



INDIA

# Suzlon Energy

6 August 2009



## Hanging by a thread

### Underperform, with a target price of Rs79

We transfer coverage of Suzlon to Inderjeetsingh Bhatia, with an Underperform rating and a target price of Rs79. The Street has been primarily focused on balance sheet issues. We believe the bigger concern should be the core business fundamentals, which are expected to remain weak despite the building economic recovery. The company is projected to deliver 18% earnings CAGR over FY09–12, primarily driven by subsidiaries (Hansen and REpower).

- **Valuations are rich at 10–30% premium to market:** Suzlon is trading at 9.2x FY11 EV/EBITDA as against 7.1–8.1x for other global WTMs. These valuations are even more demanding, given Suzlon's recent serious quality issues, the impact for which is still not known or built into numbers.
- **Target price of Rs77 based on SOTP:** Our target price is based on 9x FY11E Suzlon Wind EV/EBITDA, which is a 20% premium to global average and 10% holding company discount to Hansen and Repower, which are listed subsidiaries. Although the long-term average EV/EBITDA multiple has been around 12x, we do not expect the stocks to re-rate again to those levels due to much more moderate growth projections over next few years.

### Balance sheet overhang on the way to being addressed

Suzlon has seen a sharp correction on concerns regarding its ability to meet its debt obligations. However, we believe that the company will be able to pull out of these issues through dilutions, renegotiations on covenants and very likely the sale of its stake in Hansen, which could yield almost US\$900m at current price.

- There are near-term concerns on the test of covenants in September, when annualised consolidated EBITDA needs to be 4x net debt. If volume remains weak, Suzlon would be required to undertake further debt restructuring.

### Business fundamentals to remain weak over medium term

Wind turbine manufacturers (WTM) are facing severe demand/supply mismatch, as huge capacity has been added in the past 12 months. Even with the most bullish industry estimates, which suggest a CAGR of 14% for the industry over the next three years, the overcapacity situation is likely to persist over the next three to four years, leading to pricing pressure. Please refer to our global wind energy team's report, *A shift in power*, dated 1 May 2009, for detailed analysis on global demand supply dynamics.

- **A quarter of the global market is effectively closed to Suzlon:** The Chinese market (almost 25% of annual installation) is practically open only to local manufacturers. Suzlon would thus be unable to participate in a huge growth opportunity beyond the 10% of its capacity based in China. Even in India, medium-term demand may suffer, as the tax arbitrage window is closing.
- **Near-term assumptions are below guidance:** The company has guided for 2400–2600MW of revenues in Suzlon's Wind business for FY10 (213MW in 1Q FY10). We believe that despite early signs of recovery in 2H FY10, the company will miss its guidance by 10%, leading to EBITDA margins of 10% in FY10 vs guidance of 12–14%.

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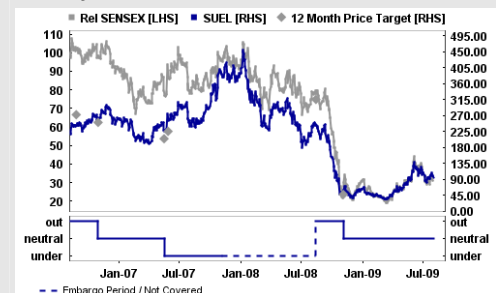
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SUEL IN		Underperform	
Stock price as of 05 Aug 09	Rs		96.75
12-month target	Rs		79.00
Upside/downside	%		-18.4
Valuation	Rs		79.00
- Sum of Parts			
GICS sector		capital goods	
Market cap	Rs m		150,612
30-day avg turnover	US\$m		150.1
Market cap	US\$m		3,162
Number shares on issue	m		1,557
<b>Investment fundamentals</b>			
Year end 31 Mar		2009A	2010E 2011E 2012E
Total revenue	bn	260.8	258.9 302.8 340.2
EBITDA	bn	27.9	25.2 34.7 41.7
EBITDA growth	%	40.2	-9.7 37.5 20.3
Adjusted profit	bn	11.3	5.9 14.0 18.4
EPS adj	Rs	7.58	3.65 8.72 11.45
EPS adj growth	%	-4.1	-51.8 138.7 31.3
PE adj	x	12.8	26.5 11.1 8.4
Total DPS	Rs	1.18	1.10 1.10 1.15
Total div yield	%	1.2	1.1 1.1 1.2
ROA	%	6.9	5.1 7.2 8.4
ROE	%	13.5	6.3 13.2 15.3
EV/EBITDA	x	9.4	10.8 7.9 6.6
Net debt/equity	%	107.8	99.1 80.0 60.2
Price/book	x	1.7	1.6 1.4 1.2

**SUEL IN rel SENSEX performance, & rec history**



Source: FactSet, Macquarie Research, August 2009 (all figures in INR unless noted)

# Suzlon Energy

## Company profile

Suzlon is Asia’s leading manufacturer of wind turbine generators (WTGs) and ranks fifth globally in terms of annual installations, with a market share of around 10%. Suzlon is a fully integrated wind power company that provides customers with consultancy, design, manufacturing, operation and maintenance services. The company has been the No. 1 supplier of WTG solutions in India and has expanded its presence in Australia, Brazil, China, Italy, Portugal, South Korea and the US.

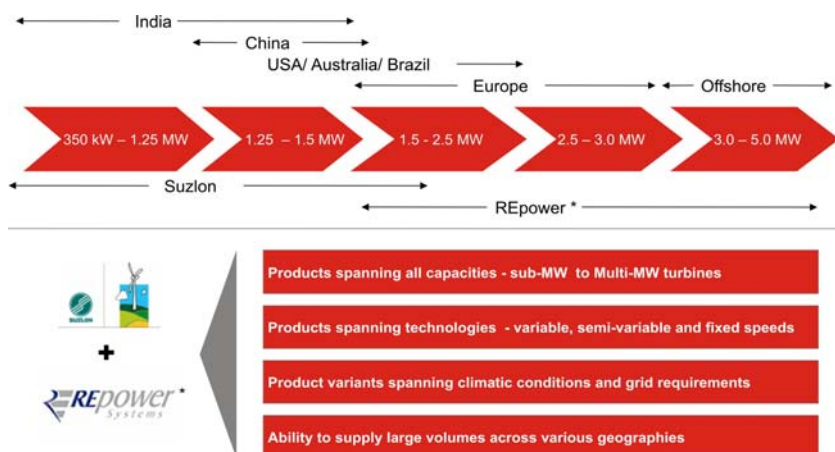
### Backward integration – A key sustainable advantage

Suzlon’s acquisitions – REpower and Hansen – combined with new capacity additions in foundry and machinery, have helped it to achieve a presence across the entire supply chain, and across all product segments and geographies. Given the increasing emphasis on design differentiation, the presence across the supply chain is a positive.

### Present across all product segments

With the acquisition of REpower, Suzlon has products spanning all capacities (5KW to 350KW); technologies (variable, semi-variable and fixed) and across grid conditions. The company can provide large volumes across geographies.

**Fig 1 Suzlon present across product segments**



\* Suzlon Group controls or influences, either directly or through voting pool agreements, approximately 86.5% of the votes in REpower

Source: Company data, Macquarie Research, August 2009

### The 90.7% stake in REpower systems AG enhances product portfolio

Suzlon completed its purchase of a 90.7% stake in REpower in May 2009 for US\$850m. Suzlon’s product portfolio of 600KW–2.1MW turbines complements REpower’s 1.5–5MW turbine portfolio. REpower also provides Suzlon access to European markets, particularly Germany, France and the UK. It also provides Suzlon access to REpower’s technology for offshore wind products.

### The 61.3% stake in Hansen provides access to gearboxes

In May 2006, Suzlon acquired 100% of Hansen, the second-largest gearbox and drive train manufacturer for WTGs worldwide, for €465m. It gave the company access to gearboxes, which are a critical component. Financially, the investment paid off, as Suzlon has since December 2007 listed Hansen (28% dilution). The IPO gave Hansen a market capitalisation of around €1.6bn. Suzlon sold a further 10% stake in January 2009 for €73m and is looking to sell the remaining 61.3% stake in the near future.

## Looking beyond the obvious

### Demand/supply mismatch to keep business fundamentals stressed

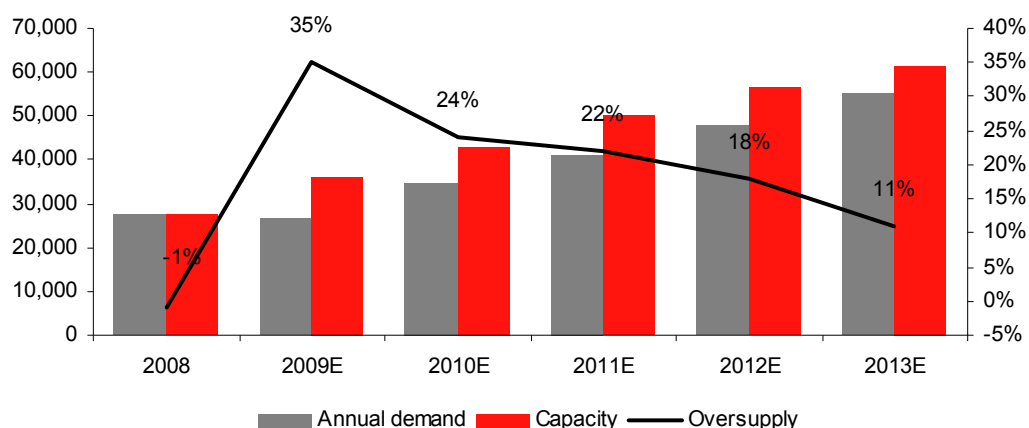
#### Demand CAGR of 15% forecast over CY08-13

For the 12 years from 1996 to 2008, the wind power sector enjoyed a CAGR of 29%, admittedly from a small base. The total installed wind power capacity has increased from 6GW in 1995 to 123GW by 2008. We expect the growth in annual installation to moderate over the next five years. According to well-regarded industry consultants BTM, annual installation is likely to see a CAGR of 15% over the next five years. This builds in strong 30% growth in CY10 on back of a 3% decline in CY09.

#### Oversupply of 11% projected even in CY13, based on current expansion plans

The industry undertook huge capacity addition programmes in 2008, anticipating continuing demand fuelled by huge liquidity and very high oil prices. Based on the current capacity expansion programmes, total global capacity would reach 61GW by 2013. Current projections are for the industry to have overcapacity of 11% in 2013. The last six months have not seen any major order inflow in the sector.

**Fig 2 Oversupply to remain until 2013 despite 15% demand CAGR in next 5 years**



Source: BTM, Macquarie Research, August 2009

### Balance sheet resolution is built into the stock price

#### Successful renegotiations on covenants and fundraising have eased concerns

The stock has rallied 195% from its bottom of Rs33 in March 2009, as concerns on extremely leveraged balance sheet have subsided aided by renegotiation of covenants, easing credit market and successful fund raising of US\$200m. We believe that despite gross debt of US\$2.4bn on its books the risk has come down.

#### Hansen sale likely in CY09 would significantly de-lever the balance sheet

There is a distinct possibility that Suzlon will sell its entire stake in Hansen. At the current price, the stake sale would fetch Suzlon US\$800m, which would essentially retire most of its long-term, high-cost debt. Even without the transaction, Suzlon is in position to service its obligations based on current earnings projections. The situation would be very different if the expected economic recovery does not play out, and at the same time, Hansen transactions were also ruled out.

## Financials – Moderate earnings CAGR of 13% over FY09–12

### Suzlon Wind: We remain below guidance

Suzlon Wind (total business, excluding REpower and Hansen), per our projection, would deliver CAGR of only 3% for its top line in FY09–12. Volume growth is also projected to be 3% CAGR over the same period. The growth is suppressed due to the large revenue decline in FY10 of 23%, followed by recovery in FY11 and FY12. The company has guided for volume estimates of 2400–2600MW in FY10, while we have projected volumes of 2220MW. The company has achieved volumes of only 123MW in 1Q FY10. Due to shortfall in volumes, we project the EBITDA margin to be at 8.9%, against company guidance of 12-14%. We forecast EBITDA margins would recover to 12.8% levels by FY12.

Ninety percent of the entire group debt is in Suzlon balance sheet. Moreover, most expansion has been done in Suzlon Wind. Interest and depreciation costs would peg down earnings, which we expect to witness a CAGR of only 3% over the FY09–12E period.

**Fig 3 Summary: Suzlon Wind financials**

Rs m	FY08	FY09	FY10E	FY11E	FY12E
<b>Sales (MW)</b>	<b>2,311</b>	<b>2,790</b>	<b>2,220</b>	<b>2,665</b>	<b>3,016</b>
% growth		21%	-20%	20%	13%
Revenues	114,665	158,970	122,697	144,346	171,526
% growth		39%	-23%	18%	19%
<b>EBITDA</b>	<b>17,136</b>	<b>15,730</b>	<b>10,949</b>	<b>16,609</b>	<b>22,029</b>
EBITDA margin	14.9%	9.9%	8.9%	11.5%	12.8%
Reported PAT	8,453	1,070	1,236	7,414	10,866
<b>Recurring PAT</b>	<b>11,305</b>	<b>10,030</b>	<b>1,236</b>	<b>7,414</b>	<b>10,866</b>
EPS	7.6	6.7	0.8	4.6	6.8

Source: Company data, Macquarie Research, August 2009

### Subsidiaries to witness strong earnings growth from margin improvement

Hansen and REpower are projected to report much stronger earnings growth than the parent on back of margin expansion and no significant pressure from interest and depreciation costs. Top-line growth in REpower and Hansen would be at 13% and 15% CAGR, respectively.

**Fig 4 Hansen – Operating leverage**

in Rs m	FY09	FY10E	FY11E	FY12E	CAGR
Sales (MW)	5,956	6,552	7,862	9,041	15%
% growth	42%	10%	20%	15%	
Revenues	39,940	44,967	56,738	62,141	16%
% growth	75%	13%	26%	10%	
EBITDA	6,940	7,175	9,818	11,058	17%
Margin	17.4%	16.0%	17.3%	17.8%	
Reported PAT	3,180	3,282	5,196	6,141	25%

Source: Macquarie Research, August 2009

**Fig 5 REpower – Margin expansion coming through**

in Rs m	FY09	FY10E	FY11E	FY12E	CAGR
Sales (MW)	1,253	1,441	1,657	1,823	13%
% growth	74%	15%	15%	10%	
Revenues	71,250	91,270	101,731	106,575	14%
% growth	78%	28%	11%	5%	
EBITDA	4,780	7,087	8,246	8,639	22%
EBITDA margin	6.7%	7.8%	8.1%	8.1%	
Reported PAT	2,060	4,530	5,402	5,797	41%

Source: Macquarie Research, August 2009

## Valuations are at a 10–30% premium to peers

### We maintain Underperform, with a SOTP-derived target price of Rs79

Our target price is based on sum-of-the-parts methodology. Suzlon Wind EV has been valued at 9x EV/EBITDA, a premium of 20% to global WTM valuation. The long-term average valuation of global WTMs has been around 12x one-year forward EV/EBITDA. We have base our price target on FY11 EBITDA. Moreover, with global industry growth moderating and un-quantified risk for Suzlon after blade cracking issues, we believe valuations would remain below the long-term average. Hansen and REpower are listed companies and we have applied a 10% holding company discount.

**Fig 6 12-month target price of Rs79**

Segment	in Rs m	Per-share basis	Basis
SUEL WIND	149,478	93	9 x FY11 EV/EBITDA
Hansen	38,772	24	10% holding company discount to market price
REpower	56,636	35	10% holding company discount to market price
<b>Total EV</b>	<b>241,331</b>	<b>152</b>	
Net debt	118,000	73	
<b>Equity value</b>	<b>123,331</b>	<b>79</b>	

Source: Company data, Macquarie Research, August 2009

### The 10–30% premium to its global peers is unjustified

On a consolidated basis, Suzlon is trading at 12.7x FY10E and 9.2x FY11E EV/EBITDA, which represents a 10–30% premium to global wind turbine manufacturers' valuations. Moreover, Suzlon has just resolved serious quality issues with its wind turbines. The after effects of the quality issues are not yet known, nor are they built into the numbers. The uncertainty around this issue would further restrict any premium valuations to Suzlon, in our view.

**Fig 7 Suzlon at an unjustified 20–50% premium to peers on EV/EBITDA basis**

Company	Ticker	Current Price	Macq Rating	Target Price	Upside	Mcap (€m)	Mshr 08 (%)	EV / Sales		EV / EBITDA		PER		EPS 09-11
								2010E	2011E	2010E	2011E	2010E	2011E	
Suzlon	SUEL IN	96.8	UP	79.0	-20%	2,342	2%	1.2	1.0	12.7	9.2	26.5	11.1	7%
Vestas	VWS DC	363	UP	300	-17%	9,912	20%	1.7	1.4	13.9	9.5	26.0	18.7	2%
Gamesa	GAM SM	15.3	OP	17	10%	3,727	12%	1.1	0.9	10.7	7.6	27.0	17.1	18%
Nordex	NDX1													
	GR	12.6	UP	11	-9%	840	3%	0.6	0.5	12.0	7.1	33.7	18.7	-3%
Hansen	HSN LN													
Transmisson		1.30	N	1.5	18%	1,012	-	1.9	1.4	15.0	7.6	64.0	14.4	29%
REpower	RPW													
	GR	110.5	NR	NR	NR	1,014	4%	0.7	0.6	10.9	8.1	20.2	14.8	75%

Source: Bloomberg, Macquarie Research, August 2009

## Demand – Asia to lead recovery

### Government incentives to support demand in long term

Government support for the industry is likely, propelled by both economic and environmental drivers. Key catalysts are likely to include the following:

- **Economic factors** – high fuel prices and fuel security
- **Environmental factors** – rate of climate change

We thus expect continued support for wind power across the globe.

**Fig 8 An overview of mechanisms in key wind energy markets**

Country	Support regimes for renewable energies
Germany	Sale at regulated prices to network operators close to the place of generation.
Spain	Sale at regulated prices to closest distributors of fixed premium + sale at market prices.
US	Tax credit (production tax credit) for 10 years from the in-service date of the power plant. Accelerated depreciation for certain types of equipment-lending programmes (in some states). Mandatory renewable energy quotas (Renewable Portfolio Standards).
France	Purchase obligation at regulated prices under non-renewable 15-year or 20-year contracts (depending on the type of energy) with EDF or a non-nationalised distributor. Calls for tenders on government-funded energy projects. Tax incentives.
Greece	Purchase obligation under 10-year contracts renewable once for 10 years with transmission or distribution network operators.
Italy	Green certificates, issued during the first 12 years of operation. Purchase obligation under a standard one-year automatically renewable contract with the operator of the transmission network.
Portugal	Purchase obligation at regulated prices under contracts of varying terms with the operator of the transmission network.
UK	Former regime: Long-term fixed price purchase contracts. New regime since 2002: Renewable obligation certificates, plus exemption from the climate change levy.

Source: EDF Energies Nouvelles prospectus, pp 60–62, Macquarie Research, August 2009

We believe that volume demand will be highly supported by geopolitics and governmental support schemes. With the mandatory renewable targets set by the European Union and China, followed by the Obama administration drafting legislation on the establishment of a federal renewable production standard (RPS) in the US, which in our view is highly likely to be signed into law, there lies immense support for renewable energy demand creation.

**Fig 9 Governmental renewable targets**

Region	Plan	Targets	Potential capacity*	Current capacity
EU	20-20-20	20% energy from renewables, 20% reduction in CO2 and 20% energy efficiency by 2020 (12% is allocated to wind)	205GW	66GW
China	15-20	15% energy to be generated by renewables in 2020 (including hydro power)	377GW	12GW
USA	21-20 25-25	21% electricity to come from renewables in 2020, or 25% in 2025 depending on legislation	387GW 484GW	25GW 25GW

\*Based on 30% average US and Chinese capacity factor and 26% for Europe. Also assuming China and US to obtain all renewable generation from wind whereas 12% is used for Europe.

Source: Macquarie Research, August 2009

#### **Wind stands to capture a significant share of renewable energy capacity**

Although not all renewable power generation will come from wind energy (eg, 12% of the EU's 20% energy from renewables is to come from wind power), wind stands to capture a significant share. As electricity, rather than heating fuel or car fuel, is likely to shoulder the bulk of the renewable energy burden and wind power is much more cost-effective than other renewable sources, wind is likely to play a massive role (eg, we expect it to constitute a major part of China's energy plans as it is a developed technology offering quick installation).

## Volume development 2008–13: 15% CAGR projected

Growth rates of installed capacity are expected to slow but continue at high levels going forward, with around a 15% CAGR until 2013. This is primarily driven by growing awareness of climate change and the need to mitigate climate changes backed by political sentiment, which has never been stronger.

Having analysed the industry drivers and considering how these drivers are likely to develop, we conclude that the long-term outlook for wind turbine manufacturers is on balance very positive. However, the short-term outlook is heavily blurred by credit market constraints precluding wind farm developers in particular from financing new projects.

**Financing outlook:**  
*Highly worsened  
short term*

- **Project funding:** This has significantly worsened, practically coming to a complete halt, for wind developers not having sufficient strength in their balance sheets to increase the equity share in projects. Wind developers with the capability of increasing their equity share continue to have access to debt financing, although at a higher interest rate spread. In addition, tax equity is drying up in the US and has significantly hurt the PTC and ITC subsidy schemes.

**Capacity factor outlook:** *Neutral*

- **Capacity factors:** Many markets, such as the US, the UK, Spain, Italy and Poland, have vast untapped wind resources, which offer strong expansion opportunities for years to come without compromising the outlook for average operating load factors.

**Asset life outlook:**  
*Neutral to positive*

- **Asset lives:** This is still 'unproven' for wind farms, but with re-powering they are likely to prove longer (rather than shorter) than the 20 years built into most models.

**Turbine price outlook:** *Negative*

- **Turbine prices:** The outlook here has recently turned towards deflating prices, thus imposing uncertainty of pricing power on the turbine manufacturers. However, lower prices are supporting further volume growth, but this may prove a short-to-medium term positive that starts to decline in the next decade.

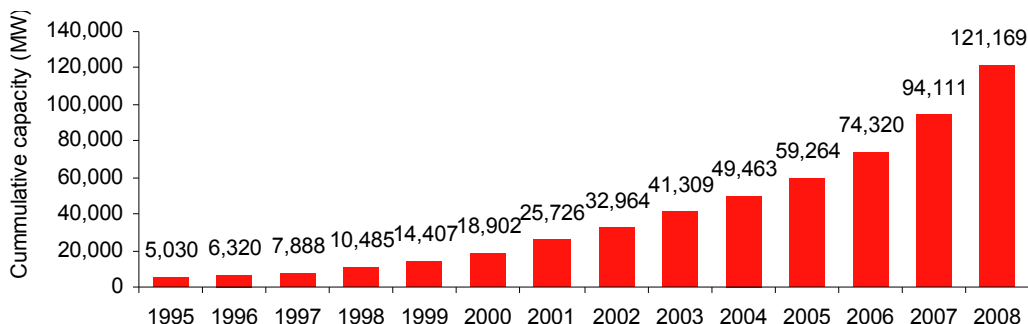
**Government support outlook:**  
*Very positive*

- **Government support:** This should ensure wind farmers' electricity sales prices remain favourable, and that sales volume risk remains very low or nonexistent for wind farmers. The multinational regulatory framework is likely to be extended and enlarged, and effective pricing mechanisms have now been developed for executing the required energy changeover. Our company forecasts show current tariff levels and certificate prices moving sideways in real terms, but they are more likely to rise than fall. This is because many governments will appreciate, nearer to deadlines, the need to accelerate wind-energy supply growth if they are to meet national or regional targets.
- The negative short-term balance for these drivers leads to high uncertainty of installation growth for 2009 and possibly 2010. However, the positive long-term outlook will continue to encourage strong growth in the installation of wind farms once the credit markets eventually normalise.

Bear in mind that earnings growth for wind farmers will not be driven principally by price advances and margin expansion; it will be driven by sales volume. Strong prices and margins serve to encourage significant volume expansion, which of course comes through the construction and commissioning of more and more wind farms, thus feeding growth expectations for the turbine manufacturers and their sub-suppliers.

There has been a strong development in the wind sector spurred by favourable government-backed wind regimes, supporting growth rates of some 28% since the mid-1990s. The question then arises whether this growth can continue.

**Fig 10 Wind power capacity has expanded at a CAGR of 28%**



Source: BTM, Macquarie Research, August 2009

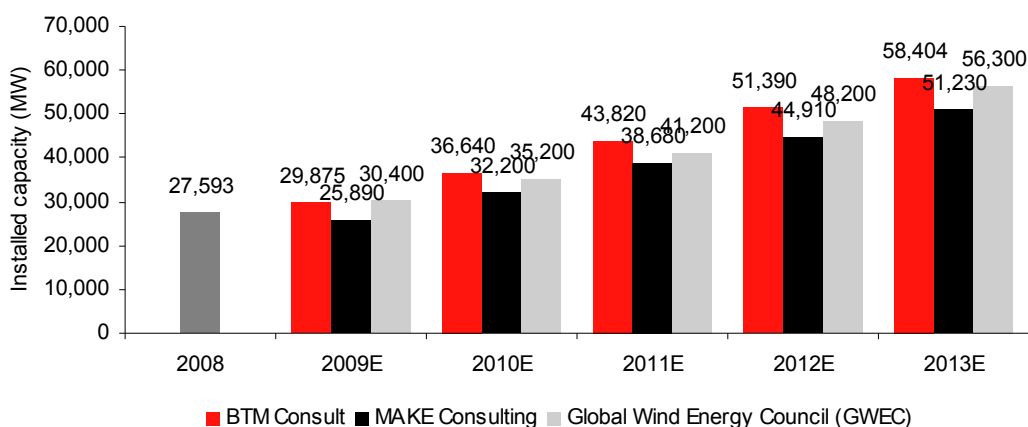
BTM Consulting, headquartered in Denmark, has been in existence since 1986. Its experience and databases are thus widely admired, to the extent that it has largely become the group that sets consensus on growth in turbine installations and flows and bottlenecks in the turbine industry supply chain.

**The magnetism of the BTM-C forecasts**

Large wind farmers, turbine manufacturers and sub-suppliers offer industry forecasts in their results presentations that more often than not are sourced from 'BTM Consult'. Other industry commentators and advisors talk of consensus expectations, but we suggest here that rightly or wrongly these expectations are in essence set by BTM.

In the wake of increasing political support and maturing of the technology, a number of consultancies have emerged during recent years. In order to get a more diversified market outlook we have shown market projections from the three leading entities within the wind sector: BTM; MAKE Consultancy; and the Global Wind Energy Council (GWEC).

**Fig 11 Consensus forecasts strong historical growth to level off gently**



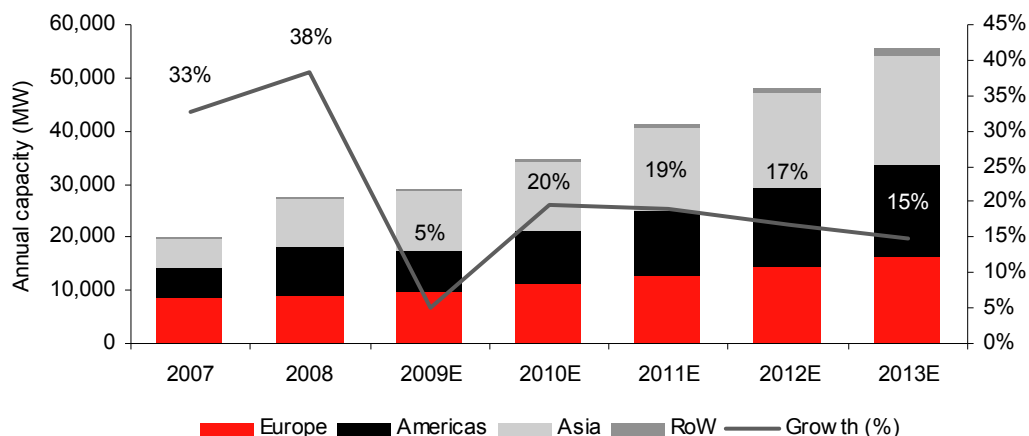
Source: BTM Consult, MAKE Consulting, Global Wind Energy Council, August 2009

**Significant consensus revision of North American demand leading to expectations of 5% global growth for 2009**

There is a significant difference between the 2009 forecasted installations where MAKE expects some 15–20% less volume being installed than GWEC and BTM. The 2009 projections from MAKE reflect US expectations of 1,500MW (from 7,500MW) which BTM is supporting in accordance with its volume revisions late March, thus the consultancies expect less installations than before the credit crisis and tax equity drying up.

The average growth trajectory from the three consultancies points to a CAGR of 15% until 2013, with 2009 slowing substantially, only growing by 5%. The consensus view is that demand is to revert to its original growth trend from 2010 onwards, reaching new capacity additions of 55GW in 2013.



**Fig 12 Regional split of average market volume growth trajectory**

Source: BTM Consult, MAKE Consulting, GWEC, August 2009

**We appreciate that the two consultancies have different approaches to forecasting**

The BTM and MAKE global projections are aggregations of bottom-up, country-by-country forecasts, as shown in the table below. We appreciate that the two consultancies have a different approach to forecasting. We understand that BTM bases its forecast on a combination of collected data from wind farmers as well as geopolitical trends, whereas the point of origin of the MAKE forecast is, albeit not the only driver, the supply chain and the volumes supported by it.

**Fig 13 Detailed consensus forecasts (selected countries/regions)**

(megawatts)	2008	2009E	2010E	2011E	2012E	2013E
<b>Europe</b>						
Germany	1,666	1,600	1,800	2,300	2,500	3,000
France	1,157	1,300	1,500	1,650	2,000	2,100
Spain	1,842	1,750	1,900	2,300	2,200	2,500
United Kingdom	875	1,200	1,600	1,700	2,000	2,300
Italy	1,007	925	1,000	1,250	1,350	1,450
Portugal	677	700	875	1,000	1,100	1,350
Others	1,853	2,095	2,353	2,343	3,443	3,687
<b>Total</b>	<b>9,076</b>	<b>9,570</b>	<b>11,028</b>	<b>12,543</b>	<b>14,593</b>	<b>16,387</b>
<b>Americas</b>						
US	8,458	6,000	8,500	10,500	12,500	14,250
Canada	542	800	1,000	1,350	1,750	2,150
Other	327	1,073	550	507	633	917
<b>Total</b>	<b>9,326</b>	<b>7,873</b>	<b>10,050</b>	<b>12,357</b>	<b>14,883</b>	<b>17,317</b>
<b>Asia/Pacific</b>						
China	6,290	7,550	8,250	9,250	10,000	11,250
India	1,699	1,900	2,150	2,750	2,975	3,250
Australia	469	300	400	475	575	750
Japan	297	350	375	450	550	600
Others	96	1,117	1,865	2,618	3,600	4,457
<b>Total</b>	<b>8,850</b>	<b>11,217</b>	<b>13,040</b>	<b>15,543</b>	<b>17,700</b>	<b>20,307</b>
Rest of World	341	312	562	790	990	1,340
<b>World total</b>	<b>27,593</b>	<b>28,972</b>	<b>34,680</b>	<b>41,233</b>	<b>48,167</b>	<b>55,350</b>
- growth	38.3%	5.0%	19.7%	18.9%	16.8%	14.9%

Source: BTM, MAKE, GWEC, August 2009

We do not intend to denigrate either BTM nor MAKE or their forecasts, which are not followed by the largest operators and financiers in the industry without reason.

We nevertheless need to make the following points.

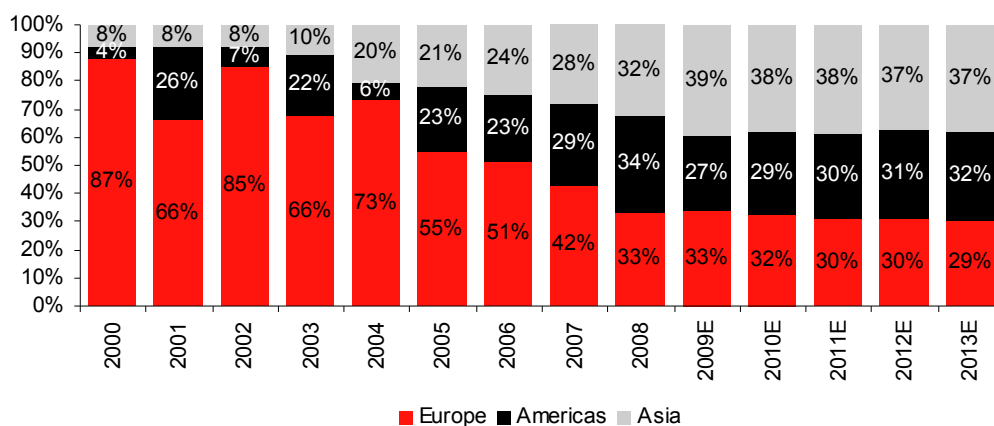
- The consensus thinking on global installation growth suggests the mean of a broad spread of analysts and consultants with markedly varying views – but in fact BTM projections in particular exert exceptional influence over consensus expectations.

**Although we expect 2009 to be a troubled year, with 2010 in the danger zone as well, we suggest that the growth prospects from 2014 onwards will be significantly less than 15% growth in 2013**

Thus we refer back to the sloping line in Figure 48, which shows annual installation growth slowing gradually from 20% in 2010 to 15% in 2013. This seems prudent and sensible, and one has to remember the simple arithmetical fact that as the base installed capacity grows and grows, even adding 27GW in new capacity one year, the 33GW the next, then 39GW the next year would constitute a gradually slowing percentage growth rate. Although we expect 2009 to be a troubled year with 2010 in the danger zone as well, we suggest that the growth prospects from 2014 onwards will be significantly less than the 15% in 2013 with the industry going ex-growth from 2014 onwards.

At the beginning of 2008 the US was forecasted to account for 17–19% of global capacity additions in 2010 and in 2011. Even before the new administration came into office, this forecast had been upgraded to 29–30% and with President Obama and the Democratic majority in Congress having initiated ambitious steps towards renewable energy, we may well see a greater acceleration in US wind capacity expansion. However, this would not be enough to offset the maturity of European markets in terms of new installations (see Macquarie projections in the next section).

**Fig 14 Geographical split of global capacity additions (consensus)**



Source: BTM, MAKE, GWEC, Macquarie Research, August 2009

The expectation that the Chinese wind market will outpace the expected global average growth rate in the installed capacity base of 22–23% over the next five years, and should become increasingly important in its market share, growing from 10% of global installed capacity end-2008 to 15.5% in 2012. In order to reach the 100GW to which the NDRC is expected upgrading its targets, the average CAGR would have to drop to 11.5% from 2013 until 2020. In light of the fact that the majority of wind turbine manufacturers have advocated market growth 20–25% until 2020, this seems to be a somewhat drastic reduction, but not impossible.

**Macquarie projections – In line with global consensus**

**We are more bearish on North America**

We hold a more bearish view on the North American and European development, especially for 2009. We expect 6.0GW in US and 400MW in Canadian additions this year thus being slightly more negative on the North American markets and in regard of the European markets we remain cautious expecting a 10% decline to 8.15GW in 2009. We see the Chinese development on par with the projections from the consultancies.

**We harbour concerns about the European wind market in the short- to mid-term**

Despite firm EU governmental targets (to which member states agreed to comply in December 2008) and well-functioning subsidy systems, we harbour concerns about the European wind market in the short- to mid-term. Whereas the US government is seeking to catapult renewable back to the growth levels of the past years, the European stimulus initiative lack the short-term action points necessary to reignite the availability of project financing.

**Credit flows need to improve significantly**

We firmly believe that the European subsidy schemes in place will secure a more stable development than that experienced in the US. However, whereas the financial bottleneck in the US is expected to be unlocked sooner rather than later and is very likely to result in orders by 2H09, there is a risk that the European slowdown is to be prolonged as the current stimulus has not resulted in funding spreads narrowing significantly. There is an urgent need for banks and credit institutions to regain confidence to again be willing to finance long-term projects.

**China remains solid, no reason for concern**

With regard to China, we have no concerns over the certainty of the continued growth trajectory of the country. As discussed earlier, Chinese growth is expected to remain strong through 2009, with ~70% of wind farmers being state-owned utilities and the renewable industry amongst the preferred industries under governmental policy and, therefore, on the preferred borrowers list for the banks. In addition, the vast majority of funding is government-driven and domestically financed, so Chinese wind farmers are not experiencing the credit squeeze anywhere near as harshly as in western markets, if there is any squeeze at all.

**Investments in wind assets down 64% YoY in 1Q09**

However, project finance for new build was down 64% in 1Q09 YoY following a steep decline in 4Q08 investments as well as shown in the next table, thus supporting our view of continued difficult markets through 2009.

**Fig 15 New build wind assets down by 60% YoY in 1Q09**

Asset class	1Q08	2Q08	3Q08	4Q08	1Q09	YoY (1Q)
Total (US\$bn)	11.2	15.0	11.7	10.1	4.5	-60%
Balance sheet/Syndicated equity	7.9	8.9	5.9	5.2	3.7	-53%
<b>Project Finance (incl equity)</b>	<b>3.2</b>	<b>6.0</b>	<b>5.9</b>	<b>4.9</b>	<b>1.2</b>	<b>-64%</b>

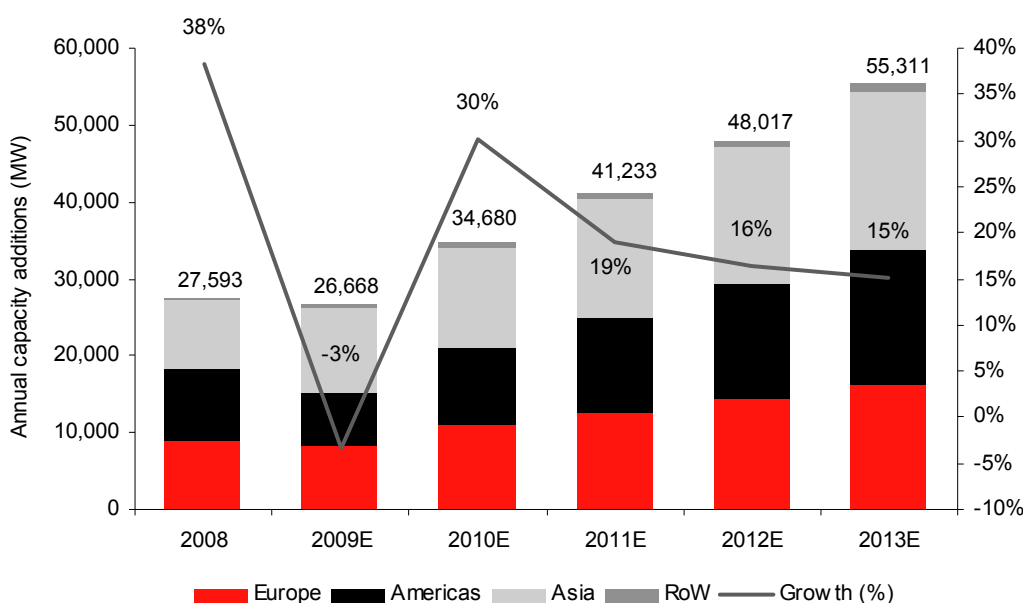
Note: the figures are based on closed deals

Source: New Energy Finance, August 2009

**We forecast 3% decline in 2009 global volumes with the US and EU down by 25% and 10% respectively, counterweighed by China**

We forecast a combined 3% decline in global capacity additions for 2009, as the slowdown in western markets is being counter-weighted by strong growth in Asia. Hereafter, we expect the growth trajectory to revert to the original projections made prior to the credit crisis. Therefore, we expect 2010 installations of 35.6GW with a continuing growth rate of 15–19% until 2013. We do acknowledge that asset financing has dropped significantly, which suggests that our US and European forecasts (down by 25% and 10%, respectively) could prove too optimistic.

**Fig 16 Macquarie volume growth forecasts 2009–13 (CAGR of 15%)**



Source: BTM, MAKE, Macquarie Research, August 2009

**Fig 17 Regional split of new installations**

Consolidated projections	2008	2009E	2010E	2011E	2012E	2013E	CAGR (%)
Europe	9,076	8,155	11,028	12,543	14,443	16,232	12.3
Americas	9,326	6,985	10,050	12,357	14,883	17,548	13.5
Asia	8,850	11,217	13,040	15,543	17,700	20,428	18.2
RoW	341	312	562	790	990	1,103	26.4
<b>Total installations</b>	<b>27,593</b>	<b>26,668</b>	<b>34,680</b>	<b>41,233</b>	<b>48,017</b>	<b>55,311</b>	<b>14.9</b>

Source: Company data, Macquarie Research, August 2009

## Chinese market – Opportunity limited to domestic manufacturers

### Plans to add 100GW over next 10 years

The Chinese government introduced an ambitious national commitment in 2004, setting a target for 16% of its energy to come from renewable by 2020. This target was slightly revised to 15% in 2020 (widely addressed as the '15–20' plan) when the National Development and Reform Commission (NDRC) issued its Medium-term Development Plan for Renewable Energy in China in September 2007.

In contrast to the plans initiated in Europe and the proposal in the US in which hydro-power is excluded from the definition of renewable sources, the Chinese '15–20' plan calls for all renewable sources including hydro-power.

The reform as it currently stands calls for the following.

**15% energy share to come from renewables by 2020**

**Fig 18 Specific objectives of the Development Plan for Renewable Energy**

	2010	2020
<b>Renewable energy share of total energy demand</b>	<b>10%</b>	<b>15%</b>
- Hydro power	190GW	300GW
- Wind power	10GW	30GW
- Biomass	5GW	30GW
- Solar PV	0.3GW	1.8GW

Source: National Development and Reform Commission, August 2009

In the beginning of 2008 China got around 8% of its primary energy from renewables. Given that the country is expected to almost double its energy consumption by 2020, the goal of increasing the renewable share to 15% leads us to estimate that the amount of renewable energy volume in absolute terms is set to more than triple.

The 2010 target for wind power of 10GW was already passed by the end of 2008, with China reaching installations slightly above 12GW two years ahead of the deadline. It is however far from the entire 12GW that has been connected to the grid, thus being capable of supplying electricity to end users.

It is widely expected that the NDRC will revise its 2020 target of 30GW of installed wind capacity upwards to at least 100GW. This is supported by the Chinese government planning six  $\geq 10$ GW level wind power bases across the country, which according to the China Wind Energy Association alone will bring Chinese capacity to the 100GW level, let alone all the additional smaller wind farms being initiated.

**2010 target of 10GW was surpassed two years early – however, it is far from all 12GW that is connected to the grid**

**Fig 19 100GW projects under planning**

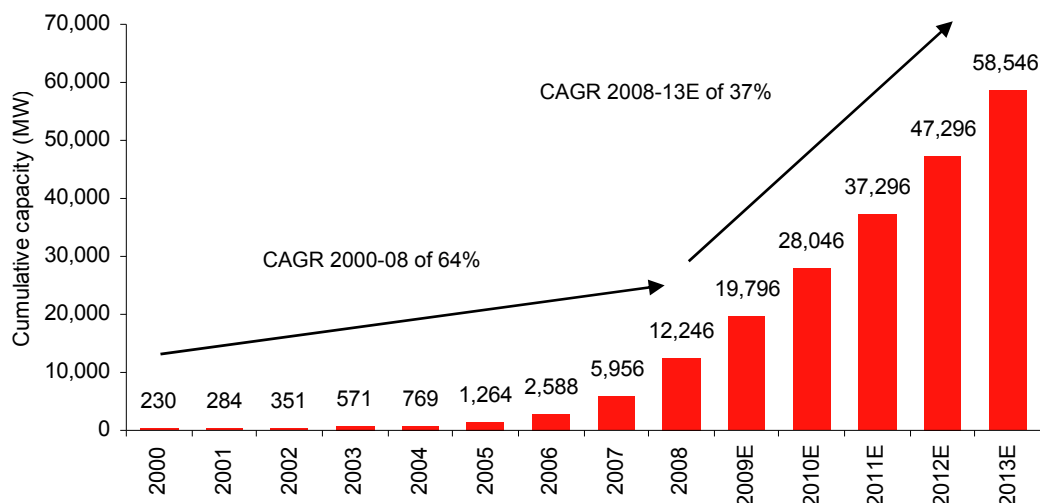
Province	Capacity (GW)
Jiuquan	12
Xinjiang	20
Inner Mongolia	20
East Mongolia	30
Hebei	10
Jiangsu	10
<b>Total</b>	<b>102</b>

Source: China Wind Energy Association, August 2009

**China has potential wind resources to cover 10% of global generation of electricity by 2020**

China has even greater wind resources when we also consider its offshore potential. The assessment issued by NDRC along with the development plan for renewable energy in September 2007 pointed towards the nation having 300GW of exploitable onshore wind resources. Combined with offshore resources, China has a total potential of around 1,000GW of wind power, equivalent to approximately 10% (based on an average capacity factor of 30%) of the global electricity generation projected for 2020 by the IEA. We expect Chinese wind installations could reach ~130GW by 2020, thus sustaining CAGR of 22%.

**Fig 20 Chinese wind power to continue supporting high growth rates**



Source: BTM, MAKE, Macquarie Research, August 2009

**The Chinese wind market is becoming increasingly important in its global market share of new installations**

The Chinese wind market is expected to continue to support high growth rates over the next four years at least, and should become increasingly important in its market share, growing from 10% of global installed capacity end-2008 to 20% in 2013. In order to reach 100GW, the minimum the NDRC is expected to upgrade its targets to, the average compounded growth rate in the installed capacity base would have to drop to 8% from 2013 until 2020. Considering that several wind turbine manufacturers have advocated market growth of 20–25% until 2020, this seems to be a somewhat drastic reduction. Applying a 20–25% growth rate would result in 180–250GW of installed capacity in China by 2020, thus exceeding our expectation of ~130GW.

#### **Government funding makes Chinese plans realistic**

The development of wind power in China is to remain widely on track in 2009 and beyond in our view, thus becoming one of the strongest drivers behind global growth for the industry. The main reasons for our view are as follows:

- Continued strong governmental support in terms of preferential policy as well as set obligations.
- Loosening monetary policy resulting in cheaper and more ample project financing as the government encourages lending to renewable energy.

**China is to remain widely on track in 2009 and beyond**

**Chinese investments in wind power are largely government-driven and domestically funded**

Wind farmers in China are to a wide extent state-owned utilities constituting around 70% of all new installations in 2007. Financing costs are declining and investments in wind power are largely government-driven and domestically funded, so Chinese wind farmers are not feeling the credit squeeze nearly as harshly as the wind farmers undertaking investments in Europe and the US.

Amid the credit crisis having an enormous impact on project funding in Europe and the US, we believe that domestic Chinese funding costs for wind projects will become cheaper in 2009 due to the following:

- The renewable industry is amongst the preferred industries under the governmental policy and therefore on the preferred borrowers list for the banks.

- The government is expected to continue its loosening monetary policy in 2009 to stimulate economic growth – thus leading to lower interest rates and lower margins, and therefore increasing the money supply available for lending to government-encouraged industries.

#### **Domestic WTM manufacturers to benefit from the initiatives**

***China clearly aims for domestic produced equipment to achieve its ambitious renewable targets***

It is without doubt the domestic wind turbine manufacturers that will benefit the most from the initiatives in the structure reform. This is clear from the third objective set out by the NDRC in the reform: “China will actively promote the development of renewable energy technologies and industries, building up a renewable energy technology innovation system. By 2010, China will basically have achieved the ability to produce domestically the main renewable energy equipment its uses. By 2020, local manufacturing capability based mainly on home-grown Intellectual Property will be achieved.” Furthermore, China requires at least 70% of the wind turbine to be manufactured within the country to allow turbine deliveries at all.

This clearly indicates that the ~30 domestic turbine manufacturers in China, among others Goldwind, Sinovel and Dongfang Electric, will be significant beneficiaries. In 2008 domestic companies installed around 70% of the total 6.3GW installed (up from 57% in 2007). However, we believe that foreign WTMs which have already created a solid base within China, including investing in local production facilities, such as Vestas (11% market share in 2008), Gamesa (8% market share in 2008) will be able to maintain a solid market share (possibly at above 10% for one or two foreign manufacturers).

***Gaining share in China as an international WTM may prove almost impossible***

On the other hand, it is most likely that international WTMs without a significant production base already established in China will only be able to capture a marginal fraction of the market; in fact anecdotal evidence is already present in this regard as Gamesa, GE Wind and Suzlon experienced significant market share reductions in 2008, while the two domestic manufacturers, Mingyang and Windey, have now emerged with market shares of 3% and 4% respectively. That is to say holding market share as an international WTM company is difficult in China, and gaining share may prove almost impossible given the huge expansion from lower-cost domestic Chinese WTMs.

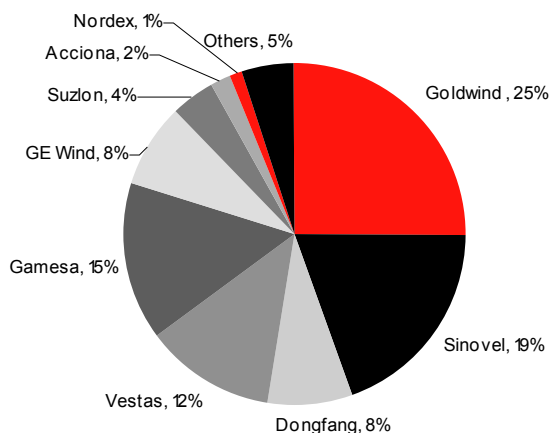
#### **Encouragement of localisation of wind power-related investment**

The Chinese government has strong policy support for the localisation of wind equipment.

- Wind power generation projects using domestic wind turbine technologies and facilities will be given priority grid connection.
- Domestic facilities purchased by wind farms invested and constructed by foreign investors can enjoy reduced value-added tax (VAT) and enterprise tax. Under the new VAT system effective in 2009, domestic investors can also enjoy VAT rebate.
- Clean Development Mechanism (CDM) – a wind farmer is eligible for application of CDM in China only when the majority owner of the project is a domestic entity.
- 50% off VAT levied on electricity generated from wind power.

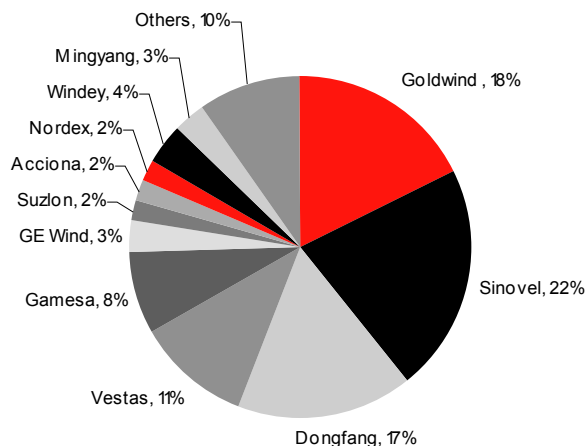
While the competition from domestic Chinese turbine manufacturers is fierce, the superior technology and O&M skills of the large international WTMs are still in demand from better-capitalised utilities.

Fig 21 Chinese market 2007 – Suzlon's share was 4%



Source: MAKE, Macquarie Research, August 2009

Fig 22 Chinese market 2008 – Suzlon's share down to 2% despite capacity additions



Source: MAKE, Macquarie Research, August 2009

**Tariffs vary according to wind conditions and the local desulphurised coal-fired power tariff**

**The wind tariff is about Rmb0.25/kWh higher than that of coal-fired power**

**Obama stated high intentions for renewables as president-elect**

**29 states and D.C. have adopted their own RPS**

### Government support and tariff subsidisation

Currently, wind power tariffs are set by the government and vary according to wind conditions and the local de-sulphurised coal-fired power tariff. For projects that are part of the tendered projects from the central government (>50MW), the project tariff is usually the average of the bidding tariffs. The wind farm can enjoy the approved tariff for the first 30,000 hours of full load operation; subsequently, the tariff will revert back to the average on-grid tariff locally. For projects less than 50MW in size, the provincial government has the discretion to approve the project and tariff, which need to be ultimately confirmed by the NDRC.

On average a wind power tariff in China is about Rmb0.25/kWh higher than the local de-sulphurised coal-fired power tariff. This additional tariff is funded through a renewable tariff that is levied on end users at Rmb0.2 cents/kWh.

### US Demand – Funding needs to revive

#### Government push towards renewable sources of energy

Following the change in administration with the inauguration of President Obama, renewable energy has a far-more favourable outlook than during the previous administration. While being president-elect, Mr Obama stated his intentions to do the following.

- Lead an international forum on climate change, including all large emitters.
- Introduce a RPS (renewable production standard) targeting 10% of US electricity to be generated by renewable sources by 2012 and 25% by 2025.
- Investment of US\$150bn in renewables over a 10-year period.
- Initiate a cap-and-trade programme for CO<sub>2</sub> to be 100% auctioned (no free allowances).
- Reduce oil consumption by 35%.
- He did not mention any intention to ratify the Kyoto Protocol.

Although the US government has no stated intention to ratify the Kyoto Protocol (it is doubtful this will occur at all), 29 states and the District of Columbia have adopted their own RPS, thus shifting power generation partly to renewable sources.

Although there have been several proposals to create a federal RPS, no such standard has yet succeeded in reaching the floor of Congress.

### Huge focus on renewable energy in the stimulus bill

With the American Recovery and Reinvestment Act (broadly known as the stimulus bill, or ARRA) having been signed into law, President Obama's administration has taken the first major step towards improved market conditions for renewables. Wind power in particular was promoted through the following initiatives.

- The Production Tax Credit (PTC) applicable for new commissioned wind parks is extended through 2012.
- The PTC was made interchangeable with the Investment Tax Credit (ITC), thus swapping a 10-year US\$22/MWh tax credit for a one-time tax credit equivalent to 30% of the total capex cost.
- Tax credits made refundable through 2009 and 2010. This means that wind farmers can get a cash grant from the government in lieu of tax equity, effectively cancelling the need for complex tax-equity financing.
- A US\$6bn loan guarantee fund to be created that will offer a partial reduction in risk for project finance loans to renewable energy such as wind farms.
- The ability for manufacturers (such as wind turbine manufacturers) to claim the ITC when building new facilities in the US. The total value is capped at US\$2bn.

**Cap-and-trade scheme about to be introduced**

In addition to the initiatives included in the ARRA, the US administration continues to address issues that concern climate change, thus affecting renewable power generation. President Obama included a cap-and-trade system in his budget plan in his first State of the Union speech before Congress on 25 February.

**Cap-and-trade scheme expected to generate US\$80bn a year in revenues**

Furthermore, President Obama expects to generate annual government revenues of US\$80bn by 2012 from auctioning off CO<sub>2</sub> emission allowances. Also, the president called for a market-based cap on emissions in order to drive the production of renewable energy, when he outlined plans for annual government investments of US\$15bn in renewables for the next ten years.

**RPS legislation likely to include CO<sub>2</sub> emission penalty of US\$30–50/t**

Legislation that includes a federal RPS is being drafted, including a cap-and-trade system, with the Senate discussing a US\$30 penalty and the House of Representatives discussing a US\$50 penalty per tonne of CO<sub>2</sub> emitted in excess of the obtained allowances.

Extending the PTC through 2012 (ITC runs through 2016) has provided more certainty for investors to make long-term investment plans. Bear in mind that it typically takes 1–2 years to build a wind park; hence the 1-year extensions of the past have not provided a stable investment environment. The current credit crisis notwithstanding, we think the extension will provide conditions for a more stable growth path going forward.

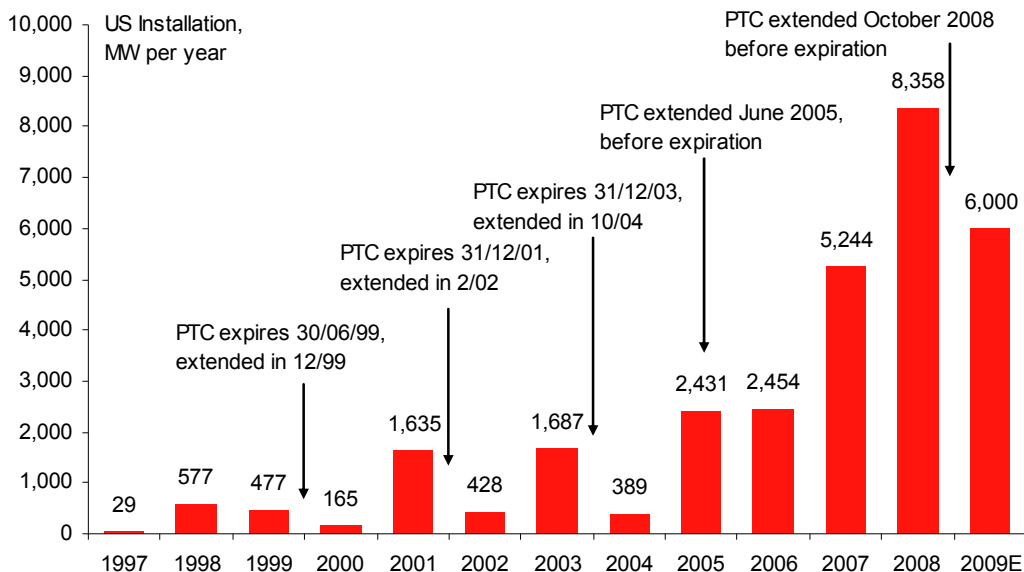
**Greening of Washington could possibly be postponed to late 2H09**

The greening of Washington could, however, take longer than we believe equity markets have anticipated at first glance. In April, Macquarie hosted Geoff Segal, our government relations specialist, for a discussion about the progress on renewable-support legislation. The key message was that it is likely to be months before support is to come from Washington. Thus it could possibly be 3Q09 or 4Q09 before the US administration is able to implement the initiatives aimed at reigniting the renewable sector in the country.



**Credit crisis leads to a continuation of the boom-bust cycles in the US**

**Fig 23 Failing to extend PTC before expiration led to US boom-bust cycles**



Source: BTM, Macquarie Research, August 2009

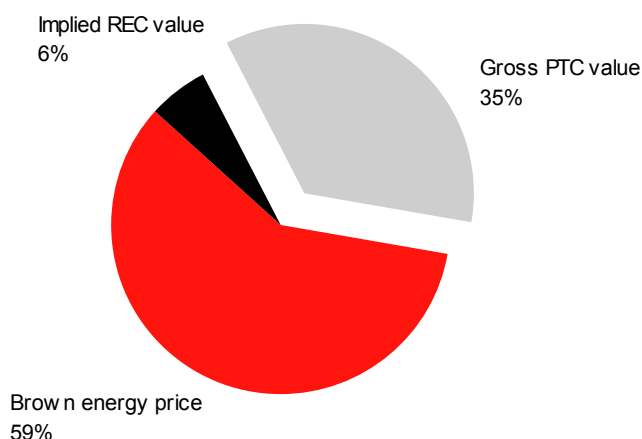
**Tax equity – Financial investor key to monetising PTC benefits**

In the US, the remunerations for wind farmers consist mainly of two components: revenue from selling produced electricity; the PTC (production tax credit) delivering US\$22/MWh of produced electricity, indexed to the CPI, for a period of ten years from the date of commissioning.

Remuneration delivered by the PTC constitutes a significant part of the total revenue generated by a US wind farm; thus, being able to monetise the PTC is crucial for a wind farm to cover its cost of capital.

**PTC constitutes a significant part of the total revenue generated by a US wind farm**

**Fig 24 Typical bundled PPA value – PTC crucial to total remuneration**



Source: Macquarie Research, August 2009

The issue faced by international wind farmers is that they simply do not have enough US income to monetise a tax credit on their own. Hence, partnerships between wind farmers and profitable US companies allow the partners to use the PTC against their overall US taxable profits. The partner was typically a financial institution that would provide a significant proportion of the total wind farm cost and be guaranteed a certain yield on the capital, of which the bulk would be provided by the PTC.

**Bankruptcy of  
Lehman Brothers  
described as the  
worst day for the  
wind industry**

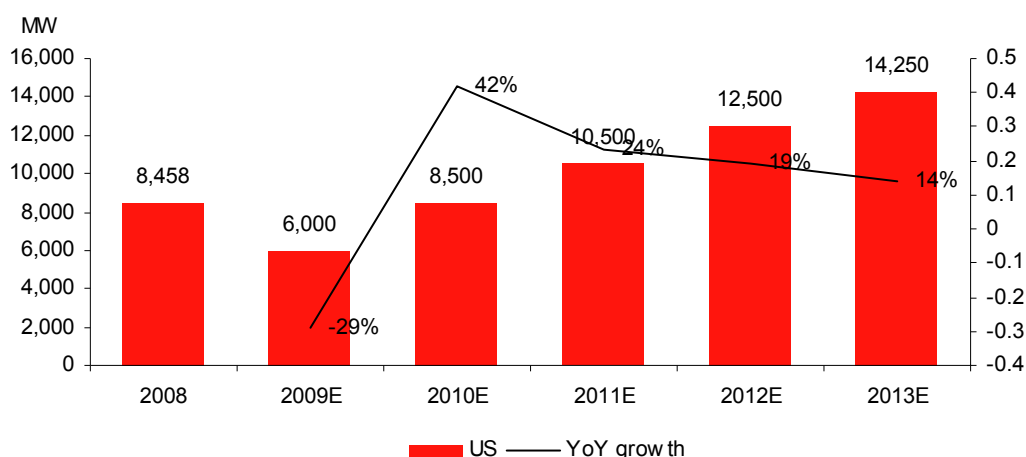
This capital has come to be known as tax equity and without a profitable partner wind farmers simply will not be able to monetise the PTC, leading to a decline in constructed wind parks. As tax equity has been reduced significantly due to lower profits generated by US companies, in particularly the financial ones. The distressed conditions of a significant part of US financial companies are thus severely hurting the development of the US wind industry, eg, Vestas CEO Ditlev Engel described the bankruptcy of Lehman Brothers as the worst day for the wind industry, as the company probably was the biggest player in tax equity for wind farms.

It is precisely this dilemma that the refundability of tax credits has been created to ease. However, because it expires end-2010, extension of the refundability will obviously be necessary unless the economy has improved.

**US Volumes – Very strong 21% volume growth projected over 2008–13**

We are building in strong recovery in US wind turbine market from 2010 onwards on back of strong government push and easing credit. As per current projections, US market would see the strongest growth of 21% CAGR over 2008–13 among the larger markets. Rebound in 2010 is likely to particularly sharp with 42% growth in that year. It is also one of the most important markets for Suzlon given its limited role in Chinese market.

**Fig 25 Strong revival from 2010 after sharp decline in 2009**



Source: Macquarie Research, August 2009

**India demand – Remains primarily tax break driven**

**Corporate and HNI profitability key to volume growth**

Traditionally, demand from India is highly co-cyclical to the corporate and HNI (high net worth individuals) profitability as these entities look at reducing tax liabilities especially in the years of large gains. The large customers have typically been real estate companies, HNIs for wind power in India. Given the equity and real estate market meltdown, demand from India has declined in last two to three quarters. The tax incentives announced in the annual budget are also key for wind power volumes. 1Q FY10 volumes were badly hit as customers in India delayed all investment decisions till annual budget which was presented in early July for possible changes in tax regime.

**No direct government spending in wind power space unlike hydro**

Government push towards clean, renewable sources of power in India has been towards hydropower or biomass based power plants, unlike China or US. Potential of wind power is limited in India compared to hydropower. Installed capacity base of hydro in India is around 35GW as against wind based power plants of around 5GW. Government has taken up program of 15GW of hydropower in the current 5 year plan (FY08–12) with almost 75% of the capacity addition to be taken up by public sector. In case of wind power, though the capacity addition targeted is around 5-10GW, none of these investment is by the government.

### Tax arbitrage reducing – A key risk to long-term demand

Per the current tax code, every company has to pay minimum alternate tax (MAT) on book profits despite any other tax benefits available. So, a wind farm developer has to pay MAT even if there is no tax liability based on existing benefits. Recently, the government increased the MAT rate from 10% to 15%, which would make a material difference to the project economics. Moreover, this could be an indication that the government may eventually close the tax benefit available. If this plays out, the bulk of demand from India, which accounts for one-third of Suzlon Wind sales, would be at risk.

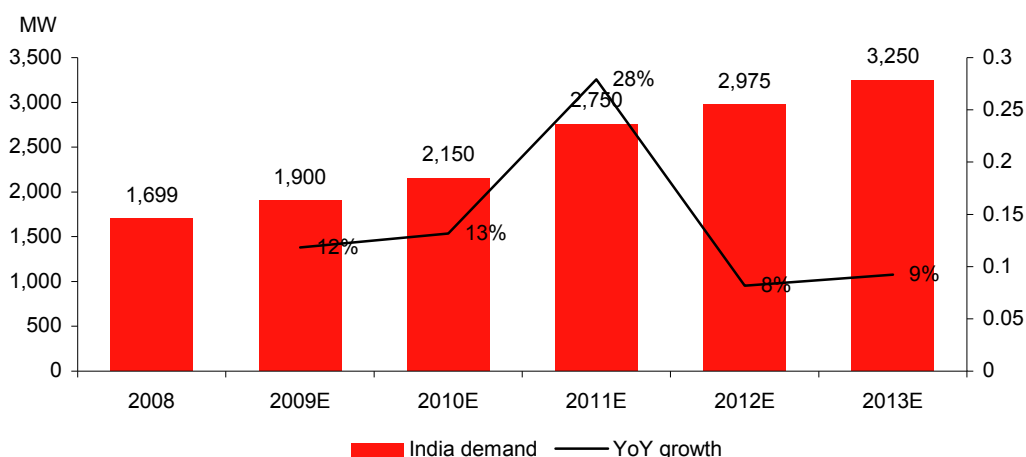
### Consensus forecasts – 14% CAGR over 2008–13E

Current projections for the Indian wind power market forecast annual installations to increase from 1,700MW in 2008 to 3,250MW by 2013, which translates into 14% CAGR over a five-year period. Suzlon has around 45% market share in India. Growth in 2009 and 2010 would depend on profitability in the key markets to return.

### Projecting 13% CAGR growth over FY09–12E

We are projecting volumes CAGR of 13% over FY09–12E. However, we are below consensus growth in FY10 at 10% with stronger recovery in FY11. In FY10, annual budget got delayed by four months due to general elections. Demand also got pushed ahead in this period as prospective customers were awaiting the new budget tax proposals. Since there was no change in tax benefits, some demand is likely to come back. However, the growth is likely to be much stronger into FY11 also aided by likely economic recovery in 2H FY10.

**Fig 26 India – Key market for Suzlon to witness moderate growth of 14% CAGR**



Note: Based on consensus forecasts.

Source: Macquarie Research, August 2009

## Oversupply in WTM around the corner

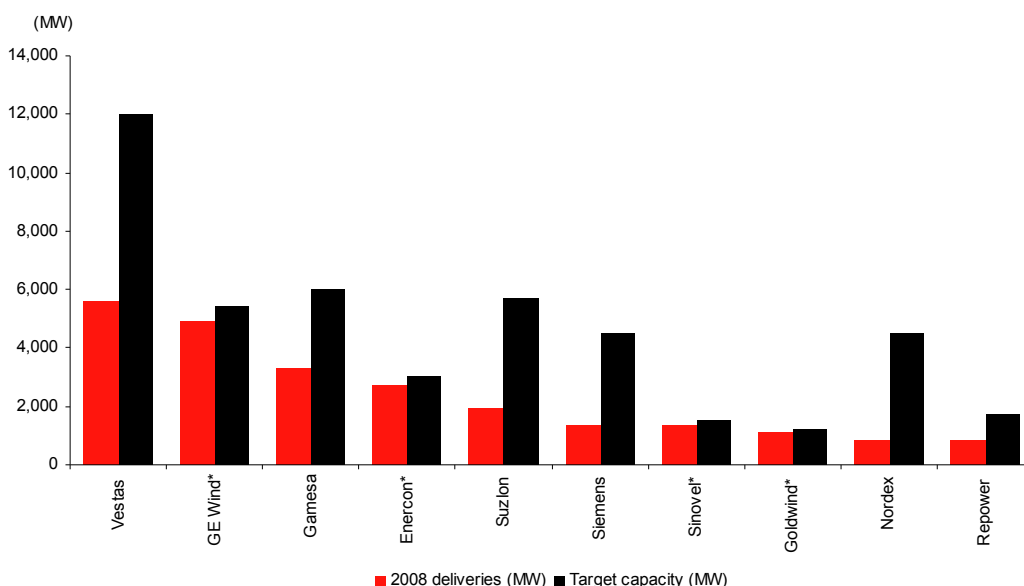
**Around 35%  
overcapacity in 2009**

**Six of the ten  
companies expect  
to increase capacity  
in 80–450% range  
over deliveries  
made in 2008**

Six of the top 10 turbine manufacturers have specified targets for capacity expansions by 2010–12, with several expecting to add significant production capacity. The 10 largest WTMs delivered ~24GW of new capacity in 2008. We estimate that turbine manufacturers have at least 35.7GW of capacity available in 2009, thus more than covering our estimated demand of 26.7GW.

We have adopted a conservative approach, assuming that the WTMs that have not given any specific statements of their expansion plans will have an additional 10% capacity available in 2011 over 2008 levels. Thus, the same ten, companies will be able to deliver ~43.5GW in 2011E, corresponding to 82% growth. Six of the ten companies are expecting to increase capacity in the range of 80–450% over the deliveries made in 2008, with Nordex, Siemens and Suzlon set for the greatest expansion rates. Even after announcing the job cuts at Vestas, according to the CEO, the company will still be able to have 10GW of production capacity in 2010.

**Fig 27 Significant capacity expansion under way 2010–12**



\*WTMs who have not set a specific target for capacity expansion

Source: Macquarie Research, August 2009

**Current capacity  
additions point to  
22% overcapacity  
by 2011**

Assuming that the ~4.4GW of capacity delivered by the turbine manufacturers outside the top 10 in 2008 likewise is to increase by 10% from 2008 to 2011, total capacity available in the industry would be ~50.4GW against our estimate of 41.2GW in new installations. Capacity therefore would exceed demand by 22% in 2011 (our approach is conservative and supply could well outstrip demand even further). We do not expect the industry to reach a balanced supply until 2014.

**Fig 28 Wind turbine generator manufacturer capacity targets**

Company	2008 deliveries (MW)	Target capacity (MW)	Year	Comment
Vestas	5,580	12,000	2010	Target of 10GW delivered in 2010 is a net measure => additional capacity
GE Wind*	4,924	5,417		
Gamesa	3,303	6,000	2011	Target is MW sold – Thus Gamesa are targeting 16% market share
Enercon*	2,736	3,009		
Suzlon	1,915	5,700		No target year has been set
Siemens	1,368	4,500	2011	Indicated goal of 15% market share
Sinovel*	1,368	1,505		
Goldwind*	1,094	1,204		
Nordex	821	4,500	2012	Previously target year was 2011
REpower	821	1,700		No target year has been set
Others	4,377	4,815		
<b>Total targeted capacity</b>	<b>27,358</b>	<b>50,350</b>		
Macquarie 2011 est. installations		41,233		
<b>Demand/supply balance</b>		<b>9,116</b>	<b>22.1%</b>	

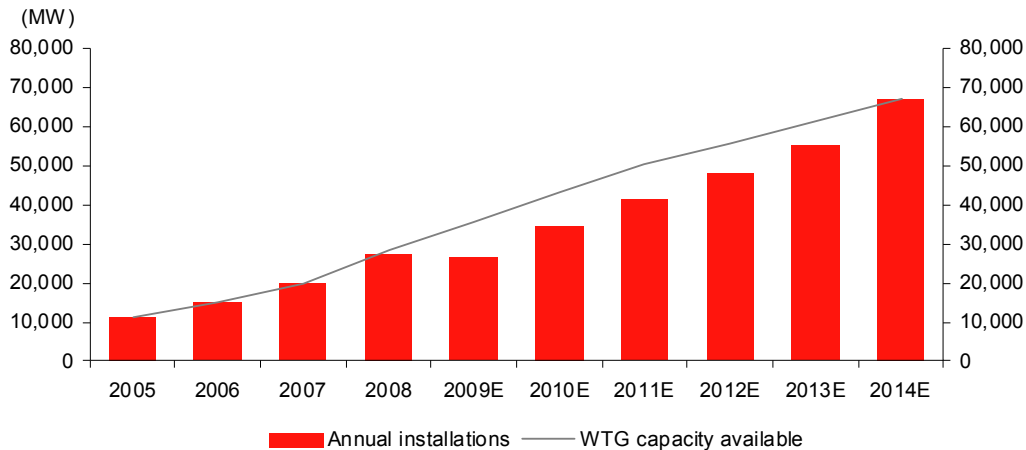
\*GE, Enercon, Sinovel and Goldwind have not indicated specific targets – we assume 10% capacity growth 2008–11 for these companies.

Source: Macquarie Research, August 2009

**Demand-supply mismatch to sustain till 2014**

Although capacity and demand have moved hand in hand until 2008, strong capacity expansions by the WTM, combined with slowing markets have created around 37% overcapacity by 2009, in our view. Our forecasts are based on the average projections of the three consultancies within the wind sector: BTM; MAKE Consultancy; and the Global Wind Energy Council (GWEC).

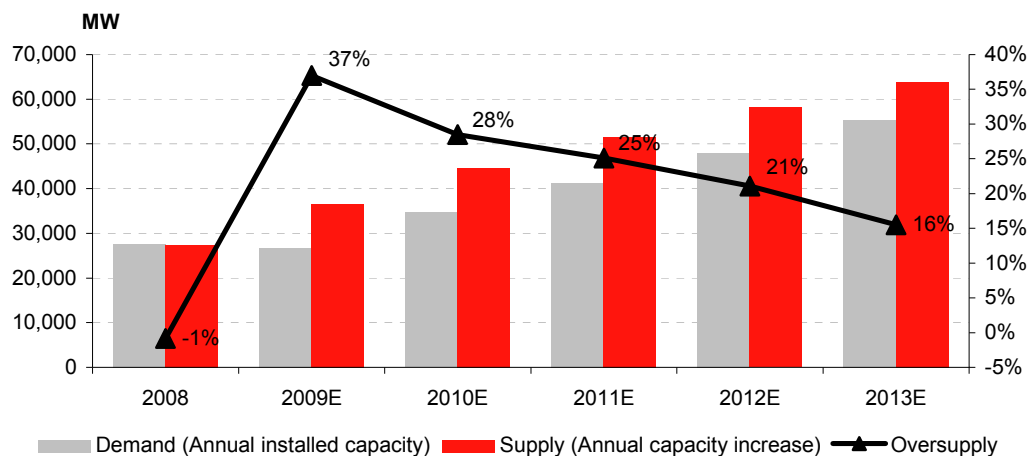
**Fig 29 Overcapacity likely to persist until 2014**



Source: Macquarie Research, August 2009

Based on our estimates, while annual capacity expanded by 36GW in 2009, installed capacity increased only by 27GW, thus leading to overcapacity of 37%. However, oversupply is expected to subside substantially by 2013 to only 16% once annual installed capacity reaches 55GW and total cumulative capacity reaches 329GW.

**Fig 30 Oversupply should subside substantially by 2013**



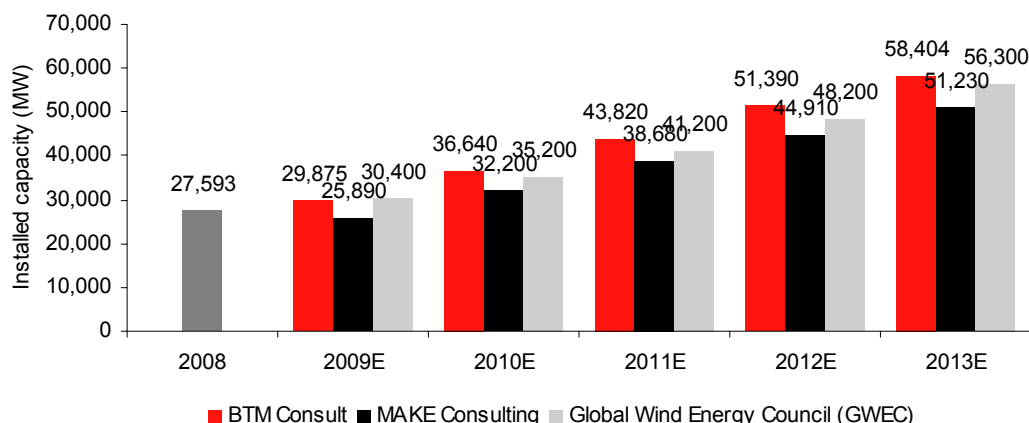
Source: Consensus industry estimates, Macquarie Research, August 2009

**Even by most aggressive BTM estimates, excess capacity of 9% by 2013-end**

BTM Consulting ApS, headquartered in Denmark, has been in existence since 1986. Its experience and databases are thus widely admired, to the extent that it has largely become the group that sets consensus on growth in turbine installations and flows and bottlenecks in the turbine industry supply chain.

BTM believes that oversupply exists to the tune of 22% currently and would subside to only 9% by 2013-end. Their estimates are the most bullish on the wind market installations when compared to MAKE or GWEC.

**Fig 31 BTM forecasts for demand (annual installed capacity) are more bullish**



Source: BTM Consult, MAKE Consulting, Global Wind Energy Council, August 2009

## Pricing to remain under stress

### Wind turbine inflation led by supply constraints in the past

Constraints in the supply chain have been one of the main reasons behind turbine price inflation over the last four to five years. Hence, it is noteworthy that Vestas is the company that expects to increase capacity the most. The company has communicated clearly that the 10GW expected in 2010 is a net figure based on the volume supported by the supply chain and that Vestas itself would be capable of delivering beyond the 10GW were the supply chain able to support this, even after the announced redundancy programme.

Important to note is that some of the WTMs have, like some gearbox manufacturers, indicated that capex plans will be scaled back at least in the short term if the financial crisis continues through 2Q09.

So there is real danger that WTMs are significantly overinvesting in the short term, and could already have sufficient capacity operational by 2011 to service 2013–14 demand. Indications (implicit and explicit) for Siemens, Gamesa and Vestas point towards the three WTMs targeting a combined market share of 55%.

This gives reason for concern that the industry possibly could be entering a price war, which could be triggered by a combination of the following:

- Continued slump in volume demand in 2H09.
- The extensive industry capacity expansion continuing through 2009–10 as WTMs concur that the long-term outlook will remain intact.
- Capacity utilisation rates dropping below 70%, which historically has been a prudent indicator for capital goods companies beginning to cut prices in order to safeguard ROCE.

### US market has seen early signs of pricing pressure

We have indeed already seen anecdotal evidence of price discounts being given in the US market, where some wind farmers are indicating they have placed orders with GE Wind at a price discount of 20–40% over 2008 levels. With GE having ~90% of its volumes sold in the US last year, the company clearly needs to continually secure orders to achieve a sufficient utilisation rate of its production apparatus and might be more willing to cut prices short-term than for example Vestas and Gamesa, which both have higher global diversification. This clearly illustrates the kind of price movements that could arise should volume demand remain weak due to the lack of project funding.

In the longer term, our concern is that demand could very well outstrip supply once again when credit markets eventually return to a healthy state, despite supply being sufficient in the short term. This is based on reluctance in the supply chain (in particular the component manufacturers) to expand capacity through the recession. Hansen Transmission, one of the leading gearbox manufacturers, has scaled back its capacity investments in the short term but has maintained to its long-term target of 14.3GW in 2013, skewing investments towards the end of the time period but not reducing its targets.

In contrast, the turbine manufacturers are continuing to increase capacity now and Gamesa has reiterated its plans to deliver 6GW in 2011.

### Might capacity expansion be scaled back swiftly?

There has been some anecdotal evidence that WTMs could begin to push capacity targets slightly further into the future, with Nordex indicating its 2011 capacity target of 4.5GW is to be postponed to 2012, and Vestas scaling back on its original planned investments of €1.2bn in 2009 now guiding for €1.0bn due to the lack of orders and reduce staff by 11% globally. All in all it is only small moves that have been announced and the big capacity targets all seem to remain in place and overcapacity already exists today.

**Three majors indicate combined market share of 55%**

**Price war could be triggered if utilisation rates drop below 70%**

**signs of cutting prices significantly**

**Demand could outstrip supply once again when credit markets improve**

**Capex plans only being stretched to a smaller extent and overcapacity already exists today**

**Fig 32 Summary of recent announcements and indications in the wind energy industry**

Company	Announcement / Indicator
<b>Vestas</b>	
Staff reductions	1,900 employees to be laid-off (Denmark and UK)
Private placement	Raised €800m in new capital to bolster its balance sheet
<b>Acciona</b>	
Staff reductions	Cutting 90 jobs in the US
<b>Hansen</b>	
Capacity expansion	Reviewing pace of capacity roll-out, but maintain end target of 14.3GW in 2013
Staff	Negotiate agreement with unions for flexibility on direct labour with regards to temporary unemployment
<b>Clipper</b>	
Staff reductions	Cutting 90 jobs, around 11% of the workforce and sees slowing 15-20% fall in 2009 turbine production
<b>Siemens</b>	
CFO statement (4 March)	Renewables pricing pressure - "There is 'considerable' price pressure in the onshore wind turbine market, which in general had some signs of a 'bubble'"
Staff reductions	400 employees in Denmark made redundant
<b>LM Glasfiber</b>	
Staff reductions	Two sets of redundancy rounds – 1,325 employees
<b>Moventas</b>	
Expansion postponement	Yet to break ground on US production facilities
Staff reductions	Redundancy of 610 employees in the wind gear business to adapt to partially postponed deliveries
<b>New entry in to wind industry</b>	
Hyundai Heavy Industries	Hyundai to enter WTM market setting up turbine production in Korea, supported by technology of
Samsung Heavy Industries	With technical support from Romax, Samsung is set to enter the wind industry with development of a large scale onshore turbine

Source: Company data, Macquarie Research, August 2009

Despite the short-term outlook, renewable energy sources and in particular wind power enjoy tremendous geopolitical backing, which cannot be ignored. With the current US administration also implementing ambitious objectives, world governments are fuelling the demand for renewable energy, and wind power seems to have top priority.

***Although demand for turbines still remains, the industry is suffering***

We appreciate that although demand for turbines still remains, the industry is suffering due to the credit crunch severely constraining the construction of wind projects. We believe that when the credit crunch eventually begins to ease, the growth of installed capacity will recover fairly quickly.

***Technological development takes years, so it is a long-term price driver rather than a way to solve problems quickly***

Moreover, the continuous development of the turbines contributes to improved capacity factors, enabling wind farmers to produce more electricity, thus realising a higher IRR on a given project. As we have learned, one of the most critical parameters when WTMs negotiate turbine prices is the estimated IRR obtainable by the wind farmer. Technological advancement is thus a driver for turbine price inflation and with the performance of the latest turbine models (Vestas V112 and the REpower 3.XM) clearly being improved, turbine manufacturers are in principle strengthening their negotiation foothold. Important to highlight is that technological development typically takes years rather than months, so it is a long-term price driver.

Countering these factors, which all argue for continued firm turbine pricing, is the current situation in the wind industry: credit constraints meaning that new wind farm construction in the US and Europe is down heavily in 2009 to date.

The reluctance of the financial system to provide funding for new wind farms has resulted in some significant negatives for the industry, causing turbine prices to deflate:

- Emergence of a secondary market.
- Turbine manufacturers undertaking large capacity expansions.
- Support from commodity prices disappearing.



**Secondary market prices indicate discounts of 15–25%**

The emergence of a secondary market, where we understand distressed wind park developers are selling turbines at prices as low as 2000–01 levels, clearly is a driver for declining TPI. These price levels indicate **discounts of 15–25%** (could be even higher discounts depending on the severity of the financial distress) being offered in order to secure cash. With the turbines sold in the secondary market being brand new, the primary and secondary market inevitably will have to converge. With estimated secondary turbine sales of approximately 4% of global supply, it is more likely that secondary prices will move towards primary market prices than primary prices dropping through to the secondary level in our view (also the products of a distressed company will always warrant a discount over those that are not distressed).

**Weak markets lead to lower prices as WTMs seek to utilise capacity**

The capacity expansion being undertaken at WTMs indicates the turbine manufacturers have at least 22% excess capacity in 2011 under conservative assumptions with oversupply until 2014. There is some uncertainty though, as to whether the component suppliers will continue to expand capacity to support this. Nonetheless, turbine manufacturers will have a higher fixed cost base to service and capacity utilisation becomes even more crucial if the industry is to enter a flat (or perhaps a shrinking) market for a year or two. **This will undoubtedly lead to price pressure.**

With the retreat of commodity prices and energy prices (oil and gas), turbine manufacturers no longer have substantial support from increasing input prices to sustain higher turbine prices (even though commodity price fluctuations for the vast majority are passed through).

**Could new entrants make it even worse?**

**Rising Chinese turbine supply growth may not be the panacea many hope for**

Lastly the expansion of Chinese turbine manufacturers, who in general are ramping up capacity, and the relatively larger Chinese players such as Goldwind, Sinovel and Dongfang, which are gaining share from Europe-based manufacturers, could contribute to lower turbine prices. Our concern is that this growth in capacity may not be the panacea that the larger international wind turbine manufacturers expect – for two main reasons.

- There is still a notable quality deficit between China-manufactured turbines and the turbines made by the larger European and US manufacturers. Western banks will still not advance project finance debt to wind farmers using Chinese turbines.
- Strong Chinese supply growth might just be absorbed by stronger-than-anticipated Chinese local demand growth.

**If China accelerates to sustained installations of over 6,000MW pa, Chinese turbine makers may make no overseas shipments**

The NDRC (Chinese National Development and Reform Commission) has targeted 30GW of installed wind power capacity in China by 2020. We would argue that this figure has been incorporated into industry consensus installation projections. However, the NDRC has said that ‘at current growth rates’, China could reach 50GW by 2020, and that ‘with stronger policy execution’ it could reach 100GW in 2020. The government is planning six  $\geq 10$ GW level wind power bases across the country, which alone will bring Chinese capacity to them 100GW-level .according to China Wind Energy Association. Thus Chinese wind installations could very well reach in excess of 100GW by 2020; we think ~150GW is within reach. Even with an installation rate of 6,000MW per year, let alone 7,000MW, Chinese turbine makers may cease all overseas shipments and still struggle to meet domestic demand.

**Lessons learned from other sectors suggest that Chinese producers can enter western markets hastily**

Lessons learned from other sectors (the equipment manufacturers for the cement industry among others) show that when domestic demand starts to ease, Chinese manufacturers enter international markets quite hastily. Obviously a prerequisite for this to happen would be further ‘proof of concept’ for Chinese products, especially with respect to quality and reliability. It is likely that quality concerns over Chinese turbines could abate as the industry demands higher quality. Also, western manufacturers such as Vestas, Gamesa, Acciona, GE, Nordex, Hansen and LM Glasfiber are building or already have a high-quality Chinese supplier base from which domestic suppliers eventually will be able to build.

**Hyundai and Samsung now entering the wind turbine industry**

Moreover, we have evidence that Hyundai and Samsung are entering the market wind turbines. It is possible that these proven industrial manufacturers may deliver ‘bankable’ turbines into western markets sooner rather than later.

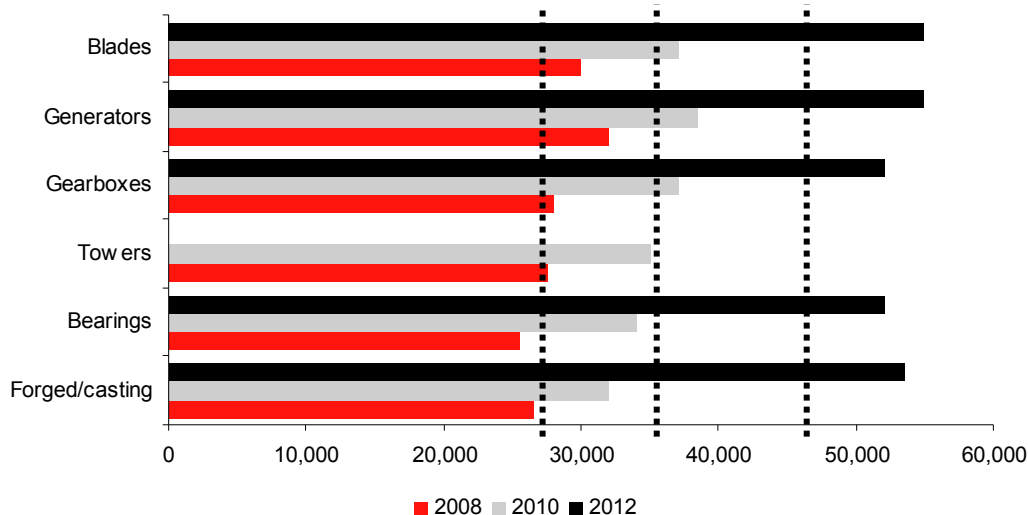
### Supply chain challenges have eased off considerably

Aside from how much capacity is available, another issue for turbine manufacturers is to what extent the supply chain is capable of supporting the capacity expansion of WTMs – that is, if component constraint is going to continue or if sub-suppliers will add sufficient capacity to sustain the expansion rate of the WTMs.

Following figure illustrates projected component supply before the collapse in credit markets. It clearly indicates the supply chain was expected to remain under pressure through 2010 with market expectations of demand outstripping the supply of bearings and forged/casted items. Not until 2012 was component supply forecast to ease sufficiently for the wind industry to service the actual demand.

However, the credit crisis has had a significant impact on the global capital goods sector, including the various equipment and component manufacturers servicing other industries, such as mining and automotive. This sudden overcapacity has led component constraints to more or less evaporate in the wind industry as part manufacturers from other sectors seek to substitute the wind industry’s own supply. Main turbine manufacturers clearly indicate that component supply is no longer a problem (ie, supply is reaching normalised levels).

**Fig 33 Component supply could already catch up with 2010 demand**



Source: BTM Consult, MAKE Consulting, Macquarie Research, August 2009

**Supply chain will be sufficient to meet demand by 2010**

Thus we think that the supply chain will be sufficient to meet demand by 2010, which is also supported by component manufacturers (among others LM Glasfiber, Hansen Transmissions and Moventas) adjusting or postponing capacity expansions to reflect lower global growth rates than previously expected.

However, the pressure on the supply chain could possibly be reversed in the short to medium term, depending on the pace at which the Obama administration can practically undertake the implementation of the initiatives of the stimulus package. Thus US demand can quickly revert to previous activity levels, prompting average growth rates of 19–26% to achieve targets of either 20% of electricity generation in 2020 or 25% in 2025.

## Balance sheet issues to be addressed

### Suzlon to pursue aggressive de-leveraging

Suzlon Wind's current balance sheet carried net debt of Rs122bn (US\$2.5bn) as of 30 June 2009. The net debt to equity on consolidated basis is 1.08x. Almost the entire debt is on the books of Suzlon Wind.

- **Debt repayment of Rs11bn annually:** Regarding acquisition loans, €129m have to be repaid annually for next three years and reducing after that to be completed by FY15. Capex loans have to be repaid US\$50m annually. FCCB are bullet payments coming up only in FY13. The recent FCCB of US\$90m has conversion price of Rs90 as against current price of Rs97, so it is likely that it is entirely converted into equity.

**Fig 34 Debt structure**

Loan item	Amount (Rs bn)	Payable
Acquisition loan	34.0	Rs8.8bn to be paid each year for three years, reducing after that until FY15
FCCB	29.7	Rs25bn to be repaid in FY13 and rest in FY15
Capex loan	12.0	Rs2.4bn each year
Working capital debt	53.5	On-going refinancing
<b>Total</b>	<b>129.2</b>	

Source: Company data, Macquarie Research, August 2009

### Covenants re-structured – September 2009 would be the key near-term issue

Suzlon has signed covenants on three main debt tranches: its FCCB offering of US\$300m in June 2007, its FCCB offering of US\$200m in October 2007 and its acquisition debt of around US\$900m for the acquisition of REpower. All the covenants are tested on a half-yearly basis (on 31 March and 30 September of each year) until the repayment date. While covenants for the FCCBs are available, covenants for the acquisition debt is not available, they could be similar to the ones on the US\$300m FCCB.

**Fig 35 Suzlon's covenant structure for the FCCBs**

	US\$300mm series		US\$200mm series	
	Old	Modified	Old	Modified
<b>Gearing</b>	<b>S + H</b>	<b>S + H + R</b>	<b>S + H</b>	<b>S + H + R</b>
- Sep 30, 2008 onwards	1.00x	1.50x	1.50x	1.50x
<b>Debt Service Ratio</b>	<b>S</b>	<b>S + H + R</b>	<b>S</b>	<b>S + H + R</b>
- Mar 31, 2009	1.33x	1.15x	1.33x	1.15x
- Sep 30, 2009	1.33x	1.15x	1.33x	1.15x
- Mar 31, 2010	1.33x	1.15x	1.33x	1.15x
- Sep 30, 2010 onwards	1.33x	1.33x	1.33x	1.33x
<b>Consolidated Net Debt / EBITDA</b>	<b>S</b>	<b>S + H + R</b>	<b>S</b>	<b>S + H + R</b>
- Mar 31, 2009	3.00x	4.00x	4.00x	4.00x
- Sep 30, 2009	3.00x	4.00x	4.00x	4.00x
- Mar 31, 2010 onwards	2.00x	3.00x	3.00x	3.00x

Notes: S-Suzlon Wind, H- Hansen and R-Repower

Source: Company reports, Macquarie Research, August 2009

### Funding requirements – Capex requirements are limited for next three years

Other than debt repayment, funding requirements have abated at Suzlon. The capex program has been completed as its capacity effectively reaches 5,700MW. Working capital should actually release funds to the tune of Rs15bn in FY10 as business volume shrink from FY09 levels. In 1Q FY10, cash released was close to Rs10bn as volumes nosedived.

**Fig 36 Suzlon Wind cashflow requirement**

in Rs m	FY10E	FY11E	FY12E
Cash earnings	4,362	11,138	15,200
Changes in working capital	15,309	(3,325)	(4,323)
Capex	(2,000)	(1,000)	(1,000)
Equity funding	9,793	-	-
Debt funding	(11,182)	(11,182)	(11,182)
Others	-	-	-
<b>Total</b>	<b>16,281</b>	<b>(4,369)</b>	<b>(1,305)</b>

Source: Macquarie Research, August 2009

**Fig 37 Suzlon consolidated cashflow requirement**

in Rs m	FY10E	FY11E	FY12E
Cash earnings	10,250	18,237	22,839
Changes in working capital	(4,549)	(5,227)	(6,575)
Capex	(12,920)	(4,160)	(4,127)
Equity funding	9,793	-	-
Debt funding	(11,182)	(11,182)	(11,182)
Others	(1,791)	(1,791)	(1,885)
<b>Total</b>	<b>(10,400)</b>	<b>(4,123)</b>	<b>(930)</b>

Source: Macquarie Research, August 2009

**Hansen transaction a distinct possibility**

Suzlon had acquired Hansen in May 2006 to secure supplies of gear boxes for itself. With de-leveraging being prime focus for the management and constraints in gear box supply easing, Suzlon may look to offload its 61% stake in Hansen. At current price, Suzlon can garner US\$920m from the transaction.

The concern is that any potential acquirer would be required to make offer to all existing shareholders to acquire their stake at the same price. This would substantially increase the outlay for the acquisition to US\$1.5bn. The need for offer would not exist if the acquirer holds less than 30% stake.

**Forex impact – Negative impact of INR strengthening against euro**

Suzlon has foreign exchange exposure on its profit & loss statement and balance sheet, because it operates in several regions and multiple currencies.

In the P&L statement, the impact is on the cost items. In China, where Suzlon has a manufacturing facility and local sales, revenues and costs are naturally hedged. However, ex-China, almost 33% of its raw material cost is in euros and 17% in US dollars. Around 5% of staff costs are in US dollars, 5% in euros and 5% in Australian dollars. The shipping cost is booked entirely in US dollars.

On its balance sheet, Suzlon has Rs25bn of FCCBs in US dollars and an acquisition loan of Rs35bn in euros, while its liabilities are in Indian rupees.

## Financials – Earnings growth to be subdued

### Revenues – top-line growth to be muted

#### Suzlon Wind to see large revenue decline in FY10

Order book in the Suzlon Wind business has come down from 3,454MW at the end of FY08 to 1,464MW at the end of FY09. The order inflow in 1Q FY10 continues to be weak, with order intake of only 160MW. We are factoring revenues of 2,220MW in FY10, based on current order backlog coupled with order inflow from India.

We are also factoring in strong recovery in order inflow from the overseas business, especially the US and Europe, in 2H FY10. Based on strong order inflow in FY10 (especially 2H FY10), we are projecting a 20% growth in sales in MW terms in FY11.

We are building 23% decline in revenues in FY10 on back of 20% decline in volumes and 3% decline in realisation. In FY11, we are forecasting strong recovery, with 18% revenue growth, 20% volume growth and a further 2% decline in realisation. We are projecting volume and revenue growth of 3% and 1% CAGR, respectively, over FY09–12E, due to the high base in FY09. Following a 20% volume decline in FY10, we are building recovery in FY11 with 20% growth followed by 13% in FY12.

**Fig 38 Revenues in MW terms**

	FY08	FY09	FY10E	FY11E	FY12E	FY09-12 CAGR
India	975	749	850	925	1,064	12%
US	593	989	600	800	920	-2%
China	134	249	300	360	396	17%
Australia & NZ	143	430	300	330	360	-6%
Europe	298	166	150	200	220	10%
S. America	168	197	50	50	55	-35%
Others	-	10	20	35	40	59%
<b>Total MW</b>	<b>2,311</b>	<b>2,790</b>	<b>2,270</b>	<b>2,700</b>	<b>3,055</b>	<b>3%</b>

Source: Company, Macquarie Research, August 2009

**Fig 39 Suzlon Wind – P&L statement**

Rs m	FY08	FY09	FY10E	FY11E	FY12E
Sales (MW)	2,311	2,790	2,220	2,665	3,016
% growth		21%	-20%	20%	13%
<b>Revenues</b>	<b>114,665</b>	<b>158,970</b>	<b>122,697</b>	<b>144,346</b>	<b>171,526</b>
% growth		39%	-23%	18%	19%
<b>EBITDA</b>	<b>17,136</b>	<b>15,730</b>	<b>10,949</b>	<b>16,609</b>	<b>22,029</b>
EBITDA margin	14.9%	9.9%	8.9%	11.5%	12.8%
Reported PAT	8,453	1,070	1,236	7,414	10,866
<b>Recurring PAT</b>	<b>11,305</b>	<b>10,030</b>	<b>1,236</b>	<b>7,414</b>	<b>10,866</b>
EPS	7.6	6.7	0.8	4.6	6.8

Source: Macquarie Research, August 2009

#### Hansen and REpower to witness stronger growth

REpower's order book stood at 620 turbines and 1,317MW at the end of FY09, having declined from 1,422MW in FY08. However, sales were strong in FY09 at 1,253MW, up strongly by 74% YoY. We are building in 15% growth in sales for the next two years and 10% in FY12. We expect this to drive revenue growth of 28% in FY10 and 11% in FY11 (partly helped by rupee depreciation in FY10).

Hansen's order book stood at 696 turbines and 1,419MW. Company has expanded capacity to 7,300MW from 5,600MW in FY08. Further expansion plans are in the offing with 1,600MW capacity coming up in China in FY10. Hansen has plans to expand capacity to 14,300MW by FY13 (6,700MW in Belgium, 4,300MW in India and 3,300MW in China). We expect sales to grow by 10% this year and 20% next year in MW terms.

**Fig 40 REpower P&L statement**

Rs m	FY09	FY10E	FY11E	FY12E	CAGR
Sales (MW)	1,253	1,441	1,657	1,823	13%
% growth	74%	15%	15%	10%	
<b>Revenues</b>	<b>71,250</b>	<b>91,270</b>	<b>101,731</b>	<b>106,575</b>	<b>14%</b>
% growth	78%	28%	11%	5%	
<b>EBITDA</b>	<b>4,780</b>	<b>7,087</b>	<b>8,246</b>	<b>8,639</b>	<b>22%</b>
EBITDA margin	6.7%	7.8%	8.1%	8.1%	
Reported PAT	2,060	4,530	5,402	5,797	41%
<b>Recurring PAT</b>	<b>2,060</b>	<b>4,530</b>	<b>5,402</b>	<b>5,797</b>	

Source: Macquarie Research, August 2009

**Fig 41 Hansen P&L statement**

Rs m	FY09	FY10E	FY11E	FY12E	CAGR
Sales (MW)	5,956	6,552	7,862	9,041	13%
% growth	42%	10%	20%	15%	
<b>Revenues</b>	<b>39,940</b>	<b>44,967</b>	<b>56,738</b>	<b>62,141</b>	<b>14%</b>
% growth	75%	13%	26%	10%	
<b>EBITDA</b>	<b>6,940</b>	<b>7,175</b>	<b>9,818</b>	<b>11,058</b>	<b>22%</b>
EBITDA margin	17.4%	16.0%	17.3%	17.8%	
Reported PAT	3,180	3,282	5,196	6,141	41%
<b>Recurring PAT</b>	<b>3,180</b>	<b>3,282</b>	<b>5,196</b>	<b>6,141</b>	

Source: Macquarie Research, August 2009

## Margins to improve from FY09 levels

### Pricing pressure to be evident in FY09

We are projecting a 5% decline in pricing in Suzlon Wind's and REpower's businesses for FY10. The decline in pricing on new contracts in FY09 would be reflected in earnings in FY10. We are not building any pricing pressure in Hansen business.

### Suzlon Wind margins – Fixed costs to replace exceptional cost items in FY10

FY09 witnessed Rs9bn of exceptional costs attributed to blade retrofit provision and forex losses. The blade retrofit program is scheduled for completion in August 2009, but we have not assumed any incremental costs in FY10 per guidance by the management.

Although the large exceptional costs do not fall in FY10, the large fixed-costs base from substantial capacity expansion and revenue decline would not lead to any margin improvement. We are forecasting margin decline in FY10 of 130bp from FY09 to 8.6%.

### Margin improvement from FY10 levels on volume recovery

Suzlon has large operating leverage with only 40% capacity utilisation in FY10. With volume growth resuming from FY11 onwards, we project margin recovery to 12% in FY12.

### What happens if recovery is delayed

Our current projections build in revenue growth of 20% in MW terms for FY11. This projection is underpinned by expectations of revival in growth in 2H FY10. Any slippage in pickup in order inflow from current expectation of 2H FY10 could have significantly negative impact on the top line and earnings for FY11.

### Serious impact on P&L and balance sheet forecasts of FY10 and FY11

We have currently assumed 2,220MW of volumes in FY10 in Suzlon Wind despite volumes of only 123MW in 1Q FY10 which implies a run-rate of 700MW over the next three quarters. Moreover, volumes in 2Q FY10 are also likely to remain muted. If the recovery is delayed, volumes for FY10 may come out to be around 1,800-2,000MW.

- **Suzlon Wind to report loss at 2,000MW volumes:** Suzlon Wind (consolidated ex-Hansen and REpower) would report a loss in FY10 if volumes come in at around 2,000MW.
- **Suzlon may start FY11 with an order backlog of less than six months' visibility.** With order inflow not picking up in 2H FY10, order backlog may end up being around 1,200MW, compared to the current projection of 1.650MW. This would also expose our FY11 estimates to serious downside risks.

- **Debt covenants to be triggered by end-FY10:** In March 2010, net debt/ EBITDA must be 3x on the convertible bonds. At 2,000MW volumes in Suzlon Wind and some shortfall in subsidiaries, debt covenants on convertible bonds would be breached on the bond issue. Even if the company sells out its stake in Hansen, the covenant issue would not be resolved, leading to further restructuring in the business.

**Fig 42 Suzlon Wind would report a loss if volumes were to be around 2,000MW in FY10**

	FY09	FY10E	FY11E
Sales (MW)	2,790	2,000	2,500
% growth	21%	-28%	25%
Revenues	158,970	110,538	135,409
% growth	39%	-30%	23%
EBITDA	15,730	7,483	13,972
EBITDA margin	9.9%	6.8%	10.3%
Reported PAT	1,070	-1,640	4,778
Recurring PAT	10,030	-1,640	4,778
EPS	6.7	-1.0	3.0
Order book	1464	1364	1334

Note: Key assumptions: 2,000MW sales in FY10 as against our projected number of 2,220MW

Source: Macquarie Research, August 2009

**Fig 43 On a consolidated level, Suzlon would report PAT of only Rs3bn if 2,000MW of volumes come in**

	FY09	FY10E	FY11E
Revenues	260,817	246,775	293,878
% growth	91%	-5%	19%
EBITDA	27,915	21,746	32,037
EBITDA margin	10.7%	8.8%	10.9%
Reported PAT	2,365	2,994	11,377
Recurring PAT	11,328	2,994	11,377
EPS	7.8	2.1	7.8

Source: Macquarie Research, August 2009

## Valuations – Ahead of global peers

### We rate Suzlon Underperform, with a SOTP-based target price of Rs79

Our target price is based on sum-of-the-parts methodology. Suzlon Wind EV has been valued at 9x EV/EBITDA, a premium of 20% to global WTM valuation. The long-term average valuation of global WTMs has been around 12x one-year forward EV/EBITDA. We have base our price target on FY11 EBITDA. Moreover, with global industry growth moderating and un-quantified risk for Suzlon after blade cracking issues, we believe valuations would remain below the long-term average. Hansen and REpower are listed companies and we have applied a 10% holding company discount.

**Fig 44 12-month target price of Rs79**

Segment	Rs m	Per-share basis	Basis
SUEL WIND	149,478	93	9 x FY11 EV/EBITDA
Hansen	38,772	24	10% holding company discount to market price
REpower	56,636	35	10% holding company discount to market price
<b>Total EV</b>	<b>241,331</b>	<b>152</b>	
Net debt	118,000	73	
<b>Equity value</b>	<b>123,331</b>	<b>79</b>	

Source: Company data, Macquarie Research, August 2009

### The 10–30% premium to its global peers is unjustified

On a consolidated basis, Suzlon is trading at 12.7x FY10E and 9.2x FY11E EV/EBITDA, which represents a 10–30% premium to global wind turbine manufacturers' valuations. Moreover, Suzlon has just resolved serious quality issues with its wind turbines. The after effects are not yet known, nor are they built into the numbers. The uncertainty around this issue would further restrict any premium valuations to Suzlon, in our view.

**Fig 45 Suzlon at an unjustified 20–50% premium to peers on EV/EBITDA basis**

Company	Ticker	Current Price	Macq Rating	Target Price	Upside	Mcap (€m)	Mshr 08 (%)	EV / Sales		EV / EBITDA		PER		EPS 09-11
								2010E	2011E	2010E	2011E	2010E	2011E	
Suzlon	SUEL IN	96.8	UP	79.0	-20%	2,342	2%	1.2	1.0	12.7	9.2	26.5	11.1	7%
Vestas	VWS DC	363	UP	300	-17%	9,912	20%	1.7	1.4	13.9	9.5	26.0	18.7	2%
Gamesa	GAM SM	15.3	OP	17	10%	3,727	12%	1.1	0.9	10.7	7.6	27.0	17.1	18%
Nordex	NDX1 GR	12.6	UP	11	-9%	840	3%	0.6	0.5	12.0	7.1	33.7	18.7	-3%
Hansen	HSN LN	1.30	N	1.5	18%	1,012	-	1.9	1.4	15.0	7.6	64.0	14.4	29%
REpower	RPW GR	110.5	NR	NR	NR	1,014	4%	0.7	0.6	10.9	8.1	20.2	14.8	75%

Source: Macquarie Research, August 2009



## Risks to our investment thesis

### Upside risks

#### **Much sharper than anticipated recovery**

We have assumed volume decline in FY10, coupled with 20% growth in FY11. In case of government stimulus programs taking effect and much better liquidity scenario, growth in FY11 could be much stronger than expected.

#### **Large control premium for Hansen**

Suzlon is looking to sell off its 61.3% stake in Hansen. As per the current prices, Suzlon would garner around US\$937m. In case, buyer pays a large control premium on Hansen, then valuations of Suzlon could have upsides.

### Downside risks

#### **Slower-than-expected order book growth**

Suzlon currently has low order visibility, particularly with its new capacities coming on stream. While we expect the company to pick up new orders in 2H08, any delay in doing so could lead to slower growth.

#### **Foreign currency movements**

Suzlon has a high degree of unhedged foreign currency exposure. The company does not have a fixed hedging policy but uses a dynamic process. In effect, a wrong currency call could impact the company's profitability substantially.

#### **Execution risks**

The contracts for WTG suppliers are stringent with respect to performance, and include execution guarantees. This could lead to financial as well as reputational loss impacting future cashflows. It could also lead to a cancellation of previous orders (see previous sections for losses relative to the space).

#### **Withdrawal of government benefits**

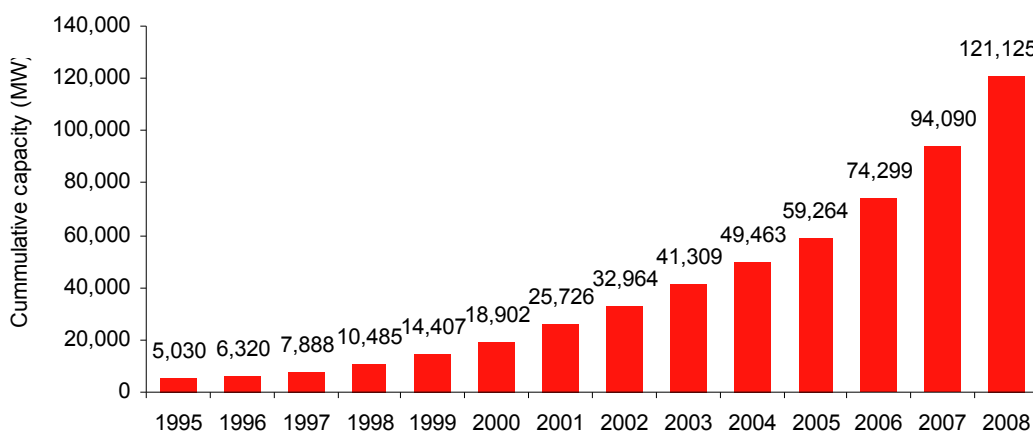
Among the key drivers of wind energy have been incentives from various governments. While we expect government support to continue going forward – particularly given global warming and concerns about fuel security – any change in the government policy could substantially impact growth.

# Appendix 1: History of global wind turbine market

**Growth rates have recently exceeded 30% in the wind industry**

The industry has come a long way since the wind power market emerged in the late 1970s and early 1980s. Average annual growth rates have recently exceeded 30%, leading to total installed capacity of more than 120GW, accounting for around 1% of global electricity production today. It was not until the mid-1990s however that the industry sprouted and started to grow, resulting in a CAGR of 28% from 1995 until 2008.

**Fig 46 Global wind power capacity expanded at CAGR of 28% over 1995–2008**

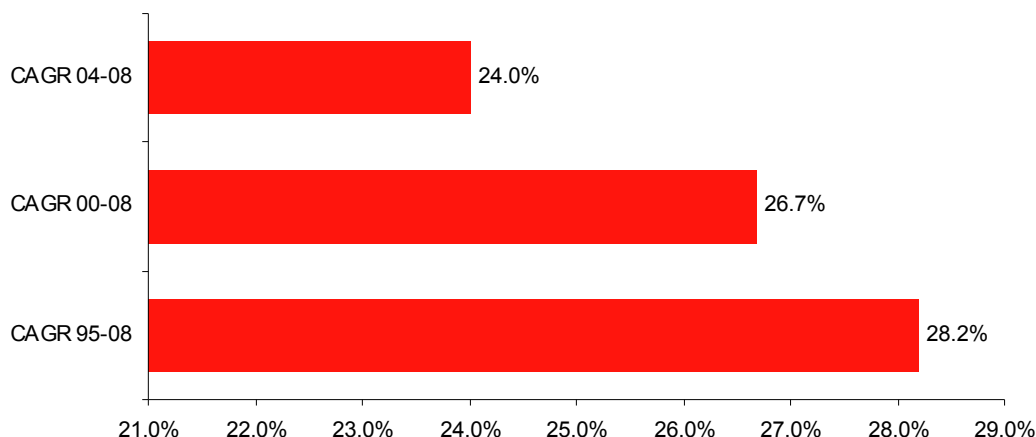


Source: Macquarie Research, August 2009

**Sustained government support has created a steady growth environment**

The growth rate over the past 13 years has been remarkable, as we have illustrated in the next chart, which for a new industry suggests a relatively stable investment environment. Sustained government support, combined with global diversification of the renewable industry, has created an environment of strong and steady growth.

**Fig 47 Global wind industry has seen even growth since it sprouted**



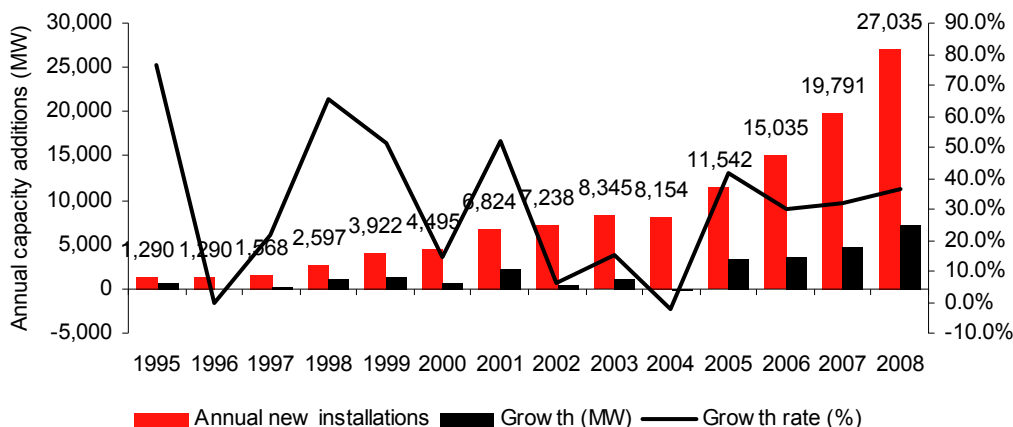
Source: BTM, MAKE, Macquarie Research, August 2009

The question is whether a stable environment that sustains growth rates of 24–28% will persist going forward. With the installed base now so much larger, high growth rates are naturally going to become harder to sustain. However, from the WTM perspective, the most vital factor is annual additions of capacity rather than the cumulative installed capacity base.

**New capacity additions on a similar but more volatile path**

Historically, annual capacity additions have followed a growth path that is more volatile than that of cumulative installations. Especially during 2000–04, the market was hugely affected by the ‘boom-bust’ cycles of the US market, which even led to negative growth in 2004. This stemmed from the political lack of will to extend the production tax credit (PTC), which is crucial for supporting the US wind market.

**Fig 48 Annual capacity additions and growth incur greater volatility**



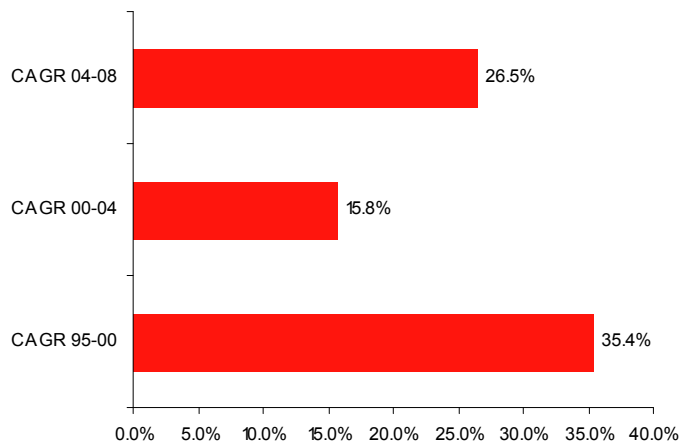
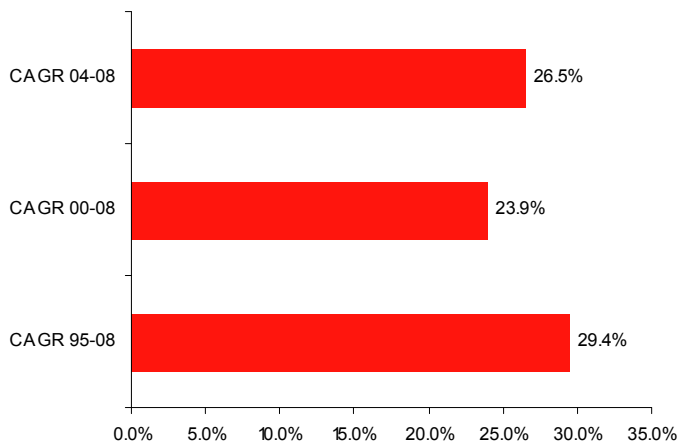
Source: BTM, MAKE, Macquarie Research, August 2009

**Wind market reignited in 2005 and was further fuelled by the Stern report**

The industry underwent a turbulent period in the first years of the new millennium, with average growth rates dropping to around 16%, but the market reignited in 2005 because of increased political action on climate change. This revival was further fuelled by the conclusions of the Stern Review on the Economics of Climate Change in 2007, which were crucial in forming the consensus view that the cost of not acting now to mitigate climate change will far outweigh the cost of actually acting now. Clearly, skyrocketing fossil fuel prices in late 2007, which lasted until mid-2008, further provided incremental support for alternative energy sources in general.

**Fig 49 Volatile growth in annual capacity additions . . .**

**Fig 50 . . . mainly due to the US wind market**



Source: BTM, MAKE, Macquarie Research, August 2009

Source: BTM, MAKE, Macquarie Research, August 2009

## Appendix 2: Indian wind energy market

India was the world's fourth-largest wind power nation as of end-2007, with a cumulative installation level of 7,845MW. The Indian market has grown at an average annual rate of 34% for the past three years, compared with around 25% pa for the global market.

The Indian market is expected to continue benefiting from a range of financial incentives at both the national and state levels that have contributed to the industry's growth to date. The two key incentives at the national level are:

- 80% accelerated depreciation for income tax purposes (reduced from 100% in 2003).
- Tax holidays for new power projects for 10 years under section 80IA of Income Tax Act 1961.

The Ministry of New and Renewable Energy (MNRE) expects the country's total wind generation capacity to increase to around 10,500MW by the end of its 11th Five-Year Plan and further to 22,500MW by the end of its 13th Five-Year Plan. BTM Consult ApS estimates that total wind capacity in India will increase to around 22,850MW by 2012 as compared with 7,845MW as of December 2007.

By state, Tamil Nadu boasts the highest installation level, with over 3,460MW. It is also where the largest wind turbines (Suzlon's 2MW units) are installed. Andhra Pradesh has the greatest estimated wind potential. Tamil Nadu and Gujarat were the first two states to make wind installations

- Tamil Nadu has benefited from good wind resources, an area favourable to wind development, availability of land, government incentives, and activist state agencies that provide technical data to government and private organisations. Since 1985/86, the Tamil Nadu State Electricity Board (TNEB), the state utility, has successfully implemented grid-connected wind farms under a demonstration programme with the support of the Ministry of Non-Conventional Energy Sources. The success of these demonstration projects attracted many to the wind sector, raising private investment levels to record-highs. Tamil Nadu has maintained its position as the No. 1 state for wind generation in India.
- In 1986, Gujarat became the first state in India to install wind projects, and it has good wind resources coupled with favourable geography and a long coastline. Further successful development over the following few years led the state government to launch an incentive scheme in 1993 to encourage private sector participation in wind power generation. The state is today at the forefront of providing incentives for wind development. Fuel shortage problems, an increasing deficit of power supply and pressure from the industrial sector for cheaper power are some of the underlying factors driving the development of wind power in Gujarat.

**Fig 51 India – Wind energy potential by state**

State	Gross potential (MW)	Technical potential (MW)	Installed capacity (MW) as of March 2007
Andhra Pradesh	8,275	1,920	121
Gujarat	9,675	1,780	667
Karnataka	6,620	1,180	847
Kerala	875	605	2
Madhya Pradesh	5,500	845	58
Maharashtra	3,650	3,040	1,485
Orissa	1,700	780	2
Rajasthan	5,400	910	470
Tamil Nadu	3,050	1,880	3,460
West Bengal	450	450	2
Other states	-	-	1
<b>Total</b>	<b>45,195</b>	<b>13,390</b>	<b>7,114</b>

Source: MNES, Macquarie Research, August 2009

Captive power producers are the key customers in Tamil Nadu and Gujarat where grid power is expensive and the buyback rate for wind power is low, but where wheeling and banking policies are conducive. The successful experience of wind power development in these two states has enabled the Ministry of Non-Conventional Energy Sources to formulate federal guidelines on the provision of incentives for wind power generation.

**MNRE expects wind capacity to increase to 10,500MW by end of 11th Plan**

**Fig 52 Policies announced by State Electricity Regulatory Commissions in respective states**

Items	Andhra Pradesh*	Haryana*	Karnataka*	West Bengal	Madhya Pradesh*	Maharashtra*	Rajasthan*	Tamil Nadu*	Gujarat*	Kerala*
Wheeling*	2% of energy, in addition to very high transmission charges	2%	2% of energy	Rs 0.30/u which would be revised from time to time	Allowed 2% of energy + transmission charges as per ERC	2% of energy + 5% transmission loss	10% of energy	5% of energy	4% of energy	5% of energy
Banking	12 months	Allowed	2% per month for 12 months	6 months	Not allowed	12 months	3 months	5% (12 months)	---	9 months (June–February)
Buyback	Rs3.37/kWh for FY04–05, w.e.f. 1 <sup>st</sup> April 04 for 5 years	Rs4.08, unit escalation 1.5%, base year 07–08	Rs3.40/kwh Fixed for 10 years	To be decided on a case-to-case basis, with a cap of Rs.4/kWh	Rs3.97 (with a decrease of 7 paise up to 4th year, then fixed at a uniform rate of Rs.3.30/kWh from 5th year onwards for 20 years), w.e.f. 11 <sup>th</sup> June 04	Rs3.50/kWh Escalation of Rs0.15/u per year for 13 years from DOC of the project	Rs3.59/unit for Jaisalmer, Jodhpur etc and Rs.3.67/unit for other districts (base year 08–09)	Rs2.90/kWh (Levelised)	Rs3.37/kWh fixed for 20 years	Rs3.14/kWh fixed for 20 years
Open access transaction	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
RPS	√	0708: 3%	√	√	√	06–07: 3% 07–08: 4% 08–09: 5% 09–10: 6%	√	√	√	√

\* Tariffs announced by the State Electricity Regulatory Commission in the respective state.

Source: Macquarie Research, August 2009

## Generation-based incentive

In June 2008, the MNRE introduced a plan to encourage investments in wind power by giving generation-based incentives of 50 paise per unit of wind power fed by the independent power producers (IPPs) into the grid. The scheme is aimed at increasing the quantum of grid interactive renewable power. The IPPs, apart from getting the tariff as determined by the state regulatory commissions, would get an incentive of 50 paise per unit of electricity for a period of 10 years, provided they do not claim the benefit of accelerated depreciation. The incentive will be provided to eligible project promoters through the Indian Renewable Energy Development Agency (IREDA) – a government body under the MNRE that promotes and extends financial assistance for renewable energy projects.

This scheme is expected to improve returns on wind power projects and thus increase investments in the sector by IPPs. It is also likely to increase investments by financial institutions that could not benefit from the accelerated depreciation offered for wind assets.

### Eligibility criteria for generation-based incentives

- All registered companies – IPPs, NGOs, trusts, financial institutions, academic and research institutions, SNAs, central and state power generation companies, as well as public and private sector developers of wind power projects – are eligible to be considered for generation-based incentives, provided they sell the power generated to the grid.
- The scheme would be applicable only to power producers that do not avail themselves of the accelerated or enhanced depreciation benefits under the Income Tax Act.
- The scheme will be applicable only to IPPs that have a minimum installed capacity of 5MW and whose capacities are commissioned for sale of power to the grid after the announcement of the scheme.
- The generation-based incentive scheme will not be applicable to those who set up capacities for captive consumption, third-party sales, merchant plants and so on.

As the dominant player in the domestic market, Suzlon should be able to make good use of the opportunities provided by the regulatory change.

**Suzlon Energy (SUEL IN, Underperform, Target price: Rs79.00)**

Quarterly Results					Profit & Loss						
	4Q/09A	1Q/10E	2Q/10E	3Q/10E		2009A	2010E	2011E	2012E		
<b>Revenue</b>	m	65,204	64,734	64,734	64,734	<b>Revenue</b>	m	260,817	258,934	302,815	340,242
<b>Gross Profit</b>	m	17,648	12,979	12,979	12,979	<b>Gross Profit</b>	m	70,592	51,918	64,272	74,475
Cost of Goods Sold	m	47,556	51,754	51,754	51,754	Cost of Goods Sold	m	190,226	207,017	238,543	265,768
<b>EBITDA</b>	m	6,979	6,303	6,303	6,303	<b>EBITDA</b>	m	27,915	25,211	34,673	41,726
Depreciation	m	1,433	1,515	1,515	1,515	Depreciation	m	5,731	6,059	6,721	7,335
Amortisation of Goodwill	m	0	0	0	0	Amortisation of Goodwill	m	0	0	0	0
Other Amortisation	m	0	0	0	0	Other Amortisation	m	0	0	0	0
<b>EBIT</b>	m	5,546	4,788	4,788	4,788	<b>EBIT</b>	m	22,184	19,152	27,952	34,391
Net Interest Income	m	-2,635	-2,612	-2,612	-2,612	Net Interest Income	m	-10,539	-10,449	-9,635	-8,806
Associates	m	6	0	0	0	Associates	m	23	0	0	0
Exceptionals	m	-2,241	0	0	0	Exceptionals	m	-8,963	0	0	0
Forex Gains / Losses	m	0	0	0	0	Forex Gains / Losses	m	0	0	0	0
Other Pre-Tax Income	m	1,122	581	581	581	Other Pre-Tax Income	m	4,488	2,325	2,469	2,719
<b>Pre-Tax Profit</b>	m	1,798	2,757	2,757	2,757	<b>Pre-Tax Profit</b>	m	7,193	11,028	20,786	28,304
Tax Expense	m	-720	-870	-870	-870	Tax Expense	m	-2,881	-3,479	-4,274	-7,000
<b>Net Profit</b>	m	1,078	1,887	1,887	1,887	<b>Net Profit</b>	m	4,312	7,549	16,512	21,304
Minority Interests	m	-487	-420	-420	-420	Minority Interests	m	-1,947	-1,679	-2,498	-2,900
<b>Reported Earnings</b>	m	1,078	1,887	1,887	1,887	<b>Reported Earnings</b>	m	4,312	7,549	16,512	21,304
<b>Adjusted Earnings</b>	m	2,832	1,468	1,468	1,468	<b>Adjusted Earnings</b>	m	11,328	5,870	14,014	18,404
EPS (rep)		0.72	1.17	1.17	1.17	EPS (rep)		2.88	4.70	10.27	13.26
EPS (adj)		1.89	0.91	0.91	0.91	EPS (adj)		7.58	3.65	8.72	11.45
EPS Growth yoy (adj)	%	-4.1	-51.8	-51.8	-51.8	EPS Growth (adj)	%	-4.1	-51.8	138.7	31.3
						PE (rep)	x	33.5	20.6	9.4	7.3
						PE (adj)	x	12.8	26.5	11.1	8.4
EBITDA Margin	%	10.7	9.7	9.7	9.7	Total DPS		1.18	1.10	1.10	1.15
EBIT Margin	%	8.5	7.4	7.4	7.4	Total Div Yield	%	1.2	1.1	1.1	1.2
Earnings Split	%	25.0	25.0	25.0	25.0	Weighted Average Shares	m	1,495	1,607	1,607	1,607
Revenue Growth	%	90.7	-0.7	-0.7	-0.7	Period End Shares	m	1,495	1,607	1,607	1,607
EBIT Growth	%	30.5	-13.7	-13.7	-13.7						
Profit and Loss Ratios					Cashflow Analysis						
	2009A	2010E	2011E	2012E		2009A	2010E	2011E	2012E		
Revenue Growth	%	90.7	-0.7	16.9	12.4	<b>EBITDA</b>	m	27,915	25,211	34,673	41,726
EBITDA Growth	%	40.2	-9.7	37.5	20.3	Tax Paid	m	0	0	0	0
EBIT Growth	%	30.5	-13.7	45.9	23.0	Chgs in Working Cap	m	0	0	0	0
Gross Profit Margin	%	27.1	20.1	21.2	21.9	Net Interest Paid	m	0	0	0	0
EBITDA Margin	%	10.7	9.7	11.5	12.3	Other	m	-63,435	-19,510	-21,664	-25,462
EBIT Margin	%	8.5	7.4	9.2	10.1	<b>Operating Cashflow</b>	m	-35,519	5,701	13,009	16,265
Net Profit Margin	%	1.7	2.9	5.5	6.3	Acquisitions	m	31,367	0	0	0
Payout Ratio	%	15.5	30.0	12.6	10.0	Capex	m	-33,308	-12,920	-4,160	-4,127
EV/EBITDA	x	9.4	10.8	7.9	6.6	Asset Sales	m	0	0	0	0
EV/EBIT	x	11.8	14.3	9.8	8.0	Other	m	0	0	0	0
<b>Balance Sheet Ratios</b>					<b>Investing Cashflow</b>	m	-1,941	-12,920	-4,160	-4,127	
ROE	%	13.5	6.3	13.2	15.3	Dividend (Ordinary)	m	-1,791	-1,791	-1,791	-1,885
ROA	%	6.9	5.1	7.2	8.4	Equity Raised	m	0	0	0	0
ROIC	%	11.0	5.8	8.9	10.3	Debt Movements	m	49,325	-11,182	-11,182	-11,182
Net Debt/Equity	%	107.8	99.1	80.0	60.2	Other	m	0	0	0	0
Interest Cover	x	2.1	1.8	2.9	3.9	<b>Financing Cashflow</b>	m	47,534	-12,973	-12,973	-13,067
Price/Book	x	1.7	1.6	1.4	1.2	<b>Net Chg in Cash/Debt</b>	m	10,074	-20,192	-4,123	-930
Book Value per Share		57.7	62.3	69.9	80.2	<b>Free Cashflow</b>	m	-68,828	-7,219	8,850	12,137
						<b>Balance Sheet</b>		<b>2009A</b>	<b>2010E</b>	<b>2011E</b>	<b>2012E</b>
						Cash	m	30,698	13,656	14,529	19,398
						Receivables	m	53,928	53,206	58,074	65,252
						Inventories	m	71,737	78,105	87,540	97,704
						Investments	m	51	51	51	51
						Fixed Assets	m	61,044	67,905	65,344	62,137
						Intangibles	m	0	0	0	0
						Other Assets	m	158,057	167,424	172,233	176,334
						<b>Total Assets</b>	m	<b>375,514</b>	<b>380,347</b>	<b>397,771</b>	<b>420,875</b>
						Payables	m	105,947	106,411	120,296	135,165
						Short Term Debt	m	0	0	0	0
						Long Term Debt	m	148,696	137,514	126,332	115,150
						Provisions	m	9,576	9,576	9,576	9,576
						Other Liabilities	m	1,868	1,868	1,868	1,868
						<b>Total Liabilities</b>	m	<b>266,087</b>	<b>255,369</b>	<b>258,072</b>	<b>261,758</b>
						Shareholders' Funds	m	86,292	100,164	112,388	128,906
						Minority Interests	m	23,135	24,813	27,311	30,211
						Other	m	0	0	0	0
						<b>Total S/H Equity</b>	m	<b>109,427</b>	<b>124,978</b>	<b>139,699</b>	<b>159,117</b>
						<b>Total Liab &amp; S/H Funds</b>	m	<b>375,514</b>	<b>380,347</b>	<b>397,771</b>	<b>420,875</b>

All figures in INR unless noted.

Source: Company data, Macquarie Research, August 2009

## Important disclosures:

<p><b>Recommendation definitions</b></p> <p><b>Macquarie - Australia/New Zealand</b>  Outperform – return &gt;5% in excess of benchmark return  Neutral – return within 5% of benchmark return  Underperform – return &gt;5% below benchmark return</p> <p><b>Macquarie – Asia/Europe</b>  Outperform – expected return &gt;+10%  Neutral – expected return from -10% to +10%  Underperform – expected return &lt;-10%</p> <p><b>Macquarie First South - South Africa</b>  Outperform – expected return &gt;+10%  Neutral – expected return from -10% to +10%  Underperform – expected return &lt;-10%</p> <p><b>Macquarie - Canada</b>  Outperform – return &gt;5% in excess of benchmark return  Neutral – return within 5% of benchmark return  Underperform – return &gt;5% below benchmark return</p> <p><b>Macquarie - USA</b>  Outperform (Buy) – return &gt;5% in excess of benchmark return (Russell 3000)  Neutral (Hold) – return within 5% of benchmark return (Russell 3000)  Underperform (Sell)– return &gt;5% below benchmark return (Russell 3000)</p> <p><b>Recommendations – 12 months</b></p> <p><b>Note:</b> Quant recommendations may differ from Fundamental Analyst recommendations</p>	<p><b>Volatility index definition*</b></p> <p>This is calculated from the volatility of historical price movements.</p> <p><b>Very high–highest risk</b> – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.</p> <p><b>High</b> – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.</p> <p><b>Medium</b> – stock should be expected to move up or down at least 30–40% in a year.</p> <p><b>Low–medium</b> – stock should be expected to move up or down at least 25–30% in a year.</p> <p><b>Low</b> – stock should be expected to move up or down at least 15–25% in a year.  * Applicable to Australian/NZ/Canada stocks only</p>	<p><b>Financial definitions</b></p> <p>All "Adjusted" data items have had the following adjustments made:  Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives &amp; hedging, IFRS impairments &amp; IFRS interest expense  Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends &amp; minority interests</p> <p><b>EPS</b> = adjusted net profit / epfowa*  <b>ROA</b> = adjusted ebit / average total assets  <b>ROA Banks/Insurance</b> = adjusted net profit /average total assets  <b>ROE</b> = adjusted net profit / average shareholders funds  <b>Gross cashflow</b> = adjusted net profit + depreciation  *equivalent fully paid ordinary weighted average number of shares</p> <p>All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).</p>																												
<p><b>Recommendation proportions – For quarter ending 30 June 2009</b></p> <table border="1"> <thead> <tr> <th></th> <th>AU/NZ</th> <th>Asia</th> <th>RSA</th> <th>USA</th> <th>CA</th> <th>EUR</th> </tr> </thead> <tbody> <tr> <td>Outperform</td> <td>40.38%</td> <td>48.53%</td> <td>40.00%</td> <td>44.02%</td> <td>57.42%</td> <td>40.20%</td> </tr> <tr> <td>Neutral</td> <td>39.25%</td> <td>17.08%</td> <td>45.00%</td> <td>37.45%</td> <td>32.90%</td> <td>39.21%</td> </tr> <tr> <td>Underperform</td> <td>20.38%</td> <td>34.40%</td> <td>15.00%</td> <td>18.53%</td> <td>9.68%</td> <td>20.59%</td> </tr> </tbody> </table>				AU/NZ	Asia	RSA	USA	CA	EUR	Outperform	40.38%	48.53%	40.00%	44.02%	57.42%	40.20%	Neutral	39.25%	17.08%	45.00%	37.45%	32.90%	39.21%	Underperform	20.38%	34.40%	15.00%	18.53%	9.68%	20.59%
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