

# Alternative Energy Perspective

## Still cautious given immaturity of cleantech

Last quarter we suggested the rally might be over. Although cleantech stocks edged up in 3Q, they did underperform the market. Earnings revisions, after six months of gradual improvement, took a step backwards in September at -38% with Solar at -52%. It is difficult to be positive on alternative energy until revisions not only improve but threaten to turn positive. Given the 0.75 correlation between the stocks and oil, higher oil prices would help, too. Finally, we are skeptical that alt energy really takes off until subsidies are closer to being unnecessary.

## Look beyond Solar and Wind

Wind (43%) and Solar (33%) as the dominant market cap sectors in cleantech attract most of the attention. *These are the two worst-performing sectors over the past year though.* While that may be coincidence, they are especially competitive and dependent on subsidies. Opportunities may be greater elsewhere though liquidity can be hard to find. We view Efficiency and Storage as promising sectors with a little Water and Geothermal mixed in. Companies in these areas often are pioneering a category, which creates scarcity value and, when it succeeds, can lead to outsized stock returns.

## A few of our favorite things

We are now overweight Efficiency, Storage, and Water, and underweight Geothermal, Solar, and Waste. Although Solar might have a bounce on better second-half numbers, sustainability is questionable given continued poor earnings revisions, oversupply in 2010, and policy issues such as the German tariff. Within Solar we remain overweight Asia and underweight Europe. Our analysts continue to be fairly cautious in their ratings. Some of our alternative energy team's top xxx

## Bullish long-term signs

We still consider alternative energy a key part of the sixth technology revolution, in which we remake our energy infrastructure over the next 30-50 years. Historically, most of the money is made in the first 10-20 years. Venture capital investments in cleantech exceeded biotech and info tech for the first time in 3Q. A recent successful IPO might pry open the window for other hopefuls. Cleantech's volatility and risk premiums to the S&P 500 have narrowed. And cleantech sells at a PEG ratio of just 1.0.

This report is an extract of a report of the same name published on 06 October 2009.

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Chart 1: BofAML Cleantech Index



Source: BofA Merrill Lynch Global Research, Bloomberg

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## Alternative Energy Growing Pains

A quarter ago we suggested the cleantech rally might be over. Although it continued a bit longer, in 3Q cleantech (+4%) did underperform the S&P 500 (+14%). Year to date through October 2, cleantech (+24%) has outperformed the broader market (+14%) thanks to the beta rally in spring. On a trailing 12-month basis, cleantech (-5%) is slightly ahead of the market (-7%). We came into the year thinking both the market and cleantech stocks were due for a bounce, though we expected the rally would come earlier in the year. At the same time, we thought it premature to expect much outperformance for alternative energy given the sector's immaturity and repercussions from the financial crisis.

We still think it is too soon to expect consistent outperformance for the reasons described below. We do, however, adhere to our view that cleantech is a major part of the sixth technology revolution and will provide significant investment opportunities over the next 5-10 years.

### Controversy over funding alternative energy

A recession is a tough time to ask taxpayers to foot the bill for remaking the energy infrastructure. Even Germany is questioning whether it wants to subsidize the global solar market when the Chinese vendors are benefiting more than its domestic industry. In the US, movement on the energy bill before Copenhagen appears unlikely. The Democrats seems to want to keep the federal RES and cap and trade tied together, which makes passage more difficult given coal states' opposition to a price on carbon.

The rationale for supporting alternative energy is based on three arguments: (1) global warming is occurring, is caused by human action, and must be arrested; (2) enhancing energy security means that the US must become less dependent on Mideast oil; and (3) fossil fuel prices are likely to rise over time, so alternative energy sources should be developed for economic reasons.

Most investors we speak with agree with reasons two and three. Global warming, however, is controversial. Regardless, academics, governments, and most companies take it as a given based on scientific consensus. Although we haven't done a survey, our sense is that many (most?) investors don't buy it.

In any case, as long as cleantech depends on government largesse, it will be difficult for investors to have confidence in the sector. We doubt the stocks will consistently outperform until companies can stand on their own two feet economically.

## Outperformers: less competition and subsidization

We've pointed out that Wind (43%) and Solar (33%) as shown on page 5 constitute 75% of global cleantech market cap. Therefore, they attract the most investor interest (or investor interest makes them the largest sectors). Yet Solar has been by far the worst performing (-26%) of our eight sectors the last year and Wind (+2%) the second worst. Indeed, investors should have been investing elsewhere when they could find sufficient liquidity. Fuels (dominated by a few names), Efficiency, and Water have been the best sectors.

Similarly, peruse the best and worst performing stocks year to date with market caps above \$500 million in Table 4 on page 7. Six of the ten worst names are solar companies, which have suffered from oversupply and resulting price pressure. The fact is few utilities or consumers would buy solar panels if they weren't subsidized. Of course, subsidies do exist with more on the way, but investors then are subject to political winds, including the capping of installations in Spain and now the possible feed-in tariff cut in Germany.

Solar, mostly Chinese companies, are well represented on the top ten list but there is greater diversity, including Enersys, Cree, Clean Energy Fuels, American Superconductor, and EnerNoc. These companies benefit from legislation (especially Clean Energy in natural gas), but most don't require it. Many of these companies are in our Efficiency sector. McKinsey & Co. and others have lauded efficiency as having the best ROI in the renewables space. Investors (as opposed to traders) should consider spending more time looking at Efficiency, Storage, and other sectors and less on Solar.

Furthermore, many of these winners have scarcity value and are creating new categories. The big winners in technology were companies that created and then led new categories: Amazon in on-line books/electronics, Google in search, Research in Motion in mobile email, Cisco in routers. Although not of the same magnitude yet, Cree in LEDs, EnerNoc in demand response, and Clean Energy in natural gas for vehicles are pure plays on potentially large new markets. Solar is a promising new market, too, but is crowded with competitors. First Solar should do well, but it is not as clear what happens to second, third, and twentieth solar.

## Energy density matters

We believe that our energy infrastructure will change over the next 30-50 years and that renewables will take a larger piece of the pie. One of the greatest obstacles, however, is energy density. Renewables are not as energy dense, which makes their economics less attractive. It takes acres and acres of solar panels, wind turbines, and biomass to equal small amounts of coal and oil. Coal, oil, and even natural gas are difficult competitors because they are much more energy dense than renewables.

Improving energy density is a key technological hurdle in cleantech. It also leads to the conclusion that nuclear, the most energy dense of all generation sources, should be part of the solution. In fact, public support of nuclear in the US and Europe has been rising. Cost and permitting issues aside, we are bullish on nuclear.

## Sector weightings

Our macro view is that the market is ripe for a correction. In fact, it feels like 2003 to us in that back then one bubble (tech) was followed by another (real estate/financials). Today the building bubble is in government credit. Every Austrian bone in our body says this monetary inflation will end badly.

If the market does correct, it may be difficult for alternative energy to outperform near term given its high beta. Third quarter results should be better, especially in solar given the recent improvement in Germany, but sustainability is a question mark. We expect a better 2010 for cleantech as the sector matures and stimulus such as the loan guarantees kicks in, but think it's premature to get too bullish. Earnings revisions turned down in September and revenue growth rates, though perhaps bottoming, are still weak.

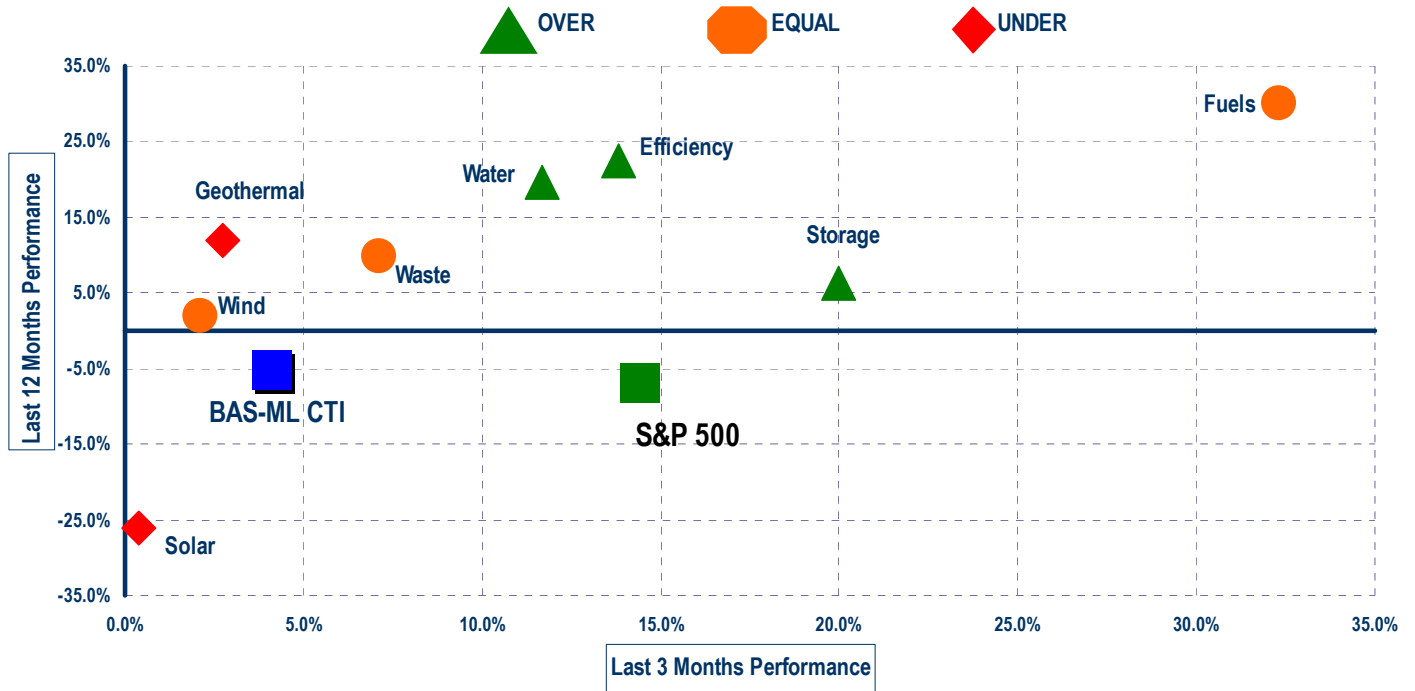
Regarding sectors, we remain overweight Storage and Efficiency despite their runs; we expect more investors to be taking a look at these stocks. We are downgrading Wind to neutral on expected weakness in turbine shipments and with the developers fairly valued. Solar remains underweight. Although better second half results might breed hope, earnings revisions are still among the worst in cleantech and oversupply should remain an issue in 2010. Within solar we prefer the Chinese stocks. We are now overweight Efficiency, Storage, and Water and underweight Geothermal, Solar, and Waste.

Table 1: Sector performance (prices as of October 2, 2009)

Sectors	Old Weight	New Weighting	Price Change			P/S	P/E 2009	P/E 2010	Est. 5yr EPS Gr.	PEG
			Last 3 Mths	Year-to-Date	Last 12 Mths					
Efficiency	Over	Over	14%	44%	23%	1.8x	23.8x	25.1x	20%	1.5x
Storage	Over	Over	20%	51%	6%	4.0x	17.3x	15.4x	23%	1.7x
Water	Under	Over	12%	26%	20%	1.5x	22.7x	19.3x	19%	0.9x
Fuels	Under	Equal	32%	59%	30%	1.1x	14.1x	11.1x	24%	1.0x
Wind	Over	Equal	2%	25%	2%	1.9x	26.9x	19.2x	17%	1.1x
Geothermal	Equal	Under	3%	24%	12%	3.9x	22.5x	22.4x	25%	0.9x
Solar	Under	Under	0%	14%	-26%	1.1x	21.0x	16.2x	17%	0.7x
Waste	Equal	Under	7%	8%	10%	1.3x	23.1x	18.8x	15%	1.2x
<b>BofAML Cleantech</b>			<b>4%</b>	<b>24%</b>	<b>-5%</b>	<b>1.6x</b>	<b>22.6x</b>	<b>19.0x</b>	<b>19%</b>	<b>1.0x</b>
<b>S&amp;P 500</b>			<b>14%</b>	<b>14%</b>	<b>-7%</b>	<b>1.1x</b>	<b>17.1x</b>	<b>14.6x</b>	<b>10%</b>	<b>1.5x</b>

Source: BofA Merrill Lynch Global Research, Bloomberg

**Chart 2: Cleantech sector performance (through October 2, 2009) with new weightings**



Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 2: Cleantech market cap breakdown**

Sector	% Mkt Cap
Wind	42.7%
Solar	33.2%
Efficiency	6.4%
Water	4.5%
Storage	4.0%
Waste	3.6%
Fuels	3.2%
Geothermal	2.4%

Source: BofA Merrill Lynch Global Research, Bloomberg

Wind and Solar dominate cleantech market cap

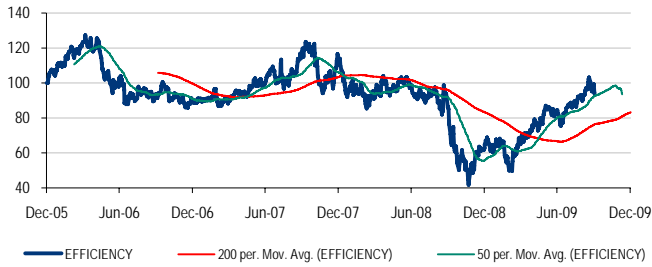
**Chart 3: BofAML Cleantech Index and S&P 500, indexed to 100 (through Oct 2, 2009)**



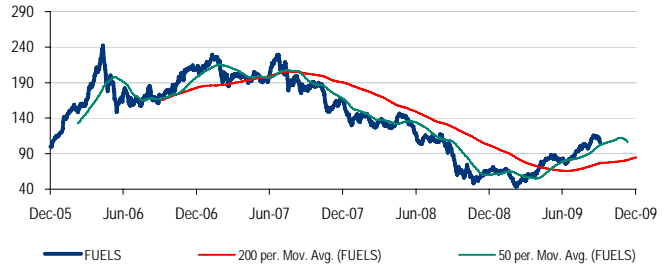
Source: BofA Merrill Lynch Global Research, Bloomberg

**Exhibit 1: Sector Index Performance (through October 2, 2009)**

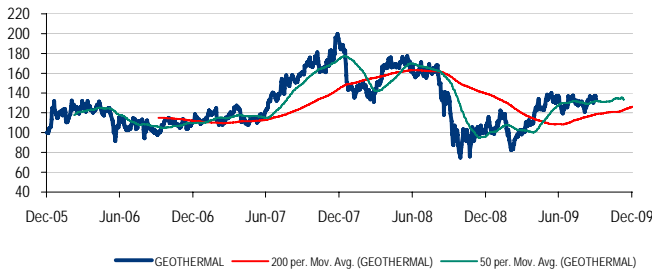
**BofAML Cleantech: Efficiency Index**



**BofAML Cleantech: Fuels Index**



**BofAML Cleantech: Geothermal Index**



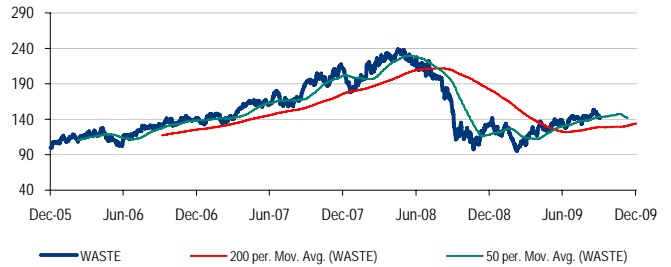
**BofAML Cleantech: Solar Index**



**BofAML Cleantech: Storage Index**



**BofAML Cleantech: Waste Index**



**BofAML Cleantech: Water Index**



**BofAML Cleantech: Wind Index**



Source: BofA Merrill Lynch Global Research, Bloomberg

**Exhibit 2: Regional Index Performance (through October 2, 2009)**

**BofAML Cleantech: Americas Index 22% YTD**



**BofAML Cleantech: Europe Index 21% YTD**



**BofAML Cleantech: Asia Index 42% YTD**



Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 3: Regional performance (prices as of Oct 2, 2009)**

AMERICAS			EUROPE			ASIA		
<b>Most Up</b>			<b>Most Up</b>			<b>Most Up</b>		
Company	Ticker	YTD Δ%	Company	Ticker	YTD Δ%	Company	Ticker	YTD Δ%
ENERNOC INC	ENOC US	319%	CLIPPER WINDPOWER PLC-RE	CWP LN	151%	CERAMIC FUEL CELLS LTD	CFU AU	241%
MAXWELL TECHNOLOGIES INC	MXWL US	251%	MEYER BURGER TECHNOLOGY	MBTN SW	99%	TRINA SOLAR LTD-SPON ADR	TSL US	219%
NEVADA GEOTHERMAL POWER	NGP CN	226%	SOLAR MILLENNIUM AG	S2M GR	80%	CHINA BAK BATTERY INC	CBAK US	182%
COMVERGE INC	COMV US	144%	SMA SOLAR TECHNOLOGY AG	S92 GR	72%	CANADIAN SOLAR INC	CSIQ US	150%
ACTIVE POWER INC	ACPW US	138%	ROTH & RAU AG	R8R GR	71%	ENERGY DEVELOPMENT CORP	EDC PM	145%
<b>Most Down</b>			<b>Most Down</b>			<b>Most Down</b>		
Company	Ticker	YTD Δ%	Company	Ticker	YTD Δ%	Company	Ticker	YTD Δ%
RASER TECHNOLOGIES INC	RZ US	-64%	Q-CELLS SE	QCE GR	-51%	LDK SOLAR CO LTD - ADR	LDK US	-38%
TIMMINCO LTD	TIM CN	-62%	SOLON SE	SOO1 GR	-36%	TOKUYAMA CORPORATION	4043 JP	-21%
ULTRALIFE CORP	ULBI US	-58%	PV CRYSTALOX SOLAR PLC	PVCS LN	-29%	JA SOLAR HOLDINGS CO LTD	JASO US	-11%
ENERGY CONVERSION DEVICE	ENER US	-57%	SOLAR-FABRIK AG	SFX GR	-25%	GREEN ENERGY TECHNOLOGY	3519 TT	-9%
HEADWATERS INC	HW US	-48%	RENEWABLE ENERGY CORP AS	REC NO	-23%	SOLARGIGA ENERGY HOLDING	757 HK	-7%

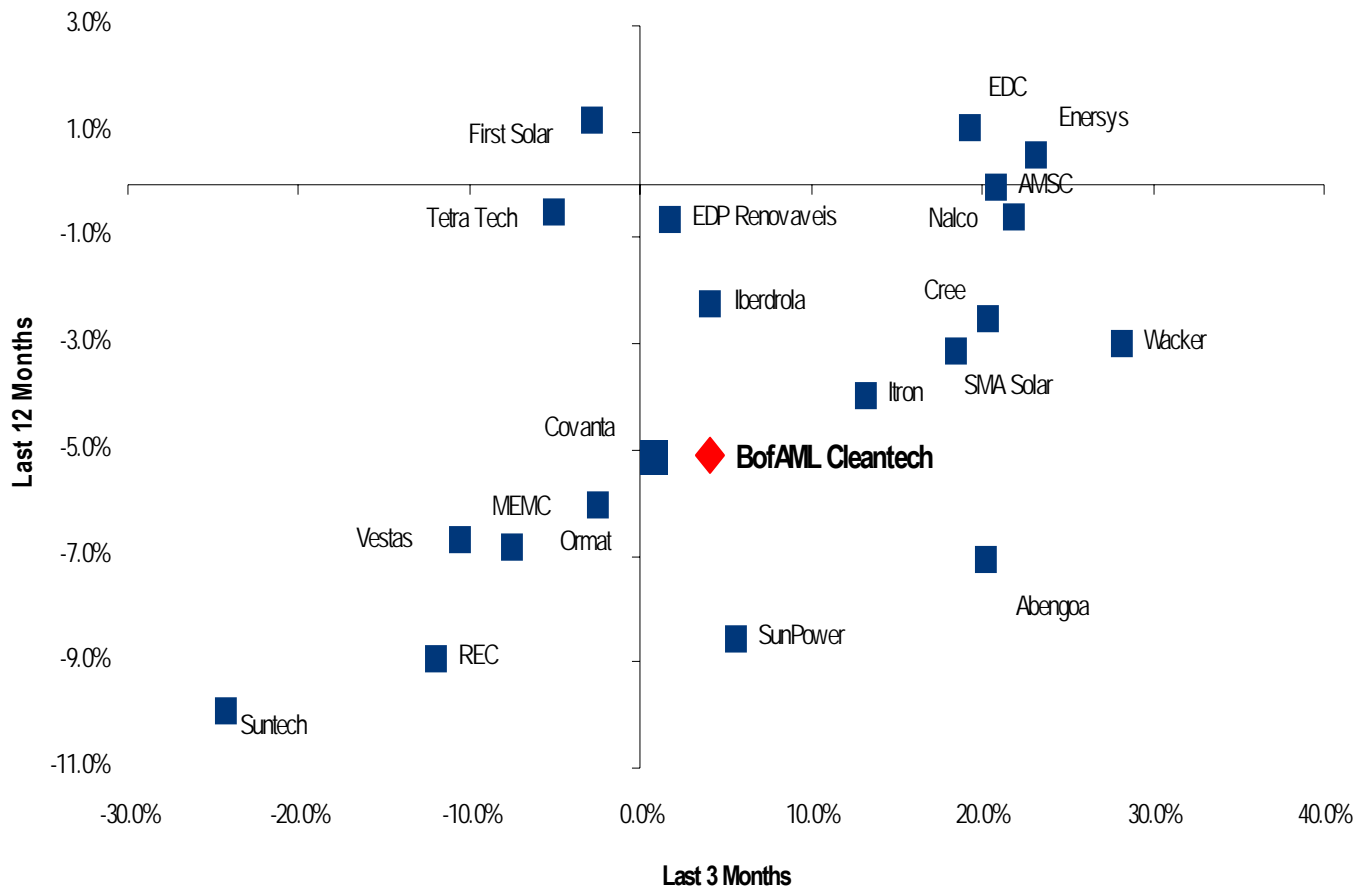
Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 4: Global cleantech top and bottom ten (>\$500 million market cap)**

Most Up			Most Down		
Company	Ticker	YTD Δ% (LC)	Company	Ticker	YTD Δ% (LC)
ENERNOC INC	ENOC US	319%	Q-CELLS SE	QCE GR	-51%
TRINA SOLAR LTD-SPON ADR	TSL US	219%	LDK SOLAR CO LTD - ADR	LDK US	-38%
CANADIAN SOLAR INC	CSIQ US	150%	SUNPOWER CORP-CLASS A	SPWRA	-25%
ENERGY DEVELOPMENT CORP	EDC PM	145%	COVANTA HOLDING CORP	CVA US	-24%
CLEAN ENERGY FUELS CORP	CLNE US	125%	RENEWABLE ENERGY CORP AS	REC NO	-23%
CREE INC	CREE US	122%	TOKUYAMA CORPORATION	4043 JP	-21%
MEYER BURGER TECHNOLOGY AG	MBTN SW	99%	JA SOLAR HOLDINGS CO LTD-ADR	JASO US	-11%
ENERSYS	ENS US	99%	INSITUFORM TECHNOLOGIES-CL A	INSU US	-10%
YINGLI GREEN ENERGY HOLD-ADR	YGE US	95%	ESCO TECHNOLOGIES INC	ESE US	-9%
GT SOLAR INTERNATIONAL INC	SOLR US	91%	ITRON INC	ITRI US	-5%

Source: BofA Merrill Lynch Global Research, Bloomberg

Chart 4: Selected stock performance (prices as of October 2, 2009)



Source: BofA Merrill Lynch Global Research, Bloomberg

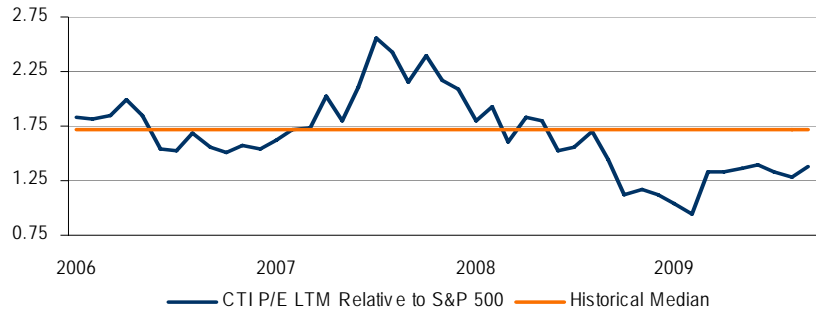
## Cleantech Valuation

Chart 5: CTI P/E LTM relative to S&P 500, January 2006 – September 2009

We look at trailing earnings here given the difficulty of forecasting. Cleantech valuation has expanded from a market multiple to an almost 50% premium, below the three-year average but not inexpensive. Cleantech trades at a smaller 30% premium on expected 2010 earnings.

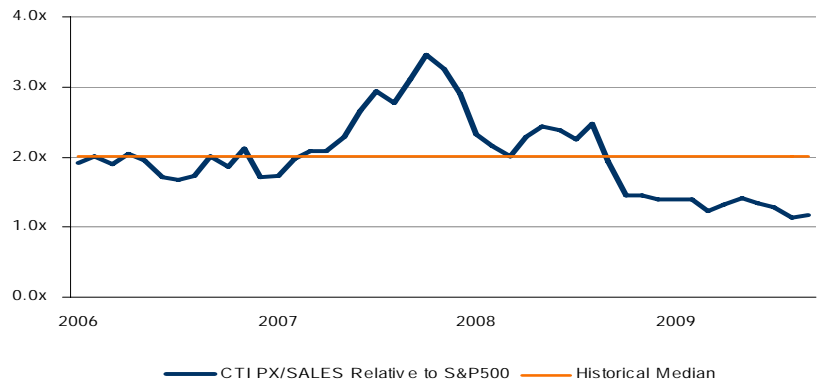
P/Es are driven by the ability to earn more than the cost of capital (GAP) and the size and duration of that competitive advantage (CAP). Certainly alt energy has superior growth prospects to the market's, but its profit profile is less certain.

Alt energy looks fairly inexpensive at an absolute P/S ratio of 1.6x and a modest premium to the market. There is room for upside with high-growth tech sectors often selling at 3x or more.



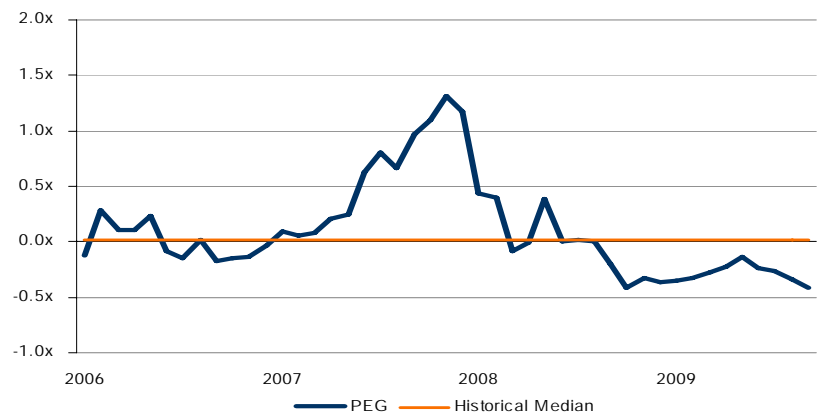
Source: BofA Merrill Lynch Global Research, Factset

Chart 6: CTI Price-to-Sales relative to S&P 500, January 2006 – September 2009



Source: BofA Merrill Lynch Global Research, Factset

Chart 7: CTI P/E-to-Growth (PEG) relative to S&P 500, January 2006 – September 2009

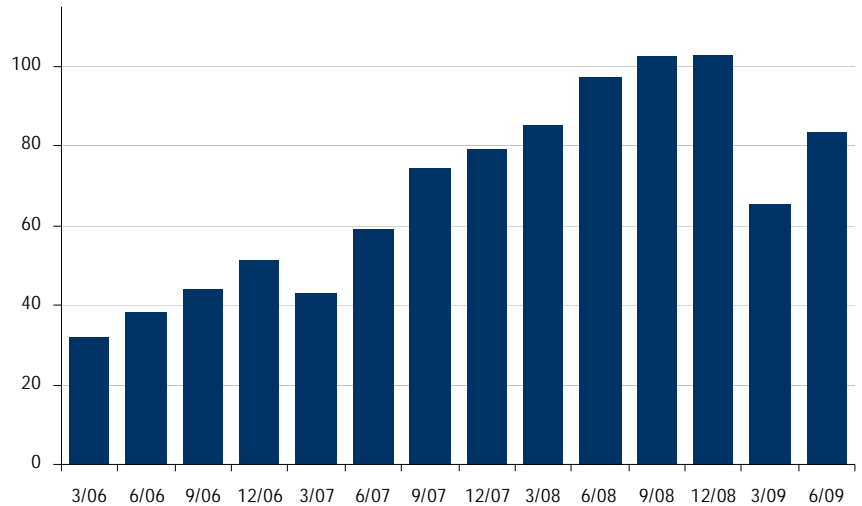


Source: BofA Merrill Lynch Global Research, Factset

Cleantech has a good long-term case at a PEG ratio less than the market's. Alt energy's absolute PEG is only 1.0x. Either cleantech growth and profits will prove very disappointing or the sector has long-term outperformance potential.

## Cleantech Revenue

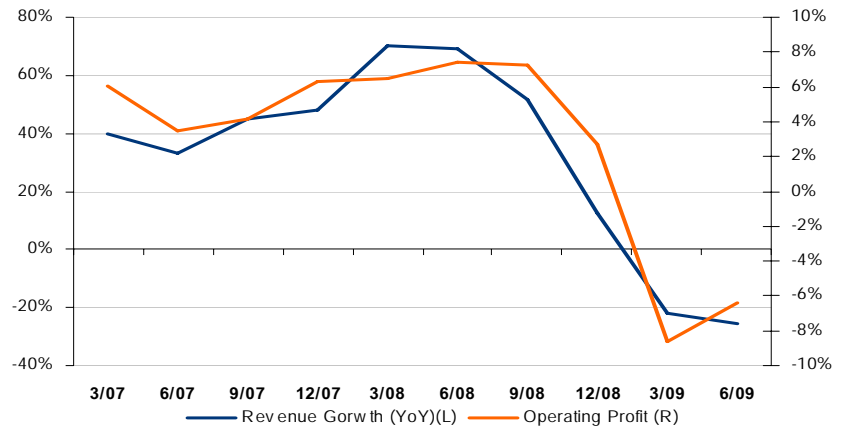
**Chart 8: Cleantech revenue, last three years by quarter (in billions)**



Source: BofA Merrill Lynch Global Research, Factset

Revenue collapsed in 1Q due to both seasonal and fundamental weakness. Industry revenue recovered to over \$80 billion in 2Q for a \$320 billion annual rate, still a fairly small industry compared with its potential. We expect a sequential gain of about 25% in 3Q and another 10-15% in 4Q. Financing, though better, remains a bottleneck.

**Chart 9: Cleantech revenue growth and operating margin, last two years**



Source: BofA Merrill Lynch Global Research, Factset

Alt energy revenue growth peaked in 1Q/08 and has been decelerating since, culminating in the June quarter's 26% year-over-year decline. Second half results should improve given the seasonal pickup in solar business though declines are still likely. Operating margin peaked in fall last year and was negative in the recent quarter. Cleantech can't cost cut its way to profits, so revenue growth is the key to financial results and perhaps to stock performance.

**Table 7: Revenue growth, by sector (YoY%)**

Sector	Dec-07	Mar-08	Jun-08	Sep-08	Dec-08	Mar-09	Jun-09
Geothermal	95%	-50%	-51%	-39%	-27%	153%	114%
Fuels	44%	52%	33%	26%	-32%	-10%	-5%
Water	18%	19%	25%	19%	10%	-6%	-9%
Efficiency	57%	38%	13%	11%	-4%	-8%	-19%
Wind	83%	98%	88%	52%	8%	-35%	-27%
Waste	37%	40%	45%	67%	-2%	-20%	-32%
Solar	22%	93%	105%	84%	45%	-17%	-32%
Storage	25%	27%	34%	21%	-3%	-24%	-35%

**BofAML Cleantech** 48% 70% 69% 52% 13% -22% -26%

Source: BofA Merrill Lynch Global Research, Factset

Less mainstream sectors dominated by a few names, such as Geothermal, Fuels, and Water, showed the best revenue comparisons in 2Q. Solar and Wind, which is where the market cap is, have underperformed. Wind improved slightly in 2Q while solar worsened.

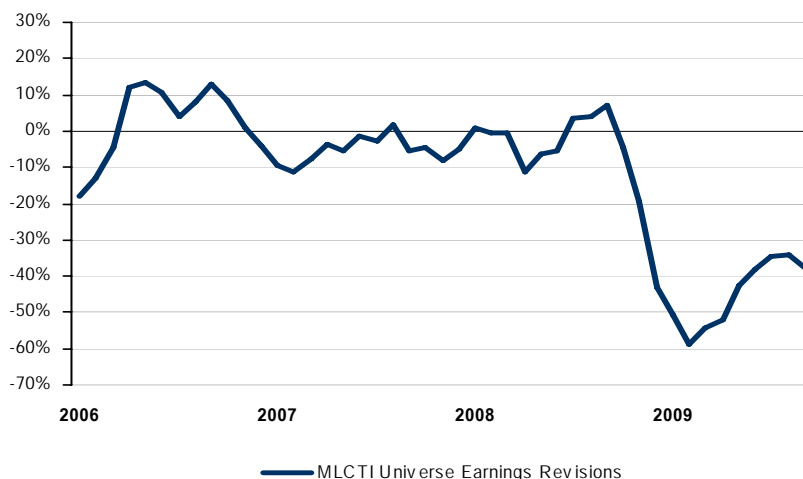
## Cleantech Earnings Revisions

We calculate earnings revisions by taking the monthly number of upward less downward revisions and dividing by total revisions. We pointed out two quarters ago that earnings revisions appeared to have bottomed, creating a positive second derivative that perhaps was a factor in the spring cleantech rally.

September reversed the recent improvement. Earnings revisions were worst in February (-59%) and then sequentially got better: March (-54%), April (-52%), May (-43%), June (-38%), July (-35%), and August (-34%). In September, however, the trend worsened slightly to -38%. Cleantech generally is not in good shape—there consistently are more negative than positive earnings revisions and now the trend is down again. We expect revisions to improve off of 3Q earnings, but it is difficult to be really bullish until revisions turn positive.

Half of our eight sectors showed positive revisions momentum in September. Fuels, a beaten down sector, actually had positive revisions, with Storage, Water, and Waste less negative. Geothermal, Efficiency, and Wind suffered worse revisions. Solar remains the weakest sector with more than half of companies sporting negative revisions and a worsening trend.

Chart 10: Cleantech earnings revisions



Source: BofA Merrill Lynch Global Research, Factset

Table 8: Sector earnings revisions

	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	TREND
Fuels	-35%	-53%	-29%	-9%	2%	8%	Positive
Water	-40%	-33%	-37%	-24%	-25%	-2%	Positive
Storage	-38%	-33%	-34%	-28%	-23%	-13%	Positive
Efficiency	-49%	-20%	-11%	-2%	-10%	-14%	Negative
Geothermal	-21%	-34%	-6%	-23%	-9%	-26%	Negative
Wind	-39%	-29%	-27%	-28%	-34%	-35%	Negative
Waste	-85%	-46%	-61%	-37%	-57%	-35%	Positive
Solar	-57%	-51%	-49%	-47%	-45%	-52%	Negative
<b>ML Cleantech</b>	<b>-52%</b>	<b>-43%</b>	<b>-38%</b>	<b>-35%</b>	<b>-34%</b>	<b>-38%</b>	<b>Negative</b>

Source: BofA Merrill Lynch Global Research, Factset

## Cleantech Correlation Analysis

We calculated the correlation coefficients among sectors and with the BofA-ML Cleantech Index (CTI), S&P 500, and oil for the 2006-09 period.

- The Cleantech Index has a 0.68 correlation with the S&P 500, suggesting there are times of divergence that could allow investors to outperform through the correct timing of cleantech investments.
- Correlations are beginning to decline in some cases. For example, the correlations between CTI/Oil, CTI/Efficiency, CTI/Storage, Oil/Solar, and Oil/Wind have fallen the last few quarters. Time will tell if these are just random fluctuations, but we expect more independent movements as alternative energy grows and matures.
- Oil has almost twice the correlation with the CTI (0.75) as it has with the S&P 500 (0.40). Oil generally has solid positive correlations with sectors (Wind and Solar at 0.76 and wind 0.68). There are times of breakdown—oil and Solar had negative correlations in June 2008 (oil up, solar stocks down) and in December 2008 (oil down and solar up). Still, a rising oil price probably would be bullish for Cleantech.
- Solar and Wind are the main drivers of the CTI and move in tandem with a 0.95 correlation. Geothermal and Waste also closely follow CTI movements despite their low weightings.
- Fuels no longer has any negative correlations, perhaps because the sector market cap now is dominated by Abengoa and Clean Energy Fuels.

Exhibit 3: Cleantech sector weekly correlations (December 30, 2005 – September 30, 2009)

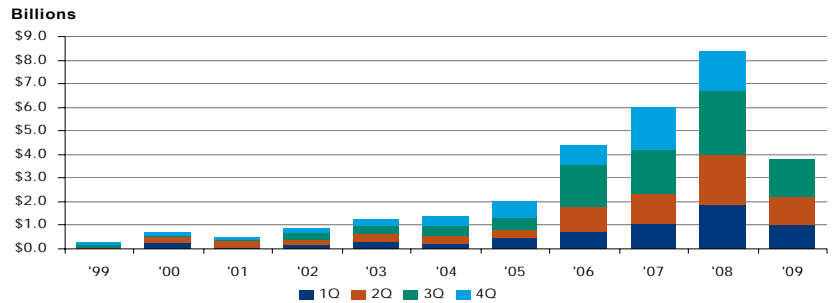
	BofAML CTI	OIL	S&P 500	EFFICIENCY	FUELS	GEO THERMAL	SOLAR	STORAGE	WASTE	WATER	WIND
BofAML CTI		0.75	0.68	0.48	0.39	<b>0.87</b>	<b>0.99</b>	0.54	<b>0.93</b>	0.81	<b>0.98</b>
OIL	0.75		0.40	0.38	<b>0.07</b>	0.78	0.76	0.68	0.84	0.50	0.68
S&P 500	0.68	0.40		0.76	<b>0.89</b>	0.45	0.67	0.70	0.50	0.81	0.63
EFFICIENCY	0.48	0.38	0.76		0.70	0.52	0.47	0.81	<b>0.32</b>	0.68	0.38
FUELS	0.39	<b>0.07</b>	<b>0.89</b>	0.70		<b>0.16</b>	0.36	0.56	<b>0.17</b>	0.67	0.37
GEO THERMAL	<b>0.87</b>	0.78	0.45	0.52	<b>0.16</b>		<b>0.87</b>	0.57	0.84	0.65	0.79
SOLAR	<b>0.99</b>	0.76	0.67	0.47	0.36	<b>0.87</b>		0.55	<b>0.92</b>	0.76	<b>0.95</b>
STORAGE	0.54	0.68	0.70	0.81	0.56	0.57	0.55		0.51	0.56	0.41
WASTE	<b>0.93</b>	0.84	0.50	<b>0.32</b>	<b>0.17</b>	0.84	<b>0.92</b>	0.51		0.67	<b>0.91</b>
WATER	0.81	0.50	0.81	0.68	0.67	0.65	0.76	0.56	0.67		0.79
WIND	<b>0.98</b>	0.68	0.63	0.38	0.37	0.79	<b>0.95</b>	0.41	<b>0.91</b>	0.79	

Source: BofA Merrill Lynch Global Research, Bloomberg

Cleantech venture investments were \$1.6 billion in 3Q, +10% from 2Q but -42% from 3Q/08. Cleantech exceeded biotech and info tech in terms of investment.

## Cleantech Financing

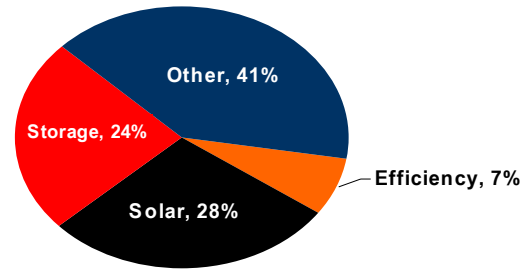
Chart 11: Global venture capital investments in cleantech through 3Q/09



Source: The Cleantech Group

Solar was again the largest sector though not by much. Solyndra and Tesla were the largest deals.

Chart 12: Global percentage of VC investment by top sectors, 3Q/09



Source: The Cleantech Group

Most M&A deals were small though Covanta was active in waste-to-energy as prices have come down to reasonable levels.

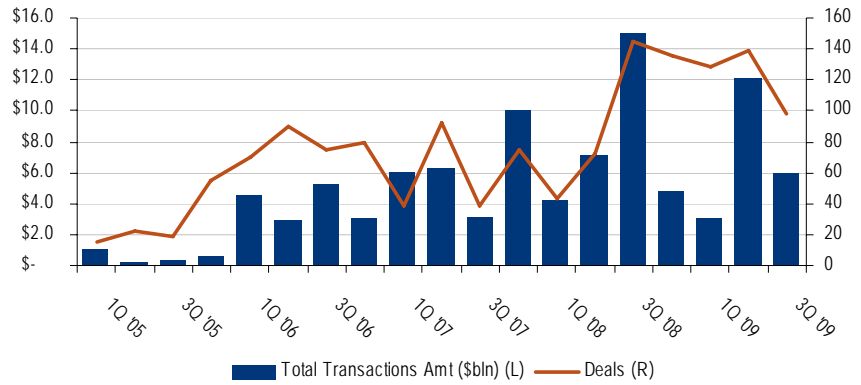
Table 9: Cleantech M&A, last three months

Target Name/1st Party	Acquirer/2nd Party	Seller Name	Type	Deal Size (\$M)
Can Hydro Developers Inc	Transalta Corp		Acquisition	\$1,432
Montenay International	Covanta Holding Corp	Veolia Environnement	Divestiture	\$627
Substantially All Assets	Daystar Technologies Inc	Epod Solar Inc	Divestiture	\$300
Hs Orka	Magma Energy Corp	Reykjavik Energy Invest	Divestiture	\$99
Dynamic Green Energy Ltd	Renesola Ltd		Acquisition	\$80
Aleo Solar Ag	Robert Bosch GmbH		Acquisition	\$66
Hoku Scientific Inc	Baoding Tianwei Group Co Ltd		Acquisition	\$50
Certain Assets	Daewoo Shipbuilding & Marine	Composite Technology Corp	Divestiture	\$50
Solar Integrated Technologie	Energy Conversion Devices		Acquisition	\$43
Polaris Geothermal-Class A	Gto Resources Inc		Acquisition	\$28
Hs Orka	Magma Energy Corp	Geysir Green Energy	Divestiture	\$25
Western Geopower Corp	Gto Resources Inc		Acquisition	\$21
Hemodialysis Catheter Business	Cr Bard Inc	Spire Corp	Divestiture	\$15
Power Systems Business	Fuel Systems Solutions Inc	Teleflex Inc	Divestiture	\$15
Intech Machines Co Ltd	Manz Automation Ag		Acquisition	\$8
BAF Technologies Inc	Clean Energy Fuels Corp		Acquisition	\$8
Full Rights Of Renazorb	Spectrum Pharmaceuticals Inc	Altair Nanotechnologies Inc	Divestiture	\$5
Gamar GI	Renewable Energy Hldgs Plc		Acquisition	\$3
Solar-Fabrik Silicon Service	Unnamed Buyer	Solar-Fabrik Ag	Divestiture	\$1
Energy-From-Waste Facility	Covanta Holding Corp		Acquisition	N/A
Solar Green Technology Spa	Ldk Solar Co Ltd - Adr		Acquisition	N/A
Multiple Targets	Energiequelle GmbH	Theolia	Divestiture	N/A
Memic Electronic Materials	Q-Cells Se		Joint Venture	N/A
Keystone Mountaineer Power S	Energys		Acquisition	N/A
Diamond Wire Technology	Meyer Burger Technology Ag		Acquisition	N/A
Optics Business	Eis Optics	Oc Oerlikon Corp Ag-Reg	Divestiture	N/A
Certain Assets	Engage Networks Inc	Lime Energy Co	Divestiture	N/A
Abu Dhabi Investment Authori	Solar Millennium Ag		Joint Venture	N/A
Firelife Inc	Esco Technologies Inc		Acquisition	N/A
Offshore Wind Prospect	Can Hydro Developers Inc	Wasatch Wind Inc	Divestiture	N/A
Wacker Schott Solar GmbH	Schott Solar Ag	Wacker Chemie Ag	Divestiture	N/A
Spire Solar Systems	Uni Chem Co Ltd	Spire Corp	Divestiture	N/A

Source: BofA Merrill Lynch Global Research, Bloomberg

M&A fell in 3Q to 98 deals and \$6 billion of disclosed value. M&A has become the favored exit strategy for start ups the past few years.

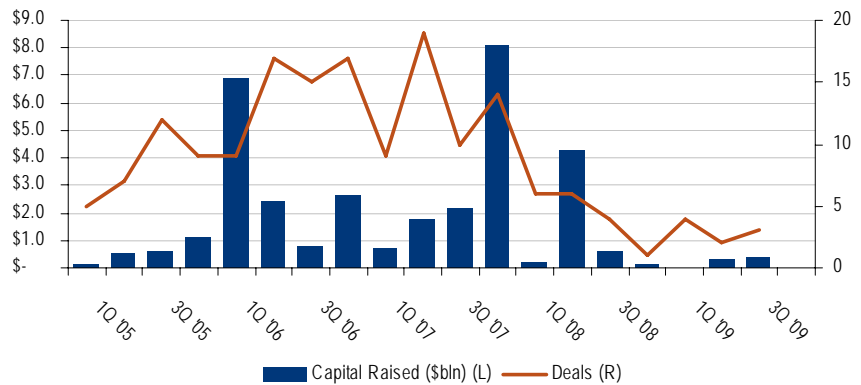
**Chart 13: Global cleantech M&A**



Source: The Cleantech Group

A123 was the key IPO in 3Q, raising \$380 million. We see only a handful of cleantech names ready to go public if the window stays open.

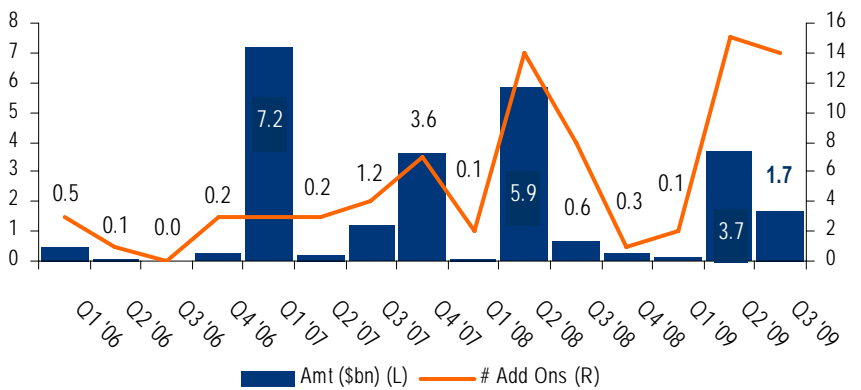
**Chart 14: Global cleantech IPOs**



Source: The Cleantech Group

Secondary offerings declined from a high 2Q level though solar names continued to rebuild balance sheets.

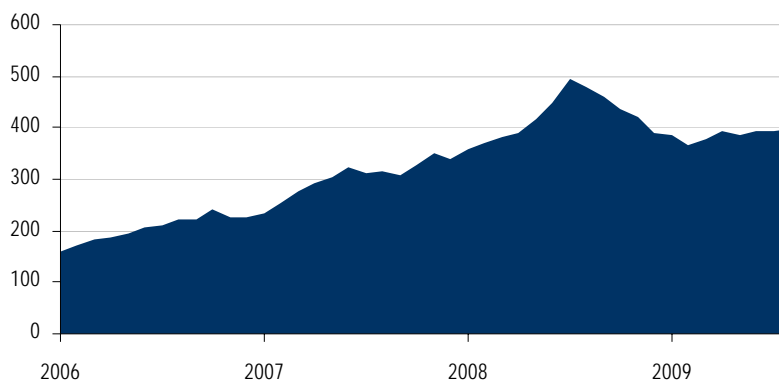
**Chart 15: Global cleantech secondary offerings**



Source: BofA Merrill Lynch Global Research, Bloomberg

## Cleantech Short Interest

Chart 16: Cleantech short interest (millions of shares)



Source: BofA Merrill Lynch Global Research, Bloomberg

† Excludes stocks listed on European Exchanges

Total short interest peaked last summer and fell along with stock prices in the second half. More recently, short interest gradually has increased in the recent rally.

Cleantech short interest increased for four consecutive months through August. Fuels, which is a narrow but outperforming sector, saw a jump in short interest in August. After a big jump in July, Solar short interest leveled off in August.

Table 10: Cleantech short interest growth (MoM%) by sector

Sector	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	Jul 09	Aug 09	Momentum
Fuels	-3%	-9%	-6%	-7%	0%	-7%	-25%	57%	Positive
Geothermal	-8%	3%	0%	-7%	14%	1%	-12%	9%	Positive
Storage	-2%	-2%	2%	-5%	6%	3%	-10%	2%	Positive
Solar	-1%	-10%	8%	20%	-8%	3%	24%	-1%	Negative
Efficiency	4%	-6%	1%	-11%	-1%	0%	-2%	-2%	Flat
Water	4%	7%	1%	1%	0%	2%	-6%	-12%	Negative
Waste	-15%	-1%	-16%	1%	11%	11%	-3%	-13%	Negative
<b>BofAML Cleantech</b>	<b>5%</b>	<b>-2%</b>	<b>2%</b>	<b>-1%</b>	<b>1%</b>	<b>2%</b>	<b>6%</b>	<b>1%</b>	<b>Negative</b>

Source: BofA Merrill Lynch Global Research, Bloomberg

† Excludes stocks listed on European Exchanges

Solar remains the most shorted sector though the recent 7.5% level is far below the 17% peak back in April during the spring rally.

Table 11: Cleantech Short Interest-to-Float by sector

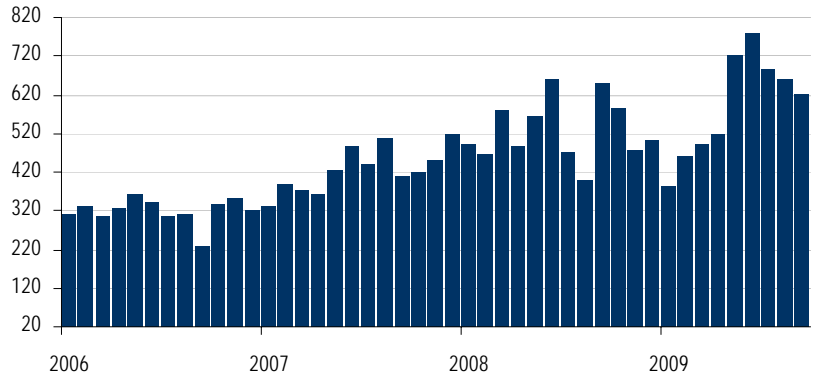
Sector	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	Jul 09	Aug 09	Momentum
Solar	13.3%	6.9%	6.0%	12.7%	17.4%	6.8%	6.9%	7.4%	7.5%	Positive
Storage	8.7%	7.1%	7.2%	7.3%	6.9%	7.3%	7.4%	7.3%	7.2%	Negative
Efficiency	8.2%	8.3%	7.8%	7.9%	7.1%	7.0%	7.0%	6.8%	6.5%	Negative
Fuels	12.2%	4.4%	4.0%	13.1%	13.0%	3.7%	3.4%	4.4%	6.4%	Positive
Waste	7.1%	6.0%	5.9%	4.9%	4.9%	5.5%	6.1%	5.5%	4.7%	Negative
Geothermal	7.8%	6.9%	7.2%	7.2%	6.7%	7.6%	7.6%	2.7%	4.2%	Positive
Water	7.9%	8.6%	9.2%	9.2%	9.3%	9.4%	9.5%	4.2%	3.7%	Negative
<b>ML Cleantech</b>	<b>9.3%</b>	<b>10.2%</b>	<b>6.8%</b>	<b>6.9%</b>	<b>6.5%</b>	<b>6.6%</b>	<b>6.9%</b>	<b>6.5%</b>	<b>6.6%</b>	<b>Positive</b>

Source: BofA Merrill Lynch Global Research, Bloomberg

† Excludes stocks listed on European Exchanges

Average trading volume has increased this year, perhaps signaling more investor interest though volume peaked in June. We are seeing increasing designation of a "renewables analyst" on the buy side.

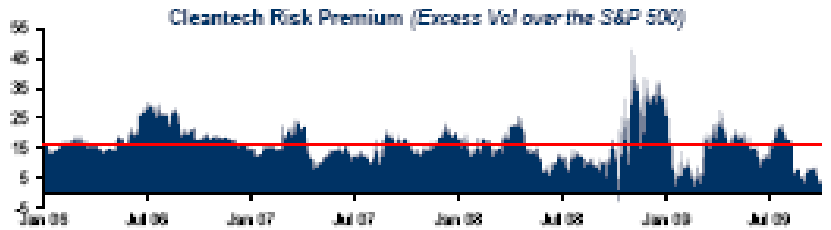
**Chart 17: Cleantech 30-Day Average Trading Volume (mln shares)**



Source: BofA Merrill Lynch Global Research, Bloomberg

Cleantech relative volatility and its risk premium to the S&P 500 are now low; in fact the premium has disappeared. This suggests shareholder bases that are more risk tolerant have an increased confidence that cleantech risk-adjusted returns will be superior.

**Chart 18: Cleantech volatility vs. the S&P 500 (VIX)**



Source: BofA Merrill Lynch Global Research, Bloomberg

## Solar Statistics

**Table 12: Solar pricing and revenue forecasts**

	2007	2008	2009E	2010E	2011E	2012E
<b>Average system Price (EUR)</b>	<b>4.60</b>	<b>4.67</b>	<b>3.20</b>	<b>2.70</b>	<b>2.40</b>	<b>2.20</b>
YY Change	-4%	1%	-31%	-16%	-11%	-8%
<b>Module price (EUR)</b>	<b>2.76</b>	<b>2.80</b>	<b>1.60</b>	<b>1.35</b>	<b>1.20</b>	<b>1.10</b>
	-13%	1%	-43%	-16%	-11%	-8%
<b>Module price (USD)</b>	<b>3.78</b>	<b>4.14</b>	<b>2.24</b>	<b>1.89</b>	<b>1.68</b>	<b>1.54</b>
	-6%	10%	-46%	-16%	-11%	-8%
Industry revenue (EURbn)	13.0	26.9	18.1	24.2	30.1	38.3
<b>Industry revenue (USDbn)</b>	<b>17.8</b>	<b>39.8</b>	<b>25.3</b>	<b>33.9</b>	<b>42.2</b>	<b>53.6</b>
y/y		123%	-36%	34%	25%	27%

Note: Assumes 1EUR = 1.40 USD from 2009 forward  
Source: BofA Merrill Lynch Global Research estimates

Module prices should fall by almost half this year. In the absence of price elasticity due to tight financing, solar revenue could decline by 36%. We expect price declines to moderate to 16% in 2010 and are 11% in 2011. Revenue could then jump by one-third next year to \$34 billion, still below the \$40 billion figure of 2008. Solar could struggle until grid parity is reached in 3-5 years.

**Table 13: Estimated solar installations by country (MW)**

	2007	2008	2009E	2010E	2011E	2012E
Bottoms up cell production (MW)	4,961	8,404	12,620	17,844	23,041	26,741
<b>Available for installation</b>	<b>4,134</b>	<b>7,003</b>	<b>10,517</b>	<b>14,870</b>	<b>19,201</b>	<b>22,284</b>
Utilisation rate	68%	82%	54%	60%	65%	78%
<b>Solar Demand Model</b>	<b>2007</b>	<b>2008</b>	<b>2009E</b>	<b>2010E</b>	<b>2011E</b>	<b>2012E</b>
<b>Germany</b>	<b>1,328</b>	<b>2,000</b>	<b>2,400</b>	<b>3,000</b>	<b>2,500</b>	<b>2,500</b>
<b>Spain</b>	<b>640</b>	<b>2,400</b>	<b>500</b>	<b>460</b>	<b>400</b>	<b>600</b>
<b>Japan</b>	<b>230</b>	<b>200</b>	<b>300</b>	<b>500</b>	<b>750</b>	<b>1,000</b>
<b>U.S.A.</b>	<b>220</b>	<b>350</b>	<b>550</b>	<b>1,500</b>	<b>2,500</b>	<b>4,000</b>
<b>Italy</b>	<b>90</b>	<b>250</b>	<b>600</b>	<b>800</b>	<b>1,200</b>	<b>1,500</b>
<b>France</b>	<b>50</b>	<b>100</b>	<b>300</b>	<b>500</b>	<b>800</b>	<b>1,200</b>
<b>Greece</b>	<b>3</b>	<b>10</b>	<b>200</b>	<b>400</b>	<b>600</b>	<b>800</b>
<b>China</b>	<b>23</b>	<b>30</b>	<b>200</b>	<b>750</b>	<b>2,000</b>	<b>3,000</b>
<b>India</b>	<b>30</b>	<b>20</b>	<b>50</b>	<b>250</b>	<b>500</b>	<b>1,000</b>
<b>South Korea</b>	<b>50</b>	<b>250</b>	<b>150</b>	<b>200</b>	<b>400</b>	<b>600</b>
<b>ROW</b>	<b>162</b>	<b>150</b>	<b>400</b>	<b>600</b>	<b>900</b>	<b>1,200</b>
<b>Total WW Installations</b>	<b>2,826</b>	<b>5,760</b>	<b>5,650</b>	<b>8,960</b>	<b>12,550</b>	<b>17,400</b>
<b>y/y growth</b>	<b>62%</b>	<b>104%</b>	<b>-2%</b>	<b>59%</b>	<b>40%</b>	<b>39%</b>

Source: BofA Merrill Lynch Global Research estimates

With Germany finishing strong, we now expect only a 2% decline in installations at 5.65GW this year. We expect a 60% increase to almost 9GW next year, perhaps too optimistic but based on (1) improving financing, (2) stimulus/subsidies in the US, China, and Japan, and (3) a possible pull forward of demand in Germany (3GW) in anticipation of a FiT decline in 2011.

Polysilicon looks to be in excess supply for the next few years. Almost 13GW could be available for installation next year. Poly prices have stabilized at \$65-70/kg. A decline toward \$50/kg next year wouldn't be surprising, but that doesn't necessarily mean contract prices will be that low.

**Table 14: Potential solar installations based on polysilicon availability**

Solar Production Model	2007	2008	2009E	2010E	2011E	2012E
Total Silicon Production	40,064	59,689	76,446	103,519	139,599	182,890
		49%	28%	35%	35%	31%
Semi Demand	27,328	25,142	20,113	24,136	26,067	28,152
	12%	-8%	-20%	20%	8%	8%
Leaves	12,736	34,547	56,332	79,383	113,532	154,737
Plus recycled ingots	8,013	11,938	7,645	10,352	13,960	18,289
g/w	8.0	7	6.5	6	5.5	5
<b>Potential MW (c-Si)</b>	<b>2,594</b>	<b>6,641</b>	<b>9,843</b>	<b>14,956</b>	<b>23,180</b>	<b>34,605</b>
<b>Available for installation</b>	<b>1,945</b>	<b>4,981</b>	<b>7,382</b>	<b>11,217</b>	<b>17,385</b>	<b>25,954</b>
First Solar	206	500	1,100	1,400	1,800	2,000
ENER	48	110	125	175	200	250
Others	46	40	75	225	400	550
<b>Thin Film Output (MW)</b>	<b>300</b>	<b>650</b>	<b>1,300</b>	<b>1,800</b>	<b>2,400</b>	<b>2,800</b>
<b>Thin film available for installation</b>	<b>250</b>	<b>542</b>	<b>1,083</b>	<b>1,500</b>	<b>2,000</b>	<b>2,333</b>
<b>Total product available for installation</b>	<b>2,195</b>	<b>5,522</b>	<b>8,465</b>	<b>12,717</b>	<b>19,385</b>	<b>28,287</b>

Source: BofA Merrill Lynch Global Research estimates

Vendors have reined in expectations as the year progressed. We expect aggregate revenue for these top solar players to decline by 7% this year, well above our top-down estimate of a 36% industry revenue decline. Now that we are late in the year and business is improving, these figures are unlikely to be as overly optimistic as they were earlier in the year, which suggests the "all other" category must be taking it on the chin.

**Table 15: Bottoms-up revenue forecast**

All in USDmn	2008	2009	
Company	Rev	Rev	YoY
<b>US</b>			
First Solar	1,246	2,084	67%
MEMC	2,005	1,152	-43%
SunPower	1,435	1,471	3%
<b>Total</b>	<b>4,686</b>	<b>4,708</b>	<b>0%</b>
<b>Europe</b>			
Centrotherm	561	774	38%
Q-Cells	1,831	1,473	-20%
REC	1,450	1,721	19%
SMA	997	1,046	5%
SolarWorld	1,317	1,442	9%
Wacker	6,289	5,568	-11%
<b>Total</b>	<b>12,445</b>	<b>12,024</b>	<b>-3%</b>
<b>Asia</b>			
Motech	725	482	-33%
Renesola	670	444	-34%
Suntech	1,924	1,433	-26%
Tokuyama	2,692	2,995	11%
Trina	832	743	-11%
JA Solar	785	367	-53%
China Sunergy	351	242	-31%
Sino American	286	273	-5%
Yingli Green-ADR	1,087	984	-9%
<b>Total</b>	<b>9,352</b>	<b>7,963</b>	<b>-15%</b>
<b>World Total</b>	<b>26,483</b>	<b>24,695</b>	<b>-7%</b>

Source: BofA Merrill Lynch Global Research estimates

Although equity raises have improved balance sheets, companies including Q-Cells, REC, and SolarWorld, which have high capex-to-sales ratios.

**Table 16: High capex tends to result in high debt levels**

Company	Net debt/EBITDA 2009	Net debt/EBITDA 2010E	Capex/Sales 2009
<b>US</b>			
First Solar	-0.7	-1.1	14%
MEMC	-12.9	-3.9	15%
SunPower	1.6	1.6	20%
<b>Europe</b>			
Centrotherm	-1.2	-1.2	13%
Q-Cells	27.5	2.8	39%
REC	4.2	2.8	104%
SMA	-1.3	-1.1	8%
SolarWorld	0.9	1.6	30%
Wacker	0.1	0.0	22%
<b>Asia</b>			
Motech	5.1	0.4	6%
Renesola	-2.3	4.5	47%
Suntech	5.4	1.3	7%
Tokuyama	0.9	-0.2	0%
Trina	1.9	2.2	16%
JA Solar	13.3	-4.0	22%
China Sunergy	-0.4	0.0	4%
Sino American	-0.1	-0.3	3%
Yingli Green-ADR	1.3	0.4	26%

Source: BofA Merrill Lynch Global Research estimates

Margins are under pressure this year with only Trina expected to show improvement. First Solar's towering margin likely will come down, perhaps to 25% over time.

**Table 17: Margin evolution (shaded is increasing)**

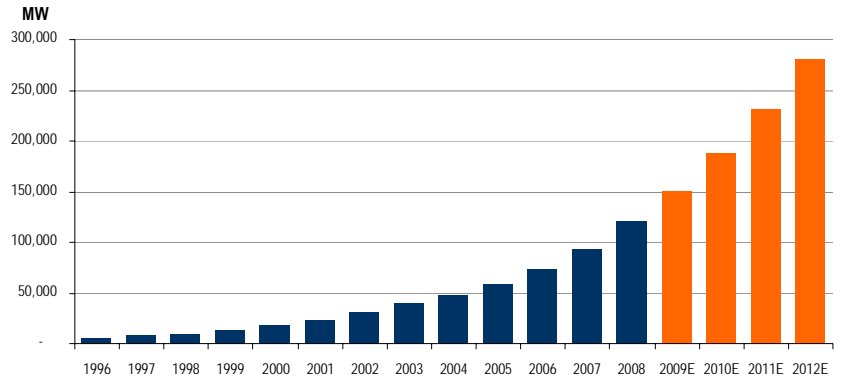
Company	Operating Margin 2008	Operating Margin 2009
<b>US</b>		
First Solar	35%	34%
MEMC	43%	-2%
SunPower	12%	6%
<b>Europe</b>		
Q-Cells	16%	-16%
REC	31%	13%
SMA	25%	19%
SolarWorld	29%	16%
Wacker	15%	7%
<b>Asia</b>		
Motech	12%	2%
Renesola	-7%	-14%
Suntech	9%	6%
Tokuyama	11%	8%
Trina	12%	13%
JA Solar	13%	-7%
China Sunergy	-2%	-6%
Sino American	21%	17%
Yingli Green	15%	10%
Canadian Solar*	9%	3%
LDK Solar*	9%	5%

Source: BofA Merrill Lynch Global Research estimates

## Wind Statistics

Cumulative installed wind capacity hit 121GW last year, producing 260TWh of electricity and saving 160 million tons of CO<sub>2</sub>. A 15% annual growth rate for wind until 2020 would take wind penetration from 1.5% today to 7.5%.

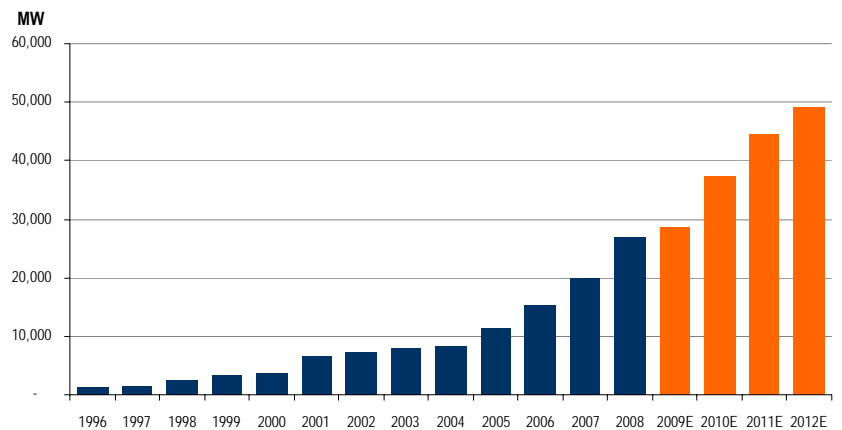
**Figure 1: Global cumulative installed capacity 1996-2012**



Source: BofAML estimates, Global Wind Energy Council

Total worldwide installations last year were more than 27GW (+36%) compared to less than 6GW for solar. That's a \$48 billion market. We expect shipments to be up slightly this year.

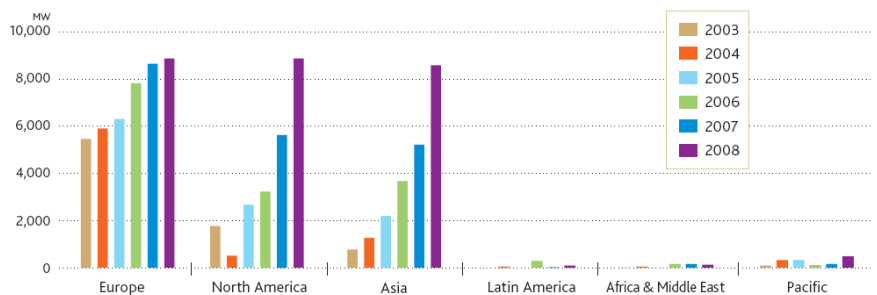
**Figure 2: Global annual installed capacity 1996-2012**



Source: BofAML estimates, Global Wind Energy Council

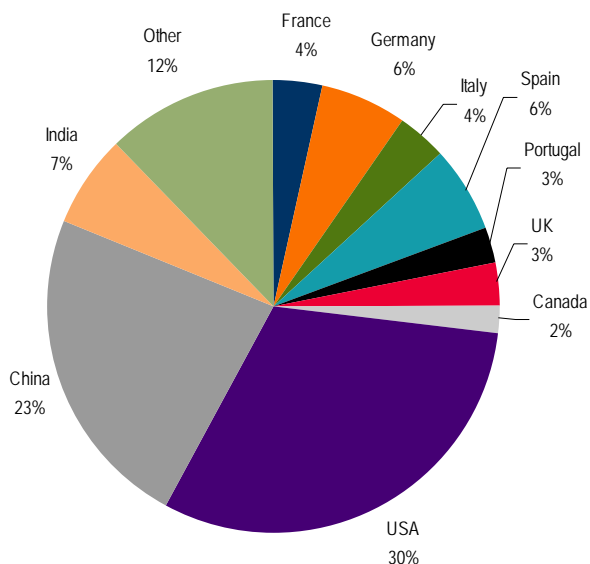
Europe and the US were tied at about 9GW installed last year, closely followed by Asia. Wind is a global business though the US has lost out on the manufacturing side with its stop-start subsidy history. New wind projects represented 40% of power-producing capacity added in 2008.

**Figure 3: Annual installed capacity by region 2003-2008**



Source: Global Wind Energy Council

**Chart 19: 2008 wind installations breakdown (MW)**



Source: Global Wind Energy Council

With its leading share of installations last year, US cumulative installed capacity passed Germany for the top spot. China should surpass the US soon—almost one-third of installations were in Asia, where China boomed in adding 6.3GW for cumulative installations of 12.2GW. Chinese shipments could almost double again this year.

Installation growth should improve to 23% in 2010 after a modest 6% increase in 2009. Oversupply, which should continue into 2010-11, is pressuring turbine margins. A 10% price reduction equals about a 1% increased in unlevered IRR. Wind is competitive at roughly \$80 per barrel oil.

**Table 18: Turbine supply and demand**

MW	2005	2006	2007	2008	2009	2010	2011
Acciona	200	450	800	1200	1200	1200	1200
Baoding Huide				300	400	600	600
Bonus (Siemens)	750	1500	2000	2500	3000	3000	4000
Clipper				1000	1000	1000	1000
Dongfang			300	1200	1700	2150	2150
Ecotecnia		120	240	360	360	360	360
Enron	1500	2200	2200	3200	3500	3500	3500
Enron (GE)	1600	2100	3050	4000	4000	4000	4000
Gamesa	1800	2200	3700	4500	5000	5500	6000
Goldwind	100	450	800	1400	2000	3450	3450
Huayi Electric				348	500	912	912
Hyundai						100	300
Japan Steel Works		160	160	160	160	300	300
Mitsubishi	400	400	800	1200	1200	1200	1200
Nordex	300	450	950	1500	1750	2000	2250
RePower	300	600	1250	1475	1700	1700	1700
Samsung							
Shanghai Electric				400	800	1600	1600
Sinovel	0	150	600	1600	2300	3750	3750
Suzlon	700	1500	2700	4200	5700	5700	5700
Vestas	6000	6000	7500	7500	9000	11000	11000
Xiangtan Electric				320	500	1000	1000
Zhejiang Widney				150	200	300	300
<b>Industry total (y/e)</b>	<b>13650</b>	<b>18280</b>	<b>27050</b>	<b>38513</b>	<b>45970</b>	<b>54322</b>	<b>56272</b>
y/y		34%	48%	42%	19%	18%	4%
<b>Average capacity</b>	<b>13650</b>	<b>15965</b>	<b>22665</b>	<b>32782</b>	<b>42242</b>	<b>50146</b>	<b>55297</b>
y/y		17%	42%	45%	29%	19%	10%
<b>Installations</b>	<b>11542</b>	<b>15124</b>	<b>20075</b>	<b>26973</b>	<b>28525</b>	<b>35000</b>	<b>42650</b>
supply vs demand	118%	106%	113%	122%	148%	143%	130%
<b>Installations y/y</b>		<b>31%</b>	<b>33%</b>	<b>34%</b>	<b>6%</b>	<b>23%</b>	<b>22%</b>

Source: BofAML estimates, company reports

Alternative energy stocks tend to trade with oil (0.75 coefficient) though we expect the correlation to decline over time. Commodity strategist Francisco Blanch sees oil fairly flat at \$72 per barrel through 2Q/10. However, he thinks a spike to over \$100 per barrel is possible entering 2011.

## Fossil Fuel Price Charts

Chart 20: WTI Crude Oil Index



Source: Bloomberg

Natural gas, more the renewables competition than oil, has been volatile of late and is off its lows. Francisco Blanch looks for a gas price of \$5.30 in 2Q/10. The high oil-to-gas ratio is good for Clean Energy Fuels.

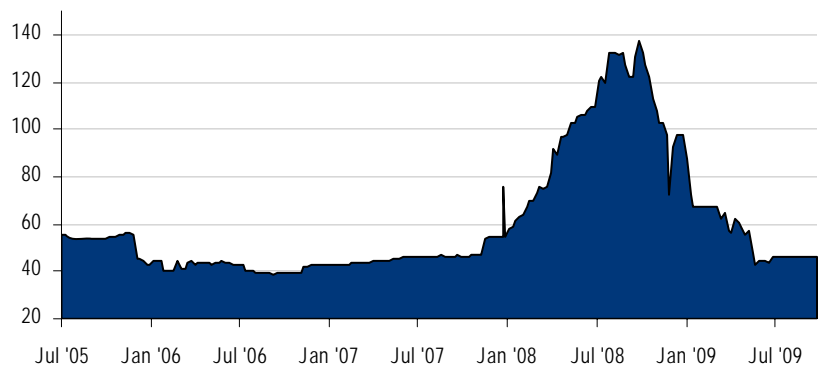
Chart 21: Henry Hub Natural Gas Spot Price Index



Source: Bloomberg

Coal also is cheap. Although few if any new coal plants will be built, coal and oil are energy dense unlike renewables. Since coal isn't going away, cleaner coal and carbon sequestration may be interesting investment areas over time. Sequestration projects are underway though we are skeptical it can be a scale answer.

Chart 22: Pennsylvania Railcar Coal Spot Price Fob



Source: Bloomberg

## BofAML Cleantech Index Constituents

**Table 19: Efficiency**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
CREE INC	CREE US	122%	3,580	United States
ITRON INC	ITRI US	-5%	2,421	United States
AMERICAN SUPERCONDUCTOR CORP	AMSC US	89%	1,357	United States
ESCO TECHNOLOGIES INC	ESE US	-9%	976	United States
ENERNOC INC	ENOC US	319%	736	United States
EAGA PLC	EAGA LN	-4%	556	Britain
BADGER METER INC	BMI US	30%	562	United States
ECHELON CORP	ELON US	60%	531	United States
COMVERGE INC	COMV US	144%	265	United States
HEADWATERS INC	HW US	-48%	176	United States
POWER-ONE INC	PWER US	73%	182	United States
COMPOSITE TECHNOLOGY CORPORA	CPTC US	85%	144	United States
LIME ENERGY CO	LIME US	24%	131	United States
AMERICAN DG ENERGY INC	ADGE US	52%	107	United States
EVERGREEN ENERGY INC	EEE US	102%	76	United States
ORION ENERGY SYSTEMS INC	OESX US	-43%	67	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 20: Fuels**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
ABENGOA SA	ABG SM	61%	2,514	Spain
CLEAN ENERGY FUELS CORP	CLNE US	125%	812	United States
FUEL SYSTEMS SOLUTIONS INC	FSYS US	7%	619	United States
WESTPORT INNOVATIONS INC	WPT CN	94%	361	Canada
BRASIL ECODIESEL INDUSTRIA E	ECOD3 BZ	91%	340	Brazil
CROPENERGIES AG	CE2 GR	-7%	337	Germany
RENTECH INC	RTK US	134%	307	United States
METABOLIX INC	MBLX US	-18%	240	United States
FUTUREFUEL CORP	FTFL US	31%	207	United States
VERBIO AG	VBK GR	34%	127	Germany
PENFORD CORP	PENX US	-34%	76	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 21: Geothermal**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
ORMAT TECHNOLOGIES INC	ORA US	21%	1,757	United States
ENERGY DEVELOPMENT CORP	EDC PM	145%	1,487	Philippines
MAGMA ENERGY CORP	MXV CN		418	Canada
WATERFURNACE RENEWABLE ENER	WFI CN	18%	304	United States
GEODYNAMICS LTD	GDY AU	-19%	231	Australia
RASER TECHNOLOGIES INC	RZ US	-64%	100	United States
US GEOTHERMAL INC	GTH CN	72%	95	Canada
NEVADA GEOTHERMAL POWER INC	NGP CN	226%	100	Canada

Source: BofA Merrill Lynch Global Research, Bloomberg

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**Table 22: Solar**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
FIRST SOLAR INC	FSLR US	9%	12,686	United States
WACKER CHEMIE AG	WCH GR	37%	7,812	Germany
RENEWABLE ENERGY CORP AS	REC NO	-23%	4,980	Norway
MEMC ELECTRONIC MATERIALS	WFR US	9%	3,495	United States
SMA SOLAR TECHNOLOGY AG	S92 GR	72%	3,274	Germany
SUNPOWER CORP-CLASS A	SPWRA US	-25%	2,487	United States
SOLARWORLD AG	SWV GR	3%	2,543	Germany
TOKUYAMA CORPORATION	4043 JP	-21%	2,299	Japan
SUNTECH POWER HOLDINGS-ADR	STP US	18%	2,156	China
Q-CELLS SE	QCE GR	-51%	2,067	Germany
YINGLI GREEN ENERGY HOLD-ADR	YGE US	95%	1,761	China
OC OERLIKON CORP AG-REG	OERL VX	14%	1,081	Switzerland
CENTROTERM PHOTOVOLTAICS AG	CTN GR	55%	961	Germany
LDK SOLAR CO LTD - ADR	LDK US	-38%	914	China
TRINA SOLAR LTD-SPON ADR	TSL US	219%	876	China
MOTECH INDUSTRIES INC	6244 TT	34%	809	Taiwan
GT SOLAR INTERNATIONAL INC	SOLR US	91%	790	United States
MEYER BURGER TECHNOLOGY AG	MBTN SW	99%	739	Switzerland
JA SOLAR HOLDINGS CO LTD-ADR	JASO US	-11%	653	China
SINO-AMERICAN SILICON PRODUC	5483 TT	35%	630	Taiwan
GLOBE SPECIALTY METALS INC	GSM US		617	United States
CANADIAN SOLAR INC	CSIQ US	150%	575	China
ROTH & RAU AG	R8R GR	71%	515	Germany
ENERGY CONVERSION DEVICES	ENER US	-57%	499	United States
PV CRYSTALOX SOLAR PLC	PVCS LN	-29%	469	Britain
CONERGY AG	CGY GR	-20%	466	Germany
SOLARIA ENERGIA Y MEDIO AMBI	SLR SM	65%	466	Spain
WAFER WORKS CORP	6182 TT	30%	418	Taiwan
SOLAR MILLENNIUM AG	S2M GR	80%	396	Germany
E-TON SOLAR TECH CO LTD	3452 TT	-5%	412	Taiwan
GINTECH ENERGY CORP	3514 TT	-5%	391	Taiwan
EVERGREEN SOLAR INC	ESLR US	-45%	366	United States
SOLARGIGA ENERGY HOLDINGS LT	757 HK	-7%	401	China
GREEN ENERGY TECHNOLOGY INC	3519 TT	-9%	379	Taiwan
MANZ AUTOMATION AG	M5Z GR	27%	348	Germany
PHOENIX SOLAR AG	PS4 GR	42%	349	Germany
SOLARFUN POWER HOLD-SPON ADR	SOLF US	4%	327	China
RENESOLA LTD-ADR	SOLA LN	-9%	324	China
CHINA SUNERGY CO LTD-ADR	CSUN US	4%	184	China
ALEO SOLAR AG	AS1 GR	31%	172	Germany
SOLOON SE	SOO1 GR	-36%	168	Germany
TIMMINCO LTD	TIM CN	-62%	151	Canada
ASCENT SOLAR TECHNOLOGIES	ASTI US	67%	167	United States
CENTROSOLAR GROUP AG	C3O GR	-1%	71	Germany
SOLAR-FABRIK AG	SFX GR	-25%	66	Germany
HOKU SCIENTIFIC INC	HOKU US	13%	64	United States
REAL GOODS SOLAR INC-CLASS A	RSOL US	-30%	47	United States
SPIRE CORP	SPIR US	0%	43	United States
SUNWAYS AG	SWW GR	-8%	46	Germany
ARISE TECHNOLOGIES CORP	APV CN	-35%	41	Canada
AKEENA SOLAR INC	AKNS US	-33%	39	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

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**Table 23: Storage**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
A123 SYSTEMS INC	AONE US		2,646	United States
ENERSYS	ENS US	98%	1,049	United States
ENER1 INC	HEV US	-1%	831	United States
POLYPORE INTERNATIONAL INC	PPO US	64%	552	United States
MAXWELL TECHNOLOGIES INC	MXWL US	251%	462	United States
FUELCELL ENERGY INC	FCEL US	1%	303	United States
CERAMIC FUEL CELLS LTD	CFU AU	241%	262	Australia
CHINA BAK BATTERY INC	CBAK US	182%	263	China
ADVANCED BATTERY TECHNOLOGIE	ABAT US	49%	264	United States
CAPSTONE TURBINE CORP	CPST US	50%	238	United States
BALLARD POWER SYSTEMS INC	BLDP US	126%	214	Canada
VALENCE TECHNOLOGY INC	VLNC US	-10%	208	United States
ALTAIR NANOTECHNOLOGIES INC	ALTI US	-9%	117	United States
PLUG POWER INC	PLUG US	-16%	111	United States
ULTRALIFE CORP	ULBI US	-58%	96	United States
BEACON POWER CORPORATION	BCON US	25%	80	United States
ACTIVE POWER INC	ACPW US	138%	51	United States
C&D TECHNOLOGIES INC	CHP US	-35%	54	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 24: Waste**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
COVANTA HOLDING CORP	CVA US	-24%	2,602	United States
LKQ CORP	LKQX US	61%	2,646	United States
SCHNITZER STEEL INDS INC-A	SCHN US	39%	1,476	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

**Table 25: Water**

Company	Ticker	YTD $\Delta$	Mkt Cap (US mln)	Country
NALCO HOLDING CO	NLC US	77%	2,814	United States
TETRA TECH INC	TTEK US	9%	1,588	United States
WATTS WATER TECHNOLOGIES-A	WTS US	18%	1,075	United States
CALGON CARBON CORP	CCC US	-4%	808	United States
INSITUFORM TECHNOLOGIES-CL A	INSU US	-10%	685	United States
CAN HYDRO DEVELOPERS INC	KHD CN	75%	698	Canada
ENERGY RECOVERY INC	ERII US	-22%	295	United States
CONSOLIDATED WATER CO-ORD SH	CWCO US	24%	225	Cayman Islands
FLOW INTL CORP	FLOW US	6%	117	United States
OCEAN POWER TECHNOLOGIES INC	OPTT US	-25%	51	United States

Source: BofA Merrill Lynch Global Research, Bloomberg

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**Table 26: Wind**

<b>Company</b>	<b>Ticker</b>	<b>YTD Δ</b>	<b>Mkt Cap (US mln)</b>	<b>Country</b>
IBERDROLA RENOVABLES SA	IBR SM	8%	20,355	Spain
VESTAS WIND SYSTEMS A/S	VWS DC	13%	13,686	Denmark
EDP RENOVAVEIS SA	EDPR PL	47%	9,373	Spain
ACCIONA SA	ANA SM	4%	8,638	Spain
GAMESA CORP TECNOLOGICA SA	GAM SM	14%	5,171	Spain
XINJIANG GOLDWIND SCI&TECH-A	002202 CH	41%	5,203	China
EDF ENERGIES NOUVELLES SA	EEN FP	41%	4,053	France
SUZLON ENERGY LIMITED	SUEL IN	46%	2,981	India
CHINA HIGH SPEED TRANSMISSIO	658 HK	69%	2,545	China
REPOWER SYSTEMS AG-REG'D	RPW GR	-5%	1,425	Germany
HANSEN TRANSMISSIONS INT	HSN LN	7%	1,340	Belgium
NORDEX AG	NDX1 GR	15%	1,127	Germany
INFIGEN ENERGY	IFN AU	66%	1,060	Australia
BROADWIND ENERGY INC	BWEN US	62%	704	United States
FERSA ENERGIAS RENOVABLES SA	FRS SM	-2%	443	Spain
CLIPPER WINDPOWER PLC-REG S	CWP LN	151%	370	Britain
GURIT HOLDING AG-BR	GUR SW	44%	295	Switzerland
GREENTECH ENERGY SYSTEMS	GES DC	11%	242	Denmark

Source: BofA Merrill Lynch Global Research, Bloomberg

## Price objective basis & risk

### Tokuyama (4043)

Our price objective for Tokuyama is JPY880. This is based on our FY3/11 estimates and a P/E of 17x, which is the average multiple for 2005 when earnings improved. Thanks to semiconductor and solar demand growth, polysilicon supply/demand will be tight again in the future. This company's new polysilicon plant expansion in Malaysia may contribute strong growth in EPS. Risks are a depressed polysilicon supply/demand balance arising from weakness in solar cells, and soaring prices for thermal coal, a key raw material.

### Acciona (ACXIF)

Our price objective for Acciona is EUR95/share. Our fair value is based on a segmental DCF for Acciona's different businesses. For the infrastructure unit, we run a DCF using a 8.7% post-tax WACC. For the real estate assets, we apply a 35% discount to the NAV at the end of 2008. For the transport and logistics segment and the water division, we run a segmental DCF, using WACCs of 7.8% and 9.8% respectively. For the concession business, we apply a conservative multiple of 1.0x book value to derive the equity value. Finally, for the renewables unit, we use a SOP based on installed capacity (wind and other renewables) and future pipeline development. We apply capacity multiples based on the type of asset and geographic location, adjusted for pending useful life.

Upside risks to our price objective are: 1) if regulatory changes take place affecting the renewable assets, 2) if fundamentals weaken in the non-energy business (construction and real estate), and 3) if the credit environment worsens, since Acciona is a relatively highly leveraged company. Downside risks are a continued oil price recovery, which could fuel sector momentum on the back of higher power prices, and greater value for the renewables assets in a rising commodity scenario.

### China Sunerg-ADR (CSUN)

Our PO of \$5.5 is based on a mid-cycle FV of \$5.5 which reflects our thesis that the industry has already coming out from a cyclical bottom and our more positive view on downstream. PO of \$5.5 implies a P/B of 1.4x, which we think is justified based on differentiation in higher performance cells and replacement value of the company. Risks are execution on the expansion of new capacity and implementation of new technological solutions. Potential legal risks and settlement outcome related to REC supply agreement. Competition could affect pricing, while material supply contract could also be a risk in terms of renegotiation as a result of down fall of pricing, changes in legislation and customer activity could also affect end demand.

### Covanta Holding Corporation (CVA)

Our \$14 price objective for CVA is based on a peer group analysis and discounted cash flow model, which implies that the stock will face modest compression over the next year. The shares currently trade at a P / E ratio of 20x and EV / EBITDA multiple of 7.5x, which represent a premium to the peer group of waste companies and independent power producers that is somewhat more narrow than the historic spread. We view some premium as warranted given that margins and cash flow conversion rates for CVA have been above the group average, although a higher degree of uncertainty around future earnings should limit multiple expansion over the next year. The discounted cash flow approach provides a result that is directionally consistent with the peer group analysis and

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