Green funds clean up

Investors are flocking to clean technology markets and a host of new green investment indexes. Renewable energy has become a hot investment prospect, especially in the US. But profitability is not guaranteed for some technologies

The clean energy sector is enjoying a huge surge in interest and investment as concerns over rising greenhouse gas (GHG) emissions take centre stage within the corporate world.

Two flagship climate change reports, published earlier this year by banking giants Lehman Brothers and UBS, demonstrate the seriousness with which the mainstream financial community is now taking the issue of global warming (*AGE, March, pp12-13*). This is translating into an unprecedented level of interest in the clean energy sector, where specialist companies offer investors the prospect of massive growth as economies begin to shift towards non-carbon energy supplies.

Latest figures from leading US alternative research firm Clean Edge show that global clean technology markets expanded by over a third last year to some \$55bn, partly as a result of sharp rises in venture capital investment (see p20). The increase builds further on years of already impressive growth. By 2016, Clean Edge anticipates the sector being worth some \$226bn.

Clean range

The past two years have seen the launch of a range of clean energy equity indexes, as more and more specialist companies begin trading on public exchanges. US indexing giant Standard & Poor's is the latest firm to enter the sector, launching its own index of 30 clean energy stocks worldwide in February (*see p21*).

Such indexes represent an important stepping stone in a maturing market and are spawning a wide range of exchange-traded funds and other financial products, enabling investment in niche clean technology stocks.

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Indexes offer a transparent measurement of the sector's performance, with the advantage of allowing exposure to a range of different technologies, at a time when it is uncertain which will succeed or fail. They also spread the risk of investing in a market, where specialist firms are sometimes loss-making and where share prices can be volatile.

For instance, one of the best known and oldest indexes — the WilderHill Clean Energy Index of some 40 US-listed firms — has risen by around half since its launch in 2004, an indication of the sector's popularity. But last year, the index experienced a considerable degree of volatility, rising by over 40pc in the first months of 2006 for it only then to fall by a third in the months that followed. By the end of 2006, the index had closed some 6pc higher for the year.

Rob Wilder, chief executive of WilderShares and creator of the WilderShares Clean Energy Index, expects that volatility "will be as strong as ever" during 2007. Solar, wind and other renewables "are still immature technologies and so the pure — play companies here are likely to see sharp changes", he says. Furthermore, the range and scope of emerging areas — for instance thin film solar, cellulosic ethanol, energy efficient lighting among many others — is such that "it is hard to say what will come to the fore in 2007", Wilder adds.

Despite such uncertainty, there exists a general optimism associated with the clean energy market that comes from a number of underlying factors working in its favour.

In particular, crude oil prices continue to demonstrate remarkable resilience. Recent advances in clean technology also mean that certain alternative energy applications have become cost-competitive when compared with carbon-based equivalents, just as societal concerns over climate change mount.

At the same time, legislators worldwide are responding to the weight of scientific evidence underpinning global warming, stepping up efforts to regulate greenhouse gas (GHG) emissions. In the US, there is now a sense that the tide may finally be turning in favour of federal-wide curbs on GHGs.

Sun, wind, profits

Some firms — notably in the wind and solar power sector — are demonstrating impressive levels of growth matched by solid profits. Germany's SolarWorld, US SunPower and VeraSun Energy, a biofuels specialist, are examples of niche firms that are already delivering robust financial results.

Wind and solar companies are profiting from the huge interest being shown in these technologies. Installed wind capacity worldwide grew by a quarter, or over 15GW, to around 74GW in 2006, according to the Global Wind Energy Council, building on an already impressive 2005. In solar, the European photovoltaic industry recently predicted that the global solar electricity market will reach some 6GW in 2010, representing 37pc/yr growth.

This level of growth is coming despite notable bottle-necks, such as a lack of polysilicon supply for solar panels or grid capacity constraints in the wind sector. The biofuels sector, meanwhile, enjoyed a high-profile 2006, especially in the US, where it is being seen as a quick way of lowering gasoline consumption.

In contrast, in other technologies — such as fuel cells —

Nothing ventured...

Clean energy is enjoying a massive rise in popularity, with markets witnessing rapid growth and investors rushing in to take advantage of the sector's superior prospects.

According to the latest report from leading US alternative energy research firm Clean Edge, *Clean Energy Trends 2007,* clean technology markets expanded massively last year, rising by almost 39pc to some $55bn in revenues in 2006. The performance caps what has been a stellar few years for the sector, which was valued at under $10bn in 2002.

The market for the four benchmark technologies measured — wind, solar photovoltaics, biofuels and fuel cells — benefited from an influx of venture capital. They were also helped by an upturn in political support in the US, as well as significant corporate investments in clean energy acquisitions and expansion projects.

Venture capital investment in clean technology rose by 262pc to some $2.4bn in the US alone during 2006, according to figures released by Clean Edge in conjunction with energy technology venture capital specialist Nth Power.

Allure

Venture capital firms are drawn to the sector for a number of reasons. In addition to high oil prices and climate change concerns, they are attracted by the high media profile of the sector, as well as by commitments from some of the world's largest companies to change their own and their customers' energy use.

The findings of the *Clean Energy Trends* report echo other similar analyses, which point to massive growth in clean energy markets and investment.

According to research company New Energy Finance, global venture capital and private equity investments in clean energy rose by 167pc to around $7.1bn during 2006.

The positive outlook for the sector is such that Clean Edge now predicts the clean technology market could total as much as $226bn by 2016, building on what have been already impressive growth rates in recent years.

Each of the four benchmark technologies is forecast to contribute substantially to this growth. The market for biofuels in particular is expected to grow from $20.5bn last year to over $80bn in 2016, Clean Edge estimates. Wind power and solar photovoltaic markets are forecast to increase from under $20bn last year to $60bn-70bn in 2016, while the value of fuel cells markets could rise from under $1.5bn last year to over $15bn in 2016.

some high-profile firms are still not delivering financially. Fuel cells is "an arena where most of the companies around may not make it", admits Wilder. In transportation — where hopes for fuel cells have been high — the fuel cell component is still too expensive to make the technology commercially viable, Wilder admits.

According to Michael Soni, chief executive of Cronus Capital Markets — which co-launched the ISE-CCM Alternative Energy Index — the general lack of profitability "is going to be typical until more demand comes on stream and the companies build efficiencies into what they are doing."

Reaching a point where clean technology companies are independently commercially sound is essential for the wider sector's long-term future.

Customer value

One of the biggest obstacles holding certain technologies and companies back "will be an over-reliance on government intervention and subsidies, leading to a lack of attention to the creation of customer value", warns the chief executive of the Distributed Energy Financial Group (DEFG), Jamie Wimberly.

DEFG has created its own Distributed Energy Stock Index of clean energy companies and is particularly interested in energy efficiency, demand management and controls and demand response. Enabling technologies such as controls, sensors and advanced materials "bear watching", Wimberly argues, and have the ability to cross over from one industry to another.

"Consumers are going to look for means to quickly manage their energy costs without a lot of expensive outlays up front," Wimberly says. Demand response, for instance in the form of advance metering, "will actually pay the customer not to consume".

Rafael Coven, a managing partner for Cleantech Indices, also says power management technology — covering the electrical grid, major consumers and distributed generation — has huge potential. "Demand is soaring and antiquated grids worldwide are precariously overburdened," he says, adding that proper information on power consumption, transmission and generation is "scant".

"Without this information, our ability to manage and use power both efficiently and safely is greatly limited," Coven argues.

Fortunes

In coming years, the regulatory, financial and environmental issues determining the sector's fortunes will continue to play an important role, as will the industry's capacity to deliver further advances in technology. Above all, the price of oil will remain a critical factor. "Nothing moves clean energy's prospects like oil," says Wilder.

Other experts agree. "It is still easier to get oil out of the ground," acknowledges CCM's Soni. "Human nature is that you will always do what is easier first," he adds. As such, "real lifestyle changes won't come without pain," Soni says. "This is the one major barrier to this industry. People have to change the way they live."