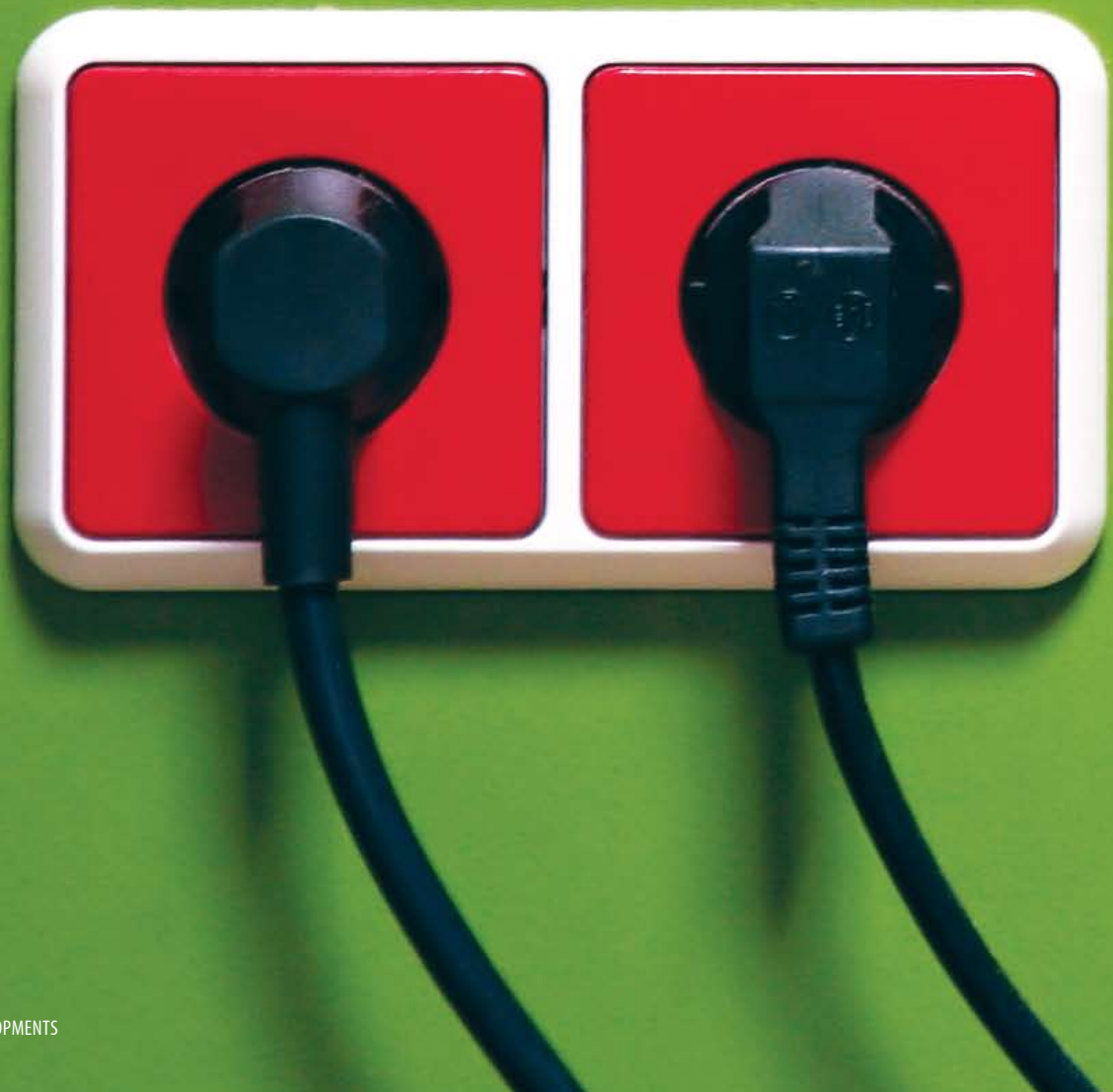


# cleaning up

by Michael Liebreich



Sustainable energy and energy efficiency have soared up the world's political agenda. And the money has followed: in 2007, new investment reached \$148.4 billion worldwide, up nearly five-fold from \$33.4 billion in 2004. The credit crisis, which has rocked the world's capital markets to their core, has slowed this meteoric rise, but money is still flowing into clean energy in recognition of two fundamental truths: climate change is not going to go away any time soon; and exposure to high and volatile fossil fuel costs is not going to become any more palatable.

Clean energy technologies span all stages of maturity, allowing different types of investors to get in on the act. The bulk of investment is going into asset finance — building new renewable energy projects and biofuels processing capacity — which rose 68 per cent to reach \$84.5 billion in 2007. Billions of dollars are also flowing into renewable energy equipment companies via the world's public markets, with \$23.4 billion raised in 2007. Sustainable energy companies now account for 19 per cent of all new capital raised on the public markets by the energy sector.

Wind is the most mature clean energy technology. It accounted for more than a third of investment in renewable generation capacity in 2007 — attracting more investment than nuclear or hydroelectric power. Twenty-one gigawatts (GW) of new wind capacity was added worldwide in 2007, and in March 2008 the industry passed the milestone of 100GW installed capacity. Wind investment in 2007 was focused on the U.S., China and Spain, which together accounted for nearly 60 per cent of new wind farms built around the world. Furthermore, the development of wind technology is far from over. Funding is directed towards increasing the size and efficiency of turbines, as well as to developing massive turbines for deployment far offshore where wind quality is good and there are no neighbours to complain about the view.

Solar energy is the fastest-growing sector. A multitude of exciting new technologies and applications propelled it into the limelight in 2007, when it attracted \$17.7 billion in project financing, nearly a quarter of all new investment — up a massive 250 per cent on the previous year. Solar is also the leading sector for venture capital investment, as investors back such emerging technologies as thin film, which uses less silicon, or the exciting area of Solar Thermal Electricity Generation, which concentrates the heat of the sun with mirrors to produce steam and drive a conventional turbine.

It is now generally accepted that there is no silver bullet for the world's energy problems. We have to generate more clean energy, but we also have to use what we generate far more cleverly. Companies working on energy efficiency are also attracting record investment, especially from early-stage investors. This reflects a broader trend. A few years ago, when energy prices started to surge, investors made money by backing companies whose technologies had been struggling to break even, but which faced attractive prospects. More recently they have had to go back to basics and look for winners among the next generation of technologies, from cellulosic and algae-based biofuels — which bypass the conflict between food and fuel for land — through to next-generation solar and digital energy management.

Investment in sustainable energy has not only grown in the past few years, but has also diversified geographically. As little as five years ago, clean energy meant wind, and that meant investing in Denmark, Germany and Spain. Since then we have seen renewable capacity rollout shifting away from Europe and towards China and the U.S. Developing countries attracted 23 per cent (\$26 billion) of asset financing in 2007, compared to just 13 per cent (\$1.8 billion) in 2004, although most of this went to China, India and Brazil. India and China,

indeed, have really shown their intent to become clean energy powerhouses. A few years ago, sustainable energy investment in China flowed mainly into manufacturing expansion, but the publicity surrounding the Beijing Olympic Games sharpened the country's political resolve and boosted programmes to promote cleaner power. By 2007, investment in sustainable generation capacity — excluding large hydro projects such as the Three Gorges dam — soared to \$10.8 billion. And India is home to one of the world's most successful wind turbine producers, Suzlon.

True, renewable energy would not be competitive on a stand-alone basis with coal-fired power. But three things are working to level the playing field. First, carbon prices are increasing the cost of dirty power — as can be seen by the number of coal-fired plants being struck off the drawing boards in the U.S. and Europe. Second, renewable energy is becoming cheaper as technologies increase in scale and operating experience (although this trend has been obscured recently by surging commodity prices and supply chain bottlenecks, there is no doubt it is still powerfully at work). Third, an increasingly robust web of policy is being woven into place to support clean energy around the world — whether in the form of research grants, accelerated depreciation allowances, feed-in tariffs, renewable portfolio standards or green certificates. The fossil fuel industry may complain about this support for clean energy, but it has had a free pass to dump its effluent in the air for too long. We pay to treat our sewage, even though it would be cheaper to discard it in our streets and rivers; we now have to take the same approach to protect our atmosphere.

The sustainable energy sector has not been immune to the turmoil on the world's financial markets. The impact of the credit crisis started to make itself felt in early 2008, with stock prices falling nearly 20 per cent. Since then, however, investors seem to have regained their nerve. During the first half of 2008, total investment was only slightly lower than the year before. Asset finance also slowed as credit became more expensive. The public markets saw a very quiet first quarter this year. But other investment categories have taken up the slack: venture capital and private-equity investment logged a record quarter in the subsequent three months as companies completed private rounds rather than brave the turbulent public markets.

Indeed the industry's resilience in the face of the current capital market conditions bodes extremely well for the future. Investment in sustainable energy must continue to grow strongly if we are to meet the ambitious targets for greenhouse gas reductions outlined by the 2007 G8 summit at Heiligendamm. At New Energy Finance, we expect investment in clean energy to reach \$450 billion annually by 2012, rising to more than \$600 billion from 2020. The level of activity during 2007 set it on track to achieve these levels — with the current credit crunch testing the market's resolve, but not causing patient investors to question the industry's strong fundamentals.

Clean energy is clearly no longer a marginal investment class, of interest only to specialists and those prepared to accept lower returns for altruistic reasons. The pioneering family funds which opened up the sector have been joined by mainstream utility companies, asset managers and pension funds in providing funding, whether to build generation capacity, support promising new technologies or invest in one of the growing number of publicly quoted sustainable energy companies. Put simply — they have realized that it has become riskier to bet against clean energy than to bet on it. 