Economist Intelligence Unit

The Economist

After Copenhagen
Business and climate change

A report from the Economist Intelligence Unit

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Preface

After Copenhagen: Business and climate change is an Economist Intelligence Unit report that investigates the current corporate perspective on climate change and carbon reduction issues across a range of industries. The lead sponsors of the research are The Carbon Trust, Hitachi and IBM. 1E is a supporting sponsor of the programme.

This report builds on our 2009 report on climate change, C*ountdown to Copenhagen: Government, business and the battle against climate change*, which outlined the carbon reduction journey that many firms have embarked upon. In this paper, we review the progress that business has made on this journey and examine the impact of the global economic recession on carbon reduction issues. We also consider three possible scenarios for the medium term, to assist corporate leaders in their planning on the issue of climate change.

The Economist Intelligence Unit bears sole responsibility for the content of this report. Our editorial team provided the political analysis, executed the survey, conducted the interviews and wrote the report. The findings and views expressed do not necessarily reflect the views of the sponsors. Our research drew on three main initiatives:

- We conducted a wide-ranging survey of senior executives worldwide immediately after the closure of the December 2009 Copenhagen climate summit and into January 2010. In total, 542 executives took part, of which more than one-half (56%) were from the C-suite and 29% were CEOs. The executives polled represented a cross-section of industries and a range of company sizes.
- To supplement the survey results, we also consulted, or conducted in-depth interviews with, 17 executives, including CEOs and heads of sustainability and/or environmental initiatives.
- The Economist Intelligence Unit also conducted a scenario planning exercise, drawing on the combined expertise of numerous analysts and editors, who represented our risk, commodities and global economic forecasts, as well as specific countries (such as China).

Paul Kielstra was the author of the report. Chenoa Marquis and James Watson were the editors.

We would like to thank all the executives who participated in the survey and interviews for their time and insight. The following individuals were specially consulted for the report:

- Bruce Bergstrom, vice-president for vendor compliance, Li & Fung
- David Bresch, director of sustainability and emerging risk management, Swiss Re
- Ian Cheshire, group chief executive, Kingfisher
- Steve Fludder, vice-president for Ecomagination, GE
- Stephen Harper, director of environmental and energy policy, Intel
- Cho Khong, chief political analyst, Shell International
- Jamshed J Irani, director, Tata Sons
- Pan Jiahua, executive director of the Research Centre for Sustainable Development, Chinese Academy of Social Sciences
- George Martin, head of sustainability, Willmott Dixon
- Keith Miller, manager of environmental initiatives and sustainability, 3M
- Kathryn Mintoft, associate director, sustainability, Barclays Group
- Noel Morrin, senior vice president, sustainability & green construction, Skanska AB
- Paul Polman, chief executive officer, Unilever
- Oliver Rapf, head of the climate change business partnership programme, WWF
- Nick Robins, head of climate change centre, HSBC
- Adam Roscoe, head of sustainability affairs, ABB
- Will Swope, general manager of the Corporate Sustainability Group, Intel

Executive summary

At the outset of 2009, hope was running high for a watershed year for progress on the climate change agenda, with fallout from the global recession presenting the only major potential stumbling block. By the end of the year, the mood was very different. The December summit in Copenhagen was regarded by many as a washout, public scepticism about climate change was on the rise, and the likelihood of a US cap-and-trade bill was diminishing. Now the absence of a binding international agreement leaves business facing another year of uncertainty over the direction of global policy. But does this mean that corporate efforts on carbon reduction have taken a back seat? Or has the keen appetite for potential cost reductions prevalent in the current economic environment heightened interest in energy efficiency?

This report seeks to provide a snapshot of where business is at today with regard to climate change—and how the setbacks at a global policy level are being interpreted at a corporate level. To help executives understand the implications of these and other potential events, this report showcases three scenarios which explore potential policy and economic outcomes over the medium term. These are not intended to provide predictions of where carbon policy is going, but rather are aimed at providing business leaders with a set of potential environments they might find themselves operating in and some associated implications. *The Pacific decade* (page 8) examines the impact of a strong East and weak West, along with a climate change agreement that has failed. *Smoke and mirrors* (page 17) highlights a world with sputtering economic growth and a toothless international climate change agreement. *Stuck in the same boat* (page 29) showcases a global economy with at least some growth spread around (but most of all in the East) and a more binding climate change agreement.

The key findings of this report are highlighted below.

- **Efforts on climate change have stalled over the past year.** As concerns about carbon emission have entered boardroom agendas over the past decade, a steadily rising number of businesses have embarked on a carbon reduction journey, as shown in previous surveys. But over the past year, this progress has stalled. Overall, about one in two companies (49%) globally report that they do have a coherent strategy to address issues related to climate change. This is slightly down on the proportion from a year ago (54%). However, the proportion of firms that are also engaging both external partners and their supply chain in this strategy is more markedly down, now at 10% compared with 17% in 2009. Those companies that are moving ahead on the climate journey usually tend to be those most in the public eye: large, publicly listed firms, rather than smaller, private ones.

- **Public scepticism has crept into business too: more than one-half of executives think "the jury is still out" on the seriousness of climate change.** The past year has seen a surge in public scepticism about the seriousness (and cause) of climate change, as reported in a range of public polls. This survey confirms that this uncertainty is reflected in offices around the world too, regardless of industry, location or size of company. More than one-half (52%) of executives agree that conflicting evidence on climate change means the jury is still out on the seriousness of this issue. Just 31% disagree. For most,

however, this is not outright denialism: seven out of ten respondents (71%) have made some change to their personal habits as a result of heightened concern about climate change.

- **Attitudes matter: companies where executives believe in the science of climate change tend to do far more on the issue.** As might be expected, climate change believers tend to work within companies that have gone further along the carbon reduction journey. When comparing the believers against the sceptics, similar proportions have implemented greater energy efficiency in their operations. This simply makes good business sense. But far more companies with believers have actually developed new "green" products and services—and more than twice as many have improved the environmental footprint of existing products and services.

- **PR considerations appear to be the most common driver of carbon reduction efforts...** More than one in three (35%) executives say their firms always take climate change considerations into account when it comes to public relations (PR). This is higher than for any other business consideration, whether overall business strategy or research and development (both 24%), or risk management (17%). PR itself is not necessarily a bad driver, but it seems unlikely that genuine in-depth change will occur while this is the main motivator.

- **...despite significant non-PR-related business opportunities.** Even without the additional benefits of PR, the direct business merits of carbon reduction are already significant. For 59% of executives, cutting carbon presents an opportunity to gain a competitive advantage over rivals. In addition, a wide range of businesses—from Kingfisher, a retail group, to 3M, Siemens and GE, three manufacturing conglomerates—have built major businesses on the back of new environmental products and services. Research from McKinsey & Co. suggests that the US on its own could yield gross energy savings of US$1.2trn by 2020, for non-transport energy alone, from an investment of US$520bn. This begs the question of why so few firms are chasing these opportunities. This is where the fragile economic environment appears to have had the greatest influence. Of the three primary barriers to progress on climate change, two are cost-related: unease over deploying possibly expensive infrastructure and prioritising spending simply to keep the business afloat. The third relates to regulatory uncertainty.

- **Business has less confidence than ever in the ability of governments to deliver a level regulatory playing field.** The failure of December's Copenhagen climate summit has left executives with deep uncertainty about whether political leaders can collaborate effectively on this issue, especially in an international context. Nearly one-half (46%) of those polled are now more pessimistic about the ability of their government to deal with climate change. Only one in four are more optimistic. This is a serious concern. Government, policymakers and regulators have by far the greatest influence over corporate environmental strategies, selected by 56% of respondents, compared with 29% who selected public opinion or consumers as the next highest influences.

Key points

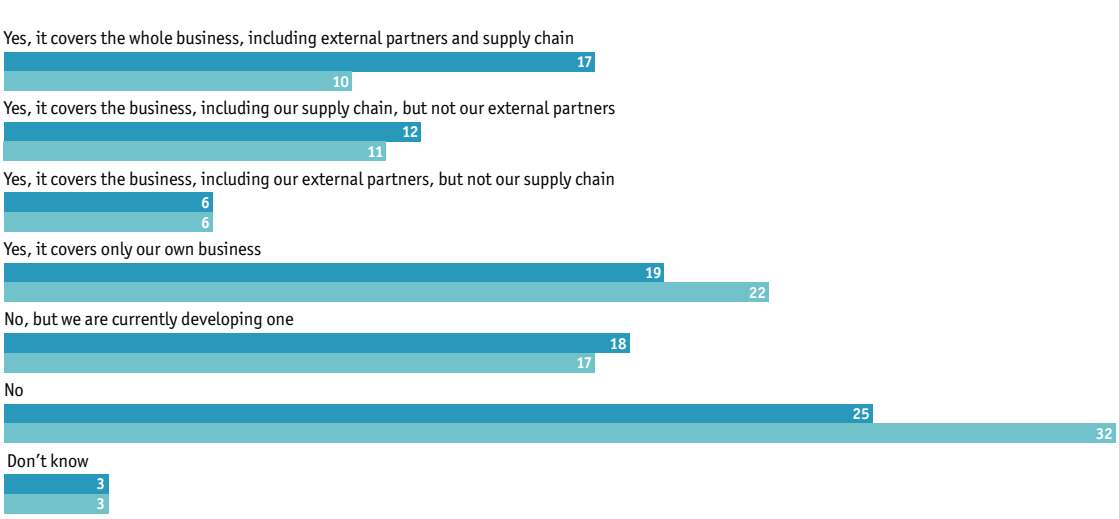
- **Our survey shows that business has stagnated on the issue of climate change over the past year—not necessarily reversing, but not making progress either**
- **The relative failure of the Copenhagen climate summit has resulted in a deep sense of corporate uncertainty with regard to upcoming legislation**

Introduction: stalled on the road

The UN Climate Change Conference in Copenhagen in December 2009 may have kept international negotiations alive on the issue, but it certainly did not deliver a comprehensive agreement that would set the framework for international action. This report therefore looks at how companies around the world are addressing carbon issues amid continuing uncertainty about what will be expected of them by governments, consumers and even societies. It seeks to examine the ways in which companies are addressing the risks and opportunities of operating in a business environment where numerous stakeholders remain greatly concerned about carbon emissions, even as others are growing more sceptical. To give a longer-term perspective to these challenges, the report also includes three scenarios of what the world might look like in five to ten years [see box: *Scenario planning: an aid for decision-making*].

Before looking to the future, it is helpful to recall the foundations on which this report builds. The Economist Intelligence Unit's 2009 sustainability report, *Countdown to Copenhagen: Government, business and the battle against climate change*[1], described the experiences of companies addressing

Stalled progress: 2009 versus 2010. Does your company have a coherent strategy to address climate change related issues that covers the whole business and its supply chain: Q1 2009 versus Q1 2010
(% respondents)



[1] Economist Intelligence Unit, *Countdown to Copenhagen: Government, business and the battle against climate change*, February 2009.

carbon issues as a journey. Typically it starts with the reduction of greenhouse gas emissions from internal operations, where achieving energy efficiency frequently lowers costs as well as emissions. The next step tends to be taking advantage of the market opportunities provided by goods and services that require less energy either in their creation or (frequently more important to customer appeal) in their use. Usually around this time or soon after, firms move towards reducing the broader carbon footprint of the enterprise, including emissions generated by consumers using company products and by suppliers. Finally, as Francis Sullivan, adviser on the environment to HSBC, noted last year, "just as you think you are about to get your carbon footprint sorted out, you realise there is 50 years of built-up excess carbon in the atmosphere and that climate change is going to affect your business." This leads to consideration of how firms should adapt to potential climate challenges in the coming years in various areas, from supply chain resilience, through operations, to product offerings.

The progress made by individual firms, however, should not be conflated with the movements of business as a whole. A comparison of this year's and last year's surveys suggests a certain stagnation in actions around climate change—not so much backsliding as standing still. For example, only 41% have so far improved energy efficiency across operations—noticeably less than the 49% who say they have a coherent strategy on carbon reduction. Meanwhile, just one-third have improved the carbon footprints of existing products or services (35%) or created new products that are environmentally friendly (32%). Oliver Rapf, head of the climate change business partnership programme of WWF, an environmental non-governmental organisation (NGO), said "to be honest, I don't see any carbon fatigue" or companies walking away from commitments, but admitted that he probably did not have much contact with companies that were inactive in this field, "and you will always find some who ignore the problem."

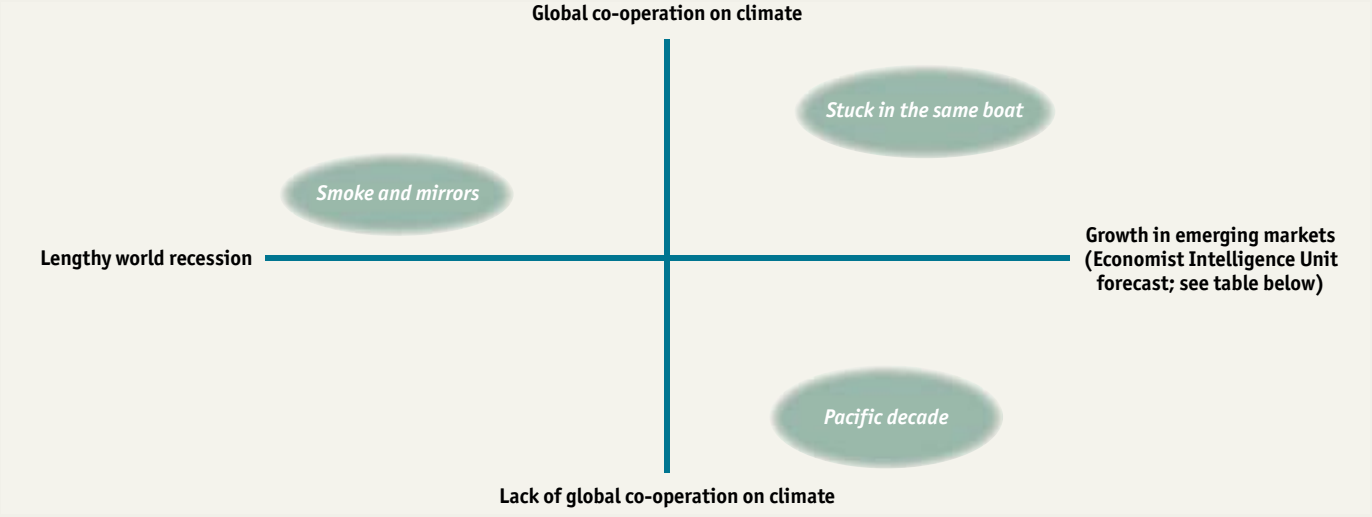
Scenario planning: an aid for decision-making

Executives always need to make decisions amid uncertainty, but for those dealing with climate change issues after Copenhagen the problem is greater than usual. Fifty-six percent of survey respondents complained of the difficulties that uncertainty over climate change policies caused for corporate strategy; 24% listed an unclear regulatory environment as a leading barrier to further progress. The continued volatility of economic conditions does not help matters.

This report maps out three scenarios, describing possible environments in which companies will set and execute carbon-related policies in the medium term—five to ten years. Each one:

- outlines the political and economic environment facing policymakers;
- lists possible events in 2012—these are designed to illustrate in a concrete form the possible results, given prevailing trends;
- considers how a major environmental disaster might affect the scenario; and
- concludes with considerations relevant to executives.

The primary differences between the scenarios are *global economic conditions* and the *degree of international co-operation* shown by national governments in regulating carbon emissions. Two have an economic outlook based on the Economist Intelligence Unit's current forecasts (see table) and the third on the possibility of a longer-term recession, or at most very slow growth, worldwide. "One of the themes that cuts across the scenarios is the focus on 'green growth' in Asia," says Nick Robins, head of HSBC's climate change centre. "East Asia accounts for two-thirds of the US$513bn global 'green stimulus' with countries such as Korea allocating 2% of GNP to promoting these new industrial sectors over the next five years. This shift in leadership in the climate economy will have far-reaching implications for geopolitics, innovation and international value chains." Similarly, two describe a world in which the Copenhagen Accord becomes a tool for international co-operation, while the third involves a failure of international efforts. Ian Cheshire, group chief executive of Kingfisher, a retail group, comments: "The scenarios are a useful way to test companies' strategies around sustainability, especially as they tackle the key issue of regulatory uncertainty which makes planning in this area a real challenge.



Real GDP growth (%)	2010	2011	2012	2013	2014
World (market exchange rates)	**2.8**	**2.4**	**2.8**	**3.0**	**3.1**
US	2.8	1.6	1.9	2.2	2.3
Euro area	0.9	1.0	1.5	1.8	2.0
China	9.6	8.1	8.3	8.3	8.2
Oil (US$/barrel; Brent)	78	73	80	84.5	83.5

Source: Economist Intelligence Unit.

Scenario 1: The Pacific decade

The economies of emerging Asia have continued to grow strongly—with China exceeding 9% growth in some years and India 7%—while the US has seen relatively weak growth and Europe not much at all. Asian consumers have shown an increasing willingness to spend even while those in the West have had no choice but to reduce their indebtedness and increase savings. The shift in the economic balance, however, has not taken place without tension. Politicians in the US and Europe face increasing pressure over the so-called frozen recovery—with low growth figures and high unemployment rates getting no worse but no better either. Western governments are constrained in what they can do: the stimulus spending of the early part of the recession has left them highly indebted. A common, popular complaint in the West is that the emerging Asian countries are using unfair tactics to protect their own growing markets and manipulating currencies to keep their products unfairly cheap. Increasingly confident Asian governments, however, see no reason to change policies which they consider entirely justified, and which have brought them success. They point to increasingly free trade within an incipient Asian economic bloc as a sign that they are open for business.

Meanwhile, carbon emissions have become one of a growing list of disagreements plaguing East-West relations. The Copenhagen Accord has failed. Claims and counterclaims of cheating on commitments led to a complete collapse of the negotiating process at Cape Town in 2011 when discussions of a verification regime ended in angry delegations storming out. Initially, as an attempt to force developing countries to allow monitoring of their carbon emissions, Western countries put up carbon tariff walls. However, governments soon found that it was very convenient to have a duty based on an unverifiable level of emissions. In other words, they could more or less set arbitrary tariffs on emerging economies, while claiming not to violate existing trade agreements and maintaining good relations with other developed countries in the same boat.

Popular concern about climate change remains high in the West, making the tariffs popular. Given the lack of concerted progress on the issue, non-governmental organisations (NGOs) and activists remain as influential as ever. In Asia, as populations begin to grow wealthier, environmental concerns are also becoming more widespread. There, however, local or regional NGOs are playing a greater role, because the international ones are less trusted and sometimes face greater state restrictions.

Despite this general concern, the lack of international co-ordination has meant a fractured response to climate change. Europe has kept to its existing commitments. In the US, the federal government stepped in to co-ordinate the hodgepodge of state and local carbon exchanges and voluntary initiatives that had sprung up. This was partly to seem to be doing enough to exempt US goods from European carbon tariffs, but also to encourage alternative fuel sources as demand from Asia was driving up the cost of oil—now at an average of US$75/barrel. The state of economies and of government finances in the West, however, means that there is little scope for potentially costly investments or burdensome taxes which could reduce carbon emissions more rapidly. Much of the progress in this area results from a weakened economy shedding industrial jobs, a growing shift from coal to gas where practicable, and from private utilities building nuclear plants, which now benefit from as much price support as other non-carbon fuels.

Asian countries are taking a range of approaches to climate issues. Some, mostly the low-cost manufacturers for the larger Asian markets, refuse to cut their emissions at all. As calls for aid to help convert to cleaner fuels jarred increasingly with growing wealth in the region, these states instead began to insist on "carbon reparations". India and China, however, are promoting green technology as a way of creating energy self-sufficiency and hope to develop a leading position in a growth industry. The same reasoning, however, leads to an increase in use of domestic coal. The two states remain rivals, co-operating little on energy matters.

Scenario 1: The Pacific decade

Events of 2012

China passes the US to have the world's largest installed wind power capacity and announces plans for the world's largest CCS coal power plant; Europe launches a satellite—Carbon Cop—as the first step towards a system that will be able to measure heat, and eventually greenhouse gas emissions, from buildings, cities and regions anywhere in the world; ethanol producers in the US, arguing that Brazilian biofuel imports are environmentally unsound, convince governments to slap duty on their imports; and the first voluntary carbon-free certificates (VCFCs) are issued for Asian facilities of European companies that can demonstrate to inspectors that they use only their own renewable energy sources—these VCFCs exempt products made in such facilities from carbon tariffs.

If environmental disaster strikes

Western governments are highly constrained. An environmental disaster might strengthen popular sentiment to act on climate change, but the money is unlikely to be available to change policy dramatically, and it is consumer choices that will drive what companies can, or wish, to do. In Asia, the situation is different. A series of typhoons or cyclones could strengthen popular concerns and sway those who currently see this as a problem the West needs to fix. In such a situation, the larger countries of a newly confident, wealthier region could decide that it is in their own interests to act decisively.

What companies need to consider

- Companies will need to penetrate Asian markets to survive, but the energy sector is likely to remain protected in some way.
- The need to adjust global supply chains as much as possible to benefit from low-cost sourcing and serve both emerging Asian and extant Western markets, all while avoiding carbon-related trade barriers.
- The lack of uniformity is likely to become a bigger problem, even though national regulation will probably not grow any tougher.
- The reputational issues associated with climate change will get more complicated in a world where countries are blaming each other and where even environmental activists are split partly on national lines.
- The location of much technological innovation relating to emissions reduction and renewables will shift from Europe to Asia.
- Any geographical differences over how concerned people are about climate changes are likely to diminish over time.

Key points

- **Concerns about costs, regulatory uncertainty and an overriding priority for keeping the business on track are the top three barriers to further corporate progress on climate change**
- **Respondents are split on whether the Copenhagen Accord represents progress or not. But most agree that it has had no effect on their business**

Plus c'est la même chose

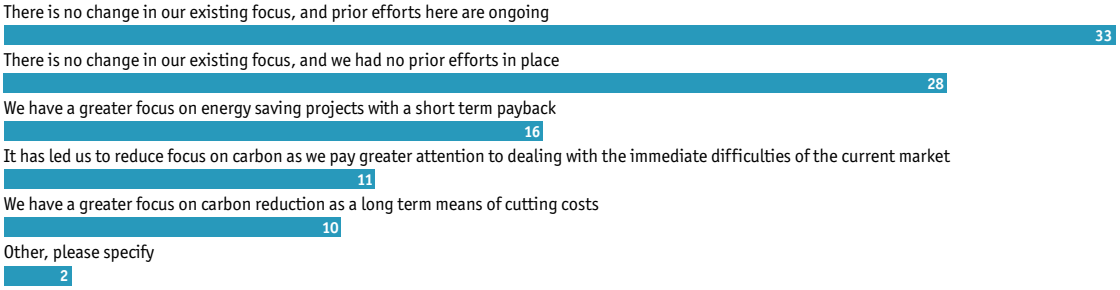
Why is so little happening? The numbers are in part a reminder that carbon reduction is not a simple matter of changing a light bulb. Dr David Bresch, head of sustainability and emerging risk management at the re-insurer Swiss Re, notes that sustainability "doesn't happen overnight. It takes time before it is truly embedded in the way one conducts business."

In addition, the big question marks over corporate carbon policies at the start of this year—the global economic downturn and the potential impact of the Copenhagen talks—turned out, contrary to fears and hopes at the time, to have little effect.

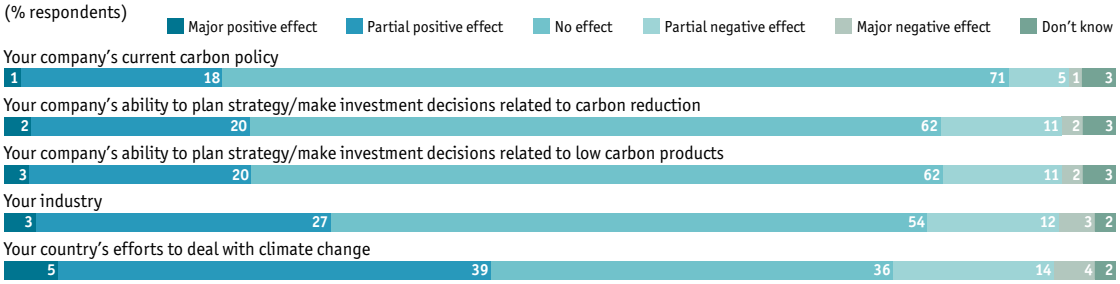
The downturn had the capacity either to decrease interest in emissions reduction, as firms concentrated more on financial survival, or to increase it, as companies sought potential savings from energy-efficiency projects, especially those with short payback times. Overall, there wasn't significant movement in either direction. Sixty-one percent of surveyed companies report no change at all to the existing focus—or lack thereof—on carbon reduction as a result of the recession. Of this total, only slightly more are engaged in such efforts (33%) than not (28%). Of the rest, 26% focus more on carbon reduction and 11% less.

Bruce Bergstrom, vice-president for vendor compliance at Li & Fung, a Hong Kong-based sourcing firm, explains that, in looking at suppliers and customers, "[they] really don't see a clear correlation between interest in carbon issues and the downturn. It may affect priorities. Companies may be compelled to become energy efficient and save money or they might cancel projects until they have a greater cash cushion." Meanwhile, in his dealings with WWF's corporate partners, Mr Rapf says he has

How have the financial constraints of the downturn affected your company's carbon reduction policy?
(% respondents)



To what extent will the outcome of Copenhagen positively or negatively affect the following?
(% respondents)



"not seen any negative effect at all, quite the opposite. We were positively surprised by that."

Although currently carbon reduction efforts are holding their own, Kathryn Mintoft, associate director of sustainability at Barclays Group, says "the effect of the downturn in this area is a very serious issue, because it tends to divert attention from the urgency of the problem." Our survey reflects this concern: 24% of executives say that one of the primary barriers to further progress in this field is that the overriding priority is to keep the business on track, making it of equal concern with worries about cost and the unclear regulatory environment. This may well have unintended consequences. Ms Mintoft, for example, contends that the financial services industry has become more reluctant to lend to experimental clean tech companies and has reverted to supporting more established technologies. On a more basic level, most of those who say they have increased their efforts on emission reduction have done so with projects where there is rapid payback, leaving the more difficult issues—which require longer-term investment—in the background.

As for Copenhagen, *The Economist* characterised the resultant accord as "underwhelming", even in the context of muted expectations going in. Survey participants are actually split on whether the result itself was a success (35%) or a failure (29%), but the vast majority of those who saw the outcome as

Postcards from the journey: starting off

Tata group has recently begun a programme of carbon emissions reduction across all of its companies in a host of industries. Dr Jamshed J Irani is in overall charge of the programme. He believes that although cost reduction is an issue, it is not a determining one. The main driver must be climate change. "We are conscious of our impact on our atmosphere, so this is the right thing to do, although we do look forward to some business opportunities." As for first steps, he adds that a company needs to know the starting line before setting off on a journey. All Tata's major businesses have thus established their carbon footprint. To move forward, the Indian company has trained a core of about a hundred executives who will be facilitating carbon reduction. "The first two years have been a matter of soul searching, finding out where we are," says Dr Irani, "and we are now trying to achieve a better footprint."

George Martin is head of sustainability at Willmott Dixon, a construction group, which has also begun the sustainability journey relatively recently. He has found that an essential element of success is leadership: "the way you create an ambitious sustainable development strategy is to be an organisation that wants to be a leader, not a follower." For Willmott Dixon, determining the corporate carbon footprint was an essential beginning, but it inevitably led to the question of the proper reduction target. The company decided to take a leadership decision to be carbon neutral by 2012 because it was relatively simple to understand and forced the firm to concentrate on how to become more efficient.

positive say it was only partially so. Indeed, those who speak favourably of the result tend to point to its role in raising awareness, or to where the process might eventually lead, rather than praising the accord itself. According to Dr Pan Jiahua, executive director of the Research Centre for Sustainable Development at the Chinese Academy of Social Sciences, "the most significant impact of Copenhagen in China is that everyone was talking about it. This educational effect has been enormous."

Whatever fruit it eventually bears, on a practical level Copenhagen has had very little impact on the daily operations of companies. A significant majority of respondents say that the results will not affect their companies' current carbon policies (71%) or their ability to plan strategies for further emission reductions or new products (62% in both cases). Of the minority who see some impact, only a few expect a major one, although a profound effect is within the realm of possibility, depending on what is decided. Will Swope, general manager of the Corporate Sustainability Group at Intel, explains that an agreement would certainly have consequences for the semiconductor industry: "The material easily ships across borders and energy is a significant cost in the manufacturing process. If the cost of electrical power is 25% more in some geographies than others, that makes a difference. We hope that whatever is agreed can be applied in a way that will foster worldwide competition." As things stand, however, the agreement's effects cannot be predicted with any certainty.

Key points

- **Reflecting similar public polls, this survey shows that just over one-half of executives surveyed believe that "the jury is still out" on how serious climate change is. Less than one-third disagree**
- **A majority of firms regard carbon emissions reduction as a means of gaining both a cost advantage as well as a competitive advantage**
- **But firms are being driven far more by regulatory concerns than out of a sense of tapping into pent-up client demand**

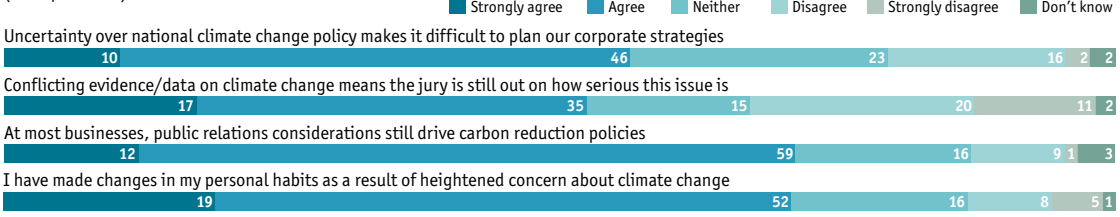
Making the case for carbon cuts

Dwelling only on the overall picture, however important, can obscure what is happening at a few leading firms. The apparent stasis hides a growing split between companies, with the leaders going further and many others digging in their heels. On the one hand, those active on carbon issues, such as Keith Miller, manager of environmental initiatives and sustainability at 3M, a manufacturing conglomerate, see "more and more companies coming on board." Similarly, Mr Bergstrom of Li & Fung notes that the clear trend is towards more action, not less. On the other hand, Mr Swope of Intel, who has had the same impression, concedes that the increasing number of businesses he sees at conferences on the issue "might be a self-selecting group."

However, our survey suggests that a substantial number of executives remain unconvinced by the arguments to start work on climate change. The latter tend not to go on the record, but in our anonymous survey some even seemed angry. The CFO at a Swiss IT company, when asked whether internal initiatives had been taken to reduce emissions, shot back, "We do business, not manias or ideologies." Meanwhile, in the US, the CEO of a professional services firm complained of "the hysteria of the political elites" latching onto unproven science, and the head of a healthcare company simply said "human-caused climate change is a fraud." If these voices seem extreme, it may be because too often they do not speak aloud. Indeed, 52% of those surveyed agree that conflicting scientific evidence means that 'the jury is still out on how serious the issue is', while only 31% disagree. Within their own companies, less than one-half (48%) believe that carbon emissions reduction is as important an issue as it is made out to be. It is not that those surveyed are hostile: 71% have changed their personal habits as a result of concerns about climate change, while only 13% have not. Instead, many have not bought completely into the scientific case.

In not doing so, executives echo public opinion in the broader societies from which they come. A

To what extent do you agree or disagree with the following?
(% respondents)



survey for the BBC found that the number in the UK who think that climate change is happening and is largely man-made dropped from 41% to 26% between November 2009 and February 2010. Similarly, a poll by America's Pew Center on Global Climate Change found that in the US those who believe that there is solid evidence that the earth is warming because of human activity dropped from 47% to 36% between April 2008 and October 2009.

This might seem irrelevant, however, so long as executives accept the business case: that addressing carbon issues brings various benefits, including efficiencies, cost reductions and market opportunities, that outweigh the resources expended. As Steve Fludder, vice-president for Ecomagination at GE, says: "In the post-Copenhagen world, it is easy to say 'it didn't work', but this is about reducing cost, about employing people doing exciting things, about innovation and competitiveness, and the most efficient use of limited natural resources." Certainly, more say they believe the business case than not. In our survey, 45% agree that their companies see carbon emissions reduction as a way to gain competitive advantage by cutting costs, and 59% say their companies see it as a way to obtain advantage through new products and services. Only 24% and 14% respectively disagree.

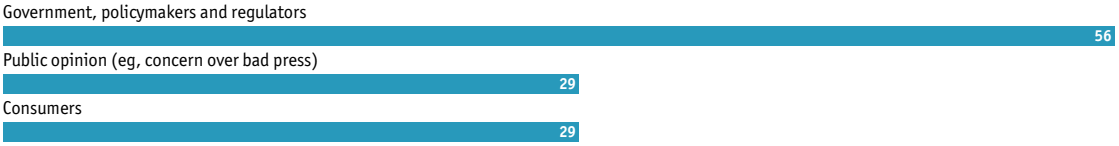
Those with experience in the field agree that these benefits are real. On the expense side, Mr Bergstrom says of Li & Fung's emission reduction efforts, "not only has it produced cost savings, it has helped us identify other related efficiency opportunities as well." Mr Miller of 3M notes that, after more than 30 years of working on sustainability, the company's benefits continue to accrue. Since 1973, 3M has reduced energy use, indexed to net sales, by 80% in the US, and globally by 43% since 1990. "It really helped us in the economic conditions in the last couple of years with increasing oil prices," he adds. According to Dr Bresch of Swiss Re, companies that take reductions seriously "understand that it is best business practice to optimise resources." Looking at the bigger picture, this adds up quickly: McKinsey & Co. estimates that the US on its own could obtain gross energy savings of US$1.2trn by 2020, from non-transport spending alone, for an investment of US$520bn.[2]

The market opportunities are also potentially vast. In 2009, for example, Siemens generated €23bn (US$34bn) in income from environmentally related product sales, up by 11% from 2008 sales of €20.7bn. GE's Ecomagination products earned the company around US$18bn in 2009, despite last year's global economic difficulties. Mr Miller says that 3M also believes green products are "a big growth opportunity", and notes that the company has accelerated efforts to create them over the last two years. Looking ahead, substantial opportunities exist in a range of sectors to increase sales while minimising the impact on the environment. Mr Swope believes "in the next decade, nothing will matter as much as conservation, and computers will be the number one tool to make that happen." Intel accordingly works with other companies to create technology to enable this. Meanwhile, Adam Roscoe, head of sustainability affairs at ABB, a provider of power and automation technologies, points out that, according to the International Energy Agency (IEA), more than one-half of the emission reductions necessary by 2030 are likely to come from energy efficiency, creating a huge market for those with efficient engines to sell.

Despite evidence of current profit, and even greater potential profit, the customer side of the business case is seemingly less compelling than the cost-cutting side. Only 29% of those surveyed cite consumers as one of the three stakeholders with the most effect on their climate policies, far behind

[2] Hannah Choi Granade et al, *Unlocking energy efficiency in the US economy,* McKinsey & Co., July 2009. (http://www.mckinsey.com/clientservice/electricpowernaturalgas/downloads/US_energy_efficiency_full_report.pdf)

Which of the following will have the greatest influence over your environmental strategy in the next year? Select up to three.
(% respondents; top 3 of 13 options shown)



governments in first place (56%). When asked why they had begun providing green products and services, a belief that innovation would be crucial to success narrowly edged out an existing or presumed customer demand for lower energy products or services.

However, the experience that our interviewees have of such demand varies. Mr Bergstrom of Li & Fung has seen it growing in consumer goods. Paul Polman, CEO of Unilever, a consumer goods company, meanwhile told a recent *Economist* conference that "meeting a supply chain challenge can create a marketing opportunity." He cited how his company's shift to sustainably sourced tea had helped to increase its market share in Britain, Australia and Europe. But according to Ms Mintoft, Barclays has found greater interest in green products from corporate customers, but less from individual consumers. It also varies by location. Dr Jamshed J Irani, a director at Tata Sons, has not yet observed in India "any success in convincing customers to reduce carbon, though the effort is now gaining momentum." Similarly, Dr Pan of the Chinese Academy of Social Sciences reports that, despite some encouraging signs, in China, consumers show a tendency to follow the lifestyle of their counterparts in the rich countries, which is certainly not climate-friendly." As consumer markets in these countries come into their own—China passed the US this year as the world's largest car market—their attitudes will become all the more relevant.

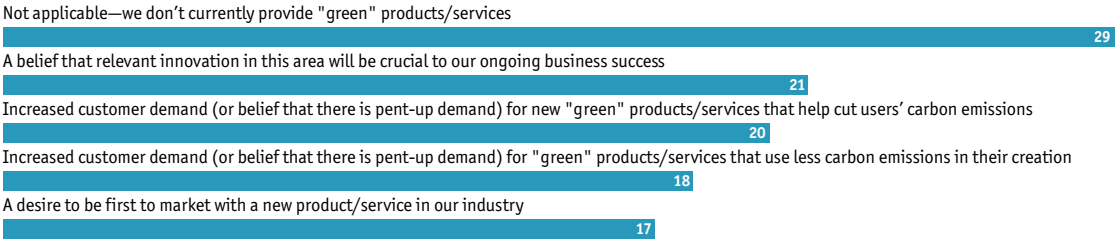
Of course, consciously green consumers are not absolutely essential for this part of the business case to work. As Mr Roscoe explains "ABB has a portfolio of products that, through energy efficiency, save money and reduce emissions. If customers want to buy just to save money in running costs, that's fine by me." Indeed, the real strength of green products may well be the savings they represent rather than their appeal to environmentally conscious consumers. Mr Fludder says that

Postcards from the journey: offsetting

Companies unable to reduce their own carbon emissions as much as they would like sometimes turn to carbon offsets. These involve funding carbon beneficial activities by others—usually clean energy projects—in order to obtain credit for carbon reduction. Swiss Re, for example, has attained the official status of carbon neutral since 2003 in part by purchasing offsets. Dr David Bresch, the re-insurer's head of sustainability and emerging risk management, points out, however, that offsetting alone is not a full solution and "there has to be a strong commitment to net reduction as well".

Kathryn Mintoft, associate director of sustainability at Barclays Group, agrees on the need to maintain commitment to reductions while using offsets. The company is now carbon neutral, in part through the use of offsets. One of the questions, she explains, is how to balance money going towards offsetting with investments in energy efficiency. She adds that offsets also bring opportunities beyond balancing the carbon books. Barclays buys in the voluntary market rather than on trading exchanges. This allows it to support small, community projects in countries where it is based and increase employee engagement.

Which of the following have been the primary drivers for the development of new "green" products/services in your business?
Select up to two.
(% respondents; top 5 of 9 options shown)

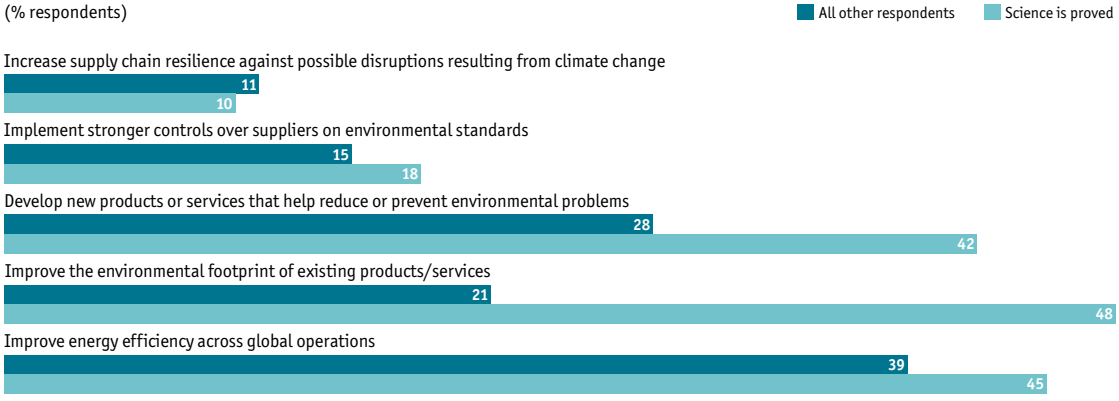


Ecomagination's value proposition includes economic cost reduction as well as emission reduction. He adds, "I think of the two, the key to success is the cost savings that customers enjoy."

Whatever the merits of the business case, scepticism—or at least a lack of conviction—about the scientific case has a noticeable tendency to stall the carbon reduction journey. As the accompanying chart shows, companies where executives believe that climate change is proven are significantly more likely to have progressed along this path. With regard to energy efficiency, the economic benefits seem to be effective all by themselves, although even here it is important not to conflate: cost savings do not always lead towards emission reduction. Dr Irani of Tata Sons points out that a more efficient engine with an expensive biofuel would undoubtedly be greener but not save any money.

Instead, the real difference between those who are convinced by the scientific case and those less certain appears in product creation and development. The former are more likely than the latter to believe that green offerings can provide a competitive advantage (70% compared with 57%). Actions, however, demonstrate the difference better than words. As the chart shows, at companies where executives think the science is completely reliable, more than twice as many have improved the footprint of existing products when compared with other companies, and over 50% more have created new ones.

Corporate progress on carbon: climate believers versus sceptics
What is your company's progress on each of the following initiatives: those who disagree that "the jury is still out" on the science of climate change, versus all other respondents
(% respondents)



Source: Economist Intelligence Unit survey, December 2009-January 2010

Scenario 2: Smoke and mirrors

Economies across the world have now seen five years of sputtering growth, intermixed with small declines in GDP, after governments failed to negotiate the transition from stimulus-induced growth to sustainable recovery. The Asian economies in particular have seen a surprising downturn, as domestic demand failed to replace the pre-downturn export-led growth model.

The Accord that was agreed at Cancun in 2010 has gained wide international acceptance, not because of its utility in terms of carbon reduction but because of its political usefulness. Public concern about climate change remains strong in most countries. It is expedient to appear active, but few governments want to impose potentially costly constraints on business as the number of bankruptcies each year remains stubbornly high. The Accord, therefore, has developed no real teeth. Countries are able to list their not very demanding goals (and perhaps inflated achievements) without fear of external pressure or contradiction. Moreover, ongoing economic problems have had two particular effects on carbon: lower emissions caused by reduced economic activity are used to justify less restrictive measures and states make sure that little money goes to clean development projects in other countries. Carbon policy remains distinctly national among Accord signatories. Countries that initially stayed out of this club, however, faced carbon tariffs as states sought an excuse to impose trade barriers while maintaining the broad tenets of the increasingly fraying world trade apparatus. In fact, supposed progress on carbon is often used as a distraction from the failure of other international institutions and negotiations to address the ongoing economic malaise.

Although the public has accepted the need to reduce carbon emissions, the long recession has created concerns most people view as more pressing, namely jobs. Meanwhile, governments have become more adept at diffusing pressure on the issue by appearing to take action. Only environmental activists complain much about the situation, but they are counterbalanced in public perceptions by increasingly vocal sceptics of climate change. It is easy for states to portray current policies as a middle of the road solution taken by sensible but concerned people.

Most companies, taking their cues from governments, treat carbon emissions as a public relations issue. Even those who might otherwise do more are too busy rebuilding supply chains increasingly impeded by barriers to trade. Innovative business models or products that offer rapid cost reductions through energy efficiency find great favour among consumers, but more adventurous business models requiring longer-term investment find it hard to obtain financing. A few entrepreneurs start out well, but find it hard to scale up. Thus, low-energy-using goods have been gaining market share, but progress on renewable energy is very slow. Energy security concerns, especially among central and east European countries, lead to them pressing on more actively than most on renewables, but the poor economy keeps oil at a relatively low price (US$30/barrel). Most other governments simply invest in a few showcase projects.

Scenario 2: Smoke and mirrors

Events of 2012

In the US, the Republicans sweep to victory in the general election promising to lower energy taxes until GDP has grown by 10%; the Kyoto Protocol winds up with little notice; the Cancun Accord becomes the most universally adopted environmental treaty ever.

If environmental disaster strikes

Even an extreme disaster that public opinion linked to climate change would be likely to have little effect. Governments are already adept at seeming very concerned about the issue, and activists can rarely achieve much traction.

What companies need to consider

Companies will be able to avoid much of the external pressure from government and the public to act beyond some simple compliance targets. They will therefore have to decide how their carbon strategy would best help the business, which will need to focus on the very difficult matter of survival.

- Faced with a long-term, extremely difficult business environment, a business case will continue to exist for energy efficiency, but mostly if payback is rapid. Noel Morrin, senior vice president, sustainability & green construction at Skanska AB, thinks that "the business case for energy efficiency (in buildings) will continue to grow as demand for higher operational efficiency and lower operating costs are the order of the day driven both by a desire to cut costs and a desire to pioneer green buildings."
- Market opportunities will increase for goods with low operating costs to consumers and other companies, but there is little chance of creating products that require extensive new infrastructure (plug-in electric hybrids remain the greenest vehicle, as the creation of a network of charging stations remains too costly).
- A breakthrough energy technology (for example, cost-competitive micro-wind) might, however, achieve quick uptake as recessions often see a willingness to experiment with cost reduction.
- A company's own internal values and assessment of climate science will matter even more. Those where the leadership accepts that climate change presents a pressing risk, or ones that feel socially obliged to try to reduce emissions, will need to do more than ever as governments will not be pushing everyone along the road. Those who do not believe this will merely need to hone their public relations skills, as free-riding will be relatively simple. The market will decide if one approach or the other leads to better corporate performance.

Key points

- Seven out of ten executives believe that, at most businesses, PR considerations drive carbon reduction policies
- The strength of the business case is closely linked to views on climate change: those who believe it will be a genuine long-term issue will find it easier to make the argument for longer-term investment adaptation
- Carbon reduction issues are taken into account far more often with regard to PR than any other aspect of the business, including risk management, strategy and R&D

Just a PR job?

That the business case on its own is a less effective inducement to action should come as little surprise; on the carbon journey, attitudes matter. In last year's survey, 63% said that their companies' approach to climate change was driven as much by corporate values as by financial or reputational concerns, compared with just 14% who disagreed. An Economist Intelligence Unit study in 2009, *Management magnified: Sustainability and corporate growth*, further found that those companies where executives believed most strongly in the business case tended to gain greater financial benefits from sustainability. As Mr Rapf of WWF explains, "when you start talking with companies about how they should align their strategy, you often come across some tough psychological barriers that are higher than the economic barriers. The soft framework is often as important as the return on investment." Indeed, companies frequently speak about how values are the starting point on the journey. Dr Irani is typical of industry leaders in climate change actions when he says, "Tata will move ahead whether there is government regulation or not, because we think it is the right thing to do."

Indeed, the strength of the business case and views on climate change are closely linked logically. If climate change is seen not to be occurring, the market for green products and services could be a temporary blip rather than a permanent shift in the market, so any resulting competitive advantage might be fleeting. Investments in longer-term adaptation would represent an even greater risk. Thus a belief in the long-term nature of consumer change and risk drives much activity on the carbon journey beyond energy efficiency.

Postcards from the journey: new tools needed

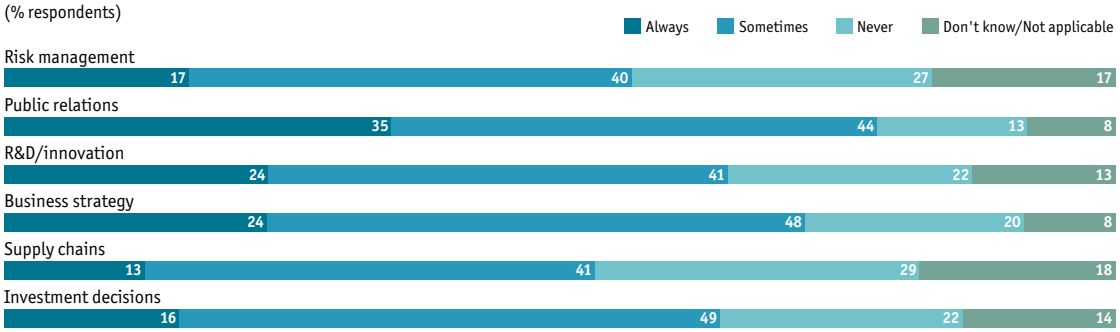
Although many companies are addressing carbon issues, there is still a long way to go in exploring this area. Those on the journey will often find they have to create new tools or engage in detailed research to find a solution that meets their own particular needs. For example:

In 2006, Swiss Re published a study with the Swiss Federal Institute of Technology on storm risk, which it then incorporated into its core risk management model;

• Willmott Dixon is trialling several tools to measure the carbon embodied in construction materials;

• Intel has engaged in basic material science on gases and their structures to determine how use of greenhouse gases in its processes might be eliminated or replaced.

To what extent does your company take climate change/carbon reduction consideration into account for each of the following areas?
(% respondents)



A possible lack of conviction about climate change may explain two further aspects of the corporate carbon reduction picture. The first is that, if the business case is so clear, why is competition not driving faster change? Of survey respondents, just 38% agree that competition in their sector is forcing everyone to improve environmental performance. Similarly, only 18% list competitors as a leading influence over environmental strategy. Dr Irani says that the many companies across the Tata group, all of which now aim to be leaders on carbon in their sectors, "are not acting out of fear that we will be left behind [by competitors]."

The pursuit of carbon reduction by unconvinced executives may also explain the widespread perception that so much of this is simply public relations (PR). Seventy-one percent of those surveyed believe that "at most businesses, public relations considerations still drive carbon reduction policies." Only 10% disagree. This view has some justification. At their own companies, respondents are more likely to describe their carbon policy as a necessity driven by the need to maintain reputation and meet stakeholder expectations (62%) than one driven by government regulation or even as an opportunity. Similarly, they say that carbon issues figure much more frequently in PR considerations than in areas such as strategy, investment or risk management.

Key points

- More firms from the energy sector have a carbon reduction plan in place than any other industry
- Larger, public companies are far more likely to be pursuing carbon reductions efforts than smaller, private ones
- Firms with annual revenue of US$5bn or more are twice as likely to have improved energy efficiency across their global operations as firms with revenue of US$500m or less

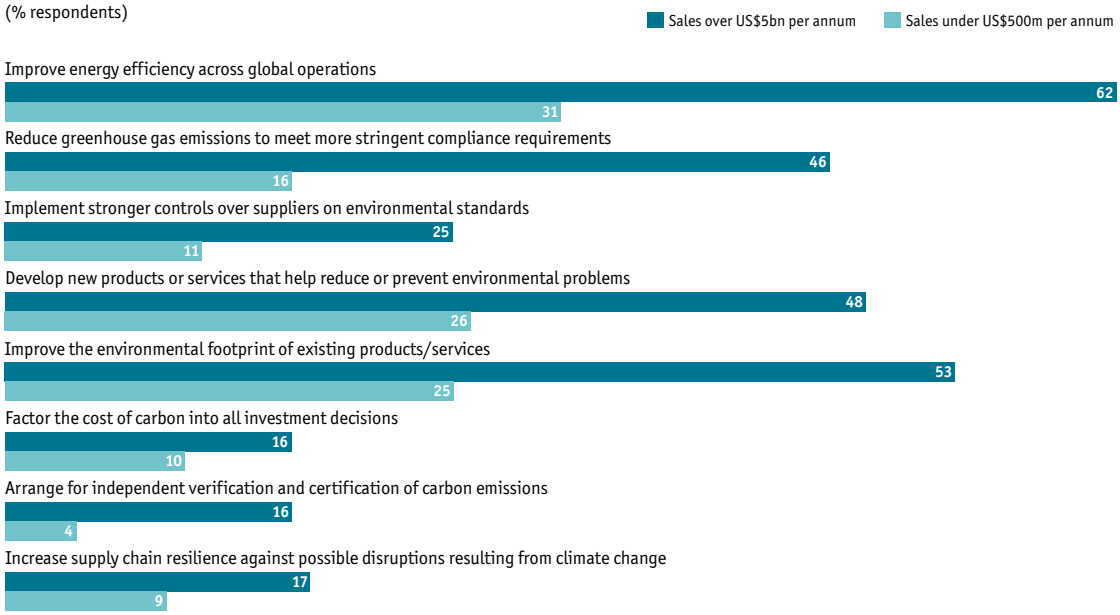
Who is taking the lead?

Whatever impediments these attitudes present to greater progress on the carbon journey, they are fairly evenly distributed across companies of varying sizes and in diverse industries.

Obviously certain industries are more in the cross-hairs than others. With 41% of global emissions in 2007 coming from power generation and an additional 23% from transport, according to the IEA, the energy and natural resources sector is under greater pressure to undertake reductions. Thus respondents in this industry are more likely to have a coherent emission reduction strategy (66% compared with 51% for the survey as a whole), to give responsibility for the issue to the CEO or board (63% compared with 43%) and to take climate change considerations into account in most business areas.

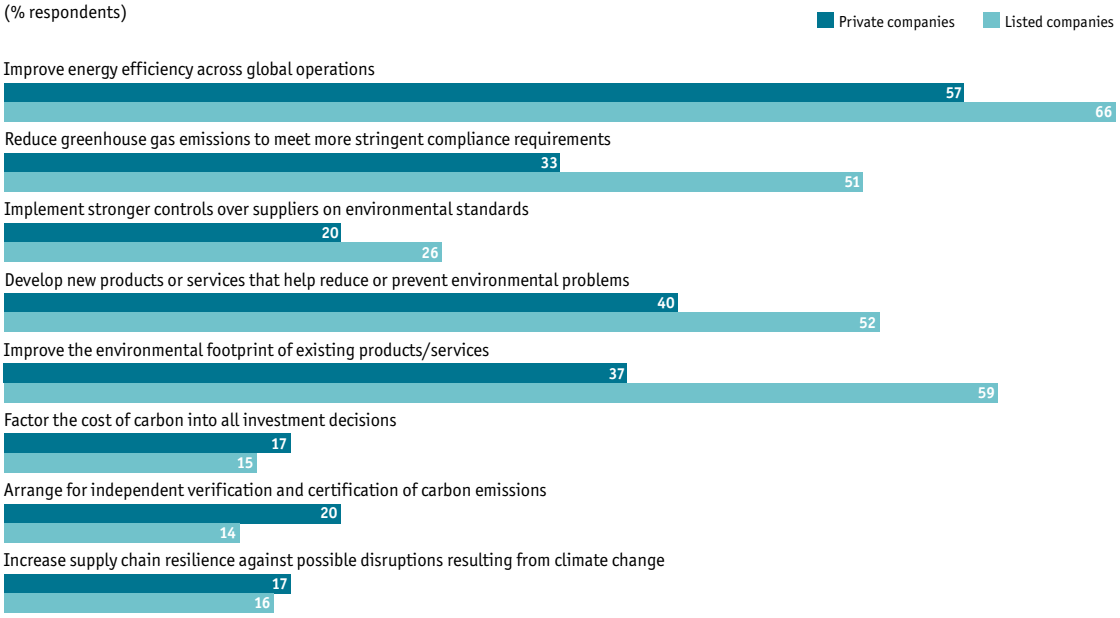
The real differences appear when considering size and ownership structure. Smaller companies are

Corporate progress on carbon: Big business versus small
What is your company's progress on each of the following initiatives: Large companies versus small and midsize companies (% respondents)



Source: Economist Intelligence Unit survey, December 2009-January 2010

Corporate progress on carbon: Public companies versus private
What is your company's progress on each of the following initiatives: Large companies versus small and midsize companies (% respondents)



Source: Economist Intelligence Unit survey, December 2009-January 2010

noticeably less engaged on climate change than larger firms—it would seem that those most able to hide are taking advantage of their status in order to do less. Of those businesses with less than US$500m in annual sales, only 36% have a coherent strategy to address climate change issues, and a further 19% are developing one. For companies with annual sales above US$5bn, by contrast, the corresponding numbers are 71% and 11%.

In many industries, smaller firms do not have formal policies but are able to remain as effective as larger ones. In terms of the specifics of which strategies businesses use to address climate change in practice, however, the larger firms again lead by a wide margin, usually roughly two to one.

Unsurprisingly, bigger firms are active in this area. Mr Rapf of WWF has noticed that climate change has become a mainstream issue in practically all large companies. "The awareness level has risen dramatically in the last twelve months. All the big companies are making some kind of noise, although not necessarily taking strategic actions."

One reason for the divergence may be that small companies tend to attract less attention, whether good or bad. The accompanying chart shows the proportion of respondents who say their firms always take climate change considerations into account in the listed areas. The biggest difference is in the number that do so when it comes to public relations.

Even within large companies, however, there is a divergence: public, listed firms face greater outside scrutiny (such as that represented by the Carbon Disclosure Project), stricter reporting requirements and more stringent regulation than private firms. It should therefore come as no surprise that public corporations are more likely to report on environmental performance: only 8% of listed businesses with annual sales of over US$5bn do not undertake such reporting, compared with 20% of private firms

of the same size. The differences, however, go further. As the chart shows, large public companies are noticeably more active in most areas of carbon reduction than large private firms.

Smaller and private firms, however, need not fall behind. Willmott Dixon is now a large, privately owned construction group. Several years ago, however, while it was still of medium size, George Martin, head of sustainability, found the transformation of the nearly 160-year-old firm "a relatively straightforward process because it is a family company and has strong family values." The process began through demonstrating that a robust sustainability strategy fit with those values and, importantly, with the long-term outlook of family members. Once the latter were convinced, Mr Martin reports, integrating more sustainable approaches into corporate processes and practices was actually more straightforward than if the firm had been a listed one with external shareholders.

Nor does a small company have to content itself with small goals. Willmott Dixon aims to be carbon neutral by 2012. It also hopes to tap into the market opportunities which carbon reduction is creating. Not only has the firm developed the capacity to build greener buildings, it has established its own in-house sustainability consultancy, Re-Thinking, which now provides essential support for the business and its clients to help them achieve their low carbon goals.

On the one hand, for those interested in carbon reduction, the activity of larger firms is good news. On the other, smaller companies and new entrants are a source of innovation within the economy, disproportionate to their size, and innovation will be the key if countries are to meet even existing carbon reduction goals.

Postcards from the journey: selling green

Since its inception in 2005, GE's Ecomagination has become one of the most successful green brands of recent years. Steve Fludder, who heads Ecomagination, explains that GE initially established, and still maintains, two simple criteria for deciding on Ecomagination products: a compelling economic benefit to customers and a compelling environmental one. Just as importantly, it uses a third party certification process to examine the company's product portfolio rigorously in light of those criteria. Kathryn Mintoft, associate director of sustainability at Barclays Group, agrees. The company is now carbon neutral, in part through the use of offsets. One of the questions, she explains, is how to balance money going towards offsetting with investments in energy efficiency. She says that the company plans to shift more towards the latter in 2010. She adds that offsets also bring opportunities beyond balancing the carbon books. Barclays buys in the voluntary market rather than on trading exchanges. This allows it to support small, community projects in countries where it is based and increase employee engagement.

The economic aspect acts as a pull for customers, but Mr Fludder points out that companies should understand that all green products cannot sell on savings propositions. An aircraft engine that can cut about half a billion dollars in annual fuel costs will always be of interest, but wind turbine equipment "still requires a policy environment that incentivises the employment of technology", even with efficiency gains in recent years.

Another key to success is using the programme to focus innovation. Mr Fludder thinks one of Ecomagination's great strengths has been "its ability to open everyone's eyes to this amazing opportunity to do so much more. We said, let's leverage our strength in innovation and put twice as much effort into this particular space." GE has already put US$5bn into clean technology investment, and expects to double that in the next few years.

Finally, Mr Fludder believes that concentrating on the campaign as a business execution strategy with a bottom line focus has helped to distinguish it from other companies. He adds, "it is good to be resource efficient, to be mindful of environmental impact, to make profit, and to take that profit and invest in innovation and employ lots of people. We want to see society go in this direction, because it is nothing but good."

Key points

- **Skills shortages are a concern: about six out of ten companies that hire workers with "green" skills of some form currently see a shortage of such people, especially in Asia-Pacific**
- **Adaptation to climate change—in terms of considering the possible risks, or new business models—remains a significant challenge for most firms**

Challenges along the road

For those not embarking on the carbon reduction journey, the big question is whether they will change their minds. Those forging ahead, however, inevitably come up against new issues. Two particular areas that companies are currently focusing on are the availability of green talent and effective strategies for climate change adaptation. The meaning of the word green in a business context is rarely straightforward. In looking at green skills, a useful starting point is the work of America's Occupational Information Network (O*Net), a non-profit partnership sponsored by the US Department of Labor which analyses occupational information and trends. It defines green as "related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy." Using this definition, O*Net puts green jobs into three categories: Green Increased Demand Occupations—jobs which have always been there but are more in demand, such as bus drivers or insulation installers; Green Enhanced Skills Occupations—types of employment where the necessary skills now involve an enhanced green component, such as many types of engineers and consultants; and Green New and Emerging Occupations—jobs which are brand new, such as specialist traders in carbon securities or engineers with an expertise in methane capture systems.

Green skills may also be necessary for workers who do not hold specifically green jobs, but the taxonomy is similar—skills that have always existed but where demand is increasing; skills that require a new, green element; and entirely new skills. As O*Net's list of several hundred green jobs shows, the need for these skills is spread across the entire economy. For companies truly serious about carbon reduction, they are part of the human resources capacity they will require. Fifty-seven percent of respondents agree that green skills are relevant to their companies. Of these, 62% see a current shortage of workers with those skills and—potentially a bigger problem—69% expect an increase in demand for these skills in the coming year. If anything, the concern is greatest in the Asia-Pacific region, where 69% already see such a skills shortage. This problem, however, may well be short term. Dr Pan of the Chinese Academy of Social Sciences agrees that in China, for example, it is a challenging issue, but not unlike other skills shortages the country has seen recently. "Some years ago," he notes, "there were huge shortages of talented or skilled people [in law and computer science]. Now companies say that they can find very talented people very competitively. The labour market will reflect

Postcards from the journey: adaptation

Business adaptation to climate change will need to go far further than supply chain resilience. The cost of supplies may well be an issue: for example, Mr Miller points out that 3M has been trying to reduce the petroleum that goes into its products, as well as its energy use, in order to protect itself against price spikes. At Barclays, Ms Mintoft notes that they are examining areas as basic to operations as the link between credit risk and climate change: she observes that it can be quite "difficult to accurately assess how a business will be materially impacted." For insurers, the issue is even more fundamental. Dr Bresch of Swiss Re says that understanding risk is at the core of his business. "We need to understand the complex climate issues around us. We have long-standing commitments. We collect premiums now to indemnify losses in the future."

the demand for green skills, and in one or two years we should be able to have trained people. Young graduates are very flexible and dedicated to career development."

In the meantime, the obvious solution is for companies to train people, especially as only 23% of respondents overall are willing to pay a premium for green skills. As Mr Bergstrom of Li & Fung says, "internal education is crucial to building organisational capabilities and competencies to meet the emerging ecological challenges facing business and society today." Such education, however, requires dedicated effort by businesses. Even for companies where green skills are relevant, only 45% currently provide training. Of those in that group with a coherent carbon strategy, however, 63% undertake training, compared with just 20% of those without.

Such training does not only help to close the skills gap. Mr Bergstrom points out that "employees also become engaged, which contributes to success." Partly for this reason, many interviewees whose firms have been on the carbon journey a long time have also found the issue less of a concern. People with green skills are attracted by that history. Mr Roscoe recalls a recent visit to a job fair at MIT: "it was heartening to see the number of bright people coming up and saying 'I am interested in ABB' because of sustainability. It is quite a differentiator." Similarly, Dr Bresch says of Swiss Re, "being a leader in the field, we can't complain. The top talent are not necessarily looking for top salaries but where they can make a difference." Mr Fludder calls Ecomagination "without a doubt the broadest-based, most exciting employee engagement initiative this company has undertaken. We don't feel a talent shortage."

A more difficult issue for many companies is adaptation to climate change. Variations in weather patterns will affect companies across the board from finding basic inputs to getting out finished products. Mr Rapf of WWF says "companies are underestimating dramatically the whole question of adaptation. There is hardly any discussion of it." The numbers bear this out. Climate change considerations are regularly a part of risk management considerations at only 17% of companies, and just 11% of respondents have attempted to increase their supply chain resilience in the face of possible disruption induced by climate change.

Ms Mintoft of Barclays Group agrees "there is a general recognition that companies aren't doing enough on adaptation." The issues involved often go much further than having back-up suppliers in case of an extreme weather event. Such risks are not the only ones companies face [see *Postcards*

from the journey: adaptation]. Moreover, along with risk management, well-prepared companies also recognise and aim to capitalise on potential opportunities. Ecomagination, for example, has been active in developing a number of products likely to be needed in the event of greater water scarcity. These range from solar-powered water purification systems to large-scale desalination technology. "We have a long-term view that there will be nothing but more demand," confirms Mr Fludder. "Adaptation is an opportunity just like mitigation. It is just a different dimension with different solutions."

Adaptation, then, is an integral part of the carbon journey for committed companies. Some are even taking steps to reduce their own risks by helping others to understand the issues better. This year, says Mr Swope, Intel will be doubling its efforts to make sure its own suppliers, and even governments where it operates, have a fuller understanding of the adaptation risks. "We see this as something we have to do, and as a way to help the industry move forward."

Key points

- Government is by far the leading influence on corporate climate policy, well ahead of public opinion and consumers
- Post-Copenhagen, far more executives are pessimistic about the ability of their governments to deal with the issue of climate change
- More than one-half of executives believe that carbon footprints will increasingly become a rationale for new trade barriers or tariffs

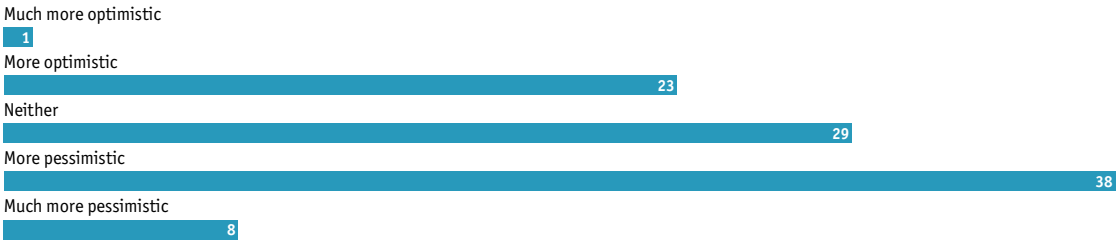
Worries about the government

Whatever the differences between businesses, one overriding belief is that the state is the stakeholder that will have the greatest influence over carbon strategies in the coming year. As noted earlier, 56% of those surveyed list government among the top three influences on climate policy, the leading choice by nearly two to one. Similarly, 58% agree that their firms treat emission reduction as a necessity driven by government regulation. Ms Mintoft can foresee the issue moving towards an increasingly compliance-based approach: "The best example is the UK's Carbon Reduction Commitment, which will change the way that organisations monitor and manage carbon emissions."

The sticking point here is that our survey suggests a lack of confidence among executives in the ability of governments to get this right. Even though respondents tend to see some positive aspects to the Copenhagen talks, the whole experience leaves 46% more pessimistic about the ability of governments and politicians to deal with the impact of climate change, compared with 25% who are more optimistic.

The biggest complaint is one which Copenhagen was supposed to help relieve—regulatory uncertainty. Fifty-six percent of those surveyed agree that this issue at the national level makes strategy setting difficult, and it is the second most commonly cited barrier to further progress on emission reduction (24%). Business does not fear that governments will demand too much: only 15% of respondents foresee their companies having difficulties in meeting government-mandated reduction targets, and only 11% would even consider moving operations to take advantage of less

Following the completion of the Copenhagen summit, do you feel more or less optimistic about the ability of governments and leaders to deal effectively with the impact of climate change?
(% respondents)



onerous environmental requirements. Business understands and accepts that more regulation will come. As Mr Bergstrom says, "it is always preferable to have more clarity, but the current trend of action on climate change is already very clear." Moreover, regulatory uncertainty in itself does not have to prevent companies from acting. Says Mr Polman of Unilever, "why should we wait for government-led solutions when there is a huge amount we can do ourselves?"

The real problem is that, beyond obvious energy reduction matters, the regulatory environment can complicate matters a lot even for firms active on carbon issues. Mr Swope of Intel explains that emission reduction can involve innovation with new and complex technologies: "A regulator is put in the position of asking 'how much do I trust these guys? Should I be putting more rules in place so that I'm sure, before they take action, that the action is going to be safe?' But the very nature of trying to get a lower level of carbon is the ability to innovate." Regulation that impedes innovation would thus be counterproductive, and lack of clarity means not knowing which innovations might be choked off. As Mr Swope concludes, "the right way to regulate is to encourage companies to be as innovative as possible."

Another practical issue is how to avoid penalising firms that became active in this field early. Mr Miller notes that 3M has been working on carbon reduction for a long time, with substantial progress. "It becomes tougher to find additional reductions," he says. Legislation that does not provide some credit for early action not only rewards those who did nothing, it encourages inaction should a similar issue arise in the future. There are potential opportunities, as well as risk. Mr Miller and Mr Roscoe both note that regulation has the potential to help companies such as theirs selling products which reduce carbon emissions. Regulatory uncertainty, however, helps nobody.

But what about government-led demand creation? One response to the downturn in many countries was stimulus spending, much of which went towards renewable energies, green infrastructure and other environmental causes. These encouraged one-quarter to one-third of companies to enter or increase activity in new markets (25%), develop existing products (33%), and engage in relevant research and development (30%). Even among these minorities, however, in most cases the impact of the stimulus was minor.

Instead of government action encouraging carbon reduction, most respondents worry that countries might use carbon as a protectionist tool. Politicians from the French president, Nicolas Sarkozy, to the US Senate Finance Committee chairman, Max Baucus, have spoken of the need for such instruments in the absence of a global emissions agreement. Among survey respondents, 58% think that carbon footprints of products will increasingly be used to justify trade barriers, compared with just 14% who disagree. Among manufacturers, the figures are 75% and 10% respectively. Mr Bergstrom warns: "the possible use of carbon for protectionism is a danger and a challenge for the world trading system. It could roll back years of progress which has brought benefits on all sides." He disagrees with the apprehensions expressed in the survey and expects cooler heads will prevail. Stephen Harper, Intel's director of environmental and energy policy, does not think "developed-country governments see carbon tariffs as good revenue-raising or industry-protecting policies per se, but rather as a prod to get China, India, et al, to do more on climate. The best way to avoid them is a strong international agreement."

Scenario 3: Stuck in the same boat

The economies of emerging Asia have led the world to recovery, while the US has seen relatively weak growth and Europe not much at all. The rise of Asian consumers has also sparked a change in the dynamics of the world economy, as increasing numbers of companies focus their sales and research and development (R&D) efforts on markets in the region.

The Cancun Agreement and the Cape Town Protocol have created a viable, international carbon reduction framework, with clear and binding national targets. Exchanges in Chicago, London and Shanghai are now the core of a global emissions trading system. The latter sees most of the clean development project initial public offerings (IPOs). Unlike for Kyoto, however, the core negotiations for the current regime took place within the G20. The UN-sponsored Cancun and Cape Town meetings rubber-stamped these decisions.

A web of interests and motives supports this framework. First, after riding out the embarrassments of 2009-10, climate science is again the little-questioned conventional wisdom. Meanwhile, oil prices have remained high—at around US$95/barrel—as proven reserves have grown very slowly and booming Asian economies have needed ever more fuel. The controlled strengthening of the renminbi has reduced price pressures on the Chinese, but increased the competition for supply that limping Western economies feel most keenly. This competition, along with the willingness of energy-producing states to exert political pressure, made energy security a growing driver in the US and Europe. In turn, security concerns and the increasing confidence of Eastern economies where the state has traditionally played an active role have led governments to become ever more active in the field of energy.

Thus, Middle America has been won over to wind via security concerns, but utilities have also locked in uranium supplies from Canada and Australia, and shale gas production has rocketed. India and China have been building as much wind capacity as possible. They have also, however, been creating as much coal power as they can within the treaty—to use their locally available fuels—as well as competing for influence over uranium and oil supplies in Central Asia. European regulators are instead pushing renewables, and huge solar farms are linking the Moroccan and Tunisian economies more closely to the EU. Coal's use is also growing, but it is becoming an increasingly clean fuel. Nevertheless, carbon capture and storage (CSS) has yet to make it a carbon neutral one.

Western countries, with slow economic growth anyway, and facing economic, political and environmental risks from fossil fuel use, are taking the lead in emissions reduction. Emerging economies, hungry for fuel from any source, are also building renewables capacity and increasing efficiency. Geopolitics may be playing a role behind the scenes. The US agreed to a global carbon regime that required noticeably less of emerging economies than the country had initially demanded. Rumours circulated that an increasingly confident China threatened to reduce its holdings of US debt sharply if pressed too hard. Whatever the truth of these stories, Washington is treating debt reduction as a security issue too and, to keep green energy development close to home, is using the tax system to make more expensive the purchase of clean development credits originating from projects in certain countries.

Indeed, popular support for climate protection, although generally widespread, is much lower in some Western countries where unemployment stays high. This dissatisfaction, however, remains latent, as no credible political parties provide an outlet for it. Ironically, activist influence is waning as governments take over the issue. Some sustainability campaigners are instead focusing on broader environmental matters, others on social and human rights concerns. They have not been able to stop the nuclear revival, and China's growing influence in the developing world is slowing the human rights agenda.

Scenario 3: Stuck in the same boat

Events of 2012

Singapore Carbon Exchange opens trading in renminbi-denominated carbon credits alongside those in dollars and euros; large-scale coal-based electricity plant opens in Virginia, using jointly developed US-Indian technology, capable of removing more than 75% of GHG emissions while remaining economically viable; UN devolves administration of Cancun Agreement to G20, which now has a permanent secretariat.

If environmental disaster strikes

A major series of tropical cyclones, or repeated and prolonged flooding in the West, would strengthen the environmental drive for emission reduction which otherwise might focus more on resource scarcity and energy security. Although increasing the general push towards reduction, it is likely to lead to a move away from coal (or greater investment still in CCS), and towards renewables. Increased environmental concerns over possible accidents and waste storage issues could also make nuclear energy less popular.

Similar events in Asia would increase popular pressure on the emerging economies to decrease their carbon emissions, or at the very least make greater efforts to reduce their intensity. Even if the events did not occur in the large countries, such as China or India, giving the impression of being willing to develop while others pay the price—Bangladesh seeing permanent flooding of territory, for example—would greatly harm the relatively benign political environment on which much of this development has relied.

What companies need to consider

Carbon emissions and corporate social responsibility considerations are becoming separated. The latter now tend to focus on nuclear power and human rights issues arising from Western companies operating in non-democratic, rapidly emerging markets. Carbon reduction, however, remains an important reputational issue, because of the association of energy use and national prosperity (not to mention national security). Although the scenario deals largely with sources of energy, demands for greater energy efficiency will reshape much of the economy:

- companies will have to get used to higher energy prices, with the attendant supply chain and raw material consequences;
- low-energy-consuming products will be in even greater demand;
- new technologies will see much more rapid adoption with, for example, electric cars becoming the norm for city transportation by 2020;
- the greater role of the state on the energy side portends even tighter regulation on carbon, as well as possibly a revived willingness of governments to take a directing role in parts of the economy which they deem crucial.

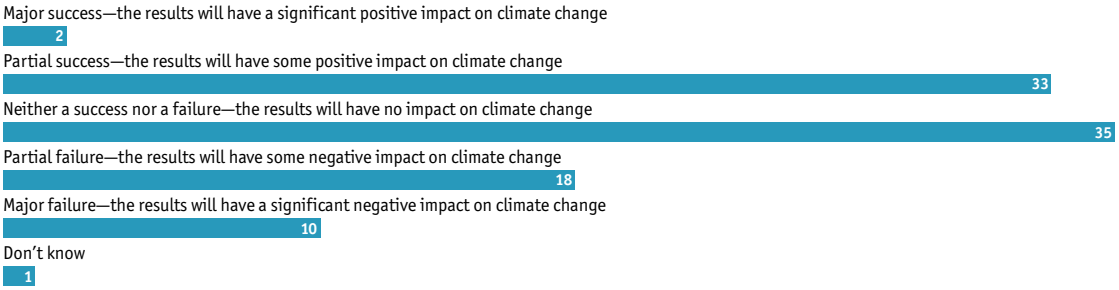
Conclusion

Those setting corporate carbon strategies face a series of uncertainties. More regulation is likely, but its shape is unclear. There is a strong business case for energy efficiency in any situation, but the market opportunities may be more dependent on the climate science consensus being broadly accepted by consumers, and adaptation policy will certainly rely on how far executives trust that consensus, which itself contains a range of possible outcomes. If the downturn had only a small effect on carbon-related activities, what will the eventual recovery bring, especially if led by economies where consumers seem less interested in climate issues and governments believe mitigation is the responsibility of Western countries that happily emitted carbon during their own development?

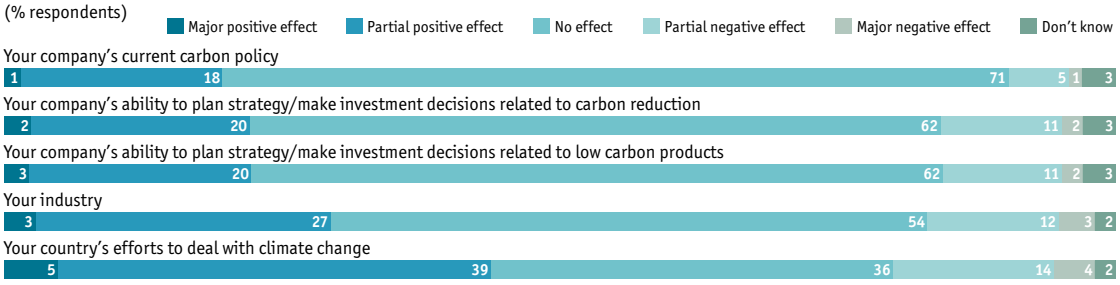
Ultimately, companies must make strategic choices, based on their own assessment of the business case for action, which in turn includes considerations of likely governmental and consumer behaviour; the growth or contraction of the prices of key supplies, especially energy; and even of the science itself. This study suggests, however, that outside pressures rather than perceived opportunities are driving carbon strategy. This is true both for smaller and private companies that are less exposed to regulation and public scrutiny, and for large, public ones that have nowhere to hide. This is regrettable. There are competing considerations to make, and real choices that, depending on who is right or wrong, will provide competitive advantage for years to come. They should not be left to default. More of those firms not on this journey should be sure they have considered all of its possible merits rather than being relieved that they can avoid being pushed down the road; more of those on the way should decide whether an excessive concentration on public relations in their travels is impeding success, both environmental and commercial. The choices ahead are too important to relegate to a PR problem.

Appendix

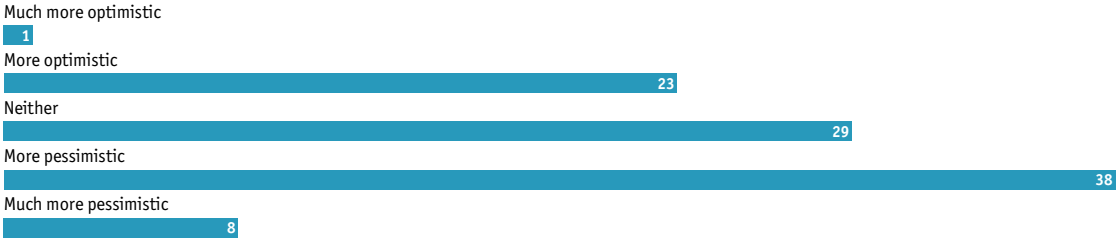
To what extent would you describe the outcome of Copenhagen as a success or failure, in terms of its likely future impact on climate change?
(% respondents)



To what extent will the outcome of Copenhagen positively or negatively affect the following?
(% respondents)

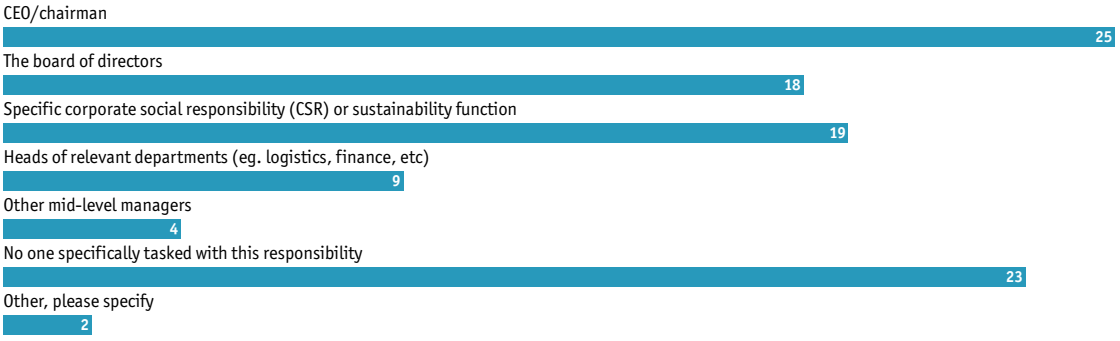


Following the completion of the Copenhagen summit, do you feel more or less optimistic about the ability of governments and leaders to deal effectively with the impact of climate change?
(% respondents)

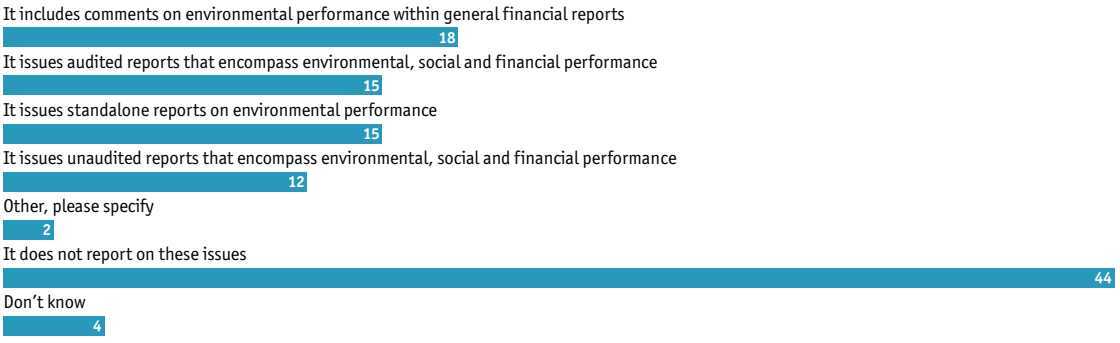


Does your company have a coherent strategy to address climate change related issues that covers the whole business and its supply chain (whether internal or external)?
(% respondents)

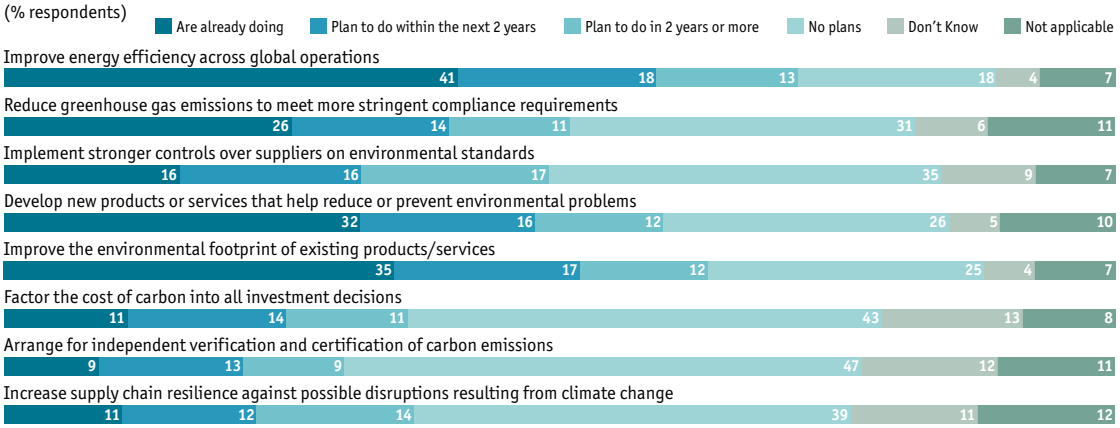
Where does primary responsibility for environmental sustainability currently sit within your organisation?
(% respondents)



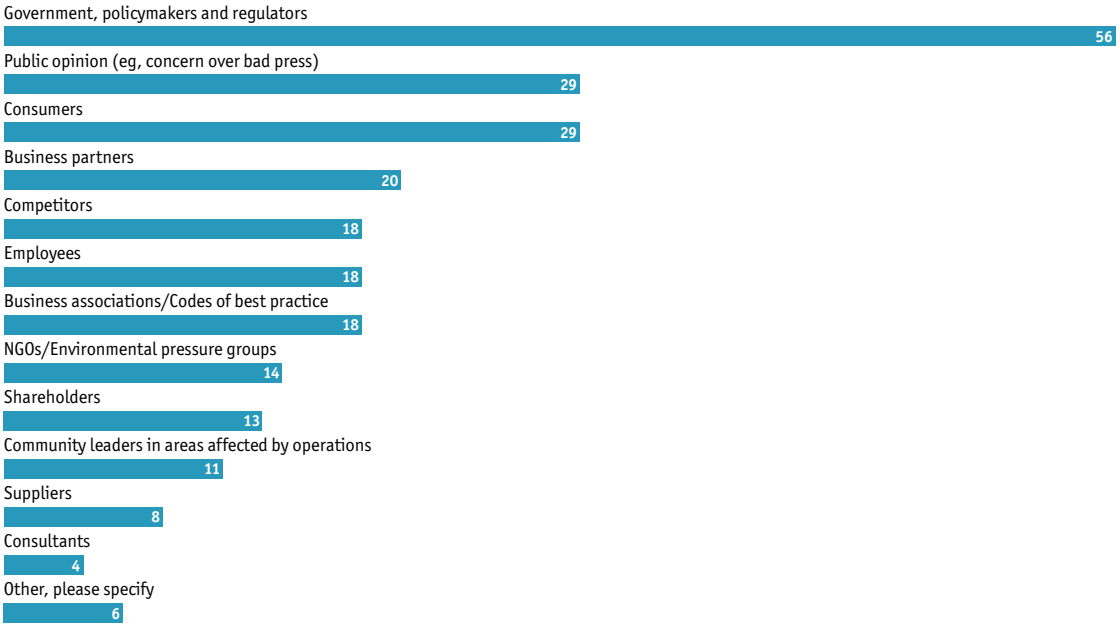
What is your company's current policy on reporting on its environmental impact and performance? Select all that apply.
(% respondents)



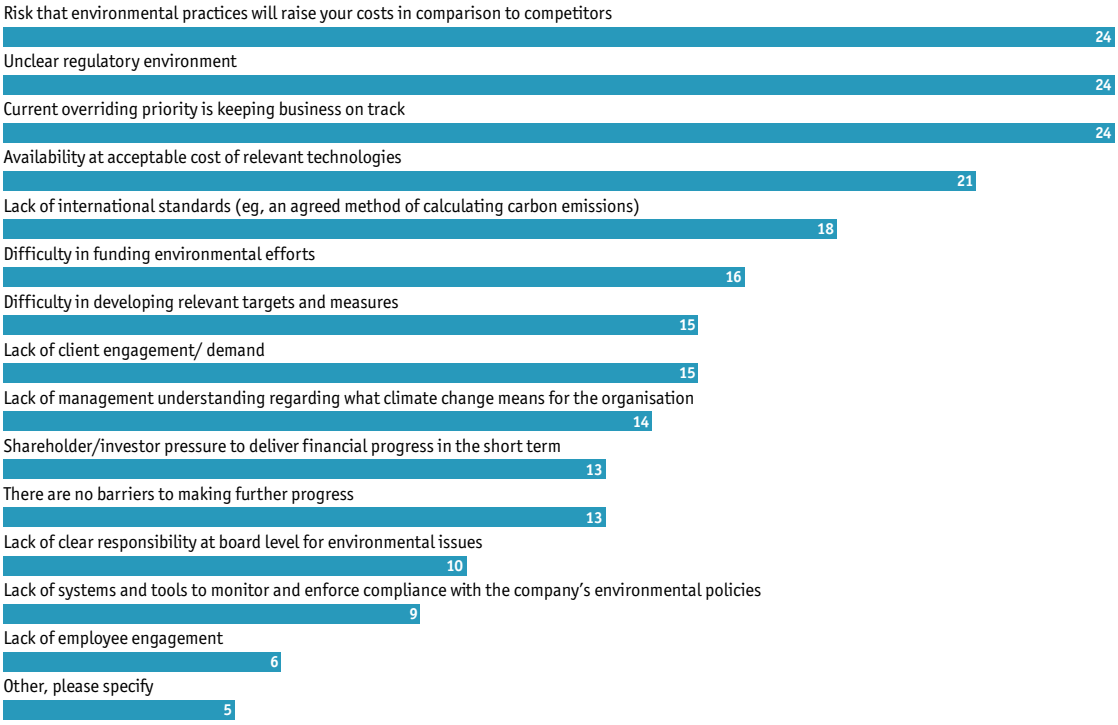
What is your company's progress on each of the following initiatives?
(% respondents)



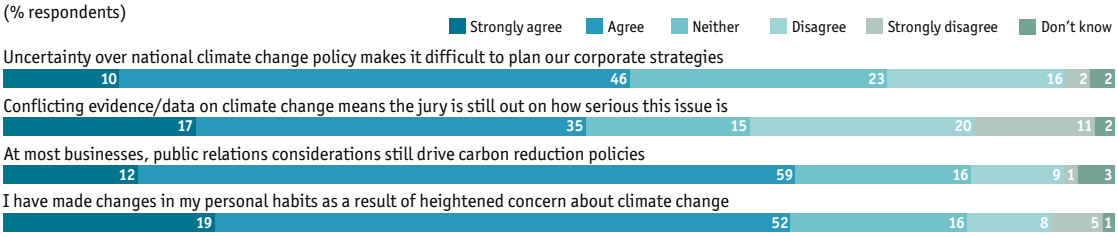
Which of the following will have the greatest influence over your environmental strategy in the next year? Select up to three.
(% respondents)



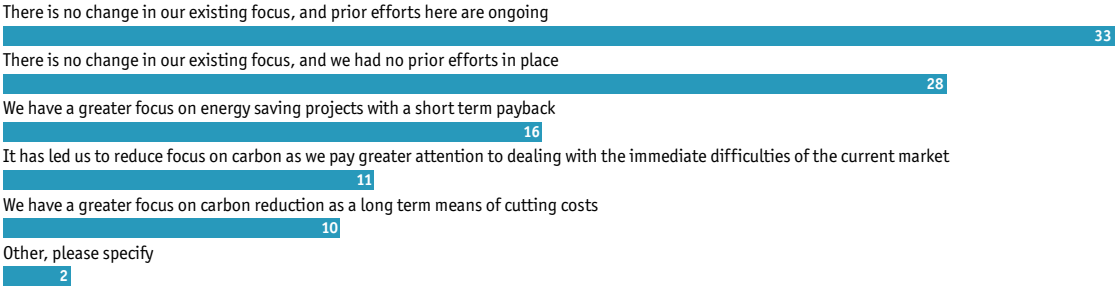
What are the primary barriers to making further progress on climate change in your organisation? Select up to three.
(% respondents)



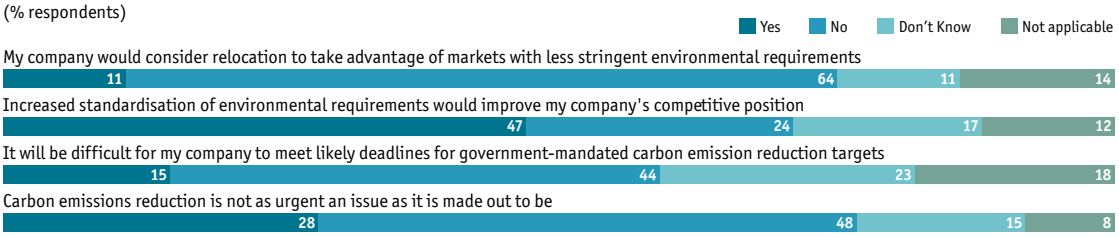
To what extent do you agree or disagree with the following?
(% respondents)



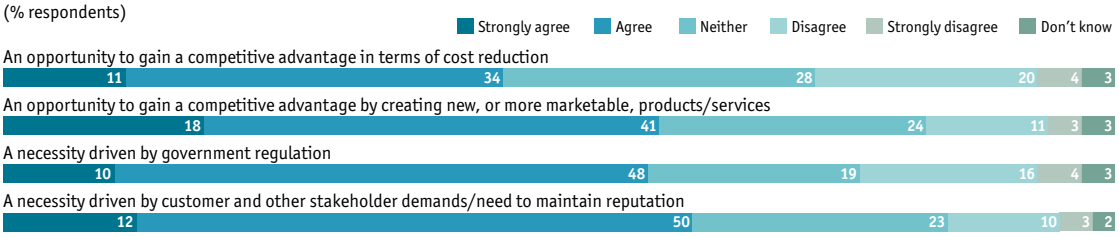
How have the financial constraints of the downturn affected your company's carbon reduction policy?
(% respondents)



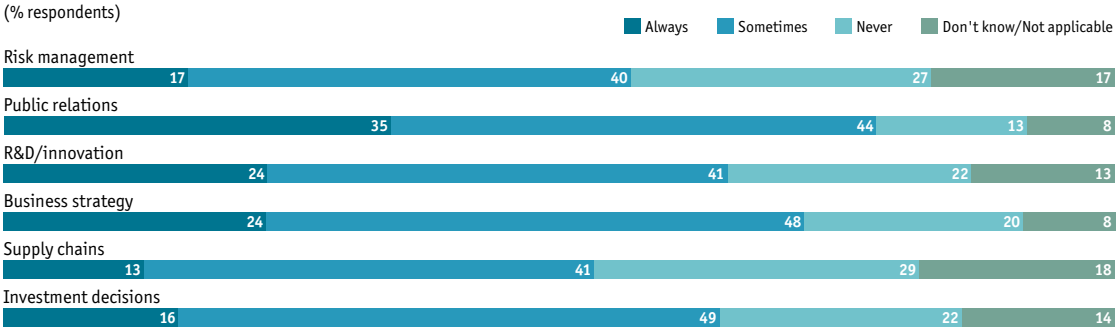
Which of the following statements apply to your company?
(% respondents)



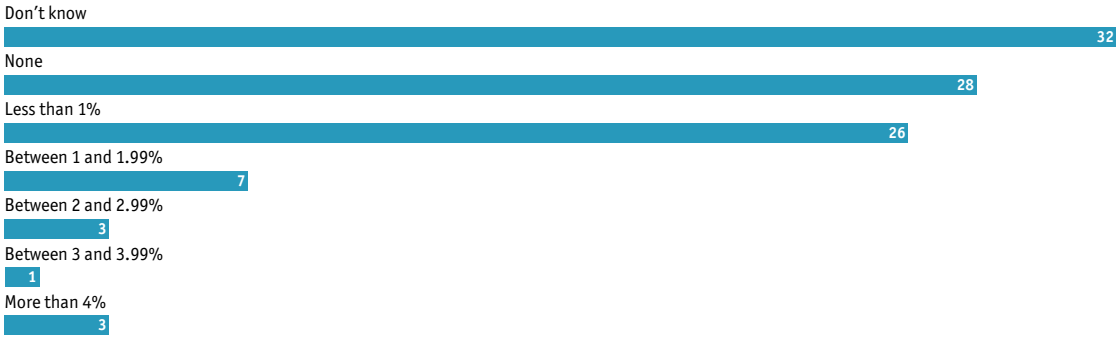
To which degree would you agree or disagree with the following statements, in terms of your company's attitude to carbon emission reduction?
(% respondents)



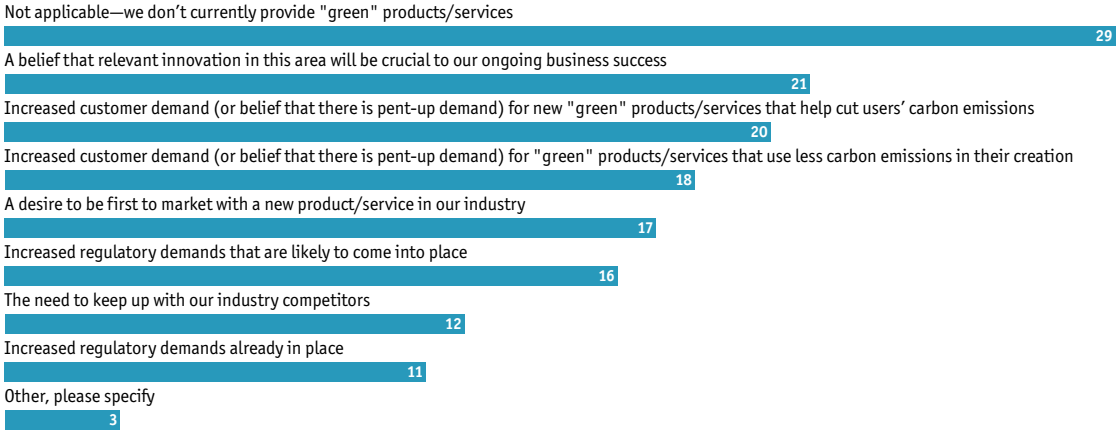
To what extent does your company take climate change/carbon reduction consideration into account for each of the following areas?
(% respondents)



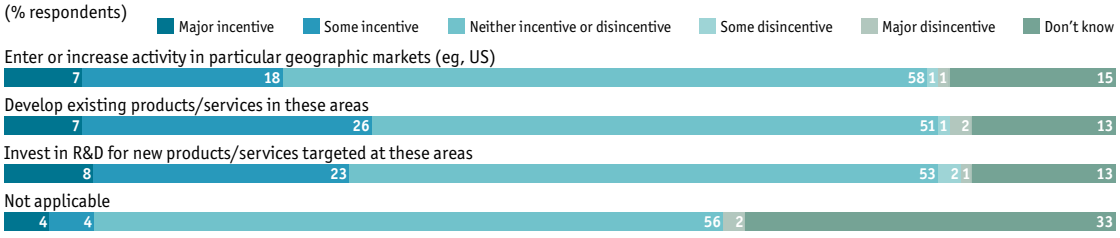
How much of your company's annual sales are spent on carbon emission reduction programmes?
(% respondents)



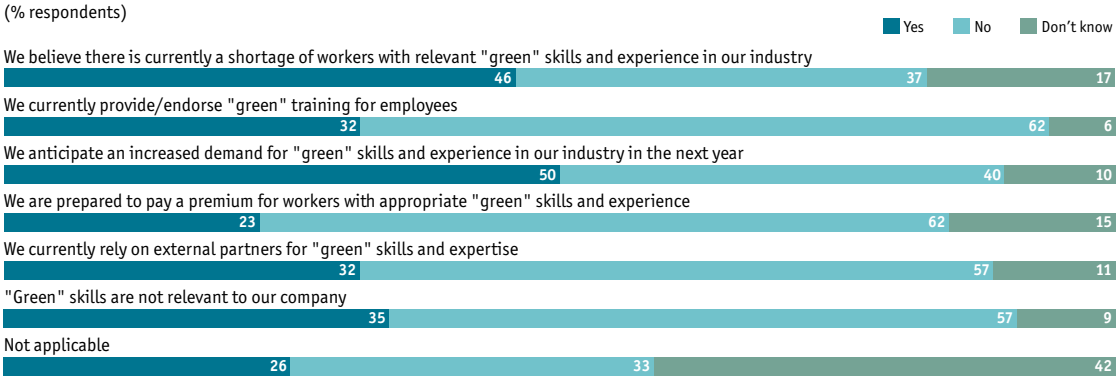
Which of the following have been the primary drivers for the development of new "green" products/services in your business?
Select up to two.
(% respondents)



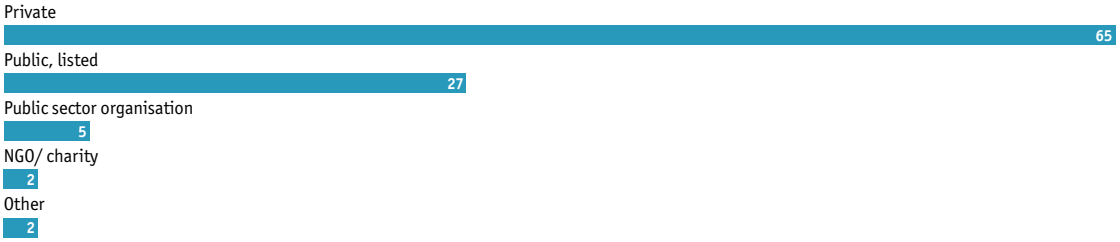
To what extent has the availability of government stimulus funding targeted at environmental issues (eg, renewable energy, smart grids, etc) been an incentive for your business to do the following?
(% respondents)



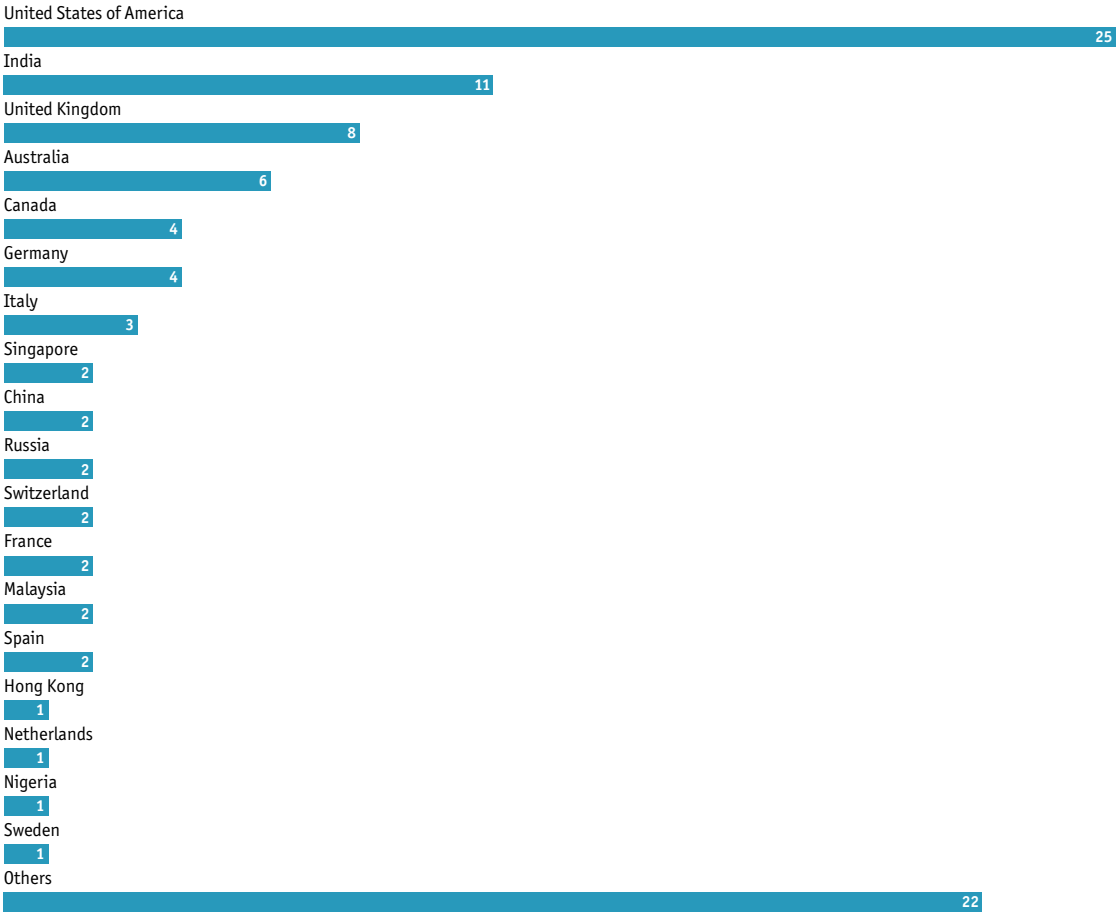
Please answer yes or no with regards to the following questions relating to "green" skills and the availability of workers with relevant skills.
(% respondents)



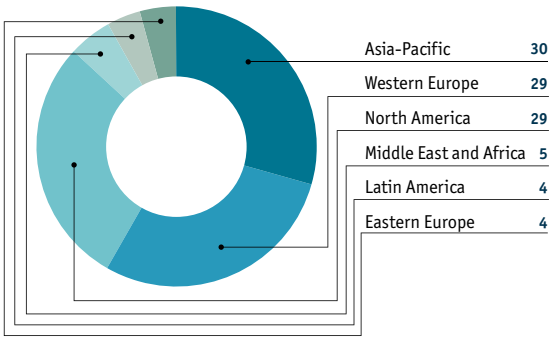
Which of the following best describes your company?
(% respondents)



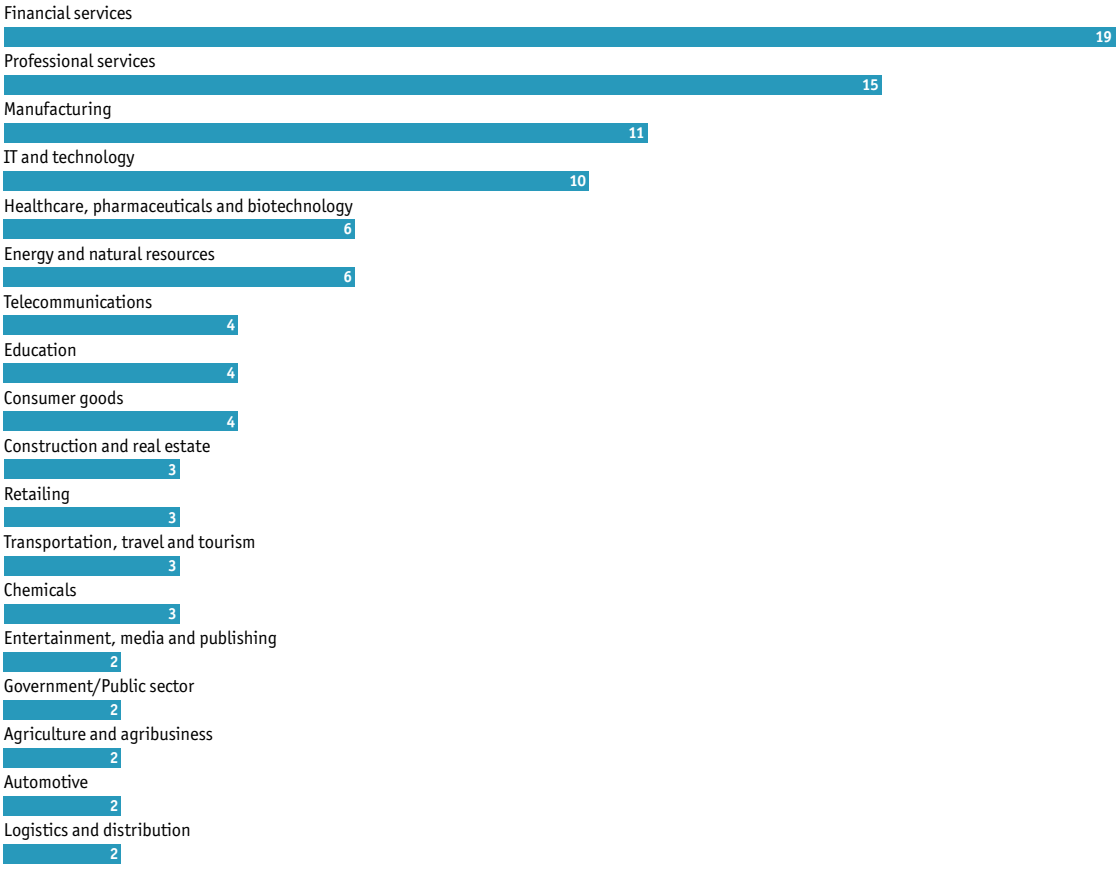
In which country are you personally located?
(% respondents)



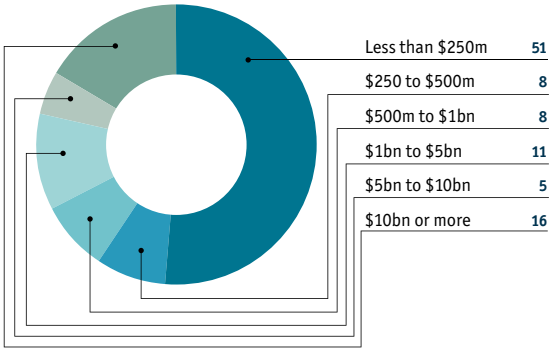
In which region are you personally based?
(% respondents)



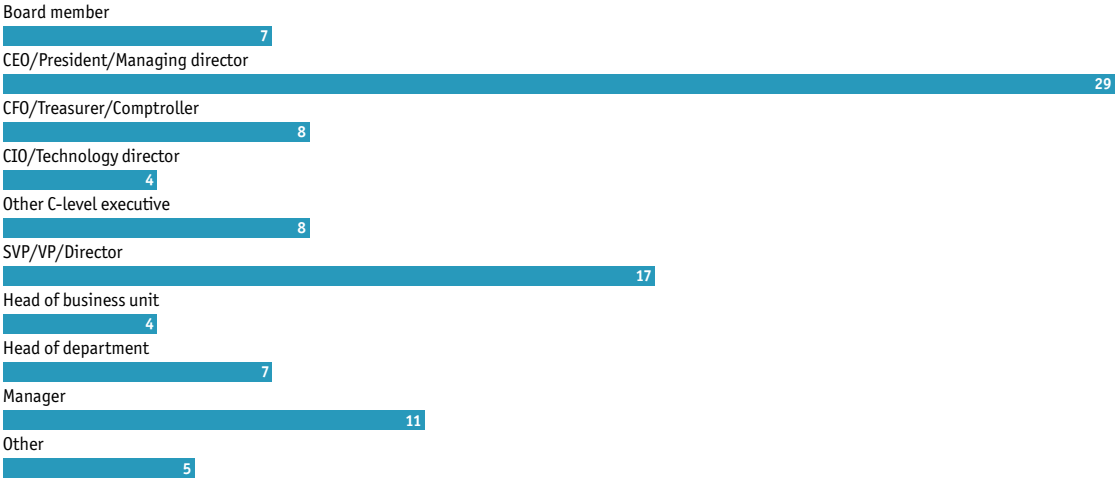
What is your primary industry?
(% respondents)



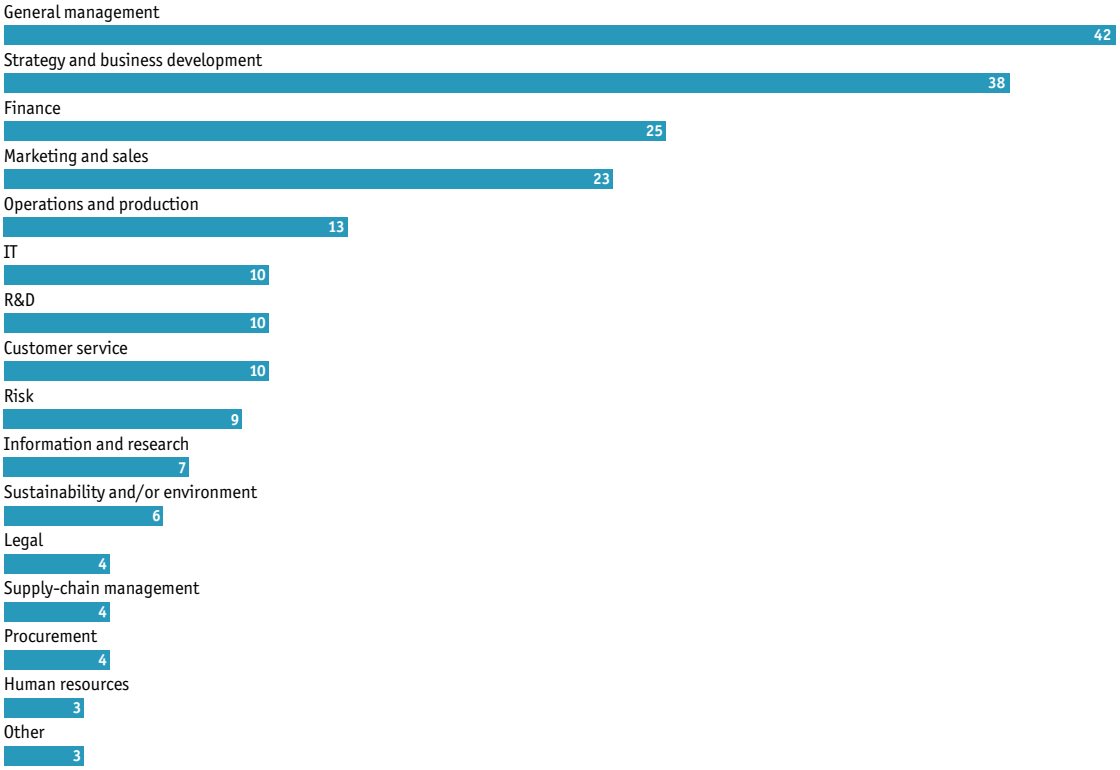
What are your company's annual global revenues in US dollars?
(% respondents)



What is your title?
(% respondents)



What are your main functional roles? Please choose up to three.
(% respondents)



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