



Huaneng Renewables (958) - BUY

Huaneng Renewables (“the group”) is the third largest wind farm operator in the PRC in terms of installed capacity. Its strategic locations of its wind farms allow the group to achieve a higher profitability than peers. We forecast the group’s revenue and net profit to grow at CAGR of 31.1% and 31.7%, respectively, from FY11 to FY13.

Higher-than-peer on-grid tariff - The group achieves a relatively high weighted average on-grid tariff through strategic site selection of wind farms in high-tariffs areas, especially regions with local government support, such as Shandong. Looking forward, the group will focus to develop wind power projects in four provinces, namely Yunnan, Guangdong, Shanxi and Guizhou, for higher tariffs and utilization hours. These 4 provinces are all categorized in the highest standardized on-grid tariff zone, i.e. 0.61/kwh with no wind curtailment issues.

Strong capacity growth – We expect consolidated installed capacity of the group will increase by 1,000MW in FY12, representing a growth of 20.4% YoY. Given that there are 1,145MW of projects under construction and each project takes around 8-12 months to complete, we believe the 1,000MW of newly installed capacity is reasonably achievable. With estimated utilization hours of 2,050 in FY12, we estimate that gross power generation of the group to reach 9,653GWh, up 41.0% YoY.

Additional income from increasing registered CDM projects – The group registered their first CDM project with CDM EB in Aug 2006. By the end of FY11, 51 projects with a capacity of 3,300MW were successfully registered with the CDM EB, 26 of which were newly registered during FY11. The accumulative CERs of 1,881,950 tons were issued to the group, 1,225,054 tons of which were issued during FY11. The group is expected to register 39 new projects with a capacity of 2,000MW in FY12.

Valuation

In view of market valuation of comparable peers and the expected earnings growth of the group, we value the share at HK\$1.65, which represents 8.0x of our est. FY12 EPS.

Share Data

Price (29/05/2012)	HK\$1.40
12 mth target price	HK\$1.65
52 wk high/low (HK\$)	2.54/1.30
Stock code	958
Issued shares (mn)	8,446.9
H-shares	2,911.6
Domestic shares	5,535.3
H-share Market cap (HK\$ mn)	4,076.22
H-share free-float	70.40%
15-day avg vol (mn)	1.866
Auditors	KPMG

ABCI Securities Company Limited and/or its associates will seek to do business with Huaneng Renewables Corporation Limited. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Investors should obtain relevant and specific professional advice appropriate to his/her/its personal circumstances and investment objectives before making any investment decision. Investor should also carefully consider relevant risk factors. If an investor has any questions about anything contained in this research report please consult ABCI Securities Company Limited or his/her/its professional advisors.

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Financial Summary

FY ended Dec 31	2009	2010	2011	2012F	2013F
Revenue (Rmb mn)	918.5	1,768.5	3,195.9	4,422.2	5,491.6
Change (YoY)		92.6%	80.7%	38.4%	24.2%
Net profit (Rmb mn)	264.4	528.3	1,023.0	1,412.5	1,774.6
Change (YoY)		99.8%	93.7%	38.1%	25.6%
FD EPS (Rmb)	0.0456	0.0911	0.1211	0.1672	0.2101
Change (YoY)		99.8%	32.9%	38.1%	25.6%
PER (x)	-	-	9.39	6.80	5.41
NBV (Rmb/share)	0.4454	0.9110	1.3415	1.4713	1.6563
PB (x)	-	-	0.85	0.77	0.69
DPS (Rmb) (post-listing)	-	-	-	0.0251	0.0315
Dividend yield	-	-	-	1.79%	2.25%
ROAA	-	1.84%	2.06%	2.41%	2.58%
ROAE	-	12.42%	13.43%	12.31%	11.89%

@(HK\$0.8121/Rmb) Source: Huaneng Renewables (historical figures only), F: ABCI Securities estimates



農銀國際

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Huaneng Renewables Corporation Limited

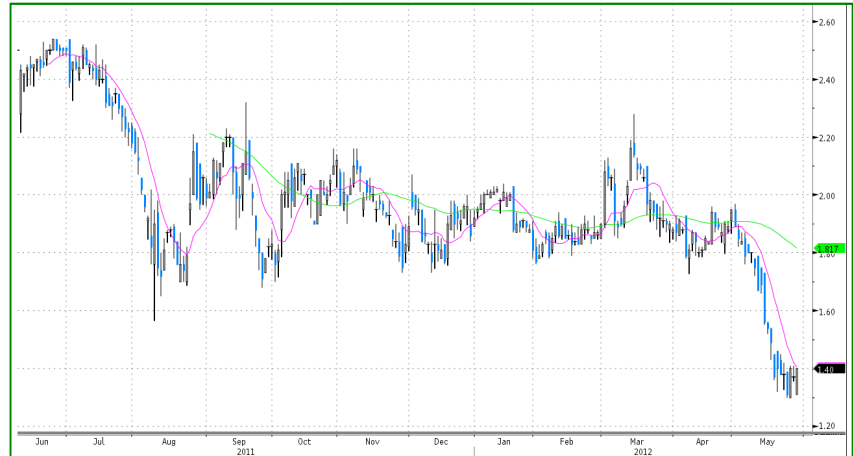
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Company description

Share price graph



The group is a pure China renewable energy play listed in HK with a primary focus on wind power generation. In terms of installed capacity, it is the third largest wind farm operator in China. The group went listed in HKEX in Jun 11, after China Longyuan Power Group Corporation Ltd (916) (“Longyuan”) and China Datang Corporation Renewable Power Co Ltd (1798) (“Datang Renewable”), the largest and second largest wind farm operators in China went listed in Dec 09 and Dec 10 respectively.

The group is a subsidiary of Huaneng Group, the largest power generation group in China in terms of installed capacity. It is Huaneng Group’s sole renewable energy platform for the consolidation of its renewable energy business.

Major shareholders

Huaneng Group, which owns 5,535.3 mn domestic shares (i.e. unlisted issued shares) or 65.3% of the total issued share capital of the group, is the largest shareholder of the group. The issued H-shares are listed in HK.

Major H-share shareholders:	% of issued H-shares	Cost (HK\$/share)
Social Security Fund	8.54%	2.50
China Life Insurance	6.60%	2.47
China Investment Corp	7.02%	-
Standard Chartered	6.00%	2.50
Temasek Holdings	5.34%	2.50
State Grid Int	5.34%	2.50
Govt of Singapore Investment Corp	5.03%	1.87

Source: HKEX



Investment Themes

Strategic locations of wind farms for high average on-grid tariffs and utilization hours

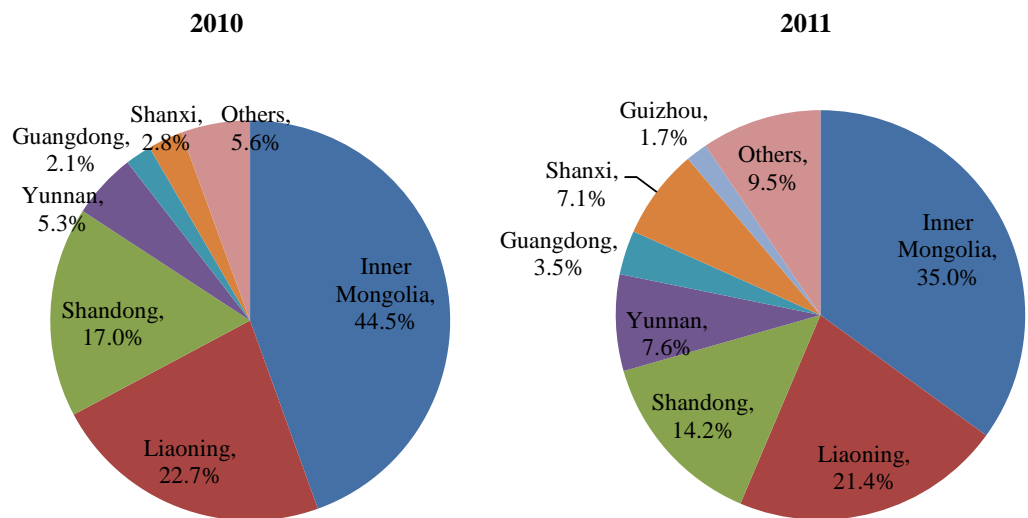
As fixed asset cost of equipment (i.e. wind power generators) with the same specifications is almost identical, higher tariff rate and higher utilization hours are crucial to optimize ROAA. Hence, locations of wind farms with high on-grid tariffs and utilization hours are the key to achieve higher operational efficiency.

A unified on-grid tariff is applied to wind projects approved on or after 1 Aug 09 in China and the tariff scheme is categorized into 4 levels based on wind resources of the locations. The standard on-grid tariffs (incl VAT) for the first, second, third and fourth wind resource zones are Rmb0.51/kwh, Rmb0.54/kwh, Rmb0.58/kwh and Rmb0.61/kwh respectively.

The group achieves a relatively high weighted average on-grid tariff through strategic site selection of wind farms in high-tariffs areas, especially regions with local government support, such as Shandong.

In order to encourage the development of wind power, the provincial government of Shandong has granted all the wind power generation companies within the province a supplementary on-grid tariff of Rmb0.09/kwh, for an initial period from 2010 to 2012, on top of the standard on-grid tariff of Rmb0.61/kwh, adding up the total on-grid tariff to Rmb0.70/kwh. Taking advantage of the preferential policy in Shandong, the group has chosen Shandong as one of its major development area in the East China Region. As of 31 Dec 11, the group's wind installed capacity in Shandong amounted to 697MW, which accounted for 15.3% of the total wind installed capacity in the province and is the largest wind power generation company in the province in terms of installed capacity.

Installed capacity as % of total capacity of the group



Source: Huaneng Renewables



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The weighted average on-grid tariff (incl VAT) of the group was Rmb0.604/kwh and Rmb0.596/kwh in FY10 and FY11 respectively, which was close to the high end range of the standardized tariffs.

Looking forward, the group will focus to develop wind power projects in four provinces, namely Yunnan, Guangdong, Shanxi and Guizhou, for higher tariffs and utilization hours. These 4 provinces are all categorized in the highest standardized on-grid tariff zone, i.e. 0.61/kwh with no wind curtailment issues. In addition, the 4 key provinces have higher GDP growth in 2010 and 2011 than the overall growth rate in China. The higher GDP growth implies a higher electricity demand, and grid companies in these provinces will be less likely to impose dispatch restrictions on wind power plants, leading to higher utilization hours.

Real GDP Annual YoY growth (%)

Provinces	2008	2009	2010	2011
Yunnan	11.0	12.1	12.3	13.7
Guangdong	10.1	9.5	12.2	10.0
Guizhou	10.2	11.2	12.8	15.0
Shanxi	8.3	5.5	13.9	13.0
China	9.6	9.2	10.4	9.2

Weighted average utilization hours in Yunnan, Guangdong and Guizhou which were categorized into the South China region by the group, were higher than the weighted average hours achieved by the group during FY08 to FY11. However, North China Region, for which Shanxi was categorized into, has the lowest utilization hours amongst the 6 regions of the group. Consolidated wind installed capacity of the group in the 4 key provinces amounted to 628MW and accounted for 19.9% of the total installed capacity of the group in FY11. It is expected that the newly installed capacity in the 4 key provinces will account for 80% of the group's newly installed capacity for FY12. The remaining 20% will mostly be located in Shandong and Hebei.



Wt av utilization hours of the group (hours)

Regions	2008	2009	2010	2011
Northeast China Region	2,387	2,536	2,220	1,790
East China Region	2,060	2,126	2,299	2,011
West Inner Mongolia	-	-	2,434	2,117
South China Region	2,741	2,387	2,451	2,571
North China Region	-	1,918	1,891	1,632
Xinjiang	-	-	2,443	3,357
Total	2,380	2,365	2,265	1,962
Industry average	2,046	2,077	2,097	1,903
Chg (YoY)				
Northeast China Region	-	6.2%	-12.4%	-19.4%
East China Region	-	3.2%	8.2%	-12.5%
West Inner Mongolia	-	-	-	-13.0%
South China Region	-	-12.9%	2.7%	4.9%
North China Region	-	-	-1.4%	-13.7%
Xinjiang	-	-	-	37.4%
Total	-	-0.6%	-4.2%	-13.4%
Industry average	-	1.5%	1.0%	-9.3%

Source: Huaneng Renewables, China Electricity Council

Remarks:

Regions	Provinces
Northeast China Region:	Heilongjiang, Jilin, Liaoning, Eastern part of Inner Mongolia
East China Region:	Shandong, Jiangsu, Zhejiang, Shanghai
West Inner Mongolia:	Western part of Inner Mongolia
South China Region:	Guangdong, Yunnan, Guizhou, Guangxi
North China Region:	Hebei, Shanxi, Central part of Inner Mongolia
Xinjiang:	Xinjiang Uyghur Autonomous Region

Although, the group's overall utilization hours was consistently above the industry average, we notice the parameter is on a downtrend. The large drop in utilization hours in 2011 was mainly due to lower wind speed across China and stricter power curtailment measures in certain regions. However, the faster decline of the group's parameter than the industry average is caused by a relatively its high capacity growth in North China Region and North East China region, which have relatively low utilization hours. But as the group shift its focus to the 4 key regions, and with better wind resources this year, we expect average utilization hours of the group will go up to 2,050 in FY12 and 2,100 in FY13.

Strong capacity growth

Based on management guidance, we expect consolidated installed capacity of the group will increase by 1,000MW in FY12, representing a growth of 20.4% YoY. Given that there are 1,145MW of projects under construction and each project takes around 8-12 months to complete, we believe the 1,000MW of newly installed capacity is reasonably achievable. With estimated utilization hours of 2,050 in FY12, we estimate that gross power generation of the group to reach 9,653GWh, up 41.0% YoY. No clear capacity guidance is given for 2013 but given that wind consolidated installed capacity in China is



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expected to grow at a CAGR of 21.8% for 2010-2015, we estimate the consolidated installed capacity to grow by 20.0% YoY to 7,084MW and gross power generation to grow by 24.1% YoY to 11,978GWh in FY13.

By the end of FY11, the group had a portfolio of wind power pipeline projects with a capacity of 83,134.0MW, amongst which agreements newly signed in FY11 on development of wind power reached a total capacity of 10,990.0MW. We believe the large portfolio of wind pipeline provides a solid foundation for the group to sustain growth.

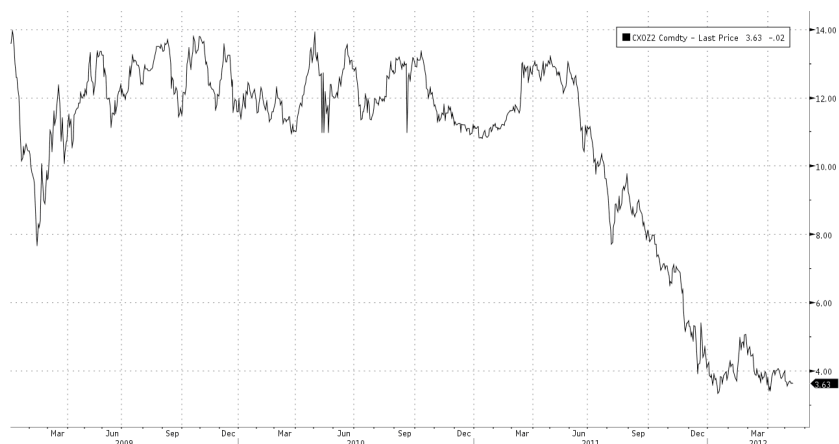
Additional income from CDM

In Dec 11, governments including 35 industrialized nations agreed to extend the Kyoto protocol, which was scheduled to end at the end of 2012, to 2020. The extension allows qualified emission-reduction projects in developing countries to continue to sell CER credits to industrialized countries with a greenhouse gas reduction commitment. This gives an additional income flow to the group without incurring much cost.

The group registered their first CDM project with CDM EB in Aug 06. By the end of 2011, 51 projects with a capacity of 3,300MW were successfully registered with the CDM EB, 26 of which were newly registered during FY11. The accumulative CERs of 1,881,950 tons were issued to the group, 1,225,054 tons of which were issued during FY11. We expect the group to register 39 new projects with a capacity of 2,000MW in FY12.

In FY10 and FY11, sales of CERs contributed Rmb164.8mn and 483.6mn to the group's EBT, which accounted for 25.7% and 42.5% of the group's total EBT respectively. In FY10, the group has secured buyers for 151 CDM projects by entering into CER sales agreements with independent international buyers, including four power companies, a financial institution and 2 professional CDM management companies. However, price of CERs has declined significantly during 2HFY11. CERs stabilized at €10-14 in between 2009-1H2011 but has dropped significantly by 73.3% since Jun 11 to below €4.0 in Apr 12, offsetting the income bring in from increased CERs sold. We expect CER income to reach Rmb310mn and Rmb372mn respectively in FY12 and FY13.

Nasdaq OMX CERs forwards



Source: Bloomberg



Industry Outlook

China wind energy is expected to experience outstanding growth

China has been ranked the largest country in terms of total wind installed capacity since 2010. As of 31 Dec 2011, China total wind installed capacity reached 62 GW (including unconnected capacity) in 2011, compared with 47 GW of the second largest country, USA. It is expected China will continue to be the largest wind power country for next 3 years till 2015. Consolidated capacity will grow at a CAGR of 21.8% for 2010-2015 compared with 19.2% of USA.

Consolidated installed capacity growth of wind power

MW	PRC	India	Rest of Asia	US	Canada
2010	44,733	13,064	3,352	40,181	4,009
2011E	62,733	4,864	4,187	47,181	4,859
2012E	74,733	16,864	5,367	56,181	6,359
2013E	89,733	19,364	6,875	66,181	8,010
2014E	104,733	21,864	8,365	80,406	9,906
2015E	119,733	24,364	9,684	96,569	11,977
10-15E CAGR	21.8%	13.3%	23.6%	19.2%	24.5%
10-13E CAGR	26.1%	14.0%	27.1%	18.1%	26.0%
Huaneng Renewables 10-13CAGR	26.2%				

Source: Garrad Hassan, ABCI Securities estimates

The strong growth of wind industry in China is partly supported by the abundant wind resources in China. According to the Medium and Long-Term Development Plan for Renewable Energy, the technically exploitable wind resources on land amount to 300 GW and total exploitable wind resources could reach 1,000GW including offshore wind resources.

Wind resources in China

Province	Technically exploitable wind resources GW
Inner Mongolia	=150
Xinjiang	>100
Gansu	>100
Hebei	>40
Jiangsu	>10
Jilin	>10

Source: Chinese Renewable Energy Industries Association

Remark: The group has wind farms in Inner Mongolia, Xinjiang and Hebei. In particular, installed capacity in Inner Mongolia and Xinjiang reached 1,716MW and 99MW, which accounted for 35% and 2% of the group's consolidated installed capacity by the end of FY11.

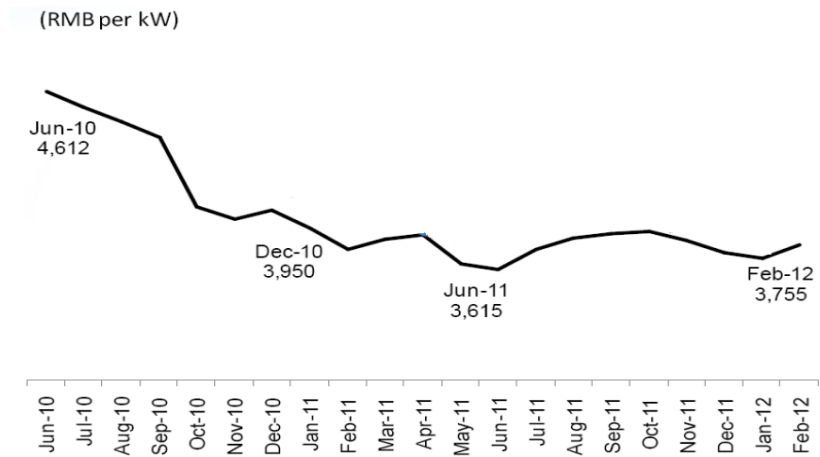


Favorable policies

- **Mandatory Purchase and Dispatch Priority:** The Renewable Energy Law provides that grid companies must purchase the full amount of on-grid electricity generated by approved renewable energy projects within their coverage. And that the Provisional Measures on the Dispatch of Energy Saving Power Generation provides that power producers are entitled to enjoy the highest dispatch priority if they use renewable energy including wind, solar and tidal power.
- **Taxation:** Approved wind projects are fully exempted from enterprise income tax for 3 years starting from the year when operating income is first derived from sales of electricity, followed by 50% exemption from enterprise income tax for another 3 years thereafter.

Wind farm operators benefit from overcapacity in the upstream sector

Due to overcapacity, wind turbines price has been on a downtrend since 2009. In particular, domestic wind turbines price has dropped 18.6% since Jun 10 to Rmb3,755/kw in Feb 12.



Source: Goldwind

The top 5 wind turbine suppliers which accounted for 65.3% of the newly installed production capacity of China in 2011 have an estimated production capacity of 21 GW in 2012. Given that China expected annual newly installed capacity to be 12-15GW during 2012-2015, we estimate that there will be 6-9GW supply surplus. Since the over-supply will remain in coming years, we expect the downtrend of wind turbines price will continue, benefiting the downstream wind farm operators in terms of lower construction costs.



	Newly installed capacity in 2011 (MW)	Market share	Production capacity in 2012 (MW)
Goldwind	3,600	20.4%	4,350
Sinovel	2,939	16.7%	5,430
United Power	2,847	16.1%	4,200
Mingyang	1,178	6.7%	3,447
Dongfang	946	5.4%	3,750
Total	11,510	65.3%	21,177

Source: CWEA, Company data, ABCI Securities estimates

Concerns on grid connection and wind curtailment issues

Due to the rapid development of the installed capacity, the installation of wind capacity has outpaced the development of grid infrastructure, leading to grid connection bottleneck. In 2011, 30% of consolidated installed wind capacity is not connected to grid.

Wind curtailment is also a major concern especially in Northern regions of China where a significant portion of total installed capacity are from wind power. The reason was that grid companies have to give priority to co-generation plants to fulfill heat demand especially in winter, and therefore, even current regulations required grid companies to purchase all electricity from the wind power operators, some of the electricity generated by the wind power operators is not able to dispatch, causing the wind curtailment problem. According to CWEA, wind curtailment rate in Inner Mongolia, Jilin and Gansu reached 23%, 20% and 17% respectively in 2011.

However, China is putting effort in improving grid connection in order to achieve China's renewable energy target of 11.4% by 2015. According to NDRC, China will implement Renewable Portfolio Standards (RPS) in 2012, setting a renewable energy quota for each province's total power consumption, and total power purchased by grid companies from generation companies. In our view, the standard allows regulatory body to impose punishment more easily, and therefore helps forcing the grid companies to comply with the quota system, which will help to alleviate the wind curtailment issues.

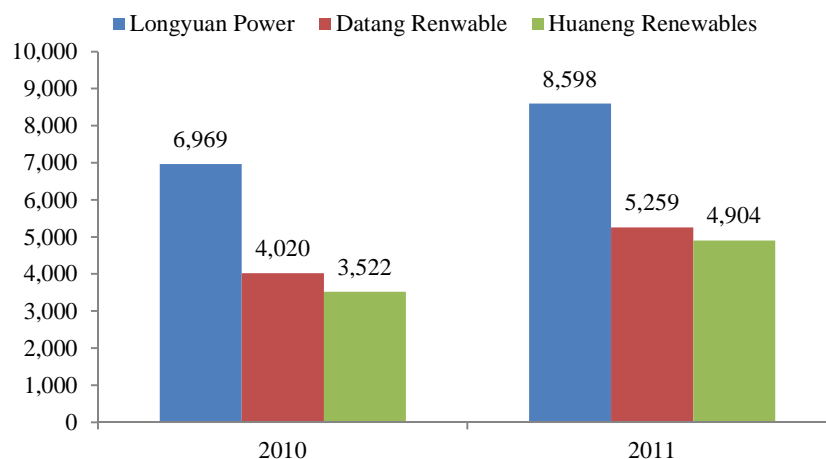
In addition, the State Grid will invest approximately Rmb1,700bn in grid construction and upgrade, of which Rmb500bn will be invested in ultrahigh voltage infrastructure development. In particular, in inter-regional grid construction, a total of 40,000km of Ultra High Voltage Alternating Current (UHVAC) transmission lines are expected to be constructed by 2015.



Competitive Landscape

Wind power market in China is relatively fragmented. In terms of total installed capacity, the top three wind operators in China amounted to 18.7GW, which accounted for a total market share of 30.1% in 2011. In particular, Longyuan, Datang Renewable and the group have a market share of 13.8%, 8.4% and 7.9% respectively in 2011.

Wind installed capacity(MW) of the top 3 wind farm operators in China



Source: Company data

Top 10 wind farm operators in 2010

	Total Wind Installed Capacity (MW)	Market Share
Longyuan Power	6,969	15.6%
Datang Renewable	4,020	9.0%
Huaneng Renewables	3,522	7.9%
China Huadian New Energy	2,557	5.7%
CGN	2,300	5.1%
Shenhua Guohua Energy	2,346	5.2%
China Power Investment	1,708	3.8%
Beijing Energy Inv.	1,170	2.6%
China Resources Power	977	2.2%
Total of top 10	44,733	100.0%

Source: BTM Consult Aps

Geographically, Longyuan has a more diversified wind asset portfolio (Please refer to table on P.13) and Datang Renewable has a high exposure in Inner Mongolia. By the end of 2010, 50% of its total installed capacity is in the particular area. Huaneng renewables also had a high exposure in Inner Mongolia as well as Liaoning, of which installed capacity in the regions accounted for 44.5% and 22.7% of its total installed capacity in 2010. But the ratio has reduced to 35.0% and 21.4% respectively in 2011.



Other from total installed capacity, actual sales of electricity generated by the wind power projects are limited by a number of factors including the maximum transmission capacity, the stability of the grid and local demand for electricity. Power transmission constraints are more obvious in regions such as West Inner Mongolia where rapid construction of wind farms resulting from high quality wind resources in the area outpaced the development of local grid during recent years. Due to higher exposure of Datang Renewable and Huaneng Renewables in Inner Mongolia, they are more prone to power transmission constraint and wind curtailment. These problems are reflected as lower utilization hours. In FY11, the group achieved 1,962 utilization hours compared to 1,951 hours of Datang Renewable and 2,026 hours of Longyuan. But still, the group's utilization hours was above industry average of 1,903 hours. As the group will focus to develop in the 4 key regions that we have mentioned, we expect utilization hours of the group will increase gradually to 2,050 in FY12 and 2,100 in FY13.

It is worth to mention that the subsidiary of China Huadian (1071), China Huadian New Energy Development Co., which is mainly engaged in wind power, hydropower and solar power, might go listed this year. In terms of installed capacity, China Huadian is the fourth largest wind farm operators in China. It will be the fourth subsidiary of the five largest electricity producers that go listed in HK. The new energy subsidiary, namely, Longyuan, Datang Renewable and Huaneng Renewables of the China's largest electricity producers, Guodian, Datang (991) and Huaneng (902), went listed in Dec 09, Dec 10 and Jun 11 respectively.



Consolidated wind capacity and market share of the top 3 wind farm operators in China

MW	China		916		1798		958	
	2010	2011	2010	mkt share 2010	2010	mkt share 2010	2010	mkt share 2010
Inner Mongolia	13,858	17,594	1,437	10.4%	2,017	14.6%	1,568	11.3%
Gansu	4,944	5,409	858	17.4%	394	8.0%		
Hebei	4,794	6,970	623	13.0%	50	1.0%	99	2.1%
Liaoning	4,067	5,249	756	18.6%	129	3.2%	800	19.7%
Jilin	2,941	3,563	349	11.9%	598	20.3%		
Shandong	2,638	4,562			347	13.2%	597	22.6%
Helongjiang	2,370	3,446	903	38.1%	237	10.0%		
Jiangsu	1,595	1,968	482	30.2%				
Xinjiang	1,364	2,316	398	29.2%			99	7.3%
Ningxia	1,183	2,886			50	4.2%		
Shanxi	948	1,881					99	10.4%
Guangdong	889	1,302					74	8.3%
Fujian	834	1,026	312	37.4%				
Yunnan	431	932	99	23.0%	49	11.4%	188	43.7%
Zhejiang	298	367	93	31.2%		0.0%		
Shanghai	269	318			102	37.9%		
Hainan	257	257	99	38.6%				
Shaanxi	177	498						
Beijing	153	155						
Anhui	149	297	149	100.0%				
Henan	121	300			57	47.1%		
Tianjin	103	244						
Hunan	97	185						
Jiangxi	84	134						
Hubei	70	100						
Chongqing	47	47						
Guizhou	42	195						New expansion area for the group
Sichuan	0	16						
Qinghai	11	68						
Guangxi	3	79						
Hong Kong	1	1						
Total	44,733	62,365	6,558		4,030		3,524	

Source: Company data, ABCI Securities

*Areas highlighted in grey represented highest market share (out of Longyuan, Datang Renewable and the group) in the regions.



Business Analysis and Financial Forecast

Our profit forecast are based on the major assumptions we have made on:

- Consolidated installed capacity:** We expect the group to add 1,000MW of new capacity in FY12 based on management guidance, and an addition of 1,180MW in FY13 given that the capacity growth to be in line with the industry growth in China.
- Utilization hours:** Utilization hours of the group dropped 13.4% YoY during FY11, mainly due to low wind speed throughout the year and grid congestion in Inner Mongolia and Liaoning. Although low wind speed phenomenon in China sustained till Mar 12, it started to pick up in Apr as shown in Longyuan's monthly operational data (Gross power generation of Longyuan's wind segment increased by 16.5% MoM in Apr). Provided that all 1,000MW of the new capacity of the group are not located in the grid congestion regions, while wind resources will return to a normal level gradually, we assume utilization rate to increase to 2,050 hours in FY12 and 2,100 in FY 13.
- On-grid tariff:** 64.5% and 57.5% of new capacity were installed in Northeast and North China region in FY10 and FY11 respectively. Since these regions are entitled to relatively low on-grid tariff, weighted average on-grid tariff of the group declined during FY09-FY11. But we expect the on-grid tariff for the group to stabilize as more than 80% of the new capacity will be installed in regions with on-grid tariff of Rmb0.61/kwh in FY12.

Major Assumptions

FY ended Dec 31	2008	2009	2010	2011	2012F	2013F
Consolidated installed capacity (MW)	402	1,550	3,522	4,904	5,904	7,084
<i>YoY growth (%)</i>	-	285.2%	127.3%	39.2%	20.4%	20.0%
Gross power generation (GWh)	478	1,885	3,789	6,844	9,653	11,978
<i>YoY growth (%)</i>	-	294.7%	101.1%	80.6%	41.0%	24.1%
Net power generation (GWh)	427	1,607	3,405	6,206	8,688	10,781
<i>YoY growth (%)</i>	-	275.9%	111.9%	82.3%	40.0%	24.1%
Av utilization hours	2,380	2,365	2,265	1,962	2,050	2,100
<i>YoY growth (%)</i>	-	-0.6%	-4.2%	-13.4%	4.5%	2.4%
Wtg av on-grid tariff (incl VAT) (Rmb/kwh)	0.679	0.617	0.604	0.596	0.596	0.596
Wtg av on-grid tariff (excl VAT) (Rmb/kwh)	0.581	0.527	0.516	0.509	0.509	0.509
<i>YoY growth (%)</i>	-	-9.3%	-2.1%	-1.3%	0.0%	0.0%

F: ABCI Securities estimates

Source: Huaneng Renewables (for historical figures only), ABCI Securities estimates



Earnings Forecast

Based on the assumptions that we made, we estimate EPS to grow 38.1% YoY to Rmb0.1672 in FY12 and 25.6% YoY to Rmb0.2101 in FY13.

CAPEX

Wind farm construction costs of the group was Rmb8,640/kW for FY11, compared to Rmb7,466/kw for Longyuan and Rmb7,730/kW for Datang Renewable. The relatively high construction costs were caused by higher installation costs in high altitude areas such as Yunnan and Guizhou. We expect construction costs will decrease as price of domestic wind turbines, which accounted for 50% of construction cost will continue its downtrend due to oversupply. Nevertheless, as the group will continue to focus in developing the southern regions of China, we expect construction costs will remain at high level of Rmb8,000kW in FY12. Hence, 1,000MW of new capacity in FY12 will translate into Rmb8bn CAPEX. We expect CAPEX to remain at a similar level in FY13 with an estimated 1,180MW of new capacity to be installed.

High gearing

Although net debt to equity ratio dropped from 273% in FY10 to 152% in FY11 after the IPO in Jun 2011, we expect that the ratio will climb up to 176% in FY12 and 187% in FY13 with estimated CAPEX of Rmb8bn each year in FY12 and FY13 respectively.

Dividend policy

No dividend is to be distributed for FY11 but a special distribution of Rmb316.2mn will be made to Huaneng Group in FY12. We assume a 15% payout ratio in FY12 and FY13.



Consolidated Profit Forecast

FY ended Dec 31 (Rmb mn)	2008	2009	2010	2011	2012F	2013F
Revenue	570.3	918.5	1,768.5	3,195.9	4,422.2	5,491.6
Other income	35.6	85.3	249.8	682.5	410.7	472.8
Total income	606.0	1,003.8	2,018.4	3,878.5	4,832.9	5,964.4
Service concession construction costs	(318.1)	(66.6)	0.0	0.0	0.0	0.0
Depreciation & Amortisation	(80.8)	(296.8)	(633.7)	(1,169.3)	(1,543.0)	(1,983.8)
Personnel costs	(25.7)	(45.2)	(79.2)	(118.0)	(141.5)	(175.7)
Repairs and maintenance	(3.8)	(15.2)	(27.7)	(29.9)	(44.2)	(65.9)
Admin	(11.2)	(20.0)	(96.0)	(117.8)	(132.7)	(164.7)
Other operating expenses	(8.0)	(20.5)	(47.3)	(92.1)	(106.1)	(131.8)
EBIT	158.3	539.5	1,134.3	2,351.5	2,865.3	3,442.4
Finance income	9.2	12.2	22.2	47.8	50.0	50.0
Finance expenses	(72.2)	(251.4)	(515.2)	(1,260.1)	(1,366.1)	(1,546.1)
Share of profit of a jointly controlled entity	0.1	3.1	0.0	0.0	0.0	0.0
EBT	95.4	303.5	641.4	1,139.1	1,549.2	1,946.3
Income tax	0.5	(22.2)	(32.0)	(32.3)	(46.5)	(58.4)
Profit from continuing operations	95.9	281.3	609.4	1,106.8	1,502.7	1,887.9
Profit from discontinued operation	11.1	39.4	0.0	0.0	0.0	0.0
MI	53.8	56.2	81.1	83.8	90.2	113.3
Net profit	53.2	264.4	528.3	1,023.0	1,412.5	1,774.6
Adjusted EBIT	122.7	454.2	884.5	1,668.9	2,454.7	2,969.6
Adjusted EBITDA	203.6	751.0	1,518.2	2,838.2	3,997.7	4,953.5
Dividends (post-listing)	-	-	-	-	211.9	266.2
Dividends (pre-listing)	-	-	-	316.2	0.0	0.0
No. of issued shares at end of period (mn)	5,800.0	5,800.0	5,800.0	8,446.9	8,446.9	8,446.9
Domestic shares (mn shares)	-	-	-	2,911.6	2,911.6	2,911.6
H-shares (mn shares)	-	-	-	5,535.3	5,535.3	5,535.3
Per share value (Rmb)						
Pro-forma FD EPS	0.0091	0.0456	0.0911	0.1211	0.1672	0.2101
NBV (Rmb/share)	0.2887	0.4454	0.9110	1.3415	1.4713	1.6563
DPS (post-listing)	-	-	-	-	0.0251	0.0315
Net debt per share	0.8947	1.7356	2.8809	2.1899	2.7736	3.3246

F: ABCI Securities estimates

Source: Huaneng Renewables (for historical figures only), ABCI Securities estimates

There are two major cost items. They are depreciation and amortization which are non-cash cost and the finance costs which are cash costs. Gross finance costs accounted for 25.5% and 32.5% of total income in FY10 and FY11 respectively. Therefore, EBT of the group is very sensitive to interest rate risk (Please also see our sensitivity analysis on P.19). In view of slowing economic growth, we expect the PBOC to loosen the monetary policy in phases to bolster the economy. Interest rates are expected to ease in coming 12 months and the expected direction of interest rates is favorable to the group.



Consolidated Balance Sheet Forecast

As of Dec 31 (Rmbmn)	2008	2009	2010	2011	2012F	2013F
PPE	8,544.1	14,335.9	27,802.9	36,956.4	43,889.0	50,440.8
Lease prepayments	14.7	22.7	65.1	102.2	100.0	97.8
Intangible assets	358.3	411.6	394.8	381.4	363.3	345.2
Investment in a jointly controlled entity	52.4	0.0	0.0	85.1	85.1	85.1
Other non-current assets	21.2	1,164.5	2,690.1	3,824.2	3,824.2	3,824.2
Deferred tax assets	21.3	16.3	12.7	7.1	7.1	7.1
Total non-current assets	9,012.1	15,951.0	30,965.7	41,356.4	48,268.7	54,800.3
Inventories	1.8	0.1	0.7	2.1	2.8	3.3
Trade debtors and bills receivable	116.8	390.9	959.7	2,010.5	2,108.9	3,006.6
Prepayment and other current assets	120.9	596.7	207.7	584.3	506.1	848.0
Tax recoverable	0.0	6.9	0.5	0.0	0.0	0.0
Restricted deposits	28.7	15.8	0.8	59.5	59.5	59.5
Cash at bank and on hand	1,643.8	819.2	1,309.5	7,518.0	6,930.9	6,276.6
Total current assets	1,912.1	1,829.7	2,479.0	10,174.3	9,608.1	10,193.9
Borrowings	2,396.2	2,798.5	4,817.6	6,758.8	6,758.8	6,758.8
Obligations under finance leases	0.0	119.2	232.2	283.1	283.1	283.1
Other payables	1,573.5	2,081.6	6,255.2	8,838.9	9,655.6	11,097.0
Tax payable	4.5	12.7	6.3	18.0	18.0	18.0
Total current liabilities	3,974.2	5,011.9	11,311.3	15,898.8	16,715.5	18,156.9
Borrowings	4,436.6	8,087.2	13,201.3	19,257.1	23,600.0	27,600.0
Obligations under finance leases	0.0	805.8	1,768.4	2,384.1	2,384.1	2,384.1
Retention payables	48.7	324.4	761.8	1,546.6	1,546.6	1,546.6
Deferred income	176.1	234.1	248.7	257.8	257.8	257.8
Deferred tax liabilities	8.9	20.8	34.3	26.8	26.8	26.8
Total non-current liabilities	4,670.2	9,472.3	16,014.5	23,472.5	27,815.4	31,815.4
Total assets	10,924.2	17,780.7	33,444.6	51,530.7	57,876.8	64,994.2
Net assets	2,279.7	3,296.5	6,118.8	12,159.4	13,346.0	15,021.9
Capital and Reserves						
Share capital	451.5	451.5	5,800.0	8,446.9	8,446.9	8,446.9
Reserves	1,222.8	2,131.7	(516.1)	2,884.6	3,981.0	5,543.7
MI	605.4	713.3	834.9	827.9	918.1	1,031.4
Total Equity	2,279.7	3,296.5	6,118.8	12,159.4	13,346.0	15,021.9
Net debt	5,189.0	10,066.5	16,709.5	18,497.9	23,428.0	28,082.2
Gross debt	6,832.8	10,885.7	18,018.9	26,015.9	30,358.8	34,358.8
ST debt/ Gross debt	35.07%	25.71%	26.74%	25.98%	22.26%	19.67%

F: ABCI Securities estimates

Source: Huaneng Renewables(for historical figures only), ABCI Securities estimates



Consolidated Cash Flow Forecast

FY ended Dec 31 (Rmbmn)	2008	2009	2010	2011F	2012F	2013F
EBITDA	239.2	836.3	1,768.0	3,520.7	4,408.4	5,426.2
Change in inventories	0.2	(0.1)	(0.6)	(1.4)	(0.7)	(0.5)
Change trade debtors and bills receivable	(86.6)	(219.2)	(585.4)	(1,027.0)	(98.4)	(897.8)
Change in prepayments and other current assets	(18.4)	(6.1)	(176.1)	(389.2)	78.1	(341.8)
Change in other payables	9.1	111.4	276.8	496.6	816.7	1,441.4
Others	54.8	(28.4)	(7.8)	(16.0)	50.0	50.0
Cash (used in)/generated from operations	198.2	693.8	1,275.0	2,583.7	5,254.2	5,677.5
Income tax paid	(1.4)	(19.6)	(15.0)	(21.9)	(46.5)	(58.4)
CF from operating activities	196.8	674.3	1,260.0	2,561.8	5,207.7	5,619.2
CAPEX	(4,988.0)	(7,164.1)	(10,418.5)	(7,699.4)	(8,455.4)	(8,515.4)
Others	104.9	7.8	699.0	(88.0)	0.0	0.0
Cash flows from investing activities	(4,883.1)	(7,156.3)	(9,719.5)	(7,787.3)	(8,455.4)	(8,515.4)
Net borrowing	4,953.1	4,614.9	7,134.1	7,998.2	4,342.9	4,000.0
Proceeds from issue of shares	0.0	0.0	0.0	5,402.7	0.0	0.0
Dividends paid	0.0	0.0	0.0	0.0	(316.2)	(211.9)
Interest paid	(212.5)	(484.3)	(704.7)	(1,315.9)	(1,366.1)	(1,546.1)
Others	994.1	1,496.9	2,538.8	(504.7)	11.8	(1.0)
Cash flows from financing activities	5,734.7	5,627.4	8,968.2	11,580.3	2,672.3	2,241.0
Net (decrease)/increase in cash and cash equivalents	1,048.4	(854.6)	508.7	6,354.9	(575.4)	(655.3)
Cash and cash equivalents at beginning of year/period	595.5	1,643.8	789.2	1,297.8	7,506.2	6,930.9
Effect of foreign exchange rates, net	(0.2)	0.0	(0.1)	(146.4)	0.0	1.0
Cash and cash equivalents at end of year/period	1,643.8	789.2	1,297.8	7,506.2	6,930.9	6,276.6

F: ABCI Securities estimates

Source: Huaneng Renewables (for historical figures only), ABCI Securities estimates



Financial Ratio Analysis

FY ended Dec 31	2008	2009	2010	2011	2012F	2013F
Profitability ratio						
Adjusted EBIT margin	49.5%	53.6%	50.3%	52.8%	55.5%	54.1%
Adjusted EBITDA margin	82.0%	88.7%	86.3%	89.8%	90.4%	90.2%
Pre-tax profit margin	15.7%	30.2%	31.8%	29.4%	32.1%	32.6%
Net profit margin	9.3%	28.8%	29.9%	32.0%	31.9%	32.3%
ROAA	-	1.84%	2.06%	2.41%	2.58%	2.89%
ROAE	-	12.4%	13.4%	12.3%	11.9%	13.4%
Cost ratio						
Personnel costs/revenue	-4.2%	-4.5%	-3.9%	-3.0%	-3.2%	-3.2%
Repairs and maintenance/revenue	-0.6%	-1.5%	-1.4%	-0.8%	-1.0%	-1.2%
Admin expense/ Sales	-1.9%	-2.0%	-4.8%	-3.0%	-3.0%	-3.0%
Other expenses/revenue	-1.3%	-2.0%	-2.3%	-2.4%	-2.4%	-2.4%
Effective tax rate	0.58%	-7.32%	-4.99%	-2.83%	-3.00%	-3.00%
Leverage						
Current ratio	0.48	0.37	0.22	0.64	0.57	0.56
Quick ratio	0.48	0.37	0.22	0.64	0.57	0.56
Total equity/total assets	0.21	0.19	0.18	0.24	0.23	0.23
Net debt/total equity	227.6%	305.4%	273.1%	152.1%	175.5%	186.9%
Working capital cycle						
Inventory turnover days	-	0.4	0.1	0.2	0.2	0.2
Trade receivables turnover days	-	100.9	139.4	169.6	170.0	170.0
Other receivables turnover days	-	142.6	83.0	45.2	45.0	45.0

ROAA= Net profit to the Group/average total assets

ROAE= Net profit to the equity owners of the company/average attributable equity to the owners of the company

Adjusted EBITDA = EBIT + Depreciation & amortization

Adjusted EBIT= Earnings before interest income, other net income

F: ABCI Securities estimates

Source: Huaneng Renewables(for historical figures only), ABCI Securities estimates

The group has a high gearing ratio. Before 2011, net debt to equity ratio of the group exceeded 200%. However, the high gearing ratios did not deter the willingness for the banks to lend. Proceeds from borrowings was Rmb 8,187mn and Rmb11,805 mn in FY09 and FY10 representing YoY increase of 38.4% and 44.2% respectively. We believe as net debt to equity ratio drop to 152% in FY11 after the IPO in Jun 11, fund raising from the debt market and the equity market will be easier for the group.



Sensitivity Analysis

We believe utilization hours, which directly affect the gross power generation and hence sales of electricity, is the major variable that will affect our profit forecast. Therefore, we did a sensitivity analysis on changes in utilization hours and on-grid tariff. Assuming other factors are kept constant, we estimate that a +/-5% change in utilization hour will lead to a +/-12.90% change in net profit.

On-grid tariff, on the other hand, is less of a swing factor, as it is regulated by the government and will not be frequently changed. Nevertheless, we also did a sensitivity analysis on the factor. We estimate that a +/-5% change in on-grid tariff of gas-fired power will lead to a +/-12.90% change in net profit.

Apart from the two variables above, we believe it is worth a while to see how CERs income affect the group's earnings as CERs income accounted for 25.7% and 42.5% of the group's EBT. It turns out that a +/-5% change in CERs price will only lead to a +/-1.00% change in net profit. However, CERs price is much more volatile than changes in utilization hours and on-grid tariffs. CERs price has retreated from €10-14 in between 2009 and 1H2011 to below €4.0 in Apr 12, representing more than 250% price change while utilization hours and on-grid tariff fluctuates within 15% per year.

It turns out that the group's earnings are most sensitive to interest rate change due to its high level of debt. A +/-1.0ppt change in interest rate will lead to a +/-14.85% change in net profit. Market is expecting China to loosen the monetary policy as recent figures shows that China CPI is peaking out while economic growth is slowing down. Therefore, interest rate will be a sensitive factor to the group in the short term and we believe the change in interest rate (at least in the short term) is more of an upside risk to the group,

Sensitivity Analysis

Yr to Dec 31 (Rmb mn)	2010	2011	2012F
Base case (Net profit)	528.3	1,023.0	1,412.5
Case 1: Utilization hour is 5% (~100 hrs) lower than base case			1,230.3
deviation from base case			-12.90%
Case 2: Utilization hour is 5% (~100 hrs) higher than base case			1,594.8
deviation from base case			+12.90%
Case 3: On-grid tariff is 5% lower than base case			1,230.3
deviation from base case			-12.90%
Case 4: On-grid tariff is 5% higher than base case			1,594.8
deviation from base case			+12.90%
Case 5: CERs price is 5% lower than base case			1,398.4
deviation from base case			-1.00%
Case 6: CERs price is 5% higher than base case			1,426.7
deviation from base case			+1.00%
Case 6: Interest rate is 1ppt lower than base case			1,622.4
deviation from base case			+14.85%
Case 7: Interest rate is 1ppt higher than base case			1,202.7
deviation from base case			-14.85%

Source: ABCI Securities estimates



Sector Comparison

Profitability Comparison

Ticker	Stock name	Latest FY end	EBIT margin (%)	EBITDA margin (%)	ROAA (%)	ROAE (%)	Net D/E (%)
958	HUANENG RENEWABLES		52.81	89.81	2.41	12.31	152.13
WTG Suppliers – upstream players							
2208	GOLDWIND	12/2011	4.03	5.57	1.99	4.64	19.88
1072	DONGFANG ELECTRIC	12/2011	7.86	10.75	3.71	24.61	-27.02
658	CHINA HIGH SPEED	12/2011	13.94	21.88	3.34	7.49	71.42
	Simple average		8.61	12.73	3.01	12.25	-
	Max		13.94	21.88	3.71	24.61	-
	Min		4.03	5.57	1.99	4.64	-
Wind Farm Operator – downstream players							
916	CHINA LONGYUAN	12/2011	*51.27	*88.80	3.18	10.76	147.43
1798	DATANG RENEWABLE	12/2011	47.17	87.10	1.53	8.38	246.31
579	BJCE	12/2011	*49.06	92.12	3.48	10.34	134.36
956	SUNTIEN GREEN ENERGY	12/2011	*27.31	*68.99	3.48	8.96	95.67
735	CHINA POWER NEW ENERGY	12/2011	*20.65	*33.48	1.59	3.64	74.80
	Simple average		39.09	74.10	2.65	8.42	-
	Max		51.27	92.12	3.48	10.76	-
	Min		20.65	33.48	1.53	3.64	-

*Adjusted EBIT margin and EBITDA margin of wind power segment only

EBITDA margin = Profit before tax, net interest expenses, depreciation and amortization; Net D/E= Net debt/Total equity

Source: Company data, Bloomberg, ABCI Securities estimates

We have identified 7 HK-listed companies which are engaged in the wind energy sector, 3 of which are WTG suppliers and are categorized as the sector upstream, which are not comparable to the wind farm operators.

For the remaining companies or the downstream players, they have an average ROAA of 2.65% and 8.42% respectively in FY11. The relatively low ROAA of less than 3% is an industry characteristics resulting from huge asset investment. Debt financing is a major financial tool used for capital investment and high debt to equity ratio becomes an industry norm. In turn, the high gearing ratio boosts up ROAE.

For better comparison, we have extracted the adjusted EBIT and EBITDA margin of the wind power segment of the downstream players (except Datang Renewable which is a pure wind farm operator like the group). In particular, the top 3 wind operators in China (Longyuan, Datang Renewable and the group) have the highest EBIT and EBITDA margin. Amongst the top 3, the group ranked first in terms of EBIT margin, EBITDA margin and ROAE. The highest EBIT margin of the group is mainly due to its higher-than-peers on grid tariff. Nevertheless, the top 3 wind farm operators also have the highest net debt to equity ratio of over 140%.



Operational statistics of major wind farm operators in 2011 (ranked by installed capacity)

Ticker	Stock name	Utilization hours	On-grid tariffs	Consolidated installed capacity	Newly installed capacity	Gross power generation	*D&A/revenue ratio	Gross finance cost/revenue ratio
		Hrs	Rmb/kwh	MW	MW	GWh		
916	CHINA LONGYUAN	2,026	0.578	8,598	2,042	13,355	*37.5%	*23.4%
1798	DATANG RENEWABLE	1,951	0.591	5,259	1,231	7,233	*35.5%	*37.7%
958	HUANENG RENEWABLES	1,962	0.596	4,904	1,382	6,844	30.1%	39.4%
579	BJCE	2,018	0.541	1,303	245	2,474	*41.9%	*32.8%
956	SUNTIEN GREEN ENERGY	2,048	-	1,201	346	1,751	*41.6%	*28.3%

Source: Company data

*D&A: Depreciation and amortization

*D&A/revenue ratio and Gross finance cost/ revenue ratio of Longyuan, BJCE and Suntien Green Energy are calculated based on their wind power segment only



Valuation

We appraise the equity of the group in two different approaches. We use comparison method to evaluate the group against the market valuation of comparable peers. We also use the discount cash flow method to value the equity value of the group.

Valuation Summary

Valuation method	Appraised share value HK\$/share	Appraised share value / Estimated FY12 EPS
PER rating	1.65	8.00x
PB rating	1.81	8.79x
Discount cash flow	2.02	9.81x
Overall range	1.65-2.02	8.00-9.81x

Source: ABCI Securities estimates

Market Valuation Comparison

Ticker	Stock name	Price* HK\$	Latest FY end	FY2011 PER (x)	Estimate FY2012 PER (x)	Historical P/B (x)
958	HUANENG RENEWABLES	1.40	12/2011	9.39	6.80	0.85
WTG Suppliers – upstream players						
2208	GOLDWIND	3.42	12/2011	12.15	16.54	0.58
1072	DONGFANG ELECTRIC	18.24	12/2011	9.74	8.91	2.15
658	CHINA HIGH SPEED	3.31	12/2011	6.63	5.93	0.48
	Wt. average			10.23	10.85	1.62
	Max			12.15	16.54	2.15
	Min			6.63	5.93	0.48
Wind Farm Operator – downstream players						
916	CHINA LONGYUAN	4.76	12/2011	11.01	9.42	1.13
1798	DATANG RENEWABLE	1.06	12/2011	8.57	6.14	0.68
956	SUNTIEN GREEN ENERGY	1.43	12/2011	8.43	6.42	0.72
182	CHINA WINDPOWER	0.30	12/2011	5.86	3.88	0.48
	Wt. average			10.17	8.39	0.99
	Max			11.01	9.42	1.13
	Min			5.86	3.88	0.48

*: The share prices were dated on 29 May, 2012

Source: Bloomberg, ABCI Securities estimates



PER rating method

Due to their low ROAA, both upstream and downstream players in the wind industry are given a low PB valuation. For the wind farm operators, only Longyuan is traded at above 1.0x PB, partly due to their overall high net debt to equity ratio. Upstream WTG suppliers, on the other hand, are given a relatively high valuation in terms of PER and PB due to their comparatively higher ROAE.

We believe Longyuan and Datang Renewable are better comparables to the group than Suntien and China Windpower in terms of production scale. Amongst Longyuan, Datang Renewable and the group, the group has the highest EBIT margin, EBITDA margin and ROAE. Although it has a lower ROAA than Longyuan, we believe its relatively high profitability should warrant it a valuation not only higher than Datang Renewable but as least as high as Longyuan. With ROAE of 12.3%, we believe it is not demanding to give it a target FY12 PER of 8.0x and PB of 1.0x.

Based on est FY12 basic EPS of Rmb0.1672 and FY12 BPS of Rmb1.4713, the targeted PER and PB implies share price of HK\$1.65-1.81 (@HK\$0.8121/Rmb).

Discount cash flow method

We also appraise the group based on the discount cash flow method. We estimate that the group will not generate positive cash flow until 2015 when we estimate a less aggressive CAPEX plan after 2015 while decline in WTG costs also help to reduce investment costs.

Yr to Dec 31 (Rmbmn)	2012F	2013F	2014F	2015F	2016F	2017F	2018F	2019F	2020F
EBITDA	4,408	5,426	6,457	7,684	8,222	8,798	9,413	10,072	10,777
Chg in WC	796	201	161	129	103	82	66	53	42
Tax paid	-46	-58	-194	-231	-1,644	-1,760	-1,883	-2,014	-2,155
Capex	-8,000	-8,000	-7,500	-7,000	-5,000	-4,000	-4,000	-4,000	-4,000
Free cash flow	-2,842	-2,431	-1,075	582	1,681	3,120	3,597	4,111	4,664
Terminal value									53,159
PV of free cash flow	-2,607	-2,045	-830	412	1,090	1,857	1,963	2,057	4,664
PV of terminal value									26,607
Total PV	33,169								
Less: Net debt	-18,498								
Less: MI	-828								
PV of equity	13,843								
No. of issued shares (mn)	8,466.9								
Share value (Rmb/share)	1.64								
Exchange rate (Rmb/HK\$)	0.8121								
Share value (HK\$/share)	2.02								

EBITDA: Pre-tax profit before finance cost, depreciation, amortization, and other non-operating incomes & expenses

Source: ABCI Securities estimates



Our DCF is modeled using the following assumptions:

Major assumptions on WACC

WACC	9.04%
Growth (2013-2015)	19%
Growth (2015-2020)	7%
Terminal growth rate	3%
Risk-free rate (10-year HK government bond yield)	1.19%
Hong Kong market return rate	13.27%
Average beta of peers	1.0
Debt/asset ratio	50%
Cost of equity	13.3%
Cost of debt	6%
Effective tax rate (2013-2015)	3%
Effective tax rate (2015-2020)	20%

Source: Bloomberg, ABCI Securities estimates

Taking industry growth and China economic growth into account, we assume the group to grow at 19% in during 2013-2015 and 7% during 2015-2020. Based on WACC of 9.04%, we value the equity of the group at Rmb13,843mn, or HK\$2.02/share, which is 11.6%-22.4% higher than the share value implied by the targeted PER and PB valuation. Per share value of HK\$2.02 represents FY12 PER of 9.81x and PB of 1.11x.

WACC may change due to interest rate and market return fluctuations. And we estimate WACC of the group may range between 8.0% - 10.5%.

Scenario analysis (WACC)

Discount rate	Implied share value	Implied FY12 PER	Implied FY13 PER
	HK\$		
8.00%	2.93	14.21	11.31
8.50%	2.46	11.94	9.50
9.00%	2.05	9.94	7.91
9.04%	2.02	9.80	7.80
9.50%	1.68	8.17	6.50
10.00%	1.36	6.59	5.25
10.50%	1.07	5.18	4.13

Source: ABCI Securities estimates



Huaneng Renewables Corporation Limited

We noticed that share price is trading below HK\$1.40 recently, representing a discount of 70% to our estimated fair value calculated using WACC of 9.04%.

Therefore, we have modeled 3 other scenarios on slower growth rate, which might have reflected the pessimistic view of the market.

Scenario analysis (Growth rate)

	Growth (2013-2015)	Growth (2015-2020)	Terminal growth rate	Implied share price	Explanation
Worst Case	10.0%	7.0%	3.0%	0.27	2013-2015 growth rate of 10% is just marginally higher than China's expected economy growth rate which we believe such growth rate is not realistic.
Bad Case	15.0%	6.5%	0.0%	0.92	Implied share prices are closer to recent share price, reflecting a lower than expected industry growth rate and China's economy growth rate.
	15.0%	6.5%	3.0%	1.02	
	15.0%	7.0%	0.0%	1.13	
Base Case	15.0%	7.0%	3.0%	1.23	
	19.0%	7.0%	3.0%	2.02	



Risk Factors

- **Grid connection risk:** Change in wind resources and a slower than expected grid network development will have a negative impact on utilization hours and the wind power business will be negatively affected.
- **Limited operating history:** The group commenced their first wind power project in Jul 99 and their first MW-class or large scale wind power project was only put into commercial operation in 2007. Due to the short operating history, the high historical growth rate may not be indicative of the group's future growth.
- **Supplier concentration risks:** For the year ended 31 Dec 09, 10 and 11, the five largest wind turbine suppliers accounted for 83.4%, 95.5% and 88.0% respectively, of the group's total purchases of wind turbines. Capacity of wind turbines supplied by Sinovel, the group's largest wind turbine supplier, accounted for 48.4%, 45.4% and 45.2% of the group's total capacity installed in 2009, 2010 and 2011 respectively. Reliance on limited number of suppliers exposes the group to replacement risks.
- **Under-performances risks of wind turbines:** Warranties provided by the wind turbine suppliers expire in 2-6 years from the completion of commissioning and inspection, after which, the group will be exposed to the risks of under-performance or non-performance of the wind turbines. As of 31 Dec 10, 4.4% of the group's total wind installed capacity was out of warranty period.
- **Change in government subsidy policy:** Due to a preferential tax treatment, the effective tax rate of the group was as low as 5.0% and 2.8% in FY10 and FY11 respectively compared to a standard EIT rate of 25%. Therefore, any change or discontinue of the subsidy policy could materially affect the group's profitability.
- **Funding needs:** The wind power business is a capital intensive business. With a rapid capacity expansion plan, CAPEX is expected to reach Rmb8bn both in FY12 and FY13. The group relied heavily on external financing such as bank borrowings. As at the end of 2011, net debt to equity ratio of the group reached 152.1%. The high gearing may deter its ability to raise funds externally or at low cost. The increase in cost of capital will further reduce its already low ROAA and ROAE.



Disclosures

Analyst Certification

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