

# Unlocking the benefits of energy efficiency

## An executive dilemma

A report from the Economist Intelligence Unit  
Sponsored by Ingersoll Rand





## Preface

*Unlocking the benefits of energy efficiency: An executive dilemma* is an Economist Intelligence Unit research paper, sponsored by Ingersoll Rand. It reviews the importance of energy efficiency within business today and executive attitudes towards this issue. For the purposes of this report, energy efficiency is defined as: “implementing initiatives that reduce energy consumption or use energy more efficiently.” The report is based on the following inputs.

The report was written by Sarah Murray and edited by Nigel Holloway and Justine Thody. Erica Berger, our editorial intern, provided valuable support to the research project. Our thanks to all survey respondents and interviewees for their time and insights. The Economist Intelligence Unit bears sole responsibility for the content of this report.

February, 2011



## Interviewees

Listed alphabetically by organisation:

- **Charles Kent**, senior fellow at the World Resources Institute
- **David Pogue**, national director of sustainability, CB Richard Ellis Institutional & Corporate Services
- **Harry Morrison**, general manager, Carbon Trust Standard Company
- **Luis Farias**, senior vice-president of energy and sustainability, Cemex
- **Gwen Ruta**, director, vice-president for corporate partnerships, Environmental Defense Fund
- **Gretchen Hancock**, project manager for corporate environmental programmes, General Electric
- **Kirsty Jenkinson**, director, Markets & Enterprise Programme, World Resources Institute
- **A.S. Puri**, vice-president, Tata Motors
- **Alex Perera**, co-director, Business Engagement in Climate and Technology, World Resources Institute

### About this report

A global survey of 278 senior executives, encompassing a range of industries, and evenly represented across North America and Asia Pacific, with a slightly lower representation from Western Europe, and small groups from the Middle East, Africa, Eastern Europe and Latin America. Organisations of all sizes were represented: 38% of respondents worked for firms with revenue

of at least US\$1bn, whereas 49% were from firms with revenue of US\$500m or less. Thirty-two percent of respondents were CEOs, presidents or managing directors; 24% represented the C-suite or board; and all respondents were in management positions. The survey was conducted in October 2010.

To complement this and to provide specific context, the Economist Intelligence Unit conducted extensive desk research and in-depth interviews with senior executives and energy efficiency experts.



## Executive summary

Climate change negotiators found cause for cautious celebration in December 2010, when talks at Cancún, Mexico, ended in agreement on limited steps to mitigate greenhouse gas emissions. International climate treaties may play only a modest role in promoting global energy efficiency, but at a local and regional level, legislative carrots and sticks are likely to prove stronger tools in the coming years. As sustainability and corporate social responsibility initiatives become more important to companies, climate and energy efficiency issues are growing concerns for senior executives.

As with most big business trends, from globalisation to e-commerce, this has put two questions into the minds of corporate leaders: what risks does the climate agenda bring and what opportunities might it generate? In response, companies are weighing the risk of doing nothing against the competitive advantage to be gained by embracing a key carbon-reduction tool—energy efficiency.

While leading multinationals are taking aggressive steps to cut energy consumption, the Economist Intelligence Unit's survey reveals that many companies have not fully embraced the energy efficiency agenda, with respondents ranking their performance in this area as poor.

Part of this is because regulation remains fragmentary. Operational, managerial, and behavioural barriers persist, as do technical difficulties. While installing energy-efficient lighting is one thing, it is quite another to reconfigure industrial systems that have been in place for decades.

Legislation aside, energy efficiency offers many potential commercial benefits, financial, reputational and operational. Yet, according to our survey, many companies are still struggling to make the business case for energy efficiency.

To explore these issues, we carried out a wide-ranging survey in October 2010 of more than 278 executives worldwide, along with in-depth interviews with business leaders and energy experts. Based on their responses, the following paper assesses what companies could be gaining from increased energy efficiency and investigates why many are not taking up the opportunity to implement it. Some of the key findings of this report are as follows.

- **Almost half of respondents (49%) say that in the past three years, energy efficiency programmes have improved their company's bottom line.** When seeking to identify energy savings in industrial operations, cost savings are uppermost in the minds of companies. The vast majority of our survey respondents (82%) pointed to cost savings as the biggest benefit of energy efficiency investment and 69% cited it as the number one driver.

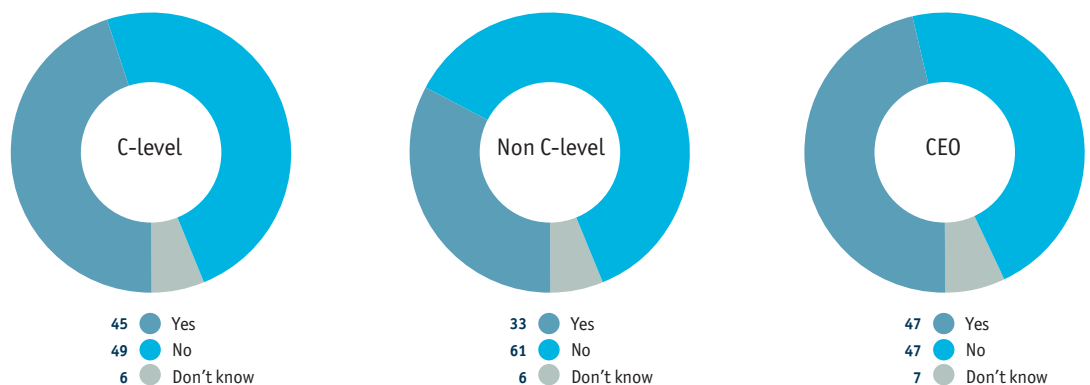


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- **While the cost-cutting angle is easily measurable, the intangible benefits to be gained from energy efficiency, while less easy to quantify, could be a significant source of business advantage.** These include an enhanced ability to hire and retain skilled and environmentally conscious employees or to increase sales through new energy-efficient goods and services.
- **There are risks, too, in holding back from implementing energy-efficiency initiatives.** Increasingly, companies are under pressure from a range of stakeholders to reduce their carbon emissions. And while only 7% of survey respondents cite such pressure as driving them towards energy efficiency and few see shareholders as a strong force, in fact institutional investors and pension funds are pushing the firms they invest in to address their carbon footprint.
- **Most businesses see energy efficiency becoming increasingly important, but are struggling with implementation.** Certainly, when looking ahead, most survey respondents believe energy efficiency will play a more important role in their business in the future, with 78% saying this will be the case in five years' time (only 4% see it as becoming less important). However, while companies appear to be embracing the concept of energy efficiency and acknowledging some of the benefits associated with it, they are still grappling with how to implement enterprise-wide energy saving measures.
- **Few businesses are looking to their suppliers in evaluating policies.** Our survey results show that most firms meet only minimum requirements of existing legislation, and tend to focus internally, rather than conducting comprehensive energy assessments (also known as audits) verified by external organisations. Few look outside their direct operations to their supply chain.
- **Not only do companies not rate their own performance highly, but there appears to be a notable disconnect between the perspective of the C-suite and less senior managers.** Nearly three-quarters of business executives in our survey believe their company's energy efficiency initiatives, while effective, should go further and over half feel these initiatives are not effectively integrated into business strategy. Respondents at below C-level were significantly more likely (60.8%) to say that

**In your opinion, does your organisation do enough to integrate energy efficiency initiatives into business strategy?**  
(% respondents)



Source: Economist Intelligence Unit survey, October 2010.



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their organisation does not do enough to integrate energy efficiency initiatives into business strategy (compared with 49.3% of C-level respondents). Looked at another way, whereas 44.7% of respondents at C-level and 46.6% at CEO-level thought energy efficiency initiatives were well integrated into their business strategy, only one-third of managers below C-level thought so.

This gap between a company's actual performance on energy efficiency and how C-level leaders view that performance is significant, as without senior-level support for energy efficiency efforts, as well as the funding they require, these measures may not be implemented. This may also reveal that non-senior executives see the C-suite as being complacent on energy efficiency.

This raises an important question. While external pressures to become more energy efficient are mounting and a compelling business case exists for energy savings, why are companies not doing more to capitalise on the business benefits and hedge against future threats?



## Part I: Nothing ventured, nothing gained

**“Cutting carbon is a great environmental story, so customers will reward you for having proven low-carbon credentials.”**

*Harry Morrison, general manager, Carbon Trust Standard Company*

**I**naction with regard to climate, energy and sustainability carries clear risks. One danger is the possibility of damage to corporate reputation, particularly as activists, employees and customers become versed in the science of greenhouse gas emissions and their effect on the world’s climate. Almost half of respondents (45%) see energy efficiency as part of their company’s corporate social responsibility efforts.

“Cutting carbon is a great environmental story, so customers will reward you for having proven low-carbon credentials,” says Harry Morrison, general manager at the Carbon Trust Standard Company, an accreditation organisation run by the Carbon Trust, a UK government-backed not-for-profit consultancy helping business and the public sector to cut carbon emissions, save energy and commercialise low-carbon technologies.

At Tata Motors, this agenda extends into purchasing decisions. Its procurement policy requires carbon emissions (and therefore energy efficiency) to be considered. “No equipment will be introduced if it increases our carbon footprint,” says Mr Puri. “This is one of the criteria for investment.”

The prospect of an increasingly carbon-constrained world is something shareholders are noting, with institutional investors and pension funds pressing the companies they invest in to disclose and cut their energy use. And, collectively, they wield clout. The Carbon Disclosure Project, for example, an independent organisation holding a large database of corporate climate change information, acts on behalf of institutional investors collectively holding US\$64trn in assets under management.

Interestingly, this pressure is not uppermost in the minds of our respondents. Only 16% said energy efficiency was “very important” to their investors, revealing a clear disconnect between investors’ actual concerns and executives’ perceptions of those concerns.

Nor are they overly influenced by policy. Few respondents say this is what drives them to increase efforts to cut energy consumption. Only 27% cite compliance with legislation as the most important reason for doing so. Just 20% point to government policies as the main factor behind the integration of energy efficiency into their business strategy.

This reflects the fact that energy efficiency is often regulated through broader carbon-reduction measures that include transport-related and other greenhouse gas emissions. “There are local building codes and energy efficiency standards for appliances, but it’s a very fragmented system,” says Gwen Ruta, vice-president for corporate partnerships at Environmental Defense Fund (EDF), a US-based advocacy group. “There’s no national compliance programme for energy efficiency in the way there is for pollution control, for example.”



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While industries often push for greater deregulation, in the field of energy and climate change large companies have argued that legislation will create a level playing field, helping foster a market for energy-efficient systems.

### Policy Carrots and Sticks

While few survey respondents see legislation as the main driver behind power conservation, most (65%) describe energy efficiency in their country as “somewhat regulated”. And on the whole they agree that this is a good thing. Half see regulation as a benefit, compared with 28% who deem it to be a burden.

While industries often push for greater deregulation, in the field of energy and climate change large companies have argued that legislation will create a level playing field, helping foster a market for energy-efficient systems necessary for the development of a smarter electrical grid (which uses information technology, or IT, to manage the electricity supply more efficiently), lowering the costs associated with energy conservation.

In a 2010 report from the OECD, three-quarters of the companies surveyed said they believed governments could play a bigger role in the low-carbon economy by promoting good practices, raising awareness and enhancing consumer demand for low-carbon goods and services.<sup>1</sup>

The most common policy lever is the application of appliance and equipment efficiency standards (63% of respondents cite this as present in the country in which they operate). Building efficiency codes are prevalent in many places, according to 54% of survey respondents.

In Europe, a directive on the energy performance of buildings has prompted a range of new rules, such as UK rules requiring public buildings to display efficiency-rated energy certificates.

In the US, while attempts to pass national energy efficiency legislation have met with little success, much activity takes place at state and local level. This is reflected in our survey, in which almost 20% (the largest group regionally) of North American respondents see energy efficiency as “highly regulated”.

“In the US, the law relies on the states to bring

sticks to bear,” says Alex Perera, co-director of the Business Engagement in Climate and Technology programme at the World Resources Institute. “These have yet to be fully fleshed out, but the goals, targets and financial incentives are notable and substantial.”

Cities, too, are pushing forward with new rules. New York City recently passed legislation requiring buildings of more than 50,000 sq ft in size to benchmark energy use and eventually make that public.

Less common are taxes on energy or carbon-trading schemes. Only 14% of respondents say a cap-and-trade programme exists in their country. This may reflect the fact that, while Europe’s emissions trading system has been in operation since 2005, cap-and-trade schemes suffered a setback last year, when the US Congress failed to pass a climate change bill.

Policy often focuses on reporting. Australia’s Energy Efficiency Opportunities legislation requires companies over a certain size to conduct energy efficiency assessments and disclose opportunities they find for projects with a financial payback timeframe of less than four years.

Tax incentives are another way to nudge the corporate sector towards efficiency. For emerging-economy governments, these are attractive, since they cost less than subsidies. In Taiwan, tax deductions encourage large energy users to buy efficient equipment and technology, while in Malaysia exemptions from import taxes are available for renewable energy equipment.

“The nice thing about carrots is that you get first movers to demonstrate new approaches, raise the bar and expand the art of the possible,” says Mr Perera. “Then you need the sticks to raise up everybody else.”

The Carbon Trust’s Mr Morrison believes that, particularly when framed in the language of carbon reduction, plenty of policy levers exist to encourage energy efficiency—and these are likely to increase in number and reach. “Companies can’t rest on their laurels, because the regulation makes sure they keep moving forward,” he says. “All businesses are going to have to get a lot more energy- and carbon-efficient.”

1. *Transition to a Low-Carbon Economy: Public Goals and Corporate Practices*, OECD, November 2010

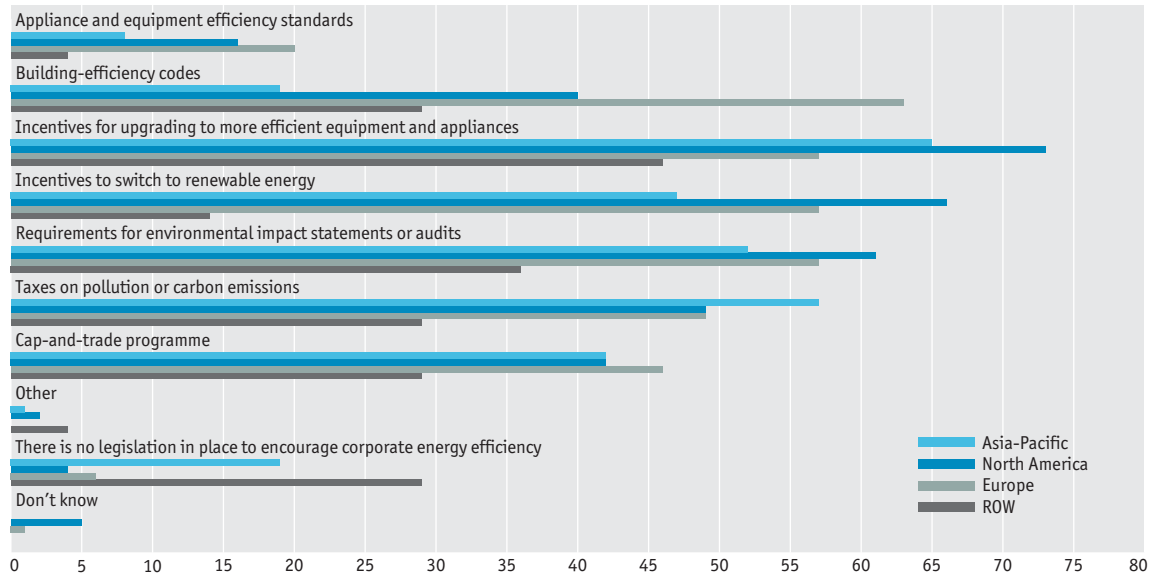


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#### In the country in which you are based, what type(s) of legislation are in place to encourage corporate energy efficiency?

(% respondents)



Source: Economist Intelligence Unit survey, October 2010.

“There’s a belief that something is coming,” says David Pogue, national director of sustainability for institutional and corporate services at CB Richard Ellis, a global real estate consultancy. “But there has not been enough mandates so far to motivate companies into activity.”

If policy currently plays a weak role, this is likely to change (see box). For savvy companies, getting ahead of the legislative game is therefore part of risk management. “Big companies are investing in projects to meet current compliance, as well as to position themselves to ride the wave of further regulation coming down the line,” says Mr Morrison.

## Ripening fruits

Regardless of legislative pressures, the opportunities for business advantage generated by increased energy efficiency are compelling. Most obvious is the ability to reduce energy-related expenditure. “Inevitably, there will be a cost to carbon [emissions],” says EDF’s Ms Ruta. “But there’s no need to wait for that, because energy costs money right now, so everything you do now has a benefit now.”

The results of EDF’s Climate Corps, an internship programme matching business school students with companies that need to develop energy-efficiency plans, show how much companies could be saving. The programme places the interns in companies such as McDonald’s, PepsiCo, Target, Verizon and Xerox, with a mission to find energy savings. So far, interns have identified projects with a total of US\$350m in potential net operational cost savings over the project lifetimes, and EDF says that more than 80% of the projects proposed have been implemented.

Investments often have a payback, according to A.S. Puri, vice-president of Tata Motors. “When we



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Payback times and the price of electricity are key considerations determining the willingness to invest. In Europe, the case for saving energy is especially strong, since taxes are applied to electricity sales.

replace equipment, we look at the operating cost of the new [more efficient] equipment," he explains. "More often than not, the savings you make on the new equipment justify the investment."

Tolerance tends to be for a 1-3-year payback timeframe and sometimes, with energy efficiency, this is not available. On the other hand, smaller operational changes in buildings or factories, such as turning off motors during downtimes or switching to energy-efficient lighting, could have shorter payback timeframes.

Return on investment also depends on the nature of that investment. A major energy efficiency upgrade currently underway at New York's Empire State Building (costing a net US\$13m as part of a US\$550m overall modernisation and renovation programme) is reducing the building's energy consumption by more than 38% and producing annual savings of US\$4.4m. It has a payback timeframe of around three years.

JCB, a UK-based construction and agricultural equipment manufacturer, has been rolling out a range of energy-saving measures across its sites in the UK. These include energy-efficient lighting, temperature controls, closer monitoring of air compressors, half-hour metering to track energy use in real time and staff awareness campaigns. While initial predictions were for a UK-wide reduction in energy costs of £1m (US\$1.58m), the company made higher than expected savings in 2009 and now projects savings of almost US\$1.5m.

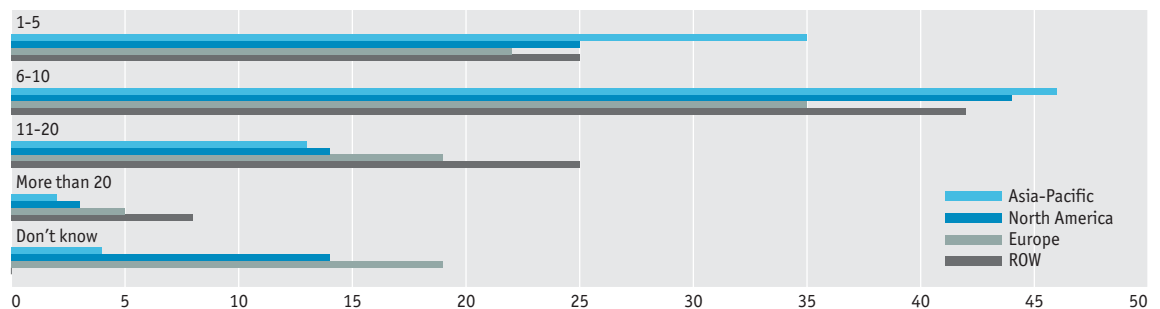
But while these and the US\$350m of potential savings identified by EDF's Climate Corps programme seem large in absolute terms, they are small when compared with the collective size of the participating companies. This may explain why only the largest companies are taking aggressive steps to tackle energy use, since they are able to capitalise on economies of scale by implementing energy-saving innovations across multiple sites.

And yet, collectively, the potential savings are vast, according to research by McKinsey, a US management consultant, which found that the US economy could eliminate more than US\$1.2trn in non-transport-related energy waste at a cost of US\$520bn (not including programme costs).

Of course, the incentive to invest also varies with the price of electricity. In Europe, for example, the case for saving energy is easier to make, since taxes are applied to electricity sales. This is reflected in our

### On average, how much of your company's annual energy bill would you estimate has been saved by the energy efficiency initiatives in the past three years?

(% respondents)



Source: Economist Intelligence Unit survey, October 2010.



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### CASE STUDY: GE looks for treasure

When evaluating the rationale for identifying energy savings in industrial operations, Gretchen Hancock, General Electric's project manager for corporate environmental programmes, suggests listening to the sounds a factory makes when it is not operational. "You hear compressed air leaking and you hear pumps running," she says. If no revenue is being generated, those noises could also be described as the sound of money being wasted.

To weed out energy inefficiencies, GE uses a system of "energy treasure hunts" (based on a lean manufacturing process developed by Toyota) that have saved the company more than US\$130m.

After training employees in reading a light meter or determining when installing a more efficient motor would be effective, they are sent into offices and manufacturing facilities, usually at weekends, to scrutinise energy use and to identify inefficiencies, such as pumps running during downtimes or equipment that could be shut off at weekends.

"We work with the people who run the factory to understand what can be shut off and what can't," says Ms Hancock. "Because we don't want to come up with a bunch of solutions that mess up the equipment."

She also stresses the need for teams to make the case for energy savings specific to each facility. "The hunt is a great identification process," she says. "But you have to make sure the projects you're proposing meet the investment criteria associated with a business."

survey, with more Europeans (almost 90%) than North Americans (77%) citing cost savings as the biggest benefit of energy efficiency.

"There are geographies where energy is not expensive enough to be a driver on its own," says Luis Farias, senior vice-president of energy and sustainability at Cemex, a Mexico-based cement maker. "So it has to be a cultural attitude to energy efficiency and a quest for excellence way beyond the short-term economic benefits."

As Mr Farias suggests, given that the energy price may not always provide sufficient reason for companies to invest in efficiency measures, the business case needs to be made more broadly.

In some cases, legislation can help make that case, particularly when tax credits for energy efficiency are available. Where carbon-trading regimes exist, such as in Europe and, in the near future, California, companies that save energy can accrue and sell carbon credits.

For the real estate sector, energy-efficient buildings command higher rents. "Fortune 500 companies want to demonstrate their commitment to sustainability, and one of the easiest ways is to occupy sustainable spaces," says CB Richard Ellis's Mr Pogue. "This will drive the market to offer better buildings."

Non-financial rewards are harder to measure, yet still attractive. When asked to cite the biggest business benefits of energy efficiency, the second-largest group (54%) highlighted enhanced brand reputation. Around 32% of respondents pointed to increased revenue-generation through innovation.

Meanwhile, 12% highlighted talent-management. As employees become more environmentally aware, companies that adopt green policies find it easier to attract and retain them.

However, organisations are struggling with the specifics. "We're getting questions from companies we work with about employee engagement," says Ms Ruta. "Their sense is that employees would like to be more engaged [in energy efficiency], but they haven't figured out how to do this yet."

After cost savings, brand reputation and talent management figured among the benefits of energy efficiency cited by survey respondents



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Companies have yet to capitalise on this intangible benefit—and, admittedly, it would be hard for them to isolate the impact of energy efficiency on employee engagement from other forms of corporate social responsibility, such as volunteering or ethical trading.

Even so, there is evidence that a reputation for responsible civic behaviour gives a company an advantage when it comes to talent-management. In the 2009 global ranking of attractive employers produced by Universum, a Swedish strategy consultancy, “good reputation” and “high ethical standards” came in first and second place, respectively, when it came to the contribution of certain attributes to employer reputation.



## Part II: Knocking down fences

Nearly half of respondents agree that energy efficiency initiatives improved their profitability, yet only 8% describe their firm's initiatives as "highly effective"

If McKinsey reckons the US could make more than US\$1.2trn in non-transport-related energy savings at a cost of US\$520bn, the chances are most companies could be making at least some savings. Indeed, 49% of survey respondents say that energy efficiency initiatives have improved their profitability. However, respondents rank themselves as poor performers when it comes to managing energy consumption. Given the risks of inaction and opportunities for business advantage, why are companies not managing this aspect of their operations more effectively?

While 40% of respondents see their company as proactive in promoting energy efficiency, as already stated, more than half (55%) believe it is not doing enough to integrate energy efficiency into its business strategy. Around 72% say their company's energy efficiency initiatives could go further (just 8% describe them as "highly effective"). Large firms (those with annual revenue over US\$5bn) do better, but even in this group only 17% see their energy efficiency programmes as highly effective.

Financial constraints contribute to this poor performance. The lingering effects of the 2009 downturn include tighter access to the capital needed to fund investments. The biggest group of respondents (48%) points to insufficient funding and resources as the main obstacle to implementing energy efficiency programmes.

Companies also told us that an assurance of return on investment (ROI) is also critical before programmes can be implemented. Around 46% believe this is the most important factor behind energy efficiency.

Yet organisational barriers, such as siloed accounting, mean those returns can be hard to measure, particularly if the business or unit investing does not necessarily reap the returns. Citing research he worked on in 2007,<sup>2</sup> Charles Kent, senior fellow at the World Resources Institute, points to a "fragmentation of information and responsibility" in large organisations. "We found, to our astonishment, companies whose electric bill was paid by headquarters, not by individual business units. They had no idea what they were spending on energy and no incentive to save," says Mr Kent. "If the accounting system sets up your cost structure one way and your revenue centres another way, then you never see the problem."

Sometimes inefficiencies are built into contractual arrangements. In real estate, net leases (requiring the tenant to pay property expenses, including utilities) give landlords little incentive to spend extra money on upgrades, such as installing better insulation or more efficient heating and air-conditioning systems, since they will not be paying the building's energy bills. Meanwhile, with gross leases (where a

*2. Energy Trends in Selected Manufacturing Sectors: Opportunities and Challenges for Environmentally Preferable Energy Outcomes, US Environmental Protection Agency, March 2007*



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Firms find it difficult to assess their energy use and make progress in reducing it.

tenant simply pays a fixed rent), tenants have no incentive to cut back on the energy they use, since they are not footing the bill.

CB Richard Ellis's Mr Pogue points to another barrier in this sector: insufficient sub-metering. Sub-metering allows individual units to be billed separately, rather than having their electric bills simply worked out as a percentage of the entire building's consumption. "I strongly believe that if you separately metered different divisions within a company, such as accounting, engineering, and sales, and made each responsible for their own bottom line out of the performance of their energy use, it would drive savings overnight," he says. Mr Pogue's assumption is supported by a CB Richard Ellis study of 154 buildings in ten different markets across the US, in which the 20 or so with separately metered spaces had a utility usage 21% lower than the average.

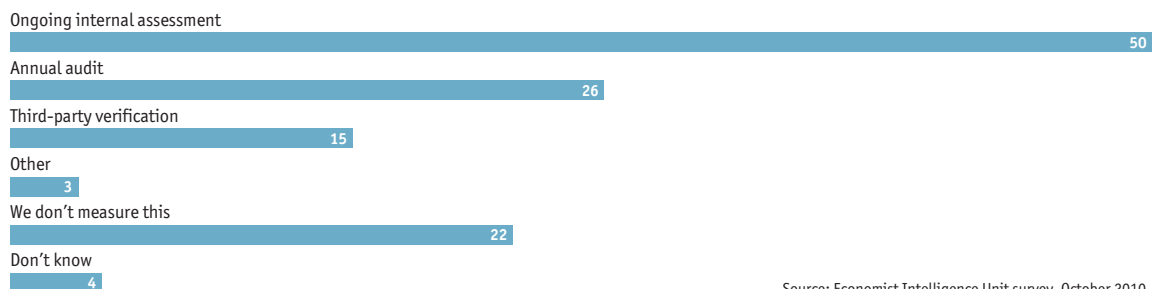
Sub-metering is a technology whose benefits are not yet well understood. Although it creates far greater incentives for end-users to make energy efficiencies, sub-metering is actually disallowed by many US public utilities commissions and commercial leases. It would seem that utilities companies are concerned to avoid building authorities buying electricity "wholesale" from them and then reselling to others. In any case, according to Mr Pogue, "Buildings aren't physically set up for sub-metering right now and utility companies and public utility commissions have varying rules across different US states."

Mixed incentives can work against energy efficiency in other ways, too. For a start, energy consumption is not always a line item in operational budgets. Accounts need to be structured carefully, says the Carbon Trust's Mr Morrison. "Companies need to ring-fence their energy budgets so that the energy manager doesn't have his budget cut if he makes a saving."

Firms also find it difficult to assess their energy use and make progress in reducing it. Only 26% of respondents say their organisation has conducted an energy audit, with even fewer (15%) claiming to have had assessments audited by a third party. Some 22% do no measurement at all.

### How does your organisation measure gains in energy efficiency?

(% respondents)



Source: Economist Intelligence Unit survey, October 2010.



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“For a long time, people thought it was all about technology...But what we’re learning is that, really, it’s all about people.”

*Gwen Ruta, director, vice-president for corporate partnerships, Environmental Defense Fund*

## The human factor

Perhaps the biggest barrier to corporate engagement on energy efficiency is not technical, financial or organisational, but human—manifesting itself in everything from lack of awareness and lack of leadership to resistance to change.

In our survey, 40% of respondents say senior management support is critical to integrating energy efficiency into the business. Yet few appear to be taking aggressive steps to centralise energy efficiency management. For 31% of respondents, the CEO is the individual responsible for energy efficiency, while only 20% say an energy efficiency manager or environmental health and safety officer manages this.

Ms Ruta’s view supports these findings. In her time at EDF, outside industrial enterprises, she has seen few organisations where individuals are in charge of energy specifically. “Even data centres, which are huge energy users, are only now paying attention to energy, and few buildings, which are also big energy consumers, have energy managers,” she says. “So there are organisational barriers and issues about whose job is it—it tends to fall between the cracks.”

Of course, among leading companies there are exceptions to this rule. Google even has a green energy tsar responsible for overseeing implementation of reductions in the energy used by its massive servers, as well as the development of alternative sources of energy.

However, if the presence of a chief energy officer is currently the exception rather than the rule, companies also lack skills at every level. In our survey, the third-largest group of respondents (35%) cited lack of skills in energy efficiency management as the biggest obstacle to progress in this area.

This is something highlighted by a proceedings paper<sup>3</sup> on the buildings sector from the American Council for an Energy-Efficient Economy, which argues that government funding should be directed towards establishing such skills. “Many training programmes focus on certifying installers, but there is also a need for higher-level engineers and architects to perform detailed assessments of large commercial and institutional buildings,” write the ACEEE authors.

Ms Ruta identifies yet another human challenge: breaking old habits. “For a long time, people thought it was all about technology,” she says. “But what we’re learning is that, really, it’s all about people. How do you get people to do something differently?”

She points to another human barrier: a lack of enthusiasm. Reducing energy consumption is a laborious process of combing through factories and workstations looking for small savings here and there. “One of the difficulties of energy efficiency is that it’s like flossing,” says Ms Ruta. “You know it’s a good idea and it’s the right thing to do, but you don’t wake up in the morning feeling excited about flossing.”

3. *How Building Assessment Centers Can Leverage the Success of the Industrial Assessment Centers to Train the Next Generation of Efficiency Experts*, ACEEE, August, 2010



## Part III: Strategies for Success

“Many of the opportunities are the ‘just do it’ projects that pay back within a quarter”

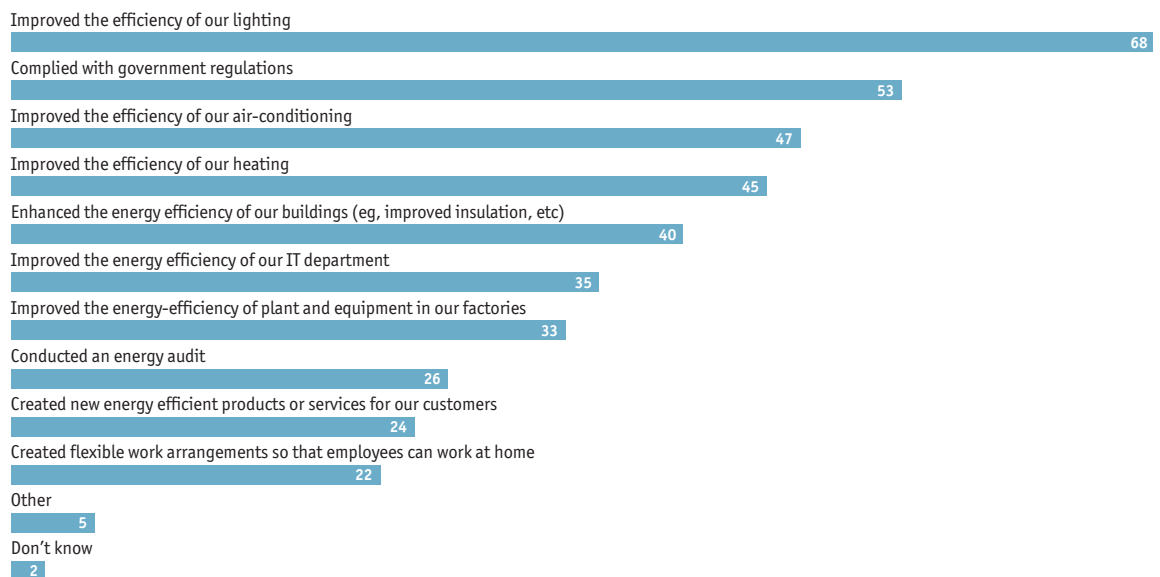
*Gretchen Hancock, project manager for corporate environmental programmes, General Electric*

Companies’ approaches to energy efficiency leave much to be desired, with only a handful going beyond superficial measures. In our survey, most (68%) are focusing on energy-efficient lighting systems. Air-conditioning and heating improvements also receive attention (47% and 45%, respectively, cite these as actions). However, companies could be doing a lot more to increase energy savings and identify new business opportunities.

Often this does not require substantial investment. In the commercial real estate sector, it is often a case of re-thinking contractual arrangements. Through “green leases”, energy efficiency can be made mutually beneficial through agreements that include allowing the landlord to increase the rent to cover the cost of upgrades, as long as the rent rise does not exceed the value of the tenant’s energy savings.

Moreover, Ms Hancock says cost savings often arise by simply changing habits or adjusting systems. “Many of the opportunities are the ‘just do it’ projects that pay back within a quarter,” she says. “And business leaders get excited when they can implement something that pays back within a quarter.”

### What type(s) of tactical and strategic energy efficiency initiatives has your organisation undertaken to date? (% respondents)



Source: Economist Intelligence Unit survey, October 2010.



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“Today’s best efficiency strategies build an energy management organisation that crosses [functional] lines”

*Pew Centre on Global Climate Change*

Staff, too, can become highly motivated by the idea of taking charge of savings for their business units. In a fiscal year 2006/07 (April-March) review, Sainsbury’s, a UK retailer, found it could save up to 5% on energy consumption by simply giving one staff member in each store responsibility for finding energy efficiencies in the operation of equipment such as freezers and lighting.

And traditional mechanisms within corporate performance management systems can offer added encouragement for executives to focus on energy. “Companies can incentivise performance by using remuneration to influence employee behaviour on energy efficiency,” says Kirsty Jenkinson, director of the Markets & Enterprise Programme at the World Resources Institute. “But not many companies are doing that yet.”

Measurement, say experts, is also critical. “You can’t manage what you can’t measure,” says Cemex’s Mr Farias. “So you need a small group of managers to develop key process indicators for energy usage and carbon footprint.”

Larger companies accept this principle more readily than smaller ones. Around 36% of large enterprises (with annual revenue of over US\$5bn) told us their enterprise conducted an annual energy audit, compared with only 19% in companies with annual revenue under US\$500m.

Tata Motors uses a unit-per-vehicle measurement to help reduce energy consumption. “Let’s say it takes 100 units of electricity to make a vehicle,” says Mr Puri. “Can we do it with 94 next year and with 89 thereafter? So we set targets based on the measures we’re in a position to implement during the course of the year.”

Granularity is everything when it comes to energy efficiency. For manufacturing companies, audits should include separating base load use from energy used for heating and cooling. And much of the work involves identifying energy consumption occurring during downtimes or at weekends.

### CASE STUDY: Cemex finds alternatives

One way some industries can reduce energy consumption is to use materials that require less energy to manufacture. For the cement industry, clinker<sup>4</sup>, which makes up around 90% of the mix, is the most energy-intensive input. So to cut its energy use, Cemex is re-thinking how it produces cement.

Because clinker must be heated to a certain temperature, making it hard to reduce its energy consumption, the Mexico-based cement maker has taken another approach. “We’ve developed sources that mean we can increase the use of non-clinker cementitious materials, lowering our clinker factor,” says Luis Farias, senior vice-president of energy and sustainability at Cemex. “The less clinker you use, the

less [embedded] energy the cement contains.”

Materials Cemex uses include active minerals derived from industrial waste, such as slag from glass furnaces or steel mills and fly ash, a by-product of power plant coal combustion, as well as naturally active materials such as volcanic ash. These materials allow Cemex to reduce the amount of clinker in its cement by up to 30%.

At the same time, the company is tackling the carbon footprint of the clinker it does use, seeking renewable sources of energy such as wind and hydropower and power generated by converting waste to energy. “We’re doing something with direct emissions, but also indirectly with the source of the power that we buy,” says Mr Farias.

4. **clinker** is lumps or nodules, usually less than an inch in diameter, produced by sintering limestone and alumino-silicate during the cement kiln stage.



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Even so, teasing out inefficiencies can be tough. Ms Hancock cites a plant she visited where all the lights in a multi-bay work area were on during downtimes simply because a contractor working on the building's retrofit wired the lights into the emergency generator, leaving no possibility of turning them off.

For this reason, a 2010<sup>5</sup> report by the Pew Centre on Global Climate Change advises involving as many professionals as possible in the process of managing energy. "Today's best efficiency strategies build an energy management organisation that crosses lines, engaging facility managers, plant managers, engineering departments, procurement and accounting personnel, and others as needed," wrote the report's authors.

Ms Ruta advises companies to consider energy saving investments as a portfolio. "If you have an energy efficiency investment portfolio, it allows you to look at different opportunities and balance investments with a long, but bigger, payback with those with a shorter, but lower, payback."

Companies can also go back further in the chain to redesign products so they require less electricity in their manufacture. Digital design technology, advances in industrial machinery and new plant layouts all make this easier.

And if many of the barriers to energy efficiency are human, so are the solutions. Reflecting on how leading companies manage energy efficiency, Mr Morrison points to those with dedicated teams and the engagement of staff at all levels. "They've embedded the culture from top to bottom," he says. "They've got employees engaged and senior management and board buy-in. That gives them ability to change working practices, but also to invest."

## Outside the box: the supply chain dimension

For many companies, much of their total energy consumption occurs in their supply chain.

For many companies—particularly retailers and those who outsource their manufacturing—much of their total energy consumption occurs in their supply chain. This message does not seem to have reached our survey respondents. Executives we polled are predominantly looking for internal gains. Just 8% said energy efficiency was a priority for suppliers. Just 4% said they had worked with suppliers on energy efficiency.

Companies tend to see energy efficiency as an internal issue, too, with the biggest group (34%) citing senior management as the stakeholders for whom energy efficiency is "very important", with 29% citing the board of directors in this respect.

However, some are looking outside their own four walls at energy consumption. Large companies with long and complex supply chains have recognised this, as did Walmart when it announced in 2009 that it would require supply chain partners to evaluate and disclose their environmental impact, including energy use and carbon emissions levels.

Car manufacturers are taking a similar approach. "In the present model of manufacturing automobile units, 70-80% is outsourced," says Tata's Mr Puri. "So it's not enough for us to measure our carbon footprint. We also need to measure the carbon footprint of our suppliers."

Atkins, a construction and building management firm, has developed tools to help clients incorporate energy consumption into design decisions. In the UK, Kyocera Mita, a manufacturer of electronic equipment, has also developed a tool to help partners and suppliers identify energy use and potential for reducing emissions.

5. *From Shop Floor to Top Floor: Best Business Practices in Energy Efficiency*, Pew Centre on Global Climate Change, April 2010



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### CASE STUDY: CB Richard Ellis's portfolio focus

Buildings account for around 40% of the world's energy use. So for a real estate management company with a large, global portfolio of buildings, the focus of attention when it comes to energy reduction is outside its own operations.

To promote energy efficiency, CB Richard Ellis works closely with clients. "Our greatest opportunity is to influence people for whom we manage space or the corporations for whom we work," says David Pogue, the company's national director of sustainability for institutional and corporate services.

The challenge for CB Richard Ellis is that commercial

building owners can be reluctant to spend, owing to capital constraints or the fact that tenants, not landlords, will be the ultimate beneficiaries in the form of lower utility bills.

However, Mr Pogue says much can be achieved through "low-cost-no-cost" programmes. "Every building's performance can be improved by simple steps around the way the building is used and its hours of operation," he says.

Here, the challenge is a human one. "This requires engagement with the building staff and the occupants," he says. "And you need managers and engineers to do the right thing and to buy into what you're doing; their willingness to participate determines success or failure."

Some are redesigning products so that they consume less energy in the hands of consumers. Whirlpool Appliances, for example, has worked to improve the energy efficiency of its refrigerators and other household appliances and uses the savings consumers can make as a marketing tool.

One advantage of this approach is that it helps companies differentiate themselves. Survey respondents agree, with 43% citing their ability to sell energy-efficient products and services as organisational gains arising from energy efficiency policies and 24% saying their company had been developing such products and services for customers.

Even so, Mr Morrison advises companies to place energy savings in a broader context. "More compelling for many businesses is to invest not only to be more efficient, but also to become a company that's well positioned for the low-carbon economy, that's got a lower risk profile and can engage with investors," he says. "And that opens up enhanced brand opportunities, new sales and new markets."

And, as Mr Morrison suggests, when looked at through the lens of carbon emissions, the need to become more energy efficient starts to look more pressing. While, on average, companies surveyed by the Pew Centre on Global Climate Change<sup>6</sup> reported spending less than 5% of their total revenue on energy, when these companies calculated their carbon footprint, many found that most of their measurable emissions impacts came from their energy consumption.

6. Pew Centre, *ibid.*



## Conclusion

**W**ith the exception of a few leaders, companies are not doing enough to address the issue of their energy use. As our survey reveals, few are going beyond compliance with current legislation or actively preparing for a more carbon-constrained world. And they acknowledge their failings, with many telling us they should be doing more to cut their energy use.

Companies could be forgiven for not paying attention to legislation. After all, regulation of energy efficiency remains patchy and is often expressed more broadly in terms of emissions reduction.

However, even if legislative sticks are not yet fully in place, companies are missing out on the carrots—the business benefits—of energy efficiency. Shaving costs from their operations is the most obvious, and does not necessarily require big investments.

More intangible benefits are there for the taking, too, such as enhancing the brand among customers and potential employees, and increased capacity to innovate and offer new energy-efficient products and services.

Demand for improved energy efficiency is not going away. Governments working towards carbon-reduction targets have recognised that increasing the supply of renewable energy is only part of the solution; the other half lies in constraining consumption.

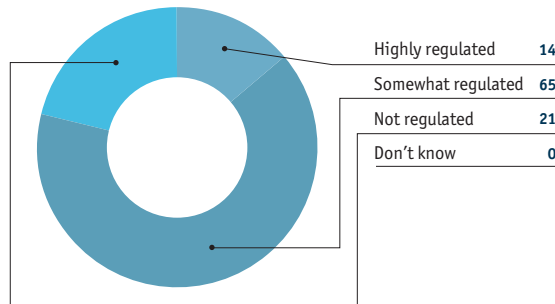
Shareholders are becoming more interested in the carbon footprint of the companies in which they invest. Consumers are keen to buy products that generate fewer greenhouse gases.

Savvy companies that go beyond compliance and address energy efficiency strategically, therefore, will not only future-proof their operations as carbon constraints intensify, but will also become leaner, more efficient enterprises able to tap into both policy incentives and new commercial opportunities.

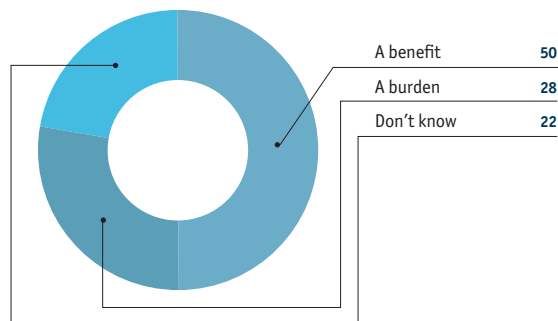
## Appendix: Survey results

Percentages may not add to 100% owing to rounding or the ability of respondents to choose multiple responses.

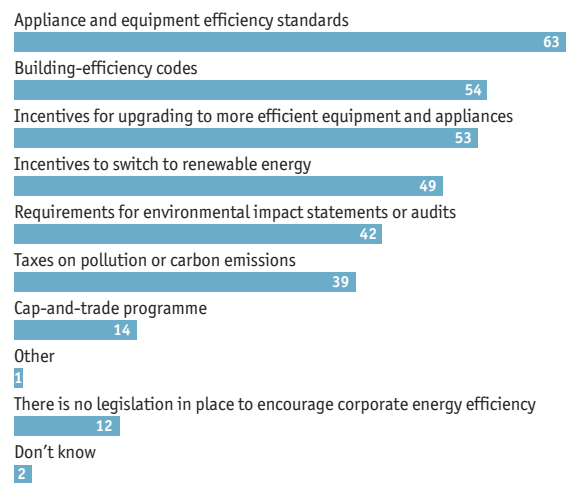
**In the country in which you are based, how would you describe the energy efficiency legislative landscape?**  
(% respondents)



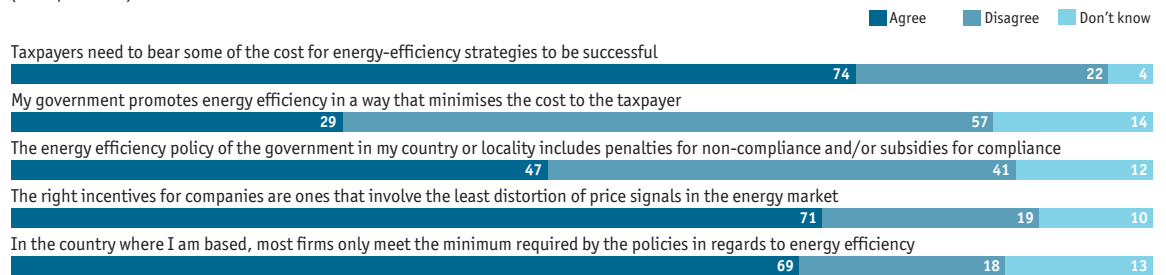
**In the country in which you are based, do you believe current energy efficiency legislation is a burden to the private sector or a benefit?**  
(% respondents)



**In the country in which you are based, what type(s) of legislation are in place to encourage corporate energy efficiency?** Select all that apply.  
(% respondents)



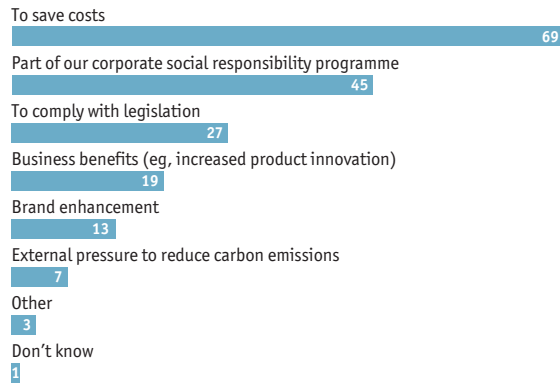
**Do you agree or disagree with the following statements? Please select one in each row.**  
(% respondents)



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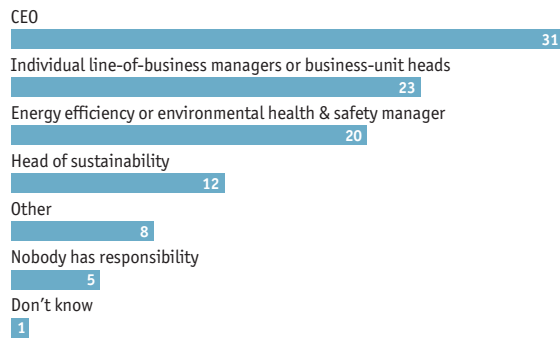
**What are the most important reasons your organisation is taking steps to improve energy efficiency?**

Please select your top two reasons.  
(% respondents)



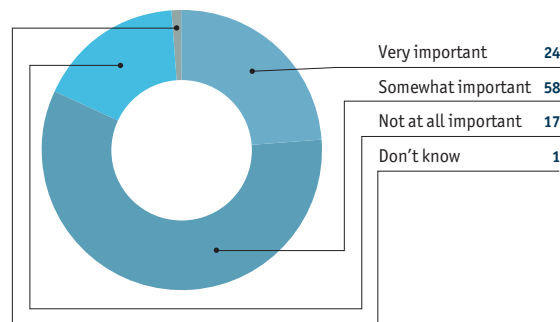
**In your organisation, who is responsible for energy efficiency?**

(% respondents)



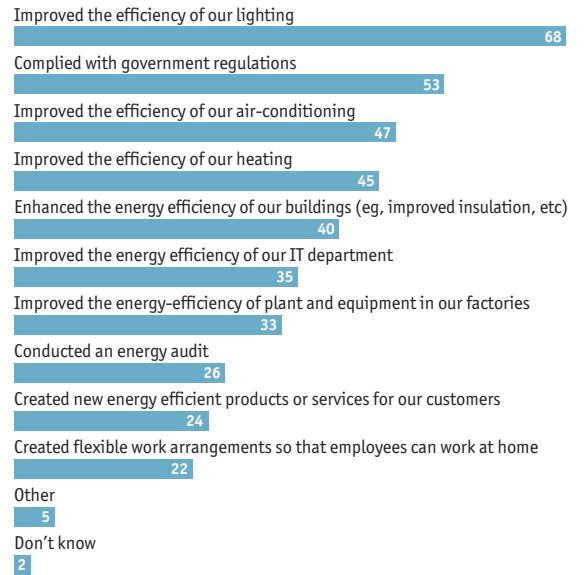
**How important are energy efficiency initiatives to your organisation's overall business strategy today?**

(% respondents)



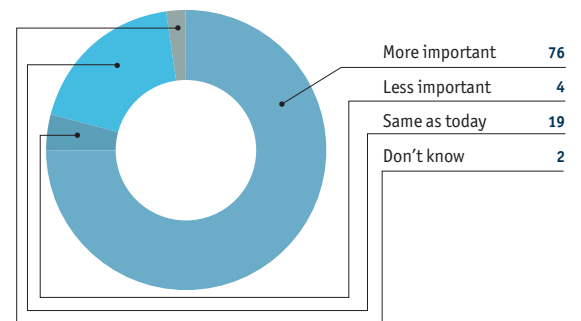
**What type(s) of tactical and strategic energy efficiency initiatives has your organisation undertaken to date?**

Select all that apply.  
(% respondents)



**Five years from now, will energy efficiency initiatives be more or less important to your company's business strategy?**

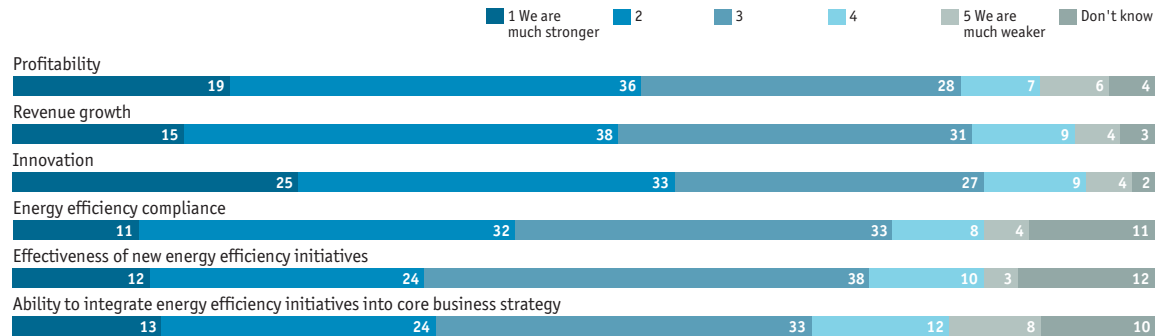
(% respondents)



**In your opinion, how does your organisation compare with its closest competitors in the following areas?**

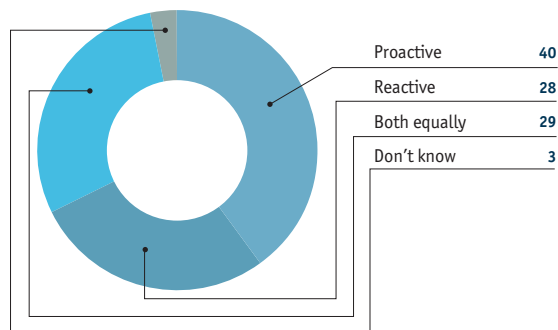
Rate on a scale of 1 to 5, where 1=We are much stronger and 5=We are much weaker.

(% respondents)



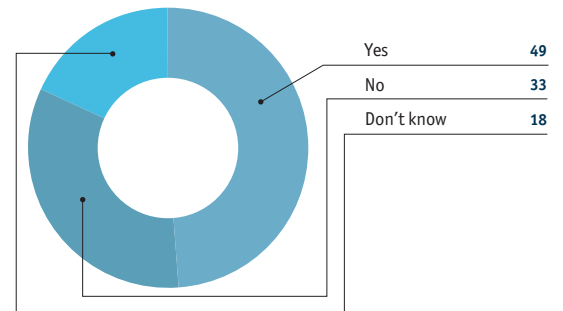
**Do you consider your organisation's energy efficiency initiatives to be reactive or proactive?**

(% respondents)



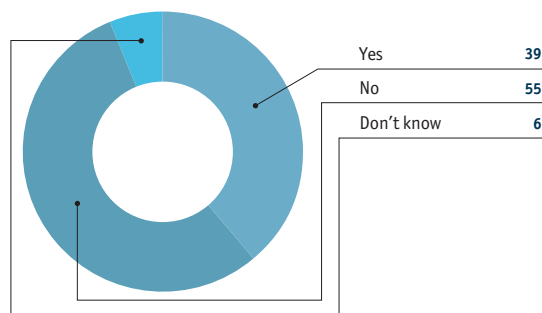
**Have your organisation's energy efficiency initiatives helped improve the bottom line at your organisation in the past three years?**

(% respondents)



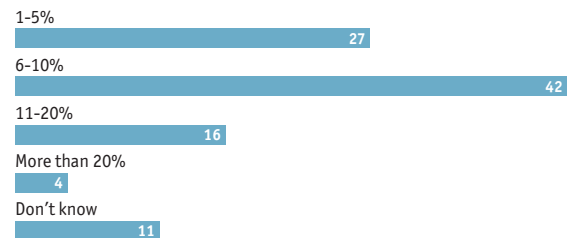
**In your opinion, does your organisation do enough to integrate energy efficiency initiatives into business strategy?**

(% respondents)



**On average, how much of your company's annual energy bill would you estimate has been saved by the energy efficiency initiatives in the past three years?**

(% respondents)

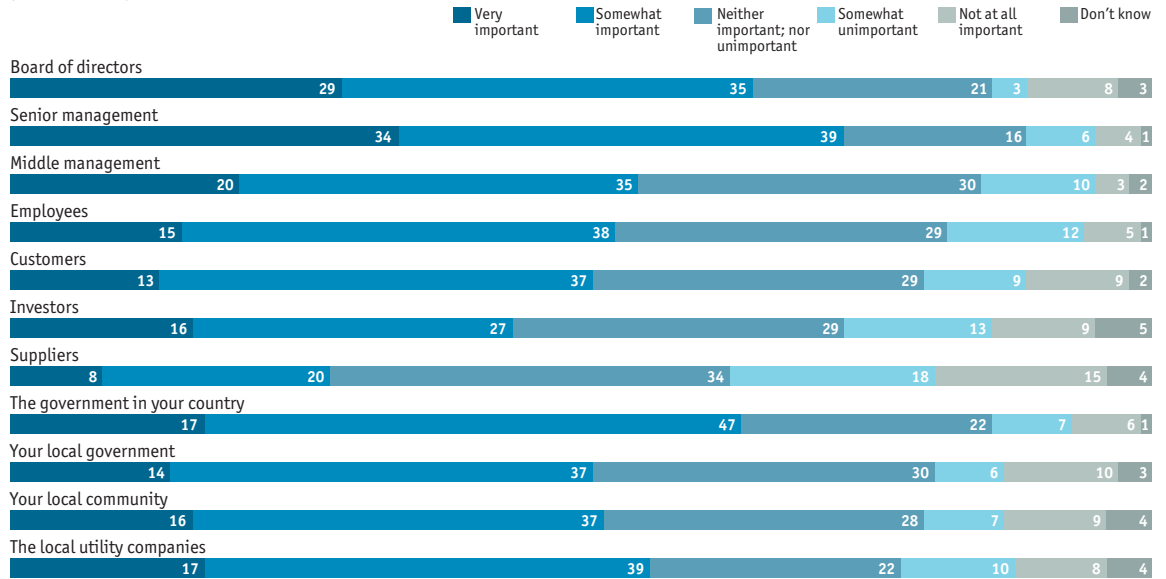


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**How important do you think your organisation's energy efficiency initiatives are to the following stakeholder groups?**

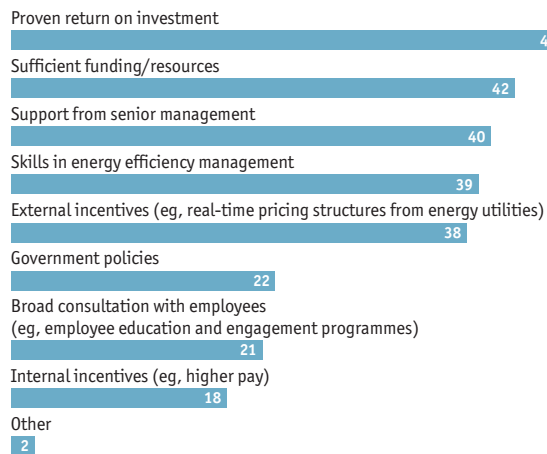
Please select one for each row.

(% respondents)



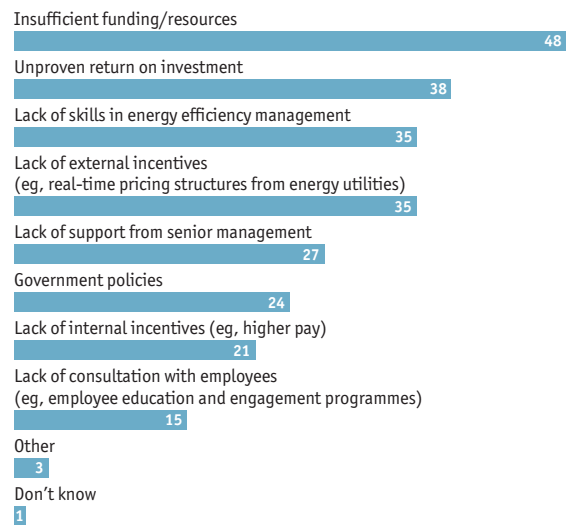
**In your opinion, what are the most important factors in helping to integrate energy efficiency initiatives into business strategy at your organisation?** Select up to three.

(% respondents)



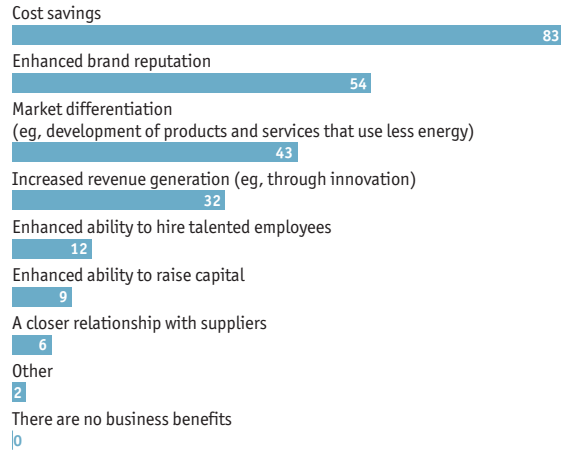
**In your opinion, which of the following factors are the biggest obstacles to integrate energy efficiency initiatives into business strategy at your organisation?** Select up to three.

(% respondents)

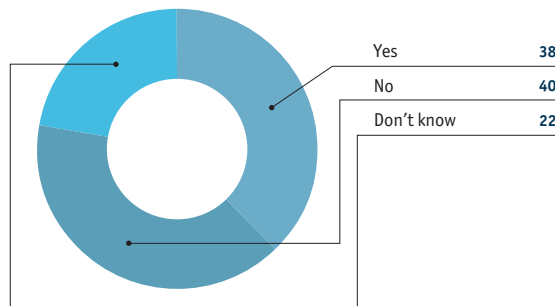


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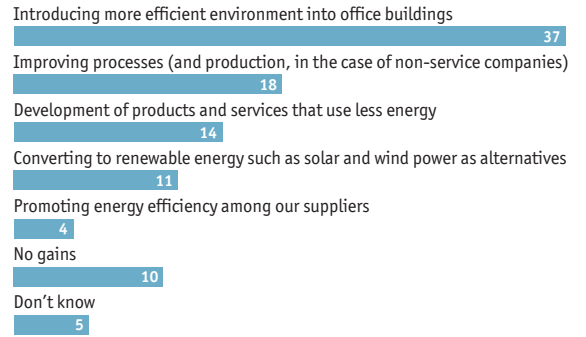
**In your opinion, what are the principal business benefits of an energy efficiency programme?** Select up to three.  
(% respondents)



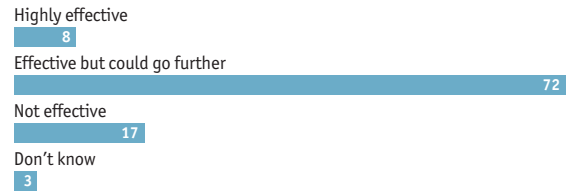
**Do you generally believe other organisations' claims about their return on investment in regard to energy efficiency initiatives?**  
(% respondents)



**What, if any, gains has your organisation made through energy efficiency?**  
(% respondents)

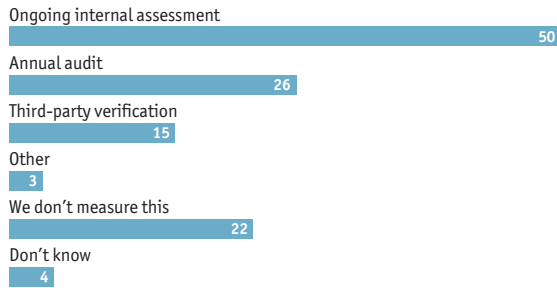


**How would you rate your organisation's energy efficiency initiatives?**  
(% respondents)

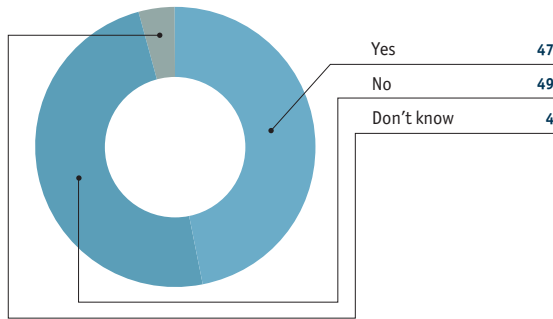


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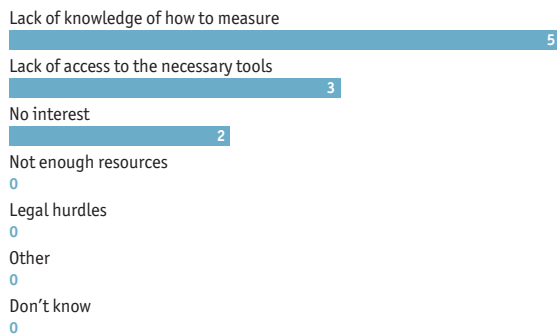
**How does your organisation measure gains in energy efficiency?** Select all that apply.  
(% respondents)



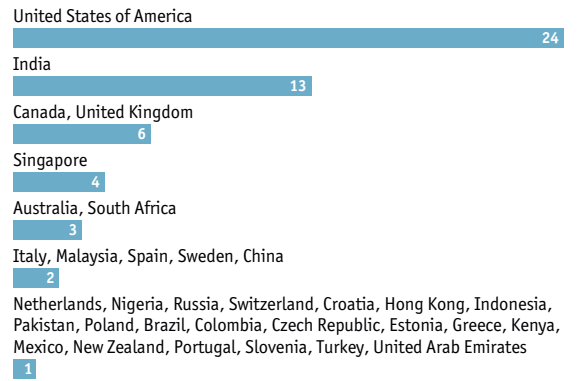
**Are your targets for improving energy efficiency linked to annual targets for the business?**  
(% respondents)



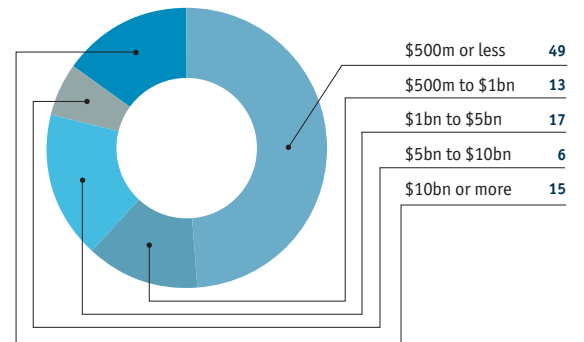
**Why does your organisation not monitor gains in energy efficiency?** Select all that apply.  
(% respondents)



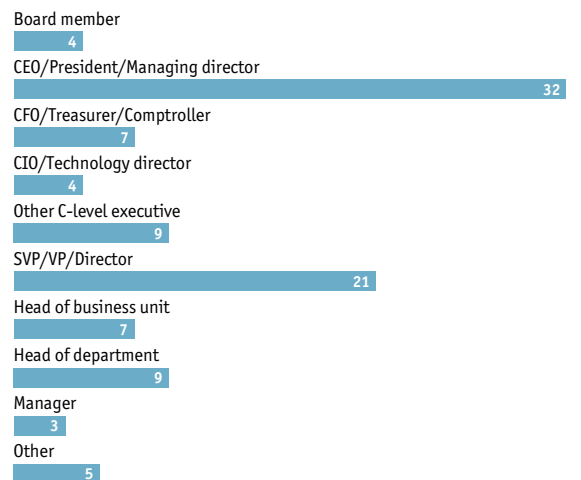
**In which country are you personally located?**  
(% respondents)



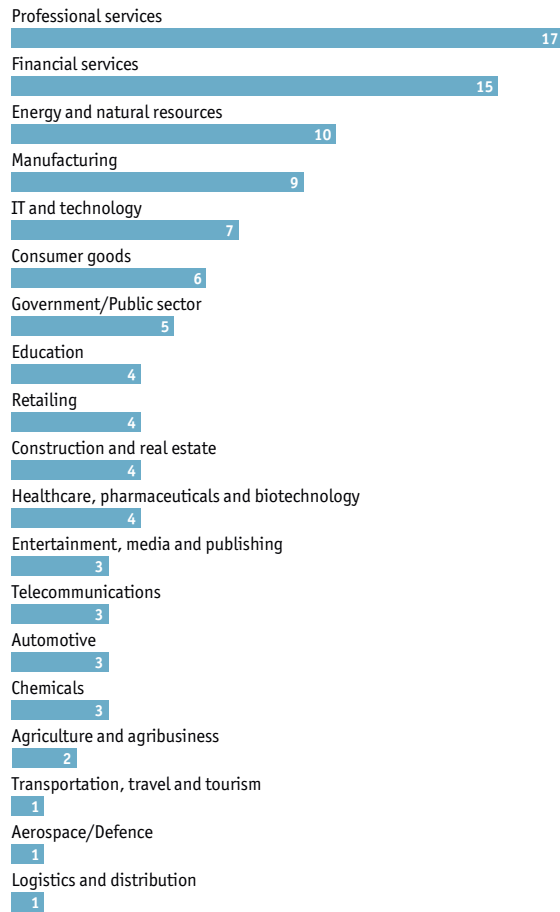
**What are your organisation's global annual revenues in US dollars?**  
(% respondents)



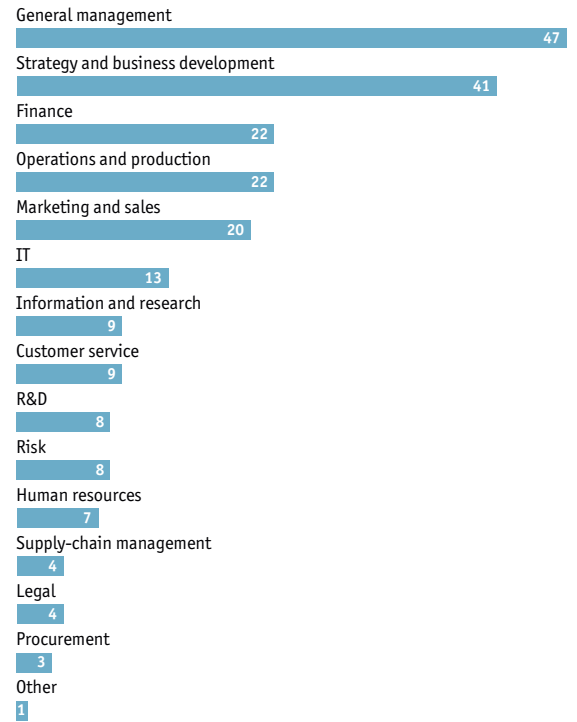
**Which of the following best describes your job title?**  
(% respondents)



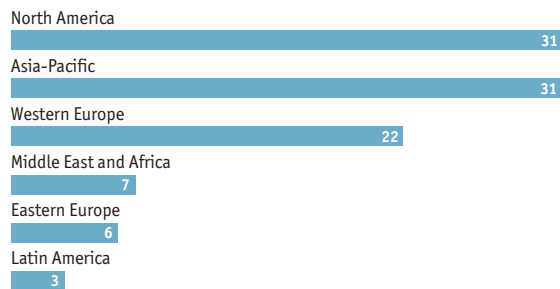
**What is your primary industry?**  
(% respondents)



**What are your main functional roles?** Choose up to three.  
(% respondents)



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



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