



Ten good reasons to invest in a clean tech fund

A view by **Cesar de Brito** of Lombard Odier Darier Hentsch & Cie

Climate change has moved to the top of the agenda as one of the most important long-term risks (and opportunities) facing investors. But greenhouse gases are far from the sole sustainable development challenges with massive economic impacts. Closely related issues such as growing water scarcity and diminishing natural resources and commodities are similarly salient realities with huge socio-economic impacts. As a society, we are increasingly grappling with the issue of whether and how we can continue to grow economically in the light of these challenges. A massive change in behaviour is inevitable and new technologies will play a key role. Companies developing clean technologies ('clean tech'), such as renewable energy technology, energy efficiency, water technology and carbon reduction technology players, will have a clear and fast-growing role to play as part of this solution. Investors need to be looking towards them as part of their long-term growth strategies.

Growing political support

Climate change has never been so high on the political agenda. Al Gore and the UN's Intergovernmental Panel on Climate Change (IPCC) were awarded the Nobel Prize for their efforts to raise awareness on this global issue. Leaders, such as Tony Blair in the UK and Nicolas Sarkozy in France, have also taken up the climate change mantle, with China and India also developing long-term climate change reduction plans. Even President George Bush has not ignored the issue. Such political support is key as policy is one of the key positive signals for the development of clean tech. Al Gore's recent decision to become a partner in a clean tech venture capital firm also helps to show the growing link between politics and investment in the sector.

Regulation and incentives are creating a vibrant market

Regulation and associated incentives are playing a key role in building up economies of scale for clean tech companies during this early stage of development. Companies usually need this clear and stable regulatory framework in order to be confident to invest. The European Union (EU) is leading by giving better visibility in putting strict environmental targets in place, including: 20% CO₂ reduction, 20% of energy from renewables and a 20% improvement in energy efficiency by 2020. In the US, many states are defining their own benchmarks, with California setting a 20% renewable energy target for 2017. A similar move is taking place in emerging countries: 10% and 7% for China and South Korea respectively. Regulation and incentives are providing com-

panies with an initial boost after which those technologies that have proven to be commercially viable will become self sufficient. Some sub-sectors are still in an embryonic phase, such as fuel cells, clean coal and cellulosic biofuels, while others such as wind and hydro are already competitive with traditional energy sources. Competitiveness is the key to long-term success with the solar industry. Hence, it is fighting to cut costs by half by 2010.

Supported by long-term economic trends

An analysis of long-term economic trends reveals that demand for natural resources has never been so high and will continue to increase. The unbalanced supply/demand market situation will last for decades. Demographics and emerging market economic growth are the key drivers. Indeed, the world population is expected to grow by nearly 2 billion people between now and 2020. Those people will live longer, will be based in cities and will consume resources significantly. On top of that, the size of the middle class in emerging countries is expected to reach 2 billion by 2030, implying the same consumption patterns as in developed countries. Because of rapid economic development, India and China will become the world's biggest CO₂ emitters, with coal-fired plants fuelling their economic growth.

Are these changes sustainable? No. But in a free market dominated world, when demand is greater than the offer, prices should be adjusted. The upward spiral in commodities prices is an initial sign of overheating. In the past two years, gold and corn prices have climbed by over 40%, copper has shot up by 70%, and the price of oil has jumped to almost \$100 a barrel.

In time, rising prices should help regulate end demand, but not all natural resources carry a price tag. Take air, for example. How can society be compelled to preserve this asset? The answer could lie within CO₂ rights. The EU has broken new ground in this area, establishing a CO₂ emission trading scheme and thereby attributing a *de facto* price per ton issued. Companies are thus coming under pressure on two fronts: the diminishing availability of finite natural resources and the need to cut CO₂ emissions. It is thus inevitable that new market technologies that can help to solve those problems will be a huge success.

A wide range of emerging opportunities

The clean tech sector attracted \$70.9 billion in investments in 2006, compared to \$27.5 billion in 2004, according to New Energy Finance, which forecasts investments for 2007-13 of \$262 billion just for venture capital/private equity transactions, requiring \$146 billion in equity. We will



The clean tech sectors

Alternative energy	Alternative fuels	Energy solutions	Building materials
	Carbon sequestration		Energy efficiency
	Clean coal		Storage
	Enzymes		Transportation
	Fuel cells		
	Geothermal	Waste	Environmental services
	Green utilities		Waste
	Hydrogen production		Waste to energy
	New energy finance	Water	Water treatment
	Solar		Desalination
Wave power			
Wind power			

therefore see more and more companies being listed in this area. Today four different sectors will catch this growth: energy efficiency, alternative energy, waste and water. Identifying and preventing energy wastage – in other words the search for energy efficiency – is a market in itself. The insulation of buildings provides an initial source of savings. The target is to develop the concept of a passive energy house but we are far from it today, as a traditional home consumes around five times more energy compared to current best practice. On the industrial side, optimisation of processes could reduce energy consumption by up to 20%, and the development of energy management and measurement systems will help electricity producers to improve the efficiency of the grid. While necessary savings will be partially achieved through these efforts, it is already clear that we are also going to need to find additional sources of energy supply.

Alternative energies have an important role to play here. Solar and wind companies will be key, as will hydrogen, fuel cell technology and hybrid technologies. Additionally, biofuels such as biodiesel (produced from rapeseed) or ethanol (from corn) can be used instead of oil derivatives to power vehicles. The issue here is to find raw materials that do not compete with food production. Second-generation biofuels should help to meet this challenge since they are based on cellulose biomass.

Ever-increasing amounts of waste are putting a growing strain on resources. The key issue here is to reduce the use of raw materials at source, and thus ultimately the production of waste. This is driving growth in the recycling market, supported by the resale value of the raw materials contained in waste. Another option is to use waste as fuel for electricity generation. In the UK, the plan is to increase the proportion of such waste from 9% at present to 27% by 2020. China is heading in the same direction, with a target of 30% by 2030 (versus 1.5% at present). The search for alternative solutions, particularly the development of biodegradable materials, should also help meet these goals.

Finally, water resources are also limited, with fresh water accounting for just 2% of total water resources. More than two-thirds of this is used in agriculture, 22% in industry, and the rest for household requirements. The first challenge is to reduce consumption at source. Water treatment is therefore vital – and there is still a long way to go, given that 80% of the waste water from China’s 10 biggest cities does not pass through a purification plant. Transporting water is also a major issue. The average age of the infra-

structure in several countries means that considerable investments are required to renew water pipes and reduce leakage. New York’s water mains, for example, are over 80 years old. Investments in excess of \$600 billion will be needed in the US alone just to upgrade such infrastructure.

The second challenge is to find new sources of fresh water suitable for use – seawater desalination is one feasible solution and clean tech opportunity.

Answering the demands of socially responsible investors

The growing socially responsible investment (SRI) market – estimated at €1 trillion in Europe alone – is a further source opportunity for clean tech. There are two types of socially responsible investors: ethically driven investors and long-term driven ones – and clean tech appeals to both types.

The first group will support environmentally friendly companies because their products or services are creating real benefits for the environment. The second will recognise that clean tech companies are delivering on their triple bottom line goal of social, environmental and financial performance. Convinced of the environmental benefits, SRI investors will also welcome the fact that clean tech is creating new jobs and these jobs are attracting highly motivated employees who are committed to their companies and ideas.

Economically, these companies are investing in new plants and technologies, delivering R&D and thus becoming more and more profitable, creating economic wealth and making shareholders happy. The German government was one of the first to understand this triple benefit. A government-commissioned report showed that, over the past five years, new renewable energy companies (Q-Cells, Solarworld, Repower, Enercon etc) created 214,000 jobs, mostly in regions where unemployment was high. In 2006, €9 billion of investment was attracted to create new plants in Germany. For the state, there was a cost – €3 billion distributed as subsidies – but it was offset by the creation of €9 billion in total wealth (less energy consumption, less oil imports etc). The net gain for the country is therefore €6 billion. SRI-focused investors will thus see clean tech as wholly in line with their long-term investment goals.

Materiality of inaction is driving demand

Diminishing natural resources will put increasing pressure on traditional companies’ production costs and will sometimes force them to fundamentally adapt their strategy.



Dow Chemical confessed to the *Wall Street Journal* recently that oil prices are hitting its activity hard: according to its income statement, the cost of energy, \$22 billion a year, has tripled over the past four years representing half of the company's operating expenses. We have seen several companies deliver profit warnings in their last quarterly results caused by increasing costs that could not be passed on to the customer. Stora Enso, a Finnish paper manufacturer was one of them – hurt by oil price and forest timber price increases as well as slowing demand for paper. High energy prices as well as high raw materials prices drive short-term volatility in financial results. As a result, companies with poor triple bottom line performance will be more negatively affected compared to those that are pro-active. Big companies will have to rethink their strategy and small(er) clean tech companies will be part of the solution.

Huge growth exposition and market appetite for those stocks

Wind power, solar power and biomass now account for just 2% of global electricity production. Adding in hydroelectric power, the percentage rises to 15%. The potential offered by these energies is therefore considerably under-exploited (as are the opportunities for most clean tech companies). Therefore the top line growth for clean tech should be impressive in the coming years, achieving high double figures.

Regarding the financial outlook of the stocks, the market

Earnings per share growth expectations for solar stocks by country

	Average EPS growth over next three years	Average PE 2008	Average PEG
China	107.25	69.86	0.65
Germany	70.29	23.46	0.33
Japan	10.15	16.94	1.67
Norway	61.89	40.22	0.65
Switzerland	43.16	31.03	0.72
Taiwan	29.47	21.72	0.74
US	68.64	39.74	0.58
Total	55.84	34.71	0.62

Source: Lombard Odier Darier Hentsch & Cie factset, October 2007

Earnings per share growth expectations for wind stocks by country

	Average EPS growth over next three years	Average PE 2008	Average PEG
Denmark	42.00	35.00	0.83
France	50.00	44.82	0.90
Japan	58.00	27.52	0.47
Spain	25.00	23.65	0.95
Switzerland	52.00	17.50	0.34
Total	45.40	29.70	0.65

Source: Lombard Odier Darier Hentsch & Cie factset, October 2007

is expecting double-digit growth in earnings for the next few years. On the valuation side, investors will have to be selective as 2008 price/earnings ratios will vary in the solar industry from a low of 16x for Japanese stocks to almost 70x for Chinese players. On average the PE for 2008 is 34x. For wind, it ranges from 17x to 44x. The PEG ratio (price earnings growth), is a useful tool to assess how much an investor is willing to pay for growth. Taking this angle, most of the clean tech stocks are still under 1, which shows that the market is not yet a bubble. But we have to be careful about this evolution as we are seeing exponentially growing interest for those stocks.

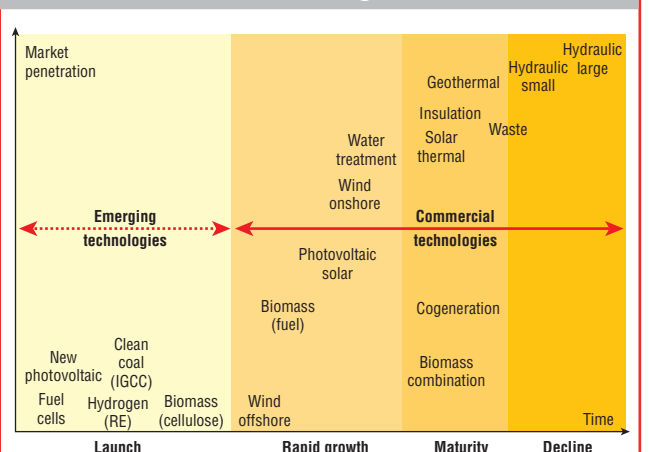
Wider sector diversification

There is an increasing number of thematic funds investing in companies that are addressing sustainable development challenges by offering innovative products or services. These funds are different from typical SRI, best in class or engagement approaches. But there are also marked differences between thematic funds. Two different approaches can be taken:

- ❑ **Investment philosophy** – there are marked differences between investment philosophies. Some are targeting the energy problem by proposing solutions with alternative energy or energy efficiency stocks. We call these mono-thematic funds. The other group of funds is multi-thematic – they are broader and cover different sectors from energy to water and waste.
- ❑ **Market capitalisation bias** – there are also differences between the investment universe covered. Some funds will have broad eligible criteria to select companies and will end up with many large capitalisations with only a small portion of their business specifically exposed to the clean tech theme. Others will be stricter and will look mostly for pure plays, which are generally small and mid-size capitalisations.

At LODH, we have selected a clean tech approach – that is, a wide range of sectors oriented to small and mid caps in

Select the best technologies



Source: Imperial College, Shell, DoE, LODH



Select the best players in the value chain

The wind sector value chain



order to focus on pure players, which we believe have the greatest growth opportunities. Our approach is top down oriented – an understanding of evolving regulation and evaluation of technologies combined with a value chain analysis. Our goal is to filter our 550 stock universe with these two investment angles and end up with a concentrated portfolio of 50 to 60 clean tech stocks.

Diversification tool for asset allocation

A clean tech fund offers a diversify exposition to different sectors which may grow above the market. As for any emerging sector, growth will be combined with volatility. Therefore, the asset allocation may remain a small part of total assets. Basically, a clean tech fund fits in the satellite portion of the portfolio among other alpha funds.

But for that to be realised you need to assess the performance of these funds compared to other funds – investors will need a benchmark. Today there is no pure clean tech benchmark for portfolio managers – that is, one which is large, diversified and predictable. Most candidate indexes don't meet these demands: they are too concentrated on small numbers of stocks, only focus on alternative energies and change their components too frequently.

For the moment, comparison to traditional indexes such as the MSCI World offers a first indicator of the relative performance of the clean tech theme. Following this, one needs to reclassify the fund according to its investment philosophy and compare the performance to the relevant peer group. This process will help investors to select the most attractive funds to put in their portfolio.

About the author

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