

China leads the charge in Asia



Joseph Jacobelli >> +852 2161 7381

Research Analyst
Merrill Lynch (Hong Kong)
joseph_jacobelli@ml.com

Lu Yeung >> +852 2536 3301

Research Analyst
Merrill Lynch (Hong Kong)
lu_yeung@ml.com

Huge renewable energy sources potential emerging

We think the China renewables market has the greatest long term growth potential of any Asian country. We think the latest government targets are understated and the growth of key sources, namely wind, biomass and solar, may exceed CAGRs of >20% from now to 2020E at the very least on our forecasts.

Table 1: Estimates from China's Renewable Energy Sources Mid/Long Term Dev't Plan

(MW)	05A	10E	20E	'06E - '20E	06E-'20E CAGR	20 MLe
Hydro	117,000	190,000	300,000	183,000	6.5%	300,000
Biomass	2,000	5,500	30,000	28,000	19.8%	37,500
Wind	1,260	5,000	30,000	28,740	23.5%	50,000
Solar	70	300	1,800	1,730	24.2%	3,300
Geothermal	-	-	100	100	-	100
RE capacity	120,330	200,800	361,900	241,570	7.6%	390,900
RE cap. ex-hydro	3,330	10,800	61,900	58,570	21.5%	90,900
National capacity	517,185	917,000	1,493,696	976,512	7.3%	1,493,696

Source: National Development & Reform Commission; "Renewable Energy Sources Medium to Long Term Development Plan" report published August 2007, released 4 September 2007. National capacity = Merrill Lynch AsiaPac Utilities Research Estimates

We continue to prefer the manufacturers

On a 2-3 view, the tariff system should remain unfair to wind and solar projects making it difficult for operators to beat their ROIC. As such, we continue to prefer renewables related manufacturers such as the wind equipment manufacturers.

Legislative & political support

We believe the aggressive renewable targets are supported by a strong body of legislative work since 2005, albeit this needs to evolve further. We also think the sector is strongly supported by the highest levels of the Chinese leadership.

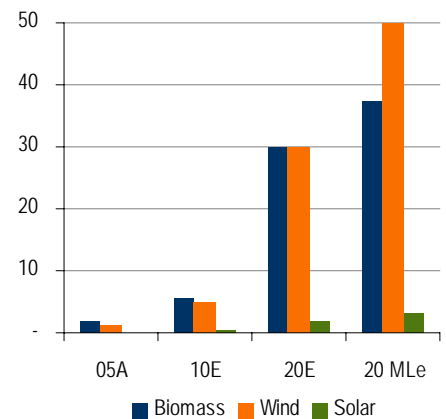
Tariffs, and thus returns, is the limiting factor

In early 2006, the NDRC released an important document providing some tariffs guidelines, but the document in our view only adequately addressed biomass projects; receiving RMB250/MWh above average on grid price for coal fired plants, including the RMB15/MWh desulphurization subsidy. **For now, small hydro, wind and solar tariffs remain on a case by case basis.**

We think higher visibility likely by 2010

The pressure on authorities to address the low renewables projects returns is high, we think. The stumbling block, in our view, is the grids' resistance to change (i.e., clear Transmission and Distribution charges). We think authorities are on the case and in the next 2-3 years this should be resolved, allowing for the introduction of subsidies, even temporary ones, for wind and solar.

Chart 1: Estimates from China's Renewable Energy Sources Mid/Long Term Dev't Plan



Source: National Development & Reform Commission; Renewable Energy Sources Medium to Long Term Development Plan report published August 2007, released 4 September 2007. National capacity = Merrill Lynch AsiaPac Utilities Research Estimates

No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or other persons.

>> Employed by a non-US affiliate of MLPF&S and is not registered/qualified as a research analyst under the NYSE/NASD rules.

Refer to "Other Important Disclosures" for information on certain Merrill Lynch entities that take responsibility for this report in particular jurisdictions.

Merrill Lynch does and seeks to do business with companies covered in its research reports. 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. Customers of Merrill Lynch in the US can receive independent, third-party research on companies covered in this report, at no cost to them, if such research is available. Customers can access this independent research at <http://www.ml.com/independentresearch> or can call 1-800-637-7455 to request a copy of this research.

Refer to important disclosures on page 22 to 23. Analyst Certification on page 21. Price Objective Basis/Risk on page 21.

Tariff outlook & beneficiaries

We are upbeat on likely changes in near future

In our opinion, government authorities are facing an enormous amount of pressure to address the currently low returns from renewables projects. Even domestic companies complain the returns are too low and hope there will be some improvements with a new tariff system.

The single greatest stumbling block, in our view, to a new tariff system, is the grids' resistance to change (i.e., introducing a more transparent Transmission and Distribution charges mechanism). We think authorities are fully aware of this and are highly focus on breaking up the grids' monopolies. We are confident authorities should achieve this within the next 2-3 years. One option is for authorities to introduce some for of subsidies, even temporary ones, for all forms of renewable energy sources, especially for wind and solar.

The beneficiaries

- We do not see the current situation favorable for renewable energy operators.
- Until a more standardized electricity tariffs system is in place, Chinese renewable energy equipment vendors will continue to be a more attractive investment than the renewable energy sources operators in China.
- At present, the Chinese government authorities are contemplating – or we could say feel-more-comfortable with - an IRR of 6-8% as reference of the renewable energy policy, but we believe foreign investors are looking at an IRR of at least 8-9% to justify their investments.
- **As such, we prefer renewable energy equipment providers to operators for their tremendous opportunities for domestic sale and for export.**

Exhibit 1: Polluting chemical complex in Northern Anhui province



Source: Joseph Jacobelli

Exhibit 2: CHEN Deming, NDRC Deputy Director



Source: Source: September 4, 2007. www.gov.cn, official web portal of the Central People's Government of the People's Republic of China

The policies

The body of legal works

Since 2005, China has made tremendous strides policy-wise towards the development of renewable energy sources. We think there have been three key pieces of legislation.

- 2005: new Renewable Energy Law
- 2006: Law enacted and several implementation measures issued;
- 2007: release of the mid and long-term RE plan

The Renewable Energy Law and ensuing implementation measures are supported, in our view, by the highest level of the Chinese leadership. Chinese leaders have not only promulgated a legal background for the development of renewable energy sources but also has been emphasizing their importance at every occasion. We believe Chinese leaders have taken on board the fact that the environment is suffering from often irreversible damage due to the fast paced economic growth China has been experiencing.

The national renewable energy sources plan

New plan issued in early September

On 4 September, The State Council Information Office held a press conference to formally announce the Renewable Energy Sources Medium to Long Term Development Plan (the Plan). The Deputy Director of the National Development & Reform Commission, Chen Deming – who we could say is the *de facto* Energy Minister, emphasized that with the Plan the Chinese government was presenting policies so as to facilitate renewable energy sources to account for 10% of total energy consumption by 2010 and for 15% by 2020, up from 7.5% in 2005. He also highlighted several measures which authorities are undertaking.

- The purchase of electric power generated from renewable energy sources as a percentage of total electric power generation is compulsory.
- Power tariff incentives will be provided for renewable energy sources projects and the higher cost will be borne (or shared) by purchasers and users.
- Subsidies and preferential tax treatment will be provided for renewable energy projects as well as to the purchasers and users.

The published targets are now that by 2020, China will have 300GW in hydroelectric power, including small-hydro (i.e., 50MW units or less); 30GW in wind generation; 30GW from biomass; and 1.8GW from solar energy.

Deputy Director Chen also mentioned that he envisages China having to invest at least RMB2 trillion by 2020 in renewable energy. He expects the bulk, 80% or so, of the investment to be funded by companies whilst the central and local governments are likely to equally foot the bill for the remainder.

The actions

Wind & biomass targets upped

We looked at the numbers released in the Plan and compared them to those we had collated at the end of 2005. We found that authorities have upped both the biomass and wind generation 2020E targets from 20GW to 30GW. On the other hand, there was little fine tuning on the small-hydro target which remained similar; the 2020E was 79GW and it is 75GW in the Plan. Also there was little adjustment for the solar target; the 2020E was 2.0GW and now it is 1.8GW. Based on the Plan's targets, biomass, wind and solar generation will all enjoy sharp 20-24% CAGRs between now and 2020.

Plan's installed capacity should be beaten

We think that the targets set by government in the Plan will easily be beaten. We expect China to have 37.5GW in biomass generation by 2020 compared to the stated 30GW. We expect 50GW for wind versus the 30GW target. And we see solar reaching 3.3GW compared to the 1.8GW Plan's target.

First time publication of estimated costs

Also, authorities decided to put some numbers behind the expected expenditures. In our assessment, when comparing the government's numbers with those from listed and unlisted company sources, we find that these numbers are mostly sensible.

Table 2: Building costs for electric power generation in China

	(RMB/kW)	(USD/kW)
Solar ⁽¹⁾	75,000	10,000
Nuclear ⁽²⁾	11,500	1,533
Biomass ⁽¹⁾	7,000	933
Hydro ⁽¹⁾	7,000	933
Wind ⁽¹⁾	6,500	867
Coal ⁽²⁾	4,100	547
Gas ⁽²⁾	3,800	507

Note: assuming exchange rate of RMB7.5 to USD1. Source: (1) National Development & Reform Commission assumptions; (2) Merrill Lynch AsiaPac Utilities Research Estimates

Table 3: China's largest solar cell manufacturers

MW	2006	2007E	2008E
Suntech	151	355	614
Trina	28	80	205
Yingli	51	135	312
Solarfun	20	80	160
CSI	15	75	117
MW Shipped	264	725	1409
YoY		174%	94%

Source: companies and Merrill Lynch AsiaPac Utilities Research Estimates

Hydro

- Authorities are expecting RMB7,000/kW (US\$926/kW). This falls within our estimated cost range of RMB6,000-9,000/kW which highly varies depending on location.

Biomass

- Authorities are also expecting approximately RMB7,000/kW (US\$926/kW). Here we must take the authorities' word given that our estimated cost greatly varies from as low as RMB6,000/kW to 1.5x this amount. The variable here lies in the actual "fuel" use by the biomass plant.

Wind

- Authorities are expecting RMB6,500/kW (US\$860/kW). We think that authorities are assuming that wind generation equipment will fall by 25-35% given the RMB6,500/kW is significantly lower than the costs for the more recently announced wind projects whose costs range between RMB8,500/kW and RMB10,500/kW. China today has over 30 wind equipment manufacturers, including several world-class ones like Suzlon, from virtually none a few years ago. As such, decreases in the RMB/kW costs are likely.

Solar

- Authorities are expecting RMB75,500/kW or RMB750/w (US\$9,940/kW or US\$9.94/w). We think for solar, authorities have not made any assumptions regarding the likely continued steady decline of solar PV. We are actually assuming that manufacturing costs should decline by at least 5% per annum over the next few years particularly given that domestic production capacity has risen tremendously in recent years; albeit currently almost wholly for export. For example for the five largest solar PV producers in China, production capacity has risen from 264MW in 2006 to an estimated 725MW in 2007 and should likely reach 1,409MW by end-2008, an increase of 5.3x in just two years.

Table 4: Estimates from China's Renewable Energy Sources Medium to Long Term Development Plan

(MW)	Estimated resources	2005A	2010E	2020E	'06E - '20E	2006E-2020E CAGR	RMB per kW	RMB million	2020 MLe
Hydro ⁽¹⁾	400,000	117,000	190,000	300,000	183,000	6.5%	7,000	1,281	300,000
Hydro	n/a	72,000	140,000	225,000	153,000	7.9%	-	-	-
Pumped storage	n/a	7,000	n/a	n/a	n/a	-	-	-	-
Small hydro	n/a	38,000	50,000	75,000	37,000	4.6%	-	-	-
Biomass	n/a	2,000	5,500	30,000	28,000	19.8%	7,143	200	37,500
Wind ⁽²⁾	1,000,000,000	1,260	5,000	30,000	28,740	23.5%	6,552	188	50,000
Solar	5,000 mj / m2	70	300	1,800	1,730	24.2%	75,145	130	3,300
Geothermal	6,000	-	-	100	100	-	-	-	100
RE capacity		120,330	200,800	361,900	241,570	7.6%	95,839	1,799	390,900
RE capacity ex-hydro		3,330	10,800	61,900	58,570	21.5%	88,839	518	90,900
National capacity		517,185	917,000	1,493,696	976,512	7.3%			1,493,696

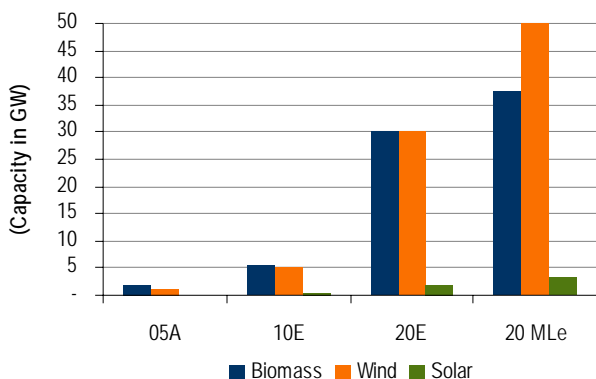
Notes: (1) Exploitable amount is 540GW but commercially exploitable amount is only 400GW. (2) Wind resources inc. 300GW on-shore and 700GW off-shore. Source: National Development & Reform Commission; "Renewable Energy Sources Medium to Long Term Development Plan" report published August 2007, released 4 September 2007. National capacity = Merrill Lynch AsiaPac Utilities Research Estimates

Targets as percentage of total

China targets for renewable energy sources to account for 10% of total energy consumption by 2010 and for 15% by 2020. We think that these numbers, however, do not fully reflect the whole story. This is because authorities are including medium to large size hydroelectric power generation into the total. Typically such generation should not be defined as a renewable energy source given that often the construction of such type of plants do have an impact on the environment.

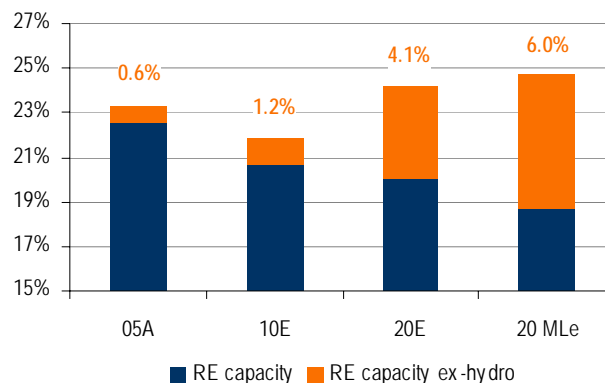
In fact, if we strip out hydro altogether and only factor in biomass, wind and solar then these renewable energy sources should account for 1.2% and 4.1% of total installed capacity in 2010 and 2020 which we estimate at 917GW and 1,494GW respectively; if using our own higher targets for these three forms of renewable energy sources, then the percentage by 2020 would increase to 6.1% from 4.1%.

Chart 2: Estimates from China's Renewable Energy Sources Medium to Long Term Development Plan



Notes: (1) Exploitable amount is 540GW but commercially exploitable amount is only 400GW. (2) Wind resources inc. 300GW on-shore and 700GW off-shore. Source: National Development & Reform Commission; Renewable Energy Sources Medium to Long Term Development Plan report published August 2007, released 4 September 2007. National capacity = Merrill Lynch AsiaPac Utilities Research Estimates

Chart 3: Estimates from China's Renewable Energy Sources Medium to Long Term Development Plan as % of China total installed capacity

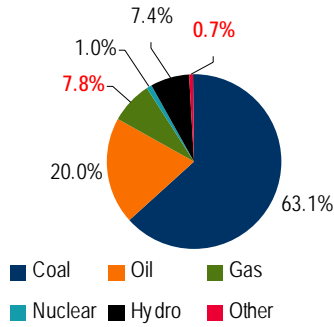


Source: National Development & Reform Commission; Renewable Energy Sources Medium to Long Term Development Plan report published August 2007, released 4 September 2007. National capacity = Merrill Lynch AsiaPac Utilities Research Estimates

In fact if we look at the development of energy resources in the Eleventh Five Year Plan published earlier this year, authorities had then not included hydro in the definition of renewable energy sources; classified as "other" in the table below. As such what we perceive are the renewable energy sources would only

account for 0.9% of domestic energy production and 0.7% of energy consumption by end-2010, the end of the Eleventh Five Year Plan.

Chart 4: The development of energy resources in the Eleventh Five (11-5) Year Plan



Note: Tenth Five Year Plan was from 2001 to 2005 and Eleventh Five Year Plan was from 2006 to 2010. Source: National Development & Reform Commission April 2007

Table 5: The development of energy resources in the Eleventh Five (11-5) Year Plan

	10-5 Plan (%)	11-5 Plan (%)	ppts change	pct change (%)
Production				
Coal	74.7	72.9	(1.8)	(2.4)
Oil	11.3	10.0	(1.3)	(11.5)
Gas	5.0	6.8	1.8	36.0
Nuclear	1.0	1.1	0.1	10.0
Hydro	7.5	8.3	0.8	10.7
Other	0.5	0.9	0.4	80.0
Consumption				
Coal	66.1	63.1	(3.0)	(4.5)
Oil	20.5	20.0	(0.5)	(2.4)
Gas	5.3	7.8	2.5	47.2
Nuclear	0.9	1.0	0.1	11.1
Hydro	6.8	7.4	0.6	8.8
Other	0.4	0.7	0.3	75.0

Note: Tenth Five Year Plan was from 2001 to 2005 and Eleventh Five Year Plan was from 2006 to 2010. Source: National Development & Reform Commission April 2007

The challenges

In our view there exist two key challenges in the stride towards the development of renewable energy sources.

- As electric power demand has grown faster than expectations, companies have been meeting this challenge by building more coal-fired power plants.
- The whole tariff mechanism is in a high state of flux and this further prevent companies to be motivated to undertake more renewable energy sources projects.

Coal, coal & more coal

The latest electric power production statistics continue to show a trend which some renewable energy sources advocates may find disturbing. Not only is thermal power generation the single largest source of electric power generation but also it is so by a very wide margin.

In the first eight months of the year, generation from thermal power plants accounted for almost 85% of total electric power generation with a YoY growth of 17.5% during the period. Thermal generation in China includes generation from thermal coal, natural gas and oil. However, we roughly estimate that gas and oil generation would not account for more than 3-4% of the 85%, meaning that at least four-fifths of electric power generation in China comes from coal-fired power plants.

Table 6: Electric power generation and consumption profile for 8M2007

	Unit	8M2007	YoY Change	8M2007 Breakdown
Generation¹				
Total	(TWh)	2,086.09	16.3%	100.0%
Hydro	(TWh)	277.10	9.1%	13.3%
Thermal	(TWh)	1,763.86	17.5%	84.6%
Nuclear	(TWh)	39.05	9.3%	1.9%
Other (MLE)	(TWh)	6.08	<i>n/a</i>	0.3%
Utilization¹				
Total	kWh/MWh	3,358	-3.9%	
Hydro	kWh/MWh	2,338	-2.0%	
Thermal	kWh/MWh	3,570	-4.6%	
Total (MLE)	%	57.6%	(2.3)	
Hydro (MLE)	%	40.1%	(0.8)	
Thermal (MLE)	%	61.2%	(3.0)	
Electric power consumption				
Total	(TWh)	2,118.18	15.2%	100.0%
Primary Industry	(TWh)	58.39	5.3%	2.8%
Secondary Industry	(TWh)	1,619.64	16.7%	76.5%
Industry	(TWh)	1,599.79	16.7%	
inc. light industry	(TWh)	<i>n/a</i>	10.4%	
inc. heavy industry	(TWh)	<i>n/a</i>	18.2%	
Tertiary Industry	(TWh)	206.99	12.5%	9.8%
Residential	(TWh)	233.16	10.3%	11.0%

Source: "National electric power industry production summary situation for Jan-Aug 2007", China Electricity Council, 20 September 2007; Merrill Lynch AsiaPac Utilities Research calculations

Two Issues with thermal coal

The predominance of thermal coal for electric power generation poses two challenges to authorities. Thermal coal for electric power generation is the second worst form of electric power generation in terms of impact on the environment. Secondly it is the second least-cost option for electric power generation and currently one of the most profitable.

Issue #1: coal generation is environmentally incorrect

In China, thermal coal power plants produce the second worst form of emissions in relative and absolute amounts. The worst are emissions from oil-fired power plants but oil is but a very small portion – 1.4% in 2005A and 0.5% in 2010E of total – of Chinese electric power generation, and a declining one at that. On the other hand, thermal coal accounts for the bulk of generation. We estimate that the contribution was 79% of the total in 2005 and we see this rising to almost 82% by 2015E, and it should then gradually decline to under 77% by 2025E.

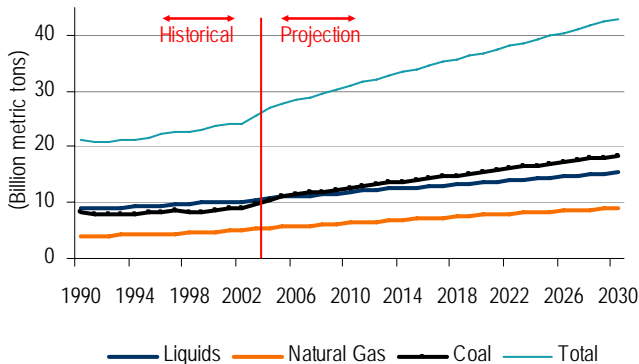
Table 7: Electric power generation breakdown by fuel type

	Generation (in TWh)						Generation (percentage breakdown)											
	Total	Hydro	Nuke	Other	Thermal	Inc.	Coal	Gas	Oil	Total	Hydro	Nuke	Other	Thermal	Inc.	Coal	Gas	Oil
05	2,498	396	53	4	2,044	Inc.	1,968	40	36	100.0%	15.9%	2.1%	0.2%	81.8%	Inc.	78.8%	1.6%	1.4%
10E	4,486	626	80	34	3,746	Inc.	3,626	99	21	100.0%	14.0%	1.8%	0.8%	83.5%	Inc.	80.8%	2.2%	0.5%
15E	6,652	788	170	98	5,596	Inc.	5,428	147	21	100.0%	11.9%	2.6%	1.5%	84.1%	Inc.	81.6%	2.2%	0.3%
20E	8,474	993	397	279	6,804	Inc.	6,564	219	21	100.0%	11.7%	4.7%	3.3%	80.3%	Inc.	77.5%	2.6%	0.3%
25E	10,469	1,203	508	365	8,392	Inc.	8,044	327	21	100.0%	11.5%	4.9%	3.5%	80.2%	Inc.	76.8%	3.1%	0.2%
30E	12,934	1,456	615	442	10,421	Inc.	9,912	488	21	100.0%	11.3%	4.8%	3.4%	80.6%	Inc.	76.6%	3.8%	0.2%

Source: State Grid Corp of China; China Southern Grid Corp.; China Electricity Council; Merrill Lynch AsiaPac Utilities Research Estimates

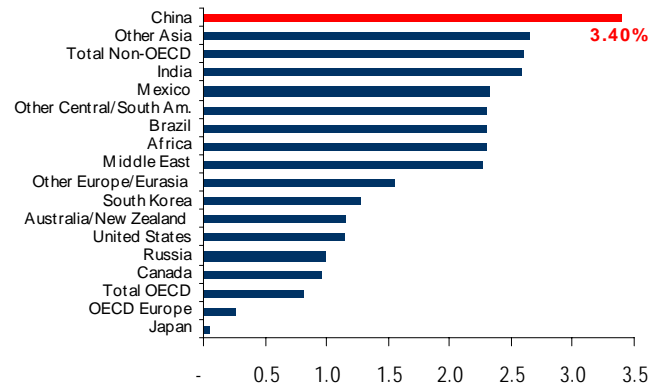
Based on forecasts by the US Energy Information Administration, world-wide coal is rising steadily as a source of carbon dioxide emissions. At the same time, China is the fastest growing producer of energy-related carbon dioxide emissions.

Chart 5: World Energy-Related Carbon Dioxide Emissions by Fuel Type, 1990-2030



Source: History: Energy Information Administration (EIA) International Energy Annual 2004 (May-July 2006), web site www.eia.doe.gov/iea. Projections: EIA, System for the Analysis of Global Energy Markets (2007)

Chart 6: Average Annual Growth in Energy-Related Carbon Dioxide Emissions in the OECD and Non-OECD Economies, 2004-2030



Source: History: Energy Information Administration (EIA) International Energy Annual 2004 (May-July 2006), web site www.eia.doe.gov/iea. Projections: EIA, System for the Analysis of Global Energy Markets (2007)

Issue #2: coal generation is economically correct

Electric power companies in China have a strong incentive to build coal fired power plants, we think, because they make sense commercially:

- The fuel, thermal coal, is plentiful;
- China has global best practice expertise in building coal-fired power plants; and
- Potential Returns are less “murky” than for other key fuels such as natural gas or nuclear.

Coal generation in China is typically profitable. One example is looking at the profitability of China’s Big Five nationwide generation groups which use be part of the to the State Power Corporation of China – formerly the Ministry of Electric

Power - until late 2002. These companies typically have a fuel mix heavy weighted towards coal-fired generation. Profitability is especially true for the bulk of new coal fired plants.

This is because for the past couple of years the electric power tariff is based on the average on-grid tariff for the region (or grid) where the power plant will be located. When the feasibility studies of these power plants are presented to authorities typically the underlying assumed ROE target is around 8%. Some of the large companies can do a little better if they built large efficient power plants relatively quickly – typically we are talking about plants with 2x600MW build over 20 to 24 months.

Table 8: Financial performance of China's grids and Big Five generation groups in 2006

Company	Total assets (RMB,bn)	Net profit (RMB,bn)	Return on Assets (%)	Return of Equity (%)	Installed Capacity MW
Grid companies					
State Grid Corp. of China	12,140.7	269.2	2.22	3.83	
China Southern Grid	2,969.1	137.0	4.61	8.24	
Big Five generation groups					
China Huaneng	2,855.7	95.5	3.34	6.60	57,185
China Datang	2,266.2	54.7	2.41	3.62	54,060
China Huadian	1,961.0	30.5	1.56	3.30	50,046
China Guodian	1,879.7	39.5	2.10	4.15	44,450
China Power Investment	1,811.7	39.0	2.15	4.82	37,800

Source: State Electricity Regulatory Commission; company web sites

Tariff mechanism challenges

Embryonic stage of development

In recent years China has tremendously improved its tariff determination system. For example we find limited subsidizing of tariffs. Actually since 2005 or so new coal-fired power plants, accounting for more than 80% of power generation, receive the average on-grid (wholesale) price in the region; i.e., provinces plus the provincial-status municipalities of Beijing, Chongqing, Shanghai and Tianjin.

Two nightmares facing industry.

1. The nightmare facing the electric power generation companies: is that thermal coal prices are now largely market driven whereas electric power tariffs are not. Also the Fuel Cost Pass Through (Coal-Power Tariff Linkage) mechanism introduced in 2005 to partially compensate coal-fire power plants for sizeable increases in thermal coal costs, is a policy and not a regulation. It was thus no surprise it will not be applied in 2007, though applied in 2005 and 2006, given macro-economic factors, especially over inflation levels.
2. The nightmare facing the State Electricity Regulatory Commission and the National Development & Reform Commission, in our view, is that the two grid companies are fiercely delaying the introduction of a transparent and consistent transmission charge. The determination of such a system is imperative for the introduction of a transparent and consistent market driven competitive on grid power sales market.

Both bodies the State Electricity Regulatory Commission and the National Development & Reform Commission are working hard to address the transmission and distribution charge issue. Both have the full support of the top political leadership. In fact, both President Hu and Prime Minister Wen have made public statements to this end. We believe by 2010 we should see deeper power pooling experiments in the Eastern Grid and in the Southern Grid; the

Eastern Grid comprises Anhui, Jiangsu, Shanghai, Zhejiang and Fujian, the Southern Grid Guangdong, Hainan, Yunnan, Guangxi and Guixi

One example of the lack of transparency under the existing electric power tariff determination mechanism is with the recent experience of a listed generation company, Datang International Power Generation. On 18 September, the Shanghai Securities Journal reported the National Development & Reform Commission (NDRC) had announced on 9 September a tariff cut effective 1 July for several power plants in Inner Mongolia and northern Shanxi provinces selling their output to the Beijing-Tianjin-Tangshan grid. These include two plants 60%-owned by Datang: Tuoketuo and Shentou Phase II. The NDRC is adjusting the tariffs to RMB297/MWh for some Inner Mongolia based plants and to RMB297/MWh for some Shanxi based plants implying cuts of 2.3% for both the 6x600MW Tuoketuo plant (now RMB304/MWh) and the 2x500MW Shentou II plant (now RMB305/MWh). There was no official adjustment reason from the NDRC. The Shanghai Securities Journal said rising CPI concerns could have triggered the adjustment. **However, we think the NDRC may have found these plants too profitable!** Whatever the case may be, this is a recent example of the current lack of transparency and consistency in the electric power determination system.

Specific challenges for renewable energy sources tariffs

The tariffs for electric power generation and for the transmission and distribution companies are set by the local pricing bureaus of the NDRC. They are also responsible for any electric power on-grid (wholesale) or end-user (retail) tariffs. This applies for all categories of fuels, from coal power generation plants to renewable energy sources projects such as solar or wind projects.

Chinese authorities are targeting a system whereby electric power tariffs, both wholesale and retail, will be market driven rather than State controlled. There currently is no transparent timetable for this but our view is that such system is likely to be partially implemented in East and South China by 2010. We think the stumbling block has been a tight power demand and supply balance - i. e., if the new system is introduced when the balance is tight then power tariffs may rise.

In 2005, a policy (not legislation) was introduced whereby should thermal coal prices rise by more than 5%, then the NDRC would consider adjusting the wholesale price to compensate for 70pct of the rise in coal. This policy was set to alleviate falling margins pressure for coal power generation plants given the sharp rise in thermal coal contract and spot prices from 2004 or so. The policy was executed once in 2005 and once in 2007. At that time not only wholesale prices were adjusted by retail prices as well. Both in the low single digits for both years and both tariffs.

The policy has not been implemented in 2007 due to concerns over rising inflation. We think that given the continued rise of contract and thermal coal prices in 2007 - a trend which we think may continue in 2008 - a wholesale and possibly a retail tariff adjustment is possible in 2008. However, this will depend on the trend of inflation as well as the plans to introduce market driven electric power tariffs.

In 2007, not only have thermal coal price risen but also the electric power generation companies have faced higher costs for equipment and labor. We think these costs pressures are likely to continue through 2008.

Non-coal electric power generation, accounting for 15% of nationwide generation in 1H2007, have not faced the same costs pressure. However, the wholesale

tariff system for Non-coal electric power generation is significantly less transparent. For example, authorities are yet to introduce a mechanism for natural gas power generation plants or wind projects.

Positives & negatives for biomass generation tariffs

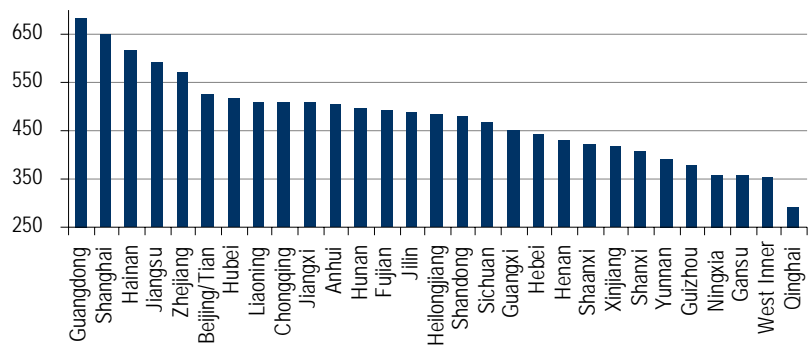
On January 4, 2006 the National Development & Reform Commission released an important document providing some guidelines for renewable energy sources tariffs. However, of the four main forms of renewable energy sources addressed (small hydro, wind, biomass, solar) only biomass saw some clear guidelines.

The document known as “NDRC Price [2006] No. 7” was titled “Notice of National Development and Reform Commission on the Publication of “Provisional Administrative Measures on Pricing and Cost Sharing for Renewable Energy Power Generation”. Article 7 of these administrative measures enunciated that biomass projects shall get a subsidy. Specifically the article said:

- *“For biomass power generation projects where the government fixed price applies, the price authorities of the State Council shall set yardstick tariff by region and the price standard shall be the addition of yardstick feed-in tariff for desulphurization coal-fired generating units in 2005 in respective provinces (autonomous regions, municipalities directly under the Central Government) and subsidy price. The **subsidy price is 0.25CNY per kilowatt-hour. 15 years** of subsidy price shall be enjoyed for power projects starting from the date of power production; the subsidy price shall be annulled after 15 years of operation. Since 2010, the subsidy price for power generation projects newly approved for construction by the relevant government authorities each and every year shall be decreased by 2% over that approved for construction in the preceding year.” (ML highlights)*

However, this document failed to adequately address, in our view, on grid tariffs for the other key forms of renewable energy sources, namely small hydro, wind and solar. Currently, the on grid tariff for all three is primarily based on a case by case basis.

Chart 7: Average retail electric power tariffs in 2006 in China (RMB/MWh)



Source: National Development & Reform Commission; Merrill Lynch AsiaPac Utilities Research calculations

Table 9: Average electric power tariffs in 2006 in China

Regions	Sales tariff RMB/MWh	T&D tariff RMB/MWh	Derived on-grid RMB/MWh	T&D tariff (%)	Derived on- grid (%)
Beijing/Tianjin/Tangshan	525.32	156.18	369.14	29.7%	70.3%
Shanxi	408.63	123.47	285.16	30.2%	69.8%
Hebei	440.92	95.28	345.64	21.6%	78.4%
Shandong	478.48	90.59	387.89	18.9%	81.1%
Shanghai	649.60	196.76	452.84	30.3%	69.7%
Zhejiang	569.28	111.52	457.76	19.6%	80.4%
Jiangsu	590.13	160.75	429.38	27.2%	72.8%
Anhui	503.37	126.54	376.83	25.1%	74.9%
Fujian	490.13	113.65	376.48	23.2%	76.8%
Hubei	516.75	154.25	362.50	29.9%	70.1%
Henan	429.24	82.70	346.54	19.3%	80.7%
Hunan	496.41	149.60	346.81	30.1%	69.9%
Jiangxi	506.82	126.29	380.53	24.9%	75.1%
Sichuan	465.76	147.08	318.68	31.6%	68.4%
Chongqing	507.04	173.80	333.24	34.3%	65.7%
Shaanxi	420.74	123.80	296.94	29.4%	70.6%
Gansu	356.65	129.22	227.43	36.2%	63.8%
Qinghai	291.43	108.75	182.68	37.3%	62.7%
Ningxia	358.72	130.83	227.89	36.5%	63.5%
Xinjiang	417.13	193.58	223.55	46.4%	53.6%
Heilongjiang	482.22	160.78	321.44	33.3%	66.7%
Jilin	485.62	136.24	349.38	28.1%	71.9%
Liaoning	508.55	151.05	357.50	29.7%	70.3%
Guangdong	681.90	180.93	500.97	26.5%	73.5%
Guangxi	449.70	111.57	338.13	24.8%	75.2%
Yunnan	392.33	140.36	251.97	35.8%	64.2%
Guizhou	377.29	95.01	282.28	25.2%	74.8%
Hainan	615.23	215.44	399.79	35.0%	65.0%
West Inner Mong.	352.61	97.68	254.93	27.7%	72.3%

Source: National Development & Reform Commission; Merrill Lynch AsiaPac Utilities Research calculations

The wind tariffs saga: negotiated vs. concessions' tariffs

There currently exist two types of tariff regimes for wind projects in China. Some wind tariffs are the product of negotiations between the operator and the pricing bureau of the locality where the wind farm is located and the other is the result of a bidding process, known as concessions. Historically the negotiated ones have been higher and the concession ones have been lower.

Table 10: Concessions and non concessions projects differences

	Wind power concession	Normal
Price	<ul style="list-style-type: none"> Fixed price commitment by the government for a certain quantity of electricity 	<ul style="list-style-type: none"> No fixed price commitment by the government, maybe changed later
Project preparation work	<ul style="list-style-type: none"> Coordinated by the government The costs will be covered by the winner after bidding 	<ul style="list-style-type: none"> To be done by developers
Transmission line from wind farm to power grid	<ul style="list-style-type: none"> Invest and built by power grid company 	<ul style="list-style-type: none"> Invest and built by developer
Percentage of local made components	<ul style="list-style-type: none"> 70% local made components, assembled in China 	<ul style="list-style-type: none"> No requests
Government commitment	<ul style="list-style-type: none"> Government will sign a concession agreement, Provincial power grid company will sign a power purchase agreement with the winner 	<ul style="list-style-type: none"> No commitment

Source: Wind power concession projects and the issue of price, Greenpeace research team on wind power price, 20 Oct 2006

The concession tariffs regime have drawn criticisms by a variety of observers, foreign and domestic alike.

- A 2006 position paper from the European Chamber of Commerce in China highlighted that the tariffs resulting from the bid for wind projects were “being awarded at excessively low tariffs, resulting in low project returns, comparable with the prevailing rate for bank loans.”
- Eversheds, a British law firm in one of its China renewable energy bulletin, highlighted that the low tariffs “won by successful bidders are considered too low to ensure that these projects are financially viable for foreign investors.”
- In a recent article (17 Sep., 2007) which appeared in Sina.Com the author concurred with many other observers that the low level of tariffs realized are not conducive the development of the wind industry in China. The author highlighted that the low tariffs leave little room for the profitability of the manufacturers of the equipment

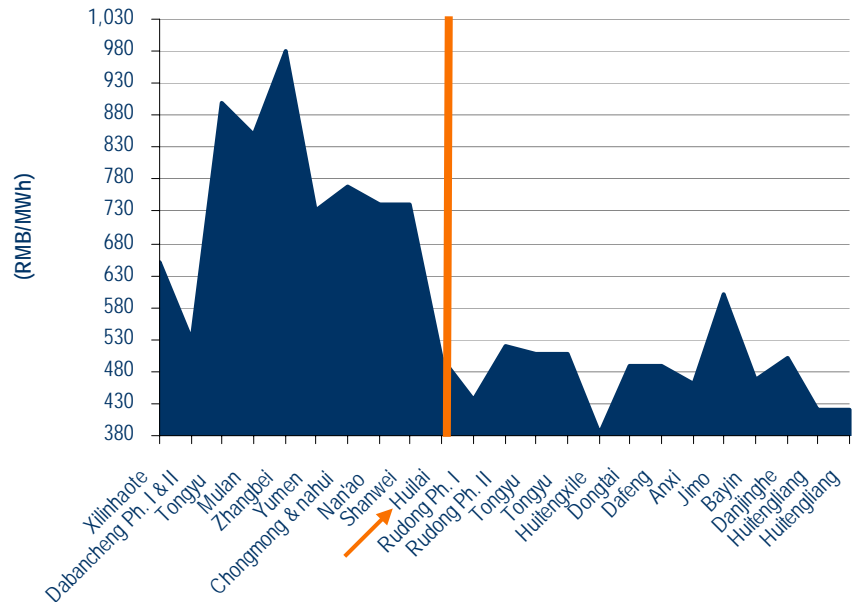
Table 11: Summary of wind concessions prices

Project Name	Region	Capacity (MW)	Load (hours)	Awardee	Bidding Price (RMB/kWh)
2003					
Rudong Ph. I	Jiangsu province	100	2,191	Hua Rui	0.4365
Huilai	Guangdong province	100	1,990	Yue Dian	0.5013
2004					
Rudong Ph. II	Jiangsu province	150	2,273	Long Yuan	0.5190
Huitengxile	Inner Mongolia	100	2,588	Bei Guo Dian	0.3820
Tongyu	Jilin province	200	2,309	Long Yuan	0.5090
Tongyu	Jilin province	200	2,524	Hua Neng	0.5090
2005					
Dongtai	Jiangsu province	200	2,126	Guo Hua	0.4877
Dafeng	Jiangsu province	200	N/A	Zhong Dian Tou	0.4877
Anxi	Gansu province	100	2,358	Zhong Dian Tou	0.4616
Jimo	Shandong province	100	1,686	Hua Dian Int'l	0.6000
2006					
Bayin	Inner Mongolia	200	2,318	Long Yuan	0.4656
Danjinghe	Hebei province	200	2,193	Zhong Jie Neng	0.5006
Huitengliang	Inner Mongolia	300	2,876	Bei Fang Lian He	0.4200
Huitengliang	Inner Mongolia	300	2,988	Zhong Guang He	0.4200
Average					0.4786

Source: Wind power concession projects and the issue of price, Greenpeace research team on wind power price, 20 Oct 2006

Prior to the concessions, wind operators had secured higher on grid tariffs. We calculate that the median tariffs had been RMB740/MWh whereas those realized in the four rounds of concessions, starting with the Huilai project, awarded in 2003, between 2003 to 2006 were RMB488/MWh, or 34.1% lower.

Chart 8: PPA development - national level concession projects

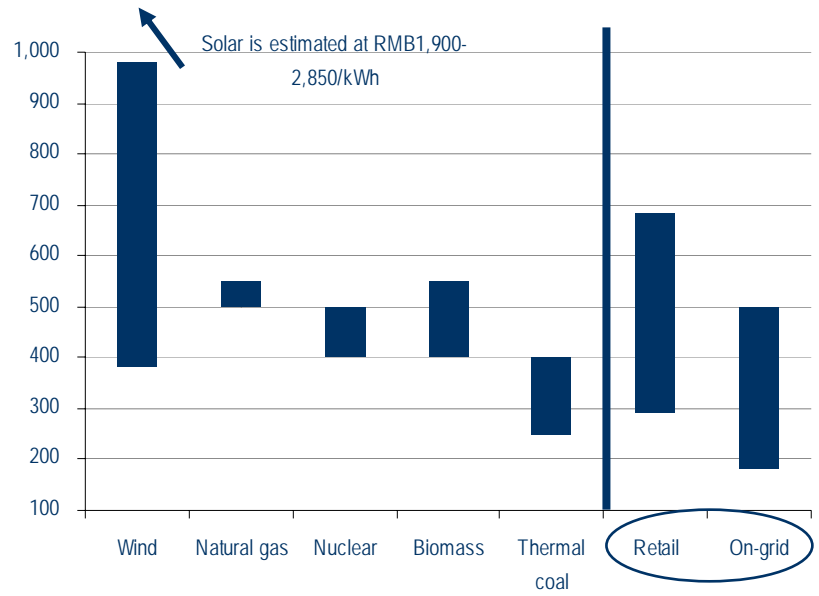


Source: China Suzlon Energy; Wind power concession projects and the issue of price, Greenpeace research team on wind power price, 20 Oct 2006

Solar tariffs

For solar PV projects we understand that there exists no clear feed-in tariff mechanism. One of the two cities which have relatively aggressively been promoting solar PV generation, Shanghai, has set up a “voluntary” system for feed in tariffs. Namely, the local grid introduced Shanghai Green Electricity Scheme. The scheme offers ways for households and enterprises to supplement their power consumption by purchasing some amount of “green” power (wind, solar, small hydro, biomass etc.) at a premium. The scheme was developed with the support of the Municipal Government and participants will be awarded a certificate of participation as a proof of participation. Also there exists a system whereby some grants are allocated for some solar projects. The China Renewable Energy Development Project (REDP) run by the World Bank and other agencies, aims to enlarge and develop China's renewable energy market and to provide electricity access to people in rural communities not served by electricity networks. The project intends to build 20MW wind power and PV projects scattered in isolated north-western regions. Grants will be paid to the companies for at the rate of \$1.50-\$2.0/Wp.

Chart 9: Range of cost of electric power to the grid



Source: Merrill Lynch AsiaPac Utilities Research Estimates

China listed renewables companies

Solar energy wafer/cell producers

The Chinese solar industry is the most well-developed in the renewable energy space, despite its limited domestic demand due to cheaper mainstream energy sources and lack of a full-blown subsidy/feed-in tariff program. The Greater China (including Taiwan and Hong Kong) has over 15 listed companies operate in the solar energy components production.

Suntech Power (STP US; Buy; C-1-9, Cap \$6.2bn)

Suntech Power is the leading solar cell and module manufacturer in China. The company also sells thin-film based PV product and specialized in the building-integrated photovoltaic (BIPV) through recent acquisition of MSK. Suntech sells its products outside of China primarily through distributors and in China primarily to module manufacturers and end users directly. The company sold over 150MW in 2006 and we expect production to further increase to 350MW and over 600MW in 2007E and 2008E.

Trina Solar (TSL US; Buy; C-1-9, Cap \$1.4bn)

Trina is one of the few Chinese solar companies with a vertically integrated model – producing ingots, wafers, cells and modules in-house. Trina Solar has plans to significantly expand its production capacity over the next several years from around 50MW in 2006 to 350MW in 2008. Trina has signed long term polysilicon supply contracts with Wacker and DC Chemical to anchor its planned capacity expansion.

ReneSola (SOLA LN; Buy; C-1-9, Cap \$0.6bn)

ReneSola is one of the leading solar ingot and wafer makers in China. The company focus on using recycled (80%) silicon for ingot/wafer manufacturing. Production is expected to reach 120MW in 2007E and 300MW in 2008E. The company currently produces monocrystalline ingots from primarily recycled polysilicon which it slices into wafers, which are sold to leading regional solar cell manufacturers like Suntech and Motech. ReneSola has just commenced production of multicrystalline ingots and wafers. The company is also investing in a new polysilicon JV in polysilicon startup could start supplying material in 2008

Motech (6244 TT; Buy; C-1-7, Cap \$2.1bn)

Motech is the largest Taiwan-based Solar mono-crystalline silicon and multi-crystalline silicon solar producer. Motech also has plans to go vertically Integrated by investing in in-house ingot/wafer manufacturing. We believe Motech is on track to produce around 170MW out of the 280MW projected capacity in 2007.

JA Solar (JASO US; Neutral; C-2-9, Cap \$2.1bn)

JA Solar is a Chinese solar monocrystalline cell manufacturer. The company plans to increase cell capacity from 25MW in 2006 to 175MW by the end of 2007. The IPO was in February 2007. While JA Solar is a relatively new cell manufacturer, it has delivered a rapid and relatively trouble-free ramp up. Part of this is attributable to the fact that JA Solar has benefited from the support of its sister company Jinglong Group (JA's cell plant is located next to Jinglong's wafer plant). JA Solar is also working with potential OEM customers who have their own wafer supplies to enter into contract cell production, or "tolling" arrangements, with them. Under these arrangements, JASO would process silicon wafers supplied by these customers into cells, the majority of which would be sold back to these customers at an agreed mark up.

China Sunergy (CSUN US; Neutral; C-2-9, Cap \$0.2bn)

China Sunergy Company Ltd., a china-based solar-cell products manufacturer, markets its solar cells to Chinese & overseas solar module manufacturers and system integrators. China Sunergy sold 4.4 MW and 46.4 MW of solar cells in 2005 and 2006. We are projecting that China Sunergy to produce around 80MW. The company also invests in selective emitter p-type solar and n-type solar cell technology to maximize conversion efficiency.

E-Ton Solar (3452 TT; not rated; Cap \$0.7bn)

Based in Tainan, Taiwan, E-Ton Solar is a cell manufacturer with 100MW of installed capacity (as at end-2006). As per the company, it produced around 33MW of solar cells in 2006 and had low-single-digit market share globally. E-ton specializes in manufacturing mono-crystalline cells with conversion rate of over 17% vs. industry average of about 16%. E-Ton is focusing on offering application-specific solar cells such as solar car sun roofs, and architectural parts (Building Integrated Photo-Voltaic; BIPV).

LDK Solar (LDK US; not rated; Cap \$7.2bn)

LDK Solar is the leading Chinese manufacturer of multicrystalline solar ingots and wafers. Production capacity is expect to reach 400MW by the end of 2007, 800MW by the end of 2008 and 1,600MW by the end of 2009. In order to secure supply of its primary feedstock and streamline costs, LDK intends to construct a polysilicon plant with capacity of up to 6,000 metric tons by the end of 2008 and 15,000 metric tons by the end of 2009. The company IPO was in June 2007.

Yingli Green (YGE US; not rated; Cap \$3.0bn)

Yingli Green Energy is a vertically integrated Chinese solar ingot/wafer, cell and module manufacturer. Yingli has signed several long term polysilicon supply agreements with Wacker and also has a long-term polysilicon supply agreement with Sichuan Xingguang - one of China's leading polysilicon manufacturers. The company intends to expand capacity from 100MW in 2006 to 400MW by the end of 2008 and 600MW in 2010. The IPO was in June 2007.

Wafer Works (6182 TT; not rated; Cap \$1.4bn)

Wafer Works is a Taiwan-based silicon wafer maker with an experienced R&D team from Silicon Valley. The company sells 4- to 6-inch silicon wafers to semiconductor manufacturers. Driven by strong solar demand and possessing a swappable manufacturing process, Wafer Works started shipping solar wafers by early 2004. Wafer Works mainly uses scrap wafers from semiconductor customers and remaining parts from semi ingot makers as its solar wafer sources.

Sino-American Silicon (5483 TT; not rated; Cap \$1.7bn)

Founded in 1981, Sino-American Silicon Products (SAS) is a silicon wafer manufacturer based in Zhu Nan, Taiwan. The company ventured into the solar wafer market during the technology boom in 2000 and started shipments to Sharp (world's largest solar cell maker) in 2002, before embarking on a massive expansion of its solar wafer capacity in 2005. Solar products accounted for 70% of the total revenue in 2006. The company intends to expand capacity to 130MW by end of 2007 and 200MW in 2008.

Canadian Solar (CSIQ US; not rated; Cap \$0.2bn)

Canadian Solar Inc. is solar cell/module manufacturer that has its manufacturing base in China. Founded in 2001, CSIQ's products are sold primarily under its own brand name and also produced on an OEM basis for its customers. CSIQ plans to ship 70-75MW in 2007 and expects demand to exceed over 200MW in 2008.

Solarfun (SOLF US; not rated; Cap \$0.5bn)

Solarfun Power manufactures both PV cells and modules, and supplies solar system integration services in China. Solarfun produces both monocrystalline and multicrystalline silicon cells and modules, and manufactures 100% of its modules with in-house produced PV cells. The company expects to ship 60-80MW of PV products in 2007, representing an increase of over 200% year-over-year. Solarfun's Cell capacity expected to reach 240 MW by the end of 2007 and 360 MW by the end of 2008.

China Solar (155 HK; not rated; Cap \$0.3bn)

China Solar Energy is a Hong Kong listed company that has a controlling interest in a private US based solar photovoltaic (PV) company, Terra Solar Global. Terra Solar is a leading thin film specialized in a-Si PV technology and also develops thin film production equipment. China Solar is also a leading supplier of BIPV solar systems.

Solar manufacturing equipment vendors

Currently, most of the solar equipment is dominated by western equipment vendors such as GT Solar, Global PV Specialists. With an increasing number of solar ingot wafer/cell manufacturers in China, domestic Chinese equipment companies are developing their own manufacturing equipments for the needs of local solar energy supply-chain. We estimate that there are more than 20 vendors supplying manufacturing equipment to the solar industry.

China's Ministry of Information Industry (CMMI) indicated that solar equipment/supplies has exceeded 264mn RMB (\$35mn) in 1H07, equivalent to 80% of 2006 sales. Of the solar equipment sales in 1H07, 143mn RMB (54%) came from the "front-end" polysilicon processing equipment and 121mn RMB (46%) were from the "back-end" solar cell/module manufacturing. CMMI expects 2007 sales to exceed 500mn RMB (\$66mn) this year.

Windpower equipment vendors

Suzlon Energy (SUEL IN; Buy; C-1-7, Cap \$10.1bn)

Suzlon Energy is the fifth largest wind-turbine manufacturer in the world with 6% global & over 50% market share in India. Its global delivery model, market leadership in India and focused approach to globalization are some of the key competitive advantages. The company enhances its competitive advantage by focusing on R&D in Europe, production in low cost countries such as India/China and focusing on sales in countries with high growth potential. We like Suzlon for a) its global delivery model, b) macro tailwind, and c) multifold expansion in the addressable market, driving its 41% EPS CAGR over FY07-10E.

China High Speed Transmission (658 HK; not rated; Cap \$2.1bn)

China High Speed Transmission is one of the few listed component suppliers to the wind turbine manufacturing industry. It currently accounts for 90% of China's market for the wind-turbine gear boxes. Just 27% of the company's revenues came from this segment of the market in 2006 but this now represents the fastest growing market segment for China High speed. China's 70% local content rule for wind turbines means that wind turbine manufacturers in Chinese markets have to use local component suppliers for their turbines.

Renewable energy projects operators**China Windpower group (182 HK; Not Rated; Cap \$0.3bn)**

The company is a listed company that engages primarily in the operations and professional service of renewable energy projects. The company operates a wind power project company in Changtu of Liaoning province as well as providing professional maintenance services company for wind power plant in Beijing. China Windpower currently operates a wind turbine tower factory in Jilin Province. China Windpower has also obtained resources and the sole government authority for the development of wind power resources in ZhengLanqi, TaiPusiqi, HangJinqi, ErLianhaote in the Inner-Mongolia and Shangyi of Hebei Province.

China Power New Energy Development (735 HK; Not Rated; Cap \$0.7bn)

The company is a Hong Kong listed holding company that engages in property investment and development, bakery and food, general trading, consultancy and the power generating business (gas, oil, biomass and wind). The company, through its subsidiary Tianhan Development Limited, invests in power generating projects, including a RMB 2.3bn 100GW wind power project located near Dong Hai Bridge, Shanghai.

Price objective basis & risk

Suzlon Energy (SZEYF)

Our PO of Rs1,550 is based on 22x 1-year forward earnings, which we believe is conservative considering it is 31% discount to its current multiples, 9% discount to DCF and 29% discount to its peers despite Suzlon's superior growth and return profile. We have also reduced our target PER multiple to 22x vs 23x earlier to factor in near term disappointment in earnings.

Risks: Headwind for wind turbine business & execution risk in the wake of component shortages. Also, we note that the deal with Areva is not a put/call forward sale structure and hence if REpower stock shoots up in the future then Suzlon may have to pay a higher price for acquiring Areva's stake.

Motech Industries (MOEIF)

Our price objective of NT\$566, based on 18x FY08 fully diluted, GAAP PER. We believe our PO is reasonable as it translates to 0.4x long term P/E to growth ratio, indicating sufficient room for multiple expansions on fast and secure earnings growth.

Risks: Constraints in wafer supply, rising polysilicon pricings and slower government push out of PV deployment.

Renesola Ltd (XROEF)

Our 12mo PO of 450p is based on 18x FY08E EPS of 25p. We believe that this is fair relative to (1) industry peer group valuations (where tier 1 companies trade at PERs of ~20x to 36x FY08E and tier 2 companies trade at PERs of 8x to 20x FY08E), (2) its 5yr FD EPS CAGR of 28%, and (3) its current trading range of 10-20x current year earnings.

Risks: Material supply and pricing, end market demand for solar, and company and customer execution risks.

Trina Solar Ltd (TSL)

Our new 12 month price objective is \$70. This is based on 20x FY08 FD EPS of \$3.49 and 13x FY09 EPS of \$5.37. We believe that a 20x FY08 and 13x FY09 target multiple is fair and achievable given Trina Solar's strong growth profile, its comparatively differentiated vertically integrated business model, its expanding economies of scale and improved competitive position in the global solar energy industry. As Table 3 above shows, our target valuations are further validated by our valuations comparison with its industry peers – who generally trade in-line or at a premium to Trina Solar today.

Risks: Government policies; interest rates, weaker demand for solar, execution risk as TSL ramps output, and raw material procurement and pricing.

Suntech Power-A (STP)

Our 12 month price objective of \$51.75 is based on 29x our FY08 EPS forecast of \$1.81 and 21x FY09 our EPS forecast of \$2.44, which we believe is fair relative to STP's 5 year EPS CAGR of 40% and versus other leading solar companies around the world.

Risks: Execution on the expansion of new capacity and implementation of new technological solutions. Competition could affect pricing, while material supply could also be a risk in terms of both supply and pricing, and changes in legislation and customer activity could also affect end demand.

Table 12: Renewable Energy valuation comparison

Name	Ticker	Curr.	Price	Market cap (U\$m)	3M avg. Daily Trade (U\$m)	06A PER (x)	07E PER (x)	08E PER (x)	06A P/S (x)	07E P/S (x)	08E P/S (x)	07E ROE (%)
Solar												
SUNTECH POWE-ADR	STP US	USD	41.48	6,241	98.5	50.0	38.6	26.0	10.4	4.8	3.4	21.0
TRINA SOLAR-ADR	TSL US	USD	51.89	1,381	68.0	19.7	31.7	14.6	12.1	4.9	2.1	10.1
RENESOLA LTD	SOLA LN	USD	295	597	306.2	26.4	14.5	7.9	6.8	2.3	1.0	46.8
LDK SOLAR CO-ADR	LDK US	USD	68.71	7,186	50.9		55.7	36.4	68.1	15.9	7.4	11.0
YINGLI GREEN-ADR	YGE US	USD	23.43	2,974	22.8		56.9	33.0	30.4	6.0	3.9	16.5
JA SOLAR HOL-ADR	JASO US	CNY	45.7399	2,108	59.9		40.7	28.5	22.7	6.9	3.7	23.2
E-TON SOLAR	3452 TT	TWD	375	685	9.3	30.0	23.4	14.3	6.7	3.5	1.9	33.0
MOTECH INDUSTRIE	6244 TT	TWD	346	2,086	25.3	25.1	21.6	15.6	8.4	4.6	3.5	46.0
CHINA SUNERG-ADR	CSUN US	USD	6.97	276	7.8				1.8			
WAFER WORKS CORP	6182 TT	TWD	206.5	1,352	2,219.4	16.7	32.4	24.1	9.4	8.0	7.6	35.8
SINO-AMERICAN	5483 TT	TWD	289.5	1,733	1,880.6	17.7	32.5	24.0	12.7	8.2	5.2	31.7
SOLARFUN POW-ADR	SOLF US	USD	11.13	534	5.9	24.4	58.6	18.6	6.6	2.1	1.1	
CANADIAN SOLAR I	CSIQ US	USD	7.58	207	2.0	21.0		12.9	3.0	0.8	0.5	4.7
CHINA SOLAR ENER	155 HK	HKD	0.52	285	3.6							
Wind												
CHINA HIGH-SPEED	658 HK	CNY	13.38	2,142	NA		79.7	37.0		8.2	4.6	11.4
CHINA WINDPOWER	182 HK	HKD	0.72	305	11.2	29.0		60.0			10.5	
SUZLON ENERGY LT	SUEL IN	INR	1465.45	10,593	7.0	47.0	46.0	33.2		5.9	3.5	28.8
BioMass/Other												
CHINA AGRI-INDUS	606 HK	HKD	5.06	2,338	11.6		18.5	14.5	80.5	0.7	0.6	13.0
CHINA GRAND FOR	910 HK	HKD	2.71	1,782	39.5	13.8	66.1	27.7	508.4	21.4	8.8	28.1
CHINA POWER NEW	735 HK	HKD	1.13	649	14.9							
CHINA ENERGY LTD	CEGY SP	CNY	1.42	1,183	1.7	22.6	30.0	15.4		6.8	2.0	21.0
ASIA POWER CORP	API SP	SGD	0.34	82	0.0	5.9						
CHINA CLEAN ENER	CCGY US	USD	1.25	27	0.0	25.0			0.0			
CHINA ENERSAVE L	CHEN SP	SGD	0.135	93	0.3	22.0	9.0	6.1	0.0	1.1	0.9	8.0

Note: all data as at September 24, 2007. Where valuations data is blank then data not available. Source: Bloomberg estimates

Analyst Certification

We, Joseph Jacobelli, Bharat Parekh and Lu Yeung, hereby certify that the views expressed in this research report accurately reflect our personal views about the subject securities and issuers. We also certify that no part of our compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Important Disclosures

Investment Rating Distribution: Electrical Equipment Group (as of 01 Jul 2007)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	29	56.86%	Buy	8	32.00%
Neutral	18	35.29%	Neutral	5	31.25%
Sell	4	7.84%	Sell	1	33.33%

Investment Rating Distribution: Electronics Group (as of 01 Jul 2007)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	59	51.30%	Buy	10	19.23%
Neutral	44	38.26%	Neutral	4	10.81%
Sell	12	10.43%	Sell	3	27.27%

Investment Rating Distribution: Utilities Group (as of 01 Jul 2007)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	61	38.13%	Buy	18	35.29%
Neutral	84	52.50%	Neutral	32	43.84%
Sell	15	9.38%	Sell	3	21.43%

Investment Rating Distribution: Global Group (as of 01 Jul 2007)

Coverage Universe	Count	Percent	Inv. Banking Relationships*	Count	Percent
Buy	1675	47.16%	Buy	435	29.21%
Neutral	1633	45.97%	Neutral	438	29.67%
Sell	244	6.87%	Sell	47	21.66%

* Companies in respect of which MLPF&S or an affiliate has received compensation for investment banking services within the past 12 months.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: A - Low, B - Medium, and C - High. **INVESTMENT RATINGS**, indicators of expected total return (price appreciation plus yield) within the 12-month period from the date of the initial rating, are: 1 - Buy (10% or more for Low and Medium Volatility Risk Securities - 20% or more for High Volatility Risk securities); 2 - Neutral (0-10% for Low and Medium Volatility Risk securities - 0-20% for High Volatility Risk securities); 3 - Sell (negative return); and 6 - No Rating. **INCOME RATINGS**, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure); 8 - same/lower (dividend not considered to be secure); and 9 - pays no cash dividend.

Price charts for the equity securities referenced in this research report are available at <http://www.ml.com/research/pricecharts.asp>, or call 1-888-ML-CHART to have them mailed.

MLPF&S or one of its affiliates acts as a market maker for the securities recommended in the report: Suntech Powe-ADR.

MLPF&S or an affiliate was a manager of a public offering of securities of this company within the last 12 months: China Sunerg-ADR, Trina Solar Ltd.

The company is or was, within the last 12 months, an investment banking client of MLPF&S and/or one or more of its affiliates: China Sunerg-ADR, Trina Solar Ltd.

In the US, retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale: China Sunerg-ADR, JA Solar Hol, Motech Industrie, Renesola Ltd., Suzlon Energy.

MLPF&S or an affiliate has received compensation for investment banking services from this company within the past 12 months: China Sunerg-ADR, Trina Solar Ltd.

MLPF&S or an affiliate expects to receive or intends to seek compensation for investment banking services from this company within the next three months: China Sunerg-ADR, Renesola Ltd., Suntech Powe-ADR, Suzlon Energy, Trina Solar Ltd.

MLPF&S together with its affiliates beneficially owns one percent or more of the common stock of this company. If this report was issued on or after the 10th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 10th day of a month reflect the ownership position at the end of the second month preceding the date of the report: Motech Industrie.

The country in which this company is organized has certain laws or regulations that limit or restrict ownership of the company's shares by nationals of other countries: Motech Industrie, Suzlon Energy.

MLPF&S or one of its affiliates is willing to sell to, or buy from, clients the common equity of the company on a principal basis: Suntech Powe-ADR.

The analyst(s) responsible for covering the securities in this report receive compensation based upon, among other factors, the overall profitability of Merrill Lynch, including profits derived from investment banking revenues.

Other Important Disclosures

UK readers: MLPF&S or an affiliate is a liquidity provider for the securities discussed in this report.

Information relating to Non-U.S. affiliates of Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S):

MLPF&S distributes research reports of the following non-US affiliates in the US (short name: legal name): Merrill Lynch (France): Merrill Lynch Capital Markets (France) SAS; Merrill Lynch (Frankfurt): Merrill Lynch International Bank Ltd, Frankfurt Branch; Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd; Merrill Lynch (Milan): Merrill Lynch International Bank Limited; MLPF&S (UK): Merrill Lynch, Pierce, Fenner & Smith Limited; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited; Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd; Merrill Lynch (Canada): Merrill Lynch Canada Inc; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa; Merrill Lynch (Argentina): Merrill Lynch Argentina SA; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co, Ltd; Merrill Lynch (Seoul): Merrill Lynch International Incorporated (Seoul Branch); Merrill Lynch (Taiwan): Merrill Lynch Global (Taiwan) Limited; DSP Merrill Lynch (India): DSP Merrill Lynch Limited; PT Merrill Lynch (Indonesia): PT Merrill Lynch Indonesia; Merrill Lynch (KL) Sdn. Bhd.: Merrill Lynch (Malaysia); Merrill Lynch (Israel): Merrill Lynch Israel Limited; Merrill Lynch (Russia): Merrill Lynch CIS Limited, Moscow; Merrill Lynch (Turkey): Merrill Lynch Yatirim Bankasi A.S.; Merrill Lynch (Dubai): Merrill Lynch International Bank Ltd, Dubai Branch.

This research report has been prepared and issued by MLPF&S and/or one or more of its non-U.S. affiliates. MLPF&S is the distributor of this research report in the U.S. and accepts full responsibility for research reports of its non-U.S. affiliates distributed in the U.S. Any U.S. person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates.

This research report has been approved for publication in the United Kingdom by Merrill Lynch, Pierce, Fenner & Smith Limited, which is authorized and regulated by the Financial Services Authority; has been considered and distributed in Japan by Merrill Lynch Japan Securities Co, Ltd, a registered securities dealer under the Securities and Exchange Law in Japan; is distributed in Hong Kong by Merrill Lynch (Asia Pacific) Limited, which is regulated by the Hong Kong SFC; is issued and distributed in Taiwan by Merrill Lynch Global (Taiwan) Ltd or Merrill Lynch, Pierce, Fenner & Smith Limited (Taiwan Branch); is issued and distributed in Malaysia by Merrill Lynch (KL) Sdn. Bhd., a licensed investment adviser regulated by the Malaysian Securities Commission; and is issued and distributed in Singapore by Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd (Company Registration No.'s F 06872E and 198602883D respectively). Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. are regulated by the Monetary Authority of Singapore. Merrill Lynch Equities (Australia) Limited, (ABN 65 006 276 795), AFS License 235132, provides this report in Australia. No approval is required for publication or distribution of this report in Brazil.

Merrill Lynch (Frankfurt) distributes this report in Germany. Merrill Lynch (Frankfurt) is regulated by BaFin.

Copyright, User Agreement and other general information related to this report:

Copyright 2007 Merrill Lynch, Pierce, Fenner & Smith Incorporated. All rights reserved. This research report is prepared for the use of Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of Merrill Lynch. Merrill Lynch research reports are distributed simultaneously to internal and client websites eligible to receive such research prior to any public dissemination by Merrill Lynch of the research report or information or opinion contained therein. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) prior to Merrill Lynch's public disclosure of such information. The information herein (other than disclosure information relating to Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. Merrill Lynch makes no representations or warranties whatsoever as to the data and information provided in any third party referenced website and shall have no liability or responsibility arising out of or in connection with any such referenced website.

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other investment or any options, futures or derivatives related to such securities or investments. It is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. Investors should seek financial advice regarding the appropriateness of investing in any securities, other investment or investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Investors should note that income from such securities or other investments, if any, may fluctuate and that price or value of such securities and investments may rise or fall. Accordingly, investors may receive back less than originally invested. Past performance is not necessarily a guide to future performance. Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or related investment mentioned in this report. In addition, investors in securities such as ADRs, whose values are influenced by the currency of the underlying security, effectively assume currency risk.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Merrill Lynch Research policies relating to conflicts of interest are described at <http://www.ml.com/media/43347.pdf>.

Fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.