaoning, and Jilin provinces accounted for over 50% of China's installed capacity in 2009. At the same time, wind capacity as a percent of total capacity is also the highest among these provinces.

Figure 32: Total installed capacity by province (2009)

Source: Deutsche Bank, CWEA

Figure 33: New addition capacity by province (2009)

Source: Deutsche Bank, CWEA

China's wind energy development plan

China's phenomenal growth in wind capacity in recent years is mainly a result of the government's focus and commitment to developing the sector. Today, China's current wind capacity has already exceeded its original short-term target of 5GW by 2010 set in 2007. In addition, with the current rapid growth of wind capacity, the 30GW wind capacity target in 2020 that was set in 2007, according to the NDRC Medium to Long Term Development Plan, is likely to be revised upwards. According to various media reports by the *Shanghai Securities Journal* and the *China Business News*, the National Energy Bureau may revise the wind capacity upwards to 100-150GW, as wind energy is viewed as one of the key avenues for China to meet its renewable energy target.

A summary of favourable governmental policies

Over the past decade, favourable governmental policies have fuelled the growth of the Renewable Energy Sector in China in terms of capacity and players. Several initiatives such as the Renewable Energy law, on-grid pricing policy for wind power, and aggressive targets for renewable energy have laid down the foundation for the development of wind power. Below, we discuss the key government supporting policies.

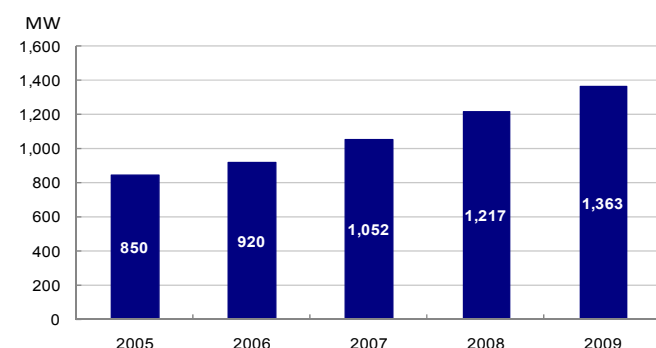
- **Feed-in tariffs:** In 2009, the Chinese government introduced a wind feed-in tariff ranging from RMB0.51/KWh to RMB0.61/kWh, according to four categories bases, with a premium of c.RMB0.20/KWh coal power within the same province. Unlike some other countries, wind power has no exposure to the free market due to the lack of a competitive wholesale market in China.
- **Renewable energy mix:** There is an obligation for larger power-generating companies to have 3% of non-hydro renewable energy in total power generation mix by 2010 and 8% by 2020.
- **Priority dispatch:** According to the PRC Renewable Energy Law, grid companies must give priority to electricity generated from renewable energy projects in their grid areas and must provide grid-connection services and related technical support.
- **Tax benefits:** A wind farm is exempt from the PRC income tax for three years and receives a 50% reduction in such tax for three years thereafter. In addition, the VAT rebate reform effective from 1 January 2009 further promoted the capacity expansion of the wind power industry as companies can receive a VAT rebate on the purchase of wind equipment.

Overview of China's wind turbine market

The ever-enlarging wind turbine

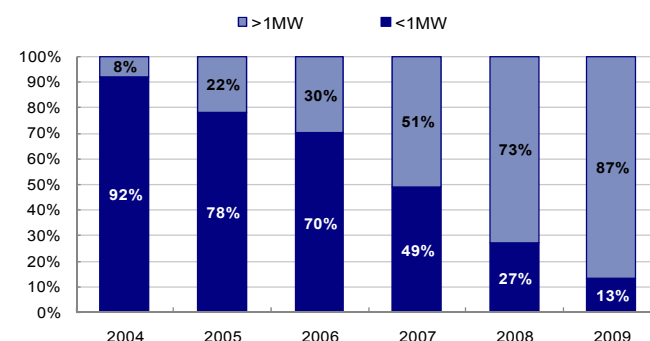
Large MW wind turbine is the trend of technology development to improve power generation performance. The average MW of wind turbines in China has increased to 1.36MW in 2009 from 0.85MW in 2005. According to CWEA, the market share of MW-scale turbine has increased from 22% in 2005 to 87% in 2009. Among the MW-scale turbine market, 1.5MW turbine has become the mainstream product, which accounted for 73.8% of total annual capacity in 2009 with an output of 6,790 units.

Figure 34: China average wind turbine size



Source: Deutsche Bank, CWEA

Figure 35: China capacity mix (2004-09)



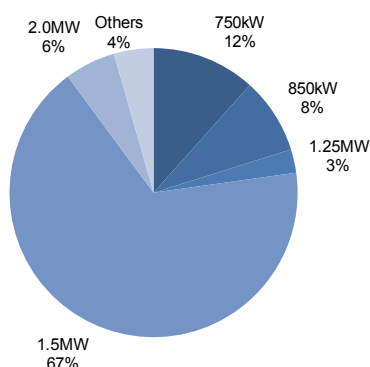
Source: Deutsche Bank, CWEA

China is headed for the launching of multi-MW-scale turbines.

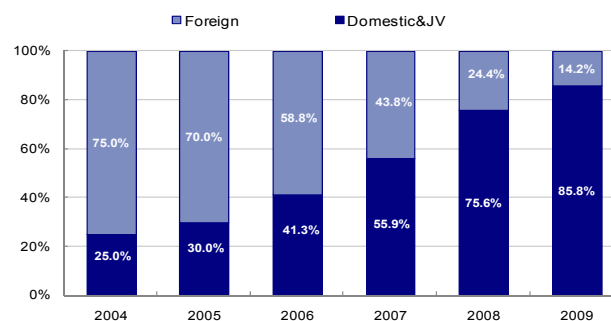
- Goldwind has delivered 2.5MW and 3.0MW turbines for trial operation.
- Sinovel's 3.0MW turbines have been installed in the East Bridge wind farm as a demonstration project and all the turbines have been grid-connected.
- Mingyang has launched the 2.5MW/3.0MW SCD two-blade turbine.
- Shanghai Electric announced that it is Asia's largest turbine – 3.6MW was off the production line.
- Besides, Sinovel, Goldwind, Dongfang Electric, and Xiangtan Electric are all engaged in the R&D of 5MW offshore wind turbines.

Domestic players' market share on the rise

Figure 35 shows that Chinese players have emerged as the dominant supply force, growing from 8% market share in 2004 to 87% in 2009. To support local manufacturers, the Chinese government announced its 70% localization guidelines back in 2006. Most local players have since bought technology licenses from foreign companies in maturing products such as 1.5MW doubly-fed type turbines, while utilizing cheaper labour and low-cost local supply chains in components sourcing. In light of Chinese players' enhanced competitiveness, the government abandoned the 70% localization requirement in late 2009.

Figure 36: China installed unit mix in 2009

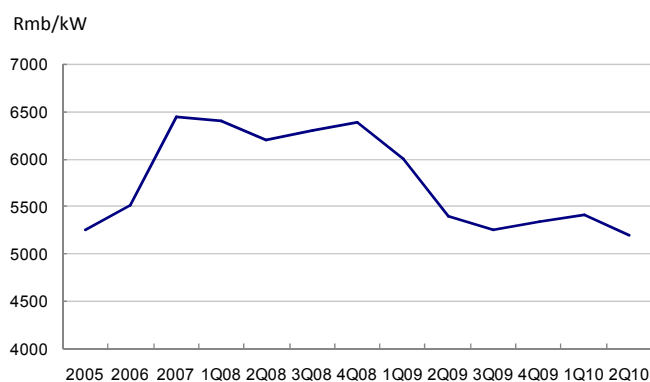
Source: Deutsche Bank, CWEA

Figure 37: Market structure – import vs. domestic

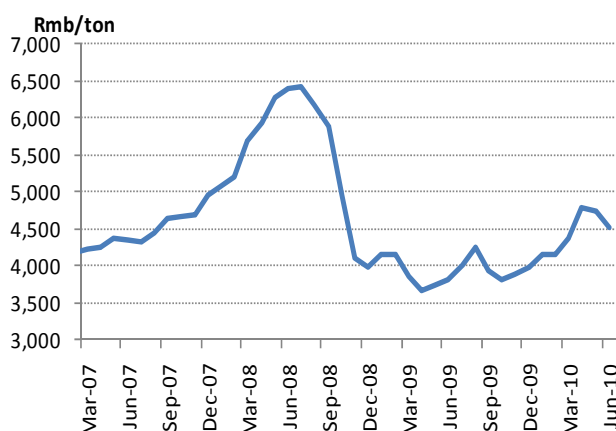
Source: Deutsche Bank

Turbine capacity in oversupply

Along with the booming wind capacity growth, many new entrants have rushed into the turbine manufacturing sector over the past few years. According to the China Wind Energy Association, there are a total of 70 players in the wind turbine manufacturing areas, rising from less than ten in 2007. However, among them, many are yet to formulate batch production scales (<300MW production capacity). Adding together the individual production capacity of 28 industry players with batch production capacity, there should be about 38GW capacity in 2010 (Figure 40). Compared to annual demand of 13~15GW, there is no question of wind turbines' capacity oversupply in China, even taking into account of the industry's typical 70% utilization rate. As a consequence, wind turbine price has fallen sharply since late 2008, despite that it also reflects falling steel prices.

Figure 38: Wind turbine ASP trend

Source: Deutsche Bank, Company Data

Figure 39: Steel price trend (Hot Roll Thick Board)

Source: Deutsche Bank, CEIC

This rapid capacity expansion is also due to the industry's relatively low barriers to entry. Wind turbine manufacturing is essentially an assembly line of various components sourced from suppliers. Thus, capex intensity is low compared to other manufacturing sectors. Also, the cost of production for turbines is primarily composed of materials (the variable costs), with a low portion of fixed costs (i.e. depreciation and interest expenses). Under-utilized production capacity generally does not lead to much higher unit production costs due to the absence of large fixed costs. As such, turbine makers are not that concern of capacity under-utilizations. In addition, many players are existing equipment makers in other areas that can share some common manufacturing capacities.

Figure 40: Wind turbine manufacturing capacity in China

Manufacturer	Type of equipment (MW)	Location	2008	2009	2010
Sinovel	1.5	Liaoning	2,000	4,000	5,000
Gold Wind	0.6/0.75/1.5	Xinjiang	2,000	3,000	4,500
Dongfang Electric	1.5	Sichuan	1,200	2,500	3,000
Guodian United Power	1.5	Hebei	1,200	1,500	3,000
Mingyang Group	1.5	Guangdong	500	1,000	1,500
Xiangtan Electric	2.0	Hunan	500	1,000	2,000
Shanghai Electric	1.25/2	Shanghai	400	1,200	1,500
Zhejiang Windey (Yunda)	0.75/1.5	Zhejiang	500	600	1,000
Yuanjing Xinyuan	1.5	Jiangsu	100	450	1,500
Tianwei Baobian	1.5	Hebei	200	400	750
CSIC Haizhuang	0.85/2	Chongqing	150	500	700
Huayi Electric	0.78/1.5/2	Zhejiang	150	300	450
Shenyang Huachuang	1.5	Liaoning	300	300	750
Baoding Huide	1.0	Hebei	200	300	500
Changzheng Electric	2.5	Guangxi	100	100	500
Beizhong Steam Turbine Generator	2.0	Beijing	300	450	600
Jiangsu Xinyu	1.5	Jiangsu	100	250	500
CSR	1.5	Hunan	100	300	500
Shandong Changxing	1.5/2.0	Shandong	100	400	750
North Heavy Industries (Repower)	2.0	Inner Mongolia	150	300	800
Yinxing Energy (Mitsubishi)	1.0	Ningxia	20	100	300
Nordex (Yinchuan)	1.5	Ningxia	100	225	300
China Energin	1.5	Inner Mongolia	400	750	1,200
Vestas	0.85/1.5	Tianjin	600	800	1,500
Gamesa	1.5	Tianjin	600	600	1,300
Suzlon	1.25/1.5	Tianjin	600	700	1,400
GE Wind (Shenyang)	1.5	Liaoning	400	700	1,200
Total production capacity (MW)			~13,000	~23,000	~38,000

Source: Deutsche Bank, Company data

Increasing demand on grid-connection-friendly wind turbine

Given the intermittent nature of wind power, smooth grid connection has become increasingly important for the industry. The grid codes require that a wind turbine should be equipped with the function of Low-voltage ride through (LVRT), which enables the wind turbine to stay connected to the grid in circumstances of instantaneous voltage dips in grid.

Improving vertical integration

Companies in China are heading in the direction of more in-house production for better cost control. Goldwind established manufacturing bases for controlling systems of 1.5MW and rotor production of generators. Yet the rest of the parts are still outsourced. Dongfang Electric is involved in producing wind blades (in cooperation with EUROS in a subsidiary specializing in rosin products), generators (co-developed with Moventas for 3.0MW), and controllers (Dongfang Hitachi). Sinovel produces some gearbox (Dalian Heavy Industry), towers, and nacelles as in-house production but still cannot compare with Vestas, Gamesa, Suzlon, and Enercon on the same level.

Figure 41: Supply chain network of major wind turbine makers

Turbine maker	Rotor blades	Gearboxes	Generators	Controllers
Vestas	Vestas, LM	Bosch Rexroth, Hansen, Winergy, Moventas, CHSTE	Weier, Elin, ABB, LeroySomer	Cotas (Vestas), NEG (Dancontrol)
GE Energy	LM, Tecsis	Winergy, Bosch, Rexroth, Eickhoff, Siemens, GE, CHSTE	Loher, GE, Siemens, XEMC	GE, ReGuard, Visasystems
Gamesa	Gamesa, LM	Echesa (Gamesa), Winergy, Hansen	Indar (Gamesa), Cantarey, GE, Zibo Electric	Ingelectric (Gamesa)
Enercon	Enercon	Direct drive	Enercon	Enercon
Siemens Wind	Siemens, LM	Winergy	ABB	Siemens, KK Electronic
Suzlon	Suzlon, LM	Hansen, Winergy,	Suzlon, Siemens	Suzlon, Mita Teknik
REpower	LM	Winergy, Renk, Eickhoff	Siemens	Bachmann
Nordex	Nordex	Winergy, Eickhoff, Maag	Loher	Nordex, Mita Teknik
Goldwind	LM, CNBM, Huiteng, Sinoma S&T	CHSTE, CSIC	Lanzhou Electric, CNR, CSR	Goldwind, Siemens
Sinovel	LM, CNBM, Huiteng, SHFRP	CHSTE, Dalian Heavy Industry, CSIC	Lanzhou Electric, CSR, Tianyuan Windtec	
Dongfang	Dongfang, Huiteng, SHFRP, LM	CHSTE, CSIC, Erzhong	CNR, XEMC, Dongfang	Mita, Dongfang
Mingyang	Sinoma Composite, Mingyang	CHSTE, Jake	VEM, Lanzhou Electric, CSR, XEMC	Mingyang
XEMC	LM, Huiteng, SHFRP	Direct drive	XEMC	Garrad Hassan, Beijing Jingxin

Source: Deutsche Bank, company data

Government's policy on turbine manufacturing

The Chinese government has been playing a pivotal role in promoting a healthy wind power equipment industry. In Figure 42 we illustrate major regulations related to the wind turbine manufacturing industry.

Figure 42: Key government regulations on wind turbine manufacturing

Year	Subject	Description
2010	Entry requirement	MIIT, NDRC and National Energy Bureau released a draft proposal to lift entry requirements for turbine manufacturers, including annual capacity of over 1,000MW, products of no less than 2.5MW with proprietary technology, industry experience of no less than five years, etc. The proposal is not finalized yet.
2009	Localization requirement	National Energy Bureau aborted the 70% localization rate requirement for the wind turbine manufacturing sector.
2008	VAT policy	MOF allowed wind developers can deduct the VAT on wind turbine purchase from VAT on electricity sales
2008	Subsidy to manufacturers	MOF provided subsidies to turbine players for their first 50 units (no smaller than 1.5MW) at a price of RMB600/kW; 50% for turbine manufacturers and 50% for key component manufacturers.
2005	Localization requirement	NDRC required 70% of the wind turbine to be produced domestically to promote local manufacturing capability.

Source: Deutsche Bank, NDRC, MIIT, MOF

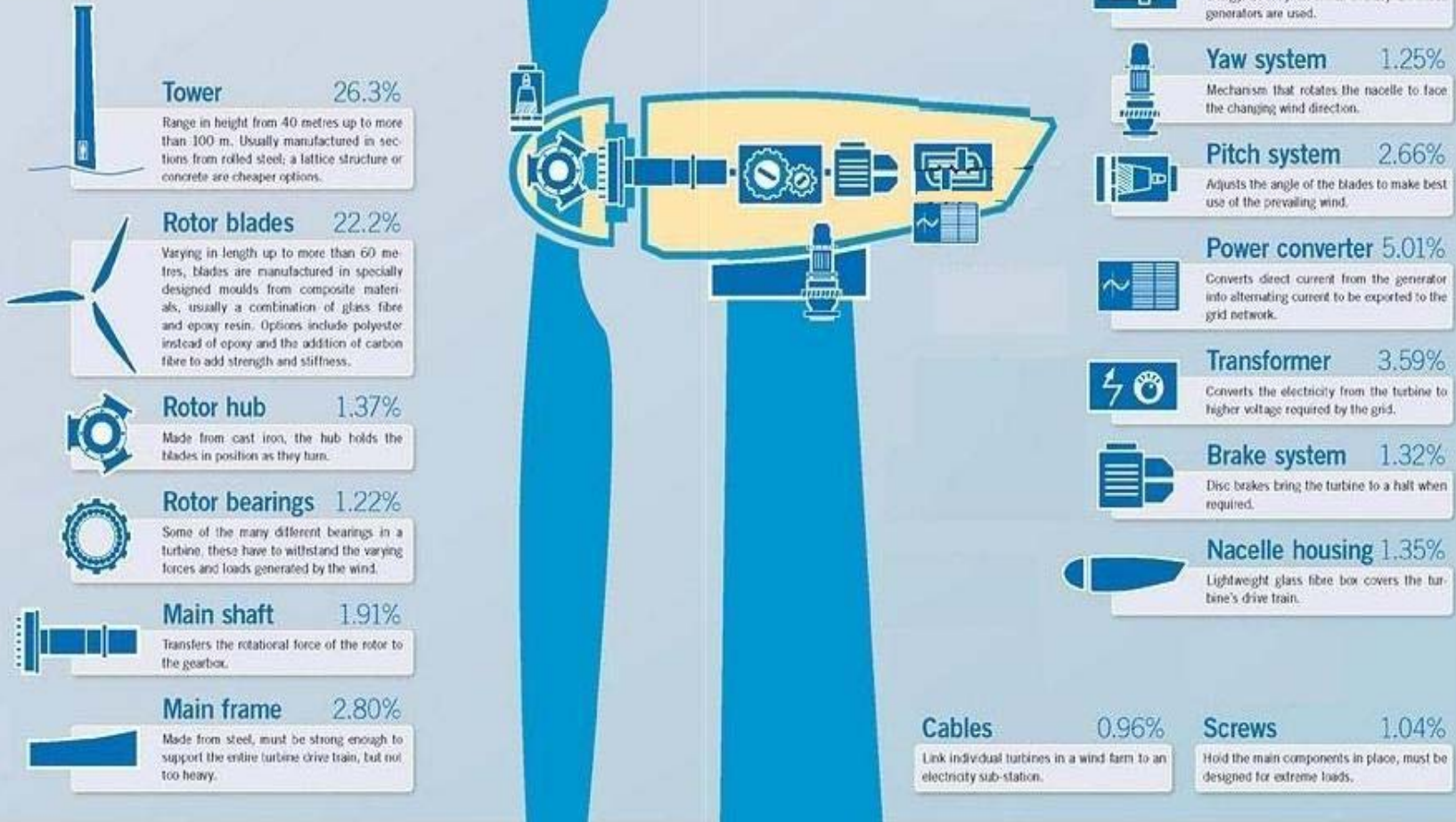
Basics of a wind turbine

A wind turbine typically includes a three-bladed rotor with a separate front bearing and a low-speed shaft connected to a gearbox that provides an output speed suitable for the most popular four- or two-pole generators. Wind turbine manufacturing mainly involves the assembly of different components such as the gearbox, blade, generator, and control systems. Some players opt for a more vertically integrated model by investing in in-house facilities (i.e., Suzlon/Sinovel) while some rely more on third-party providers (i.e., Goldwind/Mingyang).

Figure 43: Inside a wind turbine generator

How a wind turbine comes together

A typical wind turbine will contain up to 8,000 different components. This guide shows the main parts and their contribution in percentage terms to the overall cost. Figures are based on a REpower MM92 turbine with 45.3 metre length blades and a 100 metre tower.



Source: Deutsche Bank, EWEA

Overview of offshore market

With China's 9,000-mile coastline, there is also considerable potential for offshore wind. China's State Meteorological Administration recently made an estimate of 200GW for the country's potential offshore wind energy capacity. Offshore wind makes sense particularly for the provinces on the Eastern coastal region, from Guangdong to Shandong, as they generally have the highest population densities.

Three categories of offshore wind farms

In 2009, The National Energy Administration classified offshore wind farms into three categories, depending on the depth of water: an 'inter-tidal zone' for water depth of less than 5m; an 'offshore' zone for water depth of 5-50m; and a 'deep sea' zone deeper than 50m. The development plan for the 'inter-tidal' and 'offshore' wind farm up to 2020 will be drafted by the provincial government.

Negligible current capacity

According to WWEA, only 23MW was installed in China by the end of 2009 for offshore wind power, of which 21MW was installed in 2009. Goldwind has put Asia's first 1.5MW wind turbine for an offshore wind farm trial operation in Bohai Bay in 2007. The East Bridge offshore wind farm, China's first commercial offshore wind farm, was grid-connected in June 2010 with turbine supply from Sinovel.

Potential resources of more than 200GW

According to a wind assessment report published by the China Meteorological Administration at year-end 2009, China's economically exploitable offshore wind resource for the inter-tidal zone, offshore zone, and deep sea zone is approximately 200GW.

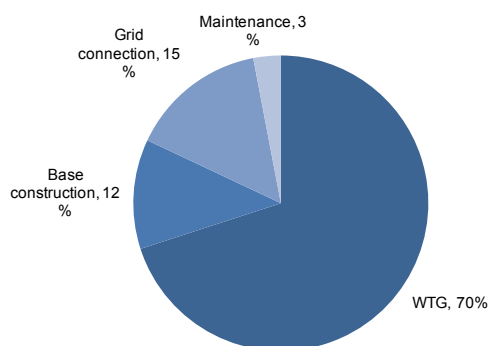
Provinces that have offshore wind resources have also set a development target as well. Jiangsu province reportedly aims to establish 7,000MW of inter-tidal and offshore wind farms by 2020, while Zhejiang province aims to develop 100MW by 2012, 1,050MW by 2015, and 2,700MW by 2020 along the eastern coastal province of Zhejiang. China as a whole has a target of 30GW by 2020.

Tariff and construction costs

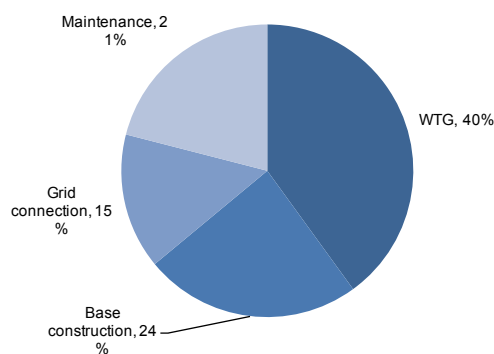
The construction cost for a wind farm is RMB8,800-9,000/kW, while the construction cost for inter-tidal wind farms is 1.5 times more expensive at RMB14,000/kW, and offshore wind farms are two times more expensive at RMB20,000/kW. However, offshore wind farms' utilization is generally higher, at around 3,000 hours versus the average 2,000 hours for onshore wind farms.

Of offshore wind farm investment, the wind turbine cost portion should decrease to 35-40%, compared with 70% for onshore wind farms. Nevertheless, the cost of foundations should significantly increase to almost one-quarter of total investment. Meanwhile, the portion of the maintenance cost will also increase. (See Figure 44 and Figure 45)

This high cost is compensated for by a high on-grid tariff. According to the East Sea Bridge offshore wind farm demonstration project, the on-grid tariff was RMB0.978/kWh, which is almost twice as much as the onshore wind electricity tariff. The project's design utilization hours of 2,624 can also serve as a reference for future offshore wind farms.

Figure 44: Onshore wind farm investment breakdown

Source: Deutsche Bank, Company Data

Figure 45: Offshore wind farm investment breakdown

Source: Deutsche Bank

1GW offshore projects to tender in 2010; 10GW in the plan

China has already begun its development in inter-tidal as well as offshore wind farms. In May 2010, China bid out four more offshore wind projects (2x300MW inter-tidal, 2x200MW offshore) in the Eastern province of Jiangsu along the Yellow Sea. Furthermore, it has been reported that the Jiangsu cities of Dafeng, Rudong, Xiangshui, Binhai, Sheyang, and Nantong will be the next sites for future offshore wind projects along the Yellow Sea.

Provinces with offshore wind resources have also set a development target. Jiangsu reportedly aim to establish 7GW of inter-tidal and offshore wind farms by 2020 while Zhejiang aims to develop 100MW by 2012, 1GW by 2015 and 2.7GW by 2020 along the eastern coastal province of Zhejiang. China as a whole has a target of 30GW by 2020.

Figure 46: China's offshore wind power project in plan

Project	Location	Capacity (MW)
Changdao offshore wind power project	Shandong	1,500
CNOOC Weihai offshore wind power project	Shandong	1,000
Binhai wind power project (intertidal zone)	Shandong	1,800
Huaneng Rongcheng offshore wind power project	Shandong	100
Donghai bridge offshore wind power project	Shanghai	100
Fengxian offshore wind power project	Shanghai	100
Fengxian large-size offshore wind power project	Shanghai	300
Nanhui large-size offshore wind power project	Shanghai	400
Hengsha large-size offshore wind power project	Shanghai	200
Putuo Liuheng offshore wind power project	Zhejiang	200
Haitang offshore wind power project	Zhejiang	200
Ganyu offshore wind power project	Jiangsu	450
Lianyun Port offshore wind power project	Jiangsu	200
Xiangshui offshore wind power project	Jiangsu	200
Binhai wind power project	Jiangsu	200
Sheyang offshore wind power project	Jiangsu	200
Dafeng offshore wind power project	Jiangsu	200
Dongtai offshore wind power project	Jiangsu	200
Rudong offshore wind power project	Jiangsu	200
Qidong offshore wind power project	Jiangsu	200
Hangu offshore wind power project	Heibei	200
Lufeng Jiahu Bay offshore wind power project	Guangdong	1,250
Putian offshore wind power project	Fujian	48

Source: Deutsche Bank, NDRC

Overview of China's grid investment plan

Although China has an aggressive renewable energy growth plan, the pace of its development will largely depend on the ability of alternative energy to connect to the grid system, especially considering the geographic imbalance between the renewable energy supply and demand. Some of electricity produced by wind power is currently unable to be connected to a grid.

To resolve the grid connection problem, the Chinese government has laid out a RMB4tr smart grid development plan. As we wrote earlier, we believe the grid bottleneck will be gradually resolved with an equally aggressive grid development plan. Below, we present more details in an excerpt from our "China Industrials Monthly" June 2010 issue.

Smart grid overview

Compared to the US, Japan, and the UK, China not only has a less-developed power grid network but also is the laggard in smart grid infrastructure, even though it is the world's second largest consumer of electricity. Due to the technology gap, "Smart Grid" in China has been a relatively fluid concept for many years, but things changed in 2009, presumably due to the governmental deployment of a "low carbon economy" concept.

Characteristics of the Chinese smart grid

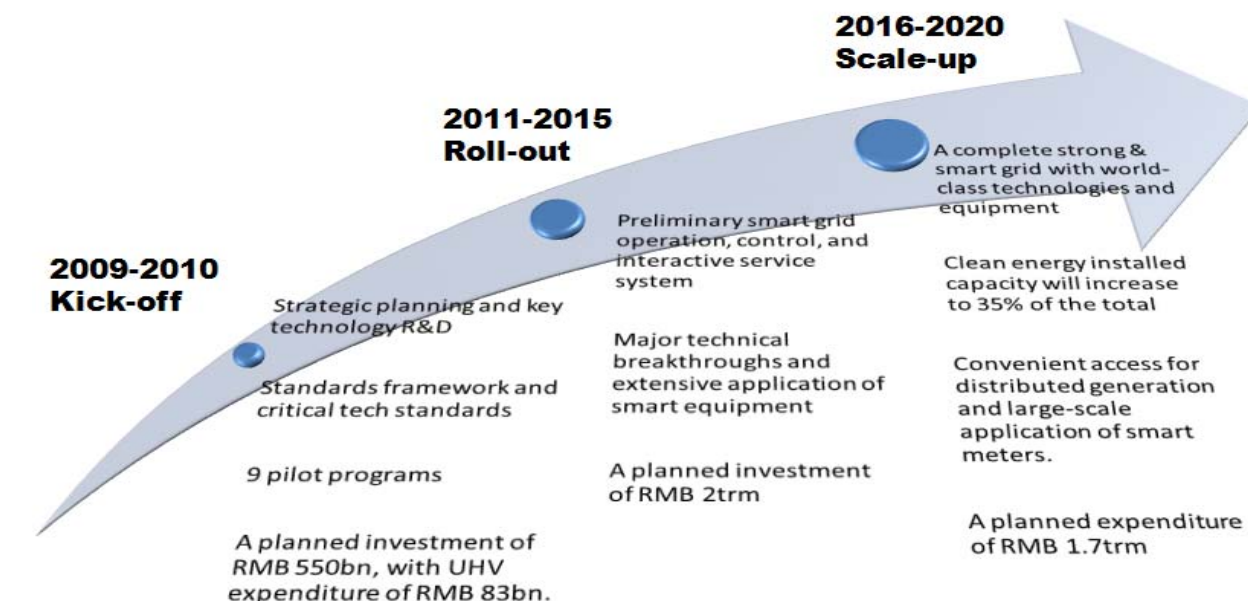
Technically, the term "Smart Grid" refers to the application of various digital technologies to, among other things, modernize and automate the transmission and distribution assets to anticipate and respond to system disturbances, enabling greater use of variable energy sources—including renewable energy—and provide intense integration, exchange real-time information and capability for customers to control their energy consumption effectively.

Given the local situation such as the regional mismatch of power supply and demand, the Chinese implementation of the smart grid will be multi-faceted.

1. We see scope for raising installed capacity of new energy sources (nuclear, wind, solar, and hydro) to meet the increased power demand;
2. We believe a large portion of the investment will go directly towards linking new renewable capacity to the grid;
3. The build-out of ultra-high voltage and the use of advanced transmission technology (FACT, SVG/SVC, etc.) will be required to reduce energy losses;
4. Digital converter stations will be constructed using real-time information monitoring and sharing to manage the health of the network.
5. On the power consumption side, we see the large-scale rollout of smart meters and Electrical Vehicle (EV) charging stations. Therefore, the smart grid plan in China is now being directed at both supply and demand side (e.g., smart meter, EV charging station). In particular, we see the primary focuses are on renewable energy.

China grid investment plan

State Grid flagged as a top priority its "Strong and Smart Grid plan" released in July 2009. Under this significant mid-term plan, a "unified strong and smart grid" will be deployed across China by 2020 with a total expenditure of RMB4tr from State Grid for 2011-20. Specifically, the infrastructure of the smart grid is expected to be divided into three phases through 2020 as presented in Figure 47.

Figure 47: China “Strong & Smart” Grid development strategy

Source: Deutsche Bank, SGCC

Ultra-high voltage transmission lines as the backbone

Compared to the US and Europe, the Chinese smart grid appears to be more transmission-centric as grid companies face mounting pressure to increase capex on transmission line construction, given the rising need for reliable long-distance power transmission projects. High voltage ($\geq 110\text{kV}$) and ultra-high voltage (1,000kV AC or 800kV DC) power transmission have been identified by China's Electric Council as the most efficient way to transmit electricity. Power transmission lines of 1,000 kV UHV can send the electric power three times the distance than traditional 500kV power lines, while their electric losses account for only 25-40% of traditional lines. UHV transmission lines can also save 60% of land used to construct the transmission lines. It is an historic choice for China to speed up the building of a strong and smart national grid.

Two horizontal and two vertical power transmission lines by 2012

At the 2010 annual work conference, State Grid reiterated its aggressive framework for smart grid deployment, which is to bring the number of UHV transmission lines into six, forming “Two horizontal and two vertical power transmission lines” across the country and building 32 switching stations by 2012. Estimated capex will amount to RMB120-150bn. On top of this, it is planning for approximately ten UHV DC projects, each rated 5-6GW, to be in operation before 2020, with transmission distances in the range of 2,000km to 3,000km.

Figure 48: “Two horizontal and two vertical power transmission lines” Plan

Vertical Lines	East	Inner Mongolia province - Nan Jing
	West	Shanxi province - Hu Nan province
Horizontal Lines	North	Mengxi - Weifang
	South	Sichuan province - Shanghai

Source: Deutsche Bank, SGCC, NDRC

CDM basics

What is CDM?

Clean Development Mechanism (CDM) is a system that is designed to help developing countries meet their emission reduction commitments with minimal impact on their economies. The mechanism was introduced by the US government to the Kyoto Protocol and is currently administered by United Nations CDM executive board. Under the system, carbon credits are issued to emission-reduction projects in developing countries to help meet a part of their emission reduction target under the Kyoto Protocol. The carbon credits can be sold to large corporations in the developed countries to provide them with an alternative means to meet their carbon reduction target.

How does it work?

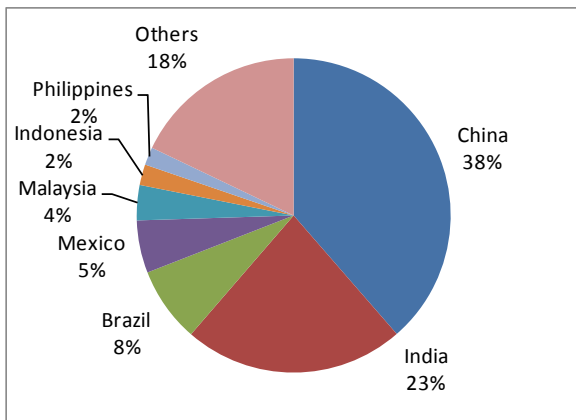
For an emission-reduction project to qualify for CDM, the project operator must first obtain consent from the developing country that the project will contribute to sustainable development. After which the project operator can file an application with the CDM executive board. The approval of the project will be based on two criteria:

- **Additionality:** The applicant must make the case that a reduction in emissions would not have occurred in the absence of CDM
- **Baseline:** The applicant must establish a baseline case to determine the amount of emission reduction that would have occurred without the project minus the emissions of the project. The construction of such a scenario is the *baseline* of the project.

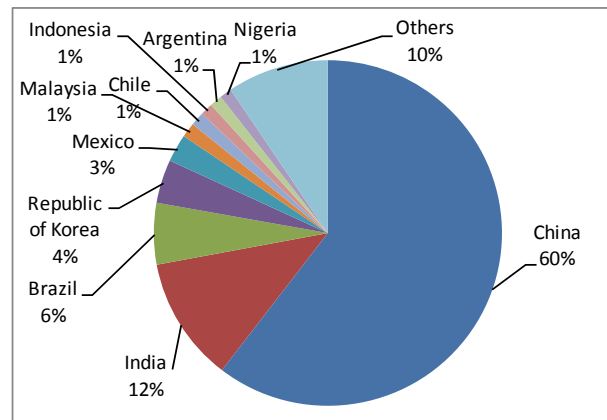
The case will subsequently be validated by a third-party agency known as the Designated Operation Entity (DOE). The EB then decides whether to approve the project. If the project is registered and implemented, the EB will issue credits, called Certified Emission Reductions (CERs, where each unit is equivalent to the reduction of one metric tonne of CO₂). The CER carbon credit can subsequently be sold to the developed countries at minimum price floor of €8 per ton (with the exception for hydro-electricity which could be sold at €12 per ton).

Development of CDM

Since its operation at the start of 2006, the mechanism has already registered (approved) more than 1,000 projects and is anticipated to produce CERs amounting to more than 2.7bn tonnes of CO₂ equivalent in 2008-12. The main beneficiaries of the program have been India and China, accounting for 23% and 39%, respectively, of the CDM issued globally.

Figure 49: CDM registered projects to date by country

Source: Deutsche Bank, UNFCCC website

Figure 50: CDM registered annually by country

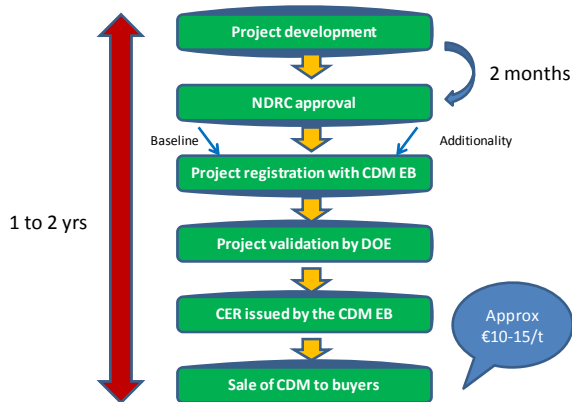
Source: Deutsche Bank, UNFCCC website

CDM generates additional revenue for wind farms through carbon credits

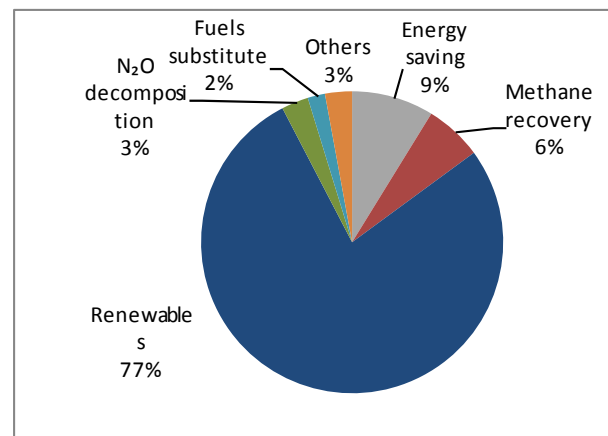
Under the clean development mechanism, Chinese wind operators can apply for carbon credits issued by the United Nations CDM Executive Board. The carbon credit received can subsequently be sold to the developed markets in Europe to help them meet their carbon reduction targets. In China, according to the CDM Measures issued by NDRC and other ministries, only companies that are wholly owned or controlled by Chinese parties are entitled to carry out CDM projects.

Application process of one to two years

The approval process for the CDM application is approximately one to two years. A wind farm developer will first have to seek approval from the NDRC. Upon the approval, the company will file an application with the CDM Executive Board and must make the case that reduction in emissions would not have occurred in the absence of CDM. The project is subsequently validated by the Designated Operational Entity (DOE). If the project is approved/registered, the CDM EB will issue carbon credits to the wind developer. Figure 51 illustrates the CDM application process in China.

Figure 51: CDM approval process and timeline in China

Source: Deutsche Bank

Figure 52: Approved projects by scope in China

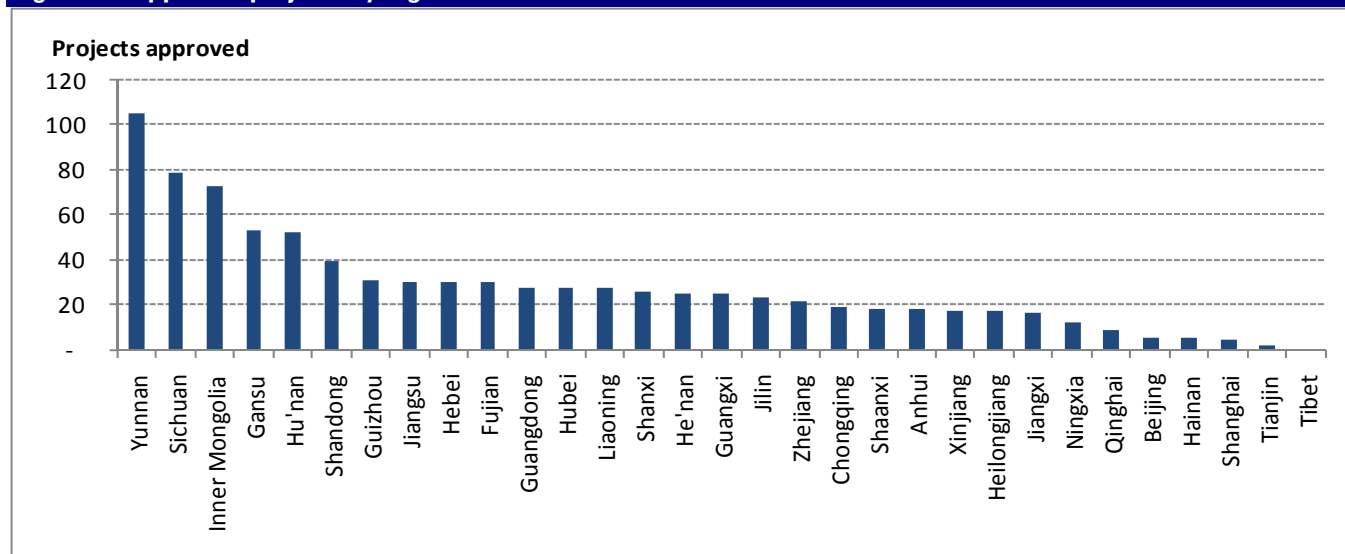
Source: Deutsche Bank, UNFCCC

China accounts for 38% of CDM projects globally

Since CDM started in 2006, China has accounted for 38% of the registered CDM projects. Of the registered projects, about 77% is attributed to the renewable industry, which includes

wind, solar, and hydro. In terms of registered projects by province, Yunnan, Sichuan and Inner Mongolia accounted for most of the projects approved. For Yunnan and Sichuan, most of the projects approved are related to hydro projects, while for Inner Mongolia, most of the projects approved are for wind projects.

Figure 53: Approved projects by region in China



Source: Deutsche Bank, UN

Recent CDM execution issues in China

One of the recent issues is the delay and rejection of CDM projects in the UN registration process. Twelve wind projects from China were rejected in 2009. The main criticism that the CDM EB had against China's wind farms was that the NDRC has set wind tariffs in China at artificially low levels to ensure that wind farm operators get to qualify for carbon credits under the CDM program. This implies that China is using more developed countries, rather than itself, to subsidize wind farms. Another issue that CDM projects face is that UN registration takes a longer time. There has recently been a substantial delay in the registration process of CDM projects.

Asia Hong Kong
Energy Alternative Energy

19 July 2010

Longyuan Power

Reuters: **0916.HK** Bloomberg: **916 HK**

Growth at a reasonable price; Initiate with a Buy

Growth stock at reasonable price; Buy with a target price of HK\$9.0

We initiate coverage of Longyuan Power with a Buy rating and 12-month target price of HK\$9.0. Leveraging China's rapid wind capacity growth and a huge project pipeline, Longyuan's earnings should grow at a 60% CAGR in 2009-12E with capacity tripling in 2009-14. Share prices have fallen off since January and Longyuan currently trades at the lower end of its historical P/E and P/B and is cheaper than its global peers with higher long-term growth (12.9x vs. 14.8x on FY12E P/E).

Highest pipeline coverage among peers; acquisition upside potential

With a 46GW pipeline equalling ten times its existing wind capacity, Longyuan has more growth visibility than its peers. Our forecast of Longyuan's 2020 capacity only assumes a pipeline conversion ratio of 50%. Also, we expect a stable regulatory environment for wind power in China. Its healthy balance sheet presents upside potential to our current assumptions of 2GW annual capacity additions, via acquisitions or more aggressive greenfield expansion.

CDM, grid connection and interest rate hikes risks are manageable

We believe the key concerns on Longyuan's earnings growth potential have been overplayed. For one, even if the CDM market ceases to exist after 2012, our target price would only be reduced by c.10%. Regarding network connectivity, a 10-15% power rationing will have an earnings impact of less than 5%. Also, in the long term, this issue should be resolved as China has plans to develop a world class smart grid that will be able to support the power dispatch from renewable energy. Risks related to interest rate hikes are mitigated via various refinancing means.

Target price of HK\$9.0 based on DCF

We derive our target price from a DCF analysis through to 2020E, after which we assume a 2% terminal growth. Our WACC of 9.5% is based on a risk-free rate of 5.3%, beta of 1.2, ERP of 6.5% and target net debt/equity ratio of 45%/55%. Key downside risks include grid bottlenecks resulting in lower-than-expected power dispatch, interest rate hikes, and uncertainty on CDM incomes.

Forecasts and ratios

Year End Dec 31	2009A	2010E	2011E	2012E
Sales (CN¥m)	9,743.7	13,257.4	15,111.7	17,371.0
EBITDA (CN¥m)	4,448.7	6,354.8	8,270.1	10,385.9
Reported NPAT (CN¥m)	894.1	1,873.8	2,665.6	3,654.7
Reported EPS FD(CN¥)	0.17	0.25	0.36	0.49
DB EPS FD(CN¥)	0.17	0.25	0.36	0.49
DB EPS growth (%)	157.7	44.3	42.3	37.1
PER (x)	48.7	24.6	17.3	12.6
EV/EBITDA (x)	14.3	10.7	9.3	8.2
DPS (net) (CN¥)	0.00	0.08	0.11	0.15
Yield (net) (%)	0.0	1.2	1.7	2.4

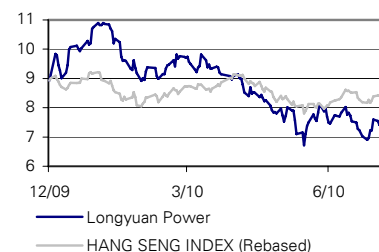
Source: Deutsche Bank estimates, company data

¹ DB EPS is fully diluted and excludes non-recurring items² Multiples and yields calculations use average historical prices for past years and spot prices for current and future years, except P/B which uses the year end close

Buy

Price at 16 Jul 2010 (HKD)	7.25
Price target - 12mth (HKD)	9.00
52-week range (HKD)	10.90 - 6.72
HANG SENG INDEX	20,250

Price/price relative



Performance (%)	1m	3m	12m
Absolute	-9.5	-15.6	-
HANG SENG INDEX	-0.2	-5.4	7.7

Stock data

Market cap (HKDm)	52,920
Market cap (USDm)	6,807
Shares outstanding (m)	7,464.0
Major shareholders	Guodian Group (63.68%)
Free float (%)	36

Key indicators (FY1)

ROE (%)	8.2
Net debt/equity (%)	90.1
Book value/share (CN¥)	3.18
Price/book (x)	1.9
Net interest cover (x)	3.6
Operating profit margin (%)	30.2

Model updated: 18 July 2010

Running the numbers

Asia

Hong Kong

Alternative Energy

Longyuan Power

Reuters: 0916.HK

Bloomberg: 916 HK

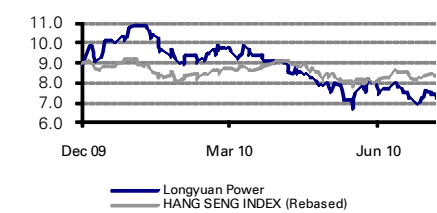
Buy

Price (16 Jul 10)	HKD 7.25
Target price	HKD 9.00
52-week Range	HKD 6.72 - 10.90
Market Cap (m)	HKDm 54,114 USDm 6,961

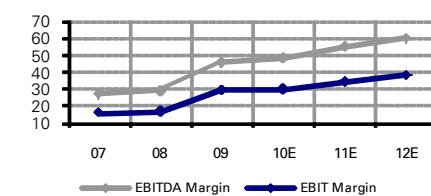
Company Profile

China Longyuan Power is the listed wind power arm of China Guodian Group, which is one the largest power producers in China. The Company is the largest wind farm operator in China and Asia. The Company's wind farm is located mainly in six geographically diverse areas: the Three Northeast Provinces, Inner Mongolia, the Southeast Coastal Provinces, Xinjiang, Gansu and Hebei. Besides wind, the company also has 1,875MW of coal fired plants.

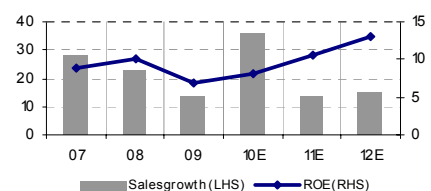
Price Performance



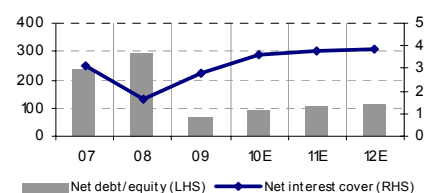
Margin Trends



Growth & Profitability



Solvency



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Fiscal year end 31-Dec	2007	2008	2009	2010E	2011E	2012E
Financial Summary						
DB EPS (CNY)	0.04	0.07	0.17	0.25	0.36	0.49
Reported EPS (CNY)	0.04	0.07	0.17	0.25	0.36	0.49
DPS (CNY)	0.00	0.00	0.00	0.08	0.11	0.15
BVPS (CNY)	0.6	0.8	4.3	3.2	3.5	4.0
Weighted average shares (m)	5,000	5,000	5,138	7,464	7,464	7,464
Average market cap (CNYm)	na	na	43,539	47,159	47,159	47,159
Enterprise value (CNYm)	na	na	63,606	69,122	78,127	86,622
Valuation Metrics						
P/E (DB) (x)	na	na	48.7	25.2	17.7	12.9
P/E (Reported) (x)	na	na	48.7	25.2	17.7	12.9
P/BV (x)	0.00	0.00	2.08	1.98	1.78	1.57
FCF Yield (%)	na	na	nm	nm	nm	nm
Dividend Yield (%)	na	na	0.0	1.2	1.7	2.3
EV/Sales (x)	nm	nm	6.5	5.2	5.2	5.0
EV/EBITDA (x)	nm	nm	14.3	10.9	9.4	8.3
EV/EBIT (x)	nm	nm	22.3	17.2	15.0	13.1
Income Statement (CNYm)						
Sales revenue	6,963	8,555	9,744	13,257	15,112	17,371
Gross profit	1,728	2,114	3,875	5,608	7,422	9,423
EBITDA	1,897	2,504	4,449	6,355	8,270	10,386
Depreciation	778	1,083	1,590	2,346	3,054	3,762
Amortisation	0	0	0	0	0	0
EBIT	1,118	1,421	2,858	4,009	5,216	6,624
Net interest income(expense)	-364	-858	-1,020	-1,116	-1,372	-1,704
Associates/affiliates	18	53	105	116	128	140
Exceptionals/extraordinaries	0	0	0	0	0	0
Other pre-tax income/(expense)	0	0	0	0	0	0
Profit before tax	773	616	1,944	3,009	3,971	5,059
Income tax expense	60	2	296	309	418	507
Minorities	497	277	753	826	888	898
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	215	338	894	1,874	2,666	3,655
DB adjustments (including dilution)	0	0	0	0	0	0
DB Net profit	215	338	894	1,874	2,666	3,655
Cash Flow (CNYm)						
Cash flow from operations	591	2,840	4,085	5,400	4,581	6,166
Net Capex	-7,140	-11,578	-16,277	-14,530	-14,530	-14,530
Free cash flow	-6,549	-8,738	-12,192	-9,130	-9,948	-8,364
Equity raised/(bought back)	670	1,500	492	0	0	0
Dividends paid	0	0	0	0	0	0
Net inc/(dec) in borrowings	7,520	7,922	10,952	-807	5,903	6,777
Other investing/financing cash flows	-932	-485	-770	367	1,179	1,859
Net cash flow	709	198	-1,518	-9,570	-2,866	272
Change in working capital	-1,255	360	-83	2,081	-70	-109
Balance Sheet (CNYm)						
Cash and other liquid assets	809	1,055	16,503	6,932	4,066	4,339
Tangible fixed assets	15,398	24,847	38,045	50,230	61,705	72,473
Goodwill/intangible assets	2,997	5,083	6,086	6,086	6,086	6,086
Associates/investments	1,748	1,048	3,250	4,610	5,386	5,567
Other assets	2,372	4,016	4,069	4,765	5,186	5,700
Total assets	23,325	36,049	67,954	72,624	82,431	94,164
Interest bearing debt	14,001	22,031	33,306	32,499	38,403	45,179
Other liabilities	3,796	6,945	8,967	11,745	12,096	12,500
Total liabilities	17,797	28,977	42,274	44,244	50,498	57,679
Shareholders' equity	2,865	3,875	21,900	23,774	26,439	30,094
Minorities	2,663	3,198	3,780	4,606	5,494	6,392
Total shareholders' equity	5,528	7,073	25,680	28,380	31,933	36,486
Net debt	13,192	20,976	16,803	25,567	34,336	40,841
Key Company Metrics						
Sales growth (%)	27.9	22.9	13.9	36.1	14.0	15.0
DB EPS growth (%)	43.9	57.1	157.7	44.3	42.3	37.1
EBITDA Margin (%)	27.2	29.3	45.7	47.9	54.7	59.8
EBIT Margin (%)	16.1	16.6	29.3	30.2	34.5	38.1
Payout ratio (%)	0.0	0.0	0.0	30.0	30.0	30.0
ROE (%)	8.9	10.0	6.9	8.2	10.6	12.9
Capex/sales (%)	102.9	135.6	167.7	109.6	96.2	83.6
Capex/depreciation (x)	9.2	10.7	10.3	6.2	4.8	3.9
Net debt/equity (%)	238.6	296.6	65.4	90.1	107.5	111.9
Net interest cover (x)	3.1	1.7	2.8	3.6	3.8	3.9

Source: Company data, Deutsche Bank estimates

Investment thesis

Outlook

We initiate coverage of China Longyuan Power with a Buy rating and 12-month target price of HK\$9.0. As the largest wind developer in China and one of the top five players globally, China Longyuan Power should be a key beneficiary of the country's rapid growth in the wind industry with a three-year earnings CAGR of 60% in 2009-12E.

With 46GW in its pipeline equaling ten times its wind capacity as of end of 2009, Longyuan has more visibility in its capacity expansion plans than peers, while trading at more attractive valuations. Despite potential new entrants to the wind development market, China Longyuan Power has a competitive edge in its excellent track record in developing wind farms, and possesses the necessary skills and technology required in wind farm development.

On a healthy balance sheet (net debt/equity of c.105% in 2010-12E), Longyuan also presents significant upside potential to our currently assumed 2GW annual capacity additions. We believe market concerns of the continuity of its CDM revenues, grid connection and interest rate hikes are over-played.

Valuation

Our target price of HK\$9.0 offers 12-month upside potential of 24% from current trading levels. It is derived from a DCF analysis through to 2020E, after which we assume 2% terminal growth. We believe a 2% terminal growth rate is relatively conservative, as only 5% of China's wind resources are likely to be utilized by 2020. Our WACC of 9.5% incorporates a cost of equity of 13% (risk-free rate of 5.3%, ungeared beta of 1.2, ERP of 6.5%), an after-tax cost of debt of 5% and a 45%/55% debt/equity target capital structure.

A target price of HK\$9.0 implies FY11E and FY12E P/E of 22x and 16x, respectively, which is at a premium compared to the China IPPs and the other smaller China wind developers. This is justified, in our view, as China IPPs have a higher risk profile since their earnings are subject to changes in coal prices and Longyuan is the market leader in China's wind power space. In addition, China's target growth for thermal capacity is significantly lower than wind power capacity at a 3.5% CAGR (2009-20) vs. a 21% CAGR (2009-20), resulting in lower earnings potential for the China IPPs. Compared to global players, Longyuan trades on par in FY10-11E P/E of 25.2/17.7x vs. 23.4x/18.1x of global peers but at discount in FY12E P/E terms (12.9x vs. 14.8x European peers). This suggests a very attractive valuation for Longyuan as it has much higher earnings growth prospects given: 1) its lower wind capacity base; 2) higher capacity growth in China compared to Europe or the US; 3) more visibility in its capacity expansion plans through its 46GW capacity pipeline; and 4) higher RoEs than peers.

Risks

The main downside risks to our valuation include: 1) grid bottlenecks resulting in lower-than-expected power dispatch; 2) potential interest rate hikes; 3) uncertainty of CDM income post-2012 after the first Kyoto Protocol period expires; 4) rising competition for wind projects; 5) potential lack of support from provincial government due to the conflict of interest that arises from the new VAT scheme; 6) higher-than-expected fuel costs; 7) interest rate hikes; and 8) lower-than-expected quality and reliability of its newly installed turbine, as it lacks a long operating track record.

Valuation

DCF is our preferred approach given stable FCF

Our preferred approach to valuing this company is a DCF model, given the company's stable cash flow and the ability to capture the high growth rates of the wind developers.

Based on China government's current plan, China's wind capacity will increase from 25GW in 2009 to 150GW in 2020, for which we believe there is further upside for the likely achieved level in 2020. As the market leader in the wind developer industry space and with 46GW in its pipeline, we believe Longyuan has the ability to add 2GW of wind capacity per year through 2010-20 such that it will maintain a market share of 12% in 2020 (c.17% in 2010).

Our DCF valuation discounts the company's free cash flow over 2010-20E and assumes a 2% terminal growth rate for the terminal value calculation. In deriving our weighted average cost of capital (WACC) of 9.5%, we use a risk-free rate of 5.3%, ungeared beta of 1.2, ERP of 6.5% and target net debt/equity ratio of 45%/55%.

Figure 54: Longyuan Power – DCF valuation

(RMB m)	2010E	2011E	2012E	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
EBIT	4,009	5,216	6,624	7,731	8,786	9,749	10,862	11,848	12,995	14,229	15,482
Tax Rate	10.3%	10.5%	10.0%	9.9%	11.4%	11.2%	12.8%	14.4%	16.1%	17.9%	19.7%
EBIT after tax	3,597	4,667	5,960	6,963	7,787	8,656	9,474	10,142	10,901	11,683	12,437
add back Depreciation	2,346	3,054	3,762	4,409	5,285	6,328	7,371	8,415	9,395	10,290	11,157
less: Capex	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(6,100)	(6,100)
movement in WC	2,081	(70)	(109)	(188)	(190)	(207)	(224)	(236)	(251)	(246)	(254)
Free cash flow	(8,976)	(9,350)	(7,387)	(5,816)	(4,118)	(2,223)	(379)	1,321	3,045	15,627	17,240
Discount factor	1.00	1.09	1.20	1.31	1.44	1.57	1.72	1.88	2.06	2.26	2.47
Discounted Cash flow ex TV	(8,976)	(8,540)	(6,164)	(4,433)	(2,867)	(1,414)	(220)	701	1,476	6,920	6,974
Sum of DCF ex TV	(7,567)										
Terminal Value (TV)											235,326
Present Value of TV	95,194										
Total DCF (inc TV)	87,627										
Add Associates	915										
Less Net Debt (cash)	25,567										
Less Minority Interest	4,606										
Equity NPV	58,369										
Equity NPV/Share (HK\$)	9.0										

Source: Deutsche Bank estimates

A 2% terminal growth rate is justified

We have conducted a sensitivity analysis on WACC and terminal growth rate and believe that our assumed terminal growth rate of 2% post-2020 is justified, as:

- China is experiencing explosive growth rates in its wind capacity. The government targets to increase wind capacity from 25GW in 2009 to 150GW in 2020, representing an 18% CAGR.

- Even with 150GW at 2020, wind power represents less than 4% of total output, which is way below some European countries like Spain (14.5%), Germany (7%) and Denmark (20%) in 2009.

Figure 55: Sensitivity of DCF valuation

Equity NPV/Share (HK\$)		WACC				
		9%	9.2%	9.5%	9.8%	10%
	4%	17.8	16.5	14.8	13.1	12.1
	3%	13.7	12.7	11.5	10.1	9.4
Terminal growth	2%	10.8	10.0	9.0	8.0	7.4
	1%	8.6	8.0	7.2	6.3	5.8
	0%	6.9	6.4	5.7	5.0	4.5

Source: Deutsche Bank estimates

Comparable valuation provides a cross-check

We cross-check our DCF valuation with global and local wind developers as well as the China IPPs. Among the HK-listed IPPs, China Longyuan Power is the only company with a sizable installed wind capacity portfolio. Other companies such as China Wind Power and China Power New Energy have much smaller wind capacities (<1GW). If we were to compare against other China IPPs, the risk profile differs as IPPs earnings are very much affected by changes in coal price. Nonetheless, we present a comparison of the company against the China IPPs and the other smaller players.

Longyuan vs. China IPPs and local wind players

Longyuan is currently trading at 25.2x FY10E P/E, which is at a premium compared to the China IPPs (16.1x) and local wind players (21.4x). This is justified, in our view, given that the company is less risky compared to China IPPs as it is not subjected to coal price volatility and its market-leading position in the wind power space will enable it to benefit most from China's growing wind market. In addition, China IPPs have much lower earnings CAGR (2010-12E) forecasts and return on equity. Further, China IPPs have lower growth potential as China's capacity growth target for thermal is significantly lower than wind – 3.7% 2009-20E CAGR for thermal and 21% 2009-20E CAGR for wind.

Longyuan vs. global wind players

Compared to global players, Longyuan trades on par in FY10-11E P/E of 25.2/17.7x vs. 23.4x/18.1x of global peers but at discount in FY12E P/E terms (12.9x vs. 14.8x European peers). This suggests a very attractive valuation for Longyuan as it has much higher earnings growth prospects given: 1) its lower wind capacity base; 2) higher capacity growth in China compared to Europe or the US; 3) more visibility in its capacity expansion plans through its 46GW capacity pipeline; and 4) higher RoEs than peers.

Higher wind capacity CAGR (2010-2020E) vs. Europe and US

According to *Global Wind Energy Outlook, 2008*, wind capacity in Europe and North America is expected to be 180-210GW and 210-243GW, respectively, in 2020. Based on 2008 installed wind capacity and 2020 forecast wind capacity, China's growth is very likely to exceed Europe and possibly even the US (Figure 56).

Figure 56: Global wind capacity growth forecast

(GW)	2020 Forecast				
	2009	Moderate	CAGR (2008-20E)	Advanced	CAGR (2008-20E)
Europe	76.2	182	8.2%	213	9.8%
North America	38.4	214	16.9%	243	18.3%
China	25.8	101	13.2%	201	20.5%
Latin America	1.3	50	39.6%	100	48.7%
Dev. Asia (excl S.Korea)	36.3	40	0.9%	61	4.8%
India	10.9	69	18.2%	138	25.9%
Middle East and Africa	8.7	18	6.9%	42	15.4%

Source: Deutsche Bank estimates, GWEC

46GW significantly higher than global peers

Longyuan's current 46GW wind pipeline is larger than most of its international peers in absolute terms. In terms of multiples of current wind capacity, Longyuan's pipeline is 10x vs. global peers at 4-6x. Thus, Longyuan has more visibility in terms of its growth outlook and potential compared to its international peers.

Figure 57: Operating matrix for international wind companies

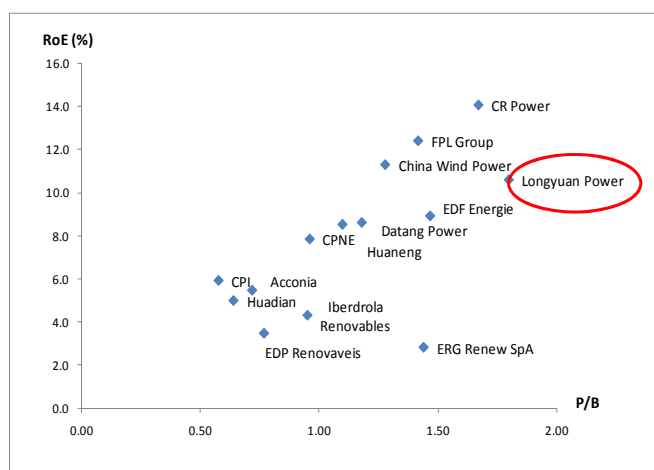
As of end 2009	Longyuan Power	Iberdrola Renovables	FPL Energy	EDP Renovaveis	Acciona Energy	EDF Energies Nouvelles	Infigen Energy
Country	China	Spain	US	Spain	Spain	France	Australia
Operational areas	China: 200GW	Spain, US, UK, Greece, France, Poland, Portugal, Mexico, Germany,	US, Canada	Spain, US, Portugal, France	Spain, US	France, Portugal, Greece, Italy, UK, Belgium, Germany, US	Australia, US, Germany
Wind capacity	4,503MW	10,356MW	7,544MW	6,227MW	6,230MW	2,650MW	2,206MW
Total capacity	6,378MW	10,752MW	42,678MW	6,227MW	7,437MW	2,945MW	2,206MW
% of wind capacity	71%	96%	18%	100%	100%	90%	100%
Pipeline wind projects	46GW	58GW	30GW	30GW	15GW	15GW	2GW
Multiple of wind capacity	10.2	5.6	4.0	4.9	2.4	5.5	0.8

Source: Deutsche Bank, Company data

Valuation vs. profitability ratio

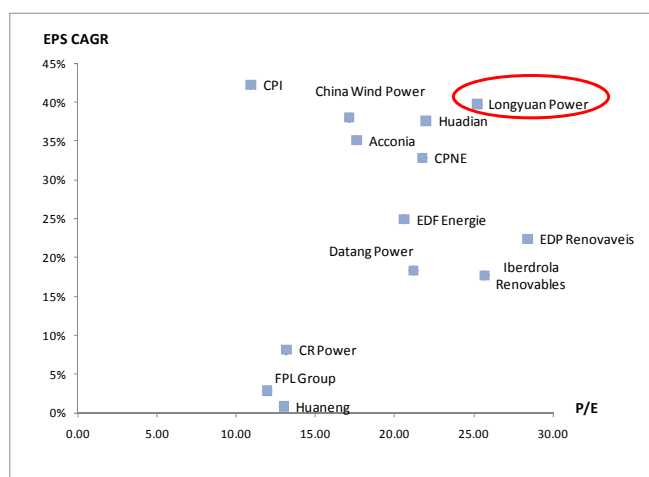
Figure 58 and Figure 59 give a snapshot of the company's valuation and profitability ratios. We have used 2011E RoE figures as 2010 is a bit distorted by the share placement of HK\$17bn at the end of 2009. Stripping out the equity issuance, Longyuan's RoE was 19% in 2009, higher than its global peers and the China IPPs. With more capacity commencing operation in the next two years, we expect the ROE to rise from 4.1% (unadjusted basis) in 2009 to 12.1% in 2012. Looking across the RoE vs. P/B charts and P/E vs. EPS CAGR charts, Longyuan Power is attractive on both (see Figure 58 and Figure 59) P/B and P/E grounds.

Figure 58: 2011E P/B vs. RoE margins



Source: Deutsche Bank estimates

Figure 59: 2010E P/E vs. EPS CAGR 2010-12E



Source: Deutsche Bank estimates

Deutsche Bank vs. consensus forecast

Figure 60: Deutsche Bank vs. consensus forecast

Company	Ticker	Target price	Rating
Longyuan Power	0916.HK	HK\$9.0	Buy
Revenue (HK\$ m)	DB	Consensus	DB vs. Consensus
2010E	13,257	12,630	5%
2011E	15,112	15,142	0%
2012E	17,371	17,551	-1%
EBITDA (HKD m)			
2010E	6,355	6,469	-2%
2011E	8,270	8,837	-6%
2012E	10,386	11,409	-9%
Net income (HK\$ m)			
2010E	1,874	1,693	11%
2011E	2,666	2,528	5%
2012E	3,655	3,228	13%
Consensus Ratings	Buy	Hold	Sell
	10	4	3

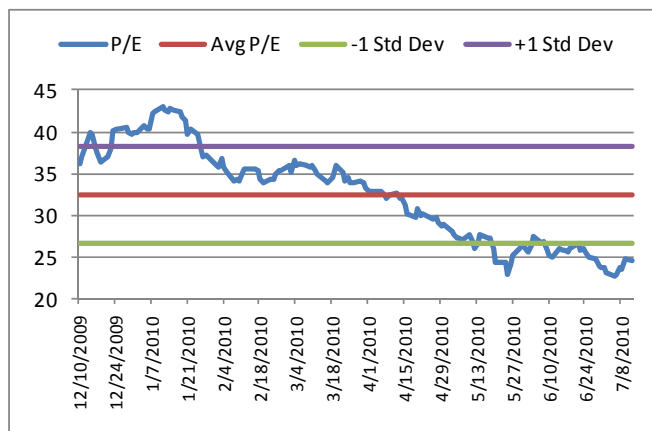
Source: Deutsche Bank estimates, Bloomberg Finance LP, Note: Our consensus estimates are based on Bloomberg Finance LP Best estimates on 9 Jul 2010

Compared to consensus estimates compiled by Bloomberg Finance LP in July 2010, we are more bullish. Although our EBITDA estimates are marginally lower, we have higher net earnings as we assume the following:

- **Lower interest expense:** With IPO cash coming in at late 2009, we believe management will be able to utilize it to pay down most of the outstanding debt in 2010. Further, the company is refinancing its long-term bank loans with corporate bonds, trust loans and short-term debentures at lower interest rates.
- **Lower income tax expense:** The effective tax rate is likely to be lower this year as the earnings contribution from the coal business should decrease on higher coal price and higher earnings contribution from the wind business, which enjoys a tax holiday for the first three years followed by a 50% discount for the next three years.

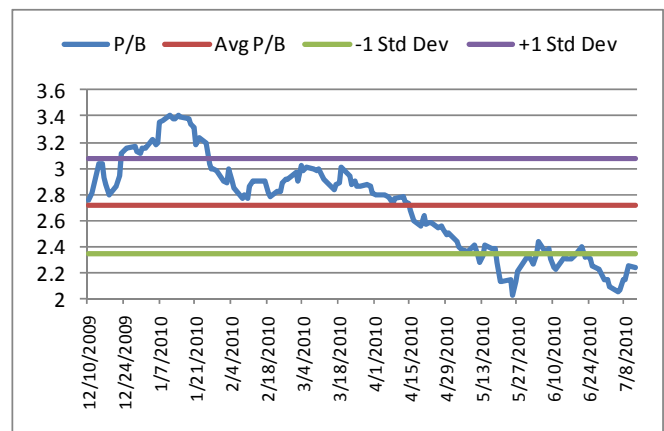
Valuation bands and share price charts

Figure 61: Longyuan 2010 P/E band



Source: Deutsche Bank, Datastream

Figure 62: Longyuan 2010 P/B band



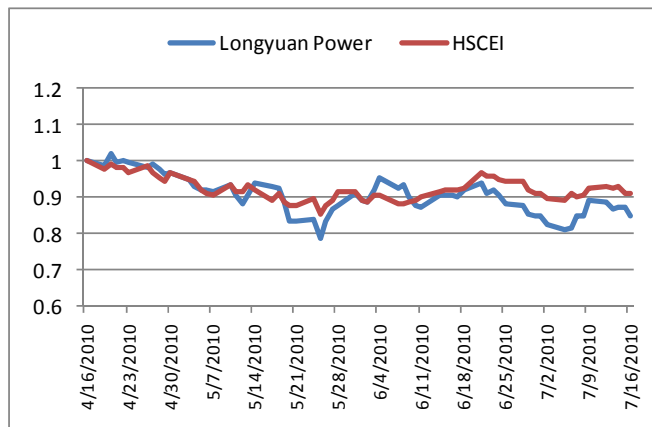
Source: Deutsche Bank, Datastream

More attractive valuation now than IPO period

Longyuan's IPO was successful as it was priced at the higher end of its valuation range at HK\$8.16. When the company first started on the secondary markets, its shares rallied, reaching a peak of HK\$10.90 in mid-January 2010. However, share prices have begun to come off since March, and the stock currently trades at the lower end of its historical P/E and P/B. We believe at the current valuation, the company is more reasonably valued, given its growth profile and profitability margins.

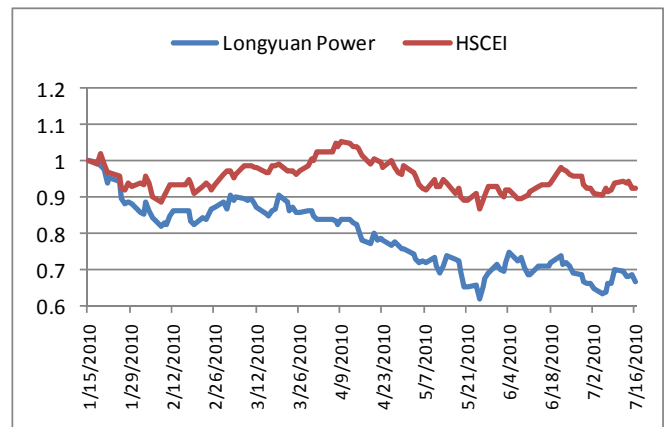
Share price performance in the past three to six months

Figure 63: Longyuan vs. HSCEI (3M)



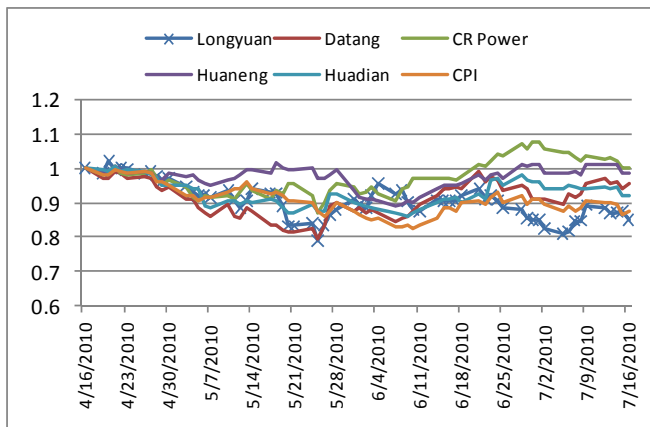
Source: Deutsche Bank, Datastream

Figure 64: Longyuan vs. HSCEI (6M)



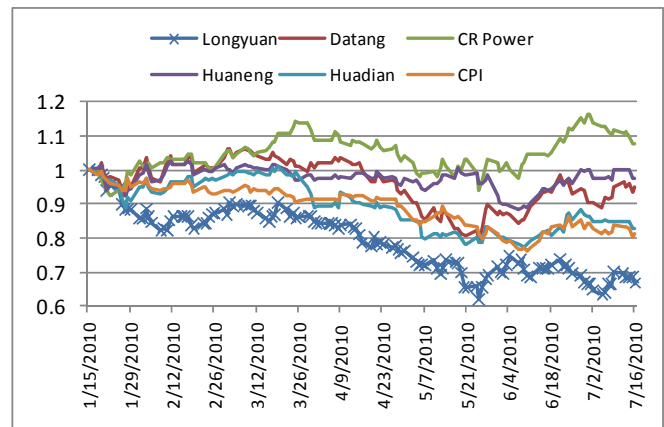
Source: Deutsche Bank, Datastream

Figure 65: Longyuan vs. China IPPs (3M)



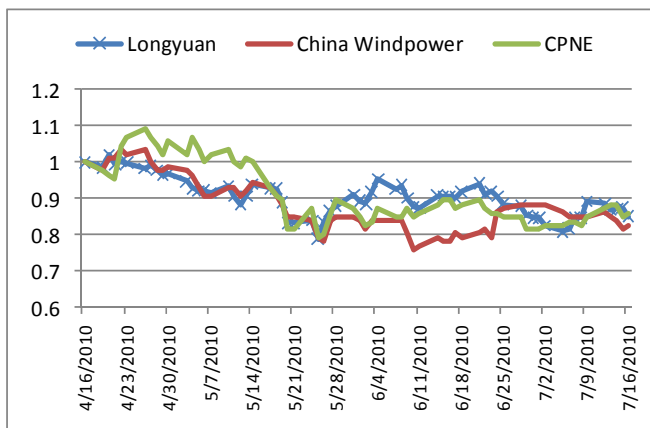
Source: Deutsche Bank, Datastream

Figure 66: Longyuan vs. China IPPs (3M)



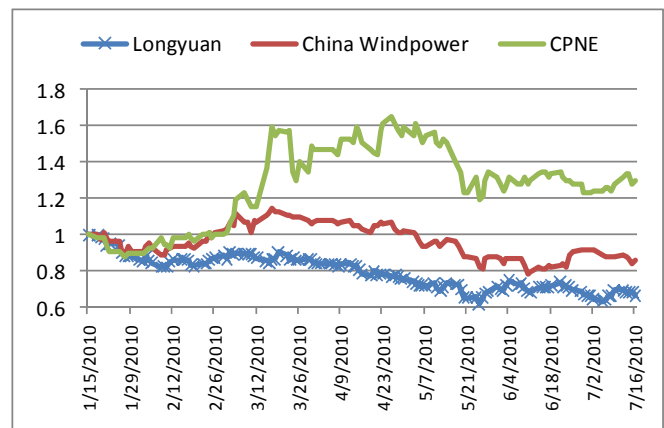
Source: Deutsche Bank, Datastream

Figure 67: Longyuan vs. other local wind players (3M)



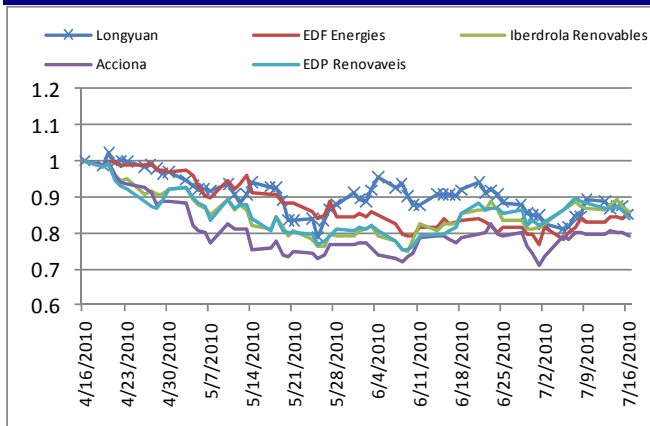
Source: Deutsche Bank, Datastream

Figure 68: Longyuan vs. other local wind players (6M)



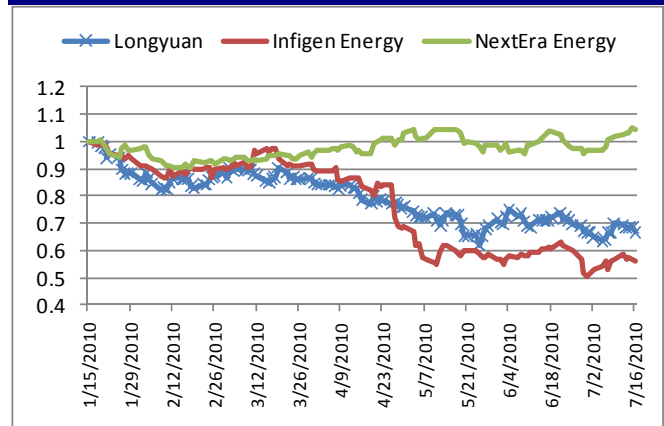
Source: Deutsche Bank, Datastream

Figure 69: Longyuan vs. US and Aussie wind players (3M)



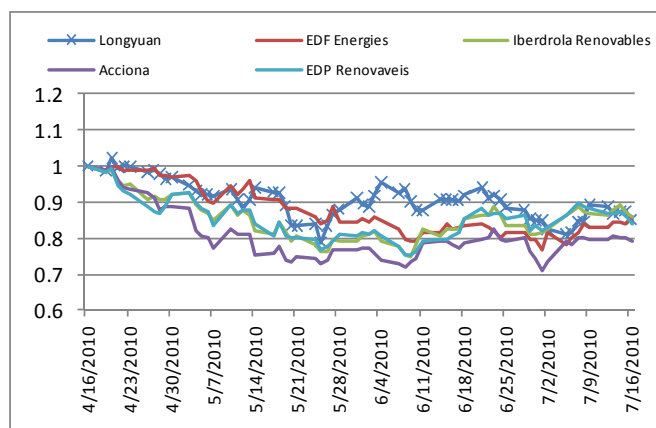
Source: Deutsche Bank, Datastream

Figure 70: Longyuan vs. US and Aussie wind players (6M)



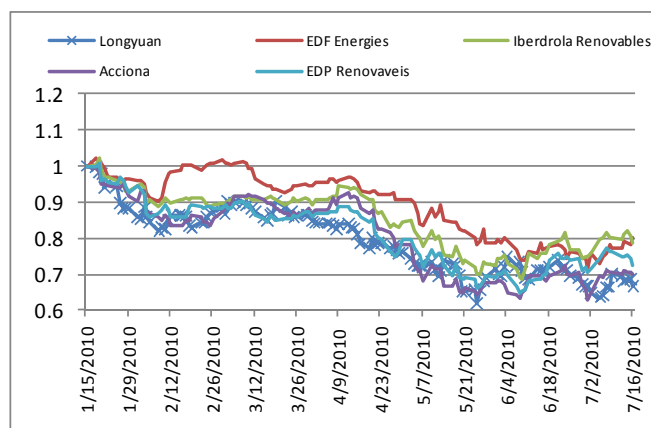
Source: Deutsche Bank, Datastream

Figure 71: Longyuan vs. European wind players (3M)



Source: Deutsche Bank, Datastream

Figure 72: Longyuan vs. European wind players (6M)



Source: Deutsche Bank, Datastream

Worst performer in the past three to six months

Longyuan has been one of the worst performers compared to the index and other comparable companies. We believe that part of the reason for the decline in share price in the past three to six months was due to the falling share prices of global wind players on potential wind tariff cut in European countries. However, this does not affect Longyuan fundamentally as its wind operation is based 100% in China. Further, Longyuan's share price suffered more compared to the other local wind players, which is unjustified in our view given the company's market-leading position in China's wind market.

Figure 73: Longyuan – Comps tables

Share Price as of 18 July 2010							Performance		Valuations									Yield (%)	
Company	Ticker	Price	Rating	Price target	% to target	Mkt. Cap. US\$m	Absolute 3m	Relative 3m	10F	P/E 11F	12F	10F	11F	12F	10F	P/BV 11F	12F	10F	11F
China																			
Longyuan Power	0916.HK	HK\$7.25	Buy	HK\$9.00	24%	6,961	-15%	-6%	25.2	17.7	12.9	10.9	9.4	8.3	2.0	1.8	1.6	1.2	1.7
CPNE	0735.HK	HK\$0.74	NA	NA	NA	678	-14%	-5%	21.8	11.7	12.3	11.6	7.4	NA	1.0	1.0	1.0	0.0	-
China Wind Power	600416.SS	HK\$0.72	NA	NA	NA	674	-17%	-9%	17.1	12.4	9.0	14.7	8.3	4.8	1.5	1.3	1.1	0.0	-
Average									21.4	14.0	11.4	12.4	8.4	6.5	1.5	1.3	1.2	0.4	0.6
China IPPs																			
Datang Power	0991.HK	HK\$3.34	Hold	HK\$3.60	8%	4,956	-4%	5%	21.2	14.1	15.1	19.5	13.8	13.3	1.3	1.2	1.1	1.8	2.8
CR Power	0836.HK	HK\$16.50	Buy	IN23.10	40%	8,780	0%	10%	13.2	12.5	11.3	13.8	12.4	10.0	1.8	1.7	1.5	2.4	2.6
Huaneng	0902.HK	HK\$4.53	Hold	IN4.90	8%	7,030	-2%	8%	13.0	13.1	12.8	20.6	20.0	17.5	1.1	1.1	1.1	4.2	4.2
Huadian	1071.HK	HK\$1.82	Hold	IN2.10	15%	1,411	-8%	1%	22.0	13.1	11.6	18.2	14.0	12.1	0.7	0.6	0.6	1.4	2.3
CPI	2380.HK	HK\$1.65	Hold	IN2.10	27%	666	-12%	-3%	10.9	9.9	5.4	14.8	13.8	10.8	0.6	0.6	0.5	3.7	4.1
Average									16.1	12.5	11.2	17.4	14.8	12.7	1.1	1.0	1.0	2.7	3.2
Euope																			
Iberdrola Renovables	IBR.MC	EUR2.71	Buy	EUR4.20	55%	14,829	-14%	-5%	25.7	22.3	18.5	19.0	16.3	15.1	1.0	1.0	0.9	1.2	1.8
Acconia	ANA.MC	EUR66.86	Buy	EUR124.00	85%	5,503	-21%	-12%	17.6	13.2	9.6	16.6	13.7	12.0	0.7	0.7	0.7	4.8	5.1
EDP Renovaveis	EDPR.LS	EUR4.86	Hold	EUR7.10	46%	5,491	-16%	-7%	28.4	22.4	18.9	22.9	18.0	15.3	0.8	0.8	0.7	0.0	-
EDF Energie	EDF.FP	EUR29.98	NA	NA	NA	3,006	-14%	-5%	20.6	16.5	13.2	12.8	9.9	7.7	1.6	1.5	1.3	1.4	1.7
ERG Renew SpA	EGR.IM	EUR0.83	NA	NA	NA	142	-4%	10%	NA	45.9	13.5	11.1	5.6	4.9	1.5	1.4	1.3	0.0	-
Average									23.1	24.1	14.8	16.5	12.7	11.0	1.1	1.1	1.0	1.5	1.7
Australia																			
Infigen Energy	IFN.AX	AUD0.80	Buy	US\$1.35	69%	534	-33%	-24%	NM	9.9	8.3	41.2	13.9	12.8	0.8	0.7	0.7	2.5	4.2
US																			
FPL Group	FPL.N	US\$50.71	Hold	US\$50.00	-1%	21,723	1%	13%	12.0	11.8	11.3	12.5	13.0	13.0	1.5	1.4	1.3	3.8	4.0
Average									12.0	10.9	9.8	26.8	13.5	12.9	1.1	1.1	1.0	3.1	4.1

For DB covered stocks, all estimates are based on DB estimates and stock performance data are from Datastream. For non-covered stocks (CPNE, China Windpower, EDF Energie, ERG Renew SpA), all estimates are based on bloomberg Best estimates.

Definitions: 1) Gearing is net debt / shareholders equity; 2) EV is after deducting estimated value of associates; 3) RoCE is defined as EBIT x (1 - tax rate) divided by capital employed

Source: Deutsche Bank estimates

Figure 74: Longyuan – Share price analysis table

Share Price as of 18 July 2010			Share price performance					avg. daily trade	Relative performance						avg. daily trade	Share price statistics						avg. daily trade
			local currency						local currency & local country index****							current / current/						
Company	Price	Rating	1m	3m	6m	12m	3yr	US\$, 1mn**	1wk	1m	3m	6m	12m	3yr	US\$, 6mth**	52w H	52w L	52W H	52W L	10yr H	10yr L	US\$, 1yr**
China																						
Longyuan Power	HK\$7.25	Buy	-6%	-15%	-33%	NA	NA	9.6	-3%	-5%	-6%	-28%	NA	NA	23.4	10.90	6.72	67%	108%	10.90	6.72	40.9
CPNE	HK\$0.74	NA	-4%	-14%	30%	14%	-35%	1.4	3%	-3%	-5%	40%	9%	-26%	7.2	0.94	0.38	79%	195%	1.57	0.02	5.4
China Wind Power	HK\$0.72	NA	6%	-17%	-14%	-26%	-38%	1.7	-1%	7%	-9%	-7%	-29%	-29%	2.8	1.02	0.63	71%	114%	15.20	0.12	6.3
Average			-1%	-15%	-6%	-6%	-37%		0%	0%	-7%	2%	-10%	-28%	11.1	4.29	2.58	72%	139%	9.22	2.29	17.5
China IPPs																						
Datang Power	HK\$3.34	Hold	2%	-4%	-5%	-27%	-45%	6.6	2%	3%	5%	3%	-30%	-37%	9.1	5.34	2.78	63%	120%	9.66	0.71	12.7
CR Power	HK\$16.50	Buy	3%	0%	8%	-7%	-14%	14.5	-2%	4%	10%	17%	-11%	-2%	15.6	20.15	14.14	82%	117%	29.46	2.70	18.6
Huaneng	HK\$4.53	Hold	3%	-2%	-3%	-14%	-51%	11.9	-1%	5%	8%	5%	-17%	-44%	16.3	6.65	4.10	68%	110%	10.80	1.38	20.5
Huadian	HK\$1.82	Hold	1%	-8%	-17%	-32%	-53%	1.4	0%	2%	1%	-10%	-35%	-47%	1.8	3.12	1.70	58%	107%	6.13	0.99	3.7
CPI	HK\$1.65	Hold	-1%	-12%	-19%	-35%	-67%	1.0	-1%	1%	-3%	-12%	-38%	-62%	1.2	2.78	1.55	59%	106%	5.30	1.16	2.0
Average			2%	-5%	-7%	-23%	-46%		0%	3%	4%	1%	-27%	-38%								
Euope																						
Iberdrola Renovables	EUR2.71	Buy	4%	-14%	-21%	-14%	NA	28.0	-1%	7%	-5%	-14%	-23%	NA	30.8	3.5	2.4	77%	115%	6.2	2.0	31.1
Acconia	EUR66.86	Buy	1%	-21%	-30%	-23%	-68%	27.2	0%	4%	-12%	-24%	-31%	-44%	34.8	98.4	60.0	68%	111%	241.9	34.4	31.6
EDP Renovaveis	EUR4.86	Hold	4%	-16%	-28%	-32%	NA	7.1	-4%	7%	-7%	-21%	-39%	NA	9.1	7.7	4.4	63%	112%	8.0	3.5	8.8
EDF Energie	EUR29.98	NA	4%	-14%	-20%	-16%	-35%	3.2	5%	9%	-5%	-13%	-27%	10%	3.3	38.7	26.8	78%	112%	54.5	19.8	4.2
ERG Renew SpA	EUR0.83	NA	4%	-4%	8%	-6%	-80%	0.1	3%	6%	10%	26%	-10%	-58%	0.6	1.0	0.6	84%	132%	4.8	0.6	0.4
Average			3%	-14%	-18%	-18%	-61%		1%	6%	-4%	-9%	-26%	-31%								
Australia																						
Infigen Energy	AUD0.80	Buy	-8%	-33%	-44%	-32%	-58%	2.1	-2%	-5%	-24%	-38%	-39%	-40%	3.3	1.5	0.7	52%	112%	2.0	0.6	3.9
US																						
FPL Group	US\$50.71	Hold	0%	1%	1%	6%	13%	0.2	1%	5%	13%	8%	-6%	65%	0.3	26.0	23.8	195%	214%	26.0	16.5	0.4
Average				-16%	-21%	-13%	-22%		0%	0%	-6%	-15%	-23%	13%								

** in USD millions

Note: Relative performance is made with reference to the key stock index of the exchange that the securities is traded (ie. HSCEI for HK listed stocks, S&P 500 for US listed stocks, S&P ASX 200 for Aussie Stocks, EuroStoxx for Europe listed stocks, Euronext100 for French stocks, FTSE MIB for Italian stocks)

Source: Deutsche Bank estimates

Figure 75: Longyuan – Detailed financial metrics

Share Price as of 18 July 2010			EBITDA Margin						Net Profit Margin						Returns & Gearing						
Company	Price	Rating	local currency						local currency						RoE (%)						Gearing
			2007	2008	2009	2010F	2011F	2012F	2007	2008	2009	2010F	2011F	2012F	2007	2008	2009	2010	2011E	2012E	2009
China																					
Longyuan Power	HK\$7.25	Buy	27%	29%	46%	48%	55%	60%	3%	4%	9%	14%	18%	21%	8.90	10.00	6.90	8.20	10.60	12.90	66.4
CPNE	HK\$0.74	NA	-5%	25%	36%	31%	41%	NA	-31%	1%	10%	10%	16%	19%	-16.31	0.29	3.34	4.50	7.85	8.00	37.3
China Wind Power	HK\$0.72	NA	-13%	35%	20%	27%	31%	39%	56%	46%	31%	26%	25%	25%	NA	10.24	5.30	8.88	11.30	13.33	-29.1
Average			3%	30%	34%	35%	42%	49%	9%	17%	16%	17%	20%	21%	-3.71	6.84	5.18	7.19	9.92	11.41	24.9
China IPPs																					
Datang Power	HK\$3.34	Hold	40%	25%	34%	33%	37%	37%	11%	2%	4%	3%	4%	3%	13.29	2.73	5.72	6.05	8.62	7.63	372.7
CR Power	HK\$16.50	Buy	34%	21%	31%	29%	31%	32%	19%	6%	16%	13%	11%	11%	16.06	6.60	16.41	14.74	14.07	14.09	107.3
Huaneng	HK\$4.53	Hold	31%	10%	23%	20%	19%	19%	12%	-6%	7%	4%	4%	4%	13.63	-9.40	14.08	8.83	8.53	8.41	255.9
Huadian	HK\$1.82	Hold	29%	10%	26%	21%	24%	24%	6%	-9%	3%	1%	2%	2%	8.62	-19.90	8.16	3.04	4.99	5.40	298.6
CPI	HK\$1.65	Hold	17%	8%	21%	32%	34%	35%	10%	-7%	4%	4%	5%	7%	5.86	-7.12	4.40	5.60	5.92	10.23	302.0
Average			30%	15%	27%	27%	29%	29%	12%	-3%	7%	5%	5%	5%	11.49	-5.42	9.76	7.65	8.43	9.15	267.3
Euoep																					
Iberdrola Renovables	EUR2.71	Buy	60%	58%	66%	67%	68%	69%	13%	19%	18%	19%	19%	20%	1.43	3.56	3.29	3.85	4.31	5.07	26.6
Acconia	EUR66.86	Buy	18%	22%	15%	19%	21%	22%	12%	4%	20%	3%	4%	6%	21.22	10.04	26.06	4.18	5.47	7.30	121.7
EDP Renovaveis	EUR4.86	Hold	73%	74%	75%	74%	75%	77%	1%	18%	17%	15%	15%	15%	0.15	2.88	2.32	2.82	3.48	3.99	42.1
EDF Energie	EUR29.98	NA	19%	18%	24%	32%	37%	40%	9%	7%	8%	8%	9%	10%	7.06	7.08	7.65	7.66	8.93	11.09	191.4
ERG Renew SpA	EUR0.83	NA	53%	23%	46%	55%	67%	68%	6%	-56%	-55%	-16%	2%	7%	1.59	-17.51	-23.14	-12.47	2.83	8.53	266.5
Average			45%	39%	45%	49%	54%	55%	8%	-2%	2%	6%	10%	11%	6.29	1.21	3.24	1.21	5.00	7.20	129.7
Australia																					
Infigen Energy	AUD0.80	Buy	80%	70%	59%	63%	72%	72%	13%	6%	-20%	-2%	17%	19%	0.74	3.09	-4.38	-0.10	7.44	8.45	136.1
US																					
FPL Group	US\$50.71	Hold	25%	25%	29%	31%	31%	33%	9%	9%	11%	12%	12%	12%	13.55	13.80	13.39	13.25	12.41	12.10	143.8
Average			52%	47%	44%	47%	52%	52%	11%	8%	-5%	5%	14%	16%	7.15	8.45	4.50	6.58	9.92	10.28	139.9

For DB covered stocks, all estimates are based on DB estimates and stock performance data are from Datastream. For non-covered stocks (CPNE, China Windpower, EDF Energie, ERG Renew SpA), all estimates are based on bloomberg Best estimates.

Source: Deutsche Bank estimates

Reasons to Buy

Visible strong capacity growth backed by 46GW pipeline

Longyuan Power, the largest wind farm operator in China, is well positioned to ride on the booming wind business in China. Among the various renewable energy sources in China, wind has the most promising growth prospects as only 1% of the country's wind resource has been utilized thus far. Further, favourable government policies as well as aggressive renewable energy targets will help to fuel this growth. Longyuan Power, the market leader in the sector, has a very visible strong capacity growth profile in the next three years. The company plans to add 2GW of wind capacity per year from 2010-20. We believe this is highly likely given it has 46GW of wind capacity in its pipeline, the highest coverage ratio among peers (10x current wind capacity), which gives it exclusive rights to develop wind farms in these areas. In addition, its excellent track record will give it a first-mover advantage in winning new projects from the government.

Stable regulatory framework with aggressive renewable target

One of the key catalysts that has sparked the growth and interest in the wind sector in recent years is the stable regulatory framework in place and the government's aggressive renewable energy target. According to the Renewable Energy Law, grid companies have to purchase all the electricity generated from renewable energy. Further, there is a transparent feed in tariff mechanism for wind power. Wind developers also get to enjoy a tax holiday on income for three years, and a 50% reduction subsequently. Lastly, to ensure network connectivity of its renewable sources, China has set aside RMB4tr to develop the smart grid.

In terms of its renewable energy target, China aims to consume 15% of its electricity from non-fossil fuels by 2020. In addition, China targets to cut its carbon dioxide emissions per unit of GDP by 40-45% by 2020 from 2005 levels. At the current rate of wind power growth and development of grid connection, we forecast that China's wind capacity will reach 200GW by 2020, which suggests further upside from the current official wind energy target of 100GW.

Acquisition/overseas investment upside potential

The company has guided that it will acquire 100MW of new projects from its parent this year and is interested in acquiring/developing projects in Europe, South America and United States. Given the company's low net gearing ratio of c.65% in FY09 and its excellent track record in wind farm development, Longyuan has both the expertise and capability to acquire and develop projects overseas. This will add further capacity upside to its planned 2GW capacity addition per year.

Operational excellence

Longyuan began its wind farm business in 1999 and has successfully developed over 4.5GW of wind farms in the past ten years. The company's wind farms operate better than the average wind farms in China in terms of higher utilization hours and higher factor availability. In 2009, the company's average utilization hours were 2,285hrs, 22% higher than the national average of 1,861hrs and its availability factor of 97.4% is on par with international standards. Given the sheer size of its wind capacity and operational excellence, the company has begun to set the benchmark for other domestic wind players.

Attractive valuation

Although Longyuan is trading at FY10/11E P/E of 25.2x/17.7x, which is at a premium compared to the China IPPs and China's other smaller wind developers, this is justified, in our view, as China IPPs carry a higher risk profile given that their earnings are subject to changes in coal prices and Longyuan is the market leader in China's wind power space. In addition, China's target growth for thermal capacity is significantly lower than that for wind power capacity (3.5% CAGR 2009-20E vs. 21% CAGR 2009-20E), resulting in lower earnings potential for the China IPPs.

Compared to global players, Longyuan trades on par in FY10-11E P/E of 25.2/17.7x vs. 23.4x/18.1x of global peers but at discount in FY12E P/E terms (12.9x vs. 14.8x European peers). This suggests a very attractive valuation for Longyuan as it has much higher earnings growth prospects given: 1) its lower wind capacity base; 2) higher capacity growth in China compared to Europe or the US; 3) more visibility in its capacity expansion plans through its 46GW capacity pipeline; and 4) higher RoEs than peers.

CDM and grid connection issues over-worried

While pessimists of the company have always raised concerns about the expiry of the CDM market and network connectivity, we believe these issues have been over-played. For one, even if we were to assume that the CDM market will not exist after 2012, our model suggests that our valuation would only be reduced by c.10%. In addition, there is currently a market for CDM carbon credits post-2012 as well, albeit trading at a lower price. We believe that the CDM market will continue to exist after 2012 and have incorporated a conservative estimate of €5/ton for our carbon price.

Regarding network connectivity, the impact on Longyuan's earnings is minimal as less than 30% of its wind capacity is located in the weak grid region. Thus, a 10-15% power rationing due to grid connectivity will have less than 5% earnings impact. Further, in the long term, this issue will be resolved as China has plans to develop a world-class smart grid that will be able to support the power dispatch from renewable energy.

Mitigated interest rate risks

Longyuan, unlike most China IPPs, is not as exposed to interest rate risks. For one, Longyuan has a lower gearing ratio compared to China IPPs (105% FY10 for Longyuan vs. 119% to 350% for China IPPs). In addition, amid a lower interest rate environment, Longyuan has restructured most of its borrowing to use more fixed rate debt, thus locking in its borrowing costs for the next few years. For example, in February 2010, the company issued another RMB1.6bn bonds with a maturity of seven years. The company also intends to pay down a significant portion of its debt by using the proceeds it received at end-2009 to help reduce interest expense. In addition, our China Economist Jun Ma expects a delay in interest rate hike in coming months as many officials and policy advisors are concerned about a potential double dip in the global economy.

Key earnings drivers

Significant capacity growth in its wind business

Wind capacity to increase by 2GW per year for 2010-20

At the end of 2009, the company has a total installed wind capacity of 4,503MW. With 46GW of wind projects in its pipeline, Longyuan plans to increase its wind capacity by 2GW per year in the next three years (2010-12). Longyuan plans to expand its wind capacity through both acquisitions (in China and overseas) and greenfield projects. In addition, the company plans to acquire approximately 200MW of wind farms from its parent.

High growth visibility with 46GW of pipeline capacity

With 46GW of wind capacity in its pipeline, Longyuan has a wide selection of sites to develop its wind farms. Hence, although the problem with network connection is likely to persist for a period of time, the company's wind power development plan is relatively unaffected as it is able to select sites with good grid connection to develop first, and the others at a later stage when the network connectivity improves. Figure 76 illustrates the geographical locations of Longyuan's tier 1 and 2 pipeline projects that are likely to commence in 2010.

Figure 76: Geographical location of tier 1 and 2 pipeline projects

Location	Tier 1	Tier 2
Three Northeast Provinces	49.3	1,158.3
Southeast Coastal Provinces		127.5
Xinjiang		198.0
Gansu		
Inner Mongolia	148.5	198.0
Hebei		99.0
Other regions		99.0
Total	197.8	1,879.8

Source: Deutsche Bank estimates; Company data

Offshore wind farm development still in its infancy

The development of the offshore wind projects is starting to take off, although nothing significant has taken place. To date, the company has only constructed a 30MW trial project in the inter-tidal zone of Rudong, Jiangsu province. Longyuan plans to gradually develop its offshore wind business, and has submitted bids for the four inter-tidal and overseas wind farms.

Model inputs

In our model, we assume that wind capacity will increase by 2GW per year from 2010-20E. As per management guidance, we included the capacity increase mainly in the fourth quarter of the year. Thus, average wind capacity will increase by c.2GW per year while effective wind capacity will increase by 430-450MW per year. Based on our assumptions, by 2020, the company will have total wind installed capacity of 24.3GW, representing about 16% of China's current target of total installed wind capacity of 150GW, and in line with its market share of 17% in 2009.

We believe that our assumptions are not aggressive as:

- Although Longyuan faces intense competition in securing new projects, its excellent track record, healthy balance sheet and market leading position will help it to win projects awarded by the government.
- Longyuan has 46GW of wind capacity in its pipeline, which gives it exclusive development rights. Our 2020 capacity forecast only assumes a 50% pipeline conversion ratio.
- Given its long history in wind power development, Longyuan has an experienced workforce that will help the company to manage the new wind farms.
- We have not included potential overseas expansion, which is highly possible given management's strong interest in acquiring/developing new wind projects overseas and the company's healthy balance sheet (FY09 net debt/equity at 65%).

Figure 77: Capacity breakdown by region (in GW)

Location	2007	2008	2009	2010E	2011E	2012E
Three Northeast Provinces	436.9	774.5	1,666.7	2,566.7	3,366.7	4,066.7
Southeast Coastal Provinces	344.8	485.3	714.8	914.75	1,114.75	1,314.75
Inner Mongolia	248.8	760.9	993.4	1,193.4	1,393.4	1,593.4
Gansu	110	208.8	406.8	456.8	556.8	756.8
Xinjiang	157.8	223.8	249.3	299.3	349.3	399.3
Hebei	0	49.5	423	623	823	1023
Other Areas	0	0	49.5	449.5	899.5	1,349.5
Total	1,298	2,503	4,503	6,503	8,503	10,503

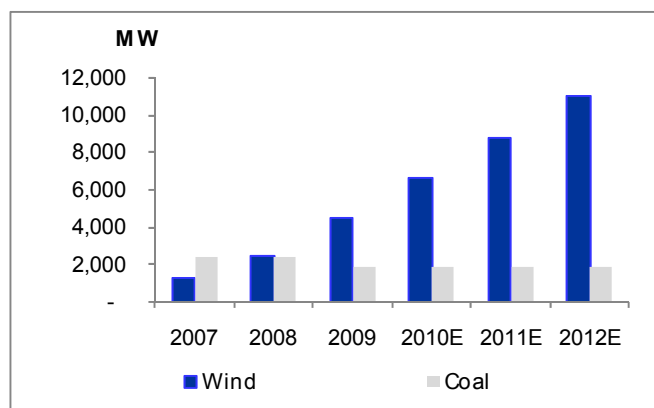
Source: Deutsche Bank estimates, Company data

Keen to develop solar power among other forms of renewable energy

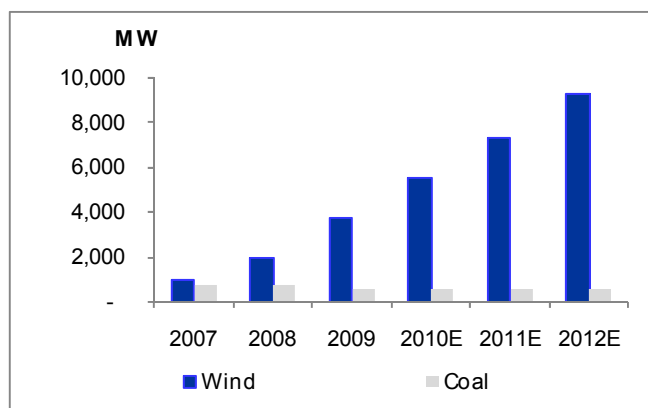
Longyuan is involved in several other types of renewable energy such as tidal, geothermal and biomass. At the end of 2009, the company has 3.9MW of experimental tidal power stations and 24MW biomass power generation plants. Among the various forms of renewable energy, the company is keen to explore solar energy and has entered into investment agreements in seven regions to develop a total installed capacity of 1,740MW of solar plants.

Model inputs

Given its early development stage, we have not factored in potential solar farms and other renewable projects in our model.

Figure 78: Total consolidated capacity by fuel type

Source: Deutsche Bank estimates, Company data; Note: We excluded other renewables here as its capacity is not significant

Figure 79: Attributable capacity by fuel type

Source: Deutsche Bank estimates, Company data; Note: We excluded other renewables here as its capacity is not significant

Utilization rates to decline modestly in 2010-11

Wind utilization rate likely to decline modestly in 2010-11

The average utilization hours in 2009 decreased by 3.8% yoy to 2,268hrs from 2,354hrs in 2008 due to the grid constraints in Inner Mongolia, Gansu and Jilin. For 2010, we expect utilization to improve in Gansu and Jilin later in the year when the 750UHV grid is completed. However, the grid connection problem in West Inner Mongolia is likely to persist for some time as there are no upcoming inter-region grids that will commence operation in the year and the significant increase in wind capacity in that region will add further pressure to the existing grid lines.

As a result of a massive increase in wind capacity, wind installed capacity as a percentage of total installed capacity is likely to increase in these provinces, and therefore we expect wind utilization to decline modestly after 2011 as grid companies will not be able to fully dispatch all the wind power. However, we expect the connection to improve from 2012 onwards owing to the catch-up in grid systems.

Model input

In our model, we expect utilization to improve in Gansu province from 2010 onwards as the 750UHV completes construction. However, we forecast lower utilization rates in Inner Mongolia and Xinjiang given the slow progress in the technical upgrading of the grids and significant increase in wind capacity in the region. For the other areas, we expect wind utilization to maintain approximately stable. For every 100 hours of lower utilization vs. our base case, Longyuan's FY11E earnings would be reduced by 11%.

Figure 80: Utilization hours by province and forecast

	2007	2008	2009	2010E	2011E	2012E
Three Northeast Provinces	2,311	2,291	2,091	2,091	2,003	2,097
Southeast Coastal Provinces	2,468	2,432	2,421	2,424	2,424	2,430
Inner Mongolia	2,777	2,812	2,341	2,341	2,253	2,260
Gansu	1,484	1,328	1,052	1,228	1,403	1,670
Xinjiang	2,445	2,345	2,927	2,927	2,752	2,759
Hebei	-	3,211	2,886	2,886	2,798	2,806
Other Areas	-	-	2,190	2,190	2,190	2,196
Total	2,317	2,354	2,285	2,243	2,189	2,189

Source: Deutsche Bank estimates, Company data

Wind tariff likely to be stable in the next few years

In 2009, Longyuan's wind tariff increased by RMB5/MWh to RMB567/MWh. The increase in wind tariff is largely attributed to the higher on-grid tariff set by the NDRC in July 2009.

Unlikely to cut wind tariff in the near term

Although Longyuan is making a good return in its wind business, we believe the wind tariff is unlikely to be cut for the following reasons:

- **Most other wind developers are barely profit-making:** While profitability seems too good to be true for Longyuan, this is not the case for most other wind players.
- **Coal-fired power tariff likely to hike by 2011.** Given that coal tariffs are likely to increase, the magnitude at which wind tariffs can decline is reduced.
- **Wind tariff cut might put China's wind project at risk of qualifying for CDM:** We believe it is highly unlikely that the government will cut wind tariffs, as its wind projects are likely to be further rejected by the CDM EB in this instance.

- **China wants to promote a stable regulatory environment for wind:** China has only recently adjusted its wind tariff in November 2009.

Potential wind tariff differentiation within a region

A recent news report by the *China Securities Journal* on 22 June 2010 quoted Wang Zhongying, a Research Fellow of the Centre of Renewable Energy Development (CRED), saying that the current wind tariff setting mechanism fails to take into account the differences in wind environment within a region. We believe his comments are valid, as utilization of wind farms can differ significantly within a region, and wind tariffs should be differentiated to account for these differences. We think that if wind tariffs were to vary within a region, this would not have a big impact on Longyuan, as the tariff compensates and penalizes lower and higher utilization wind farms, respectively.

Model input

From the above discussion, we strongly believe that wind tariffs will remain stable for the next few years. The change in the company's average wind tariff is attributable to the change in its capacity mix across the four different standard tariff regions. Every 1% cut in wind tariff would reduce FY11E earnings by 2.5%, according to our analysis.

Figure 81: On-grid wind tariff trend

(RMB/MWh)	2006	2007	2008	2009	2010E	2011E	2012E
On-grid tariff	672	598	561	567	573	573	571

Source: Deutsche Bank estimates, Company data

RMB17-18bn capex for the next three years

We expect RMB17bn capex per year based on capacity growth forecast

Based on our assumed 2GW wind capacity addition per year and the latest wind turbine auction price, we expect the company to invest RMB17bn per year in 2010-12E. However, we note that this figure is slightly lower than the RMB18-20bn company guidance, as we have not factored in the capex on solar and other renewable energy, notwithstanding likely acquisitions.

Wind turbine costs unlikely to decrease given potential grid code requirement

The cost of wind turbines has declined by 15-20% in the past three years as a result of technological improvement and intense competition among the wind turbine manufacturers. We believe that wind turbine costs are unlikely to fall further as the net profit margin for most manufacturers is already very low. Also, grid companies may establish a standardized set of grid code that requires new wind turbines to accurately forecast wind speed, and be able to withstand sudden drops in voltage. These additional functions will likely raise the costs of the average wind turbines.

Grid code requirement has minimal impact on Longyuan

We have checked with management whether a stricter grid code would increase the company's wind turbine costs and we understand that the impact will be minimal as most of Longyuan's wind turbines are equipped with low voltage ride-through (LVRT) characteristics. LVRT is a mechanism that enables wind farms to stay in operation and connected during sudden drops in voltage.

CER income to stay even after 2012

Most of Longyuan's projects should be approved by the CDM EB

As of end-2009, Longyuan has developed 115 wind projects, of which 79 projects have obtained the approval from the NDRC and 25 have been successfully registered with UN (24 wind power projects and one biomass project). We also understand from our recent

discussion with management that another 11 of its projects have been successfully registered in 1H10, equal to the total 11 projects registrations for full year of 2009.

CDM continuity highly likely

Although there is currently no formal framework that has been set to succeed the current CDM mechanism, which will expire on 31 December 2012, several CDM project developers and investors remains very confident that the market will exist post-2012. We note that several carbon investors have begun to purchase post-2012 CDM carbon contracts. From our discussion with Longyuan's management, we understand that several investors were interested in purchasing its carbon credits post-2012. However, Longyuan did not engage in any of those transactions as the NDRC discourages transactions of carbon contracts post-2012 on the grounds that China will establish a carbon market in the near future. Thus, selling CER credits now could endanger the cost of carbon abatement after 2012 as polluters have to repurchase the sold carbon credits at a higher price.

In addition, the cost of carbon abatement will increase significantly, especially in Europe, as it has a target to reduce carbon emissions by 20~30% from 1990 levels by 2020. Our carbon analyst Mark Lewis forecasts that to achieve the target, the average need for carbon abatement within the ETS over 2008-20 is 18 million tons and, based on the demand and supply economics, he expects the actual price of carbon to increase significantly over the years. Thus, if the CDM market, which currently accounts for 15% of the global market share, were to cease existence post-2012, it will greatly hamper Europe's ability to achieve its carbon reduction target.

Delays in CDM registration

Recently, there have been substantial delays in the registration process of CDM projects. Management has indicated that although several of its CDM projects have been validated by the designated operational entity (DOE), the registration with the UN after that is often delayed, and can take more than a year. This is not peculiar to Longyuan as most Chinese wind operators are facing the same problem. In a study conducted by Rama Chandra Reddy from the World Bank, it states that the total time required for project registration has increased from an average of 8-10 months in 2004-07 to 18-19 months in 2008-09.

Additional revenue from Voluntary Emission Reduction credits

Besides CDM projects, the group also sells voluntary emission reduction credits (VERs) on projects that are yet to be registered or rejected with the CDM EB. Longyuan sells CDM through two agents, including a UK company and a HK company. In 2009, the company derived RMB14m from its VER projects.

Model input

When forecasting the CDM income, we assume a conservative estimate of €11/t for 2010-12 and €5/t after 2012 to apply a discount to the uncertainty of the continuity of CDM. We also incorporate the delay in project registration in 2H10 and 2011. As of 1H10, the company has successfully registered 11 CDM projects, thus bringing the total to 36 projects.

In terms of the operational matrix of the registered projects, we take the average utilization hours of Longyuan's wind farm.

We expect VER income to stay constant as it is unlikely to have a material impact on its earnings.

Figure 82: Carbon price forecast

	2009	2010E	2011E	2012E
Carbon price	12	11	11	11
% change in CER price		-8%	0%	0%
CNYEUR	9.520	8.378	8.378	8.378
% change in FX rate		-12%	0%	0%
Registered Projects	25	42	45	60
Registered Capacity (MW)		2,337	2,504	3,338
% of Total Capacity		36%	29%	32%
Average Capacity (MW)		1,864	2,420	2,921
Utilization (hrs)		2,243	2,189	2,244
Average power generated (GWh)		4,182	5,298	6,555
carbon (tons) production per m kWh		990	990	990
CER credit generated (RMB m)	196	381	483	598
VER (RMB m)	14	14	14	14
Total	210	395	497	612
% of net profit to shareholders	18%	16%	14%	13%

Source: Deutsche Bank estimates, Company data

VAT rebate from power sales at a five-to-six year lag

New VAT reform results in no VAT rebate from wind power sales for five years

A wind farm in China is eligible to pay just 50% VAT for its sales output. After the new equipment VAT reform is effective from the beginning of 2009, a wind farm no longer needs to pay output VAT for its wind power sales for the first five to six years. The main reason for this is that under the new reform, wind developers can credit input VAT on qualified equipment purchases against output VAT. Hence, rather than just collecting the VAT rebate from the purchase of power equipment, it can credit it directly against the VAT paid on power sales. Thus, wind developers will no longer need to pay VAT on sales for the first five to six years until their VAT credit is totally amortized. Without the need to pay VAT in the first five to six years, Longyuan will not be entitled to its original VAT rebate from wind power sales.

Under the new VAT reform, the VAT credit that is received from equipment purchased is recognized as other non-current assets. In subsequent periods, the VAT credit is amortized as cash in the cash flow statement over time.

Model input

Given the change in VAT policy, we expect other government grants to remain stable for the next five to six years before increasing when Longyuan's VAT credit on equipment purchased is fully utilized.

Unlikely to dispose of coal business in the near term

Longyuan has stakes in two coal-fired plants, Jiangyin Xiangang and Tianshengang. At the end of 2009, the two coal power plants have an installed capacity of 1,875MW. Although the company has minority stakes (27% stake Jiangyin and Jiangsu Sulong Energy and 31.94% in Tianshenggang Power) in the two power plants and coal trading company, it has operating control over the plants, thus it is consolidated for financial reporting purposes.

Excellent cash flow at its coal-fired plants

Although Longyuan is focusing on developing its wind business, it has no intentions to dispose the coal assets as they are currently profit making and generating excellent cash flow. The company might however build a new 1,000MW coal-fired plant to replace the 540MW decommissioned units of the Tianshenggang plant in 2008. The new coal-fired plant is awaiting approval from the NDRC.

Well positioned coal supply business but low profit margin

Longyuan established a coal trading company in 2009, which is known as Jiangsu Sulong Energy Company. Its primary business involves sourcing for coal and supplying it to Longyuan's power plants and to third parties. From our discussion with management, we understand that this coal trading company is well positioned to grow as it has excellent transportation and coal storage facilities in Jiangsu. It also has the ability to blend coal to meet the needs of its customers. In 2009, this business made a significant amount of revenue of RMB1,648m. However, despite the significant revenue derived from the business, the net profit margin from it is less than 2%. Thus, the growth of the coal business will not have a material impact on Longyuan's earnings.

Figure 83: Operating statistics of coal business and forecast

	2007	2008	2009	2010E	2011E	2012E
Consolidated capacity (MW)	2,425	2,425	1,875	1,875	1,875	1,875
Attributable capacity (MW)	715	715	539	539	539	539
Gross power generation (GWh)	12,442	12,670	10,910	11,249	11,249	11,280
Utilization hours	5,131	6,024	5,819	5,999	5,999	6,016
On-grid tariff (RMB/MWh)	315	345	360	355	365	365
Average fuel costs (RMB/MWh)	202	264	224	248	248	248
Coal supply revenue	NA	NA	1,648	2,966	2,966	2,966
Operating Profit (RMB m)	724	330	985	771	883	887

Source: Deutsche Bank estimates, Company data

Model inputs

For Longyuan's coal-fired plants, we have incorporated a 12% fuel cost increase in 2010 and a tariff hike of 3% from October 2010 in our model. We have also not factored in the coal plant expansion in our model. For its coal trading business, we expect revenue to increase by 80% this year and stay flat subsequently with a 2% net profit margin as per management guidance.

Guodian United wind turbine business outlook positive**Top four wind turbine manufacturer in 2009**

Longyuan's associate, Guodian Union Power Technology, is one of the leading wind turbine manufacturers in China. In 2009, Guodian United supplied 768MW of wind turbines, which was the fourth largest in term of newly installed wind turbines. However, this only accounts for 6% of the newly installed wind capacity in China.

Good fundamentals, will not be eliminated in the competitive WTG market

Although the wind turbine market in China is saturated with more than 80 players, we believe that Guodian Union is likely to defend its position in the market and gain market share. In addition, it also gets the support of Longyuan Power. In 2009, 15% of Longyuan's newly installed capacity came from Guodian Union. Given that the company develops good quality wind turbines, and its relationship with Longyuan Power, we believe the company will be able to survive the competition from other WTG players as well as gain market share.

Model input

We have assumed Guodian Union's earnings are likely to increase by 10% per year for the next three years given its good fundamentals.

Figure 84: Associate income growth trend

(RMB m)	2006	2007	2008	2009	2010E	2011E	2012E
Share of Associate profit	17	18	53	105	116	128	140

Source: Deutsche Bank estimates, Company data

Impact of interest rate hike mitigated

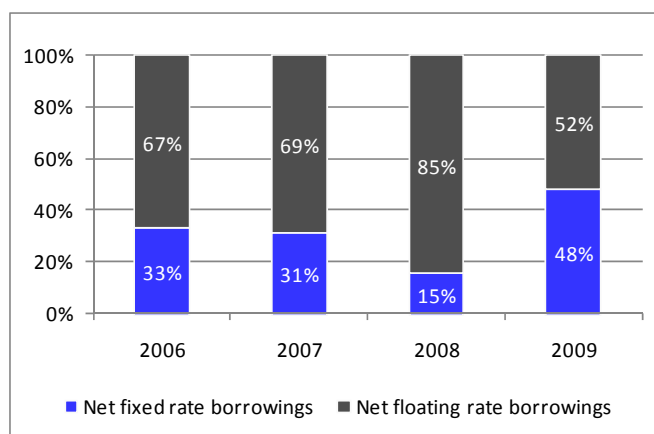
Making utility-like cash flows, but low gearing ratio

Wind power, in general, has a higher sensitivity to interest rate changes due to its higher capex intensity to thermal power. However, we believe Longyuan's interest rate risk is manageable. This is largely attributable to its lower gearing ratio of 65% in FY09 vs. more than 250% in FY09 for most China IPPs. In addition, given the nature of its wind business, it has a very stable cash flow. Thus, Longyuan can normally enjoy a 15% discount to the PBOC base corporate lending rate when borrowing from PRC banks.

The company is also restructuring its debt structure, increasing the proportion of fixed rate corporate bonds and lower-rate short-medium debentures and paying down outstanding debt to reduce its interest expense. Below, we briefly discuss the various measures taken by Longyuan.

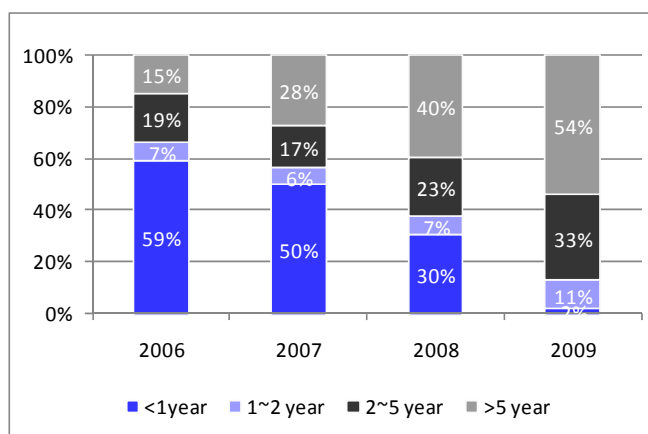
- **Increasing proportion of fixed rate debts to hedge interest rate.** Longyuan has been restructuring its debt so that it has a higher proportion of fixed rate debts. The main reason for this is that the company wanted to hedge its interest rate risk. On 9 February 2010, the company issued another RMB1.6bn corporate bond with a maturity of seven years at a fixed 4.7% rate.
- **Refinancing long-term bank loans with short-term loans.** Amid a lower interest rate environment today, the company is also looking to refinance some of its bank loans to short-term debentures to reduce its financing expense. Given Longyuan's recent status as a listed company, this adds credibility to the company's borrowing status and thus would lower its borrowing costs. From our recent discussion with management, we understand that the company will be issuing another RMB4bn medium-term note in the next few months.

Figure 85: Fixed vs. floating loans



Source: Deutsche Bank estimates, Company data

Figure 86: Maturity of outstanding loans



Source: Deutsche Bank estimates, Company data

- **Paying down outstanding debt with IPO cash.** At the end of 2009, the company had RMB16.5bn cash in hand, which is 16x more than the average in the past three years. Although the company has aggressive capacity expansion plans and will require more working capital, we believe that it is unlikely to keep such a large amount of cash given the low interest rate environment for cash deposits. Our discussion with management has confirmed our thoughts and they guided that at the end of 2010, Longyuan will reduce its cash balance to RMB5~6bn.

Interest rate risks mitigated with likely delay in interest rate hike

In the *Asia Economics Monthly*, June issue, our China Economist Jun Ma expects a delay in interest rate hikes as many officials and policy advisors are concerned about a potential double dip in the global economy. Jun believes that the concerns are warranted as inflation risks have receded somewhat in the past few weeks due to the decline in food prices and some commodity prices, the A-share market has corrected significantly in recent months and the RMB has appreciated by 15% vs. the Euro over the past few months.

Model input

Based on our China Economist's forecast of the global economy, we factored in a interest rate hike of 54bp in 2011. For every 27bps interest rate hike, Longyuan's FY11E earnings would reduce by 2.7%, according to our analysis.

Overseas investments

Longyuan has expressed keen interest in investing in wind farms overseas, in particular in the US and South Africa. The main reason behind this is that wind tariffs in overseas wind farms are generally higher than in China. For example, the wind tariff in Africa is approximately RMB1/kWh, which is higher than the average of RMB0.6/kWh in China. From our recent discussion with management, we understand that Longyuan has already spent eight months in planning and testing the wind sites in South Africa. However, management has guided that any wind farm investment overseas is unlikely to be significant in the future as the company's key focus is still in China.

Model input

We have not included any overseas investments due to lack of guidance on potential size and investment costs of overseas wind farms. However, we think it is highly likely that Longyuan will invest overseas given its healthy balance sheet (c.105% net debt/equity in 2011-12E assuming 2GW domestic wind capacity addition) and its stable cash flow from its wind business. Further, we believe that the company can leverage on its expertise and relationship with the Chinese wind turbine makers in terms of sourcing cheaper wind turbines.

M&A upside not factored in

With RMB16.5bn cash in hand and a low gearing ratio of 65% at end-2009, Longyuan has the capacity to undertake big ticket M&A projects. In addition, with an excellent operating track record, the company is likely to deliver potential synergies and value enhancement to newly acquired projects. In the IPO prospectus, management has guided that it will acquire about 200MW of new wind farms within the next one to two years. From our recent discussion with management, we understand that the parent company is likely to inject 100MW of high-return wind projects by the end of this year. Details of the five wind farms are as follows:

Figure 87: Guodian's wind farm

Name	Province	Size (MW)
Alashankou Phase I wind farm	Xinjiang	49.5
Youyu Laoqianshan wind farm	Shanxi	49.5
Xinganmeng Keyou Qianqi Concession wind farm	Inner Mongolia	49.3
Erlianhaote wind farm	Inner Mongolia	49.5
Yihewusu wind farm	Inner Mongolia	49.5
Total		247.3

Source: Deutsche Bank estimates, Company data

Model input

Although Longyuan has both the ability and capability to acquire large-scale wind farms, we have not factored this in given a lack of guidance on potential targets. Additionally, most of these acquisitions are subject to government approval, which we believe would be a risk to our valuation if we were to include it. Nonetheless, we would like to point out that any significant value-accretive M&A, which is possible, will add a further upside risk to our valuation.

Key operating matrix for wind and coal power

Figure 88: Key operating matrix of Longyuan's wind and coal business

	Unit	2007	2008	2009	2010E	2011E	2012E
Total consolidated capacity	MW	3,723	4,928	6,378	8,378	10,378	12,378
Wind		1,298	2,503	4,503	6,503	8,503	10,503
Coal		2,425	2,425	1,875	1,875	1,875	1,875
Total average capacity	MW	3,078	3,656	4,593	6,817	8,817	10,816
Wind		653	1,553	2,718	4,942	6,942	8,941
Coal		2,425	2,103	1,875	1,875	1,875	1,875
Total attributable capacity	MW	1,688	2,715	4,297	5,966	7,635	9,303
Wind		973	2,001	3,758	5,427	7,096	8,765
Coal		715	715	539	539	539	539
Total capacity addition	MW	712	655	2,001	2,000	2,000	2,000
Wind		712	1,205	2,001	2,000	2,000	2,000
Coal			(550)	-	-	-	-
Net power generation	GWh	13,955	16,325	17,122	22,335	26,445	31,343
Wind		1,514	3,655	6,212	11,087	15,197	20,063
Coal		12,442	12,670	10,910	11,249	11,249	11,280
Load factor	%						
Wind		26.5%	26.8%	26.1%	25.6%	25.0%	25.5%
Coal		58.6%	68.6%	66.4%	68.5%	68.5%	68.5%
Utilization	hrs						
Wind		2,317	2,354	2,285	2,243	2,189	2,244
Coal		5,131	6,024	5,819	5,999	5,999	6,016
Average on-grid Tariff (excl. VAT)	RMB/MWh						
Wind		598	561	567	573	574	573
Coal		315	345	360	355	365	365
Average standard coal cost (incl. VAT)	RMB/ton	686	908	726	813	813	813
% chg		11.5%	32.3%	-20.0%	12.0%	0.0%	0.0%

Source: Deutsche Bank estimates, Company data

Financial outlook

First half operational update

Power generation and capacity growth on track, grid connection limited impact

Our recent discussion with management on its first half operating statistics suggests that the company is on track to achieve its full-year wind power generation target of more than 11bnkWh. Although wind farms in Inner Mongolia experience more than 10% of power rationing, it is widely expected and the impact on the overall power generation is limited. At the same time, the company is on track to achieve its 2GW capacity growth target, with most of the capacity commencing in the fourth quarter of the year.

11 CDM projects approved

In the first half of the year, the company made a significant improvement in registering for CDM projects. 11 of its wind projects were registered, bringing Longyuan's total registered projects to 36.

Coal price up 12% yoy but coal trading >80% growth

For the coal business, profitability has declined given that the average coal price was up RMB70-80/t (12% yoy). However, revenue from the coal trading business improved and management said that the coal trading revenue should exceed RMB3bn this year.

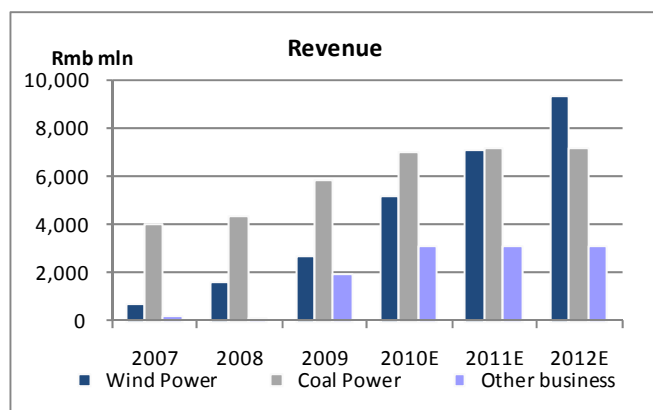
Revenue, earnings and margin outlook

Revenue to increase by 25% CAGR in 2009-12E driven mainly by wind business

Based on the model inputs of stable tariffs, modest decline in utilization rates and capacity growth, we expect revenue excluding concession revenue to increase by 25% CAGR for 2010-12E. In our estimates, revenue from wind power sales will grow at 37%, 32%, 24%, per year in 2010-12E. By 2012, wind power should account for 54% of the company's total revenue base, up from 31% in 2009. For its coal business, we expect revenue to increase by 21% in 2010 due to an increase in coal trading revenue and to stay flat for the next few years as tariff, utilization and capacity are expected to remain stable. For Longyuan's other business, which includes power equipment sale, wind farm services and sale of electricity from other renewable plants, we expect revenue to increase mainly from the provision of wind farm maintenance and services.

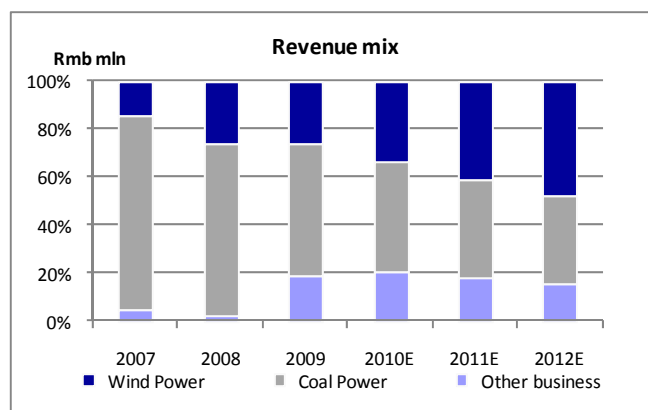
Figure 89 and Figure 90 illustrate the revenue growth and mix for the different business segments from 2010-12E. We would like to point out that the revenue mix is slightly misleading due to significant minority interest in its coal business. (Longyuan only has a 27% stake in Jiangyin Xiangang power plant and Jiangsu Sulong coal trading firm and a 31.94% stake in Tianshengang power plant).

Figure 89: Revenue growth and forecast



Source: Deutsche Bank estimates

Figure 90: Revenue mix forecast



Source: Deutsche Bank estimates

Figure 91: Revenue breakdown in terms of business operations

(RMB m)	2007	2008	2009	2010E	2011E	2012E
Wind Power	727	1,638	2,754	5,318	7,613	9,920
Sales of Electricity	726	1,635	2,752	5,315	7,610	9,917
Others	1	3	2	3	3	3
Coal Power	4,018	4,373	5,873	5,811	5,810	5,824
Sales of Electricity	3,670	4,090	3,669	3,734	3,734	3,745
Sales of steam	90	121	230	235	235	235
Coal Sales & Others	258	163	1,974	1,841	1,840	1,845
Other business	236	455	563	598	684	785
Sales of power equipment	101	264	128	246	236	239
Sales of other renewable power	17	28	46	46	46	46
Provision of wind farm maintenance, consulting and other services	119	164	390	307	403	500
Elimination of inter-segment revenue	(92)	(112)	(329)	(182)	(215)	(254)

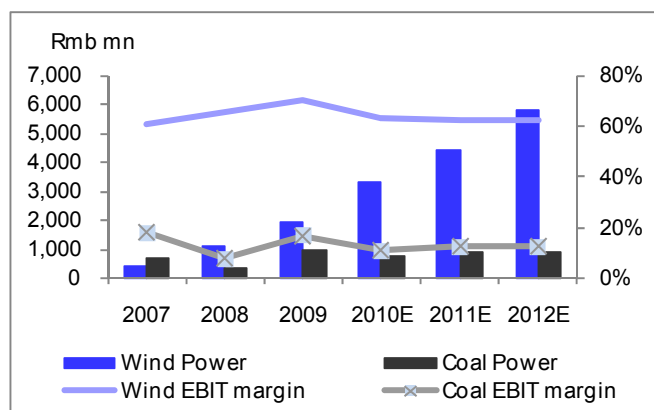
Source: Deutsche Bank estimates, Company data

Operating profit to increase by 32% CAGR (2009-12E)

In our model, we forecast EBIT (operating profit) to increase by 32% CAGR in the next three years. The increase in operating profit is largely attributable to:

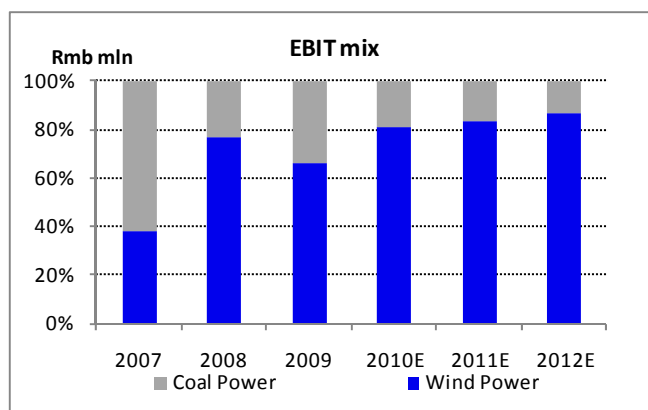
- 2GW wind capacity addition per year from 2010-12, and
- Increasing CDM revenue as more projects receive approval.

Figure 92: EBIT growth and margin forecast



Source: Deutsche Bank estimates

Figure 93: EBIT mix trend



Source: Deutsche Bank estimates

Wind and coal EBIT margins to stabilize

Figure 94 shows historical and forecast EBIT margins for Longyuan's wind and coal business. We expect wind margins to stabilize over the next few years as wind turbine costs are unlikely to decrease further, given the current low profit margin and the potential increase in costs due to stricter grid code requirement for wind turbines. For the coal business, we expect margins to decrease in 2010 due to the surge in coal price this year before stabilizing. However, if a fuel-cost adjustment mechanism is in place, we expect coal business margins to improve significantly.

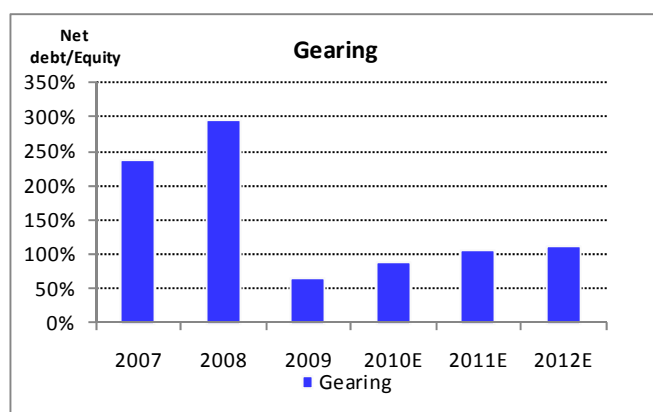
Figure 94: EBIT breakdown forecast (2010-12E)

Operating profit (RMB m)	2007	2008	2009	2010E	2011E	2012E
Wind Power	443	1,076	1,924	4,182	5,888	7,644
Operating margin	61%	66%	70%	79%	77%	77%
Coal Power	724	330	985	968	968	972
Operating margin	18%	8%	17%	17%	17%	17%
Other business	42	74	110	177	198	226
Operating margin	18%	16%	19%	30%	29%	29%
Elimination of inter-segment EBIT	(19)	(17)	(46)	(69)	(72)	(81)
Unallocated head office & corporate expenses	(72)	(42)	(114)	(113)	(142)	(173)
Total	1,118	1,421	2,858	5,144	6,839	8,589

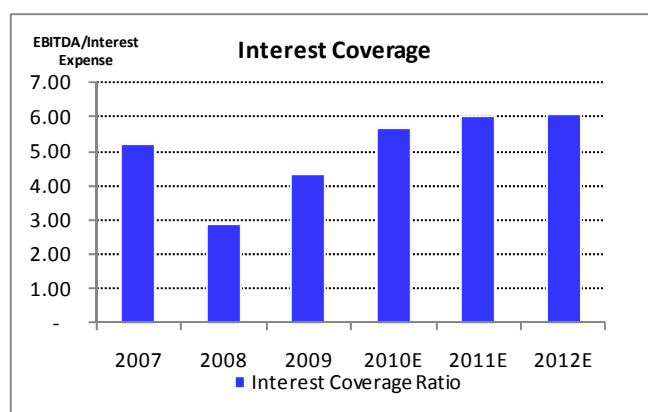
Source: Deutsche Bank estimates

Financial expense to increase with higher gearing ratio

Although the company has received huge capital inflow from its recent IPO, the company's gearing ratio is likely to increase over the next few years given the company's aggressive wind capacity expansion plans of 2GW per year. With higher debt financing, we expect the company's financial expense to increase over the years.

Figure 95: Net debt/equity forecast

Source: Deutsche Bank estimates, Company data

Figure 96: Net interest expense forecast

Source: Deutsche Bank estimates, Company data

Unlikely to issue new shares before 2012

Although the company's gearing ratio is expected to increase over time, we do not expect the company to issue new shares by 2012 (*we have confirmed this with management*), as the stable cash flow generated by its wind business will help it to maintain a healthy interest coverage ratio of more than 5x. Further, although the company has aggressive capex plans of RMB17-18bn in 2010-12, its net debt to equity ratio is likely to stay at c.105% as Longyuan does not face difficulty in raising debt. This is significantly lower than the company's gearing ratio (>240%) before its pre-IPO period. In addition, as compared to other China IPPs with a gearing ratio of 115%-346% and less stable cash flow, Longyuan has less urge to issue more shares. Further, the company is unlikely to face significant debt financing problems as the government has been very supportive of the development in the renewable energy industry. In our view, the new share placement after 2013 will be more likely associated with acquisitions.

Effective tax rate to stay below 11% before 2012

We expect the effective tax rate to stay below 11% in 2010-12E given: 1) increasing earnings mix from the wind business, which has a lower effective tax rate compared to coal power; and 2) under the Catalogue of Public Infrastructure Projects Eligible for Enterprise Income Tax Preferential Treatment (2008), each of the company's wind projects that obtained government approval on or after 1 January 2008 is fully exempted from EIT for the first three years, and 50% is exempted from EIT for the three years thereafter.

Earnings sensitivity and Dupont analysis

Figure 44 below illustrates the sensitivity of the company's earnings to the key drivers, namely wind capacity, wind and coal tariffs, wind and coal utilization rates, coal price, carbon price, changes in interest rates and turbine costs. At the same time, we break down the key drivers to the company's RoE.

Figure 97: Sensitivity to key earnings drivers

Earnings sensitivity table	Base case	FY11E
10% increase in wind capacity addition in 2010 (MW)	2,000	1.36%
1% increase in wind tariff (RMB/MWh)	580	2.5%
1% increase in coal tariff (RMB/MWh)	369	0.2%
1% increase in utilization rate of wind power (%)	25%	2.5%
1% increase in utilization rate of coal power (%)	68.5%	0.12%
1% increase in coal price (RMB/ton)	813	0.7%
10% increase in Carbon Price (€/ton)	11	1.8%
1% increase in effective interest rate (%)	5.5%	0.5%
1% increase in turbine costs (RMB/KW)	8,500	0.5%
10% increase in €/RMB	8.4	-1.8%

Source: Deutsche Bank estimates

Figure 98: Longyuan – Dupont analysis

Key Company Metrics	2007	2008	2009	2010E	2011E	2012E
Net Margin (%)	3.1%	3.9%	9.2%	14.1%	17.6%	21.0%
Assets Turnover	29.9%	23.7%	14.3%	18.3%	18.3%	18.4%
Equity Multiplier	8.1	9.3	3.1	3.1	3.1	3.1
ROE	7.5%	8.7%	4.1%	7.9%	10.1%	12.1%

Source: Deutsche Bank estimates

From the Dupont analysis, we expect that the increase in RoE in the next few years will be driven mainly by an increase in net margins. The increase in net margin is a result of a greater earnings contribution from the higher net margin wind business. We would also like to point out that the lower RoE in 2009 is a result of the proceeds of RMB17bn received from its listing in December 2009.

Figure 99: Longyuan – Income statement (2007-12E)

(RMB m)	2007	2008	2009	2010E	2011E	2012E
Operating Revenue, Net	6,963	8,555	9,744	13,257	15,112	17,371
Operation Revenue excluding service construction rev.	4,889	6,355	8,861	12,816	14,979	17,371
Wind Power	727	1,638	2,754	5,181	7,114	9,371
Sales of Electricity	726	1,635	2,752	5,178	7,111	9,368
Others	1	3	2	3	3	3
Coal Power	4,018	4,373	5,873	7,081	7,193	7,203
Sales of Electricity	3,670	4,090	3,669	3,734	3,846	3,857
Sales of steam	90	121	230	235	235	235
Coal Sales & Others	258	163	1,974	3,111	3,111	3,112
Other business	236	455	563	752	922	1,091
Sales of power equipment	101	264	128	128	128	128
Sale of other renewable electricity	17	28	46	46	46	46
Provision of wind farm maintenance/ consulting & others	119	164	390	578	748	918
Elimination of inter-segment revenue	(92)	(112)	(329)	(197)	(249)	(294)
Service Concession construction revenue	2,074	2,200	883	441	132	0
Total other net income	168.9	390.2	574	746	848	963
Government grants						
CERs and VERs income	30	118	210	395	497	612
Others	95	208	327	337	336	336
Rental income from investment properties	32	25	22	4	4	4
Net (loss)/gain on disposal of PPE & invest. properties	(0)	21	4	-	-	-
Others	13	19	10	10	10	10
Total operating expenses	(6,014)	(7,524)	(7,459)	(9,995)	(10,743)	(11,710)
Fuel (Coal Consumption)	(2,347)	(3,128)	(2,290)	(2,607)	(2,607)	(2,614)
Depreciation & Amortization	(778)	(1,083)	(1,590)	(2,346)	(3,054)	(3,762)
Personnel Costs	(384)	(384)	(540)	(702)	(803)	(897)
Material costs	(110)	(295)	(1,703)	(3,080)	(3,163)	(3,247)
Repairs and Maintenance	(105)	(87)	(108)	(192)	(264)	(348)
Administrative expenses	(101)	(107)	(148)	(201)	(229)	(263)
Others operating expenses	(115)	(240)	(197)	(425)	(491)	(577)
Total Operating Expenses (Ex. service concession costs)	(3,940)	(5,324)	(6,576)	(9,553)	(10,611)	(11,710)
Service concession construction costs	(2,074)	(2,200)	(883)	(441)	(132)	0
Operating profit	1,118	1,421	2,858	4,009	5,216	6,624
Wind Power	443	1,076	1,924	3,287	4,405	5,823
Coal Power	724	330	985	771	883	887
Other business	42	74	110	148	176	208
Elimination of inter-segment operating profit	(19)	(17)	(46)	(83)	(106)	(122)
Unallocated head office and corporate expenses	(72)	(42)	(114)	(115)	(143)	(172)
Total Financial Expenses	(364)	(858)	(1,020)	(1,116)	(1,372)	(1,704)
Share of Profit of Associates	18	53	105	116	128	140
Profit Before Tax	773	616	1,944	3,009	3,971	5,059
Income Tax Expense	(60)	(2)	(296)	(309)	(418)	(507)
Profit Before Minority Interest	712	614	1,647	2,700	3,553	4,553
Minority Interest	(497)	(277)	(753)	(826)	(888)	(898)
Net Profit Attributable to Shareholders	215	338	894	1,874	2,666	3,655
Basic EPS (RMB)	0.043	0.068	0.174	0.251	0.357	0.490

Source: Deutsche Bank estimates, Company data

Figure 100: Longyuan – Balance sheet (2007-12E)

(RMB m)	2007	2008	2009	2010E	2011E	2012E
Non-Current Assets						
Property, Plant and Equipment, Net	14,937	24,290	37,304	49,489	60,964	71,732
Investment properties	266	172	133	133	133	133
Lease Prepayments	461	557	741	741	741	741
Intangible assets	2,997	5,083	6,086	6,086	6,086	6,086
Investments in associates and JC	586	527	799	915	1,043	1,183
Other assets	897	350	2,319	3,562	4,211	4,251
Deferred tax assets	92	190	205	205	205	205
Total Non-Current Assets	20,235	31,169	47,587	61,131	73,383	84,330
Current Assets						
Trading Securities	0.2	0.1	0.0	0	0	0
Inventories	205	279	333	243	249	257
% of Fuel and Maintenance Costs	8.4%	8.7%	8.7%	8.7%	8.7%	8.7%
Trade debtors and bills receivable	866	1,241	2,181	2,967	3,382	3,888
% of Net Operating Revenue	12%	15%	22%	22%	22%	22%
Prepayments and other current assets	974	1,805	853	853	853	853
Tax recoverable	7	1	5	5	5	5
Restricted deposits	229	500	492	492	492	492
Cash at bank and on hand	809	1,055	16,503	6,932	4,066	4,339
Total current assets	3,090	4,880	20,367	11,493	9,048	9,834
Total Assets	23,325	36,049	67,954	72,624	82,431	94,164
Current Liabilities						
Borrowings	6,156	4,686	17,087	18,212	16,583	16,549
Trade Creditors and bills payable	1,779	2,729	1,943	2,809	2,945	3,097
% of Operating Costs (excl. Depr.)	56.3%	64.3%	39.0%	39.0%	39.0%	39.0%
Tax Payable	29	80	140	140	140	140
% of Pre-Tax Income	3.7%	13.0%	7.2%	6.0%	6.0%	6.0%
Other payables	1,542	1,918	4,521	6,536	6,853	7,207
% of [Operating Costs (excl. Depr.)	48.8%	45.2%	90.7%	90.7%	90.7%	90.7%
Total Current Liabilities	9,506	9,413	23,692	27,697	26,521	26,993
Non-Current Liabilities						
Total borrowing	7,845	17,345	16,219	14,287	21,820	28,631
Obligations under finance lease	0	50	50	50	50	50
Deferred income	387	2,145	2,268	2,165	2,063	1,961
Deferred tax liabilities	27	23	45	45	45	45
Total Non-Current Liabilities	8,291	19,564	18,582	16,547	23,978	30,686
Share capital	1,663	3,163	7,464	7,464	7,464	7,464
Reserves	2,865	3,875	14,436	16,309	18,975	22,630
Total Shareholders' Equity	2,865	3,875	21,900	23,774	26,439	30,094
Minority interest	2,663	3,198	3,780	4,606	5,494	6,392
Total Liabilities & Equity	23,325	36,049	67,954	72,624	82,431	94,165

Source: Deutsche Bank estimates, Company data

Figure 101: Longyuan – Cash flow statement (2007-12E)

(RMB m)	2007	2008	2009	2010E	2011E	2012E
Profit Before Tax	773	616	1,944	3,009	3,971	5,059
Depreciation & Amortization	778	1,083	1,590	2,346	3,054	3,762
Impairment loss	2	104	0	0	0	0
Gain / Loss on Disposals	0	(21)	(5)	0	0	0
Interest expenses on financial assets	445	932	1,024	1,027	777	686
FX exchange difference	(11)	(53)	6	0.00	0.00	0.00
Interest income on financial assets	(25)	(37)	(33)	(117)	(85)	(65)
Dividend income	(54)	(47)	(16)	(50)	(50)	(50)
Share of Profit/Loss of JCs/Associates	(18)	(53)	(105)	(116)	(128)	(140)
Change in Working Cap	(1,255)	360	(83)	2,081	(70)	(109)
Operating Cash flow	636	2,885	4,321	8,179	7,470	9,143
Less Tax Paid	(45)	(45)	(236)	(309)	(418)	(507)
Net cash from operating activities	591	2,840	4,085	7,870	7,052	8,636
Operating Free Cash flow	(6,570)	(8,763)	(12,256)	(9,130)	(9,948)	(8,364)
Capex	(7,162)	(11,603)	(16,341)	(17,000)	(17,000)	(17,000)
Acquisition of financial assets and investments in Assoc. & JCs	(708)	(726)	(476)	0	0	0
Acquisition of subsidiary/obtaining control	0	0	8	0	0	0
Government grant received	354	655	1,184	1,226	1,822	2,430
Proceeds from disposal of PPE	22	25	64	0	0	0
Proceeds from disposal of subsidiaries, associates and JCs	70	473	41	0	0	0
Dividends received	34	96	30	50	50	50
Interest received	26	48	32	117	85	65
Time deposits and others	0	(53)	302	0	0	0
Investing Cash flow	(7,365)	(11,086)	(15,156)	(15,607)	(15,044)	(14,455)
Net proceeds from issuance			17,022			
Capital contributions from the equity owner of the Company	670	1,500	492	0	0	0
Capital contributions from minority interest	324	451	0	0	0	0
Net borrowings	7,520	7,922	10,952	(807)	5,903	6,777
Dividends paid to minority interest	(373)	(358)	(322)	0	0	0
Interest paid	(550)	(1,119)	(1,567)	(1,027)	(777)	(686)
Payment of finance lease obligations	(108)	(2)	(3)	0	0	0
Proceeds from sales and leaseback transaction classified as finance lease	0	50	0	0	0	0
Net Cash flow	709	198	15,505	(9,570)	(2,866)	272

Source: Deutsche Bank estimates, Company data

Figure 102: Longyuan – Key metrics

Key Company Metrics	2007	2008	2009	2010E	2011E	2012E
Growth						
Sales growth (%)	27.9%	22.9%	13.9%	36.1%	14.0%	15.0%
Net earnings growth (%)	43.9%	57.1%	164.8%	109.6%	42.3%	37.1%
DB EPS growth (%)	43.9%	57.1%	157.7%	44.3%	42.3%	37.1%
Margin						
EBITDA Margin (%)	38.8%	39.4%	50.2%	49.6%	55.2%	59.8%
EBIT Margin (%)	22.9%	22.4%	32.3%	31.3%	34.8%	38.1%
Net Margin (%)	3.1%	3.9%	9.2%	14.1%	17.6%	21.0%
Return						
Return on Shareholder Equity	7.5%	8.7%	4.1%	7.9%	10.1%	12.1%
ROA	0.9%	0.9%	1.3%	2.6%	3.2%	3.9%
ROIC	1.7%	1.3%	3.2%	4.9%	5.1%	5.8%
Capitalization						
Payout ratio (%)	0.0%	0.0%	0.0%	30.0%	30.0%	30.0%
Capex/sales (%)	102.9%	135.6%	167.7%	109.6%	96.2%	83.6%
Capex/depreciation (x)	9.2	10.7	10.3	6.2	4.8	3.9
Net interest cover (x)	2.4	1.4	2.7	3.1	3.5	3.6
EBITDA / Interest	4.1	2.5	4.2	5.0	5.5	5.7
EBITDA / (Interest + Debt Payment)	7.2	0.8	(0.4)	0.4	1.4	2.0
EBITDA / Cash Interest	3.2	1.8	2.7	3.6	4.2	4.6
Net Gearing (%)	238.6%	296.6%	65.4%	90.1%	107.5%	111.9%
Net Debt to Total Capital (%)	70.5%	74.8%	39.6%	47.4%	51.8%	52.8%
Total Debt	14,001	22,031	33,306	32,499	38,403	45,179
Net Debt	13,192	20,976	16,803	25,567	34,336	40,841
Total Capital	18,720	28,049	42,483	53,947	66,269	77,326

Source: Deutsche Bank estimates, Company data

Company background

A pure wind developer with significant growth opportunity

Background

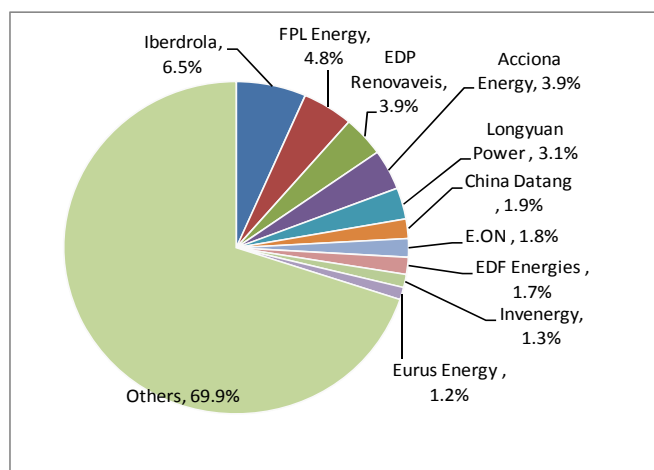
China Longyuan Power is the listed wind power arm of China Guodian Group, which is one of the largest power producers in China. The company is the largest wind farm operator in China, and it designs, manages and operates wind farms. The company's wind farms are located mainly in six geographically diverse areas: the Three Northeast Provinces, Inner Mongolia, the Southeast Coastal Provinces, Xinjiang, Gansu and Hebei. Besides wind, the company also has 1,875MW of coal-fired plants.

Since 1999, the company has shifted its focus towards wind power generation, and as a result expanded rapidly into the wind power business to become China's market leader. Its operating profit as a percentage of total profit from wind grew from 13.3% in 2006 to 67% in 2009.

2009 operating capacity

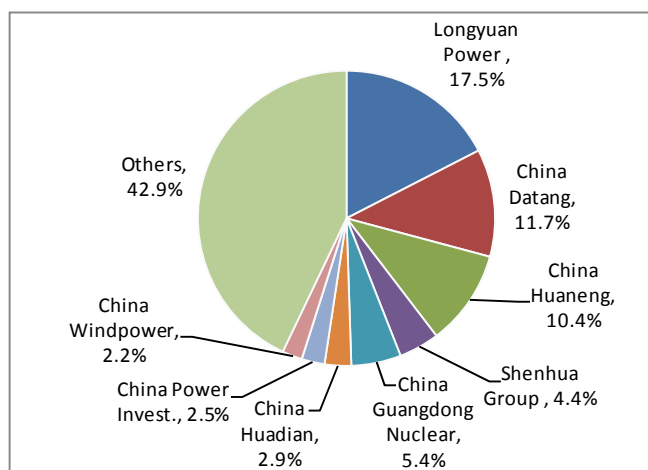
At the end of 2009, the company's total installed wind capacity was 4,503MW. BTM Consults ranks Longyuan Power as the largest wind developer in China and Asia with a 17.5% market share in terms of 2009 total installed capacity, and it is also the fifth-largest wind power generator in the world, with about 2.8% of global capacity.

Figure 103: 2009 global wind power market share



Source: Deutsche Bank, International Wind Energy Development, BTM Mar 2010. Note: BTM definition of capacity refers to attributable capacity at Group level.

Figure 104: 2009 China wind power market share



Source: Deutsche Bank, International Wind Energy Development, BTM Mar 2010, China Wind Energy Association and various company websites

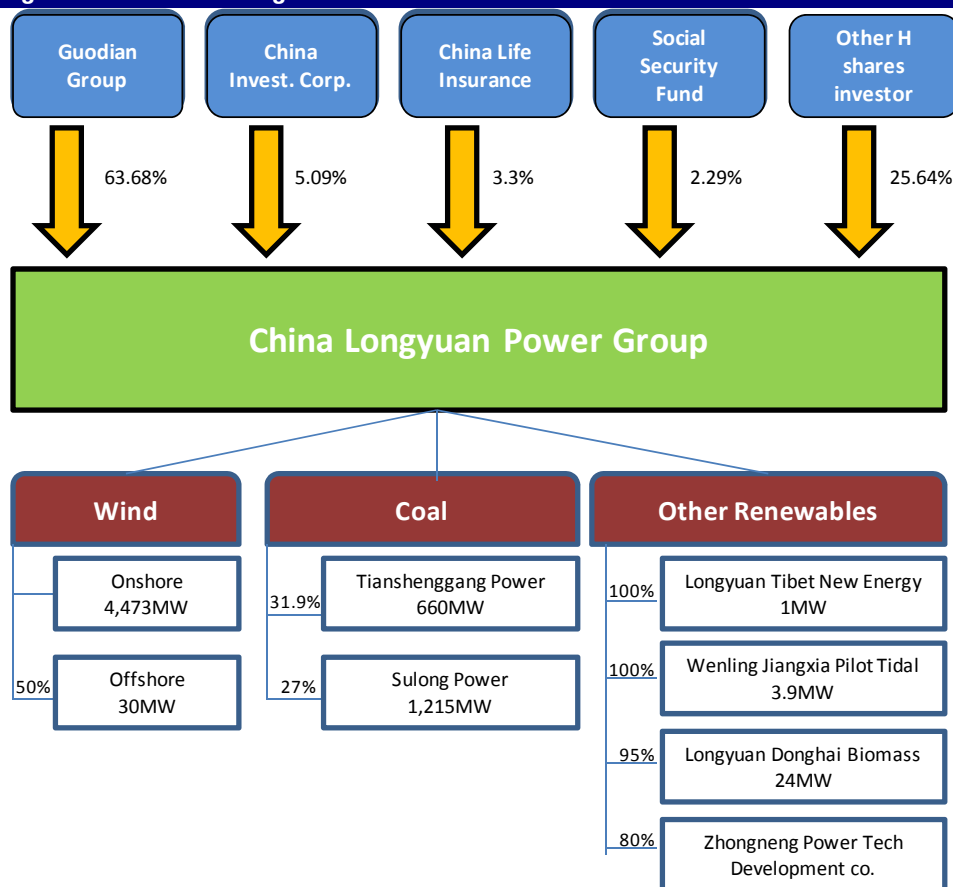
China Guodian Corporation

Brief background

China Guodian Corporation is one of five largest IPPs in China. Its power generation business principally comprises the coal power business and hydro business. As of 31 December 2009, the company had a consolidated total installed capacity of 82.03GW, of which coal 70.25GW (85.64%), hydro 6.376GW (7.77%), wind 5.345GW (6.52%) and biomass 54MW (0.07%). Guodian assets are widely distributed across 31 provinces, municipalities and autonomous regions and it employs over 110,000 workers.

Pre-emptive rights for Longyuan Power to acquire Guodian's wind power business

Guodian has also entered into a non-competition agreement with Longyuan Power, in which Longyuan was granted the option and pre-emptive rights to acquire Guodian's wind power business. The agreement was signed to delineate the business between Longyuan Power and Guodian in respect of the wind power business.

Shareholding structure**Figure 105: Shareholding structure as of 31 December 2009**

Source: Deutsche Bank, Company data

Of the major shareholders listed above, China Investment Corporation and China Life Insurance are the cornerstone investors. As such, they are not allowed to dispose any of the H-shares within 12 months of the listing date.

Management teams

Figure 106: Company management background

Name	Age	Position	Biography
Mr. Zhu Yongpeng	58	Chairman of the Board & Non-executive Director	<ul style="list-style-type: none"> • General Manager of Guodian (2008 to present) • Chief Legal Advisor of Guodian (2007 to present) • Deputy General Manager of Guodian and Vice Chairman of GD Power (2002-2008) • Graduated with a Bachelor's degree in Relay Protection and Automation from Northeast Dianli University • Professor-grade senior engineer.
Mr. Xie Changjun	52	Executive Director and President	<ul style="list-style-type: none"> • Assistant to the General Manager of Guodian (2006-Present). • President of CLEPG from (2001 to 2009), and Vice President from (1999 to 2001) • Assistant Engineer & office-chief assistant of Science Technology Department of Ministry of Water Resources & Electric Power • Graduated with a bachelor's degree in engineering from Northeast Dianli University
Mr Tian Shichun	57	Executive Director & Vice President	<ul style="list-style-type: none"> • Head of production division and the Deputy manager of Ningxia Zhongning Power Plant • Chief engineer, Deputy Manager of Daba Power Plant, Deputy General Manager of Ningxia Electric Power Bureau (Prior to 2006) • Graduated with a bachelor's degree in engineering from Xi'an Jiaotong University & master degree in engineering from Wisconsin • Professor-grade senior engineer.
Mr. Huang Qun	48	Vice President	<ul style="list-style-type: none"> • Deputy General Manager of CLEPG (2002 to 2009) • Assistant to General Manager of CLEPG (2000 to 2002) • Deputy chief economist and manager of the Operational Department of CLEPG (1997 to 2000) • Graduated with a bachelor's from Management Engineering Department of Tongji University • Senior engineer
Mr. Zhang Yuan	53	Vice President	<ul style="list-style-type: none"> • Deputy General Manager of CLEPG (2003 to 2009) • Engineering Division of Guodian Group (2002 to 2003) • Division chief of the Power Construction Division of the China Power Corporation (2000 to 2002) • Graduated with a Bachelor's degree in semiconductor from Northwest Telecommunication Construction University majoring. • Professor-level senior engineer.
Mr. Fei Zhi	42	Vice President	<ul style="list-style-type: none"> • General Manager of Nantong Tianshenggang Power Generation Co. (NTPG) (2001 to 2009) • Director of the Preparation Office of Guodian Jiangsu Haimen Power Plant (2003 to 2009) • Graduated with a Bachelor's degree in production process automation from Shanghai Institute of Electric Power and graduated from Southeast University, majoring in electricity system and automation and obtained a bachelor's degree • Senior engineer
Ms. Li Hongmei	52	Chief Accountant	<ul style="list-style-type: none"> • Chief accountant of CLEPG (2004 to 2009) • Deputy Chief Accountant (1996 to 2004) • Manager of Financial Department of CLEPG (2003 to 2004) • Graduated from Central University of Finance & Economics majoring in accounting and obtained college diploma • PRC Certified Public Accountant.
Mr. Jia Nansong	47	Board Secretary & Joint Company Secretary	<ul style="list-style-type: none"> • Assistant to General Manager, the Director of the Office of General Manager of CLEPG (2008 to 2009). • Deputy chief economist of CLEPG (2004 to 2008) • Manager of the Human Resource Department and the Auditing Supervision Department of CLEPG (2003 to 2008) • Graduated with a bachelor's degree from North China Electric Power University majoring in thermodynamic process automation • Senior engineer.

Source: Deutsche Bank, Company data

Source wind turbines from top suppliers in the world

Longyuan sources its wind turbines from a few international and domestic suppliers, such as Gamesa, Vesta, General Electric, Goldwind and Sinovel, with which it has established long-term relationships. According to BTM consult, these wind turbine suppliers are the top ten largest in the world. As of 30 June 2009, Longyuan's two largest suppliers, Gamesa and Goldwind supplied 43.7% and 31.6% of the total installed capacity of its wind farms.

We believe that given the huge orders Longyuan is likely to place and its established long-term relationship with the wind suppliers, it will be able to continue to negotiate favourable purchasing terms. At the same time, given the excellent track record of the quality of the wind turbine suppliers, it is likely that Longyuan will be able to maintain its high availability factor.

Low operational risks of its wind turbine

Figure 107: Availability factor by province

	2008	2009	YoY
Three Northeast Provinces	93.03	98.63	5.60%
Inner Mongolia	98.26	98.13	-0.13%
Southeast Coastal Provinces	98.43	97.57	-0.86%
Gansu	98.1	98.94	0.84%
Xinjiang	97.83	96.41	-1.42%
Hebei	94.75	94.42	-0.33%
Other Areas	-	-	-
Total	96.35	97.69	1.34%

Source: Deutsche Bank, Company data

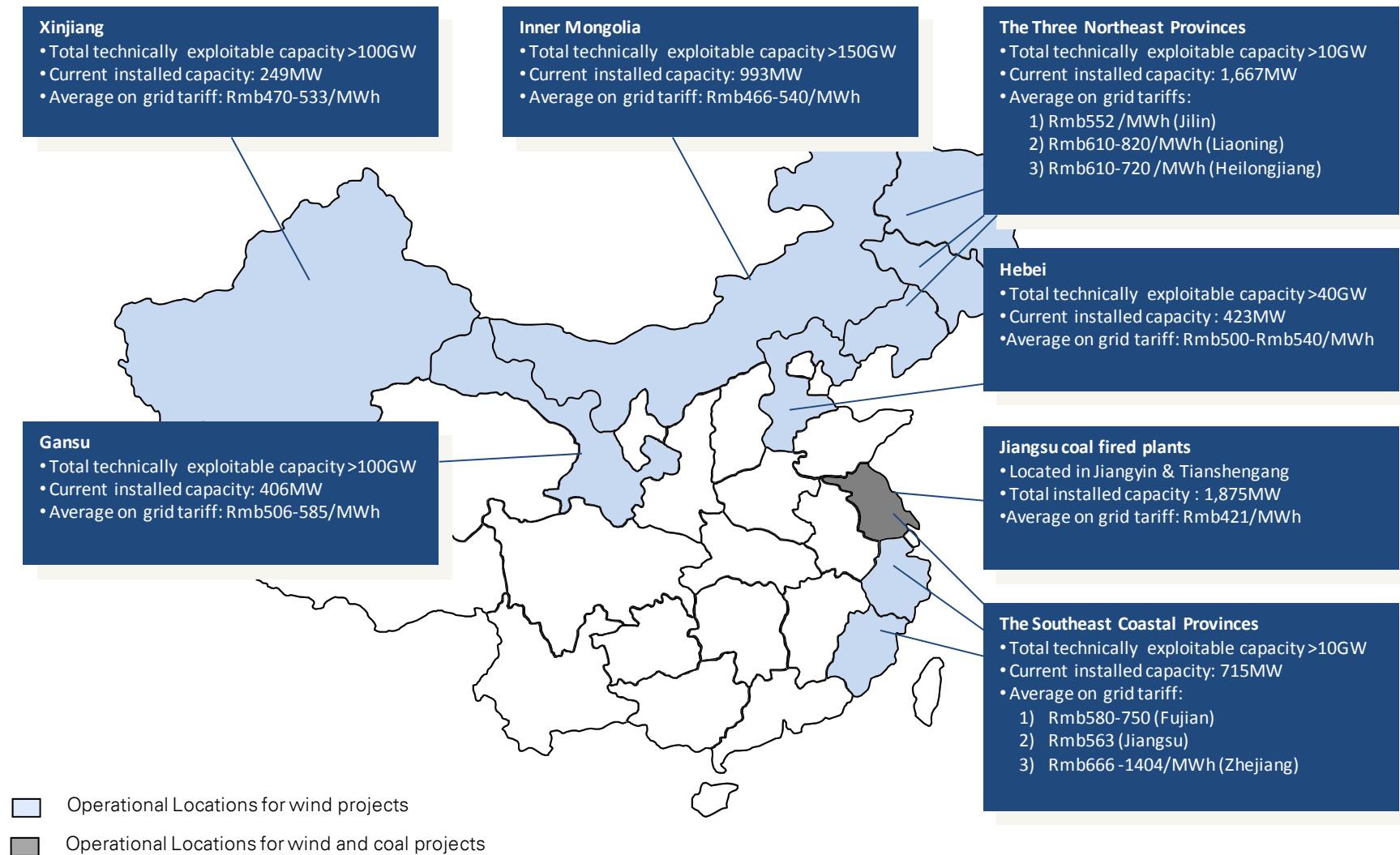
The availability factor of the wind turbines is a reflection of the quality of the company's wind turbine and its operational expertise. The exceptionally high and steadily increasing availability level of 97.6% suggests that Longyuan's wind turbine is on a par with international standards of 98%. Hence we believe that Longyuan's wind turbine has very low operational risks, and the company will be able to maintain higher than national average utilization hours considering the same grid connection standards.

Participating in setting up grid connection code

According to media reports, the new technical standard for wind power grid connection may be released in August 2010. The standard will regulate the technology required in grid connection for wind farms, including active/reactive power control, low voltage ride through properties, voltage and frequency control, and wind speed forecasting. As the industry leader, Longyuan has been actively participating in the drafting of the new standards, together with State Grid and Southern Grid.

Figure 108: Longyuan's operational capacity by region

Operational Locations for Longyuan Power



Source: Deutsche Bank, Company data

Risks

Grid connection

In the short term, grid connection is likely to remain a key bottleneck to the development of the wind market, as most areas with rich wind resources are located in the northern parts of China which have weak grid infrastructure. According to the China Electricity Council, at the end of 2009, about one-third of the wind capacity was not connected to grid. However, on the bright side, this problem will eventually be resolved as the government has set aside a huge budget to develop the smart grid and upgrade its grid infrastructure. Grid connection is particularly problematic in Gansu and West Inner Mongolia province where wind makes up most of the total installed capacity.

Uncertainty of CER and VER income

With about 23.5% of the total net income attributed to CER in 2009, the sustainability of this income flow will be significant to the company's earnings. For one, the CDM which is based on the Kyoto Protocol is set to expire in December 2012, after which the CDM credit might cease to exist. In addition, there runs a risk of delay in the approval and registration process of the CERs. In China, 12 wind projects were rejected last year and a further 74 CDM projects were rejected in early March on unsubstantiated grounds.

Rising competition in project sourcing

The government's focus on the wind power sector and favourable government policies in place has led to an increase in entrants to the sector as well as increased capacity targets of the existing players. Competition for new projects has become more difficult as a result. In addition, the number of sites appropriate for wind farm construction is limited by the wind conditions and proximity and availability of grid connection.

Uncertainty with coal price, tariff and planned output

Although the company is focusing on expanding its wind business, in the short term, earnings contribution from the coal business will remain significant. In 2007, 2008 and 2009, operating profit from the coal business accounted for 65%, 23% and 34%, respectively. Thus, the profitability of its coal business will have an impact on the company's earnings going forward. As compared to its wind business, Longyuan's coal business is more volatile as: 1) it is subject to coal price and tariff volatility; and 2) utilization risks.

Potential levies imposed due to new VAT scheme

According to the new VAT reform, set in 2009, general VAT payers are allowed to credit against output VAT in respect to input VAT on fixed assets purchases. As a result of the new reform, the local government can no longer collect VAT from wind power sales for at least five to six years as wind farm developers credit the VAT output from wind power sales against input VAT on power equipment purchase. We believe that it is possible for the central government to introduce some form of wind resource levies to compensate the local government for the loss of VAT from wind power sales. An implementation of such levy is likely to reduce the profitability of the development of wind farms.

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Asia China

Industrials Manufacturing

19 July 2010

Goldwind Sci & Tech

Reuters: **002202.SZ** Bloomberg: **002202 CS**

An industry leader at discount valuation; Initiate with Buy

Share price weakness creates attractive buying opportunities

Since late June, Goldwind's share price has dropped 26%, relative to an 8% decline of the benchmark index, the SSECI. The withdrawal of its H-share placement and weak peer performance may be to blame. However, we believe this is unjustified, as its growth plan is unlikely to be slowed by the delay in issuing new shares, and it does not face the overhangs confronting its EU/US peers. We see an attractive entry point for a stock trading at 14x FY10E P/E, at a 50% and 20% discount to the historical average and sector peers average, respectively.

An industry leader unafraid of overcapacity

On top of our upbeat view on the wind power industry, we like Goldwind for its edge in both quality and technology, potential growth overseas, offering of total solutions, and higher order-book coverage. Turbine capacity oversupply is unlikely to threaten Goldwind, with its well-established strengths. The risk/reward profile becomes increasingly attractive after recent share price weakness.

Positive catalysts ahead to trigger a re-rating

We have identified a few near-term catalysts for the stock to re-rate, which include strong interim results, investment in key components and new order momentum from a pickup in exports and good tender results of offshore wind turbines. Sector-wise, the announcement of an official 2020 wind capacity target and a more concrete smart grid investment plan will likely boost sector sentiment.

Target price based on DCF; risks

We use DCF to value the stock by discounting FCF over 2010-2016E, with a 2% terminal growth rate. Our WACC of 9.1% is based on COE of 10.6%, a beta of 1.1 and COE of 10%, an after-tax cost of debt of 5.5% and a target debt-to-capital ratio of 30%. Key downside risks include a sharper ASP fall, lower order intake, disappointing overseas expansion and an unfavourable wind-power environment.

Forecasts and ratios

Year End Dec 31	2008A	2009A	2010E	2011E	2012E
Sales (CNYm)	6,457.8	10,738.4	18,095.3	21,460.2	24,580.8
EBITDA (CNYm)	1,193.3	2,015.7	3,069.3	3,615.3	4,203.0
Reported NPAT (CNYm)	914.5	1,745.6	2,495.8	2,889.7	3,349.0
Reported EPS FD(CNY)	0.41	0.78	1.11	1.29	1.50
DB EPS FD(CNY)	0.41	0.78	1.11	1.29	1.50
DB EPS growth (%)	30.7	90.9	43.0	15.8	15.9
PER (x)	45.0	22.9	14.2	12.3	10.6
EV/EBITDA (x)	35.3	21.0	7.7	6.4	5.2
DPS (net) (CNY)	0.28	0.10	0.17	0.19	0.22
Yield (net) (%)	1.5	0.6	1.1	1.2	1.4

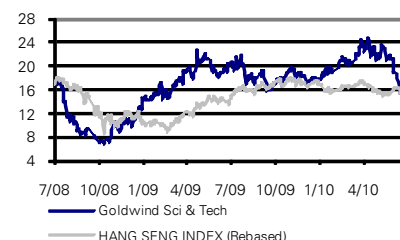
Source: Deutsche Bank estimates, company data

¹ DB EPS is fully diluted and excludes non-recurring items² Multiples and yields calculations use average historical prices for past years and spot prices for current and future years, except P/B which uses the year end close

Buy

Price at 16 Jul 2010 (CNY)	15.86
Price target - 12mth (CNY)	19.00
52-week range (CNY)	24.67 - 15.20
HANG SENG INDEX	20,250

Price/price relative



Performance (%)	1m	3m	12m
Absolute	-25.0	-32.6	-22.2
HANG SENG INDEX	0.9	-7.4	10.3

Stock data

Market cap (CNYm)	19,746
Market cap (USDm)	2,914
Shares outstanding (m)	2,240.0
Major shareholders	Xinjiang Wind Power Corp. (18.27%)
Free float (%)	26

Key indicators (FY1)

ROE (%)	39.1
Net debt/equity (%)	48.7
Book value/share (CNY)	3.37
Price/book (x)	4.7
Operating profit margin (%)	16.4

Model updated: 09 July 2010

Running the numbers

Asia

China

Manufacturing

Goldwind Sci & Tech

Reuters: 002202.SZ

Bloomberg: 002202 CS

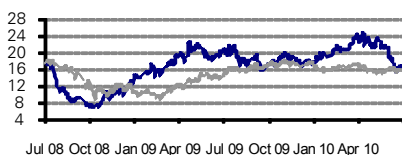
Buy

Price (16 Jul 10)	CNY 15.86
Target price	CNY 19.00
52-week Range	CNY 15.20 - 24.67
Market Cap (m)	CNYm 19,746 USDm 2,914

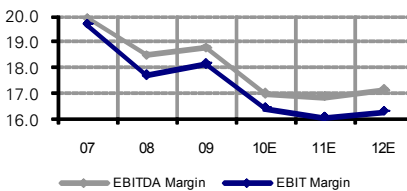
Company Profile

Headquartered in Xinjiang, Goldwind is one of the top three wind turbine manufacturers in China. Its major products include 750kW doubly-fed and 1.5MW direct drive wind turbines. Goldwind also provides wind power technology service, development and sale of wind power projects and technology transfer service. As of end 2009, the company has installed over 5.8GW of wind turbines with sales mainly from domestic market.

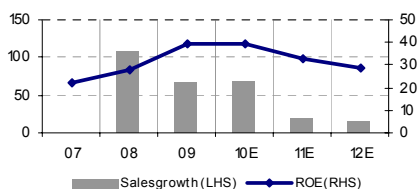
Price Performance



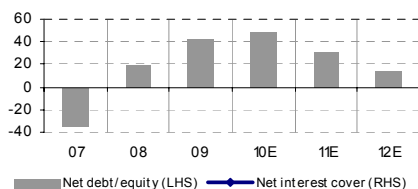
Margin Trends



Growth & Profitability



Solvency



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Fiscal year end 31-Dec	2007	2008	2009	2010E	2011E	2012E
Financial Summary						
DB EPS (CNY)	0.31	0.41	0.78	1.11	1.29	1.50
Reported EPS (CNY)	0.31	0.41	0.78	1.11	1.29	1.50
DPS (CNY)	0.10	0.28	0.10	0.17	0.19	0.22
BVPS (CNY)	1.3	1.7	2.3	3.4	4.5	5.8
Weighted average shares (m)	2,016	2,240	2,240	2,240	2,240	2,240
Average market cap (CNYm)	62,332	41,111	40,020	19,746	19,746	19,746
Enterprise value (CNYm)	61,359	42,140	42,338	23,694	23,162	21,817
Valuation Metrics						
P/E (DB) (x)	99.0	45.0	22.9	14.2	12.3	10.6
P/E (Reported) (x)	99.0	45.0	22.9	14.2	12.3	10.6
P/BV (x)	24.36	6.77	7.71	4.70	3.53	2.74
FCF Yield (%)	0.3	nm	nm	3.2	6.0	8.1
Dividend Yield (%)	0.3	1.5	0.6	1.1	1.2	1.4
EV/Sales (x)	19.8	6.5	3.9	1.3	1.1	0.9
EV/EBITDA (x)	99.2	35.3	21.0	7.7	6.4	5.2
EV/EBIT (x)	100.6	36.9	21.7	8.0	6.7	5.5
Income Statement (CNYm)						
Sales revenue	3,103	6,458	10,738	18,095	21,460	24,581
Gross profit	925	1,585	2,823	4,504	5,215	6,002
EBITDA	618	1,193	2,016	3,069	3,615	4,203
Depreciation	8	51	69	101	172	205
Amortisation	0	0	0	0	0	0
EBIT	610	1,143	1,947	2,968	3,444	3,998
Net interest income(expense)	0	0	0	0	0	0
Associates/affiliates	0	0	0	0	0	0
Exceptionals/extraordinaries	0	0	0	0	0	0
Other pre-tax income/(expense)	17	20	44	44	44	44
Profit before tax	627	1,163	1,991	3,012	3,487	4,042
Income tax expense	-8	126	200	452	523	606
Minorities	5	122	45	64	75	86
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	630	915	1,746	2,496	2,890	3,349
DB adjustments (including dilution)	0	0	0	0	0	0
DB Net profit	630	915	1,746	2,496	2,890	3,349
Cash Flow (CNYm)						
Cash flow from operations	547	864	1,327	2,339	3,115	3,665
Net Capex	-369	-1,322	-1,773	-1,200	-1,000	-800
Free cash flow	178	-458	-446	1,140	2,115	2,865
Equity raised/(bought back)	1,791	83	23	0	0	0
Dividends paid	-100	-50	-374	-140	-374	-433
Net inc/(dec) in borrowings	403	709	1,825	578	264	245
Other investing/financing cash flows	58	323	144	-62	-52	-37
Net cash flow	2,330	607	1,173	1,515	1,953	2,640
Change in working capital	137	60	356	636	373	341
Balance Sheet (CNYm)						
Cash and other liquid assets	2,680	3,286	4,677	6,266	8,315	11,084
Tangible fixed assets	404	1,258	2,441	3,540	4,368	4,963
Goodwill/intangible assets	81	502	757	757	757	757
Associates/investments	16	128	317	316	316	315
Other assets	2,288	5,891	6,691	11,249	13,355	15,262
Total assets	5,468	11,065	14,883	22,129	27,112	32,383
Interest bearing debt	1,657	4,082	6,986	10,140	11,582	12,920
Other liabilities	862	2,891	2,370	4,042	4,993	5,924
Total liabilities	2,519	6,973	9,356	14,182	16,575	18,844
Shareholders' equity	2,883	3,730	5,201	7,557	10,072	12,988
Minorities	66	362	326	391	465	551
Total shareholders' equity	2,949	4,092	5,527	7,947	10,537	13,539
Net debt	-1,023	796	2,308	3,874	3,267	1,836
Key Company Metrics						
Sales growth (%)	nm	108.1	66.3	68.5	18.6	14.5
DB EPS growth (%)	na	30.7	90.9	43.0	15.8	15.9
EBITDA Margin (%)	19.9	18.5	18.8	17.0	16.8	17.1
EBIT Margin (%)	19.7	17.7	18.1	16.4	16.0	16.3
Payout ratio (%)	32.0	68.6	12.8	15.0	15.0	15.0
ROE (%)	21.8	27.7	39.1	39.1	32.8	29.0
Capex/sales (%)	11.9	20.5	16.7	6.6	4.7	3.3
Capex/depreciation (x)	43.7	26.2	26.1	11.9	5.8	3.9
Net debt/equity (%)	-34.7	19.4	41.8	48.7	31.0	13.6
Net interest cover (x)	nm	nm	nm	nm	nm	nm

Source: Company data, Deutsche Bank estimates

Investment thesis

Outlook

Goldwind is a leading wind turbine manufacturer in China and the fifth largest player in the world. We believe the long-term growth outlook for wind power is intact in China and the world. Goldwind is still benefiting from growth in the area after posting 86% earnings CAGR in 2007-09. We like the stock for the following reasons: 1) we believe that China's wind capacity growth could surprise on the upside again, 2) as the leader in quality and technology, Goldwind is able to withstand fierce competition, 3) its pioneering direct-driven wind turbine has been well received in China and will be more favoured with stricter grid codes, 4) potential growth from untapped overseas market, 5) its transformation into a total solution provider from a pure equipment maker, 6) likely government action to curb capacity oversupply, 7) higher order-book coverage and hence revenue visibility, and 8) attractive valuations following recent share price weakness. On our estimates, Goldwind will grow its earnings at a CAGR of 24% in 2009-12E. We have identified a few near-term catalysts for the stock to re-rate, which include strong interim results, investment in key components, and new order momentum such as a pickup in exports and good tender results of offshore wind turbines. Sector-wise, the announcement of official 2020 wind capacity target and a more concrete smart grid investment plan will likely boost sector sentiment. We initiate the stock with a Buy.

Valuation

Our preferred approach to value Goldwind is a Discounted Cash Flow method, which enables us to more accurately consider the future growth outlook of the wind business over a long period. Given Goldwind's leading position in China and huge potential in overseas markets, we anticipate that the company will be able to fully participate in this industry growth. Our DCF valuation discounts the company's free cash flow over 2010-2016E and assumes a 2% growth rate for the terminal value calculation. In deriving our weighted average cost of capital (WACC) of 9.1%, we assume a cost of equity of 10.6%, using a beta of 1.1 and China cost of equity of 10% (4% risk-free rate and 6% equity risk premium), an after-tax cost of debt of 5.5% and a target debt-to-capital ratio of 30%. At our target price of Rmb19.0, Goldwind would trade at 17.1/14.7 FY10/11E P/E, in-line with the global average.

Risks

Key downside risks include 1) weaker-than-expected wind capacity growth could result in new orders for wind turbines falling short of expectations, 2) intensifying market competition due to turbine over-capacity, which could lead to continued ASP declines or lower order intake, 3) margin pressure due to the inability to fully pass through input costs hikes, 4) growth in export markets could be less than expected, owing to either unfavourable end market demand or execution hurdles, and 5) product quality challenges due to a relatively shorter operation history than top international players.

Valuation

DCF is our preferred approach

Our preferred approach to value Goldwind is a Discounted Cash Flow method, which enables us to more accurately consider the future growth outlook of the wind business over a long period. China's wind capacity is set to grow at an 18% CAGR to 150GW in 2020, according to the government target. In addition, the Global Wind Energy Council (GWEC) has forecasted that total wind capacity will grow at a 20.2% CAGR in 2009-19E to 1,000 GW and annual new installation will grow from 41GW in 2010 to 63GW in 2014E. Given Goldwind's leading position in China and huge potential in overseas markets, we anticipate that the company will be able to fully participate in this industry growth.

Our DCF valuation discounts the company's free cash flow over 2010-2016E and assumes a 2% growth rate for the terminal value calculation. In deriving our weighted average cost of capital (WACC) of 9.1%, we assume a cost of equity of 10.6%, using a beta of 1.1 and a China cost of equity of 10% (4% risk-free rate and 6% equity risk premium), an after-tax cost of debt of 5.5% and a target debt-to-capital ratio of 30%.

Figure 109: Goldwind's DCF valuation

Rmb mn	2010E	2011E	2012E	2013E	2014E	2015E	2016E
Pre-tax profit	3,012	3,487	4,042	4,170	4,319	4,490	4,688
Depreciation	101	172	205	209	210	212	213
Adjusted taxes	(461)	(531)	(612)	(628)	(648)	(670)	(697)
Gross cash flow	2,652	3,128	3,635	3,750	3,881	4,031	4,206
Capex	(1,200)	(1,000)	(800)	(500)	(250)	(250)	(250)
Changes in WC	636	373	341	163	180	185	191
Free cash flow	2,088	2,502	3,176	3,414	3,811	3,966	4,146
Interest income	(33)	(44)	(58)	(76)	(95)	(117)	(139)
Interest expense	95	95	95	95	95	95	95
Adjusted free cash flow	2,150	2,553	3,213	3,433	3,811	3,945	4,103
Adjusted free cash flow	2,150	2,553	3,213	3,433	3,811	3,945	4,103
Maintenance capex							201
Terminal Cash flow							3,901
Terminal Value	48,803	48,803	48,803	48,803	48,803	48,803	48,803
Present Value of TV	27,318	30,092	33,147	36,513	40,221	44,305	48,803
Discount Factor	56%	62%	68%	75%	82%	91%	100%
Periods	6.00	5.00	4.00	3.00	2.00	1.00	-
Corporate NPV	40,668	40,215	41,745	42,771	43,680	56,396	62,787
Minority	(391)	(465)	(551)	(641)	(733)	(829)	(929)
Net debt	(2,463)	(4,248)	(6,772)	(9,833)	(13,263)	(16,832)	(20,565)
Equity NPV	42,741	43,998	47,966	51,964	56,210	72,399	82,423
Equity NPV/Share (Rmb)	19.0						

Source: Deutsche Bank

Sensitivity on WACC and terminal growth rate

We have conducted a sensitivity analysis on WACC and terminal growth rate (Figure 110). Given 80% NPV derived from terminal value, the terminal growth rate assumption is key to deriving our target price. Given a long-term growth outlook for wind capacity development in China and the world, we see our terminal growth rate assumption of 2% as reasonable.

Figure 110: Sensitivity of DCF valuation

Equity NPV/Share (Rmb)		WACC				
		9.2%	9.7%	10.2%	10.7%	11.2%
Terminal growth	4%	24.4	23.9	23.3	22.8	22.3
	3%	21.9	21.4	20.9	20.4	20.0
	2%	19.9	19.5	19.0	18.6	18.2
	1%	18.4	18.0	17.6	17.2	16.9
	0%	17.2	16.8	16.5	16.1	15.8

Source: Deutsche Bank

Comparable valuation provides a cross-check

We have cross-checked our DCF valuation with global and local wind power equipment and component makers in Figure 115, including manufacturers of wind turbines (Vestas, Gamesa, Repower, Nordex, Suzlon, Dongfang Electric, Huayi, China Energiner), generators (Xiangtan), blades (Sinoma), gearboxes (CHSTE, Hansen), Towers (Dongkuk S&C), forging materials (Taewoong, Huarui Heavy Industry), bearings (Zhejiang Tianma) and control systems (American Superconductor), most of which are either pure plays or derive a significant share of revenue from wind-related business.

Goldwind vs. European peers

Goldwind currently trades at 14.2x FY10E P/E, c.20% discount to the average of 21x for European peers including Gamesa, Vestas, Repower, Nordex and Hansen, which are the closest peers in terms of scale and scope of business. On FY11E, Goldwind trades at 12.4x P/E, c.12% discount to the average 14x FY11E P/E.

However, we would argue that Goldwind should trade at some premium to sector peers, as we believe its earnings visibility is better than that of most of its peers.

- **Higher order book coverage ratio:** Goldwind's book/bill ratio of 1.8x is well above that of peers, such as Vestas' 0.37 and Gamesa's 0.48, as shown in Figure 113 and Figure 114.
- **Less overhang on macro side:** Unlike some peers, which are facing either a likely change in the wind power policies of some EU countries due to the recent sovereign debt crisis or an overhang of the US market due to a delay in passage of renewable energy bills, Goldwind operates mainly in China, where the wind policy environment is stable and favourable.

Goldwind vs. local peers

Compared to A-share listed peers like Xiangdian Electric, Huayi Electric, Sinoma Sci & Tech and Tianma Bearings, with average FY10E and FY11E P/E multiples of 22x and 18x, respectively, Goldwind trades at cheaper multiples, despite being more established and scalable.

Goldwind: current vs. historical range

Compared to its own historical trading range, Goldwind also looks attractively valued after the shares underperformed the SSEC1 by 19% over the past month. As shown in Figure 129 and Figure 130, Goldwind's current 1-year forward P/E represents a 50% discount to its historical 1-year forward P/E average of 29x since the IPO.

At our target price of Rmb19.0, Goldwind would trade at 17.1/14.7x FY10/11E P/E, in-line with the global average. Our target price implies 20% potential upside to current share price.

Figure 111: Goldwind 1-year forward P/E

Source: Deutsche Bank, DataStream

Figure 112: Goldwind 1-year forward P/B

Source: Deutsche Bank, DataStream

Comparison of wind turbine makers

Figure 113: Operational comparison of major wind turbine makers

By the end of 2009	Vestas	Gamesa	GE Wind	Enercon	Nordex	REpower
Country	Danmark	Spain	US	German	German	German
Year of first WTG sale	1979	1996	2003	1992	1985	2001
Market focus	Germany, Denmark, Italy, US, China	US, EU, India, China	US, Canada, EU, China	Germany Italy, US, Turkey, UK, China	EU, Japan, China, India, Australia	
Capacity	~9000	4,400	~7000	N.A	1,300	2,000
Main product	850kW, 2.0/ 3.0MW	850kW, 2.0MW	1.5/ 2.5/ 3.6MW	2.3MW direct-drive	2.5/1.5MW	2.05MW ~ 5MW
Cumulative capacity installed	>38.3GW	>18GW	>22GW	>20GW	>5.9GW	>4.8GW
Cumulative unit installed	>40,659	>18,000	>13,500	>16,000	>4,187	>2,400
China market share (2009)	4.0%	2.0%	3.0%	~1.0%	0.6%	~1.0%
Global market share (2009)	12.5%	6.0%	12.4%	8.5%	2.8%	3.4%
Sales output in 2009 (MW)	4,764	3,145	4,100	2,800	983	1,146
ASP * (currency/KW)	Euro1,290/KW	Euro990/KW	USD1,200/KW	Euro1,200/KW	Euro1,030/KW	Euro1,137/KW
Order backlog (MW)	1,747	1,500	3,500	N.A	1,600	1,756
New order (MW)	3,072	2,800	4,500	N.A	700	1,280
Book bill ratio	0.37	0.48	1.10	N.A	0.40	1.53
In-house production						
Blade	Yes	Yes	No	Yes	Yes	Yes
Generator	Yes	Yes	Yes	Yes	No	No
Gearbox	No	Yes	Yes	NO	No	No
Control system	Yes	Yes	Yes	Yes	Yes	No

Source: Deutsche Bank, Company data, * ASP comparison may not be on an apple-to-apple basis due to difference in product offering, e.g. some may provide nacelle only while some may include towers, which is about 5-10% difference).

Figure 114: Operational comparison of major wind turbine makers (cont'd)

By the end of 2009	Goldwind	Sinovel	Dongfang Electric	Xiangtan Electric	Suzlon	Siemens Wind
Country	Xinjiang, China	Beijing, China	Sichuan, China	Hunan, China	India	German
Year of first WTG sale	2001	2006	2006	2006	1995	1980
Market focus	China	China	China	China	India, US, EU, China	US, UK, Spain, Germany
Capacity	4,000	4,500	3,000	2,000	5,700	5,000
Main product	1.5MW direct-drive	1.5/3.0MW	1.5MW	2.0MW direct-drive	2.1/ 1.5/1.25MW	1.3/ 2./ 3.6MW
Cumulative capacity installed	>5.3GW	>5.6GW	>3.3GW	<1GW	>8GW	>11GW
Cumulative unit installed	>5,800		>2,200	<500	>8,000	>17,400
China market share (2009)	20.0%	27.0%	19.7%	4.0%	1.0%	~1.0%
Global market share (2009)	7.2%	9.2%	6.5%	0.0%	6.4%	5.9%
Sales output in 2009 (MW)	1,938	2,400	1,200	520	2,790	2,400
ASP* (currency/KW)	Rmb5,540/KW	Rmb5,400/KW	Rmb5,200/KW	Rmb5,200/KW	USD1,130/KW	Euro1,100/KW
Order backlog (MW)	3,340	4,000	3,000	1100	1,489	3,000
New order (MW)	2,915	3,000	1,500	900	2,363	4,300
Book bill ratio	1.81	1.67	2.50	2.12	0.53	1.79
In-house production						
Blade	No	No	Yes	No	Yes	Yes
Generator	No	No	Yes	Yes	Yes	No
Gearbox	No	Yes	No	NO	Yes	Yes
Control system	Yes	No	Yes	Yes	Yes	Yes

Source: Deutsche Bank, Company data, * ASP comparison may not be on an apple-to-apple basis due to difference in product offering, e.g. some may provide nacelle only while some may include towers, which is about 5-10% difference).

Figure 115: Comps of wind power turbine and component makers

Share Price as of 18 July 2010							Performance		Valuations									Yield (%)	
Company	Ticker	Price	Rating	Price target	% to target	Mkt. Cap. US\$m	Absolute 3m	Relative 3m	P/E			EV/EBITDA			P/BV			Yield	
									10F	11F	12F	10F	11F	12F	10F	11F	12F	10F	11F
China																			
Goldwind	002202.SS	Rmb15.86	Buy	Rmb19.00	20%	2,913	-33%	-13%	14.2	12.3	10.6	7.7	6.4	5.2	4.7	3.5	2.7	3.2	6.0
CHSTE	0658.HK	HK\$15.54	Buy	HK\$21.50	38%	2,491	-4%	5%	13.4	11.4	10.4	11.9	9.6	8.3	3.0	2.3	2.0	2.2	2.6
Dongfang Electric	1072.HK	HK\$24.20	Hold	HK\$23.10	-5%	6,243	-3%	7%	19.4	15.8	14.1	9.8	7.1	5.5	4.0	3.2	2.6	0.4	0.5
Xiangtan Electric	600416.SS	Rmb21.40	NA	NA	NA	742	-18%	6%	23.2	16.8	12.9	10.6	7.0	6.1	3.4	2.8	2.3	1.1	1.4
Zhejiang Tianma	002122.SS	Rmb9.16	NA	NA	NA	1,606	-37%	-19%	15.6	14.3	12.7	11.1	9.8	8.9	2.4	2.1	1.9	1.2	0.9
China Engene	1185.HK	HK\$0.80	NA	NA	NA	408	-11%	-2%	16.0	6.7	NA	12.9	6.3	NA	1.6	1.3	NA	NA	NA
Huayi Electric	600290.SS	Rmb12.02	NA	NA	NA	486	-26%	-4%	23.5	15.6	11.7	NA	NA	NA	NA	NA	NA	NA	NA
Sinoma Science & Technology	002080.SS	Rmb33.81	NA	NA	NA	749	-15%	10%	31.7	21.9	16.1	18.2	13.4	11.1	3.2	2.9	2.5	NA	NA
Huarui Heavy Industry	002204.SS	Rmb18.00	NA	NA	NA	569	-30%	-10%	18.2	14.8	12.6	14.1	11.0	8.9	3.2	2.6	2.2	1.1	NA
Korea																			
Taewoong	044490.KQ	W53300	Buy	W96000	80%	736	-30%	-30%	11.0	8.2	NA	8.3	5.4	NA	1.9	1.5	NA	0.2	0.3
Dongkuk S&C	100130.KQ	W8630	Buy	W15300	77%	410	-18%	-18%	11.2	6.4	4.0	9.9	5.4	2.9	1.6	1.3	1.0	0.2	0.3
Euope																			
Vestas	VWS.CO	DKK281.60	NA	NA	NA	9,971	-16%	-17%	19.4	15.5	13.8	13.2	10.3	8.9	2.0	1.8	1.6	-	-
Gamesa	GAM.MC	EUR6.98	NA	NA	NA	2,199	-34%	-27%	16.3	8.8	6.5	7.2	4.0	2.6	1.0	0.9	0.8	1.5	2.8
Nordex	NDXGk.DE	EUR7.60	Buy	EUR9.50	25%	658	-17%	-17%	22.7	12.6	NA	11.5	7.4	NA	1.5	1.3	NA	-	-
Hansen	HSN.LN	0.70p	NA	NA	NA	719	-28%	-20%	31.9	14.1	8.7	9.3	6.2	4.6	0.9	0.9	0.8	-	0.4
Repower	RPWGn.DE	EUR128.00	NA	NA	NA	1,523	1%	1%	19.0	15.8	12.8	8.2	6.7	6.0	2.3	2.0	NA	NA	NA
India																			
Suzlon	SUZL.BO	IN60.05	Hold	IN68.00	13%	2,005	-16%	-18%	NM	17.0	7.9	39.2	17.3	9.5	1.1	1.1	0.9	-	-
US																			
American Superconductor	AMSC.OQ	US\$28.17	Buy	US\$39.00	38%	1,350	-7%	4%	34.7	NA	NA	19.0	NA	NA	4.0	NA	NA	-	NA
Average*									20.1	13.4	11.1	13.1	8.3	6.8	2.5	2.0	1.8	0.8	1.3

For DB covered stocks, all estimates are based on DB estimates and stock performance data are from Datastream.

For non-covered stocks (Xiangtan Electric, Zhejiang Tianma, China Engene, Huayi Electric, Sinoma Science and Tech, Huarui Heavy Industry, Hansen, REPower), all estimates are based on bloomberg consensus estimates.

Definitions: 1) Gearing is net debt / shareholders equity; 2) EV is after deducting estimated value of associates; 3) RoCE is defined as EBIT x (1 - tax rate) divided by capital employed

Source: Deutsche Bank, Bloomberg Finance LP



Figure 116: Comps of wind power turbine and component makers (continued)

Share Price as of 18 July 2010			Share price performance					avg. daily trade	Relative performance					avg. daily trade	Share price statistics						avg. daily trade	
			local currency					US\$, 1mn**	local currency & local country index					US\$, 6mth**	current / current/						US\$, 1yr**	
Company	Price	Rating	1m	3m	6m	12m	3yr		1wk	1m	3m	6m	12m		3yr	52w H	52w L	52W H	52W L	10yr H		10yr L
China																						
Goldwind	Rmb15.86	Buy	-25%	-33%	-11%	-22%	NA	50.4	-4%	-20%	-13%	19%	2%	NA	99.0	24.67	15.20	-36%	4%	38.03	6.88	92.5
CHSTE	HK\$15.54	Buy	-8%	-4%	-15%	-13%	15%	15.1	-3%	-7%	5%	-8%	-16%	32%	15.3	20.20	14.64	77%	106%	23.60	4.70	15.0
Dongfang Electric	HK\$24.20	Hold	-1%	-3%	15%	76%	-5%	4.4	3%	0%	7%	24%	68%	9%	5.8	26.90	14.90	90%	162%	38.55	0.15	6.8
Xiangtan Electric	Rmb21.40	NA	-20%	-18%	-14%	-4%	-25%	9.9	-5%	-15%	6%	15%	26%	19%	17.2	28.29	17.78	76%	120%	36.88	4.03	19.7
Zhejiang Tianma	Rmb9.16	NA	-12%	-37%	-40%	-40%	-4%	9.1	-1%	-7%	-19%	-20%	-21%	52%	20.1	17.57	8.92	52%	103%	20.03	8.48	21.1
China Engene	HK\$0.80	NA	0%	-11%	-25%	31%	-5%	0.7	2%	1%	-2%	-19%	25%	9%	2.0	1.38	0.55	58%	145%	1.38	0.15	3.0
Huayi Electric	Rmb12.02	NA	-9%	-26%	-26%	-36%	-63%	6.9	7%	-4%	-4%	-2%	-16%	-41%	17.4	19.23	10.72	63%	112%	42.91	3.25	16.7
Sinoma Science & Technology	Rmb33.81	NA	-15%	-15%	-9%	21%	34%	7.0	1%	-10%	10%	21%	59%	111%	8.7	43.63	24.58	77%	138%	43.63	14.20	8.7
Huarui Heavy Industry	Rmb18.00	NA	-17%	-30%	-36%	-29%	NA	1.9	0%	-12%	-10%	-15%	-7%	NA	4.6	28.18	16.90	64%	107%	35.05	8.89	6.0
Korea																						
Taewoong	W53300	Buy	7%	-30%	-48%	-35%	-33%	8.0	-12%	5%	-30%	-49%	-46%	-25%	8.8	102500	45750	52%	117%	130500	820	8.1
Dongkuk S&C	W8630	Buy	7%	-18%	-26%	NA	NA	6.0	-2%	5%	-18%	-28%	NA	NA	8.8	13050	6650	66%	130%	13050	6650	12.6
Euope																						
Vestas	DKK281.60	NA	-5%	-16%	-14%	-26%	-26%	54.2	5%	-5%	-17%	-22%	-46%	4%	81.4	398	248	71%	114%	692	29	93.7
Gamesa	EUR6.98	NA	-14%	-34%	-42%	-47%	-77%	21.5	-2%	-11%	-27%	-37%	-53%	-60%	36.0	16.2	6.8	43%	102%	35.8	3.8	38.5
Nordex	EUR7.60	Buy	-6%	-17%	-30%	-30%	-77%	0.2	-5%	-6%	-17%	-36%	-49%	-68%	0.3	13.3	6.8	57%	112%	107.0	1.5	0.3
Hansen	0.70p	NA	-21%	-28%	-29%	-53%	NA	1.5	0%	-20%	-20%	-25%	-60%	NA	2.6	146.25	65.60	48%	107%	325.00	65.60	2.4
Repower	EUR128.00	NA	10%	1%	-7%	14%	-8%	0.0	2%	10%	1%	-16%	-17%	28%	0.0	149.80	96.09	85%	133%	242.50	11.33	0.0
India																						
Suzlon	IN60.05	Hold	5%	-16%	-33%	-35%	-79%	4.7	2%	2%	-18%	-34%	-49%	-83%	7.4	106.85	53.45	56%	112%	454.71	33.30	15.8
US																						
American Superconductor	US\$28.17	Buy	-9%	-7%	-30%	13%	22%	14.1	0%	-5%	4%	-26%	0%	77%	32.6	43	25	65%	112%	61	2	33.5
Average*																						

** in USD millions

Note: Relative performance is made with reference to the key stock index of the exchange that the securities is traded (ie. HSCEI for HK listed stocks, Kospi Composite for Korea listed stocks, S&P 500 for US listed stocks, Shanghai Composite for China listed stocks, SENSEX for India listed stocks, Euro stoxx for Europe listed stocks, OMX Copenhagen Index for Denmark listed stocks)

Source: Deutsche Bank, Bloomberg Finance LP

Figure 117: Comps of wind power turbine and component makers (continued)

Share Price as of 18 July 2010			EBITDA Margin						Net Profit Margin						Returns & Gearing						
Company	Price	Rating	2007	2008	2009	2010F	2011F	2012F	2007	2008	2009	2010F	2011F	2012F	2007	2008	RoE (%)			Gearing	2009
China																					
Goldwind	Rmb15.86	Buy	20%	19%	19%	17%	17%	17%	20%	14%	16%	14%	13%	14%	21.8	27.7	39.1	39.1	32.8	29.0	41.8
CHSTE	HK\$15.54	Buy	23%	27%	26%	26%	26%	26%	16%	20%	17%	18%	18%	18%	16.9	20.3	23.0	26.3	23.5	20.5	70.7
Dongfang Electric	HK\$24.20	Hold	13%	10%	8%	9%	10%	11%	9%	2%	5%	6%	6%	7%	91.2	20.8	31.8	22.5	22.4	20.6	-135.5
Xiangtan Electric	Rmb21.40	NA	7%	3%	7%	8%	9%	9%	3%	2%	3%	3%	3%	3%	6.5	5.1	10.6	16.0	19.7	20.0	51.9
Zhejiang Tianma	Rmb9.16	NA	26%	24%	24%	25%	24%	23%	19%	16%	17%	17%	16%	15%	25.8	28.0	18.9	15.2	15.4	NA	1.8
China Energin	HK\$0.80	NA	-48%	-31%	-2%	17%	19%	NA	-321%	-271%	10%	12%	15%	NA	-69.2	-36.1	5.0	10.9	22.5	NA	35.1
Huayi Electric	Rmb12.02	NA	18%	16%	12%	NA	NA	NA	10%	10%	7%	8%	8%	11%	25.1	20.1	14.5	NA	NA	NA	15.8
Sinoma Science & Technology	Rmb33.81	NA	10%	15%	20%	16%	17%	17%	9%	9%	7%	7%	9%	9%	11.9	13.9	14.4	6.7	10.3	11.8	62.5
Huarui Heavy Industry	Rmb18.00	NA	20%	21%	20%	16%	17%	18%	11%	15%	11%	11%	12%	12%	36.7	21.2	15.6	16.0	16.9	16.5	28.2
Korea																					
Taewoong	W53300	Buy	20%	19%	17%	18%	18%	NA	14%	12%	6%	11%	13%	NA	41.1	29.7	9.5	18.6	20.6	NA	-18.8
Dongkuk S&C	W8630	Buy	13%	19%	18%	19%	21%	19%	9%	2%	10%	15%	16%	15%	44.1	12.1	14.8	14.8	21.7	27.1	-24.6
Euope																					
Vestas	DKK281.60	NA	12%	13%	16%	13%	13%	12%	6%	8%	9%	6%	7%	6%	21.0	29.4	21.8	11.1	12.4	12.3	-4.1
Gamesa	EUR6.98	NA	10%	8%	9%	10%	10%	10%	7%	9%	4%	4%	5%	6%	18.8	23.4	7.7	6.5	11.1	13.5	16.4
Nordex	EUR7.60	Buy	7%	7%	5%	5%	6%	NA	6%	4%	2%	2%	3%	NA	22.8	16.3	7.2	6.5	11.2	NA	-17.1
Hansen	0.70p	NA	15%	14%	15%	12%	15%	16%	7%	7%	7%	2%	5%	7%	16.2	8.8	8.0	1.2	5.3	9.8	21.3
Repower	EUR128.00	NA	5%	NA	7%	8%	8%	9%	3%	NA	4%	4%	4%	5%	8.3	NA	NA	13.4	13.8	NA	-19.8
India																					
Suzlon	IN60.05	Hold	17%	15%	11%	6%	8%	10%	11%	8%	1%	-2%	2%	4%	27.6	17.8	2.9	-4.7	6.5	13.2	111.9
US																					
American Superconductor	US\$28.17	Buy	-7%	1%	15%	19%	NA	NA	-23%	-9%	5%	9%	NA	NA	-16.4	-7.7	6.5	12.6	NA	NA	-50.6
Average			10%	12%	14%	14%	15%	15%	-10%	-8%	8%	8%	9%	9%	19.4	14.7	14.8	13.7	16.6	17.7	10.4

For DB covered stocks, all estimates are based on DB estimates and stock performance data are from Datastream.

For non-covered stocks (Xiangtan Electric, Zhejiang Tianma, China Energin, Huayi Electric, Sinoma Science and Tech, Huarui Heavy Industry, Hansen, REPower), all estimates are based on bloomberg consensus estimates.

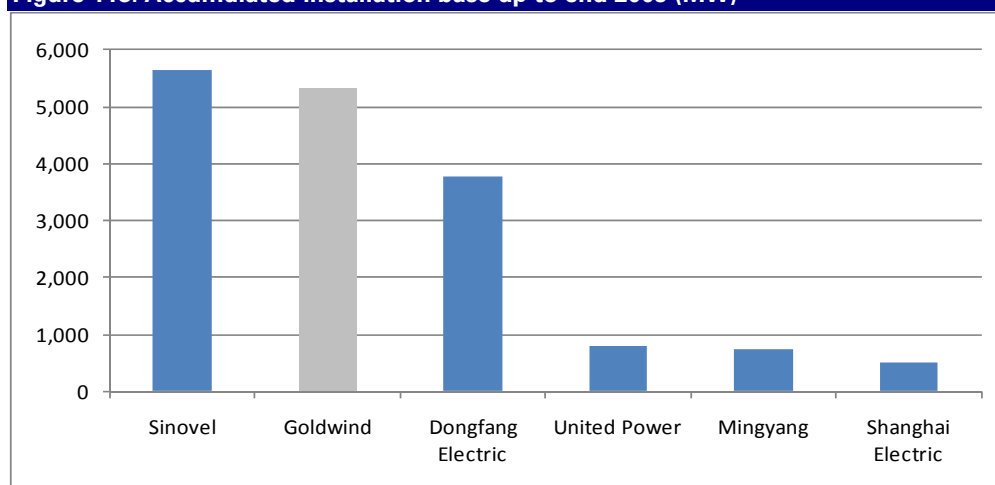
Source: Deutsche Bank, Bloomberg Finance LP

Reasons to Buy

The leader in quality and technology

Goldwind's wind turbine production dates back to 2001, when the market had yet to take off in China. As the longest-established player in China, Goldwind has an accumulated installation base of 5,340MW, way above that of its peers. With a longer track record, Goldwind's turbine quality is more proven in the market – an important attribute for an industry where turbine breakdown is relatively common and detrimental. Also, Goldwind owns proprietary intellectual property in wind turbine design and manufacturing, while most of its local peers rely on technology licensing without proprietary IP. This, in turn, enables Goldwind to earn a higher margin owing to the savings stemming from not paying royalties.

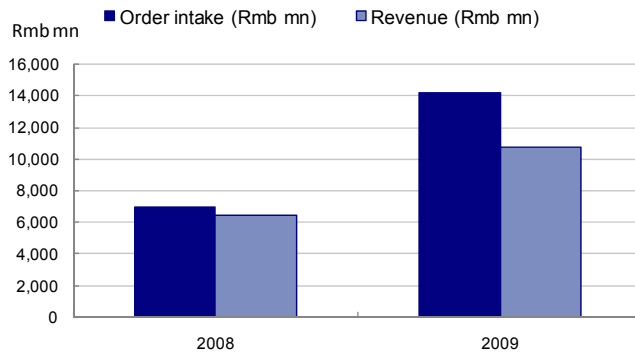
Figure 118: Accumulated installation base up to end 2009 (MW)



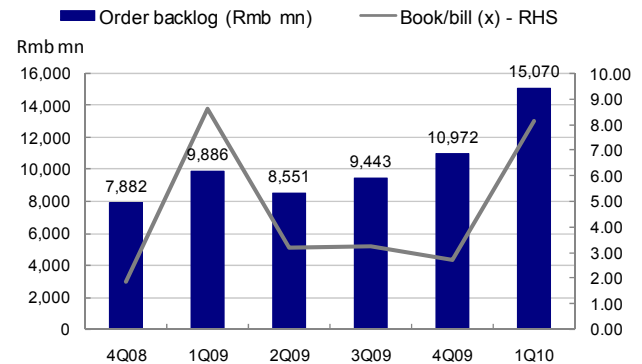
Source: Deutsche Bank, Company data

A pioneer in direct-driven turbines

Goldwind is one of the few players in the world offering direct-driven wind turbines. Even though we are not arguing that this type of wind turbine represents the future, the company's market share is likely to rise from the current 15% in the next few years. The increasing emphasis on grid-connection compliance for wind farms in China could bring more demand for direct-driven turbines, which have proven to be more grid-friendly. In addition, the opening of an offshore wind market bodes well for direct-driven turbines owing to their lighter maintenance requirements. Compared to Enercon, the leading direct-driven turbine maker in the world, Goldwind commands a significant low-cost edge.

Figure 119: Goldwind order intake and revenue

Source: Deutsche Bank, Company Data

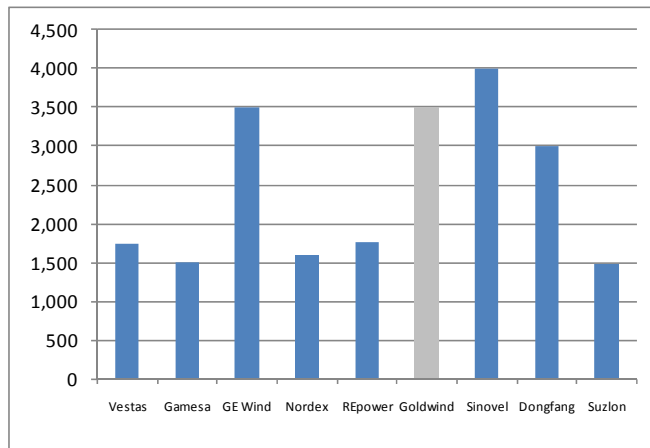
Figure 120: Goldwind book/bill ratio trend

Source: Deutsche Bank, Company Data

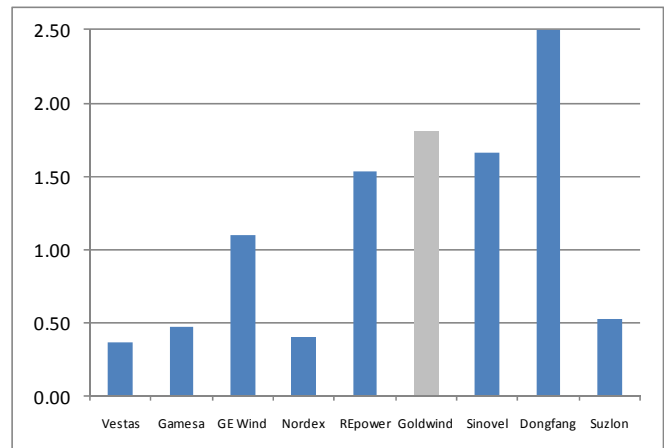
Higher growth visibility

Since 2H09, Goldwind has demonstrated excellent new-order momentum. Total new orders in 2009 were more than realized revenues. As of end-1Q10, the company had 3,500MW in orders on hand, 1.4x its 2009 deliveries, with another 1,484MW orders on preliminary sale agreements. Management aims to bag 5,000MW new orders in 2010, or +70% yoy.

A comparison with global peers suggests that Goldwind is in a better spot thanks to the China exposure. Unlike other countries, wind power investment in China has not been adversely affected by lack of financing, regulatory uncertainty or weak fossil fuel prices. Goldwind currently stands out in terms of orders in hand and book/bill ratio.

Figure 121: Comparison of order backlog (MW)

Source: Deutsche Bank, Company data

Figure 122: Comparison of book/bill ratio

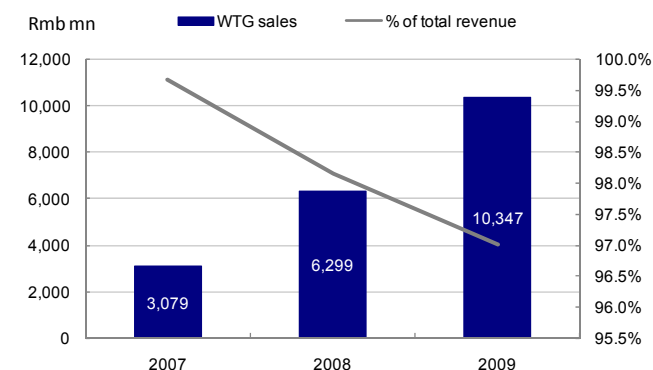
Source: Deutsche Bank, Company data

Transformation into total solution provider

Goldwind has captured the market for offering customers completed wind farms – a turnkey solution compared to the turbine-only manufacturing mode. Leveraging on its ten years of experience in the industry, Goldwind entered into this area in 2007 through a wholly-owned subsidiary, Beijing Tianrun New Energy Investment Corporation. To date, wind capacity developed by Goldwind has reached 629MW, of which 198MW has been sold, 104MW is in operation waiting to be sold, and 327MW is under construction. Also, Goldwind is the first

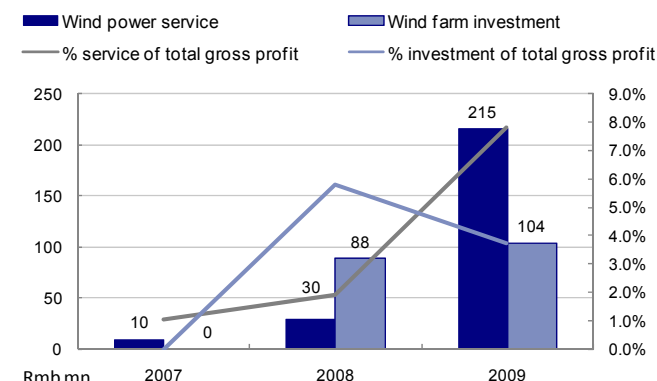
mover to provide related service solutions, which we regard as an additional growth driver with an ever-increasing installed base.

Figure 123: Goldwind WTG sales in 2007-09



Source: Deutsche Bank, Company Data

Figure 124: Goldwind wind service/investment income



Source: Deutsche Bank, Company Data

Margin concern overdone

Following a ~15-20% reduction in wind turbine prices since 2008, investors are wary of the margin downtrend. To some extent, we share this concern and have factored in a 200bps gross margin contraction in 2009-2011E. However, we are not too pessimistic, given: 1) the ASP decline partly reflects input cost reduction, as raw material prices were at their peak in 2008, 2) the ASP decline also reflects a maturing supply chains and scale benefit in product output, 3) turbine ASP has recently stabilized based on our channel checks, as many second-tier players have already reported razor-thin margins, 4) its core direct drive 1.5MW product has price upside once its higher power yield and low maintenance costs become apparent to customers, and 5) we have captured the margin downside (in Rmb terms) in the declining ASP assumptions, while the gross margin ratio (in percentage terms) should be more resilient on a falling ASP trend. (We illustrate this using a simple numeric analysis in Figure 125.)

Figure 125: Numeric illustration of gross margin ratio evolution with ASP decline

	Unit	A	B	C	D
ASP	Rmb/KW	5,900	5,500	5,100	4,700
ASP % chg		0%	-7%	-14%	-20%
Output	MW	1.5	1.5	1.5	1.5
Revenue	Rmb m	8.85	8.25	7.65	7.05
Gross margin	%	21.5%	23.0%	24.9%	27.0%
Gross profit	Rmb m	1.90	1.90	1.90	1.90
Gross profit per MW	Rmb m	1.27	1.27	1.27	1.27

Source: Deutsche Bank

Upbeat view on China's wind power growth

Goldwind is obviously one of the biggest beneficiaries of rapid wind power capacity growth in China, with revenue expanding six-fold in 2006-09. The market is now concerned with slowing capacity growth that could cap the upside for turbine makers, as the current consensus view of 2020 capacity of 150GW implies an average 12GW new installation pa in the next 10 years, largely flat with the addition of 13GW in 2009. However, we believe there is upside to the current target (please refer to our FITT report published concurrently for more details). Thus, we believe Goldwind's growth outlook is still favourable, even without counting on its market share expansion and huge overseas market potential.

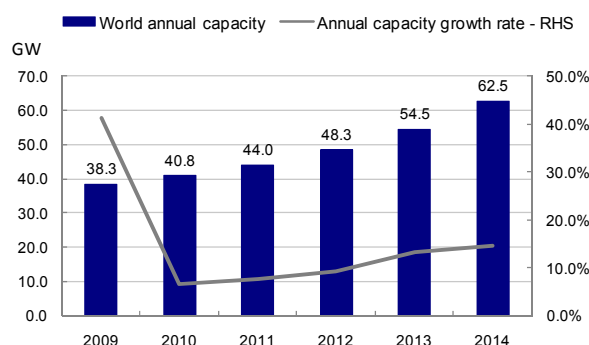
Further, we note that the government has recently reiterated the strategic importance of developing West China. Xinjiang, where Goldwind is headquartered, is now the destination of a massive investment plan in various industries. Among them, the development of mega wind power bases such as Harmi (>10GW), together with the ultra high-voltage transmission line linking the isolated Xinjiang grid to other parts of West China, will likely be accelerated, benefiting Goldwind as the local equipment supplier and wind farm developer.

Untapped export market potential

As the fifth-largest wind turbine maker in the world, Goldwind has very limited presence outside China (1.3% market share in 2009). The company is eyeing overseas markets to fuel further growth. With its acquisition of Vensys in Germany, Goldwind has made good start. A comparison of product ASP reveals its strong pricing power, even factoring in further Rmb appreciation. To date, Goldwind has successfully won orders from the US, Ethiopia and Australia.

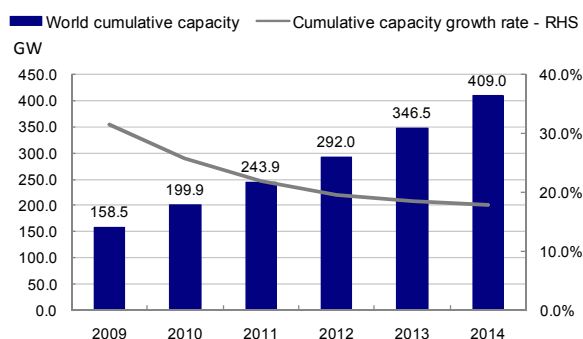
Relative to coal/hydro/solar power, wind power exports are far behind for Chinese players. In 2009, we estimate Chinese players took a 40%/35%/30% market share for solar/coal/hydro power equipment, respectively, outside China. In contrast, Chinese wind turbine makers derived over 95% of their revenue from domestic customers, and their market share outside China is less than 3%.

Figure 126: World annual capacity forecast (2009-14E)



Source: Deutsche Bank, GWEC

Figure 127: World total capacity forecast (2009-14E)



Source: Deutsche Bank, GWEC

Many domestic players purchase WTG technology licenses from international manufacturers; those players may encounter export constraints for their products due to restrictive terms in the technology licensing agreement that prohibit WTG exports. To avoid such constraints, Goldwind and Xiangtan Electric also employed an M&A strategy to acquire Vensys (2008) and Darwind (2009) in the EU for future export business.

Figure 128: Major wind turbine exports in 2008-09

Year	Manufacturer	Destination	Unit	Size
2008	Huide	US	10	1MW
2008	Huayi	Chile	3	780kW
2008	Goldwind	Cuba	6	750kW
2009	Sinovel	India	10	1.5MW
2009	Shanghai Electric	Thailand	2	1.25MW
2009	Shanghai Electric	Britain	3	1.25MW
2009	Xinyu	Thailand	1	1.5MW
2009	Xinyu	US	1	1.5MW
2009	Goldwind	US	3	1.5MW

Source: Deutsche Bank, CWEA

Likely measures to curb capacity oversupply

In view of market oversupply, China's government is in the process of drafting rules establishing entry standards for the wind turbine manufacturing sector. According to the working draft announced by the Ministry of Industry and Information Technology in March 2010, only players that meet the following criteria are qualified to participate in the wind turbine tender process:

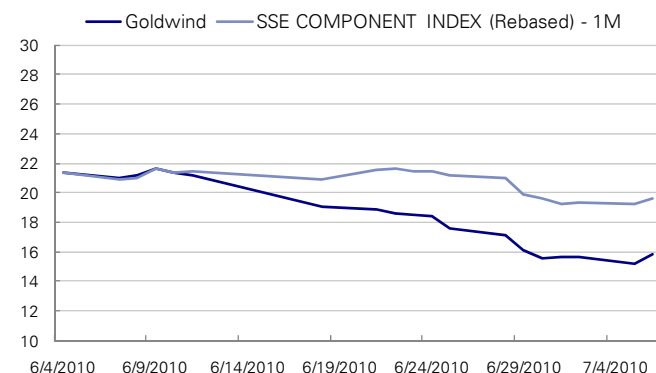
- Having the ability to manufacture 2.5MW and above wind turbines,
- Having an annual production capacity of 1,000MW and above, and
- Having at least five years of experience in mechanical equipment manufacturing.

Based on the above principles, we expect only a dozen of players will be eligible. Thus, if the guidelines are implemented, they are likely to push many small players out of the market or trigger industry consolidation opportunities, a positive for existing big players such as Goldwind.

Recent share price weakness offers good entry point

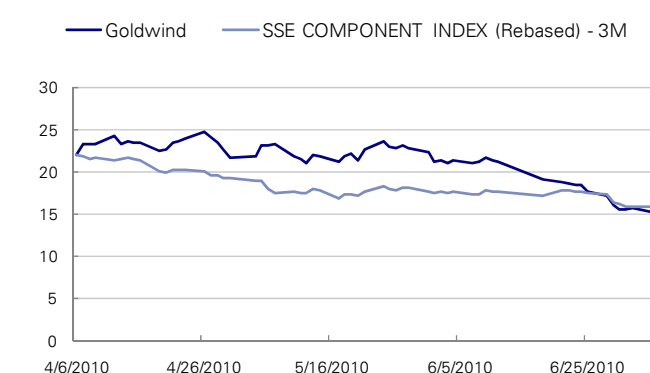
Over the past month, Goldwind has underperformed the SSECI by 18%. Over the past year, we have noted an 8% correction, which could be a result of 1) the pull-off of its H share placement at end of June, and 2) the sharp fall of global peers such as Gamesa and Vestas.

Figure 129: Goldwind vs. SSECI in past 1M



Source: Deutsche Bank, DataStream

Figure 130: Goldwind vs. SSECI in past 3M



Source: Deutsche Bank, DataStream

However, as we have argued, Goldwind is not facing the overhangs that some European peers are facing, such as tariff cuts in Spain and government deficit issues on a broader basis. Its development plan is unlikely to be slowed by the delay in H share placement, given its low debt level. Also, Goldwind and China Development Bank (CDB) signed a strategic cooperation agreement in May 2010, on which SDB will provide a US\$6.0bn credit facility to support Goldwind's overseas expansion. Thus, the share price fall is not justified, though it creates a good entry point on more attractive valuations.

As shown in Figure 111, Goldwind now trades at only 14x 1-year forward P/E, almost the lowest level since its IPO, representing a 50% discount to its historical 1-year forward P/E average of 29x since listing. Thus, we see a good entry opportunity at this level.

Figure 131: Goldwind 1-year forward P/E

Source: Deutsche Bank, DataStream

Figure 132: Goldwind 1-year forward P/B

Source: Deutsche Bank, DataStream

Catalysts ahead

Apart from our positive views on the above-discussed mid- to long-run fundamentals, we identify several catalysts that could trigger a re-rating of the stock.

- Strong interim results due in late August. Key issues to watch include 2Q new order intake, progress in export market penetrations, and the margin trend.
- Investment in key components to raise in-house production volumes, or via acquisition of existing players. Goldwind intends to further lift in-house supply ratio of key components.
- Good tender results for offshore wind turbines, scheduled to be announced in 4Q10, in which Goldwind is actively participating. A successful bidding of China's first-batch offshore turbines would further enhance its leader position in technology.
- Sector-wise, the announcement of China's official 2020 wind capacity target and more concrete power grid infrastructure investment plans will likely boost market sentiment.

Four-pillar development strategy

In this section, we undertake a more detailed review of Goldwind's business development strategy in terms of four major aspects: 1) vertical business integration, 2) innovative product offerings, 3) international market expansion, and 4) geographic expansion in its manufacturing bases.

Vertical business integration

Goldwind's vertical integration move can be divided into two steps: 1) forward integration, from a pure wind turbine maker to a total solution provider; 2) backward integration, internalizing the supply of critical components.

From a pure turbine maker to a turnkey provider

1. Wind farm invest-to-sale.

Goldwind has spotted a market opportunity for delivering turnkey wind farms. With China's rapid development of wind power, many players have entered the area, some of which lack relevant experience in site selection, equipment procurement and civil construction of wind farms. As such, they have opted to acquire a finished wind farm instead of developing it from the scratch. This creates opportunities for Goldwind to generate additional revenue on top of turbine sales. In turn, it helps to promote its turbine sales (turbines make up 70% of total wind farm investment costs).

Leveraged on its 10-year experience in the industry, Goldwind entered this area in 2007 through a wholly-owned subsidiary – Beijing Tianrun New Energy Investment Corporation. To date, wind capacity developed by Goldwind has reached 629MW, of which 198MW was sold, 104MW is in operation waiting to be sold and 327MW is under construction.

This is not a new thing for the industry. Suzlon, an Indian turbine maker, started wind farm investment in 1999 and has built a portfolio in Australia, the US, Portugal, and China. Gamesa in Spain is another player in both turbine manufacturing and wind farm development. In China, Xiangtan Electric (600416.CH, NR) and Huayi Electric (600290.CH, NR) invest in wind farms in addition to their turbine manufacturing business.

The gain from building and selling wind farms is booked under investment income in Goldwind's P&L. In 2009, Goldwind made a Rmb200m gain from the activity, or 12% of earnings. In addition, Goldwind booked Rmb114m in revenue from wind power generation for those operating wind farms yet to be sold. We show a snapshot of Goldwind's invested wind farms in Figure 133.

2. Wind farms service.

Apart from wind farm invest-to-sale, Goldwind is tapping into the spare parts supply, technical consultancy services and turbine licensing areas, which could be categorized as the broad service area. With a rapidly growing installed base, demand for such services is on the rise (wind turbine maintenance is typically covered by the vendor in the first three years of operation, after which it is chargeable). Relative to other domestic peers, Goldwind is a pioneer in tapping this promising market. In 2009, it derived 7% gross profit from non-turbine manufacturing.

On the bottom line, we estimate an approximately 19% earnings contribution, after adding the investment income from wind farm sales.

Figure 133: Goldwind's wind farms

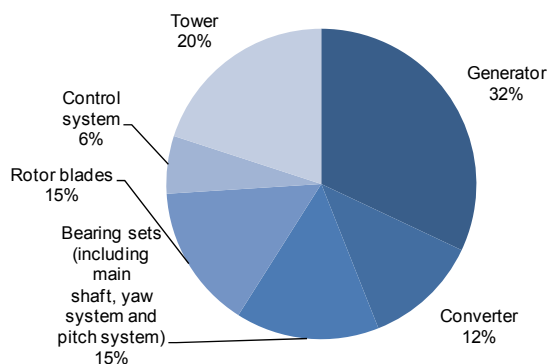
Project	Location	Installed capacity (MW)	Stake hold (%)	Status
Wulate Zhongqi Tugurige Wind Farm Phase I	Inner Mongolia	49.5	51	Sold
Wulate Houqi Narenbaolige Wind Farm Phase I	Inner Mongolia	49.5	51	Sold
Keshiketengqi Wutao Hainan Wind Farm Phase I	Inner Mongolia	49.5	51	Sold
Tacheng Mayitasi Wind Farm Phase I	Xinjiang	49.5	100	Sold
Xinjiang Buerjin 49.5MW Wind Farm	Xinjiang	49.5	100	Operation
Damao Qi Xinbaolige Wind Farm	Inner Mongolia	49.5	100	Operation
US Minnesota UILK project	Minnesota, U.S.	4.5	72.8	Operation
Shangdu County Jiqingliang Wind Farm Phase I	Inner Mongolia	49.5	100	Under construction,
Jiuquan Guazhou Liuyuan Trial Wind Farm	Gansu	49.5	100	Under construction,
Keshiketengqi Wutao Hainan Wind Farm Phase II	Inner Mongolia	49.5	51	Under construction,
Damao Guochan Wind Farm Phase II	Inner Mongolia	49.5	100	Under construction,
Yichun Xinqing Laobai Wind Farm Phase I	Heilongjiang	30	66	Under construction,
Jilin Qianguo Wangfu Zhanfeng Wind Farm	Jilin	49.5	51	Under construction,
Tacheng Mayitasi Wind Farm Phase II	Xinjiang	49.5	100	Under construction,
Total		628.5		

Source: Deutsche Bank, Company Data

Internalized key component manufacturing

Wind turbine production is essentially an assembly process of various components such as blades, generators, gearboxes, bearings, control systems, etc. Goldwind starts from an asset-light structure with all components sourced from third parties. However, since 2008, it has moved into the area of converter and control systems to achieve higher margins. These two components are of high value (18% total; see Figure 134) without seeing any potential oversupply, and the majority of the supply is still from international players. With self-supply, Goldwind can generate significant cost saving. Moreover, in-house production can aid in quality control.

Figure 134: Wind turbine value composition



Source: Deutsche Bank, Company data

In addition, Goldwind holds some strategic minority interests in several businesses in the upstream for key components. These include a 34% stake in a company producing NdFeB Magnets, a key raw material for direct-driven permanent magnet generators, and a 35% stake in a company producing epoxide-resin glue used for blade production.

Management confirmed that the self-supply ratio is likely to rise further. For example, converter output is set to triple in 2010. Meanwhile, Goldwind is reviewing an option to bring some blade operations in house (blades make up 15% of the value of wind turbines).

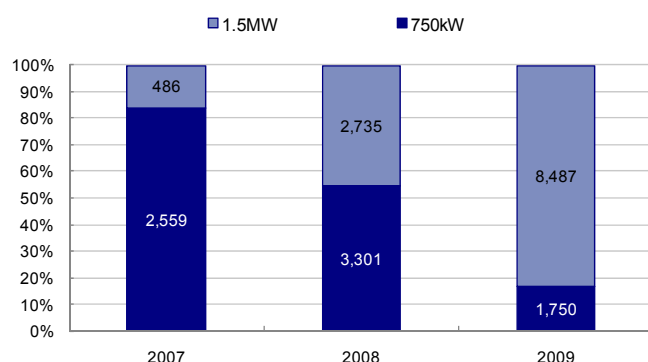
Pioneer in direct-drive, permanent-magnet wind turbines

Direct drive WTG – 82% FY09 revenue contribution

Goldwind is the pioneer in China in adopting direct-drive technology. Among the global top ten wind turbine players in 2009, Enercon and Goldwind are the only two engaging in this type of wind turbines (most peers use doubly-fed technology with a gearbox).

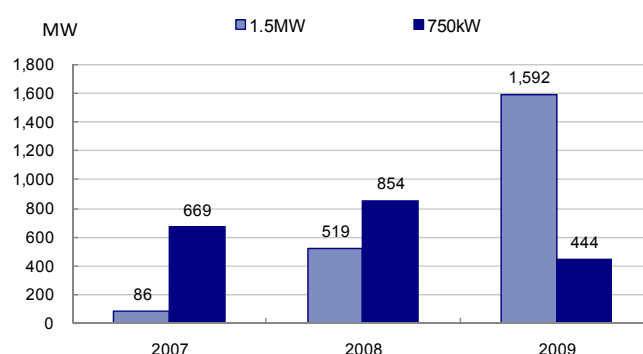
Goldwind's product offering includes seven series, from 600kW to 3.0MW. Main products are the 1.5MW direct-drive permanent magnet WTG and the 750kW doubly-fed WTG. The revenue contribution of 1.5MW WTG grew quickly from 18% in 2007 to 82% in 2009.

Figure 135: Goldwind WTG revenue by product (Rmb m)



Source: Deutsche Bank, Company Data

Figure 136: Goldwind WTG output by product (MW)



Source: Deutsche Bank, Company Data

Comparison of two types of WTGs

Direct-drive technology means the wind-driven turbine rotor directly rotates the synchronous generator without the need for a gearbox for speed change. Figure 23 compares direct drive and doubly fed.

Figure 137: Doubly-fed/direct-drive/hybrid comparison

	Doubly-fed	Direct drive
Cost	Rmb4,500-5,000/kW	Rmb4,700-5,100/kW
Key features	<ul style="list-style-type: none"> Able to support the grid connection during severe voltage disturbances High efficiency as the machine is able to synchronized with the grid as wind speed varies Large gearbox and small generator, high maintenance cost for gearbox Reduced reliability for large MW wind turbine Mature technology with established supply chain network 	<ul style="list-style-type: none"> No gearbox but need large-size generator High demand on installation accuracy Direct connection of impeller and generator unit to reduce the number of components Logistical challenges due to large-size wind turbine Technology still evolving

Source: Deutsche Bank, Goldwind, Dongfang Electric

Direct-driven offers higher energy yield

Unlike double-fed turbines, direct-drive wind turbines eliminate the gearbox component, which reduces transmission loss and allows higher generation levels, especially at low wind velocities. Permanent magnet technology further improves efficiency

Direct-driven is more suitable for offshore project

Gearbox breakdown is a common problem for wind turbines. The cost of gearbox repairs and maintenance for onshore wind farms is still tolerable. When it comes to offshore wind farms, however, costs jump several-fold. Thus, direct-drive technology, with the removal of gearbox, looks to be more applicable to offshore wind farms.

Goldwind is now gearing up to participate in the bidding process for China's first offshore wind project. Back in 2007, Goldwind delivered Asia's first 1.5MW offshore direct-drive turbine, installed in the Bohai area. To date, Goldwind completed trial production of the 2.5MW and 3.0MW wind turbine prototypes and the overall design of the 5.0MW mode.

Direct drive offers better compliance to grid connection code

Fluctuating voltage and power is of major concern for intermittent wind power generation. Wind farms are now required to comply with stringent grid connection requirements, including reactive power support, transient recovery, system stability and voltage/frequency regulation

China is in the process of finalizing the grid code for wind farm connection. One feature in the grid code is the requirement of Low Voltage Ride Through (LVRT) ability, which obliges wind farms to withstand voltage dips to a certain percentage of the nominal voltage for a specified duration. According to the company, Goldwind's 1.5MW direct drive turbine has demonstrated above-peer LVRT ability on several recent occasions. Customer acceptance is being enhanced for so-called "grid-connection-friendly wind turbines."

More players entering direct driven turbine productions

According to BTM, gearless direct-drive WTG accounted for about 13.9% of the global annual addition capacity in 2009, with a 2% y-o-y increase in 2008. At the same time, the Chinese Wind Energy Association reported the market share of direct-drive WTG in China grew to 17.5% in 2009, compared with a mere 0.2% in 2005.

Although doubly-fed technology is still the mainstream for wind turbine, many traditionally double-fed turbine players are branching into the direct-driven area:

- Siemens is currently developing a 3.6MW offshore direct-drive wind turbine.
- GE is moving into direct-drive after the acquisition of Scanwind.
- Dongfang announced a plan to launch direct drive in its A share placement in December 2009.

Sailing overseas

The overseas market looks promising for Chinese turbine makers. Goldwind aims to grow its exports to ~20-30% of group revenue in the next three years. With proprietary product IP, Goldwind has an edge over the many domestic rivals that are barred from exports under their licensing agreements with foreign partners. Goldwind's key target markets include the US, EU and emerging countries such as South Africa, Eastern Europe and Southeast Asia.

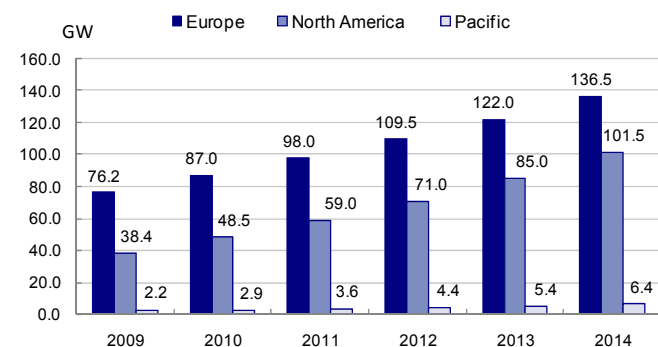
US market

The US market holds the largest cumulative wind capacity and ranked second in new additions in 2009. At its debut at the 2010 Wind Power Conference & Exhibition in Dallas, Goldwind officially announced the formation of Goldwind USA as a wholly owned US subsidiary based in Chicago. The US company is to offer a variety of wind power solutions.

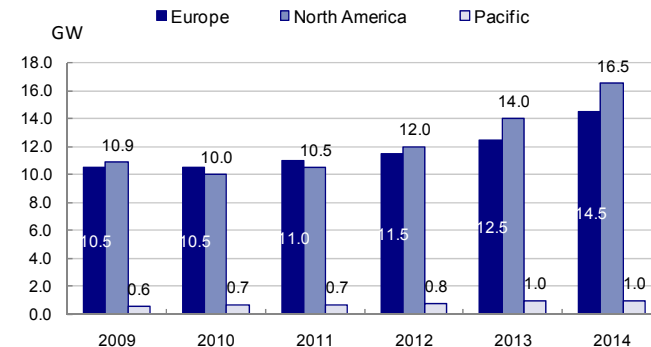
EU market

For the EU market, Goldwind applied a flexible M&A method to approach the market. Dating back to 2003, Goldwind purchased a license, as did many other domestic manufacturers,

from Vensys, a German-based pioneer of direct-driven wind-turbine technology with many years of R&D experience and industry-leading capability in this field. Later in 2008, Goldwind indirectly acquired 70% of Vensys AG as its main sales distribution channel in Europe to further leverage Vensys's technology and well-developed sales network. Vensys's main products include 1.5MW and 2.5MW direct-drive WTGs. It now becomes one of Goldwind's eight established production bases.

Figure 138: Cumulative market forecast by region

Source: Deutsche Bank, GWEC

Figure 139: Annual market forecast by region

Source: Deutsche Bank, GWEC

Move production facility close to end users

To move closer to its end market, Goldwind is expanding the geographic reach of its manufacturing bases across China. As shown in Figure 140, the Nanjing manufacturing base is designed to produce offshore 3.0MW wind turbines. Outside China, Goldwind is considering establishing local assembly lines in the US to meet local content requirements.

Figure 140: Goldwind turbine manufacturing bases

Location	Province	Status	Start production year	Capacity (MW)	Main product
Urumqi, Ph I	Xinjiang	Finished	2002	375	500 units of 750kW WTG, 300 sets of turbine rotor and nacelle
Urumqi, Ph II	Xinjiang	Finished	2008	900	600 units of 1.5MW WTG
Yizhuang	Beijing	Finished	2007	1,350	900 units of 1.5MW WTG
Baotou	Inner Mongolia	Finished	2008	1,350	900 units of 1.5MW WTG
Jiuquan	Gansu	Finished	2009	0	800 sets of turbine rotor and nacelle
Chengde	Hebei	Finished	2004	375	500 units of 750kW WTG, 600 sets of turbine rotor and nacelle
Yinchuan	Ningxia	Finished	2006	375	500 units of 750kW WTG, 500 sets of turbine rotor and nacelle
Neunkirchen	German	Finished	2009	150	100 units of 1.5MW WTG
Xi'an	Shaanxi	Batch production	2010	300	200 units of 1.5MW WTG, 1000 sets of generator
Nanjing	Jiangsu	Pre-construction	2011	300	100 units of 3MW WTG
Dafeng	Jiangsu	In construction	2010	0	300 sets of turbine rotor and nacelle
Beijing	Beijing	In construction	2010	0	3000 sets of control system
Total				5,475	

Source: Deutsche Bank, Company data

Financial outlook

Assumptions

In this section, we present our assumptions and forecasts for Goldwind's financial performance over 2010-2012E. With the concern of over-capacity of WTG, we expect Goldwind's future earnings to be driven by the following factors: 1) the upsurge of sales output of its 1.5MW WTG, though offset in part owing to a decreasing ASP, 2) commercial production of new 2.5MW and 3.0MW WTGs, which have a price premium over the 1.5MW type, and 3) strong growth in wind power service and wind farm investment.

Production output to more than double from 2009 to 2012

- **2010 revenue target 100% secured by orders at hand:** Based on our discussions with management, we understand Goldwind is likely to deliver ~3,200 MW in 2010, made up of its 1.5MW turbine. At end-1Q10, a total 3,340MW in orders were at hand with another 1,484 MW with MoUs. Hence, management is confident of meeting its target of 4,000 MW delivery this year. Based on company guidance, 1.5MW will see a further higher revenue mix in 2010.
- **Deutsche Bank more conservative on new product launches:** In 2011, we base our assumption on management guidance of rising contributions from newly launched 2.5MW and 3.0MW turbines. However, we are more conservative by assuming only 750/1,000 MW for 2.5MW in 2011/12 and 150/450 MW for 3.0MW in 2011/12, compared to a management target of over 1,000MW each for 2.5MW and 3.0MW in 2012. We do not factor in sales of the 5MW, which is in the R&D stage.
- **Market share to expand in 2010 and be flat afterwards:** Based on our estimates of Goldwind's annual output and GWEC's annual addition forecast, Goldwind's global market share will remain stable at c. 10-11% in 2010-12E, from 7.2% in 2009. Management believes it will expand its market share in China from 20% in 2009 to c.25% in 2010 (implying a total 16GW addition for China in 2010).
- **Long-term forecast much more conservative:** We note that in deriving our long-term forecast, we have factored in only 1.4% CAGR for output beyond 2012. According to GWEC, annual turbine installation will further rise from 48GW in 2012E to 55GW in 2013E and 63GW in 2014E.

Margin pressure partly mitigated by scale benefits and vertical integration

Our margin assumption takes into account the following dynamics: 1) ASP change in orders and the lead time from order intake to revenue booking, 2) the raw material price changes, 3) the price renegotiation for both product and key parts and 4) economies of scale.

- **Margin expansion in 2009:** In 2009, Goldwind's gross margin expanded by 180bps to 25.6%, mainly thanks to the improvement in its 1.5MW product margin, a result of higher output, higher ASP and maturing supply chains for the new direct-drive type turbines. Meanwhile, the 750KW product also recorded margin expansion.
- **Margin pressure expected for 2010:** In 2010, we assume a 140bps margin contraction, given that the ASP of new orders fell by 15% in 2009 from the 2008 peak. But we also believe that scale accompanied by productivity gains should offset some margin pressure (its output should almost double y-o-y). In this regard, management guided a moderate margin decline this year, though 1Q10 gross margin was actually up to 28.5% (note that quarterly margin volatility is normally higher for equipment makers).
- **Flat margin trend beyond 2010.** In 2011-12, we expect a flat gross margin trend, as we believe ASP has limited downside at current levels (likely some upside risk from export

sales, where Goldwind commands a significant pricing advantage). Also, the recent soft steel price suggests abated pressure from material price hikes. A comparison with global peers suggests the 24% gross margin level is sustainable (Vestas and Gamesa's gross margin was 24% and 22%, respectively).

ASP downside is limited; upside on export sales growth

- **15% ASP decline in 2009-2011:** our ASP assumptions factor in a 15% y-o-y decline in 2010, followed by another 5% in 2011. The sharp decline in 2010 is based on the quickly falling price throughout 2009, with some delay for the impact on revenues.
- **Further downside limited:** However, according to Goldwind, the ASP of recent orders has been stabilizing at Rmb4,700/KW (including a 17% value-added tax rate). Moreover, we expect some upside for the ASP coming from export revenues (Goldwind targets exports to reach 20~30% total sales in by 2013).

Wind farm investment and sales; service business

- **12% FY09 earnings contribution:** In 2009, Goldwind derived an investment income of Rmb200m from its wind farm invest-sale business under the Associate Income line. Currently, it has 103.5 MW wind farms to be sold.
- **Expecting a 20% CAGR in investment income in 2009-2012:** our forecast is based on a combination of MW to be sold each year and a profit margin of Rmb0.5m per MW. In 2010-2012E, we assume 500/600/700MW wind farm sales, leading to investment income of Rmb250/300/350m, respectively. Management guided a maximum of 1,000MW wind farm annual sales in the years ahead.
- **From turbine maker to total solution provider:** we forecast a 35% revenue CAGR for non-WTG manufacturing businesses, such as wind power generation, component sales, consultancy and license fees. This is a new area that Goldwind plans to tap with a rising installed base, for which a secondary service market is under formation. On our estimate, revenue contribution by non-WTG sales will remain at the 5% level owing to simultaneous fast-growing WTG sales.

SG&A expenses and tax rate

- In 2007-09, SG&A expenses accounted for ~8.0-8.8% revenues. Although management targets to achieve some digression of fixed costs versus revenue accompanied by significant revenue growth ahead, we tend to use a similar 8.6% assumption for future years.
- We use a 15% effective tax rate in our forecast. Goldwind is regarded as a high-tech corporate that enjoys a 15% preferential income tax rate.

Figure 141: Goldwind's order/ASP/output assumptions

Assumptions	2007	2008	2009	2010E	2011E	2012E
Order backlog (MW)	1,790	1,541	2,218	3,313	3,559	3,255
Order intakes (MW)	1,750	1,532	2,915	5000	5000	5000
Book/bill	1.87	1.22	1.02	0.85	0.75	0.61
Total sales output(MW)	755	1,373	2,036	3,905	4,754	5,304
YoY Growth		81.9%	48.3%	91.8%	21.8%	11.6%
Market share			20%	25%		
750kW-sales (MW)						
ASP (Rmb/kW)	3,825	3,865	3,941	3,547	3,299	3,299
% chg		1%	2%	-10%	-7%	0%
Sales output (MW)	669	854	444	511	511	511
% chg		28%	-48%	15.0%	0.0%	0.0%
1.5MW-sales (MW)						
ASP (Rmb/kW)	5,656	5,269	5,331	4,531	4,260	4,260
% chg		-7%	1%	-15%	-6%	0%
Sales output (MW)	86	519	1,592	3,184	3,343	3,343
% chg		503%	207%	100.0%	5.0%	0.0%
2.5MW-sales (MW)						
ASP (Rmb/kW)				5,500	5,115	5,115
% chg				0%	-7%	0%
Sales output (MW)	0	0	0	150	750	1,000
3MW-sales (MW)						
ASP (Rmb/kW)				5,500	5,115	5,115
% chg				0%	-7%	0%
Sales output (MW)	0	0	0	60	150	450
Wind power generation						
Sales (Rmb m)	5	93	114	171	206	236
% chg				50%	20%	15%
WTG component						
Sales (Rmb m)	25	67	101	131	171	222
% chg				30%	30%	30%
Technical consultancy						
Sales (Rmb m)	13	16	104	156	234	351
% chg				50%	50%	50%
License fee						
Sales (Rmb m)	0	0	41	61	92	138
% chg				50%	50%	50%
Other products						
Sales (Rmb m)	11	0	117	152	197	256
Sales % chg				30%	30%	30%

Source: Deutsche Bank, Company Data

Figure 142: Goldwind's revenue, gross profit and gross margin evolution (2007-13E)

(Rmbm)	2007	2008	2009	2010E	2011E	2012E
Revenue	3,103	6,458	10,738	18,095	21,460	24,581
WTG sales	3,046	6,036	10,237	17,394	20,528	23,342
750kW	2,559	3,301	1,750	1,811	1,684	1,684
1.5MW	486	2,735	8,487	14,428	14,241	14,241
2.5MW	0	0	0	825	3,836	5,115
3MW	0	0	0	330	767	2,302
5MW	0	0	0	0	0	0
Wind power generation	5	93	114	171	206	236
WTG component	25	67	101	131	171	222
Technical consultancy	13	16	104	156	234	351
License fee	0	0	41	61	92	138
Others	15	247	141	181	230	292
Gross Profit	925	1,585	2,823	4,504	5,215	6,002
<i>YoY Change</i>		71.4%	78.1%	59.5%	15.8%	15.1%
WTG sales	897	1,434	2,620	4,452	5,254	5,974
750kW	818	918	574	489	455	455
1.5MW	79	516	2,046	3,246	3,133	3,133
2.5MW	0	0	0	165	767	1,023
3MW	0	0	0	66	153	460
5MW	0	0	0	0	0	0
Wind power generation	2	58	81	103	123	142
WTG component	6	14	10	13	16	21
Technical consultancy	12	1	41	61	91	137
License fee	0	0	41	49	73	110
Others	8	76	30	36	46	58
Gross Margin	29.8%	24.5%	26.3%	24.9%	24.3%	24.4%
WTG sales	29.5%	23.8%	25.6%	25.6%	25.6%	25.6%
750kW	32.0%	28.0%	32.8%	27.0%	27.0%	27.0%
1.5MW	16.3%	18.5%	24.1%	22.5%	22.0%	22.0%
2.5MW	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%
3.0MW	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%
5.0MW	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wind power generation	46.4%	63.1%	71.1%	60.0%	60.0%	60.0%
WTG component	22.1%	21.4%	9.5%	9.5%	9.5%	9.5%
Wind measurement equipment	92.5%	9.1%	39.1%	39.1%	39.1%	39.1%
Technical consultancy	0.0%	0.0%	100.0%	80.0%	80.0%	80.0%
License fee	54.9%	30.9%	21.4%	20.0%	20.0%	20.0%
Others	0.0%	-52.8%	0.0%	0.0%	0.0%	0.0%

Source: Deutsche Bank

Earnings outlook and sensitivity

Based on our assumptions discussed earlier, we forecast revenue to grow from Rmb10,738m to Rmb24,581m in 2009-2012E, representing a CAGR of 32%. For 2010, Goldwind's 1.5MW WTG will be the main revenue driver, which we expect to contribute 81% of y-o-y revenue growth of Rmb7,357m. For 2011, 2.5/3.0MW will be the main revenue driver, which we expect to contribute almost all revenue growth (we project a static revenue profile for 1.5MW, as some customers may shift away from 1.5MW to 2.5/3.0MW).

For the non-wind turbine business, we forecast a relative flat revenue mix at 3% in 2010-2012E. We could be conservative in this regard, but we prefer to turn more positive once we see more concrete signs.

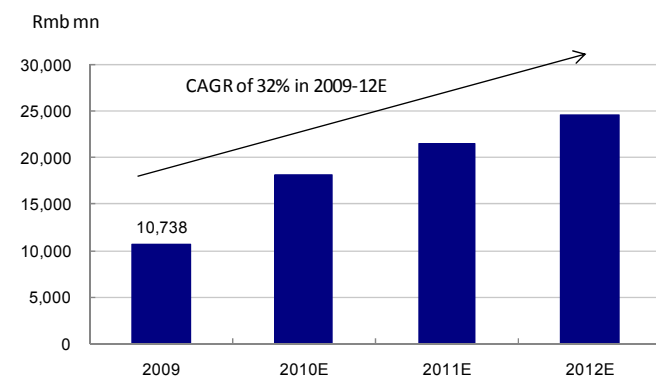
We believe the gross margin of Goldwind will have moderate downside due to ASP falls. The margin contraction will be approximately 200bps, from 26.3% in 2009 to 24.3% in 2011E. We forecast earnings of Rmb2.5/2.9/3.3bn in 2010/11/12E, respectively, representing a 3-year CAGR of 16%. EPS will be Rmb1.11/1.29/1.50 in 2010/11/12E, respectively. Compared to market consensus, our earnings are 7% higher for FY10E and in-line for FY11-12E.

Figure 143: Goldwind: Deutsche Bank vs. consensus

	Deutsche Bank	Consensus	Deutsche Bank vs. Consensus
Revenue (HKD m)			
2010	18,095	16,660	9%
2011	21,460	22,257	-4%
2012	24,581	25,225	-3%
EBITDA (HKD m)			
2010	3,069	2,872	7%
2011	3,615	3,573	1%
2012	4,203	4,210	0%
Net income (HKD m)			
2010	2,496	2,315	8%
2011	2,890	2,944	-2%
2012	3,349	3,347	0%

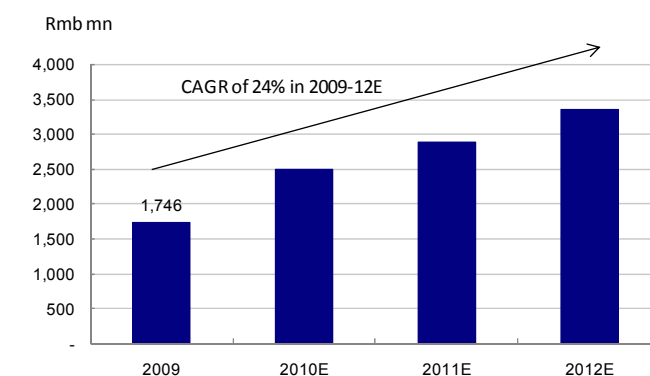
Source: Deutsche Bank, Bloomberg Finance LP

Figure 144: Goldwind's revenue growth (2009-2012E)



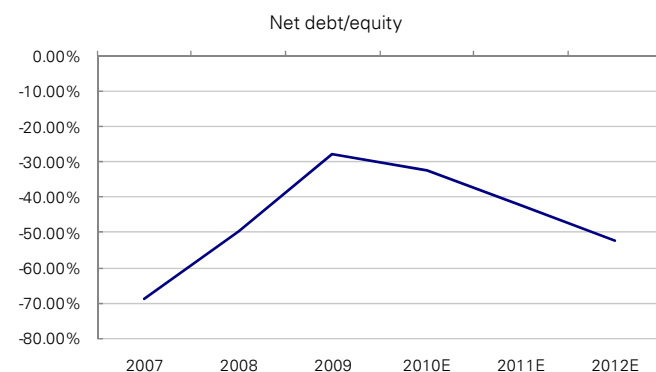
Source: Deutsche Bank, Company Data

Figure 145: Goldwind's earnings growth (2009-2012E)

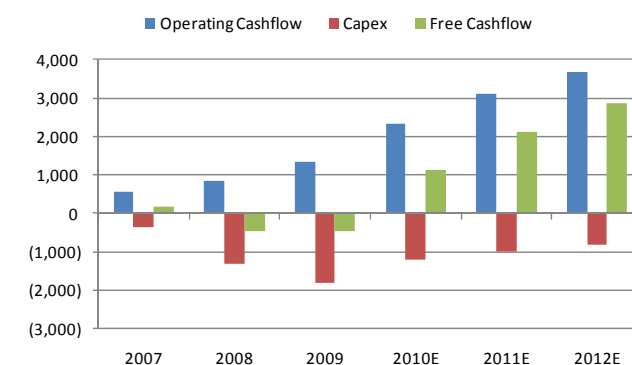


Source: Deutsche Bank, Company Data

From a cash flow perspective, we expect Goldwind to turn free cash flow positive from 2010 owing to lower capex spending. For 2010, we expect operating cash flow to grow 76% to Rmb2,339m. Factoring in a capex budget of Rmb1,200m, we expect free cash flow to turn positive to Rmb1,330m from a negative Rmb467m in 2009. We expect Goldwind to maintain its net cash position throughout 2007-2012E (negative net debt/equity suggests net cash).

Figure 146: Goldwind's net debt to equity ratio

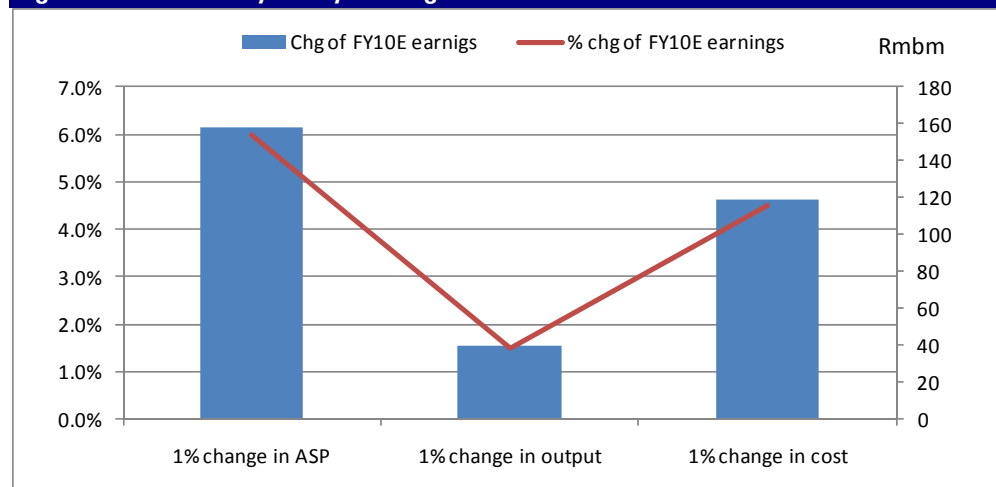
Source: Deutsche Bank, Company Data

Figure 147: Goldwind's cash flow profile

Source: Deutsche Bank, Company Data

Sensitivity analysis

We performed an earnings forecast sensitivity analysis on several key drivers, including changes in product average selling price (ASP), sales output (MW) and cost of production (COGs). The FY10E earnings impact for every 1% change in these factors is shown in Figure 34.

Figure 148: Sensitivity of key earnings drivers

Source: Deutsche Bank

Figure 149: Goldwind – Income statement (2007-2012E)

(Rmbm)	2007	2008	2009	2010E	2011E	2012E
Operating revenue, net	3,103	6,458	10,738	18,095	21,460	24,581
YoY%	102.8%	108.1%	66.3%	68.5%	18.6%	14.5%
Cost of Sales	(2,178)	(4,873)	(7,916)	(13,592)	(16,245)	(18,579)
Business tax	(11)	(20)	(47)	(80)	(94)	(108)
Gross Profit	925	1,585	2,823	4,504	5,215	6,002
Selling expenses	(100)	(278)	(670)	(1,122)	(1,309)	(1,499)
Administrative expenses	(153)	(237)	(276)	(452)	(537)	(615)
Financial expense	(23)	(42)	(60)	(95)	(95)	(95)
Asset impairment	(30)	(128)	(32)	(32)	(32)	(32)
Investment	1	266	214	250	300	350
Fair value change	-	(2)	(4)	(4)	(4)	(4)
Profit from Operation	610	1,143	1,947	2,968	3,444	3,998
Non-operating income	17	22	57	57	57	57
Non-operating expense	(0)	(2)	(13)	(13)	(13)	(13)
PBT	627	1,163	1,991	3,012	3,487	4,042
Tax	8	(126)	(200)	(452)	(523)	(606)
Effective tax rate	(1.3%)	10.8%	10.0%	15.0%	15.0%	15.0%
PAT	635	1,037	1,791	2,560	2,964	3,435
Minority interest	(5)	(122)	(45)	(64)	(75)	(86)
Net profit	630	915	1,746	2,496	2,890	3,349
YoY	97%	45%	91%	43%	16%	16%
Reported EPS	0.31	0.40	0.78	1.11	1.29	1.50
DB EPS	0.27	0.24	0.78	1.11	1.29	1.50
EPS (yoy)	176.1%	29.0%	95.0%	42.8%	15.8%	15.9%
DPS	0.10	0.28	0.10	0.17	0.19	0.22
Common sized P&L						
Operating revenue, net	100%	100%	100%	100%	100%	100%
Cost of Sales	(70%)	(75%)	(74%)	(75%)	(76%)	(76%)
Gross Profit	30%	25%	26%	25%	24%	24%
Selling expenses	(3%)	(4%)	(6%)	(6%)	(6%)	(6%)
Administrative expenses	(5%)	(4%)	(3%)	(3%)	(3%)	(3%)
Financial expense	(1%)	(1%)	(1%)	(1%)	(0%)	(0%)
Asset impairment	(1%)	(2%)	(0%)	(0%)	(0%)	(0%)
Investment	0%	4%	2%	1%	1%	1%
Fair value change	-	(0%)	(0%)	(0%)	(0%)	(0%)
Non-operating income	1%	0%	1%	0%	0%	0%
Non-operating expense	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
PBT	20%	18%	19%	17%	16%	16%
Tax	0%	(2%)	(2%)	(2%)	(2%)	(2%)
PAT	20%	16%	17%	14%	14%	14%
Minority interest	(0%)	(2%)	(0%)	(0%)	(0%)	(0%)
Net profit	20.3%	14.2%	16.3%	13.8%	13.5%	13.6%

Source: Deutsche Bank, Company Data

Figure 150: Goldwind – Balance sheet (2007-12E)

	2007	2008	2,009	2010E	2011E	2012E
Non-current assets	554	2,004	3,598	4,696	5,524	6,119
PPE	404	1,258	2,441	3,540	4,368	4,963
Interests in associate & JCE	4	26	126	126	125	125
Prepaid lease payment		0	2	2	2	2
Intangible assets	81	502	757	757	757	757
Avail-for-sale investment	54	114	81	81	81	81
Deferred tax assets	12	102	191	191	191	191
Others		2	-	-	-	-
Current Assets	4,913	9,061	11,285	17,433	21,587	26,264
Cash and cash equivalents	2,680	3,286	4,459	5,973	7,927	10,567
Restricted deposit	-	-	219	293	388	518
Trade/bill receivables	764	2,619	2,920	4,920	5,835	6,683
Amounts due from customers for contract works	480	761	737	1,241	1,472	1,686
Other receivables	18	275	82	82	82	82
Other debtors and prepayment	-	1	11	19	22	26
Inventories	972	2,119	2,854	4,900	5,856	6,698
Available-for-Sales investment	0	0	5	5	5	5
Total assets	5,468	11,065	14,883	22,129	27,112	32,383
Shareholders' equity	2,883	3,730	5,201	7,557	10,072	12,988
Share capital	500	1,000	1,400	1,400	1,400	1,400
Reserves	2,383	2,730	3,801	6,157	8,672	11,588
Minorities interests	66	362	326	391	465	551
Non-current liabilities	228	1,389	2,473	2,473	2,473	2,473
Bank borrowings & bond & other financial liability	228	1,380	2,382	2,382	2,382	2,382
Deferred tax liabilities	-	9	91	91	91	91
Current liabilities	2,291	5,584	6,882	11,708	14,101	16,370
Borrowing due within one year	470	50	843	1,421	1,685	1,930
Trade/Bills payables	958	2,652	3,760	6,336	7,515	8,607
Dividend payable	-	-	-	-	-	-
Amounts due to customers for contract works	679	2,386	1,814	3,057	3,626	4,153
Other creditors and accruals	72	200	259	437	518	593
Taxes liabilities	110	296	205	457	758	1,087
Total shareholder equity and liabilities	5,468	11,065	14,883	22,129	27,112	32,383

Source: Deutsche Bank, Company Data

Figure 151: Goldwind – Cash flow (2007-2013E)

	2007	2008	2009	2010E	2011E	2012E
Cash flow from operating activities						
Profit before tax	635	1,037	1,791	3,012	3,487	4,042
Asset impairment	32	128	32			
Amortization	6	10	15			
Depreciation	8	51	69	101	172	205
Interest Income		(20)	(24)	(33)	(44)	(58)
Interest Expense	23	42	60	95	95	95
Tax paid	-	(37)	(286)	(200)	(222)	(278)
Associate Income	-	-	(4)	-	-	-
Loss (gain) on disposal of asset	0	0	9			
Investment loss (gain)	(1)	(266)	(214)			
Net changes in working capital	(137)	(60)	(356)	(636)	(373)	(341)
Others	(19)	(21)	236			
Total Operating Cash flow	547	864	1,327	2,339	3,115	3,665
Cash flow from investing activities						
Purchase of PPE	(369)	(1,326)	(1,794)	(1,200)	(1,000)	(800)
Interest received	-	-	-	33	44	58
Proceeds from disposal of assets	0	4	21	0	0	0
Gain or loss from acquisitions and disposal of subsidiary	-	272	150			
Proceed of cash from investment	-	46	168			
Others	24	3	(197)			
Total Investment Cash flow	(345)	(1,000)	(1,652)	(1,167)	(956)	(741)
Cash flow from financing activities						
Issuance/(Retirement) of new shares	1,791	83	23	-	-	-
Additions of loans	825	1,627	2,250	578	264	245
Repayments of loans	(422)	(919)	(425)	-	-	-
Interest Paid	(23)	(51)	(69)	(95)	(95)	(95)
Dividend paid	(100)	(50)	(374)	(140)	(374)	(433)
Others	58	52	92	-	-	-
Total Financing Cash flow	2,129	743	1,498	342	(205)	(284)
Beginning cash and cash equivalent	349	2,679	3,286	4,459	5,973	7,927
Net cash increase/(decrease) for the year	2,330	607	1,173	1,515	1,953	2,640
Ending cash and cash equivalent	2,679	3,286	4,459	5,973	7,927	10,567

Source: Deutsche Bank

Figure 152: Key financial ratios

	2007	2008	2009	2010E	2011E	2012E
Growth						
Sales growth	102.8%	108.1%	66.3%	68.5%	18.6%	14.5%
EBIT growth	92.5%	87.3%	70.4%	52.5%	16.0%	16.1%
Net earnings growth	97.1%	45.3%	90.9%	43.0%	15.8%	15.9%
DB EPS growth		-8.8%	220.9%	43.0%	15.8%	15.9%
Margin						
EBITDA Margin (%)	19.9%	18.5%	18.8%	17.0%	16.8%	17.1%
EBIT Margin (%)	19.7%	17.7%	18.1%	16.4%	16.0%	16.3%
Net Margin (%)	20.3%	14.2%	16.3%	13.8%	13.5%	13.6%
Return						
ROE	21.8%	24.5%	33.6%	33.0%	28.7%	25.8%
ROAE	36.2%	27.7%	39.1%	39.1%	32.8%	29.0%
ROA	11.5%	8.3%	11.7%	11.3%	10.7%	10.3%
ROCE	17.3%	16.6%	19.9%	21.2%	19.8%	18.8%
Working capital						
Receivable days	146	191	124	124	124	124
Inventory days	163	159	132	132	132	132
Payable days	274	377	257	252	250	251
Net working capital days						
Capitalization						
Payout ratio (%)	37.6%	115.3%	12.8%	15.0%	15.0%	15.0%
Capex/sales (%)	11.9%	20.5%	16.7%	6.6%	4.7%	3.3%
Capex/depreciation (x)	43.7	26.2	26.1	11.9	5.8	3.9
FCF Yield	0.7%	-2.1%	-0.2%	5.5%	6.6%	8.3%
Net interest cover (x)	27.0	27.4	32.2	31.1	36.1	42.0
EBITDA / Interest	27.4	28.6	33.4	32.2	37.9	44.1
EBITDA/ (Interest + Debt Payment)	27.4	28.6	33.4	32.2	37.9	44.1
Net Debt (Net cash) to Equity	(0.67)	(0.45)	(0.26)	(0.31)	(0.40)	(0.50)
Net Debt (Net Cash) to Capital	(2.05)	(0.83)	(0.36)	(0.45)	(0.68)	(1.00)

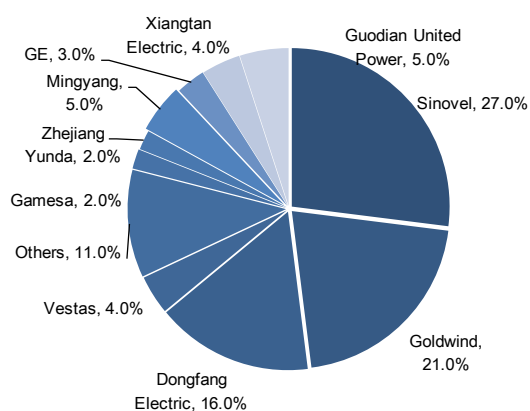
Source: Deutsche Bank, Company data

Company overview

Operation history from 1990s

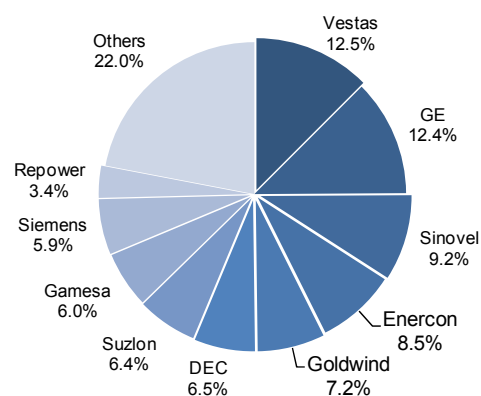
The history of Goldwind traces back to February 1998 when XJ NewWind was established. In March 2001, XJ New Wind was renamed Xinjiang Goldwind Science & Technology Co., Ltd. With an operating history spanning more than ten years, Goldwind is more established than most of its peers, which entered the industry only a few years ago. By end-2009, Goldwind had an accumulative installed capacity base of 5300MW in China. In 2009, Goldwind's market share ranked No.2 and No.5 in China and the world, respectively. Goldwind was listed on the Shenzhen Stock Exchange in December 2007.

Figure 153: China WTG makers' market share (2009)



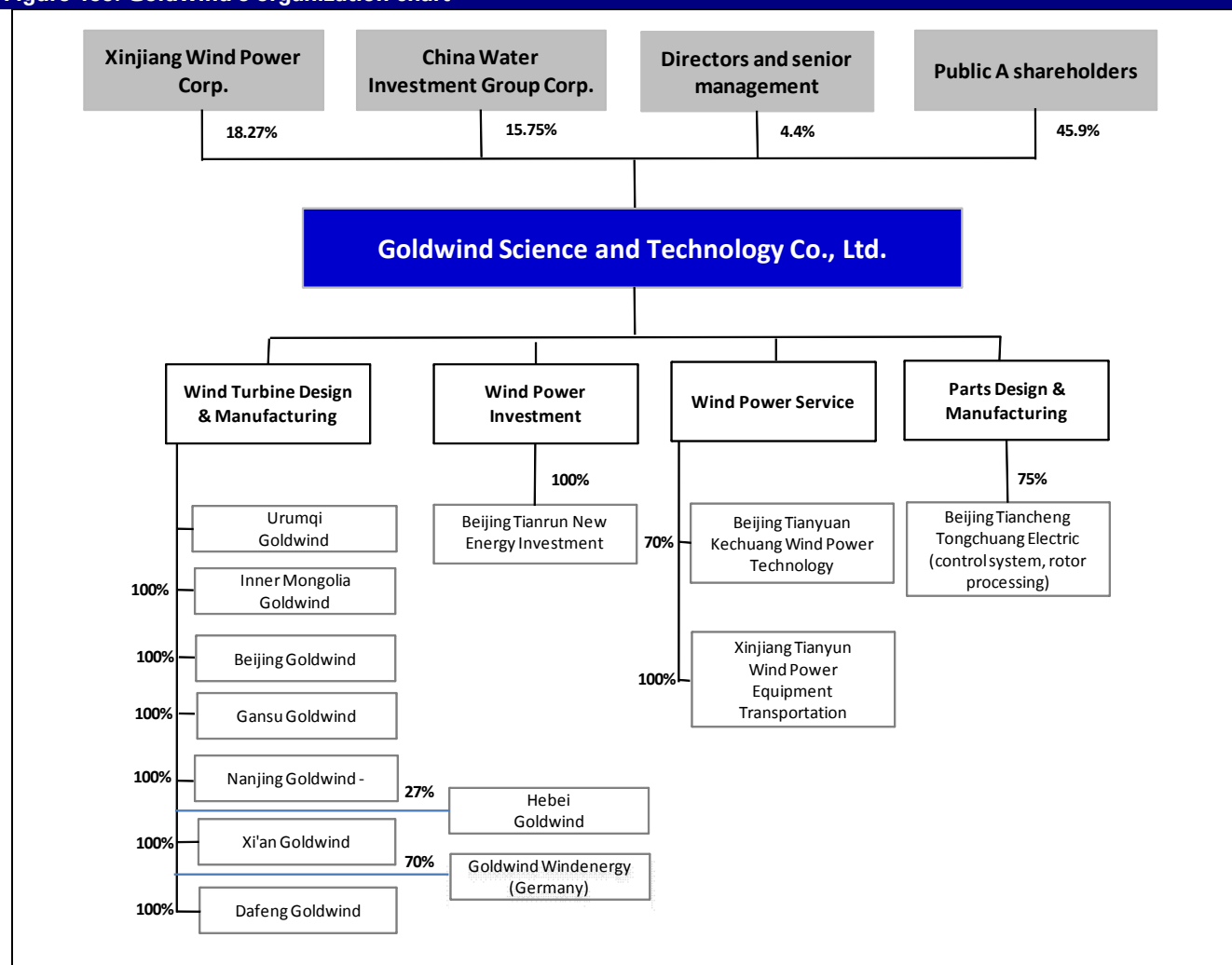
Source: Deutsche Bank, CWEA

Figure 154: Global WTG makers' market share (2009)



Source: Deutsche Bank, BTM Consult ApS

The company currently has two major shareholders: Xinjiang Wind Power and China Water Investment Group. Management holds a 4.4% stake in the company. Headquartered in Urumqi, Xinjiang, Goldwind has production subsidiaries in various part of the country. As shown in Figure 155, its business can be divided into four segments: wind turbine manufacturing, wind power investment, services and parts manufacturing.

Figure 155: Goldwind's organization chart

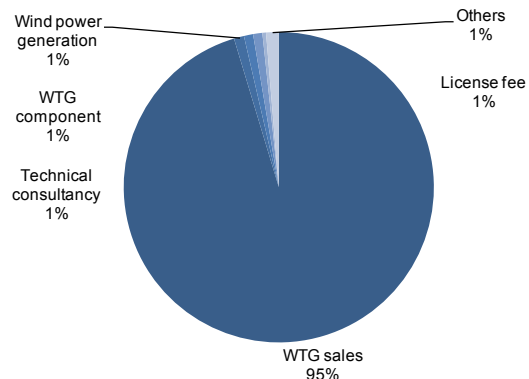
Source: Deutsche Bank, Company Data

Revenue and profit mix, margin trend

Goldwind is the second largest wind turbine maker in China in 2009, with market shares of 21% and 20% in terms of cumulative capacity and additional capacity, respectively. The No. 1-ranked Sinovel and the No. 3 Dongfang Electric have no exposure to wind farm investment.

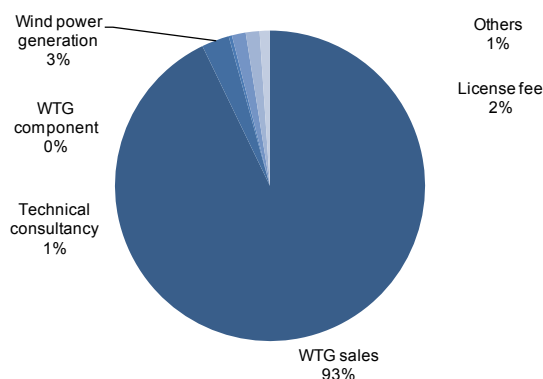
In 2009, the company derived 95% of revenue from wind turbine sales. Besides the WTG sales, Goldwind also provides wind power service and engages in wind farm investment. As Figure 158 shows, WTG sales have a strong seasonal trend, with 2H accounting for the majority of the revenue in the year. Since 2007, the company's blended gross margin has remained relatively stable, hovering around 25%. By product, the 1.5MW direct drive turbine, launched in 2007, posted a rising margin trend.

Figure 156: Goldwind 2009 revenue breakdown



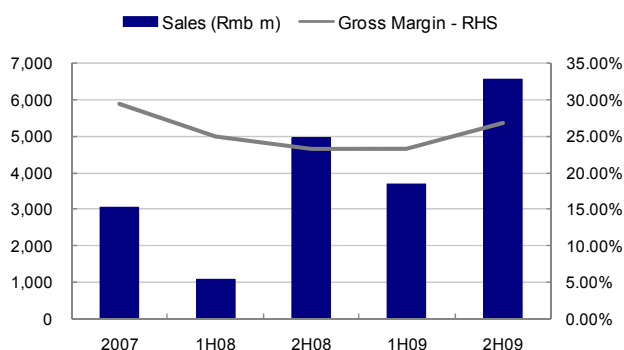
Source: Deutsche Bank, Company Data

Figure 157: Goldwind 2009 gross profit breakdown



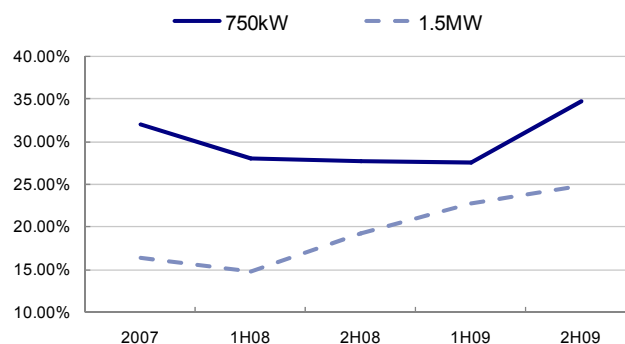
Source: Deutsche Bank, Company Data

Figure 158: Goldwind gross margin trend



Source: Deutsche Bank, Company Data

Figure 159: Gross margin by WTG type



Source: Deutsche Bank, Company Data

Financials of key subsidiaries

The company disclosed the key financials of its major subsidiaries for 2007-09, from which the breakdown of net profit by business line and geographic area can be observed.

Among its domestic manufacturing bases, Beijing Goldwind contributed the lion's share of 2009 profits. Its overseas subsidiary in Germany – Vensys Energy AG – contributed about 5% of total profit, with margins comparable to those of the domestic operation. The wind power generation business reported a net margin of 40%, higher than our estimate of 23% for Longyuan's wind power business.

Figure 160: Financial status of Goldwind's key subsidiaries (2009)

Rmb m	Stake (%)		2007	2008	2009
Wind Turbine Design & Manufacturing					
Beijing Goldwind Kechuang	100%	Revenue	82	1,046	5,415
		Net profit	-1	146	748
		Net margin	-1.22%	13.97%	13.81%
Inner Mongolia Goldwind	100%	Revenue	0	6	1,053
		Net profit	0	0	133
		Net margin	N/A	4.46%	12.63%
VENSYS Energy AG	70%	Revenue	N/A	407	676
		Net profit	N/A	26	84
		Net margin	N/A	6.31%	12.50%
Gansu Goldwind	100%	Revenue	N/A	0	80
		Net profit	N/A	-4	10
		Net margin	N/A	N/A	12.27%
Wind Power Generation					
Beijing Tianrun New Energy Investment	100%	Revenue	N/A	90	106
		Net profit	N/A	107	41
		Net margin	N/A	119.60%	39.05%
Wind Power Service					
Beijing Tianyuan Kechuang Wind Power Technology	83.33%	Revenue	43	86	406
		Net profit	33	42	20
		Net margin	76.79%	48.64%	4.83%
Xinjiang Tianyuan Wind Power Equipment Transportation	100%	Revenue	N/A	48	114
		Net profit	N/A	1	22
		Net margin	N/A	2.44%	19.70%
Parts Design & Manufacturing					
Beijing Tiancheng Tongchuang Electric	75%	Revenue	N/A	0	79
		Net profit	N/A	0	5
		Net margin	N/A	N/A	6.62%

Source: Deutsche Bank, Company Data

**Figure 161: Goldwind's key management team profiles**

Management	Position	Industry experience
Wu Gang	Chairman & Chief Executive Officer	Over 20 years of wind power equipment industry experience in management
Li Ying	Vice Chairman	Over 45 years of hydro power industry experience
Guo Jian	Director & President	Over 20 years of wind power equipment industry experience in production
Gao Zhong	Director	Over 20 years of experience in the field of secretary of the Party Committee and labour union
Liu Tongliang	Director	Over 20 years of experience in energy project investment and development
Lv Houjun	Director	Over 20 years of experience in financial investment and fund management
Wang Yousan	Independent Director	Over 50 years of experience in government organization in Xinjiang municipality
Shi Pengfei	Independent Director	Over 45 years of experience in power equipment technology, especially in wind power research
Li Yuzhuo	Vice President	Over 30 years of experience in power equipment and electric technology
Cao Zhigang	Vice President	12 years of experience in electrical control technology in Goldwind
Wang Xiangming	Vice President	Over 15 years of experience in wind power technology
Sun Liang	Chief Finance Officer	Over 15 years of experience in accounting and finance
Cui Xinwei	Chief Engineer	Over 25 years of experience in mechanical technology
Ma Jinru	Board Secretary (2010 - 2013)	Over 20 years of experience in company management, former Board Secretary of DaLian Port

Source: Deutsche Bank, Company Data

Selective order intakes

Based on company disclosures, we list key new orders received in 2008-10. Some orders were renegotiated on price terms owing to material price changes. Overall, the ASP has declined from Rmb5,400/KW to Rmb4,500/KW over the past year.

Figure 162: Goldwind's recent orders with customers

Contract effective date	Client	Location	Size of order	Final value (Rmb m)	Implied ASP (Rmb/KW)	Delivery period
1/30/2008	Beijing Jingneng International	Inner Mongolia	300	1,923	6,411	2009
4/22/2009	Xinjiang Wind Energy	Xinjiang	29.25	145	4,970	2009
5/20/2009	Datang (Chifeng) New Energy	Inner Mongolia	100.5	543	5,399	2009
5/20/2009	CGNPC	Inner Mongolia	100.5	543	5,399	2010-2011
5/20/2009	Shanxi Zhangze Electric Power	Inner Mongolia	200	1,077	5,399	2010-2011
5/20/2009	Longyuan Power	Inner Mongolia	100.5	543	5,399	2010-2012
5/20/2009	China Resources Power	Hebei	75	405	5,399	2010-2011
8/18/2009	Guohua Energy Investment	Inner Mongolia	200	1,085	5,399	2010/04-2011/07
8/31/2009	China Wind Power	Liaoning	49.5	317	6,400	2010/06
10/9/2009	Gansu Electric Power Investment	Gansu	200	326	6,398	2010/03-2010/05
11/10/2009	China Power New Energy	Gansu	100	543	5,399	2010/03-2010/05
12/29/2009	HydroChina Guazhou Wind Power	Gansu	200	541	5,386	2010/04-2010/08
12/29/2009	Sinohydro Renewable Energy	Gansu	200	592	5,405	2010/08-2011/01
12/31/2009	Gansu Xinhui Wind Power	Gansu	200	1,085	5,398	2010/08-2011/01
12/31/2009	Gansu Huineng Wind Power	Gansu	200	1,085	5,398	2010/08-2011/01

Source: Deutsche Bank, Company Data

Risks

Slower-than-expected wind capacity growth

Wind power will continue to grow on mounting energy security and climate change concerns globally. But there could be some bumpy roads ahead, due to delays in the announcement of government supportive regulations, lack of project financing to fund wind power projects, inadequate grid connection infrastructures and threats from competing renewable energy companies that offer lower-cost solutions. Wind turbine demand may disappoint in this regard.

Margin pressure from capacity oversupply

It is no secret that wind turbine capacity in China is in an oversupply situation, with more than 70 players in the industry. Intensifying competition has resulted in sharp ASP declines. Despite an established leading position, Goldwind is not immune from market pressure. Compared with other top players, such as Sinovel and Dongfang, the lack of a strong state-owned parent company may be viewed by some customers as a weakness.

Margin pressure from input cost hikes

Goldwind still relies heavily on third-parties suppliers for most turbine components. Only electric control systems are made in house. With an asset-light business model, Goldwind may face greater cost pressure in the event of sharp materials hikes, as compared to more integrated players. This issue could become more severe if the oversupply of wind turbines is accompanied by a tight supply of specific components.

Uncertainties associated with export growth

The voyage overseas may encounter headwinds such as lower-than-expected end-market demand, lack of customer acceptance, adverse currency movements, trade protectionism and failure to assess local requirements and after-sale services. Other concerns include an upsurge in SG&A expenses and potential margin downside at the initial investment stage.

Product quality challenges

Goldwind is the longest established local turbine maker in China, with a decent record for the quality of turbines installed to date. However, the quality concern is worth highlighting, as most turbines have been in operation for only a few years, lacking the comparable long record of international rivals. To mitigate the risk of potential product failure, Goldwind uses provisions and insurance coverage for potential losses.

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Asia China

Industrials Manufacturing

19 July 2010

China High Speed Trans

Reuters: **0658.HK** Bloomberg: **658 HK**

The leading wind gearbox maker; Buy

Maintain Buy; key beneficiary of wind power capacity growth upcycle

We have a Buy rating on China High Speed Transmission Equipment (CHSTE) with a 12-month target price of HK\$21.5. CHSTE is the leading wind gearbox maker in China and one of the top ten players globally. We expect CHSTE to be a key beneficiary of a decade-long upcycle in wind power capacity growth. We foresee CHSTE maintaining its leading position in China and moving into the global league through rapid capacity expansion planned well in advance.

2010 order fully bagged; resilient margin outlook

While the minimum target for 2010 is 9GW wind gearbox sales, there are actually more delivery requests, creating healthy pent-up demand to meet the target even if there are unexpected delays or cancellations. Among key export customers, deliveries to GE should triple on a yoy basis. We expect margins to remain stable in 2010. The ownership of a steel company (Hongshen) could also provide a hedge.

New products in the pipeline

New product development looks to be well on track. New products in the mechanic-electrical area should make a sizeable revenue contribution over the next one or two years. Recently, the company branched out into gearbox supply for China's coal mining equipment industry. Building on its success on wind gearboxes, CHSTE has a vision to develop into a large clean energy equipment supplier in the long run.

HK\$21.5 target price derived using DCF

We use a DCF approach for CHSTE's valuation and adopt a WACC of 9.6% and assumed a 2.0% terminal growth rate. We believe a 2% terminal growth rate is relatively conservative; we expect only 5% of China's wind resources are likely to be utilized by 2020. Key downside risks include competition from new entrants or established players, challenges on maintain quality reliability, margin pressure from input cost hikes, and order delays due to less-than-expected end market demand.

Forecasts and ratios

Year End Dec 31	2008A	2009A	2010E	2011E	2012E
Sales (CNYm)	3,439.2	5,528.0	7,523.2	9,134.0	9,972.2
EBITDA (CNYm)	928.5	1,411.0	1,986.7	2,331.0	2,544.4
Reported NPAT (CNYm)	692.4	957.0	1,366.1	1,609.7	1,754.8
Reported EPS FD(CNY)	0.51	0.71	1.01	1.19	1.30
DB EPS FD(CNY)	0.51	0.71	1.01	1.19	1.30
DB EPS growth (%)	103.7	38.2	42.7	17.8	9.0
PER (x)	21.6	18.5	13.4	11.4	10.4
EV/EBITDA (x)	18.3	14.4	10.1	8.1	7.0
DPS (net) (CNY)	0.06	0.14	0.30	0.36	0.39
Yield (net) (%)	0.6	1.1	2.2	2.6	2.9

Source: Deutsche Bank estimates, company data

¹ DB EPS is fully diluted and excludes non-recurring items² Multiples and yields calculations use average historical prices for past years and spot prices for current and future years, except P/B which uses the year end close

Buy

Price at 16 Jul 2010 (HKD)	15.54
Price target - 12mth (HKD)	21.50
52-week range (HKD)	20.20 - 14.64
HANG SENG INDEX	20,250

Price/price relative



Performance (%)	1m	3m	12m
Absolute	-7.8	-4.4	-12.5
HANG SENG INDEX	0.9	-7.4	10.3

Stock data

Market cap (HKDm)	19,347
Market cap (USDm)	2,489
Shares outstanding (m)	1,350.4
Major shareholders	—
Free float (%)	26
Avg daily value traded (USDm)	13.0

Key indicators (FY1)

ROE (%)	26.3
Net debt/equity (%)	65.7
Book value/share (CNY)	4.52
Price/book (x)	3.0
Net interest cover (x)	13.2
Operating profit margin (%)	22.4



Model updated: 18 July 2010

Running the numbers

Asia

China

Manufacturing

China High Speed Trans

Reuters: 0658.HK

Bloomberg: 658 HK

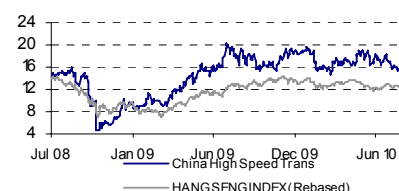
Buy

Price (19 Jul 10)	HKD 15.64
Target price	HKD 21.50
52-week Range	HKD 14.64 - 20.20
Market Cap (m)	HKDm 19,472 USDm 2,505

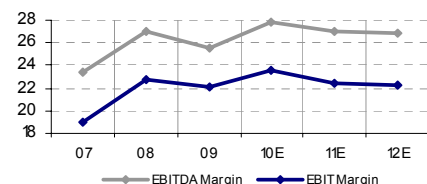
Company Profile

China High Speed Transmission Equipment (CHSTE) is one of the leading mechanical transmission equipment producers in China. The company is engaged in the research, design and manufacturing of a broad range of mechanical transmission equipment used in various applications including wind power, marine vessels, rail transport, aerospace, metallurgy, petrochemicals, construction and mining. CHSTE is the number one wind gearbox player in China and among the top five in China's overall gearbox market.

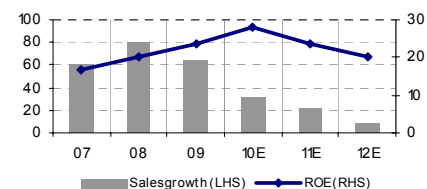
Price Performance



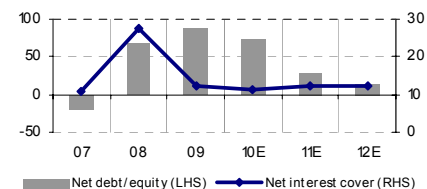
Margin Trends



Growth & Profitability



Solvency



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Fiscal year end 31-Dec

Financial Summary

	2007	2008	2009	2010E	2011E	2012E
DB EPS (CNY)	0.25	0.40	0.82	1.04	1.21	1.31
Reported EPS (CNY)	0.29	0.51	0.72	1.04	1.21	1.31
DPS (CNY)	0.08	0.07	0.22	0.31	0.36	0.39
BVPS (CNY)	2.5	2.9	3.5	4.3	6.0	7.0

Weighted average shares (m)	1,058	1,350	1,350	1,350	1,350	1,350
Average market cap (CNYm)	16,577	14,981	17,681	16,969	16,969	16,969
Enterprise value (CNYm)	15,964	16,958	20,968	20,440	18,730	17,636

Valuation Metrics

P/E (DB) (x)	62.3	27.5	16.0	13.1	11.3	10.4
P/E (Reported) (x)	54.1	21.6	18.3	13.1	11.3	10.4
P/BV (x)	8.13	2.87	4.83	3.14	2.27	1.96
FCF Yield (%)	nm	nm	nm	3.5	5.3	8.4
Dividend Yield (%)	0.5	0.6	1.7	2.3	2.7	2.9
EV/Sales (x)	8.4	4.9	3.7	2.7	2.1	1.8
EV/EBITDA (x)	35.9	18.3	14.5	9.8	7.7	6.7
EV/EBIT (x)	44.2	21.6	16.8	11.7	9.2	8.0

Income Statement (CNYm)

Sales revenue	1,905	3,439	5,647	7,450	9,065	9,879
Gross profit	553	992	1,861	2,344	2,774	3,021
EBITDA	445	929	1,444	2,079	2,445	2,650
Depreciation	84	145	193	328	416	450
Amortisation	0	0	0	0	0	0
EBIT	361	783	1,251	1,751	2,028	2,200
Net interest income(expense)	-33	-29	-100	-153	-167	-177
Associates/affiliates	-4	10	16	32	54	54
Exceptionals/extraordinaries	0	0	0	0	0	0
Other pre-tax income/(expense)	0	0	0	0	0	0
Profit before tax	324	755	1,151	1,598	1,862	2,023
Income tax expense	18	72	200	228	287	312
Minorities	0	0	-1	0	1	1
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	307	692	967	1,401	1,628	1,765
DB adjustments (including dilution)	-41	-148	139	0	0	0
DB Net profit	266	544	1,106	1,401	1,628	1,765

Cash Flow (CNYm)

Cash flow from operations	208	149	-277	1,450	1,469	1,795
Net Capex	-696	-1,171	-1,538	-800	-500	-250
Free cash flow	-489	-1,022	-1,815	651	969	1,545
Equity raised/(bought back)	64	0	0	0	0	0
Dividends paid	-35	-88	-274	-274	-420	-488
Net inc/(dec) in borrowings	-403	867	1,206	497	213	204
Other investing/financing cash flows	2,183	-2,588	674	-123	-120	-102
Net cash flow	1,320	-2,831	-209	750	642	1,158
Change in working capital	87	556	1,784	428	752	545

Balance Sheet (CNYm)

Cash and other liquid assets	1,693	1,184	923	1,491	2,274	3,686
Tangible fixed assets	1,405	2,362	3,845	4,316	4,400	4,200
Goodwill/intangible assets	55	61	120	120	120	120
Associates/investments	16	595	631	633	635	637
Other assets	1,616	4,275	4,717	5,982	7,116	7,677
Total assets	4,786	8,478	10,235	12,542	14,545	16,321
Interest bearing debt	1,093	3,752	4,811	5,565	4,640	4,960
Other liabilities	585	991	974	1,398	1,750	1,928
Total liabilities	1,678	4,743	5,785	6,963	6,389	6,887
Shareholders' equity	3,105	3,731	4,421	5,548	8,125	9,401
Minorities	3	4	29	30	30	31
Total shareholders' equity	3,108	3,735	4,450	5,578	8,155	9,432
Net debt	-601	2,568	3,888	4,074	2,365	1,273

Key Company Metrics

Sales growth (%)	60.8	80.6	64.2	31.9	21.7	9.0
DB EPS growth (%)	79.8	60.2	103.1	26.8	16.2	8.4
EBITDA Margin (%)	23.4	27.0	25.6	27.9	27.0	26.8
EBIT Margin (%)	19.0	22.8	22.1	23.5	22.4	22.3
Payout ratio (%)	27.6	13.7	30.7	30.0	30.0	30.0
ROE (%)	16.9	20.3	23.7	28.1	23.8	20.1
Capex/sales (%)	37.4	34.1	27.2	10.7	5.5	2.5
Capex/depreciation (x)	8.5	8.1	8.0	2.4	1.2	0.6
Net debt/equity (%)	-19.3	68.8	87.4	73.0	29.0	13.5
Net interest cover (x)	10.9	27.3	12.5	11.4	12.2	12.5

Source: Company data, Deutsche Bank estimates

Appendix A: Other China wind power plays

China Wind Power (0182 HK, non-rated)

Company background

China Windpower Group (CWP) is a vertically-integrated wind power company listed on the Hong Kong Stock Exchange. The company's main businesses include wind farm investment, design, construction, operation and maintenance and wind power equipment manufacturing, including wind turbine tower tube and gearbox components manufacturing. It has also set up regional management organizations in Beijing, Liaoning, Jilin, Inner Mongolia, Gansu, Hebei and Nanjing. The chairman of the company, Mr. Johnson Ko, is one of the largest shareholders with a 27.5% stake.

9,510MW of wind capacity in its pipeline

As of end 2009, China Windpower Group has invested a total of 914MW of total wind capacity, of which 566MW are in operation. The company has plans to develop its wind power business and has secured 9,510MW of wind capacity in its pipeline that are located mainly in Inner Mongolia, Liaoning and Jilin Province. In 2010, the group will start construction on 700MW of wind projects, with 500MW or more of wind projects expected to commence operation in 2010. The Group is also exploring development opportunities in the off-shore wind power sector and wind-solar hybrid power generation.

Wind power services still the company's key business

To date, the company's wind power services remain as the company's key business as it only has a minority stake in most of its wind farms. In 2009, the revenue breakdown was 48% Tower Tube manufacturing, 40% Engineering and Construction, 9% Consultancy and Design and 3% Operation and Maintenance. Going forward, the company has said the revenue mix is likely to change with increasing revenue contribution from its wind business as the company has a visible capacity growth plan supported by a pipeline capacity that is 10x its current total invested capacity.

China Power New Energy (0735 HK, non-rated)

Company background

China Power New Energy (CPNE) is principally involved in the development, construction, operation and management of clean energy plants in China, including wind, hydro, waste-to-energy, natural gas and oil generation plants. At end-2009, the group's total installed capacity was 1,056MW and its capacity mix was 150MW wind, 459MW hydro, 360MW gas and 87MW others. Its power generation plants are mainly located in Guangdong, Fujian and Gansu. China Power Investment Corporation is the company's largest shareholder with a 28% stake and is one of the largest IPPs in China.

Large scale investments in wind power, with 2GW target by 2011

The group's development strategy is to significantly increase its wind farm investment while selectively investing in waste-to-energy, natural gas and small- to medium-hydro plants. At the same time, the group will start exploring opportunities in solar, tidal and other renewable energy business. The group targets doubling its total installed capacity to 2GW by 2011, driven mainly by additions in wind projects in Heilongjiang and Gansu regions.

Gas-fired power generation accounts for 65% operating income in FY09

While the company has aggressive capacity expansion plans in its wind business, its gas-fired power generation business will remain as the company's key business in the short term. In FY09, gas-fired power generation contributed to 65% of operating income while wind power contributed to only 8% of its business. Its hydro power generation business suffered a dry waterflow in 2009.

China Energinet (1185 HK, non-rated)**Company background**

China Energinet is a non-wholly-owned subsidiary of China Academy of Launch Vehicle Technology (CALT) and was listed on the Hong Kong exchange in 1997. After CALT reorganized China Energinet into a new energy company in 2007, the company has diversified into wind power, energy and environmental conservation. Within its wind power segment, the company designs, manufactures and distributes wind turbine, as well as conducts wind farm investment. The company also has the production capability and technology to support generators, blades, control system and other core components in wind turbine assembling.

Vertically integrated along the wind power value chain

The company's turbine portfolio consists of 900KW direct-drive, 1.5MW variable-speed constant-frequency, and 2MW permanent-magnet direct-drive. Currently, the company has annual production capacity of 400, 400, and 200 for 900KW, 1.5MW, and 2.0MW, respectively. In the wind farm segment, China Energinet has established JVs with the five major IPPs to invest in and build up wind farms. The company currently has a total installed capacity of 430MW. Management intends to build 500MW wind farms by 2010, 1GW wind farms by 2015 and 2GW wind farms by 2020. The company, through its R&D centre, is progressing towards 3-5MW permanent-magnet direct-drive turbine.

A new direct-driven turbine maker

In 2009, wind turbine sales recorded revenue of HK\$354m, or 53.4% of total revenue. On 13 July 2010, the company successfully launched the 2MW direct drive turbine, which was self developed with intellectual property of CASC (China Aerospace Science and Technology Corporation), the parentco of the company.

Xiangtan Electric (600416 SS, non-rated)**Company background**

Xiangtan Electric was primarily engaged in the manufacturing of AC/DC motor and generator before entering the wind turbine business in 2006. The company's two main products are the 1.5MW double-fed and the 2.0MW direct-drive. The company has adopted a more vertically-integrated model with in-house supplies of key components. It has self-produced control systems since 2007. Recently, Xiangtan announced the in-house production of wind converter with propriety technology. Through a JV with Timken, the third largest bearing company in the world, it enters into the wind bearings area.

More advanced multi-MW to form broad product scope

Beyond current 1.5/2.0MW, Xiangtan is progressing towards 2.5/3.5MW with sample products to be launched in September 2010 and year-end respectively. Furthermore, the acquisition of Darwind in 2009 accelerated the company's R&D in 5.0MW. Management expects to complete the 5.0MW prototype by the end of 2011 and plans to step up efforts in preparation for the coming boost in offshore wind project development. Since there are no export constraints for 5.0MW turbine, Xiangtan plans to target overseas market development.

Financial guidance for FY10

Xiangtan Electric recorded wind turbine sales of RMB2.8bn or 56% of total revenue in 2009, a four-fold increase from 2008 (market share in 2009 was 4.0%). New orders and order backlog in 2009 are 400 units and 500 units, respectively. The company guided revenue of RMB7.7bn and earnings of RMB172m for FY10.

Huayi Electric (600290 SS, non-rated)**Company background**

Huayi Electric entered into the wind turbine manufacturing in 2005, through a JV with Goldwind. Its main product is the 1.5MW doubly-fed turbine with an annual capacity of 300 units. The company leverages on potential wind resources to boost its turbine sales. Through signing MoUs with local governments, Huayi Electric has acquired the development rights of over 2,500MW wind resources, which is five times the current production capacity.

Wind turbine capacity expansion plan

In addition to the manufacturing base in Zhejiang province, two new bases in Shanghai and Jilin should be completed in 2011 and will increase annual production capacity to 600 units. Management expects sales of wind equipment to increase from 42% of total revenue in 2009 to 65% in 2011 with 1.5MW representing approximately 90% of wind equipment sales. With a non-public issue of RMB1.1bn in February 2010, Huayi accelerated its R&D on advanced multi-MW of 2.5/3.0MW turbines and expects samples to be delivered by the end of 2010.

1H10 guidance; overseas market penetration

In an earnings preview announcement, the company said that it expects earnings growth of 40-60% yoy for 1H10 due to a surge in wind power equipment sales. To date, Huayi has exported wind turbines to Russia, South America, and Southeast Asia and intends to further explore the international market.

Equity Research		Y/E 31 Dec*	2007	2008	2009
China		SUMMARY			
Utilities		Reported EPS (HK\$)	0.03	0.02	0.03
		P/E ratio (Reported) (x)	23.0	16.8	29.0
		Reported EPS growth (%)		-30.0	30.5
		DB EPS	0.03	0.02	0.03
		DB P/E ratio (x)	23.0	16.8	29.0
		Free CFPS	-0.07	0.07	0.02
		DPS	0.00	0.00	0.00
		Dividend yield (%)	0.0	0.0	0.0
		BV/Share	0.43	0.40	0.45
		Price/BV (x)	1.1	0.8	2.0
		Weighted average shares (m)	3,447	5,770	6,842
		PROFIT & LOSS (HK\$ m)			
		Sales revenue	216	379	563
		Operating EBITDA	112	132	201
		Depreciation	1	4	5
		Amortisation	0	0	0
		Operating EBIT	111	128	196
		Net interest income (expense)	-5	-6	-2
		Associates/affiliates	0	0	0
		Investment and other income/expense	0	0	0
		Exceptionals	3	-2	-1
		Income tax expense	0	4	13
		Minorities/preference dividends	8	-1	0
		Net income	100	117	181
		CASH FLOW			
		Cash flow from operations	-240	431	239
		Capex	-13	-42	-84
		Free cash flow	-253	389	155
		Equity raised/(bought back)	924	0	580
		Dividends paid	0	0	0
		Net inc/(dec) in borrowings	-67	1	34
		Other financing/investing cashflows	-298	9	-406
		Net cash flow	306	399	364
		BALANCE SHEET			
		Cash and other liquid assets	336	745	1,110
		Tangible fixed assets	13	48	123
		Goodwill/intangible assets	903	1,219	1,221
		Associates/investments	497	421	835
		Other assets	447	212	217
		Total assets	2,196	2,645	3,506
		Interest bearing debt	7	0	34
		Other liabilities	241	160	204
		Total liabilities	248	160	238
		Shareholders' equity	1,937	2,471	3,268
		Minorities	11	14	0
		Total shareholders' equity	1,948	2,485	3,268
		Net debt/(cash)	-329	-745	-1,075
		RATIO ANALYSIS			
		Sales growth (%)		75.4	48.3
		Op. EBITDA/sales (%)	51.6	34.8	35.7
		Op. EBIT/sales (%)	51.2	33.6	34.9
		Payout ratio (%)	0.0	0.0	0.0
		ROE (%)		5.3	6.3
		Capex/sales (%)	6.2	11.0	14.8
		Capex/depreciation (x)	15.4	9.4	17.6
		Net debt/equity (%)	-16.9	-30.0	-32.9
		Net interest cover (x)	21.0	23.2	113.4
		Performance (%)			
		1m	3m	12m	
		Company XXX	11.9	-17.6	-16.7
		HSCEI	2.9	-9.9	10.4
		52-week High/Low:			
		HK\$0.63 - HK\$1.02			
		Market Cap (m)			
		HK\$ 5,315			
		US\$ 683.9			
		* Y/E 3/31/08, Y/E 3/31/09, 9 mths end 12/31/09			
		Source: Company data, DB estimates			

Equity Research				Y/E 31 Dec*				2007	2008	2009		
China				SUMMARY								
Utilities				Reported EPS (HK\$)						0.00	0.00	0.02
				P/E ratio (Reported) (x)						815.8	364.3	21.4
				Reported EPS growth (%)							23.1	1,256.3
				DB EPS						0.00	0.00	0.02
				DB P/E ratio (x)						815.8	364.3	21.4
				Free CFPS						0.01	-0.02	-0.03
				DPS						0.00	0.00	0.00
				Dividend yield (%)						0.0	0.0	0.0
				BV/Share						0.63	0.65	0.67
				Price/BV (x)						1.5	0.4	0.8
				Weighted average shares (m)						5,187	7,038	7,020
				PROFIT & LOSS (HK\$ m)								
				Sales revenue						960	1,260	1,580
				Operating EBITDA						222	251	513
				Depreciation						82	120	183
				Amortisation						0	0	0
				Operating EBIT						140	130	330
				Net interest income (expense)						-67	-73	-90
				Associates/affiliates						0	-2	0
				Investment and other income/expense						0	0	0
				Exceptionals						0	0	0
				Income tax expense						31	13	23
				Minorities/preference dividends						36	32	64
				Net income						7	11	153
				CASH FLOW								
				Cash flow from operations						193	355	322
				Capex						-121	-529	-515
				Free cash flow						72	-174	-194
				Equity raised/(bought back)						1,612	-13	0
				Dividends paid						0	0	0
				Net inc/(dec) in borrowings						-420	-22	442
				Other financing/investing cashflows						-525	-329	-189
				Net cash flow						739	-537	59
				BALANCE SHEET								
				Cash and other liquid assets						989	482	540
				Tangible fixed assets						3,230	3,688	4,368
				Goodwill/intangible assets						1,105	1,193	1,192
				Associates/investments						155	219	289
				Other assets						1,542	1,404	1,557
				Total assets						7,020	6,985	7,946
				Interest bearing debt						1,078	1,079	2,120
				Other liabilities						1,330	1,120	767
				Total liabilities						2,409	2,199	2,887
				Shareholders' equity						4,432	4,564	4,716
				Minorities						179	222	343
				Total shareholders' equity						4,612	4,786	5,060
				Net debt/(cash)						89	597	1,579
				RATIO ANALYSIS								
				Sales growth (%)							31.3	25.4
				Op. EBITDA/sales (%)						23.1	19.9	32.5
				Op. EBIT/sales (%)						14.6	10.4	20.9
				Payout ratio (%)						0.0	0.0	0.0
				ROE (%)							0.2	3.3
				Capex/sales (%)						12.6	42.0	32.6
				Capex/depreciation (x)						1.5	4.4	2.8
				Net debt/equity (%)						1.9	12.5	31.2
				Net interest cover (x)						2.1	1.8	3.7
				Performance (%)								
				1m	3m	12m						
				CPNE	1.4	-13.8	31.6					
				HSCEI	2.9	-9.9	10.4					
				52-week High/Low:	HK\$0.38 - HK\$0.94							
				Market Cap (m)	HK\$ 5,412							
					US\$ 696							
* Y/E 4/30/08; 8 mths ended 12/31/08; Y/E 12/31/09												
Source: Company data, DB estimates												

Equity Research				Y/E 31 Dec	2007	2008	2009			
China				SUMMARY						
Utilities				Reported EPS (HK\$)	-0.37	-0.14	0.02			
<div>China Engergine</div> <div>Reuters Code1185.HK</div> <div>Not rated</div> <div>Price as at Jul 13, 2010HK\$0.79</div> <div>Company Website http://www.energine.hk/</div>				P/E ratio (Reported) (x)	nm	nm	32.1			
				Reported EPS growth (%)		-62.2	-113.5			
				DB EPS	-0.37	-0.14	0.02			
				DB P/E ratio (x)	nm	nm	32.1			
				Free CFPS	-0.02	-0.05	-0.05			
				DPS	0.00	0.00	0.00			
				Dividend yield (%)	0.0	0.0	0.0			
				BV/Share	0.43	0.33	0.39			
				Price/BV (x)	0.7	0.9	2.8			
				Weighted average shares (m)	1,572	3,624	3,661			
				PROFIT & LOSS (HK\$ m)						
				Sales revenue				179	184	663
Operating EBITDA				-98	-67	-12				
Depreciation				7	10	28				
Amortisation				5	5	0				
Operating EBIT				-109	-82	-40				
Net interest income (expense)				-17	-34	-53				
Associates/affiliates				25	72	100				
Investment and other income/expense				5	-20	3				
Exceptionals				-475	-424	67				
Income tax expense				2	7	7				
Minorities/preference dividends				2	4	3				
Net income				-574	-500	68				
CASH FLOW										
Cash flow from operations				-30	-111	-116				
Capex				-3	-68	-74				
Free cash flow				-33	-179	-190				
Equity raised/(bought back)				142	0	276				
Dividends paid				0	0	0				
Net inc/(dec) in borrowings				305	53	516				
Other financing/investing cashflows				-324	152	-170				
Net cash flow				91	26	431				
BALANCE SHEET										
Cash and other liquid assets				175	212	644				
Tangible fixed assets				31	309	389				
Goodwill/intangible assets				5	9	9				
Associates/investments				1,413	1,162	1,281				
Other assets				591	474	806				
Total assets				2,215	2,166	3,129				
Interest bearing debt				583	762	1,277				
Other liabilities				60	128	207				
Total liabilities				643	890	1,484				
Shareholders' equity				1,568	1,199	1,533				
Minorities				4	77	112				
Total shareholders' equity				1,572	1,276	1,645				
Net debt/(cash)				408	549	634				
RATIO ANALYSIS										
Sales growth (%)					3.0	260.1				
Op. EBITDA/sales (%)				-54.6	-36.5	-1.7				
Op. EBIT/sales (%)				-61.0	-44.4	-6.0				
Payout ratio (%)				0.0	0.0	0.0				
ROE (%)					-36.1	5.0				
Capex/sales (%)				1.7	36.7	11.2				
Capex/depreciation (x)				0.5	7.0	2.6				
Net debt/equity (%)				26.0	43.0	38.5				
Net interest cover (x)				-6.6	-2.4	-0.7				
Performance (%)				1m	3m	12m				
China Engergine				6.7	-16.7	63.3				
HSCEI				2.9	-9.9	10.4				
52-week High/Low:				HK\$0.50 - HK\$1.38						
Market Cap (m)				HK\$ 3,096						
				US\$ 398.3						
Source: Company data, DB estimates										

Equity Research		Y/E 31 Dec	2007	2008	2009
China		SUMMARY			
Utilities		Reported EPS (RMB)	0.31	0.25	0.56
		P/E ratio (Reported) (x)	65.9	57.6	33.2
		Reported EPS growth (%)		-19.4	124.0
		DB EPS	0.31	0.25	0.56
		DB P/E ratio (x)	65.9	57.6	33.2
		Free CFPS	-2.09	-0.95	-0.50
		DPS	0.08	0.10	0.15
		Dividend yield (%)	0.4	0.7	0.8
		BV/Share	4.83	5.07	5.57
		Price/BV (x)	1.5	1.4	4.3
		Weighted average shares (m)	235	235	235
		PROFIT & LOSS (RMB m)			
		Sales revenue	2,655	3,342	5,117
		Operating EBITDA	181	104	335
		Depreciation	42	48	69
		Amortisation	6	12	10
		Operating EBIT	133	44	256
		Net interest income (expense)	-39	-64	-67
		Associates/affiliates	-15	1	8
		Investment and other income/expense	41	116	8
		Exceptionals	0	0	0
		Income tax expense	43	29	31
		Minorities/preference dividends	5	9	42
		Net income	73	59	132
		CASH FLOW			
		Cash flow from operations	-183	84	181
		Capex	-308	-308	-299
		Free cash flow	-491	-223	-118
		Equity raised/(bought back)	0	0	0
		Dividends paid	-99	-96	-49
		Net inc/(dec) in borrowings	290	190	429
		Other financing/investing cashflows	109	300	400
		Net cash flow	-191	170	661
		BALANCE SHEET			
		Cash and other liquid assets	227	397	1,058
		Tangible fixed assets	465	898	1,037
		Goodwill/intangible assets	215	135	130
		Associates/investments	225	92	117
		Other assets	2,531	3,509	4,481
		Total assets	3,662	5,032	6,823
		Interest bearing debt	869	1,069	1,801
		Other liabilities	1,602	2,539	3,140
		Total liabilities	2,471	3,608	4,941
		Shareholders' equity	1,134	1,192	1,308
		Minorities	57	232	574
		Total shareholders' equity	1,191	1,424	1,882
		Net debt/(cash)	642	672	743
		RATIO ANALYSIS			
		Sales growth (%)		25.8	53.1
		Op. EBITDA/sales (%)	6.8	3.1	6.5
		Op. EBIT/sales (%)	5.0	1.3	5.0
		Payout ratio (%)	25.8	40.0	26.8
		ROE (%)		5.1	10.6
		Capex/sales (%)	11.6	9.2	5.9
		Capex/depreciation (x)	7.3	6.5	4.3
		Net debt/equity (%)	53.9	47.2	39.5
		Net interest cover (x)	3.4	0.7	3.8
Xiangtan Electric Reuters Code 600416.CH Not rated Price as at Jul 13, 2010 RMB 22.9 Company Website http://www.xemc.com.cn/					
Research Team Michael Tong, CFA +852 2203 6167 michael.tong@db.com					
Performance (%) 1m 3m 12m Xiangtan Electric -17.3 -5.8 4.4 CHSCOMP -4.4 -21.4 -20.9					
52-week High/Low: RMB 17.78 - RMB 28.29 Market Cap (m) RMB 5,318 US\$ 784.8					
Source: Company data, DB estimates					

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The author of this report wishes to acknowledge the contribution made by Anne Zhang, employee of Accenture, a third-party provider to Deutsche Bank of offshore research support services.

Appendix 1

Important Disclosures

Additional information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
Longyuan Power	0916.HK	7.10 (HKD) 19 Jul 10	NA
Goldwind Sci & Tech	002202.SZ	16.34 (CNY) 19 Jul 10	8
China High Speed Trans	0658.HK	15.64 (HKD) 19 Jul 10	NA

*Prices are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is sourced from Deutsche Bank and subject companies.

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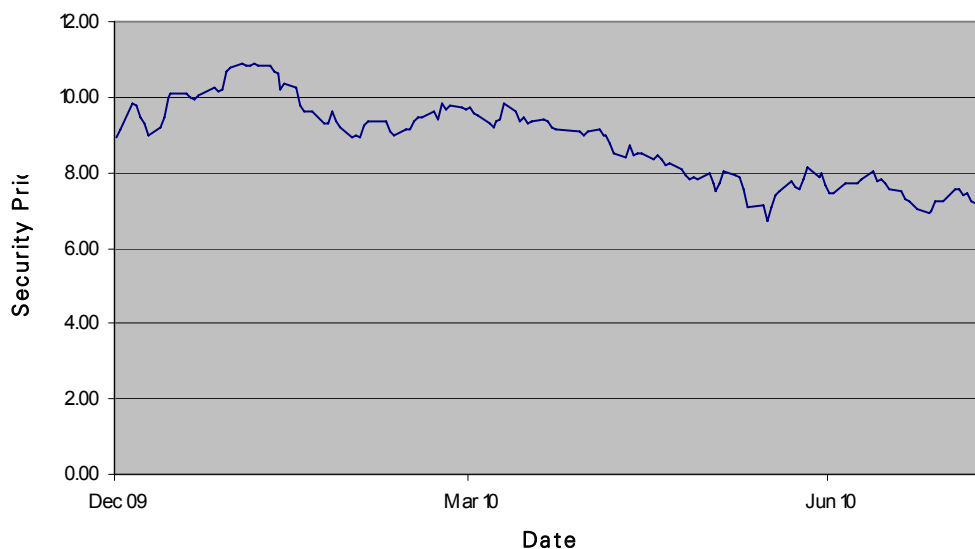
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Historical recommendations and target price: Longyuan Power (0916.HK)

(as of 7/19/2010)

Previous Recommendations

Strong Buy
Buy
Market Perform
Underperform
Not Rated
Suspended Rating

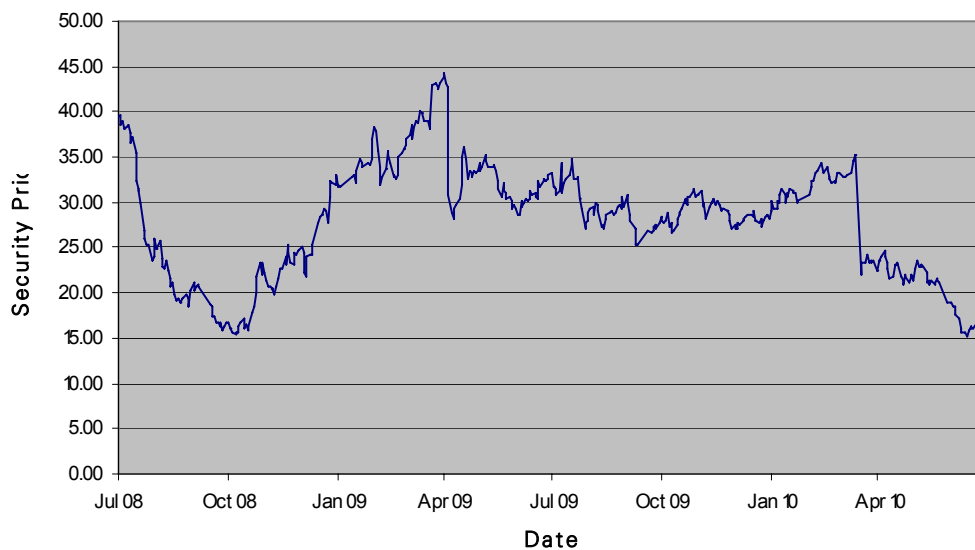
Current Recommendations

Buy
Hold
Sell
Not Rated
Suspended Rating

*New Recommendation Structure
as of September 9, 2002

Historical recommendations and target price: Goldwind Sci & Tech (002202.SZ)

(as of 7/19/2010)

Previous Recommendations

Strong Buy
Buy
Market Perform
Underperform
Not Rated
Suspended Rating

Current Recommendations

Buy
Hold
Sell
Not Rated
Suspended Rating

*New Recommendation Structure
as of September 9, 2002

Historical recommendations and target price: China High Speed Trans (0658.HK)

(as of 7/19/2010)



Previous Recommendations

Strong Buy
Buy
Market Perform
Underperform
Not Rated
Suspended Rating

Current Recommendations

Buy
Hold
Sell
Not Rated
Suspended Rating

*New Recommendation Structure
as of September 9, 2002

1. 19/9/2008:	Buy, Target Price Change HKD20.10	4. 28/9/2009:	Buy, Target Price Change HKD19.60
2. 21/4/2009:	Buy, Target Price Change HKD18.20	5. 19/4/2010:	Buy, Target Price Change HKD21.50
3. 4/9/2009:	Buy, Target Price Change HKD19.90		

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Equity rating dispersion and banking relationships

Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus projected dividend yield) , we recommend that investors buy the stock.

Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock

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Notes:

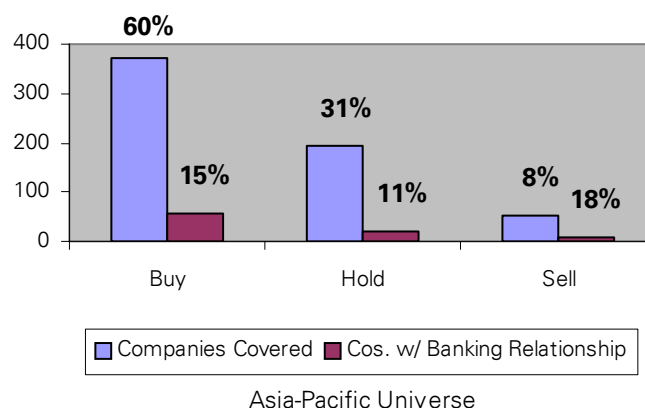
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Buy: Expected total return (including dividends) of 10% or more over a 12-month period

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