SUSTAINABLE BUSINESS

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Carrots and sticks
A plethora of tools is being used by governments to encourage businesses to be greener. **Vanessa Houlder** (right) looks at the sweeteners and regulations in five countries
Page 4

www.ft.com/sustainable-business-oct2008

Staying on course in a tougher climate

Leading companies say sustainability is just as important in a financial crisis, writes **Fiona Harvey**

It's an ill wind that blows no good: the economy may be a more pressing worry at present, but people are still concerned by climate change

Concerns over climate change have not been at the forefront of most chief executives' minds in recent weeks: the financial crisis and economic downturn have eclipsed all other issues. While managers are worried about whether their businesses are sustainable economically, the question of whether they are sustainable environmentally seems less pressing.

Before the crisis wiped out other concerns, companies were increasingly eager to trumpet their environmental credentials. Large companies, including household names such as Wal-Mart and General Electric, Ford and Coca-Cola, HSBC and News Corporation, made pledges to cut their greenhouse gas emissions and lessen their environmental impact.

What will happen to companies' environmental commitments when businesses are fighting for their survival? Will the pledges made in a sunnier economic climate be forgotten?

Talk to any of the companies that have taken a lead on environmental issues, and the answer is the same: no. Environmental sustainability is just as important in a downturn, they insist.

"Our goal is still to be one of the world's leading brands in corporate sustainability and we regard it as central to business strategy," says Francis Sullivan, deputy head of corporate sustainability at HSBC.

"We continue our commitment to reducing our environmental footprint and implementing our sustainability risk policies. We also maintain that sustainability offers diverse business opportunities [such as investment in renewable energy]."

Bank of America announced last March it was embarking on a $20bn 10-year strategy to tackle climate change, and help its customers do the same. The company insists that the crisis engulfing the sector will not deflect it from this purpose.

"[We] continue to move forward with our environmental initiative to address climate change," the company says. "Now, more than ever, there is a critical need for financing to develop environmentally sustainable products and technologies, accelerate the deployment of existing technologies, and increase energy efficiency."

Retailers and consumer goods companies are equally adamant that they will stay the course.

"Sustainability will remain critical to our business, even during an economic downturn," says Ian Cheshire, group chief executive at Kingfisher. "As a major international retailer, we have a responsibility to tackle issues such as climate change and work towards a more sustainable future."

Mr Cheshire says the company's customers are "increasingly aware of environmental issues" and seeking to buy products accordingly.

Indeed, companies would be foolish to abandon their green credentials at the first sign of difficulty, says Solitaire Townsend, chief executive of Futerra Sustainability Communications, which advises companies on their green strategies.

"How would it look," she asks. "If companies drop [their interest in green issues], everyone will understand that they didn't mean it after all. What will that do to their relationship with their customers – or with their staff?"

Consumers are still interested in environmental matters, despite their economic worries, argues Jenny Dawkins, research director at Ipsos Mori, the polling company. She points to polls from the UK to prove the point: the environment was mentioned as a top concern by 8 per cent of people surveyed in September.

This is far below the number concerned about the economy – 55 per cent, the highest recorded since this series of polls began in 1974 – and below the peak of 19 per cent of people who rated it a top concern in early 2007, shortly after the release of Al Gore's film *An Inconvenient Truth*. But it is much higher than the 2 to 4 per cent of people who rated the environment a top concern in the period 2002 to 2004. The environment remains relatively high among people's priorities.

"The environment has been overshadowed [by the economy] but it has not dropped off the radar," says Ms Dawkins.

People in the US are also still interested in climate change, says Michael Allegretti, head of government relations in the US for the Climate Group, a non-profit organisation that works with businesses on cutting emissions. Although the economy may be a more pressing concern,

> If the world is to move to lower-carbon means of production, many industries will have to change

public opinion is in favour of taking action to tackle global warming, he says.

Businesses should take note, advises Ms Dawkins. "Seven out of 10 people think that in tough economic times it is more important for a company to behave responsibly," she says. "The onus is very much on companies to continue to behave responsibly in line with consumer expectations. That pressure is not going away."

What is more, companies have much to gain from taking steps to improve their environmental performance, says Ms Townsend. "This is not some fluffy issue. It is a business issue. Companies should understand that."

The guiding principles behind behaving in an environmentally sound manner are the same as the principles of thrift and economy, she points out.

Using fewer resources is at the core of environmental sustainability, and leads to cost savings. "Thrift and being green go hand in hand," she says.

Jan Babiak, global climate change and sustainability services leader at Ernst & Young, says that companies should realise that there are substantial savings to be made: from cutting down on the wasteful use of energy to economising with other materials.

She says: "Insightful managements realise that having an environmental policy in place will save them a lot of money. There are some very simple but impactful changes that can be made. Double-sided printing and switching lights to movement sensitive activation are just two small examples."

The current high energy prices only make the issue more important in a downturn, adds Andrew Caveney, partner for business advisory services at Ernst & Young. He explains: "Rocketing energy and commodity prices represent a far more powerful driver of green business practices than the existing level of legislation or consumer pressure."

Managers can learn much about how to improve their business processes from looking at their carbon dioxide emissions, he says. "Carbon in the supply chain is not only a liability in itself but an indicator of an inefficient operating model and exposure to rising energy prices."

Businesses that ignore climate change may also expose themselves to large risks. For instance, they may be challenged by lawsuits from plaintiffs arguing that companies have caused damage to property by failing to take action to cut their emissions.

Companies also face the risk of the damaging effects of climate change, such as rising sea levels, droughts, floods and fiercer storms. Tightening environmental regulations – such as the introduction of a cap-and-trade system for cutting carbon emissions in the US, which has been promised by both presidential candidates – present a further risk for unwary companies.

Mr Sullivan of HSBC says: "Managing risk and promoting business opportunity is critical and, in the context of sustainability issues, is as important today as it was before the current challenges in the financial markets surfaced."

As well as posing a threat, climate change opens opportunities for companies beyond efficiency savings. If the global economy is to move to lower-carbon means of production, then many industries will have to change.

The energy industry is the most obvious, as renewable forms of energy will have to take precedence over fossil fuels. New carbon abatement technologies such as carbon capture and storage are also being developed, opening up a new market.

Other sectors will also have to change, opening opportunities for new products and business techniques. Construction companies, for instance, will have to find ways to make greener buildings, using more environmentally sound materials and designs. Car companies are looking to use new technologies such as electric engines and hydrogen fuel cells. Airlines are testing new designs and fuels made from plants.

The downturn will have some effect on the number of companies bringing out "green" initiatives, predicts Ms Townsend at Futerra.

"Companies that just wanted to dip their toe in the water, or that wanted to gush about climate change rather than really doing anything real about their environmental impact – they will go away," she says.

"There will be a lot fewer 'have-a-go greenies' around, those companies that just talk about green issues because they think it's fashionable."

But companies with a longer-term vision, and companies that perceive the benefits of environmental management, will continue to seek to improve their green performance, she says. "Consumers will trust those companies more."

Save energy – the less painful way to cut costs

ENERGY EFFICIENCY

Fiona Harvey on an alternative to redundancies and factory closures

In a downturn, companies start to look urgently for ways to trim their costs.

Typically, this will include redundancies and the closure of some underperforming units. Managers will be told to do more with less, and corporate belt-tightening may include cutting down on expenses such as entertaining or non-essential travel.

But could companies achieve some of the same results through energy efficiency?

Soaring energy prices have meant that energy is a much bigger part of any company's overheads than it used to be – the spend on energy has more than doubled in the past three oro four years for many companies. So cutting out the wasteful use of energy should bring savings which – importantly – are much less painful than cutting staff or closing offices.

Hugh Jones, director of solutions at the Carbon Trust, a UK government-funded body, says most companies can shave about 20 per cent from their energy bills without trying very hard.

"A lot of these things are very simple, like turning off lights in rooms where people aren't working," he says.

InterfaceFlor, for instance, a manufacturer of carpet tiles, has pledged to have a zero carbon footprint by 2020, and in its effort to do so has cut its energy consumption by 45 per cent per unit of output. This, together with other waste-reduction measures, has saved the company more than $372m since the mid-1990s.

Eon, the energy utility, estimates that the average office wastes £6,000 a year because employees fail to take basic energy efficiency measures, which can be as easy as turning off computers when they go home and unplugging mobile phone chargers when not in use.

The company found that some of the barriers to employees being more energy-efficient were surprising.

Just over half the people it surveyed said they were held back by being afraid to ask permission, while a similar number said that the lack of a financial incentive was to blame.

A quarter said they did not take energy-efficiency measures because of worries about being ridiculed by colleagues if they did so.

However, companies are becoming much more aware of energy efficiency, owing to a combination of high prices and economic concerns, reports John Murphy, vice-president and managing director for systems and services for Europe and Africa at Johnson Controls, which makes building control products.

"We are seeing much more interest in energy efficiency across the board. There will be much greater sensitivity [to energy-efficiency issues] from building owners, as the credit crunch continues to bite," he says.

Some energy-efficiency measures – such as turning off computers or opening windows rather than turning on air conditioning – are straightforward and save money immediately, while requiring little more than minor behavioural changes to implement.

Others, however, are more difficult and require investment. For instance, "building automation" improvements, such as installing sensors to turn off lights when there is no movement or winding down the heating of offices at night, can substantially cut energy wastage. But the costs of buying and installing such equipment mean the payback period may be one or two years, says Mr Murphy. This is often what makes companies hesitate.

Harry Verhaar, senior director for energy and climate change at Philips Lighting, says lighting represents 19 per cent of global energy use but more than three-quarters of lights are of the older, less efficient type. If they were replaced by efficient lights, about 40 per cent of this energy use could be eliminated, resulting in savings of more than €100bn a year worldwide.

The savings would be equivalent to the output of about 530 average-sized power plants, resulting in huge cuts in carbon dioxide emissions.

But although energy-efficient lightbulbs save money over a few years, they are more expensive to buy than the older models.

Mark Nutt, managing consultant at Morse, the consulting and IT services company, says chief executives can encourage their managers to find efficiencies by making each department responsible for its own energy use.

"By making departments pay for their own energy, managers will be incentivised to monitor usage and find areas where it can be reduced," he explains. "The greatest initial savings can be achieved with relatively simple measures rather than out-and-out reinvention."

It is not just energy that is wasted. Cutting down on the waste of raw materials can result in substantial savings for manufacturers, says Bill McCausland, production specialist at Envirowise, a UK government-funded agency helping companies reduce their environmental impact.

"With continued pressure on manufacturers to manage the impact of higher raw material costs, taking a systematic approach to resource efficiency can provide manufacturers with a sustainable strategy of cost reduction in a competitive market," he says.

Kimberly-Clark, for example, found it could cut costs by redesigning its toilet tissue, Andrex. The company put 50 per cent more sheets on each roll and trimmed 30mm of packaging from its packs, saving about 83,000kg of plastic a year and cutting transport costs.

Encouraging companies to realise these cost savings can still be difficult, however, as it requires management time and effort that is in short supply, as companies look to their survival.

Mr Murphy argues that governments should play more of a role: "I think things such as investment tax credits for building improvements that increase energy efficiency would really help get more companies looking at this issue."

Inside this issue

Finding better ways to deliver the goods

TRANSPORT

Rod Newing on how sharply rising fuel prices are changing priorities

Increased transport costs because of oil price rises can change the economics on which supply chains were built.

Traditional strategies were aimed at reducing the amount of money tied up in inventory and the number of warehouses. However, this was often at the expense of increased transport frequencies and distances, and therefore emissions.

Strategies, such as just-in-time, lean manufacturing and even low-cost country sourcing, must be re-evaluated in light of fuel prices. We have entered a new era where different supply chain strategies are needed to engender high performance, says *Past the Tipping Point*, a recent report from Accenture and Ilog, the French-headquartered business software company.

Jonathan Wright, global head of the fulfilment practice at Accenture, explains that tipping point analysis is an end-to-end assessment of the supply chain to understand at what point inventory should be held further forward in the supply chain to reduce transport costs.

Moving inventory closer to demand lowers transport and emissions at the expense of higher inventory costs.

"That tipping point occurs at different fuel prices, depending on the type and nature of the product," he says. "The tipping point will lower with a low-cost bulky product, such as soft drinks or paper. There will always be areas where just-in-time is the right thing to do and others where it is history."

Kimberly-Clark's "Network of the Future" places distribution centres closer to its key customers and markets, reducing the number of delivery trips. Its strategy aims for 70 per cent of product to be made and sold in the same country. In the US alone in 2007, it saved nearly 2.8m miles and 500,000 gallons of fuel.

There is a carbon trade-off between more energy efficient centralised warehouses and transport costs, but, generally, cost and carbon reduction are aligned.

Professor Alan McKinnon, director of the Logistics Research Centre at Scotland's Heriot-Watt University, has identified nine ways of reducing carbon in freight transport, most of which will also reduce costs.

These are: switch from road and air to rail or water; reduce the number of links in supply chains; reduce empty running; increase average journey length; increase average vehicle loading; reduce empty running; increase vehicle capacity; reschedule deliveries to off-peak periods; fuel efficiency; and use lower carbon fuels.

Sharing distribution centres and deliveries is a powerful way to reduce cost and carbon footprint.

Judy Blackburn, head of the UK logistics team at Kurt Salmon Associates, a consultancy, says that when two competing companies have merged their logistics operations and vehicle deliveries, transport costs have fallen by 15-25 per cent, saving 300,000-400,000 tonnes of carbon dioxide.

"Current supply chain designs are primarily aimed at improving on-shelf availability, reducing cost and supporting sound financial figures," according to *The 2016 Future Supply Chain: Serving Consumers in a Sustainable Way*, a report by the Global Commerce Initiative of manufacturers and retailers and Capgemini, the consultant.

"In future, the industry must design for additional parameters, such as as CO_2 emissions reduction, reduced energy consumption, better traceability and reduced traffic congestion."

The report envisages that finished products will be shipped to collaborative warehouses in which multiple manufacturers store their products. Shared transport will deliver to city hubs and regional consolidation centres. Final distribution to stores, pick-up points and homes will use consolidated deliveries.

This is already happening, through the Sustainable Distribution initiative to share vehicles (*see panel*) and through third-party logistics providers. For example, Wincanton runs a "white fleet" of unbranded vehicles on behalf of three major clients.

The Meadowhall Shopping Centre's consolidation centre outside Sheffield, operated by Clipper, receives 17 deliveries a day, which are consolidated to six deliveries to the shopping centre. Last Christmas, 37 deliveries a day were consolidated on to 10 trucks.

Mr Wright warns that although supply chain collaboration is a big opportunity, there are challenges. Planning is hard enough internally, but even harder when companies plan in different ways.

Two-thirds of the freight tonnage moved in the UK goes by road, with most of the cost borne by truck operators and passed on to customers. Prof McKinnon points out that some of the wider environmental and congestion costs are imposed on the community at large.

"Not many companies will act unilaterally and voluntarily to become greener if it is going to increase their costs and reduce their competitiveness," he says. A rare example is Jaguar Land Rover *(see facing page)*.

High fuel prices are doing the work of carbon taxes and emissions trading schemes, which were intended to "internalise" the environmental costs.

Prof McKinnon points out that the current cost of a tonne of carbon emissions in a trading scheme is about €25, whereas the average fuel duty imposed is about €290. He also points out that tightening European emission standards have caused a huge reduction in emissions, independently of fuel prices.

"We haven't been very smart in the past, so there is a lot we can do to reduce transport intensity of anything that we move using current technology," concludes Martin Christopher, chairman of the Cranfield Centre for Logistics and Supply Chain Management.

"The steep rise in the price of oil means that for the first time people are taking this issue seriously," says Mr Christopher. "The long-term trend is that oil prices will go up and up, so we must revisit our whole supply chain strategy."

Load-bearing: Tesco is among a wide range of supermarkets and food groups taking part in the Sustainable Distribution initiative Alamy

Vehicle sharing – an idea that carries weight in the cause of sustainability

A group of 37 of the UK's leading food and consumer goods companies recently made a little noticed move to pool some of their delivery operations. Instead of delivering with part-filled trucks or returning empty, they have started to share vehicles on certain routes, writes **Rod Newing.**

"Getting people to share transport sounds easy on the surface, but in practice it is not," says Tarun Patel, head of supply chain at IGD. "Our role is to help businesses to understand why and how they can collaborate."

Formed in 1909 as the Institute of Grocery Distribution, IGD is a not-for-profit organisation whose aim is to make the food and grocery industry more efficient and effective. Three years ago, it identified collaborative distribution as an opportunity. The price of fuel had been going up, and all projections showed further rises, and organisations wanted to become more sustainable.

According to the UK Department for Transport, in 2007 "empty running" for all vehicles was 27.4 per cent of the available capacity, representing part-filled deliveries and empty return journeys. IGD's Sustainable Distribution initiative has set a voluntary target to remove 48m miles from 2007/8, saving of 61,500 tonnes of CO_2.

IGD ran workshops, affectionately known as "speed dating for truckers", to explain to members a seven-step process to achieve collaboration.

This is to produce a matrix of routes and volumes; identify collaborative routes; agree rates; agree key performance indicators and a review mechanism; agree and run a trial; review it; and roll out a full solution.

"When we started to run trials, we found that problems were partly cultural," says Mr Patel. "Organisations have different attitudes towards customer service, costs, sharing vehicles and vehicle branding. We had to break through that in the past two years by pointing out the size of the prize and getting chief executives to push it down through their organisations."

There have also been physical problems, such as manufacturers preferring side loading trucks and retailers rear-loading, and insurance issues to be addressed.

However, early trials have delivered tangible results. At a workshop, Nestlé discovered that United Biscuits was running empty trucks from close to its factories in the north back to the Midlands. Returning United Biscuits trucks now collect a full load of Nestlé products each day from factories in York and Halifax and deliver them to the Midlands.

"With other initiatives, the Sustainable Distribution programme has delivered a 6 per cent annual improvement in our vehicle utilisation," says Chris Tyas, supply chain director at Nestlé.

Returning Tesco vehicles pass through Unilever's Doncaster distribution centre to collect health and beauty products previously delivered direct to Tesco's Goole distribution centre, helping to take 500,000 miles off the road.

Sainsbury's trucks returning to East Kilbride now collect Walkers crisps and snacks from Peterlee, saving more than 100,000 miles a year.

Chep, the leading UK provider of pooled pallets, sends vehicles to Asda's distribution sites to pick up left-over empty pallets and redistribute them for use among other customers. Collaboration on certain legs of the journey has led the two companies to save more than 500,000 miles a year.

Other participating companies include Booker, Boots, Coca-Cola, Colgate-Palmolive, Co-operative Group, Dairy Crest, HJ Heinz, Iceland Foods, Johnson & Johnson, Kellogg's, Kimberly-Clark, Kraft Foods, Marks and Spencer, Mars, Wm Morrison, Northern Foods, Premier Foods, Procter & Gamble, Somerfield, Unilever and Waitrose.

"We are delivering significant improvements against a voluntary target, but we are at the tip of the iceberg," says Mr Patel. "We need to get the whole industry, including smaller companies, on board. The overwhelming belief of our members is that in 10 years time most companies will be using collaborative distribution."

The long and the short of measuring carbon footprint

IMPLEMENTATION

Rod Newing on the key to sustainability in the supply chain

Calculating the supply chain's carbon footprint and monitoring the effect of actions to reduce it is still evolving. There are a number of standards and software approaches.

"Carbon calculations are still almost at the back of an envelope stage," says Martin Christopher, chairman of the Cranfield Centre for Logistics and Supply Chain Management. "There is not yet even total universal agreement on the carbon impact of different modes of transport."

The first step is to assess the internal operations that the organisation controls, such as inbound and outbound transport and site processes, using existing information. The next stage is to extend the process up and down the supply chain.

"There are some relatively simple no-cost or low-cost opportunities that can save 20 per cent of the energy cost base, such as staff awareness and training, process changes, better maintenance, equipment upgrades and insulation," says Euan Murray, a senior manager at The Carbon Trust. "The main gains are often outside the organisation's direct control, which can have a bigger impact than doing the next internal project."

The necessary calculations can be made using a spreadsheet, but Allan Behrens, a director at Cambashi, a manufacturing management consultancy, advises talking to existing suppliers of software, especially core business applications and engineering. "Find out what capabilities they have within the application to measure the carbon footprint through the supply chain," he says.

Companies such as Access Accounting, Infor and SAS have dedicated carbon modules. Supply chain simulation and optimisation tools are also being extended, such as Ilog LogicNet Plus.

The Carbon Trust uses PRé Consultants' SimaPro and PE International's GaBi. Kurt Salmon Associates, a retail management consulting firm, uses Cast from Barloworld Optimus and Supply Chain Guru from Llamasoft.

Other packages include CarbonView from Supply Chain Consulting and Spective from Maersk Logistics.

"The planning models used to determine what to make, where and when to make it and where to locate inventory are focused on profit or revenue maximisation," says Simon Mingay, research vice-president at Gartner, the analyst. "However, they can be extended to include carbon emissions, which means that business decisions can be made with the knowledge of their possible environmental impacts."

Judy Blackburn, head of the UK logistics team at Kurt Salmon Associates, says the benefit of using software is that many different scenarios can be modelled relatively quickly. This identifies the trade-offs between cost, service and carbon emissions, helping to define the best solution for the company's objectives.

> By using software, many different scenarios can be modelled relatively quickly

Whichever package is used, it is important that the information is integrated into the organisation's reporting systems, particularly performance management systems based on business intelligence software. This is able to take in data from all operational systems and make any necessary conversions and calculations to produce emission-related key performance indicators.

"You will never get all processes into a single application," says Ambuj Goyal, general manager for information management software at IBM. "The supply chain needs internal financial, distribution and logistics data, as well as data from partners. You need to populate the performance management system with cleansed data from hundreds of applications to create trusted information for analysis. One tool will not solve the problem."

Giles Hutchins, head of sustainability solutions for Atos Consulting, advises that rather than just measuring the immediate carbon cost, sustainability should be embedded into the DNA of the organisation. Performance management systems help to communicate internally, to drive behaviour change, and externally to shareholders, pressure groups and consumers.

The problems of measurement should not be underestimated, as there are a number of difficult questions that the standards are trying to address. Does the carbon footprint of a machine include the cost of the operator driving to work or washing their work clothes? How do you allocate the running costs of a truck or factory energy over the different products? What is the difference between shipping rail freight pulled by diesel-electric or pure diesel?

Dwight Klappich, research vice-president at Gartner, says that although carbon footprint is the primary focus today, in the future users will need to consider other factors that affect their environment. These might include direct operational emissions of other pollutants, energy consumption and waste generated.

Sound advice comes from John Lockton, managing director at LCP Consulting, a supply chain management consultancy. "The most effective way to approach carbon management is to apply business principles to the environment," he says, "not environmental principles to business."

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Virtually as good as being there

CONFERENCING

Sarah Murray on the latest developments in telepresence systems

At the end of a virtual meeting using Cisco's TelePresence system, a big disadvantage of the technology becomes apparent: you cannot shake hands with the person on the other side of the table. This curious feeling emerges because the technology so powerfully recreates reality that meeting participants appear to be in the same room.

With surround sound audio and high-definition image resolution, large plasma monitors display people at life-size while matching tables in each location are blended to create the illusion of a single piece of furniture.

The existence of this kind of technology, providing the ability to see the facial expressions, gestures and reactions and talk seamlessly, interrupting when necessary, makes the reasons for jumping on an aircraft look less compelling – something that is becoming increasingly appealing to global companies looking to cut their carbon footprint.

The effectiveness of systems such as Cisco's puts virtual meetings worlds apart from the early days of videoconferencing with its jerky images, delayed delivery and poor sound quality.

"This won't replace the need to meet," says Marthin De Beer, senior vice-president of Cisco's emerging technologies group. "But now there's an acceptable means of doing business [virtually] with the ability to have an interactive experience with all the human dynamics – and that's not been possible before."

While smaller organisations may not be able to afford to invest in telepresence facilities, there are leasing options for much of the equipment, and even the more basic tools such as instant messaging or the ability to exchange documents and visual presentations online are improving the virtual team working experience.

Familiarity with the technology helps, too. As a new generation of tech-savvy employees enters the job market, companies are recruiting young individuals for whom virtual communications are simply part of life.

The rise in acceptance of virtual work comes at a time of growing awareness of the environmental damage caused by business travel. Even small companies can make a difference. According to research by BT, if every small business in the UK replaced 10 meetings with audio conferences, small businesses could collectively save more than 1.7m tonnes of carbon emissions.

And while the travel industry represents only a small proportion of the world's carbon emissions, it is the fastest growing contributor of greenhouse gas emissions. Airlines account for about 3 per cent of Europe's emissions, but that figure will expand rapidly as air travel is forecast to double across the European Union by 2020.

> 'No other technology can contribute more in the short term to helping alleviate the CO_2 issues'

"If you include all transport modes, Americans travel 240bn miles a year and each mile adds more emissions," says Gwen Ruta, vice-president of corporate partnerships at the US-based Environmental Defense Fund. "Some companies are pursuing fuel-efficient vehicles but the most immediate way to cut emissions is simply by decreasing travel."

Organisations that take Ms Ruta's advice can do more than help protect the environment. "Companies are battling with their resources and trying not to stretch them too thin while maintaining a decent quality of life," says Mr De Beer. "And to compete, they're going to have to think differently about the way they do business."

Part of doing business differently is coping with rising fuel costs. And there are significant savings to be made from cutting back on business travel.

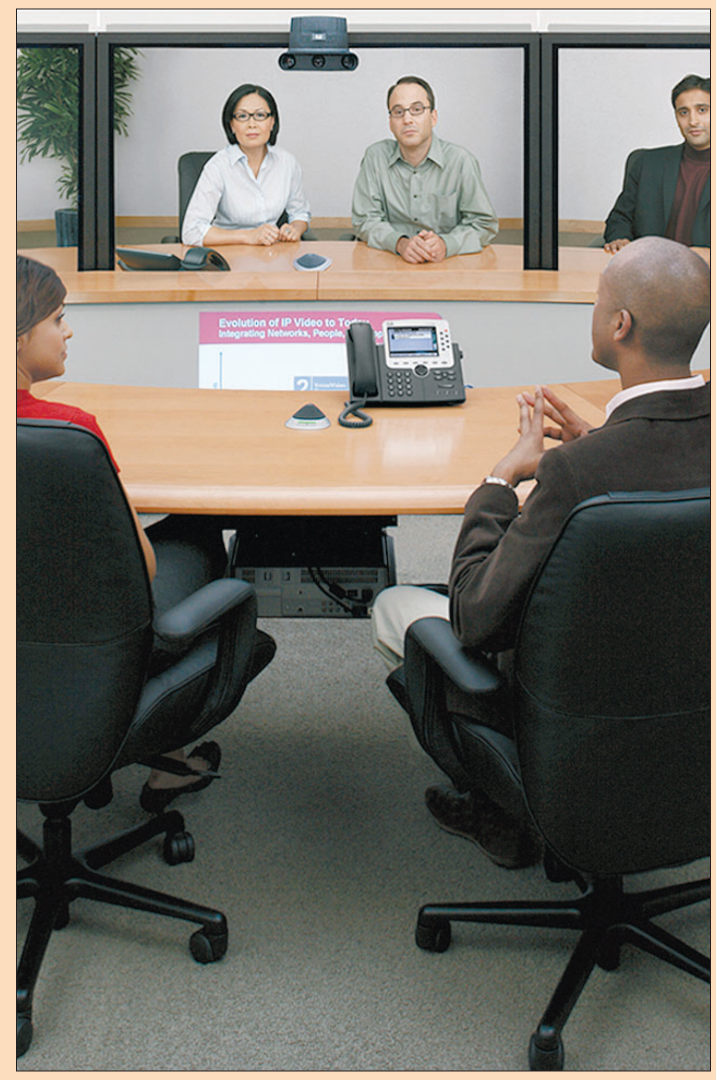
"Carbon footprint is basically another monetary unit. It equates to dollars or pounds in travel costs," says Aaron McCormack, chief executive of BT Conferencing, whose BT One Source service combines management solutions with Cisco's TelePresence. "In the current climate, the ability to reduce costs is in vogue, which makes this even more relevant than in an upside market, where carbon reduction can be seen as a nice-to-have."

BT reckons that its 100,000 employees save time worth more than £100m a year by using conferencing technology rather than travelling to meetings. And Cisco says that since it deployed TelePresence across its organisation in 2006, it has avoided more than 27,000 trips for meeting, saving $237m.

"Every responsible executive has to have conferencing high on the business agenda," says Tim Duffy, chief executive of MeetingZone, a UK-based audio and web conferencing service provider. "No other technology can contribute more in the short term to helping alleviate the CO_2 issues, and help companies save money in these tight economic conditions."

Of course, there will always be occasions for which face-to-face meetings are essential, particularly at the beginning of a working relationship, when it is important to build trust and familiarity with colleagues or customers.

And some problem-solving calls for reality rather than virtual reality. "Where it's a type of problem you've never seen before and you need to go in unexpected directions, that's hard to do in a virtual setting," says Maggie van de Griend, a principal at Katzenbach, the New York-based consultants. "So some types of interactions must be face to face – but they are fewer than you think."



Nice to see you: Cisco's TelePresence system in action

'Milk run' is miles better

PROFILE

JAGUAR LAND ROVER

Rod Newing on the carmaker's supply chain shake-up

Five years ago, Jaguar Land Rover did not know the carbon footprint of its supply chain. Now, it has been measured, reduction targets have been set, measures are being taken and the results are being monitored.

"Our total supply chain carbon dioxide footprint in January 2008 was 186,076 tonnes a year," says Kevin Wall, the company's material, planning and logistics director. "We are on target to reduce this by 2,621 tonnes this year and we have a 10-year plan to eliminate 90m road miles."

Jaguar Cars is one of the world's premier makers of luxury cars and Land Rover's four-wheel drive vehicles are world-famous. Together the two companies, which were acquired by Tata Motors from Ford Motor earlier this year, manufacture 290,000 vehicles a year in he UK.

About five years ago Jaguar Land Rover set up an integrated Europe-wide supply chain to collect components from 380 suppliers based in the UK and Europe. The aim of this "milk run" is to maximise the full capacity of a trailer, by consolidating five or six suppliers in a similar geographical area. This has reduced average road miles per week from 59,280 to 30,780, a 52 per cent saving.

Although created to reduce costs, it has also eliminated CO_2 emissions of 1,772 tonnes a year. The third-party logistics contract has just been rebid and next-generation truck engines were specified, to reduce emissions and improve economy by 10-12 per cent. Other projects include reduced pallet pool balancing between Europe and the UK, which has saved 1,265 tonnes a year, and reduced inter-site movements that have saved 151 tonnes a year.

"Ten years ago our supplier base was mainly in the UK, but now it is truly global," says Mr Wall. "You can't look at the purchase price any more, you have to look at the total landed cost, including freight, packaging, customs and the cost of returning any unique containers. It is difficult to calculate, but we have used this basis for several years and it takes into account both the financial and environmental implications of global sourcing."

The company has been trying to switch vehicle delivery from road to trains. Finished vehicles for the US, Australia and Japan go to Southampton by rail. This has eliminated 777,925 road miles a year, equating to 1,188 tonnes of CO_2.

"It has been extremely difficult to get through the bureaucracy," says Mr Wall. "The business case requires a minimum number of carriages and a minimum journey of 100 miles to make it beneficial."

From Southampton, vehicles are transported by Wallenius Wilhelmsen ships. In partnership, the two organisations have optimised fleet utilisation, streamlined routes and run vessels – where possible – at more economical speeds.

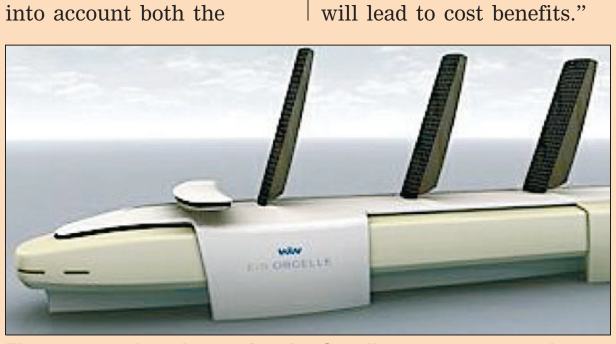
Most significantly, instead of normal bunker fuel, the company pays extra for the ships to use low-sulphur fuel, which contains 1.3 per cent of the mineral, compared with an International Maritime Organisation target of 4.5 per cent. Between 2001 and 2007, this low-sulphur fuel saved 98,500 tonnes of sulphur dioxide emissions, a reduction of 43 per cent, and has cut CO_2 emissions by 17 per cent.

> The company has been trying to switch vehicle delivery from road to trains

Future projects include reviewing vessel steaming speeds. A two-knot reduction saves 244kg of CO_2 per transported unit, 21 per cent less than present.

JLR is also exploring Wallenius Wilhelmsen's Orcelle project for a lightweight environmentally sound ship that can carry 10,000 cars. Using solar, wind, and wave power, it does not release any emissions into the atmosphere or the ocean.

"The Jaguar and Land Rover logistics professionals have long understood their role in moving freight from road to rail and sea, where practical," concludes Mr Wall. "It has now taken on a whole new emphasis in educating colleagues in the engineering and purchasing areas to ensure that a common approach is applied, with environmental measures underpinning all the actions that ultimately will lead to cost benefits."



Floating an idea: design for the Orcelle zero-emission ship

Carrots and sticks to make businesses greener

TAXES AND INCENTIVES

Vanessa Houlder on how governments in five countries use a mix of sweeteners and regulations

When the economy falters, environmental issues tend to take a back seat. But looking beyond the current downturn, businesses are braced for an acceleration of the move to a carbon-constrained world.

A plethora of tools is being used by governments to influence the behaviour of businesses, including regulation, voluntary agreements, advice, taxes, trading schemes and financial incentives. Increasingly, the emphasis is on putting a price on carbon and addressing market and information failures.

The drive to put a price on carbon has spread far beyond Europe. Australia is currently developing an emissions trading system that is expected to start in 2010. Campaigning in the current Canadian election campaign, the Liberals have put forward plans for an environmental "green shift" that would impose a carbon tax on the use of fossil fuels in place of some personal and corporate taxes.

As governments eye up fiscal deficits, there is an obvious appeal in raising money from carbon emitters – either in the form of green taxes or auctioning permits. Currently, industrialised countries raise just over 2 per cent of GDP from about 375 environmental taxes and some 250 environmentally related fees and charges. Nine-tenths of this revenue stem from taxes on vehicles and vehicle fuels that were mostly introduced many decades ago – primarily as a means to raise revenue.

But concerns about competitiveness and the impact on poor households will remain sticking points. The exemptions that riddle existing green taxes mean that they would need to be raised by 15 per cent in the European Union to yield the equivalent of a 2 per cent increase in labour taxes, according to a 2006 analysis by the European Environment Agency.

The political difficulties of raising substantial sums from environmental taxes are reflected in statistics showing that, between 1996 and 2005, the proportion of GDP accounted for by environmental taxes across 29 of the world's largest economies fell by an average of 0.2 per cent.

There is also political opposition to raising money from carbon trading schemes, as demonstrated by the arguments over the next phase of the EU's scheme, in which a proportion of permits are set to be auctioned.

Chris Sanger of Ernst & Young, the professional services firm, thinks that governments would be foolish to dress up tax increases as "green" measures unless they are genuinely designed to change behaviour. "Where it is clear it is an excuse, it will be seen through quite quickly."

Other tools to speed up the deployment of green technologies are typically easier to implement politically, but less cost-effective.

> The risks of poorly designed policies to promote renewables are illustrated by the controversy over biofuel incentives

They include support for research and development, investment tax credits, and price supports, such as feed-in tariffs for renewable electricity.

A recent report by the Intergovernmental Panel on Climate Change concluded that these kind of incentives were "often critical to overcoming the barriers to the penetration of new technologies". But it warned: "Subsidies do tend to take on a life of their own, which makes it difficult to eliminate or reduce them, should that be desired."

Germany's success in building up its solar and wind energy industries demonstrates the potential of this approach. But the risks of poorly-designed government policies to promote renewables are illustrated by the controversy over biofuel incentives, which have been attacked as overly costly and contributing to higher food costs.

The cost of reducing emissions over the next two decades is likely to be higher than previously estimated, according to a new analysis by the Organisation for Economic Co-operation and Development. It called on all players, including businesses, to mount "a more co-ordinated, comprehensive and ambitious response".

If companies are to gain enough confidence to invest in sustainable projects, government initiatives need to offer clarity, transparency and longevity. Will Bush, leader of E&Y's Tax and Climate Change initiative, says: "Every jurisdiction has initiatives coming through: What is it that makes one effective and others not? It is the ease of implementation by a busy business."

Incentives create leading position in market

GERMANY

When Blackstone, the buy-out group, announced a €1bn investment in a wind farm development off the German coast in the summer, it highlighted the crucial role in its decision that was played by the German system of regulations and incentives.

"Projects of this scale have been made possible by Germany's comprehensive regulatory framework and incentive schemes for renewable power, as amended by German Parliament at the beginning of June, 2008," according to Blackstone.

Incentives for renewable energies have pushed Germany into a market-leading position. Its onshore wind installations account for about half the total installed capacity in Europe. In spite of its cloudy skies, Germany is also the largest market in the world for photovoltaic systems, which convert sunlight into electricity. It is also the largest user of biofuels in Europe.

The main tool has been a predictable policy framework established by the Renewable Energies Act, which requires energy companies to purchase power generated from renewable sources at an above-market price. Reforms this year strengthened the legal framework for energy-efficiency investments, while stimulating more wind farms through higher electricity tariffs and lowering subsidies for the solar power industry.

The tax system has also played a part in Germany's environmental reforms. Following Scandinavia, and some other European countries, it embarked on ecological tax reform in 1999.

It offset the introduction of a new electricity tax and a sharp rise in the country's existing petroleum tax with reductions in work-related tax.

The importance of manufacturing in the economy has meant that taxing carbon emissions has proved a more contentious aspect of Germany's environmental policies.

Special arrangements for lower environmental tax rates were made for companies in the manufacturing, agriculture and forestry sectors.

This year, German industry has mounted a rearguard campaign against European Commission proposals for an auction of the carbon emission permits allocated under the EU-wide emissions trading scheme.

It argued that replacing the current free distribution of carbon-dioxide permits with a mandatory auction between 2013 and 2020 would cost billions of euros and damage competitiveness.

The German government last month decided to back an almost total exemption for energy-intensive industry from paying for permits.

Angela Merkel, chancellor, said recently that – although she supported the need to tackle climate change – she "could not support the destruction of German jobs through an ill-advised climate policy".

Making a meal of it: a consumption tax on disposable chopsticks is one of the most visible signs of China's "Go green" approach ROPI

China explores new ways to tackle its environmental challenges

China's environmental challenges are legion. Rapid industrialisation and a heavy reliance on coal have created problems that threaten its long-term growth potential.

But the government has started to explore new ways to tackle carbon emissions and pollution, including reforms to the taxation system.

"It has become increasingly obvious that China is indeed moving in the 'Go green' direction in terms of its tax policies", according to Alan Wu of the professional services group PwC in China, in a recent study published by the US-based Bureau of National Affairs.

He says the new corporate income tax law passed in March 2007 was a "remarkable event in China's tax history", which reflected its intention to encourage advanced technologies, environmental protection and resource conservation.

A consumption tax on disposable chopsticks, in a bid to preserve its forests, is one of the most visible signs of China's efforts to introduce green elements into its indirect tax regime.

It has also raised taxes on cars with large engines and reduced them for smaller vehicles.

Businesses are given a three-year tax holiday from corporate income tax if they undertake certain environmental initiatives, including energy and water conservation projects, followed by a 50 per cent reduction for the next three years.

Tax also plays a role in the government's ambitious goals for renewable energy. KPMG, the professional services group, says China offers "particularly privileged" treatment to wind generation projects under its Renewable Energy Law. In addition to substantial central government support and the right to enter long-term power purchase agreements with their local power grid, operators receive concessions on customs taxes and value added tax.

Hydropower is also being heavily pushed in China, where the massive Three Gorges Dam is currently the largest structure of its kind in the world. Incentives include the exemption of all the equipment used in hydropower projects from customs duty and value added tax.

So far, the tax aspect of China's environmental reforms has been limited to embedding "green" elements in its existing regime.

However, this year, the government said that it was considering launching an environmental tax to encourage the efficient use of energy and to stem the growth of greenhouse gas emissions.

It plans to research environmental taxes before making a decision.

John Manning of PwC, who is reviewing environmental initiatives in jurisdictions around the world, says China is taking more action on the environment than its reputation would imply. "It gets a bad press but the environment is being taken seriously in the tax system in China."

Worries over expiry of key tax credit

UNITED STATES

The US last month seized the crown as the world leader in wind energy generation. Announcing the breakthrough, the American Wind Energy Association declared the industry had achieved "in two years what had previously taken more than two decades".

The tax system has played a central role in stimulating the growth of the wind industry, which now provides electricity for 5.3m homes – just over 1.5 per cent of the nation's electricity – and is on track to provide 20 per cent of US electricity by 2030.

That was underlined by the AWEA, which followed its triumphant announcement with a warning that the looming expiry of the renewable energy production tax credit "threatens this spectacular progress."

This point was further underlined last month by John Krenicki, president of GE Energy Infrastructure. "The renewable energy tax credit is the foundation of this growth," he told a Senate committee as he pleaded for an extension of the production tax credit beyond the end of this year.

The intensity of lobbying over this tax credit reflects its generosity. It amounts to either 1 cent or 2.1 cents per KWh of electricity produced, depending on the type of renewable energy used.

The government also offers a 30 per cent investment tax credit for investments in solar energy equipment, as well as favourable depreciation rates for the generating equipment.

Fred Copeman, of Ernst & Young's tax credit investment advisory group, says these incentives amounted to between half and 60 per cent of total project costs. "The combined value of all these tax subsidies is truly substantial", he says.

As well as the federal incentives, there are a raft of measures offered by states, cities and counties. These include income tax credits, sales tax exemptions, property tax abatements, recycling credits, and cash grants to help offset the cost of investing in renewable energy sources or other emissions reductions.

Some incentives can be specially negotiated in some jurisdictions, particularly where "green jobs" are being created.

As well as the heavy emphasis on incentives, US states also use regulations to speed the introduction of renewable energy. About half of US states have renewable portfolio standards that require power companies to generate a share of their energy from renewable sources. E&Y says meeting these standards is expected to cost about £150bn in new investment.

States are also tackling emissions by setting up trading schemes within regional coalitions. The north-eastern states behind the pioneering Regional Greenhouse Gas Initiative, which begins trading next year, could raise more than $1bn by auctioning permits.

At least part of the proceeds are expected to be used to stimulate renewables, energy efficiency and cut energy costs for low-income families.

Seven western states and four provinces of Canada are working on a trading scheme, known as the Western Climate Initiative. So are midwestern states, in a project known as the Midwestern regional greenhouse gas reduction accord.

Businesses see both opportunities and threats ahead. As well as government pressure and incentives, they are focusing on the promise of new revenues from "green" technology and services, examining the scope for cost reductions from energy efficiency and dealing with the expectations of shareholders, customers, employees and the media.

But businesses do not always have a coherent response to these pressures. Steve Starbuck, leader of E&Y's US climate change and sustainability team, says: "Tax and finance should play an important role in these issues but our experience has been that these departments are often not consulted and may not even be aware of whatever "green initiative" is being pursued by the enterprise."

A big change is under way in the US, which was, until recently, 20 years behind much of Europe.

The battery of incentives on offer has helped tackle the price obstacles to a shift from fossil fuels. But the US approach has its critics.

Most seriously, the short-term nature of the tax credits – and the annual wrangling over how to pay for them – militates against long term investment.

Tax proposal runs into opposition

JAPAN

Japan has a formidable record on environmental issues. The Paris-based International Energy Agency this year praised the government's "tremendous effort" at increasing the country's energy efficiency and said that companies' record on fulfilling their environmental goals was "excellent".

But the faltering economy has created a difficult backdrop for further progress.

Japan is seeking further cuts in emissions in an effort to meet its Kyoto targets while minimising the need to buy costly carbon credits from abroad.

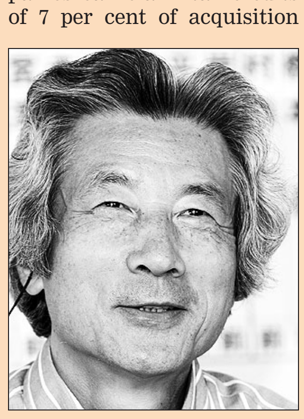
Proposals to introduce an environmental tax as part of this effort have run into opposition from business. Keidanren, the influential business association, has criticised the plan as being undesirable in current economic conditions.

So far, Japan has made little use of tools that put a price on carbon. The IEA urged it to consider taxes, emissions-trading schemes and other market-based policies, which it said "could create the right signals and encourage the more efficient use of resources throughout the economy".

The distinctive approach adopted by Japan to fostering environmental improvements has used a mix of regulatory measures, voluntary actions by industry, and a combination of subsidies, tax exemptions and loans for investment to encourage energy efficiency improvement in industry.

The tax system plays a role by offering significant incentives for investments in renewables, according to KPMG, the professional services group.

When investing in solar or wind power, biomaterials and geothermal energy, companies can claim tax credits of 7 per cent of acquisition costs – limited to 20 per cent of the tax – or a special initial depreciation of 30 per cent of acquisition costs.



Cool it: Junichiro Koizumi

Regulation also plays an important role. Under the Act on the Rational Use of Energy, large-scale factories have been subject to energy efficiency requirements since 1979.

Under Japan's Energy Conservation Act, the standards are set by the "top runner" method, which aims to improve average energy efficiency of future products above the level of the most energy-efficient products currently available.

This programme not only improves efficiency in Japan, but also spurs international gains, given Japan's strength as an exporter of electronics and vehicles.

The IEA said: "Notably, it is designed to continue to place pressure to improve energy efficiency, and thus has a built-in mechanism to drive energy improvement over the long term without continued policy negotiation."

Voluntary efforts to cut energy use have also played a prominent role. This approach was illustrated in the summer of 2005, when Junichiro Koizumi, then prime minister, appealed to business leaders to allow office workers to remove ties and jackets and work in short-sleeve shirts from June to September.

This "Cool Biz" campaign – which required offices to turn air conditioning units up to 28 deg C – saved the equivalent of the carbon emitted from 1m households for a month.

Impact of measures fails to match the rhetoric

UNITED KINGDOM

When the UK government unveiled its biggest ever package of environmental tax reforms in 1999, it declared it was shifting "the burden of taxation from 'goods' to 'bads'".

It cut taxes on employment, on smaller cars, on clean fuels and provided incentives for energy efficiency, while increasing the burden on emitters of greenhouse gases, local air pollution and waste creation.

The reforms have not been as sweeping or effective as the rhetoric implied.

Environmental taxes have declined, as a share of the tax base, since 2000. This trend was almost entirely driven by the decision to abandon the annual fuel duty escalator in 1999 in response to protests by drivers. (The duty, however, remains among the highest in the world.)

Almost half of businesses believe that current government policy and the economic instruments used are not effective in encouraging business to make significant changes in its its behaviour, according to research last year by PwC.

Nonetheless, the UK government has remained an energetic proponent of using economic instruments to spur businesses into environmental action.

It has made the EU Emissions Trading Scheme the centrepiece of its climate change strategy.

This year's Budget introduced further measures, including reform of Vehicle Excise Duty, changes to the tax treatment of company cars and increases in the aggregate levy and the climate change levy, the energy tax on industry.

From 2010, many large businesses that are not intensive energy users will come under a new emissions trading scheme, known as the Carbon Reduction Commitment.

Frank Sangster, head of environmental tax and incentives at KPMG, believes further initiatives are in the pipeline, although they are unlikely to be important revenue raisers. "We are going to see more taxes and the government has an open mind on incentives as well."

Last month, the government promised £150m of support for manufacturing in a bid to create hundreds of thousands of "green-collar jobs" in the renewable sector. Business groups welcomed the initiative, despite scepticism about how far policy would translate into action.

A common gripe of businesses is that the government's zeal for taxing environmentally-damaging behaviour is not matched by enthusiasm for incentives.

HY Hacker Young, an advisory firm, has calculated that the government gives back just £607m, or 2 per cent of its green tax revenue, in green tax breaks.

One of the main incentives on offer – Enhanced Capital Allowances – are frequently criticised as too bureaucratic. The scheme provides businesses with 100 per cent first year tax relief on energy-saving investments.

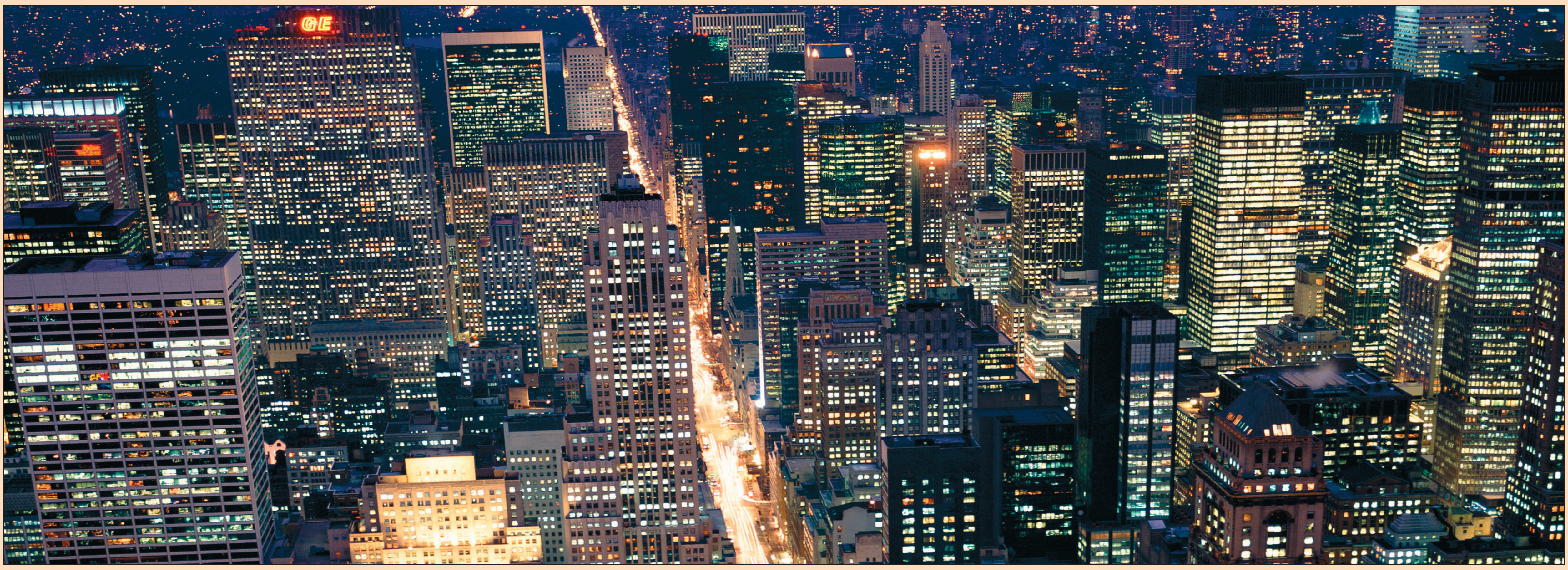
It is billed as a straightforward way for a business to improve its cash flow through accelerated tax relief.

But companies are frequently deterred by the requirement that qualifying technologies must be specified on the Energy Technology List, which is managed by the Carbon Trust on behalf of the government.

Mr Sangster says: "We find it falls in between two parts of the business. Facilities people don't understand tax and tax people don't understand the technology."

Few governments have been busier at waving sticks at environmental laggards, but the UK has been less effective than many other jurisdictions at offering carrots to stimulate improvements, says Mr Sangster.

The PwC research concluded the current environmental incentives on offer are "unclear, complex and fail to motivate behavioural change".



Who left those lights on? A view of Manhattan at dusk — Alamy

Get the basics right before doing a refit

BUILDING RENOVATION

There is plenty of scope to save energy without taking on a big refurbishment, writes Sarah Murray

When JPMorgan Chase finished a section of the work on its Manhattan headquarters on Park Avenue, managers overseeing the project at the US banking group received a pleasant surprise.

The reflective properties of the Venetian plastering used on many of the walls, combined with the light flowing through the open design, meant that those spaces required fewer electric lights than had been expected, further reducing energy consumption.

The bank's retrofitting project – which is designed to meet strict environmental standards on everything from energy use to water consumption – is a major renovation of a 1.3m square foot, 50-storey building that was constructed in the late 1950s.

However, not all companies wanting to cut the environmental impact of their existing buildings may have to embark on such an extensive programme of refitting and reconstruction.

Plenty of opportunities to reduce the consumption of resources such as energy and water exist, even if a building owner or manager is not going to take on a large-scale renovation project.

"Before they even think about refurbishment, companies need to work out how to get the optimum out of what they have got," says Paul Toyne, head of sustainability at Bovis Lend Lease UK, the project management and construction company.

He advises companies to start by educating the people who manage and use the building so that they understand fully how to operate equipment to obtain the best performance. "There's often a lack of understanding of how to use the kit and whether it's set up properly," he says.

This includes not only heating and cooling machinery and water management systems but also the equipment used inside the building. Charles Lockwood, a US-based green real estate consultant, talks of the "secret energy addicts" in offices. "There's electronic equipment that you think you've turned off but in fact it's idling and you're consuming enormous amounts of energy," he says. "So it's not just about the building – it's what's in the building."

Measurement is another crucial step to take before any refurbishment or refitting has taken place, particularly when it comes to energy consumption. If a company has no understanding of the current consumption of the building it will be impossible to tell what savings have been made as a result of the improvement work.

Once a baseline for energy use has been established, it is possible to see how even simple measures can make a difference.

> Renovation is a chance to improve environmental impact, yet this does not always happen

"Lighting is something you can tackle very quickly by changing to low-energy bulbs and introducing lighting control systems," says David Hitchcock, managing director of CB Richard Ellis's building consultancy. "That's a quick win without having to think about changing the fabric of the building." The same applies to heating and air conditioning which, without being replaced, will operate more efficiently by introducing high-quality control systems such as thermostats.

"Most of these things can be done fairly economically simply by changing the management regime," says Mr Hitchcock.

With buildings of a certain age, however, renovation will probably be deemed necessary at some point, whether to change the use of a facility or alter the look and feel of an office as part of a corporate re-branding exercise. This is also an opportunity to improve the environmental impact of the building.

Yet this does not always happen. "There are significant opportunities to reduce carbon emissions through a retrofit but they are being missed," says Mark Williams, director of innovations at the Carbon Trust. "This is because contractors tend to be risk-averse and deliver to cost and time. They won't necessarily focus on energy unless they're asked to do so."

Mr Williams therefore stresses the importance of getting senior management to commit themselves to including things such as water conservation, energy efficiency and carbon emissions reduction as part of the overall specifications for the project.

And while new high-tech equipment is constantly coming on to the market, great savings on resources can be made by focusing on low-tech measures, such as installing sufficient insulation and replacing cladding and window systems.

If the facility or office has adjoining land, planting trees along the side of the building will help block the sun in the summer while lighter paving reduces the heat generated by parking lots.

"Generally speaking, it doesn't need to be about deploying high-risk, early-stage technologies," says Mr Williams. "Our evidence suggests those technologies are great, but they're more expensive and the bigger opportunity often missed is getting the basics right."

And, as with existing equipment, new machinery needs to be properly understood. Employees responsible for buildings maintenance need to be trained in how to use any new systems installed and given performance targets to meet. Mechanical and management controls should be put in place and set so as to maximise efficiency.

"If you do the green retrofit of the building and you don't institute company-wide policies and periodic commissioning to make sure you're achieving what you expect, it's like buying the Toyota Prius [hybrid car], not maintaining it and wondering why you're not getting the performance and the mileage you were promised," says Mr Lockwood.

Premium on education for customers

INSURANCE

Andrea Felsted on the response to the risks posed by climate change

Flooded out: insurers hold huge amounts of data — Reuters

From providing cover to properties endangered by hurricanes, to protecting homes at risk of flooding, insurers are exposed to the perils of climate change.

"Climate change is a major risk to the insurance industry, and we have to manage that risk appropriately," says James Wallace, corporate responsibility manager at RSA Insurance.

The industry has responded by creating ClimateWise, and 40 of the world's biggest insurers, reinsurers and insurance brokers have signed up to its series of principles for managing and reducing the risk of climate change.

One of the principles is to encourage individual and business customers to manage and reduce the risks from climate change. Insurers have developed a range of initiatives to help customers cut emissions and operate more sustainably.

Some of the measures are aimed at retail customers. These include offering discounts to drivers of hybrid cars, or those with low annual mileage.

"If people care about the environment, they are more likely to be safe and concerned citizens in terms of driving, although the claims data are still being built," says Mr Wallace.

Other measures in the personal insurance sphere include offering policyholders the option of buying carbon offsets to neutralise carbon emissions from their vehicles.

Insurers are also huge buyers of goods and services to make good claims, and a number are introducing green principles into their procurement practices. Andrew Torrance, chief executive of Allianz UK and chairman of ClimateWise, says Allianz offers policyholders the option to use recycled parts on vehicle repairs.

When it comes to household cover, insurers hold huge amounts of data on which homes are at risk of flooding.

But insurers also have a role in helping their big corporate and industrial customers reduce the risks from climate change.

In the corporate arena, insurers have introduced initiatives to help their customers be more energy efficient.

A number of insurers provide services to help their customers certify or assess their energy efficiency. They then make recommendations as to how they can become more energy efficient.

Similarly, insurers help their customers with risk management, and a number extend this to sustainability.

Norwich Union, the UK's biggest insurer, offers a six-stage carbon neutral programme as part of the risk management proposition offered to commercial customers with annual premiums of more than £50,000.

> Many insurers offer incentives to customers to be more sustainable

"We believe there is a growing appetite among commercial customers to look at this," says Tom Oxley, corporate responsibility manager for NU across the UK.

A number of insurers have more specialist ways to help their customers operate more sustainably.

Zurich Financial Services plans to offer cover to utilities using new technology to capture and store carbon emissions and, potentially, manufacturers of the relevant components.

"Utilities that deploy carbon capture and storage technologies are going to need insurance otherwise they are not going to be able to take all these risks on their balance sheets," says Mike Kerner, global chief underwriting officer at Zurich.

RSA covers the infrastructure used to produce energy from water, solar power and biological materials. The insurer covers onshore and offshore technologies, and is involved in all the stages of the infrastructure's lifecycle, from planning and construction through to operation and end-of-life disposal.

"We have very close links with the manufacturers. Because of the great claims data we have built up, we can help inform design," says Mr Wallace.

Elsewhere, in the commercial arena, insurers can help companies physically protect their businesses from the risk of flooding.

Many of the initiatives introduced by insurers offer incentives to customers to be more sustainable.

"The whole purpose of ClimateWise is to encourage improved environmental behaviour and to provide customers with the information and the incentives to allow them to deliver [that].

"It is absolutely about carrots," says Mr Torrance.

But, as well as carrots, is there a role for sticks, such as withdrawing cover, of making terms of policies more onerous for businesses that refrain from reducing the risks from climate change?

"It is not really feasible for insurers to use a stick," says Mr Wallace. "It is more about incentives and working out the smart way to provide an environmentally sustainable option at the same cost."

Mr Kerner says insurers have a role to play where customer behaviour impacts the risks they are covering.

"As an industry, we are not in a position of being the police or an alternative tax," he says.

"The stick is being the police, or being the alternative tax. If there is coverage that we are providing that is adversely impacted by behaviours that are not green behaviours, these are things we are going to take into account in the selection process.

"But if there is no impact at all on the risk we are taking, firstly, it would be bad business and secondly, many regulators around the world would frown on that as well."

But Aon, the insurance broker, suggests the insurance industry is not yet doing enough to combat climate change.

According to Peter Breitstone, chief executive of Aon Environmental Services: "If you look at the size of the insurance industry and you look at the magnitude of the problem, you really don't see the industry throwing a lot of capital at the problem relative to other industries.

"I think the reason for that is that other industries see opportunities to make money. "The insurance industry has not yet figured out how to commercialise it."

Sustainable Business

Putting your money on thinking for the future

Opinion
BJÖRN STIGSON

Markets mayhem: the financial crisis should not deter global business from doing its bit for a greener, more inclusive and economically rational world AFP

As financial institutions and markets crash around us, I am frequently being asked whether global business can sustain its actions for a greener, more inclusive and economically rational world. Surely, some have asked, the focus of business is elsewhere right now?

In my view, the need for responsible business engagement in the big issues of our time has never been more urgent. The limited results of the Hokkaido G8 Summit, the Doha talks on liberalising world trade and the recent US financial bail-out demonstrates the weakness of political leadership in many of the leading economies.

The potent social and emotional cocktail of high energy and food prices, the debate about biofuels, agricultural subsidies, deforestation, water stress, and environmental degradation is proving too difficult for governments to manage.

Throw into this mix the greed and short-sightedness of a bunch of international bankers, and our children could all be forgiven for wondering what sort of world they will inherit.

A number of governments have stated their goal of halving carbon emissions by 2050. What will the world look like as it does this over the relatively short time frame of 42 years?

My short answer is "different". We will see major impacts on lifestyles and consumption patterns. However, progress in the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) is slow and with a clear "you first" mentality. One reason for this is that the negotiations are very complicated. On the surface they are about climate change. But in reality they deal with energy security and limits to economic development.

A key milestone on the road to negotiating a new climate change agreement at the UN's 15th Summit on Climate Change (COP15, to be held in Copenhagen in December 2009) is the US election this November. There is a real question mark about whether the new US Administration will have sufficient time to be able to make a substantial contribution to a new climate agreement in Copenhagen.

Irrespective of this, it is clear that the next decades will see a new industrial revolution that will be Clean, Lean and Mean. Clean, because of climate consequences, water stress and economic impacts. Lean, characterised by a low carbon economy and eco-efficiency, uncertainty around access to energy and resources, high resource prices and government regulations on resource efficiency. Mean, because we will experience transformational change and destructive innovations that will create winners and losers.

We will also see a shift in political and economic power from the US and the EU to the Bric countries (Brazil, Russia, India and China) and Middle East countries. The role of business will be crucial in this change process. Businesses, in particular global companies, are the major tool for innovation, investments, resource flows and job creation to implement the actions that are necessary. This is being recognised by governments and their motivation and willingness to listen to constructive proposals for the needed policy frameworks will be high.

In the climate change arena, it is increasingly understood that business must be especially engaged in determining the solutions for energy efficiency and demand-side management, technology development and deployment, carbon markets and financing and sectoral approaches. Positive outcomes for the negotiations in Copenhagen next year will not only impact business, but will depend for their success on action by business.

Let me revisit the question I raised at the beginning. The current financial crisis should also be seen as the result of unsustainable business models in the finance sector – not unlike those that many other industries have experienced over past decades. Industries that have put sustainability issues at the heart of their strategy offer some valuable lessons for the financial sector.

> Industries that have put sustainability issues at the heart of their strategy offer some valuable lessons for the financial sector

Over the past 20 years, many industries have come under pressure to revisit their business models in reaction to pressure from consumers to maintain or restore public trust.

Different industries at different times have had to understand how sustainability issues such as constraints on carbon, water and ecosystems, or the social impacts are core to their business.

Leading businesses within many sectors are pushing the envelope still further to examine their role in tomorrow's society. This soul-searching is resulting in business models that require shifts to new products and services that directly address global challenges and simultaneously focus on delivering value to society. Leading businesses such as Toyota, DuPont, Michelin, General Electric, Nokia, Vestas and Vodafone see this as a necessary evolution to achieving a sustainable world.

Frankly, the finance industry has always lagged behind in addressing sustainability issues.

The current financial crisis is shedding light on the flaws in current business models in the finance industry and the enormous extent to which public trust has been damaged.

To regain this trust, the finance industry will need to revisit its role in society and deliver updated business models that consider current societal expectations of open, transparent businesses that demonstrably deliver value to society.

One of the defining mantras of the World Business Council for Sustainable Development is to remind our stakeholders that business cannot succeed in societies that fail. There is no future for a successful business if the societies that surround it are not working.

The leading global businesses that are our members understand this. The companies that continue to demonstrate thoughtful responses to society's needs, and are planning for a changing future, will be among those that will still be operating successfully many years from now.

Björn Stigson is president of the World Business Council for Sustainable Development (www.wbcsd.org)

Obstacles in path of the green innovators

CLEAN TECHNOLOGY

Dan Ilett on the challenges facing companies seeking to commercialise their products

At first glance, clean technology, which either improves the efficiency or reduces the environmental impact of energy-related products, appears to be a booming industry. It is estimated to be worth $150bn now but will reach $600bn by 2020, a United Nations report says.

Investments are being made in a huge variety of concepts and technologies. In one high-profile example, Sapphire Energy, a San Diego-based company that aims to make biofuel from algae, said last month that it had raised more than $100m from investors. New backers include Cascade Investment, owned by Bill Gates, Microsoft's founder.

Eye-catching deals such as this are focusing attention on the algae industry, which is still in its infancy. But overall, the clean technology sector faces big challenges if it is to achieve the UN's growth predictions.

Robert Hertzberg, co-founder of solar company G24 Innovations and a private investor, says small businesses in most of the clean technology industries are unable to access the funds they need to commercialise their products.

"There are just not enough market-based incentives to commercialisation," he says. "There should be more incentives for people to invest . . . The smaller businesses are spending all their money on bankers and lawyers instead of engineers. That should be the principle focus."

For investors, meanwhile, one of the problems is that achieving a return on investment for some clean technologies requires a leap of faith. There is money available for research and development, says Mr Hertzberg, but without sales there is no return.

Some observers believe clean technology will follow a similar pattern to that of IT and the internet, which yielded huge returns for investors over short periods, especially in the dotcom boom at the end of the 1990s.

However venture capitalists – mindful, perhaps, of the dotcom bust that followed from 2001 – are taking a cautious, longer-term approach because some of the technologies remain unproven.

"[For entrepreneurs in this space] VCs do focus on the end user and do a lot of due diligence," says Peter Linthwaite, managing partner at Carbon Trust Investment Partners and former chief executive of the British Venture Capital and Private Equity Association. "You can see there is a lot of capital available for large-scale wind farms. But there is a lack of capital for small business to move to commercialisation of products in Europe. It still suffers from a lack of scale to turbocharge these businesses. "

> Investors are cautious because some of the technologies remain unproven

"It's a huge problem. You might get £3m but that will only last a year and you don't expect VCs to pay out £20m immediately."

Fortunately, some clean technologies have already proved themselves, taking advantage of the terrain, weather and daylight conditions on which they largely depend. This is why there are large solar farms active in places such as the Nevada desert in the US and in Spain, while land developers build large wind farms in northern Europe.

But government assistance in the form of incentives can make a big difference, too. Generous government incentive schemes for wind farms have caused this segment of the clean technology sector to thrive – faster, perhaps, than any of the others.

"Solar is getting valuation but the investment it attracts is not so high," says Mr Hertzberg. "Wind is getting a lot because there are deals and 'meat and potatoes' incentives.

"I have invested in wind in France and the UK because of some of the subsidies. We're not at that level for other industries yet. We don't have the policies or policies."

The interest in wind energy was underlined last October when Eon, the big German energy supplier, bought the US wind power generating assets of Airtricity for $1.4bn, one of the biggest deals yet in the sector. In January, Scottish and Southern Energy (SSE) bought the rest of the Irish wind energy company for €1.45bn.

Another sector attracting interest is energy efficiency and saving. This can take a variety of forms. In IT, data centre technologies that help cut corporate electricity bills are proving popular – some 40 per cent of the corporate electricity bill is estimated to be spent on IT.

At the same time, energy companies are buying up products that help consumers to accomplish energy saving. For example, SSE has £7m of orders placed for Onzo's smart electricity meter. This shows people how they use their electricity and energy.

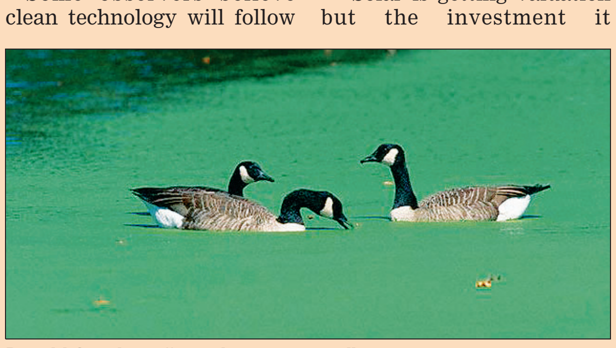
"We're very interested in energy efficiency in the large business sector," says Mr Linthwaite at Carbon Trust Investment Partners. "The second area for us is reducing the cost-base in the renewable area. The next stage of that is to bring the cost down in the supply chain of components – whether they are for solar or wind power."

Then there are the algae enthusiasts. While Sapphire Energy has piqued Mr Gates' interest, Origo Industries has just begun trials with supermarket group Tesco's delivery vans.

Origo's technology captures carbon emitted from vehicles and uses algae to "eat" it, while making a bi-product of biofuel.

"Algae are moving at a rapid pace," says Ian Houston, the company's director. "A billion years ago there were algae. When they died, they formed oil. People are now realising that algae are the way to go."

"We've been backed by a number of people. It's not only the money you need, though, it's the assistance. A lot of venture capitalists whom you ask for £10m try to take a big chunk of your company. Once you do that, you sell your soul."



Pond life: algae "are the way to go" Alamy