

CARBON DOWN
PROFITS UP
SECOND EDITION 2005

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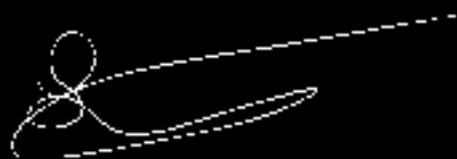
In 2004 The Climate Group published the first edition of Carbon Down Profits Up. This outlined how a select group of companies and governments had successfully reduced their greenhouse gas emissions and achieved financial and economic benefits as a result. Its strong message that carbon reduction goes hand in hand with profit creation has resonated with policy makers, commentators and reporters around the world. We believe the facts presented have encouraged others in both the public and private sectors to curb greenhouse gas emissions.

Carbon Down Profits Up has, without doubt, already helped to change views about the economic viability of reducing our carbon impact on the world. More importantly, it has allowed the most influential actors on the global stage – governments, corporations and the media – to begin to see the opportunities that can result from tackling the threats of climate change.

Over the past year there has been a number of significant developments on climate change at the international level, notably the entry into force of the Kyoto Protocol, the G8 negotiations and the recently announced US-Pacific initiative. Alongside these essential international processes, great strides forward are being made at state, city and corporate levels. And the volume of activity is growing.

In publishing the second edition of Carbon Down Profits Up, The Climate Group and HSBC are able to show how much progress is being made. We are delighted that the information contained in the following pages reveals that an even greater number of countries, regions, cities and companies are taking action to tackle global warming. As before, many are reporting significant benefits from these initiatives.

Every new activity we identify and share adds an essential element to the debate. By demonstrating the growing momentum with simple reliable facts, we hope that Carbon Down Profits Up will continue to encourage government and business leaders to take up this global challenge.



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INTRODUCTION
FIRST MOVER
ADVANTAGE

THE YEAR SINCE THE CLIMATE GROUP FIRST PUBLISHED CARBON DOWN PROFITS UP HAS BEEN A BIG ONE FOR CLIMATE CHANGE. FROM ALARMING NEW EVIDENCE OF GLOBAL WARMING AND ITS LIKELY IMPACTS TO THE ENTRY INTO FORCE OF THE KYOTO PROTOCOL, THE START OF EU EMISSIONS TRADING AND THE G8 SUMMIT, CLIMATE CHANGE HAS NEVER BEEN FAR FROM THE NEWS. IN PARALLEL, AS THIS REPORT SHOWS, A GROWING NUMBER OF ORGANISATIONS ARE TAKING ACTION TO CUT EMISSIONS AND REAPING SIGNIFICANT ECONOMIC BENEFITS FROM DOING SO.

2005 has seen unprecedented new additions to the body of evidence that climate change is occurring, including retreating Arctic sea ice, drought across southern Europe and floods in India. Perhaps the most dramatic is research showing that the permafrost of western Siberia has begun to thaw. With the potential to release billions of tonnes of trapped methane, a gas with 23 times the global warming potential of carbon dioxide, the scientists involved called it an 'ecological landslide that is probably irreversible and is undoubtedly connected to climatic warming'.

And, of course, there has been hurricane Katrina, front page news since its August destruction of New Orleans and large swathes of the surrounding US coastline. The link between Katrina and global warming has been the subject of public and, at times, heated debate. While direct causal links may be impossible, there is clear evidence – reported recently in Nature – that hurricanes have become more destructive over the past 30 years and that global warming could further increase their intensity in the future, bringing with them billions of dollars of damage to the Caribbean, the United States and elsewhere.

Although these developments have not been matched by new international agreements to stem the growth of greenhouse gas (GHG) emissions, this latest edition of Carbon Down Profits Up shows that a steadily growing number of companies, cities and regions are already taking ambitious action to do so. The 74 companies included in the report far surpass the 2004 total of 22. There are a number of explanations for this growth, including the emergence of a price for carbon in the EU ETS and a range of voluntary programmes that are driving companies to act. Across the board, investors and regulators are demanding more data on the risks and opportunities associated with climate change and the low carbon economy. Firms themselves are also realising that early action can better prepare them for legislation and that cutting GHG emissions can both make good financial sense and open up a range of new business opportunities.



The companies included are drawn from 18 sectors in 11 countries in North America, Europe, Asia and Australasia. All have cut costs and/or increased revenues from reducing emissions. Taken together the gross savings total US\$11.6 billion. Four of these companies – Bayer, BT, DuPont, and Norske Canada – have achieved absolute GHG reductions of 60% or more with total gross savings of US\$4 billion. Another 21 companies have achieved GHG reductions of over 25% and saved another US\$10.9 billion.

The number of cities included this year has also increased substantially; 34 compared to only 11 in 2004. Covering ten countries, these municipalities have achieved gross savings of US\$745 million, with the US city of Portland reporting gross savings of over US\$300 million. In emissions terms, Woking and Seattle are the leaders

with emissions cuts of 77.4% and over 60% respectively in the last 15 years.

These reductions themselves are, however, just the tip of the iceberg; even more exciting is the growing number of municipal governments that are adopting ambitious GHG targets and innovative plans for achieving them. Mayors and other leaders are working together and exchanging best practice, often acting as the drivers of national policy (see page 17).

Like their municipal counterparts, state and regional governments have also expanded their work on climate change, again often filling a national policy void. Sixteen states from five countries have been included with a marked improvement in the reporting of their emission reductions and the associated benefits. Thus far, California has saved US\$20 billion in electricity and natural gas expenses.

Again, like the cities, regions' future plans are even more impressive. California Governor Schwarzenegger's June announcement of an 80% reduction target captured the headlines but a number of others are also paving the way for equally ambitious cuts. Two of the most important of these efforts, the regional emissions trading schemes being developed in Australia and the north-eastern US are covered later in this report (see page 23).

Alongside those that are cutting their emissions, a wide range of firms are gearing themselves up to take advantage of new markets for low carbon products and services. The frontrunners have been those involved in the emerging carbon markets but IPOs for renewable energy companies have reached record levels over the past year and clean energy stocks, previously blighted by their association with the tech boom of the late 1990s, have begun to bounce back.

Established firms are also introducing low carbon solutions into their offerings. The best-known is Toyota's Prius, but many others are following suit across a range of sectors. R&D into clean technology – most notably GE's

MAIN: GLOBALLY THE TRANSPORT SECTOR NOW ACCOUNTS FOR A QUARTER OF ALL ANTHROPOGENIC CO₂ EMISSIONS RELEASED INTO THE ATMOSPHERE.

LEFT: FLOODING ON INDIA/BANGLADESH BORDER – BY 2050, THE NUMBER OF PEOPLE VULNERABLE TO FLOODS WORLDWIDE IS EXPECTED TO DOUBLE TO TWO BILLION.

RIGHT: THE WIND, SOLAR AND FUEL CELL INDUSTRIES ARE POISED TO GROW BY 80 BILLION DOLLARS OVER THE NEXT 10 YEARS.



Ecomagination commitment to invest \$1.5 billion annually by 2010 – has leapt up and electronics firms, such as Japan's Matsushita, are focussing on providing energy efficiency related business-to-business solutions for their customers. With the worldwide market for wind, solar, geothermal and fuel cell energy estimated at US\$200 billion in 2020, it is no surprise that dynamic companies are looking to establish their leadership in this field.

So what do these organisations have in common? They have responded to a diverse set of drivers, including shareholder and consumer pressure, legislation, personally committed CEOs and the lure of business opportunity. They have used a wide range of approaches – renewable energy purchases, internal energy efficiency, new plant and working with suppliers and customers. What brings them together is that they have all recognised the synergies between cutting GHGs and increased productivity. As negotiations over the post-2012 climate regime begin in Montreal in November, policymakers would do well to note that addressing global warming does not have to result in economic cooling; on the contrary, the successful economies of the future will be the first movers in addressing this challenge.



CORPORATES
REACHING
BEYOND
EFFICIENCY

IMPROVING ENERGY EFFICIENCY CAN HELP A COMPANY'S PROFITABILITY, AS WELL AS THE PLANET. BUT, FOR THOSE LEADING THE BATTLE AGAINST CLIMATE CHANGE, IT IS JUST THE FIRST STEP. ROZ BULLEID, ENVIRONMENTAL FINANCE, REPORTS.

Over the past year, even the most determinedly uninterested company executives would have found it hard to ignore climate change.

Since last year's edition of Carbon Down Profits Up, the Kyoto Protocol has come into force, companies with large plants in Europe have been given quotas for their greenhouse gas (GHG) emissions under the EU Emissions Trading Scheme and initiatives for reducing emissions have been announced in Japan, Canada, Australia and, most recently, the northeastern states of the US.

Evidence that companies are taking the issue more seriously comes, among other sources, from the third annual Carbon Disclosure Project, which this year received complete responses to its survey on GHG emissions from 71% of the world's 500 largest companies, up from 59% last year.

The responses include several from the financial industry. A few years ago, this sector might have claimed that climate change was none of its business, but in December, HSBC committed to become carbon neutral from 2006 and, in April, JPMorgan Chase pledged to cut its own emissions and to encourage its heavily emitting clients to do likewise.

Such commitments signal a more holistic approach to climate change. The leading companies are no longer looking simply to reduce their own GHG emissions – they are also addressing their position in the wider economy. And, when reducing their own emissions, they are taking a multi-faceted approach, with few relying simply on a reduction in energy use.

That is not to say that improving energy efficiency is not effective and laudable. It is an important first step, especially as it can present a win-win situation, where projects yield clear financial advantages. US-based Dow Chemicals, for example, has reduced its energy consumption per unit of production by 21% since 1994, saving itself \$3 billion in the process. Germany's BASF, another chemicals company, has cut its annual costs at one site alone by €500 million through improved efficiency.



There comes a point, however, when most easily available reductions in energy use have been made. For example, while BASF cut its GHG emissions per unit of sales volume by 61% over the 12 years to 2002, it is only aiming for a cut of 10% over 2002-2012.

However, looking at BASF's GHG emissions alone – 29.5 million tonnes of carbon dioxide (CO₂) in 2004 – does not give the full picture. When reductions in customers' emissions resulting from use of BASF products are considered – equivalent to 138 million tonnes of CO₂ saved per year – the firm's effect on the climate looks far more benign. Most of these customer savings come from heat insulation products, with fuel additives and plastic car parts providing additional benefits.

A similar approach to GHG accounting has been taken by Japanese electronics company NEC. The firm has pledged to become carbon neutral by 2010, applying the commitment to its products as well as its own activities. It has calculated that it can cut its own emissions to

1991 levels (0.9 million tonnes CO₂/year) and those arising from its products to 3.6 million tonnes/year. It believes that it can then achieve carbon neutrality by providing its customers with IT solutions that reduce their net CO₂ emissions by 4.5 million tonnes/year.

In terms of reducing companies' direct emissions, one of the most popular approaches, after improvements in energy intensity, is to increase the use of renewable energy.

One company that has made a particularly strong commitment to alternative energy is UK telecommunications firm BT. In October 2004, it claimed to have completed the world's largest green energy deal after agreeing a three-year contract with British Gas and npower for 2.1TWh of electricity from renewables and combined heat and power.

"We are aiming both to increase energy efficiency and reduce emissions to the atmosphere," explained Paul Reynolds, chief executive of BT Wholesale. "The contracts represent a good deal for BT and for the environment."

Fellow telecoms group, Deutsche Telekom, has also been experimenting with renewable power. It piloted the use of photovoltaic cells to power its phone boxes 10 years ago, and now also uses wind turbines and fuel cells.

Other corporate strategies for tackling climate change include switching to fuels that produce less GHGs, changing production processes, and reducing emissions from buildings and vehicles.

Deutsche Telekom, for example, has cut the fuel consumption of its fleet by more than 7% through choosing more efficient, and natural gas-powered vehicles, while BT has cut its CO₂ emissions by 40% since 1992 by reducing the size of its vehicle fleet.

MAIN: JAPANESE COMPANIES ARE LEADING THE WAY IN THE DEVELOPMENT OF LOW CARBON TECHNOLOGIES SUCH AS HYBRID VEHICLES. LEFT: BRITISH TELECOM (BT) HAS REDUCED ITS ENERGY RELATED CO₂ EMISSIONS BY MORE THAN 70% SINCE 1991. RIGHT: HP REDUCES TRANSPORT ENERGY CONSUMPTION BY DENSELY PACKING PRODUCTS ON EACH SHIPPING PALLET, THEREBY REDUCING THE TOTAL NUMBER OF TRIPS REQUIRED.



For those companies that have taken on particularly ambitious targets, or had them placed upon them by government, even these measures may not be enough, especially once the most cost-effective reductions have been made.

In this case, it may be more practical, or even essential, to reduce GHG emissions via external sources. For example, in 2004, US energy utility Entergy spent \$5.3 million offsetting emissions equivalent to around 3.5 million tonnes of CO₂ through carbon trading, reforestation, and funding external renewable energy projects.

HSBC also plans to use offsets, where necessary, to meet its carbon-neutrality pledge. It is currently assessing bids for the provision of carbon credits equivalent to 170,000 tonnes of CO₂ for a three-month trial period at the end of the year, and has said that it favours projects that will contribute to sustainable development.

The fact that a company with no mandatory requirement to reduce its emissions has chosen to do so, and is prepared to spend money on credits to complete its pledge, indicates the increasing seriousness with which many companies now take climate change.

"It is our judgement that climate change represents the largest single environmental challenge this century," said Sir John Bond, HSBC chairman, at the launch of The Climate Group in April 2004. "It will have an impact on all aspects of modern life. It is therefore a major issue for our customers and our staff, as well for every organisation on the planet."

COMPANY	SECTOR	CARBON FOOTPRINT	REDUCTIONS / ACHIEVEMENTS
3M	Chemicals	14 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced GHG emissions by approx. 37% between 1990 and 2004. 62% improvement in energy efficiency between 1973 and 2004. ⁽¹⁾
ABN AMRO	Banking	366,293 tonnes CO ₂ (internal emissions 2004). ⁽¹⁾	Reduced worldwide direct CO ₂ emissions by 4.3%, and indirect emissions by 9% between 2003 and 2004. ⁽¹⁾
AEP	Energy and Utilities	147 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced CO ₂ e emissions by 13% between 2000 and 2004. ⁽¹⁾
ALCAN	Metals and Mining (Aluminium)	39.6 million tonnes CO ₂ e emissions in 2004 (Includes emissions of all facilities owned by Alcan). ⁽¹⁾	Alcan reduced direct and indirect GHG emissions by 13% between 1990 and 2003. Pechiney (Alcan acquisition in 2003) reduced direct GHG emissions by 18% between 1990 and 2003. ⁽²⁾
ALCOA	Metals and Mining (Aluminium)	34.1 million tonnes of CO ₂ e globally in 2004. ⁽¹⁾	Reduced PFC emissions by 80%, and achieved 26% reduction in GHG emissions between 1990 and 2003. ⁽¹⁾
ALLIANZ	Insurance	Direct and indirect CO ₂ emissions were 570,000 tonnes in 2003. ⁽¹⁾	27% reduction in CO ₂ emissions (kg/employee/year) between 2000 and 2003. ⁽²⁾
AMCOR	Industrial Manufacturing	Not documented	Annual reduction in GHG emissions by 68,000 tonnes through energy efficiency. ⁽¹⁾ 70% reduction in energy use per unit of production between 2002 and 2004. ⁽²⁾
BAA	Transportation Services	436,852 tonnes CO ₂ in 2005. ⁽¹⁾	Reduced CO ₂ emissions per passenger by 44% between 1997 and 2004. Sourcing 17% of electricity from UK Climate Change Levy exempt sources in 2005. ⁽²⁾
BASF	Chemicals	29.5 million tonnes of CO ₂ in 2004. ⁽¹⁾	Reduced absolute GHG emissions by 38% between 1990 and 2002. ⁽²⁾
BAYER	Chemicals	5.6 million tonnes of CO ₂ in 2004. ⁽¹⁾	63% reduction in direct emissions between 1990 and 2004. ⁽¹⁾
BP	Energy and Utilities (Oil and Gas)	Direct and indirect emissions of 91.6 million tonnes CO ₂ e in 2004. Emissions from use of BP's hydrocarbon products totalled 1.4 billion tonnes CO ₂ in 2004. ⁽¹⁾	Met GHG reduction target in 2001, nine years ahead of schedule. ⁽¹⁾ Between 2001 and 2004, energy and flare reduction projects contributed a further 4 million tonnes of GHG reductions. ⁽²⁾ Absolute reduction in emissions of 14% between 1998 and 2004. ⁽¹⁾
BT	Telecommunications Services	822,697 tonnes CO ₂ e in 2004/05. ⁽¹⁾	Reduced energy related CO ₂ emissions by 71% between 1991 and 2004. Supplying 98% of UK electricity requirements through low carbon and renewable energy sources. ⁽¹⁾
CANON	Consumer Products Manufacturing	714,784 tonnes CO ₂ (internal emissions). 1.1 million tonnes CO ₂ (use of product) in 2004. ⁽¹⁾	74% reduction in non-CO ₂ GHGs between 1990 and 2003 (SF ₆ , HFC, PFC). 38% reduction from 1990 CO ₂ emissions per unit of production. ⁽²⁾
CATERPILLAR	Industrial Manufacturing	To be released by EPA Climate Leaders next year.	Reduced direct GHG from facilities by 35% between 1990 and 2005 in the US. ⁽¹⁾
CINERGY	Energy and Utilities	58.2 million tonnes CO ₂ emissions in 2004. ⁽¹⁾ In 2003 Cinergy's core operations accounted for about 1% of worldwide GHG emissions. ⁽²⁾	7.5% reduction in emissions between 2002 and 2004. ⁽¹⁾
DEUTSCHE BAHN	Transportation Services (Government Owned)	7.4 million tonnes CO ₂ (2002). ⁽¹⁾	25% reduction in emissions by 2002 on 1990 levels. ⁽²⁾ Producing 13% of energy from renewables. ⁽³⁾
DEUTSCHE TELEKOM	Telecommunications Services	259,049 tonnes CO ₂ emissions in 2003 (in Europe). ⁽¹⁾	Reduced direct emissions 43% between 1995 and 2002. ⁽²⁾
DOW	Chemicals	27.3 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced total direct CO ₂ e emissions by 28%. Reduced energy intensity by 21% between 1994 and 2005. ⁽¹⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
150 company sites were challenged to reduce energy consumption 4% a year. Goal has been exceeded each year, avoiding more than US\$190 million. ⁽²⁾	Process Changes Energy Efficiency Products	Reduce absolute GHG emissions by 50% from 1990 to 2005. ⁽³⁾
Benefits not documented. Net income increased 40.1% in 2004. ⁽²⁾	Energy Efficiency Sustainable Buildings Transport Project Finance	Source 100% green energy, and reduce electricity and water use by 3% and 2% respectively in Netherlands operations in 2005. Reduce water and electricity consumption by 4% and 3% respectively in Brazil operations in 2005 (with comparable targets for every year until 2008). ⁽¹⁾
Benefits not documented. Net income increased 890.0% in 2004. ⁽²⁾	Fuel Switching Sequestration Energy Efficiency Renewable Energy	Reduce GHG emissions 3% below baseline levels (average of 1998-2001) in 2005, and 4% reduction in 2006. ⁽¹⁾
Fuel switching at Alcan's facility in Yeongju (Korea) reduced fuel costs US\$5 million in 2003. Process efficiency improvements at Alcan's facility in Oswego New York generated savings of US\$4 million by the end of 2004. ⁽²⁾	Energy Efficiency Process Changes Fuel Switching	Reduce total direct and indirect GHG emissions each year by 0.5% compared to a two-year rolling baseline (between 2001 and 2005). ⁽²⁾
US\$100 million in environmental and energy cost savings projected by 2006. ⁽²⁾	Process Changes Energy Efficiency Offsets and Carbon Neutrality Waste Management Products	Reduce direct GHG emissions by 25% from a 1990 base by 2010 (set in 2000, achieved in 2003). Maintain 26% GHG reduction on 1990 levels while expanding production by 40% by 2010 from 2003 levels. ⁽¹⁾
Benefits not documented. Net income increased by 46.6% in 2004. ⁽³⁾	Energy Efficiency Transport Renewable Energy Offsets and Carbon Neutrality	Allianz subsidiary Dresdner Bank, has pledged to reduce its CO ₂ emissions 28% by 2008 on 1990 levels. ⁽⁴⁾
Energy efficiency improvements of US\$3 million achieved between 2001 and 2004. ⁽¹⁾	Energy Efficiency Waste Management	Plan with Origin Energy (started in 2001) to reduce energy use by 10% per unit of product. ⁽³⁾
BAA's carbon management programme could deliver cost savings of £11 million by 2010. ⁽³⁾	Renewables Energy Efficiency	Reduce absolute CO ₂ emissions (from energy use at airport sites) by 15% on 1990 levels by 2010. ⁽²⁾
Approximately €500 million saved per year at BASF's Ludwigshafen site alone. ⁽²⁾	Process Changes Energy Efficiency Products	Reduce specific GHG emissions by a further 10% by 2012 on 2002 levels. ⁽¹⁾
Significant reductions achieved while overall production increased 22% between 1998 and 2004. ⁽¹⁾	Process Changes Energy Efficiency Sustainable Buildings Waste Management	50% reduction in GHG emissions by 2010 on 1990 levels. ⁽²⁾
Gained around US\$650 million in net present value due to projects to increase operational efficiency, apply technological innovation and improve energy management between 1990 and 2001. ⁽¹⁾	Sequestration Renewables Energy Efficiency Emissions Trading Fuel Switching Communications	Reduce GHG emissions 10% on 1990 levels by 2010. No increase in net emissions from 2002 to 2012. ⁽¹⁾ Plan to invest \$350 million in energy efficiency programme over 5 years from 2004. ⁽²⁾
£1.1 billion saved between 2002 and 2005. ⁽²⁾	Renewable Energy Energy Efficiency Transport	Reduce emissions by 25%, from a 1996 baseline, by 2010. ⁽¹⁾
Sales of energy-efficient products saved customers ¥27.2 billion (US\$250 million). Environmental protection activities produced economic benefits of ¥1.96 billion (US\$18 million), in return for expenses of ¥1.90 billion (US\$17 million). ⁽³⁾	Process Changes Energy Efficiency Waste Management	Reduce CO ₂ emissions by 25% between 1990 and 2010 (per unit of production). ⁽²⁾
Benefits not documented. Net income increased by 85.2% in 2004. ⁽²⁾	Energy Efficiency Fuel Switching Renewables Products	Reduce GHG intensity (CO ₂ e per million \$ of sales and revenue) by 20% between 2002 and 2010. ⁽³⁾
Benefits not documented	Process Changes Energy Efficiency Sequestration	Reduce GHG emissions to an average of 5% below 2000 levels during the period 2010 through 2012. ⁽²⁾
€700 million saved through efficient driving measures. ⁽⁴⁾	Renewables Transport	Reduce CO ₂ emissions and energy consumption by 20% by 2020 on 2002 levels. ⁽³⁾
Cost savings of at least €26.23 million. ⁽¹⁾	Energy Efficiency	Not documented
Saved US\$3 billion in energy costs, and increased production by 37% between 1994 and 2005. ⁽¹⁾	Energy Efficiency Products	Reduce energy use per pound of production by 20% between 1994 and 2005. ⁽¹⁾

COMPANY	SECTOR	CARBON FOOTPRINT	REDUCTIONS / ACHIEVEMENTS
DUPONT	Chemicals	15.3 million tonnes CO ₂ e in 2003. ⁽¹⁾	72% reduction in GHG emissions between 1990 and 2003. ⁽¹⁾ 4% of energy from renewables in 2005. ⁽²⁾ Reduced global energy consumption 7% below 1990 levels. ⁽¹⁾
EAST JAPAN RAILWAY COMPANY	Transportation Services	2 million tonnes CO ₂ in 2003. ⁽¹⁾	Reduced CO ₂ emissions by 20% between 1990 and 2003. ⁽²⁾
ENBRIDGE	Energy and Utilities	1.2 million tonnes of CO ₂ e in 2002 (direct and indirect emissions). ⁽¹⁾	Reduced GHG emissions 11% below 1990 levels by 2002. ⁽¹⁾
ENERGY	Energy and Utilities	35.6 million metric tonnes CO ₂ e in 2004. ⁽¹⁾	CO ₂ e emissions were 21% below 2001 levels in 2004. External projects will achieve 3.5 million tonnes of CO ₂ e offsets by 2005. ⁽¹⁾
GAP INC	Retail	753,174 tonnes of CO ₂ e in 2002 from US facilities whose electricity usage is directly controlled. ⁽¹⁾	Increased energy efficiency of stores in the US by 27% per square foot between 2001 and 2004. ⁽¹⁾
GENERAL MOTORS	Automotive and Transport	13.44 million tonnes CO ₂ in 2003. ⁽¹⁾	7.1% reduction in CO ₂ emissions between 2000 and 2003. ⁽¹⁾
HBOS	Banking	29,240 tonnes CO ₂ e in 2004. ⁽¹⁾	13% reduction in CO ₂ emissions per full-time equivalent employee between 2001 and 2004. Providing 89.7% of electricity from renewable sources. ⁽¹⁾
HEWLETT-PACKARD (HP)	Computer Hardware	1.3 million tonnes CO ₂ e in 2004. ⁽¹⁾	Implemented >60GWh of energy savings by 2004. 26% reduction in PFC emissions & 5.6% reduction in global GHG emissions between 2002 and 2003. 35% increase in high-end server energy efficiency between 2002 and 2003. ⁽²⁾
HONDA	Automotive and Transport	437,000 tonnes CO ₂ in 2002 (Honda factories). ⁽¹⁾	Reduced energy intensity of production by 19.3% between 1990 and 2002. CO ₂ emissions at factories decreased by 21.8% between 1990 and 2002. Improved average fuel economy of automobiles produced in Japan by 41% on 1995 levels by 2002 (ahead of target). ⁽²⁾
HSBC	Banking	585,000 tonnes CO ₂ in 2004. ⁽¹⁾	Emissions per employee decreased by 19% between 2002 and 2004. ⁽¹⁾
HUDSON BAY COMPANY	Retail	324,132 tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced GHG emissions 12% between 2000 and 2004. ⁽¹⁾
HVB GROUP	Banking	716,690 tonnes CO ₂ emissions in 2003 (heating, electricity, and business travel). ⁽¹⁾	Reduced CO ₂ emissions from electricity use and heating by 29% and 38% respectively between 1996 and 2002. ⁽²⁾
IBM	Computer Hardware	2.42 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced PFC emissions by 57.6% compared to 2000 baseline. 37.8% reduction in total worldwide CO ₂ emissions from energy conservation between 1990 and 2004. ⁽¹⁾
INTEL	Electronics	4.1 million tonnes CO ₂ e in 2004. ⁽¹⁾	19% reduction in PFC emissions between 2003 and 2004. ⁽²⁾
INTERFACE	Industrial Manufacturing (Carpeting)	Approx. 80,000 tonnes CO ₂ emissions in 2004. ⁽¹⁾	Reduced global GHG emissions 52% by 2004 on 1995 levels 11% of total energy consumption from renewable sources. ⁽¹⁾
JOHNSON & JOHNSON	Consumer Products Manufacturers (Health Care)	942,900 tonnes CO ₂ emissions in 2004. ⁽¹⁾	3% absolute reduction in CO ₂ emissions between 1990 and 2004. ⁽¹⁾ 18% of worldwide electricity from renewables. ⁽²⁾
KANSAI ELECTRIC POWER	Energy and Utilities	36.6 million tonnes CO ₂ in 2003. ⁽¹⁾	Both the volume of CO ₂ emissions and CO ₂ emissions intensity were reduced by 17% and 14% respectively by 2003 (on 1990 levels). ⁽²⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
Saved more than US\$2 billion since 1990 due to energy conservation. ⁽³⁾ Saving US\$10-15 million every year through the use of renewables vs. fossil fuels. ⁽⁴⁾	Process Changes Energy Efficiency Renewables Products	65% GHG reduction on 1990 levels by 2010. Source 10% of global energy from renewables in 2010. Hold total energy use flat using 1990 as a baseline. ⁽¹⁾
Saved ¥21.4 billion (US\$195 million) through efforts to reduce GHG emissions (on investments of ¥59.7 billion – US\$545 million) in 2003. ⁽¹⁾	Transport Fuel Switching Energy Efficiency	Reduce CO ₂ emissions 20% below 1990 levels by the end of 2005. ⁽²⁾
Delivered 29% more throughput on energy transportation and distribution systems between 1990 and 2002. From 1995 to 2003, demand side management programmes saved customers in Ontario more than US\$700 million on their energy bills. ⁽¹⁾	Energy Efficiency Offsets Renewables	Reduce direct GHG emissions from Canadian operations by 15% below 1990 levels by 2005. ⁽¹⁾
Total electric generation has grown 47% since 1998 while the fossil intensity of the electricity produced has declined by 50%. Invested US\$14.8 million in Environmental Initiatives Funds to complete 61 internal emission reduction projects between 2001 and 2005. ⁽¹⁾	Energy Efficiency Sequestration (biological) Process Changes	Stabilize CO ₂ emissions from US power plants at year 2000 levels through 2005. ⁽¹⁾
Saving US\$1.6 million annually through energy efficiency and operational improvements since 2001. ⁽²⁾	Energy Efficiency Sustainable Buildings Transport	Reduce GHG emissions 11% per square foot from 2003 to 2008. ⁽¹⁾
Annual cost savings 'in the millions' (US\$) through energy efficiency and renewable energy projects. ⁽¹⁾	Fuel Switching Energy Efficiency Renewables	Global facility CO ₂ reduction target of 8% from 2000-2005. ⁽¹⁾
£12.9 million saved through energy conservation and emission reduction measures (£3.6 million invested). ⁽¹⁾	Transport Renewables	Reduce CO ₂ emissions by 10% per full-time equivalent employee between 2001 and 2004. Set an additional 5% reduction target for 2005-2010. ⁽¹⁾
Benefits not documented. Net income grew 37.7% in 2004. ⁽³⁾	Energy Efficiency Communication Renewables	Reduce CO ₂ emissions by 20% from 1990 levels by 2010 (Silicon Valley operations). ⁽⁴⁾ Reduce global PFC emissions by 10% by 2010, on 1995 levels. Reduce energy use by 50GWh by 2005. ⁽¹⁾
Benefits not documented. Net income grew 1.9% in 2004. ⁽³⁾	Energy Efficiency Renewables Products	Reduce energy intensity of production by 30% between 1990 and 2010. Improve average fuel economy of automobiles produced in Japan by 25% on 1995 levels by 2005. ⁽²⁾
New sea water chilling system in Hong Kong led to initiatives that will save HK\$1.1 million (US\$140,000) annually. ⁽¹⁾	Sustainable Buildings Renewables Project Finance Offsets and Carbon Neutrality	Carbon neutrality by 2006. ⁽²⁾
Saved US\$ 10 million through store retrofits. ⁽²⁾	Energy Efficiency Renewables	Retrofit all HBC stores with energy efficient lighting and building automation systems by 2007, and ensure that all new build is 25% more efficient than specified by existing building code standards. ⁽¹⁾
'Any reduction on CO ₂ is also related to lower costs'. ⁽¹⁾	Energy Efficiency Project Finance Transport Communications	19% of energy from regenerative sources. ⁽¹⁾
Saved US\$791 million between 1990 and 2003 through energy conservation. ⁽²⁾	Energy Efficiency Process Changes Products	Absolute 10% reduction in PFC emissions from semiconductor manufacturing processes between 2000 and 2005. Reduce CO ₂ emissions from electricity and fuel use by 4% each year between 2000 and 2005. ⁽¹⁾
Energy conservation projects have resulted in annual cost savings of more than US\$10 million. ⁽³⁾ Widespread adoption of Intel's power supply standards could lead to savings in the US of 9 million tonnes per year in CO ₂ emissions and US\$1.25 billion per year in electricity costs Natural Resource Defence Council. ⁽⁴⁾	Process Changes Energy Efficiency Products Offsets	Reduce PFC emissions to 10% below 1995 levels by 2010. Reduce energy consumed per unit of production by 28% between 2002 and 2010. ⁽¹⁾
Saved US\$262 million since 1994 by consuming less raw material and energy, managing waste and conserving water. ⁽²⁾	Renewables Energy Efficiency Transport Products Offsets Emissions Trading	Reduce US GHG emissions by 15% per unit of production from 2001 to 2010. ⁽³⁾
US\$30 million saved annually through energy efficiency measures. Worldwide revenue has increased more than 300% between 1990 and 2004. ⁽¹⁾	Energy Efficiency Renewable Energy Transport	Reduce absolute worldwide CO ₂ emissions by 7% by 2010 (on 1990 baseline). Reduce CO ₂ emissions per km driven from worldwide vehicle fleet by 30% by 2010 (on 2003 baseline). ⁽¹⁾
Cost savings of ¥4.5 billion (US\$41 million) through energy saving between 1990 and 2003. Units of power sold increased by 16% between 1990 and 2003. ⁽²⁾	Fuel Switching Energy Efficiency Renewable Energy Emissions Trading Offsets	Reduce CO ₂ emissions intensity by 20% by 2010 on 1990 levels (set as part of the Federation of Electric Power Companies of Japan). ⁽¹⁾

COMPANY	SECTOR	CARBON FOOTPRINT	REDUCTIONS / ACHIEVEMENTS
KIRIN BREWERY	Beverages	327,000 tonnes CO ₂ emissions in 2004. ⁽¹⁾	Reduced total CO ₂ emissions by 40%, and per unit of production by 13% by 2004 on 1990 levels. ⁽¹⁾
KODAK	Consumer Products Manufacturers	2.5 million tonnes CO ₂ e in 2003. ⁽¹⁾	Reduced GHG emissions 5% between 2002 and 2004. Reduced energy use by 9% between 2002 and 2004. ⁽²⁾
LAFARGE	Construction	81 million tonnes CO ₂ in 2002. ⁽¹⁾	9.5% absolute emissions reduction in industrialised countries and emissions per tonne of cement worldwide 11.2% between 1990 and 2004. ⁽²⁾
MARKS & SPENCER	Retail	313,000 tonnes of CO ₂ emissions in 2004/05. ⁽¹⁾	3% reduction in electricity consumption between 2003/04 and 2004/05. CO ₂ emissions from dedicated logistics fleets decreased by 8% due to improved efficiencies between 2003/04 and 2004/05. ⁽¹⁾
MOTOROLA	Telecommunications Equipment	178,000 tonnes CO ₂ e in 2004. ⁽¹⁾	78% absolute reduction in energy use between 2000 and 2004. ⁽¹⁾
NEC	Computer Hardware	1.2 million tonnes in 2004. ⁽¹⁾	Reduced CO ₂ emissions 3% (36,000 tonnes) in 2004. Reduced transport-related CO ₂ emissions by approximately 13% between 2001 and 2004. ⁽¹⁾
NIKE	Consumer Products Manufacturers	1.1 million tonnes CO ₂ in 2003. ⁽¹⁾	5% reduction in CO ₂ emissions from facilities and business travel between 1998 and 2004. ⁽¹⁾
NISSAN	Automotive and Transport	2.2 million tonnes CO ₂ e in 2003. ⁽¹⁾	Reduced CO ₂ emissions from manufacturing by more than 30% between 1990 and 2003. Reduced total CO ₂ emissions by 12% between 1999 and 2003. ⁽¹⁾
NORSKE CANADA	Industrial Manufacturing (Paper and Paper Products)	458,805 tonnes direct GHG emissions in 2004. ⁽¹⁾	CO ₂ emissions have been cut by 61% between 1990 and 2004. ⁽²⁾
ONTARIO POWER GENERATION	Energy and Utilities (Government Owned)	27.1 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced net CO ₂ emissions by 12.6 million tonnes between 1990 and 2000. ⁽¹⁾
PFIZER	Pharmaceuticals	2.7 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced emissions intensity by 29% between 2000 and 2004. ⁽¹⁾
PG&E	Energy and Utilities	16.3 million tonnes CO ₂ emissions in 2003. ⁽¹⁾	Prevented the release of 45 million tonnes of CO ₂ over past three decades. ⁽²⁾ Reduced SF ₆ emissions by 56% between 1998 and 2004. ⁽¹⁾
PHILIPS	Consumer Products Manufacturers	1.5 million tonnes direct and indirect CO ₂ emissions in 2004. ⁽¹⁾	26% reduction in energy use and 20% reduction in direct CO ₂ emissions between 2001 and 2005. ⁽¹⁾
PROCTOR AND GAMBLE	Consumer Products Manufacturers	2.9 million tonnes in 2004. ⁽¹⁾	7% reduction in GHG emissions between 2002 and 2004. ⁽²⁾
PRUDENTIAL	Insurance	23,472 tonnes CO ₂ in 2004. ⁽¹⁾	35% reduction in CO ₂ emissions between 2001 and 2003. ⁽¹⁾
QUALCOMM	Telecommunications Services	41,444 tonnes CO ₂ in California in 2003. ⁽¹⁾	Reduced electricity demand 12 million kWh per year. Between 1993 and 2002, reduced CO ₂ emissions 3,600 tonnes per year. Upgrading existing 2.4MW on-site co-generation system to 7.2MW. ⁽²⁾
RICOH	Computer Hardware	323,262 tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced absolute CO ₂ emissions (Japanese Manufacturing) by 6.9% between 1990 and 2004. Reduced absolute CO ₂ emissions (Overseas Manufacturing) 6.7% between 2000 and 2004. Reduced emissions intensity (Ricoh Group) by 30% between 1990 and 2004. ⁽¹⁾
ROYAL BANK OF SCOTLAND	Banking	Not documented	Reduced energy-related emissions by over 40% between 1990 and 2000. Sourced 16% of total energy from renewable electricity in 2004 (up from 7.8% in 2003). ⁽¹⁾
ROYAL DUTCH SHELL	Energy and Utilities (Oil and Gas)	112 million tonnes CO ₂ e in 2004. ⁽¹⁾	9% reduction in direct emissions between 1990 and 2004. ⁽²⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
Benefits not documented. Net income increased 55.8% in 2004. ⁽²⁾	Fuel Switching Energy Efficiency Transport	Reduce CO ₂ emissions by 25% in total and per unit of production by 2010 on 1990 levels. ⁽¹⁾
Saved approx. US\$10 million in energy costs. ⁽³⁾	Energy Efficiency Process Changes Fuel Switching	Reduce GHG emissions and energy use 10% by 2007 on 2002 levels. ⁽²⁾
Reduced energy bills by up to 22% through burning waste fuels. ⁽³⁾	Energy Efficiency Process Changes Fuel Switching Sustainable Buildings Renewables	Reduce global emissions 20%, and emissions in industrialised countries by 10% between 1990 and 2010. ⁽²⁾
Life-cycle approach identifies most cost effective areas for emissions reduction. Well positioned to take advantage of future low-carbon opportunities. ⁽²⁾	Energy Efficiency Supply Chain Products Transport	Specification of 10% renewable energy in current energy contracts for England, Wales, and Scotland. ⁽¹⁾
Reductions in energy consumption are likely to result in substantial savings. ⁽²⁾ Net income increased by 71.6% in 2004. ⁽³⁾	Process Changes Energy Efficiency Products	25% reduction in energy use by 2010 on a 2000 baseline. ⁽¹⁾
Emission reduction activities achieved savings of approximately ¥3.3 billion (US\$30 million) in 2004. ⁽¹⁾	Process Changes Energy Efficiency Products	Achieve zero net CO ₂ emissions by 2010. ⁽¹⁾
Benefits not documented. Net income increased 28.1% in 2004. ⁽²⁾	Energy Efficiency Offsets and Carbon Neutrality	Reduce CO ₂ emissions from Nike facilities (larger than 20,000 square feet) and business travel by 13% between 1998 and 2005. ⁽¹⁾
Benefits not documented. Net income increased 15.2% in 2004. ⁽²⁾	Energy Efficiency	Reduce total CO ₂ emissions by more than 10% between 1999 and 2005. ⁽¹⁾
US\$1.7 million in benefits from energy provider BC Hydro as a result of reduced energy consumption. ⁽²⁾ Estimated saving over past 10 years US\$17-26 million due to energy efficiency and related measures. ⁽³⁾	Fuel Switching Management Systems Energy Efficiency Process Changes Products Transport	Reduce GHG emissions intensity by 15% between 2004 and 2009. ⁽³⁾
Savings of US\$106 million per year (@ 4.3 cents per kWh) through energy efficiency between 1994 and 2004. ⁽¹⁾	Energy Efficiency Sequestration	Stabilize net GHG emissions at 1990 levels by 2000. ⁽¹⁾
Increased internal efficiency has allowed for over US\$15 million in recurring savings and a 180,000 tonne CO ₂ reduction. ⁽²⁾	Energy Efficiency Transport	Reduce CO ₂ emissions 35% per million dollar sales by 2007 on 2000 levels. ⁽¹⁾
Obtained energy savings of 117MW, saving customers in excess of US\$57 million in 2004. ⁽¹⁾	Energy Efficiency Process Changes Transport Communications	Increase power supply from renewable sources to 20% by 2015. ⁽²⁾
Benefits not documented. Net income increased 340.1% in 2004. ⁽²⁾	Energy Efficiency	10% reduction in energy use 2002-2005. ⁽¹⁾
Improved logistics saving over US\$25 million per year. ⁽¹⁾	Transport Process Changes Energy Efficiency Products	Not documented
Benefits not documented. Net income increased 121.3% in 2004. ⁽²⁾	Energy Efficiency Communications	Reduce CO ₂ emissions by 10% by end of 2005. ⁽¹⁾
Saving US\$1.4 million annually through reduced energy costs. ⁽²⁾	Energy Efficiency Transport Communications	Maximize energy efficiency and demand reduction in new and existing buildings. Install additional on-site 4.8MW cogeneration and 500kW solar PV systems. ⁽²⁾
Saved ¥3.1 billion (US\$28 million) by 2004 reducing product related emissions (spent ¥0.8 billion – US\$7 million – from 1990). Saved ¥2.9 billion (US\$26 million) by 2004 reducing emissions from business premises (spent ¥5.8 billion – US\$53 million from 1999). ⁽¹⁾	Process Changes Energy Efficiency Renewables Emissions Trading Transport Products	Reduce CO ₂ emissions by 12% by 2010 on 1990 levels (Japanese Manufacturing). Reduce CO ₂ emissions by 2% by 2004 on a 2000 baseline (Overseas Manufacturing). Reduce CO ₂ emissions intensity (Ricoh Group) by 62% by 2010 on 1990 levels. ⁽¹⁾
Benefits not documented. Net income increased by 21.0% in 2004. ⁽²⁾	Renewables Energy Efficiency	Reduce energy related emissions by 5% between 2000 and 2005 (in UK and Ireland) per unit of income. Use a minimum of 5% renewable electricity. ⁽¹⁾
Benefits not documented. Net income increased by 45.5% in 2004. ⁽³⁾	Renewables Fuel Switching Energy Efficiency Sequestration	Reduce direct GHG emissions by 5% by 2010 relative to a 1990 baseline. ⁽¹⁾ Shell Canada has set a target for its base business (exploration, production, and oil products) of reducing emissions 6% below 1990 levels by 2008. ⁽⁴⁾

COMPANY	SECTOR	CARBON FOOTPRINT	REDUCTIONS / ACHIEVEMENTS
SABMILLER	Beverages	2.1 million tonnes CO ₂ in 2005. ⁽¹⁾	2% reduction in CO ₂ emissions intensity between 2003 and 2004 (kg CO ₂ /unit of production). ⁽²⁾ Achieved a 7.2% reduction in GHG emissions from 1998 to 2002. ⁽³⁾
SONY	Consumer Products Manufacturers	1.9 million tonnes CO ₂ e for the year ended March 31, 2004. ⁽¹⁾	7% reduction in emissions from sites between 2000 and 2003. 11% reduction in GHG emissions from product use between 2000 and 2003. ⁽¹⁾
STAPLES	Retail	401,502 tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced energy use per square foot across comparable facilities by 12% between 2001 and 2004. Purchasing 10% of electricity demand from renewable energy certificates (RECs). ⁽¹⁾
STARBUCKS	Leisure	254,000 tonnes of CO ₂ e in 2003. ⁽¹⁾	Estimate that purchase of energy in the form of renewable energy certificates (RECs) will reduce GHG emissions by 2% in 2005. ⁽¹⁾
STMICROELECTRONICS	Electronics	522,877 tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced energy consumption by 42% (per unit produced), water consumption by 64% and CO ₂ emissions by 50% between 1994 and 2004. ⁽¹⁾
STORA ENSO	Industrial Manufacturing (Forest Products)	6 million tonnes CO ₂ e in 2004. ⁽¹⁾	Bio-fuels accounted for some 63% of Stora Enso's total annual fuel consumption in 2003. ⁽²⁾ 6% reduction in North American emissions on 2000 levels by 2004. ⁽¹⁾
SWISS RE	Insurance	45,836 tonnes CO ₂ e in 2004. ⁽¹⁾	As of March 2005 Swiss Re Germany changed its energy supply to 100% renewable energy sources. From January 2005, 30% of Swiss Re's energy requirements in Zurich have been met from renewable energy sources. This will be raised to 100% by 2007. ⁽¹⁾
SWISSCOM	Telecommunications Services	28,120 tonnes CO ₂ in 2004. ⁽¹⁾	Reduced CO ₂ emissions 15% between 2002 and 2004. ⁽¹⁾
TELECOM ITALIA	Telecommunications Services	978,691 tonnes CO ₂ in 2004. ⁽¹⁾	Reduced CO ₂ emissions 31% between 2003 and 2004. ⁽¹⁾
TELSTRA	Telecommunications Services	1.6 million tonnes CO ₂ e in 2003-2004. ⁽¹⁾	Reduced GHG emissions by 8% between 2000 and 2004. ⁽¹⁾
TEMBEC	Industrial Manufacturing (Forest Products)	Not documented	Reduced GHG emissions by 30% between 1990 and 2002. ⁽¹⁾
TIMBERLAND	Consumer Products Manufacturing	35,515 tonnes in 2003. ⁽¹⁾	18% reduction in total CO ₂ emissions between 2003 and 2004. Meeting 7% of global electricity demand with renewable energy. ⁽¹⁾
TOTAL	Energy and Utilities (Oil and Gas)	69 million tonnes CO ₂ e in 2004 (from operations). 625 million tonnes of CO ₂ (from use of products). ⁽¹⁾	Reduced GHG emissions by 19% between 1990 and 2004. ⁽¹⁾
TOYOTA	Automotive and Transport	5.3 million tonnes CO ₂ in 2003. ⁽¹⁾	Reduced emissions 19% below the 1990 level by 2004 (ahead of target). Achieved Japanese government 2010 fuel efficiency goals for six out of seven vehicle weight categories in 2004. ⁽¹⁾
UNILEVER	Consumer Products Manufacturers	3.6 million tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced CO ₂ emissions by 30% (on a total production basis), and by 25% on a load per tonne basis between 1995 and 2004. ⁽¹⁾
UNITED TECHNOLOGIES CORPORATION (UTC)	Industrial Manufacturing	2 million tonnes CO ₂ e in 2004. ⁽¹⁾	15% reduction in tonnes CO ₂ e emitted per dollar of revenue. ⁽¹⁾
UPS	Transportation Services	6.69 million tonnes CO ₂ emissions in 2004. ⁽¹⁾	13% reduction in CO ₂ emissions per 1,000 packages between 2002 and 2004. ⁽¹⁾
VERIZON	Telecommunications Services	3.9 million tonnes of CO ₂ in 2004. ⁽¹⁾	Reduced GHG emissions by more than 4% between 2001 and 2004. ⁽¹⁾
VIVENDI UNIVERSAL	Telecommunications Services	1 million tonnes of CO ₂ in 2004. ⁽¹⁾	6.5% reduction in CO ₂ emissions between 2001 and 2003. ⁽¹⁾
WESTPAC	Banking	136,400 tonnes CO ₂ e in 2004. ⁽¹⁾	Reduced GHG emissions by 32% between 1996 and 2004. ⁽¹⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
Benefits not documented. Net income increased by 117.9% in 2004. ⁽⁴⁾	Energy Efficiency Renewable Energy	Develop a robust template to understand the full extent of our carbon footprint, for example in our supply chain, and how to manage it. ⁽²⁾ Reduce US GHG emissions by 18% per barrel of production from 2001 to 2006. ⁽⁵⁾
Sony Electronics' US and Mexican facilities efficient lighting initiatives reduced operating expenses by more than US\$915,000 per year (starting in 1994). ⁽²⁾	Renewables Energy Efficiency Supply Chain Management Products	Between 2000 and 2003: reduce CO ₂ emissions from business sites and logistics by 15% per sales unit; increase use of renewable energy to 5% of energy use at sites; reduce CO ₂ emissions from business vehicles by 20% per sales unit. ⁽¹⁾
US\$6.5 million saved through lighting retrofits. ⁽²⁾	Renewables Energy Efficiency Products	Reduce total US GHG emissions by 7% from 2001 to 2010. ⁽³⁾
Benefits not documented. Net income increased by 46.0% in 2004. ⁽²⁾	Sustainable Buildings Energy Efficiency	Developing a climate reduction target by the end of 2005 fiscal year. ⁽¹⁾
Saving over US\$100 million per year. ⁽¹⁾	Process Changes Energy Efficiency Renewables Offsets and Carbon Neutrality Emissions Trading	Reduce CO ₂ emissions intensity from energy consumption by a factor of 10 by 2010 on 1990 levels. Source 5% of energy supplies from renewables (wind, photo-voltaics and thermal solar) by the end of 2010. Reduce PFC emissions intensity by a factor of 10 by 2008 on 1995 levels. Aiming at total neutrality towards the environment by 2010. ⁽¹⁾
Projects to reduce emissions will create annual energy savings amounting to nearly US\$1.8 million (US\$1 million invested). ⁽³⁾	Energy Efficiency Fuel Switching	Reduce GHG emission intensity by 12% between 2000 and 2012 (set with US pulp and paper industry). Reduce North American GHG emissions by 1% per year over a four-year pilot program ending in 2006 (set through CCX). ⁽¹⁾
Climate programme includes improved risk management of anticipated insurance and investment related losses. ⁽²⁾	Energy Efficiency Renewables Offsets and Carbon Neutrality Sustainable Buildings Communications	15% cut in the consumption of non-renewable energy in Zurich by 2007 (on 1995 levels). Reduce global GHG emissions (energy consumption and business travel) by 15%, and offset the remaining 85% by investments into the World Bank Community Development Carbon Fund between 2003 and 2013. ⁽¹⁾
Cumulative savings from the energy efficiency programme are US\$43 million, 6 times higher than the estimated costs of US\$7 million. ⁽¹⁾	Energy Efficiency Transport (ICT)	Reduce CO ₂ emissions 17% between 2002 and 2012. ⁽¹⁾
5% increase in revenue between 2003 and 2004. ⁽¹⁾	Fuel Switching Energy Efficiency Transport (ICT) Renewables	Reduce GHG emissions in line with Kyoto Protocol. ⁽¹⁾
Energy efficiency programmes contribute to ongoing savings on electricity and fuels. ⁽²⁾	Transport Renewables	5.8% savings in GHG emissions over the two years 2000-2002. ⁽¹⁾
Process changes at Tembec's Smooth Rock Falls mill reduced energy costs by approximately US\$275,000 per year. With a total cost of US\$128,000 – the payback period on the project was less than six months. ⁽²⁾	Energy Efficiency Process Changes	Reduce energy costs by 20% in relation to 2002 levels by 2008. Reduce GHG by 6% in relation to 1990 levels by 2008. Eliminate use of fossil fuels by the year 2010. ⁽¹⁾
US\$300,000 in annual savings through energy efficiency. ⁽¹⁾	Energy Efficiency Renewables Transport	Not documented
Priority is given to projects that have a good financial pay-out as well as being significant in GHG reduction. ⁽¹⁾	Sequestration Energy Efficiency Renewables Process Changes Products	Between 1990 and 2005 decrease emissions from: exploration and production by 30% per ton produced; refining by 20% per ton refined; and chemicals by 40% (absolute). ⁽¹⁾
Environment-related investment in production area for 1999 – 2003 was ¥8.4 billion (US\$79 million), environmental benefits were ¥10.2 billion (US\$95 million). ⁽¹⁾	Products Process Changes Energy Efficiency Transport (modal shift)	Reduction of 5% compared to 1990 levels between 2001 and 2005. Meet Japanese government standards of improving fuel efficiency by 22.8% between 1995 and 2010 – by 2005. ⁽¹⁾
From 2001 to 2003 Unilever's UK Foods business saved £1.34 million through reduced energy use. ⁽¹⁾	Energy Efficiency Process Changes Emissions Trading	Reduce CO ₂ emissions on a load per tonne basis by 10% by 2010 on 2004 baseline. ⁽¹⁾
Investing US\$200 million to reduce GHG emissions between 1997 and 2007 with the expectation of a 10-15% return. ⁽²⁾	Renewables Energy Efficiency	16% reduction in CO ₂ equivalents between 2001 and 2006 (normalized to revenues). ⁽¹⁾
4% reduction in fuel consumed per package between 2000 and 2004. ⁽¹⁾ Net income increased by 15.0% in 2004. ⁽²⁾	Transport Energy Efficiency Renewables	Decrease gallons of fuel consumed per package to 0.1008 by 2007. ⁽¹⁾
Energy conservation in administrative buildings in 2004 resulted in savings of approx. US\$20 million. ⁽¹⁾	Energy Efficiency Transport (ICT)	Currently evaluating ability to set specific emission reduction targets. ⁽¹⁾
'Cost savings from electricity conservation would outweigh cost expenditures'. ⁽²⁾	Energy Efficiency Transport	Reduce CO ₂ emissions 10% by 2006 on a 2001 baseline. ⁽¹⁾
Reduction in annual energy bills by around US\$255,000. ⁽¹⁾	Communications Products Project Finance Renewables Emissions Trading Energy Efficiency Sustainable Buildings Transport Waste Management	Maintain an annual target of reducing GHG emissions by 5%. ⁽¹⁾

ONCE THE REGIONAL
GREENHOUSE GAS
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CITIES TAKING A STANCE



WHEN IT COMES TO CLIMATE CHANGE, CITY ADMINISTRATIONS ARE ACTING ON THE DICTUM "THINK GLOBAL; ACT LOCAL" AND ACHIEVING IMPRESSIVE RESULTS. MELANIE GOODFELLOW, ENVIRONMENTAL FINANCE, REPORTS.

Three months before Hurricane Katrina wreaked havoc on New Orleans, mayor Ray Nagin was among 165 US city heads to sign the US Mayors Climate Protection Agreement (MCPA) aimed at cutting greenhouse gases (GHGs).

When asked why he had done so, Nagin is reported to have prophetically responded: "Another foot of water in the ocean and New Orleans is gone."

Seattle mayor Greg Nickels, who spearheaded the MCPA, said his commitment to GHG cuts stemmed from the disappearance of the snow pack in the mountains above his city – a development that threatens not only the winter skiing season but also year-round water and energy supplies.

Faced directly with such climate challenges, city mayors across the US are taking the lead in tackling GHG emissions. "Mayors across America are making it clear; we're not going to wait for the federal government to do something to prevent the production of greenhouse gases. We're going to step up and provide the leadership at the local level, city by city," said Nickels, following the endorsement of the MCPA at the annual US Mayors Conference in Chicago last June.

Under this accord, the mayors pledged to reduce GHGs in their own communities; to lobby federal government to enact polices to meet the Kyoto Protocol target of a 7% reduction in US national emissions from 1990 levels by 2012; and to urge Congress to pass a bipartisan Climate Stewardship Act – the first step in establishing a national emissions trading system.

The agreement is just one of a number of recent GHG initiatives aimed at US cities. In July, some 45 mayors converged on Salt Lake City for the Sundance Summit aimed at fostering local action on climate change, co-organised by the International Council for Local Environmental Initiatives (ICLEI).

At the last count, 147 US cities belonged to ICLEI's Cities for Climate Protection Campaign aimed at helping cities adopt emissions-cutting strategies. According to the Ontario-based body, participants reduced emissions by 22 million tonnes of carbon dioxide (CO₂) between 1994 and 2004, saving some \$600 million.

The leading GHG reducers among US cities have mostly employed a combination of measures, focusing particularly on energy efficiency, sustainable buildings, transport and renewables.



In New York, which aims to reduce its CO₂ emissions to 20% below a 1995 baseline by 2010, 164 energy efficiency projects were completed between 1997 and 2003, yielding annual energy savings of \$14 million. It is now focusing on cleaning up its mass transport system. By the end of 2005, there should be 481 buses powered by compressed natural gas (CNG) and 325 hybrid electric buses operating in the city.

In a more radical move, New York joined eight states in a ground-breaking lawsuit against five of America's largest power companies in July 2004, demanding they cut their emissions by 3% a year over 10 years. The suit is ongoing.

MAIN: THE CITY OF BERLIN OFFERS PRIVATE INVESTORS THE ROOFS OF PUBLIC BUILDINGS FOR THE INSTALLATION OF PHOTOVOLTAIC PLANTS.

LEFT: THE CITY OF SAN DIEGO POWERS A FLEET OF 100 REFUSE TRUCKS WITH LIQUIFIED NATURAL GAS PRODUCED FROM METHANE CAPTURED FROM THE CITY'S LANDFILL.

RIGHT: THE LARGEST CITY-OWNED SOLAR POWER SYSTEM IN THE US RESTS ATOP THE MOSCONE CENTER, SAN FRANCISCO'S PREMIER CONFERENCE FACILITY.

In contrast, Seattle is working hand-in-hand with local utility Seattle City Light. This year, the company became the first US utility to generate, transmit and distribute electricity with no net GHG emissions. The west-coast city is one of the pace setters in tackling climate change, having cut its GHG emissions by 60% between 1990 and 2005, through the adoption of green construction techniques and operating alternative fuel vehicles. It is now working on reducing corporate emissions by 20% between 1990 and 2012.



European cities are also at the forefront of climate change strategy. In June, Britain's capital upped its CO₂ – reduction drive with the launch of the new London Climate Change Agency (LCCA). Set up as a municipal company, the new body is expected to work in partnership with private firms to promote low and zero-carbon technologies.

Agency head Allan Jones pioneered a similar approach in the town of Woking, which reduced municipal CO₂ emissions to 77.4% below 1990 levels by 2004. London's more modest aim is to reduce community CO₂ emissions to 20% below 1990 levels by 2010. Its most innovative scheme to date, a controversial congestion charge levied on drivers entering central London, is said to have cut CO₂ emissions from traffic within the covered zone by 19% in 2004 from 2003 levels. But, as London's deputy mayor Nicky Gavron notes, transport is responsible for only 20% of the city's CO₂ emissions. The new agency will also tackle the industrial, commercial and residential sources of emissions.

Elsewhere in Europe, sunny Barcelona has been held up as a shining example of a successful solar power programme. Since 2000, all new buildings must use thermal solar energy to generate their hot water. Beyond this, the municipality has also encouraged the use of photovoltaic energy, with some 19,000m² of solar collectors being installed between 2000 and 2004. These generated energy savings in city buildings of 1.7MWh/year and financial savings of €43,000/year. The city aims to cut overall community emissions by 20% between 2002 and 2012.

Looking further afield, a number of Australian cities including Melbourne, Newcastle and Port Philip, have successfully adopted a range of GHG reduction measures, even though the national government has declined to ratify the Kyoto Protocol.

Melbourne, which is aiming for a 30% reduction in corporate emissions and 20% in community GHGs by 2010 from 1996 levels, has pioneered the use of CNG-powered garbage trucks in Victoria and now buys 10% of the electricity used in major municipal buildings from a local wind farm.

Several Asian cities are also taking steps to reduce their carbon footprint but few have yet set precise targets. Various studies suggest that, without dramatic intervention, the emissions of Asian mega-cities such as Delhi, Shanghai and Beijing could double, or in some cases quadruple, over the next two decades. These cities are surely the next big challenge for the "Think Global, Act Local" lobby.

CITY	COUNTRY	CARBON FOOTPRINT (MUNICIPAL AREA)	REDUCTIONS / ACHIEVEMENTS
AALBORG	Denmark	700,000 tonnes CO ₂ e in 2002. ⁽¹⁾	22% reduction on 1990 levels of municipal CO ₂ emissions by 2002. ⁽¹⁾
AUSTIN	United States	Not documented	Reduced City corporate GHG emissions by 616,885 tonnes between 2001 and 2005. ⁽¹⁾
BARCELONA	Spain	4.8 million tonnes CO ₂ e in 2004. ⁽¹⁾	Over 19,000m ² of solar collectors installed between 2000 and 2004 Energy conservation measures in City buildings have saved 1.7MWh per year. ⁽²⁾
BERLIN	Germany	25.3 million tonnes CO ₂ e in 2002. ⁽¹⁾	13.8% reduction in municipal GHG emissions by 2000. ⁽²⁾
BRISTOL	United Kingdom	55,600 tonnes CO ₂ e in 2003. ⁽¹⁾	7.6% of electricity for the corporate estate and 15% for street lighting is now sourced from renewable sources. ⁽¹⁾
BURLINGTON	United States	561,976 tonnes CO ₂ e in 1997. ⁽¹⁾	Burlington Electric Department demand-side management programs avoid the release of 29,428 tonnes of CO ₂ annually. ⁽²⁾
BURY	United Kingdom	1.3 million tonnes CO ₂ e by 2000. ⁽¹⁾	Reduced municipal emissions 24% by 2000 on 1990 levels, and corporate emissions 29% by 2000 on 1990 levels. ⁽²⁾
CALGARY	Canada	16.3 million tonnes CO ₂ e in 2003. ⁽¹⁾	5.4% reduction in City corporate GHG emissions between 1990 and 2003. Between 1990 and 2003, City corporate fleet emissions decreased by 6.3%. ⁽²⁾ Replacing incandescent street lights with LEDs reduces CO ₂ emissions by 7,800 tonnes per year. ⁽³⁾
CHICAGO	United States	28.4 million tonnes CO ₂ e in 2004. ⁽¹⁾	Upgrading City buildings through retrofits, is reducing CO ₂ emissions by 6,900 tonnes a year. ⁽²⁾
COPENHAGEN	Denmark	2.5 million tonnes CO ₂ e in 2000. ⁽¹⁾	23% reduction in municipal CO ₂ emissions between 1990 and 2000. ⁽²⁾ Reduced methane emissions from waste 8% between 1990 and 1995. ⁽³⁾
HANNOVER	Germany	Hannover is currently planning an audit covering 1990-2005. ⁽¹⁾	6% reduction of municipal CO ₂ emissions between 1990 and 1997. ⁽¹⁾
HEIDELBERG	Germany	973,000 tonnes CO ₂ e in 2002. ⁽¹⁾	33% reduction in energy consumption in City buildings between 1993 and 1997. ⁽²⁾ 35% reduction in corporate CO ₂ emissions between 1993 and 2002. ⁽³⁾
HELSINKI	Finland	Not documented	12.8% reduction in City corporate GHG emissions between 1990 and 2000. ⁽¹⁾
LEICESTER	United Kingdom	2.5 million tonnes CO ₂ e in 2003. ⁽¹⁾	Reduced CO ₂ emissions by 47,500 tonnes since the introduction of Home Energy Strategy in 1993. ⁽²⁾ Leicester City Council reduced its corporate CO ₂ emissions 32% and its energy consumption by 6% by 2000 on 1990 levels. ⁽³⁾
LONDON	United Kingdom	41.9 million tonnes CO ₂ e in 2002. ⁽¹⁾	7% reduction in municipal CO ₂ emissions between 1990 and 2000. ⁽²⁾ 19% reduction in traffic CO ₂ emissions within the congestion zone by 2004 on 2003 levels. ⁽³⁾
MELBOURNE	Australia	58.2 million tonnes CO ₂ e in 2004. ⁽¹⁾	15% reduction in City corporate GHG emissions between 1996 and 2003. 16% reduction in municipal GHG emissions between 1996 and 2002. Sourcing 30% of corporate energy from renewables. ⁽²⁾
MINNEAPOLIS	United States	7.6 million tonnes CO ₂ e in 2003. ⁽¹⁾	15% reduction on 1994 municipal GHG levels by 2004. ⁽¹⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
Not documented	Energy Efficiency Fuel Switching Renewables	Reduce municipal CO ₂ emissions 34% by 2012 on 1990 levels. ⁽¹⁾
Peak load management prevents need for new plant construction. Demand side management programmes save Austin Energy, the city's local utility, up to US\$500 per kW of reduced energy production. ⁽²⁾	Renewables Energy Efficiency Transport Communications Project Finance Sustainable Buildings	Reduce energy consumption 15% by 2020. ⁽²⁾ Source 20% of energy from renewable sources by 2020 (increasing by 1% per year). ⁽¹⁾
Between August 2000 and December 2004, the Solar Ordinance saved €1.08 million. ⁽¹⁾	Energy Efficiency Renewables	60% of all new buildings and retrofits to use solar-powered hot water supplies. ⁽³⁾ Reduce municipal energy consumption 17% between 2002 and 2012. Reduce municipal GHG emissions 20% between 2002 and 2012. ⁽⁴⁾
City budget relief of €2 million per year. ⁽³⁾	Energy Efficiency Communications Renewables Project Finance	Reduce municipal GHG emissions 25% by 2010 on 1990 levels. ⁽²⁾
Between 1991 and 2002 £2.46 million saved through tariff reductions and efficiency measures in corporate buildings. ⁽¹⁾	Energy Efficiency Renewables Communications Fuel Switching Transport	Reduce council CO ₂ emissions by 15% on 2000 levels by 2010. ⁽²⁾ Purchase 15% of council's energy from renewables by 2010. ⁽³⁾ Reduce municipal GHG emissions 60% by 2050 on 2000 levels. ⁽⁴⁾
Estimated US\$311,000 in annual savings from energy efficiency in City buildings from 1990 through 1998. ⁽³⁾ Energy efficiency measures have been installed in almost 12,000 locations throughout municipality for an estimated annual savings of US\$5.9 million. ⁽⁴⁾	Energy Efficiency Sustainable Buildings	Reduce GHG emissions 10% on 1997 levels by 2005. ⁽²⁾
Not documented	Fuel Switching Energy Efficiency Closure of Energy-Intensive Industries	Reduce municipal CO ₂ emissions 30% on 1990 levels by 2005. Reduce corporate CO ₂ emissions 50% by 2010 on 1990 levels (set 2002). ⁽²⁾
City staff estimate the Energy Performance Contracting program will reduce building energy costs by US\$5.7 million annually. ⁽⁴⁾	Project Finance Energy Efficiency Transport Renewables	Reduce City corporate GHG emissions 6% on 1990 levels by 2012. ⁽²⁾
Potential savings of US\$6 million per year through energy savings in City facilities and smart power purchasing. ⁽³⁾ The Green Bungalow program's green retrofitting techniques result in energy savings of up to US\$1,050 per house per year. ⁽⁴⁾	Energy Efficiency Sustainable Buildings	Reduce emissions 4% from a baseline of average 1998-2001 emissions by 2006. ⁽⁵⁾
Not documented	Renewables Transport Energy Efficiency Waste Management	Reduce municipal CO ₂ emissions by 30% by 2005 on 1990 levels. ⁽⁴⁾ Reduce CO ₂ emissions from transport 5% by 2010 on 1995 levels. ⁽⁵⁾
Savings of over €400,000 through energy efficiency projects. ⁽¹⁾	Sustainable Buildings Renewables Energy Efficiency Communications	Reduce municipal CO ₂ emissions 25% on 1990 levels by 2005 (set in 1992). ⁽¹⁾
Saving US\$1.5 million annually on City fuel bill. ⁽⁴⁾	Renewable Energy Energy Efficiency Communications Sustainable Buildings	Reduce municipal CO ₂ emissions by 20% by 2005 on 1987 levels. ⁽²⁾
Not documented	Energy Efficiency Fuel Switching Waste Management	Reduce heat consumption in the City's building stock 9-12% by 2010. Eliminate emissions from landfill gas. ⁽¹⁾
Saved £3.9 million in energy costs between 1993 and 2001. ⁽⁴⁾ £29,000 in energy costs saved in 2004. ⁽³⁾	Energy Efficiency	Reduce municipal energy consumption and CO ₂ emissions 50% on 1990 levels by 2025. Source 20% of municipal's energy from renewables by 2020. ⁽⁴⁾
Not documented	Renewables Transport	Reduce municipal CO ₂ emissions 20% by 2010 on 1990 levels. ⁽³⁾ Reduce municipal CO ₂ emissions 60% by 2050 on 2000 levels. ⁽¹⁾
Not documented	Sustainable Buildings Energy Efficiency Renewables Fuel Switching	30% reduction in City corporate and 20% reduction in municipal GHG emissions by 2010 on 1996 levels. Increase renewable energy use in the municipality by 22% and in the city corporation by 50% on 1996 levels by 2010. Zero net City corporate GHG emissions by 2020. ⁽²⁾
Estimated US\$185 million in energy cost savings since 1994. ⁽¹⁾	Sustainable Buildings Energy Efficiency Waste Management Transport	Reduce municipal GHG emissions 35% by 2005 on 1994 levels. ⁽²⁾

CITY	COUNTRY	CARBON FOOTPRINT (MUNICIPAL AREA)	REDUCTIONS / ACHIEVEMENTS
MUNICH	Germany	11.9 million tonnes CO ₂ e in 2004. ⁽¹⁾	7% reduction on 1987 levels by 2000. ⁽¹⁾
NEW HAVEN	United States	2 million tonnes CO ₂ e in 2001. ⁽¹⁾	Reducing CO ₂ emissions by 21,300 tonnes annually. ⁽²⁾
NEW YORK CITY	United States	72 million tonnes CO ₂ e in 2004. ⁽¹⁾	By the end of 2005 there will be 481 compressed natural gas (CNG) buses and 325 hybrid electric buses in operation. ⁽²⁾
NEWCASTLE	Australia	2.5 million tonnes CO ₂ e in 2000. ⁽¹⁾	Council reduced its operational GHG emissions 22% and its energy consumption by 40% between 1995 and 2003. ⁽¹⁾
PORT PHILLIP	Australia	Not documented	11% reduction in GHGs from City corporate vehicles and facilities and saving of 28,000 tonnes CO ₂ from municipal and council sources. ⁽¹⁾
PORTLAND	United States	9.7 million tonnes CO ₂ e in 2004. ⁽¹⁾	On a per capita basis, emissions fell 12.5% between 1990 and 2004. ⁽¹⁾
REGINA	Canada	4.1 million tonnes in 2001. ⁽¹⁾	City corporation has reduced GHG emissions by 12% on 1990 levels. ⁽²⁾
SAARBRÜCKEN	Germany	Not documented	18% reduction in CO ₂ emissions from energy consumption by 2000 on 1990 levels. ⁽¹⁾
SAN DIEGO	United States	14.3 million tonnes CO ₂ e in 2004. ⁽¹⁾	Efficiency improvements to City operations reduced CO ₂ emissions 89,000 tonnes between 1994 and 2001. ⁽²⁾
SAN FRANCISCO	United States	9.7 million tonnes CO ₂ e in 2000. ⁽¹⁾	Reduced electricity demand by 22 million kWh per year through energy efficiency. ⁽²⁾ More than 700 low/zero emission vehicles in City fleet. ⁽³⁾
SEATTLE	United States	45.2 million tonnes CO ₂ e in 2004. ⁽¹⁾	City government reduced its GHG emissions more than 60% between 1990 and 2005 through green construction and operating alternative fuel vehicles. ⁽²⁾
ST. PAUL	United States	Not documented	8% reduction on 1988 levels by 2004. ⁽¹⁾
THE HAGUE	Netherlands	2.5 million tonnes CO ₂ e in 2003. ⁽¹⁾	100% green electricity supply to City buildings. ⁽²⁾ Nearly one third of households use "green" energy, saving 113,300 tonnes of CO ₂ annually. ⁽³⁾
TORONTO	Canada	40.2 million tonnes CO ₂ e in 2004. ⁽¹⁾	42% reduction in City corporate GHG emissions between 1990 and 1998. ⁽²⁾
VANCOUVER	Canada	30,000 tonnes CO ₂ e in 1999 (City corporation). ⁽¹⁾	16% reduction in City corporate CO ₂ emissions on 1990 levels by 1999. ⁽¹⁾
VÄXJÖ	Sweden	280,000 tonnes CO ₂ e in 2001. ⁽¹⁾	20% reduction in municipal CO ₂ emissions between 1993 and 2002. ⁽²⁾
WOKING	United Kingdom	1 million tonnes CO ₂ e in 2003. ⁽¹⁾	48.6% reduction in energy consumption, and 77.4% reduction in CO ₂ emissions on 1990 levels by 2004. ⁽¹⁾

BENEFITS	MEASURES UNDERTAKEN	TARGETS
Not documented	Renewable Energy Energy Efficiency Fuel Switching	Reduce CO ₂ emissions 50% across the municipal area by 2010, and 30% by 2005 on 1987 levels (set in 1990). ⁽¹⁾
Annual savings of approximately US\$3 million through nearly US\$9 million of conservation and efficiency investments. ⁽²⁾	Energy Efficiency Transport Sustainable Buildings	Source 20% of energy consumption from renewables by 2010. ⁽²⁾
Between 1997 and 2003, 164 energy efficiency projects were completed with annual energy savings totalling US\$14 million. ⁽³⁾	Energy Efficiency Sustainable Buildings Transport and Planning	Reduce CO ₂ levels 20% below a 1995 baseline by 2010. ⁽⁴⁾
Saved US\$2.6 million through energy efficiency between 1995 and 2004, from an initial investment of US\$1.2 million. ⁽²⁾	Communications Energy Efficiency Sustainable Buildings Transport and Planning	Reduce City corporate GHG emissions 30% between 1995 and 2008. Restrict growth in municipal emissions to 23% between 1995 and 2008. ⁽³⁾
Total cost savings over US\$90,700. ⁽¹⁾	Energy Efficiency Renewables	Reduce GHG emissions 20% on 1996 levels by 2011. ⁽²⁾
Savings of US\$11 million on the City's energy bill since 1991. Savings of US\$300 million on energy bills for business and residential customers since 1990. ⁽²⁾ Savings of over US\$500,000 annually in energy and maintenance costs from LED traffic light improvements. ⁽¹⁾	Energy Efficiency Sustainable Buildings Transport Renewables Waste Management Offsets	Reduce GHG emissions 10% below 1990 levels by 2010. ⁽¹⁾
US\$414,000 saved per year on energy costs. Expenditures up to 1997 matched cumulative savings from energy retrofits. ⁽³⁾	Fuel Switching Energy Efficiency Transport Waste Management Sustainable Buildings	Reduce City corporate GHG emissions 20% on 1990 levels by 2005 and by an additional 1% each year thereafter until 2012. ⁽²⁾ Reduce municipality-wide GHG emissions 6% on 1990 levels by 2012. ⁽⁴⁾
Not documented	Renewables Communications Energy Efficiency	Reduce CO ₂ emissions from the energy and transportation sectors 25% by 2010 on 1990 levels. ⁽²⁾
Reduced energy consumption and costs saved more than US\$3 million since 2001 by 2005. ⁽³⁾	Renewables Energy Efficiency Fuel Switching Sustainable Buildings	Reduce GHG emissions 15% on 1990 levels by 2010. ⁽²⁾
US\$2.2 million annual saving through energy efficiency projects. ⁽²⁾	Renewables Energy Efficiency Waste Management Transport	Reduce GHG emissions 20% between 1990 and 2012. ⁽⁴⁾ Convert to zero-emission bus fleet by 2020. ⁽⁵⁾ Reduce city-wide electricity demand by 55MW by 2008. Obtain 50MW of City electricity from renewable sources by 2012, and 250MW of City power from co-generation by 2008. ⁽⁶⁾
Energy efficiency programs have saved city ratepayers tens of millions of dollars. ⁽³⁾	Renewables Offsets Waste Management Energy Efficiency	Reduce City corporate GHG emissions 21% by 2010 on 1990 levels. ⁽⁴⁾ Avoid production of 100MW through energy efficiency and conservation by 2010. Source 100MW of non-hydro renewable energy by 2010. Zero net GHG emissions from city-owned electric utility by the end of 2005. ⁽²⁾
US\$59 million in annual energy cost savings. ⁽¹⁾	Energy Efficiency Waste Management Renewables Transport	Reduce CO ₂ emissions 20% on 1988 levels by 2005. ⁽¹⁾
Not documented	Renewables	Carbon neutral municipality by 2006. ⁽²⁾
US\$16-25 million in cumulative revenue estimated from landfill methane capture. ⁽³⁾ The Better Buildings Partnership facilitated retrofits in 467 privately owned buildings, saving a total of US\$102 million in energy costs. ⁽⁴⁾	Waste Management Sustainable Buildings Energy Efficiency Transportation	Reduce City corporate GHG emissions 20% by 2005 on 1990 levels. ⁽²⁾
Converting lights to LEDs saves taxpayers US\$247,500 per year in energy costs, and US\$110,000 per year in maintenance costs. ⁽²⁾	Energy Efficiency Sustainable Buildings Fuel Switching Transport	Reduce municipal GHG emissions 6% by 2010 on 1990 levels and from City corporate operations 20% by 2010 on 1990 levels. ⁽³⁾
Not documented	Fuel Switching Energy Efficiency Transport Communications	Reduce CO ₂ emissions from fossil fuel 50% per capita by 2001 on 1993 levels (set in 1996). ⁽²⁾
£5.4 million saved in City energy and water bills since 1990. ⁽¹⁾	Energy Efficiency Sustainable Buildings Renewables Transport Offsets	Reduce energy consumption from City buildings 40% by 2001 on 1990 levels (set in 1990). Reduce GHG emissions (corporate and municipal) 80% by 2090 on 1990 levels (set in 2002). ⁽¹⁾

REGIONS SHOWING THE WAY



EVEN IN THE US AND AUSTRALIA, AMBITIOUS PLANS TO COMBAT CLIMATE CHANGE ARE IN PLACE AT THE REGIONAL LEVEL. DAVID BIELLO, ENVIRONMENTAL FINANCE, REPORTS.

Not all national governments share the same views on the urgency of action to fight global warming or the need for limits on greenhouse gas (GHG) emissions. The US and Australia, two of the most intensive emitters of GHGs, have explicitly repudiated the Kyoto Protocol to combat climate change and rejected calls to cap the emissions of their industries, transport and households.



But that doesn't mean that nothing is happening to tackle the problem in those countries. In fact, many of their constituent states have taken significant steps to cut back on GHG emissions.

For example, nine states in the Northeast of the US – Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont – have jointly created a regional cap-and-trade programme.

Preliminary details of the plan – the Regional Greenhouse Gas Initiative (RGGI) – include stabilising carbon dioxide (CO₂) emissions at 135 million tonnes per year by 2009 and then cutting them by 10% by 2020. In addition, RGGI hopes to link with international efforts by allowing the use of credits from the European Union Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism 'if the price of (RGGI) allowances reach a set price per ton on a sustained basis'.

None of this would be possible if the nine states had not already taken steps to understand their GHG emissions. In fact, the overall cap was set by averaging the emissions from each state between 2000 and 2004. All told, 21 US states have some form of GHG reporting or registry, according to the Pew Center on Global Climate Change. Furthermore, 28 states have some form of climate plan and only 11 states have not inventoried their GHG emissions at all.

Of course, the RGGI states have a bit of an advantage. In addition to planned GHG reductions, all have some form of renewable portfolio standard (RPS) that requires a certain percentage of that state's power supply to be derived from renewable, non-polluting energy sources. These commitments range from 4% in Massachusetts to 30% in Maine. Meanwhile, New Hampshire and Massachusetts have capped GHG emissions from power plants.

Plus, several of the RGGI states have already committed to reducing their GHG emissions to 1990 levels by 2010, under the terms of an agreement with the premiers of the provinces in Eastern Canada. This international, state-level pact aims to further reduce regional emissions by 10% below 1990 levels by 2020 and ultimately reduce those emissions by 75-85%.

But the Northeast is not the only hotbed of climate change action in the US. The West Coast states – led by California and its first-in-the-world tailpipe standards for GHG emissions from vehicles – are developing their own regional approach. Oregon and Washington have adopted California's new vehicle standards – demanding a 22% cut in CO₂ by 2012 – as have a slew of other states and even the national government of Canada.

And, while Oregon and Washington require new power plants to offset their anticipated CO₂ emissions as part of their permission to build, Governor Schwarzenegger of

MAIN: CALIFORNIA HAS INTRODUCED A LAW STATING THAT RENEWABLE ENERGY MUST BE THE SOURCE OF 20% OF THE ELECTRICITY SOLD BY 2017.

LEFT: SCHLESWIG HOLSTEIN PRODUCED 25% OF ELECTRICITY FROM WIND POWER IN 2004.

RIGHT: NEW YORK STATE OFFERS A TAX INCENTIVE PROGRAMME FOR GREEN BUILDINGS SUCH AS 4 TIMES SQUARE, THE HOME TO CONDE NAST.

California has committed to reduce GHG emissions to 2000 levels by 2010 and 1990 levels by 2020. Further, he has pledged to cut the state's emissions by 80% below this year's level by 2050.

Perhaps most surprisingly, Texas, is also addressing the climate change problem. The Lone Star state has arguably the nation's most effective RPS, responsible for more than 1,700MW of new wind power capacity since 1999, allowing the state to meet its goal of 2,000MW from renewable resources by next year – three years ahead of schedule.

Similarly, New South Wales plans to reduce the GHG emissions attributable to each of its residents from 7.96 tonnes currently to 7.27 tonnes by 2007 as part of its Greenhouse Gas Abatement Scheme.

New South Wales has also taken the lead in establishing a multi-state working group to develop a National Emissions Trading Scheme for Australia. Already, both Victoria and South Australia have set renewable electricity goals – 10% by 2010 and 15% by 2014 respectively – in an effort to curb GHG emissions. Victoria has also committed to render its fleet of government vehicles carbon neutral while South Australia has pledged to create a GHG plan for its industrial sector by 2006.

But, of course, it is not just states in countries outside the Kyoto Protocol that are taking action. In Canada, which has committed to a 6% reduction below 1990 levels under Kyoto, Manitoba, Ontario and Quebec have all developed climate change plans. Indeed, Manitoba has pledged to exceed the national government's target – pledging to cut its own emissions by 23% below 1990 levels by 2012.



The federal structure is less common in Europe but Schleswig-Holstein in Germany is at the forefront of national efforts to combat climate change, helping its citizens profit from a cleaner energy future through investment in wind farms. Further, its government has pledged in the past to increase renewable energy by 50% over 1990 levels by 2010 while also cutting CO₂ emissions by 15% below 1990 levels.

Even in developing countries – which are not bound by the Kyoto Protocol – some regions hope to benefit from GHG reductions. For example, Sao Paulo State in Brazil – home to that nation's largest city – has begun to catalogue GHG emissions from all power plants, manufacturing facilities and other stationary sources in preparation for a state-wide emissions trading scheme.

Ultimately, climate change is a global problem and must be solved by reducing GHG emissions internationally. However, these regional efforts can be the impetus that leads a national government to finally act. After all, it was California's clean air laws that convinced the US government to enact the Clean Air Act. It may be the RGGI trading programme that finally convinces the world's largest GHG emitter to take concerted action on climate change.

REGION	COUNTRY	CARBON FOOTPRINT	BENEFITS
CALIFORNIA	United States	505 million tonnes CO ₂ e in 2001. ⁽¹⁾	\$20 billion already saved in electricity and natural gas expenditures; US\$57 billion additional savings expected by 2011. ⁽²⁾ US\$3 billion expected savings on Appliance Efficiency Standard Act over 15 years. ⁽¹⁾ Vehicle standards have an estimated negative cost of US\$135 per ton of CO ₂ emissions reduced over the lifetime of each car. ⁽⁴⁾
CONNECTICUT	United States	48 million tonnes of CO ₂ e in 2000. ⁽¹⁾	CO ₂ emissions from fossil fuel remained relatively flat between 1990 and 2001. ⁽⁴⁾ Clean Energy Fund – US\$26 million/year invested in clean energy technologies – leading to increased jobs and economic development. ⁽⁵⁾
MAINE	United States	20.9 million tonnes CO ₂ from fossil fuels combustion in 2001. ⁽¹⁾ In 1990 CO ₂ emissions from fossil fuels were 91% of GHG emissions. ⁽²⁾	According to Department of Environment Protection almost half of the measures in the State's Climate Action Plan will be achieved at little or no cost. ⁽⁴⁾
MANITOBA	Canada	22 million tonnes CO ₂ e in 2002. ⁽¹⁾	Emissions remained relatively stable between 1998 and 2002. ⁽²⁾ Wind turbines can bring up to US\$4,275/turbine/year for local land owners. Manitoba installs 25-30% of Canada's ground source heat pump systems with sales tripling in the last four years and set to double in the next two. ⁽³⁾
MASSACHUSETTS	United States	81.2 million tonnes CO ₂ from fossil fuels combustion in 2001. ⁽¹⁾ In 1990 CO ₂ emissions from fossil fuels were 90% of GHG emissions. ⁽²⁾	Reduced CO ₂ emissions from fossil fuel combustion by 1.6% between 1990 levels in 2001. ⁽¹⁾
NEW JERSEY	United States	121.6 million tonnes CO ₂ from fossil fuels combustion in 2001. ⁽¹⁾ In 1990 CO ₂ emissions from fossil fuels were 91% of GHG emissions. ⁽²⁾	Over US\$742 million in savings projected by 2020 from the State's Appliance Efficiency Standards. ⁽⁴⁾
NEW MEXICO	United States	57.2 million tonnes CO ₂ from fossil fuels combustion in 2001. ⁽¹⁾ In 1990 CO ₂ emissions from fossil fuels were 82% of GHG emissions. ⁽²⁾	According to the New Mexico Energy, Minerals, and Natural Resources Department a US\$20 million bond for solar and energy efficiency could result in utility savings of US\$46 million over the 20-year life of the bond. ⁽⁵⁾
NEW SOUTH WALES	Australia	63.4 million tonnes CO ₂ e in 2003. ⁽¹⁾	Estimated savings of US\$38 million in vehicle lease and fuel costs. US\$147 million investment stimulated in the renewable power sector. ⁽³⁾
NEW YORK STATE	United States	208 million tonnes of CO ₂ from fossil fuel combustion in 2001. ⁽¹⁾ CO ₂ from fossil fuel combustion represented 80% of total GHG emissions in 1990. ⁽²⁾	Expecting US\$284 million in overall annual savings as a result of the Appliance and Equipment Energy Efficiency Standards Act. ⁽⁴⁾
ONTARIO	Canada	203 million tonnes CO ₂ e in 2002. ⁽¹⁾	The McGuinty government's plan to replace coal could eliminate up to 30 million tonnes of GHG emissions – equivalent to taking 6.9 million cars off the road – or almost all passenger vehicles and small trucks in Ontario. ⁽⁶⁾ Ontario Ethanol Growth has the potential to spark 400 new jobs and as much as US\$430 million in new investment in rural Ontario. ⁽⁷⁾
QUEBEC	Canada	88.6 million tonnes CO ₂ e in 2002. ⁽¹⁾	Emissions remained relatively stable between 1990-2002 (increase of 1.2 %). ⁽⁴⁾ 99% of electricity produced between 2005 and 2012 (approx. 4,000MW) will come from renewable sources (hydro/wind). ⁽⁵⁾
STATE OF SAO PAULO	Brazil	Preparing in-depth inventories of stationary emissions sources preparing for implementation of State-wide emissions trading. ⁽¹⁾	Not documented
SCHLESWIG-HOLSTEIN	Germany	23.5 million tonnes CO ₂ in 2001. ⁽¹⁾	25% of electricity from wind power in 2004. In 2004, wind energy sector generated income from Renewable Energy Feed-In-Law of approx. 350 million in 2004. Wind energy sector employing an estimated 5,000 people in 2004. ⁽²⁾
SOUTH AUSTRALIA	Australia	31 million tonnes CO ₂ e in 2002. ⁽¹⁾	Not documented
TEXAS	United States	672 million tonnes of CO ₂ from fossil fuel combustion in 2001. ⁽¹⁾ In 1990 CO ₂ emissions from fossil fuels were 84% of GHG emissions. ⁽²⁾	Renewable Portfolio Standard objectives to be met three years early, with 1,700MW wind power added capacity since 1999. ⁽⁴⁾ Loan Star program saved the state US\$95 million on energy spending, and tax payers US\$90 million on program implementation by 2001. ⁽⁵⁾
VICTORIA	Australia	117 million tonnes CO ₂ e in 2002. ⁽¹⁾	Energy efficiency improvement requirements are expected to reduce industry GHG emissions by more than 1 million tonnes per year by 2007 with a net financial return to business. Under 5-star Building Regulations new houses will use 50% less energy for heating and cooling. ⁽³⁾

Appliance Efficiency Standard Act in March 2005 on 17 products not covered by federal standards. 'Public Goods Charge' providing funding for renewable power and energy efficiency. Established California Climate Action Registry, a non-profit voluntary registry to help companies and organizations establish emissions baselines against which any future reduction requirements may be applied. Energy efficient building code policies.

Climate Plan released in 2005. Adopted vehicle standards comparable to California's to cut vehicles' average emissions by 10-30% between 2009 and 2016. Participating in the development of the RGGI cap-and-trade program for electric power generators. Adopted appliance energy efficiency standard.

Climate Action Plan released in 2004 includes 54 actions covering the transportation, industrial, commercial, institutional, and residential sectors. Adherence to the LEED building standard. Highest RPS in the US with a 30% target for renewables in electricity production.

Contributed US\$1.1 million to 55 projects that help reduce GHG emissions. 140 alternative fuel vehicles are part of the provincial government's vehicle fleet. St. Leon wind farm began operation in May 2005 and will reduce emissions by 6 million tonnes over its lifetime. Manufacturing tax incentive for energy efficient equipment.

4-pollutant power plant regulations (including CO₂). Creation of the Renewable Energy Trust, which has raised US\$180 million by 2003 for renewable R&D. First state in the US to require transportation projects to report on expected CO₂ emissions. Participating in the development of the RGGI cap-and-trade program for electric power generators.

Appliance Energy Efficiency Standards for household and commercial appliances. Adopted California's standard on 12 types of appliances as well as standard to cut vehicles' average emissions by 10-30% between 2009 and 2016.

In 2005 passed the Energy Efficiency and Renewable Energy Bonding Act allowing the sale of US\$20 million in bonds to support energy efficiency and solar projects in public buildings.

Led establishment of inter-jurisdictional working group to develop the framework for a National Emissions Trading Scheme. NSW GHG Abatement Scheme established mandatory GHG intensity benchmarks on electricity retailers and other designated parties. Developed Australian Building Greenhouse Rating (ABGR) scheme and performance targets for all Government offices.

Governor George Pataki initiated the development of the RGGI cap-and-trade program for electric power generators. Established Appliance and Equipment Energy Efficiency Standards Act. Adopted California's standard to reduce average vehicle emissions by 10-30% between 2009 and 2016. System benefits charge established to fund energy efficiency and R&D in renewable resources.

Canada-Ontario MOU for Cooperation on Climate Change (May 2004). Plan to replace coal-fired power generation. Requests for Proposals for 2,235MW of new clean generation and demand-side projects, and 1,595MW of new renewable supply.⁽²⁾ Five-Point Action Plan (June 2004) to reduce industrial emissions of air pollutants.⁽³⁾ Draft ethanol regulation expected to reduce GHG emissions approx. 800,000 tonnes annually.⁽⁴⁾ US\$445 million, 12-year Ontario Ethanol Growth Fund.⁽⁵⁾

Electricity consumption will be reduced by 3TWh between 2005 and 2010 through Hydro-Québec's energy efficiency programme. Programmes to encourage increased use of public transportation in Montreal.

Specific public transport lanes are electronically monitored and enforced. State has dozens of hydro and combined heat and power plants.

Implemented an Energy Saving Decree, two years before it was introduced at the Federal level in 2003. First State in Germany to have its biomass programme co-financed by the European Union as part of its agricultural subsidies. Local citizens are able to invest in wind farms and benefit from profits.

South Australia's State Strategic Plan released in March 2004. It commits the State to develop an industry-wide greenhouse strategy by 2006. Second highest installed capacity of wind energy in Australia.

Loan Star program providing energy efficiency project financing for state facilities, allowing borrowers to repay loans through cost savings from retrofit projects.

Requiring action on energy efficiency under Environment Protection Authority EPA Victoria licensing requirements for industrial sites. Mandatory 5-Star energy efficiency standards for all new houses and apartments introduced as part of building regulations. US\$6.2 million Renewable Energy Support Fund.

Source 20% of state electricity from renewables by 2010.⁽²⁾ Reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and by 80% from 2005 levels by 2050.⁽³⁾ California Air Resources Board adopted the world's first ever law to reduce GHG emissions from cars and light trucks – 22% reduction in CO₂ and other pollutants by 2012, and 30% by 2016.⁽⁴⁾

Set targets through NEG/ECP Climate Change Action Plan 2001 to: stabilize GHG emissions to 1990 levels by 2010; reduce emissions 10% on 1990 levels by 2020; and reduce emissions 75-85% on 1990 levels over the long term.⁽²⁾ Source 20% of state's electricity from renewables by 2010, 50% by 2020, and 100% by 2050.⁽³⁾

Renewable Portfolio Standard currently requires that 30% of electricity be sourced from renewables. Set targets through NEG/ECP Climate Change Action Plan 2001 to: stabilize GHG emissions to 1990 levels by 2010; reduce emissions 10% below 1990 levels by 2020; and reduce emissions 75-85% below 1990 levels over the long term.⁽³⁾

Climate Change Action Plan sets goal of reducing GHG emissions 23% on 1990 levels by 2012.⁽¹⁾ Manitoba's Ethanol Initiative requires a 10% blend in the next 2-3 years. Double the number of geothermal energy installations by 2007.⁽²⁾ Double energy efficiency across the province by 2010 on 2004 levels. 1,000MW of windpower over the next 10 years.⁽³⁾

Renewable Portfolio Standard to provide 1% of power from renewables by 2003 and 4% by 2009.⁽³⁾ Set targets through NEG/ECP Climate Change Action Plan 2001 to: stabilize GHG emissions to 1990 levels by 2010; reduce emissions 10% below 1990 levels by 2020; and reduce emissions 75-85% below 1990 levels over the long term.⁽⁴⁾

Reduce state CO₂ emissions by 3.5% from 1990 levels by 2005.⁽³⁾

Proposed targets of returning to 2000 GHG levels by 2012, 10% reduction by 2020, and 75% reduction by 2050.⁽³⁾ Public Regulation Commission issued a rule that 5% of retail electricity supplies must be renewable electricity by 2006, increasing 1% annually to 10% in 2011.⁽⁴⁾

Reduce per capita GHG emissions to 7.27 tonnes by 2007.⁽²⁾ Return to 2000 GHG emissions levels by 2025, and reduce emissions 60% by 2050.⁽³⁾

Increase share of renewables in primary energy use from 10% in 2000 to 15% by 2020. Reduce state GHG emissions by 5% below 1990 levels by 2010, and 10% by 2020.⁽³⁾

Reduce peak electricity demand 5% by 2007. Reduce government's consumption of electricity by 10% by 2010. Source 5% (1,350MW) of all generating capacity from renewables by 2007, and 10% (2,700MW) by 2010. Gasoline sold in province to contain an average of 5% ethanol by 2007.⁽²⁾

Set targets through NEG/ECP Climate Change Action Plan 2001 to: stabilize GHG emissions to 1990 levels by 2010; reduce emissions 10% below 1990 levels by 2020; and reduce emissions 75-85% below 1990 levels over the long term.⁽²⁾ Improve energy efficiency of government buildings by 20% between 1990 and 2010.⁽³⁾

8% reduction in fuel consumption by 2020 (set 2003). Approved a decree to introduce emissions caps for State sub-regions in March of 2004.⁽¹⁾ Proposed target of 10% share of renewables by 2010.⁽²⁾

Reduce CO₂ emissions 15% by 2010, on 1990 levels. Increase share of renewable energies in end energy consumption 25% by 2010, on 1990 levels. Increase share of electricity from renewables in electricity consumption 50% by 2010, on 1990 levels (under evaluation by new government elected in 2005). Increase share of electricity from combined heat and power in electricity consumption 30% by 2010, on 1990 levels.⁽²⁾

Source 15% of electricity from renewable energy sources by 2014. Reduce government energy consumption by 25% by 2014. Lead Australia in wind and solar power generation by 2014. Double the use of public transport to 10% of weekday travel by 2018.⁽²⁾

Renewable Portfolio Standard set in 1999 to meet 3% of electricity demand (2,000MW) from renewable energy by 2009, updated in 2005 to reach 5% by 2015.⁽³⁾

Source 10% of electricity through renewables by 2010. Reduce energy consumption in government buildings by 15% by 2006. Reduce GHG emissions from the government's passenger vehicle fleet by 10% by 2006. Purchase offsets to achieve a 'carbon neutral' government fleet.⁽²⁾

HSBC starts carbon neutral 'dry run' ahead of its January 2006 dead line

The time for talking is over. HSBC made a promise at the end of 2004 that it would be the first major bank in the world to go carbon neutral. That announcement was made on the opening day of the 10th conference of the parties of the UN Framework Convention on Climate Change.

At the time, Steve Howard, Chief Executive of The Climate Group, summed up the aims of the bank when he said: "HSBC's decision sets a new benchmark for the financial sector. They will gain a deeper insight into the emerging low carbon economy and be exceptionally well placed to understand the needs of and opportunities for their clients."

Going carbon neutral is the third part of HSBC's carbon management plan. The first two: being as energy efficient as possible and buying renewable electricity are already being implemented. So, to understand what going carbon neutral really means and to avoid the potential pitfalls, the bank is entering a three-month pilot phase. But it would be the first to admit that it has already been through a far more challenging process than anticipated to start to gain that 'deeper insight'.

HSBC's commitment to be carbon neutral is wholly voluntary, as the company is not a big CO₂ 'emitter'. This is in contrast with for example, major oil companies, which are legally required under the EU Emissions Trading Scheme to reduce their greenhouse gas emissions. Consequently, there is no need for the bank to buy Certified Emissions Reductions (CERs) from the regulated market that has grown up around the Kyoto Protocol. The bank's attention therefore, has been on seeking Voluntary Emission Reductions (VERs) whose sale is not bound by formal rules.

And herein lay the challenge. "VERs are generally cheaper than CERs as the reductions don't have to be officially certified," explains Francis Sullivan, HSBC's Adviser on the Environment. This means we are currently buying in a 'grey market.'

But within an un-regulated market it is difficult for a company to know what it is really buying

and HSBC was not prepared to risk buying credits from anywhere but the highest quality sources in order to meet its own high credibility standards and satisfy public scrutiny. To ensure this its carbon management task force, led by Group Chief Executive Stephen Green, began the process of validation by making a firm list of requirements (see below).

HSBC's Critical List

- Vintages – carbon offset of vintages (by year of production) 2005 and 2006 will be considered for the Q4 2005 dry run. 2004 vintages might be considered if appropriate.
- Scale – a portfolio of emissions reductions will be created, including two "anchor" projects of at least 50,000 tonnes CO₂ each, and 3-4 other smaller projects to make the total of 170,000 t. Minimum project size is 10,000 t.
- Technologies – offset projects will be prioritised if their reductions are achieved through energy efficiency or renewable energy (e.g. wind, solar, biomass).
- Country – Priority will also go to offset projects in developing countries, in particular Brazil, Mexico, India and China.

HSBC calculated that its emissions for the last quarter of 2005 will be 170,000 tonnes of CO₂, based on the 2004 final quarter figures. The figure was reached by reading its gas and electricity meters, measuring its business travel and then working out the CO₂ produced from all these sources, with a five per cent contingency factored in. To become a carbon neutral company, the need therefore was to buy and retire offsets to match that amount.

A Request for Proposals was issued on the internet and seventeen organisations – brokers and companies – replied, suggesting around 100 projects. Thus began a process of selection and validation that presented the bank with a plethora of new challenges.

The bank's carbon management task force painstakingly applied the criteria to reach a shortlist



of 17. Because most of the projects were voluntary, the main aspect that the task force assessed was ‘additionality’ – defined as ‘the degree to which a project is undertaken above and beyond normal commercial and regulatory practice’. One of the problems the task force encountered was the lack of standardised terminology. Precise details of long and detailed project documents required clarification to ensure the offsets were genuinely incremental.

The task force worked closely with HSBC’s Purchasing Department, which also found itself on a steep learning curve. “We found the carbon market to be very fragmented and diverse, and the vocabulary – additionality, CDM, VERs – was new to all of us,” says Andrew Clough, Relationship Manager, “We have worked hard to create a level playing field which offset suppliers can compete on.”

Reaching agreement with the final selection will be another challenge as none of HSBC’s existing supplier contracts fit, and a new bespoke template is being drawn up.

HSBC is currently looking to engage the services of a third party auditor to help validate the company’s emissions and carbon offset projects.

“An off-the-shelf system of grading and standardisation does not exist at the moment,” points out Francis Sullivan, “so we want to seek the best verifiers we can find and develop our own system with their help.”

It has become obvious, feels Sullivan, that although the experience has been valuable, the selection process would be too demanding to carry out alone on a quarterly basis: “We need a better way of finding what we want in the market.”

Steve Howard of The Climate Group is impressed by what the carbon management task force has achieved: “HSBC is a pioneer in carbon neutrality. It is not just buying carbon credits, but also reducing its own CO₂ footprint. This is the first step towards the bank being able to offer products and services that will enable its clients, some of whom are big emitters, to lower their own CO₂ footprints and adopt clean energy solutions.”

CCX

Chicago Climate Exchange – The world's first and North America's only voluntary, legally binding rules-based greenhouse gas emission reduction and trading system.
www.chicagoclimatex.com

CDP

Carbon Disclosure Project – A group of 155 leading institutional investors, who have collectively written to the 500 largest companies worldwide, asking for the disclosure of investment-relevant information concerning their greenhouse gas emissions.
www.cdproject.net

CO₂e

Carbon dioxide equivalent – Used to express reductions in a suite of greenhouse gases, according to each gas' climate change potential relative to CO₂.

ETHANOL

A fuel additive made from grain or other biomass sources. Typically, ethanol is blended at a rate of 10% with unleaded gasoline.

GHG

Greenhouse gas – A group of gases absorb and re-emit infra-red radiation. These gases occur through both natural and human influenced processes and include: carbon dioxide, nitrous oxide, methane, sulphur hexafluoride, hydrofluorocarbon, and perfluorocompounds.

ICLEI

International Council for Local Environmental Initiatives.
www.iclei.org

ICT

Information and Communications Technology.

LEED

Leadership in Energy and Environmental Design – Is a voluntary standard for developing high-performance, sustainable buildings, developed by the members of the United States Green Building Council.
www.usgbc.org/LEED

LED

Light emitting diode.

LPG

Liquified petroleum gas.

PFC

Perfluorocompounds are a family of gases used as solvents. The climate change potential of PFCs is 6,500 to 23,900 times greater per molecule than that of CO₂.

NEG/ECP

Conference of New England Governors and Eastern Canadian Premiers.
www.negc.org
www.cap-cpma.ca

RGGI

The Regional Greenhouse Gas Initiative is a cooperative effort by Northeastern and Mid-Atlantic US States to reduce carbon dioxide emissions.
www.rggi.org

RPS

Renewable Portfolio Standard – Ensures that a minimum amount of renewable energy is included in the portfolio of the electricity resources serving a state.

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www.northsoutheastwest.org



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Required Reading For World Leaders

There are many surprising lessons embedded in this second Carbon Down Profits Up report. If I had to pick a single most important one, it would be this: energy efficiency is the entry point for action on climate change and a great unrealized frontier of profitability.

In the charts, if you scan your eye down the columns marked “measures undertaken”, almost without exception you will find the phrase “energy efficiency” – no matter whether you are looking at the data on a corporation, a regional government, or a municipality. Just about every entity that has earned a place in this report has found a way to consume energy more efficiently, or to make products that do, resulting in a smaller emissions footprint and significant savings. In many cases, they have already far surpassed the demands of Kyoto regulations. They are demonstrating how to transform the threat of climate change into a business opportunity, and getting us on the path to an appropriate response to a global problem.

From one point of view, it is scandalous that it has taken us this long to understand that reducing carbon will increase profits. Economists who place blind faith in the axiomatic efficiency of the marketplace never suspected – indeed have even denied – that there could be efficiency gains of the magnitude we see recorded in these pages. Thanks to the ability of corporate managers to foresee risk and opportunity and take action, we have before us the evidence we need to take big, intentional steps toward a low carbon future.

Let’s look at some of this news. There is data from 3M, which reduced its carbon footprint by 37% between 1990 and 2004 and saved more than \$190 million. Bayer reduced its direct emissions 63% between 1990 and 2004. They did this while significantly expanding production – which between 1998 and 2004 alone increased by 22%. Canon not only lowered its own carbon footprint, its energy efficient products yielded savings of \$250 million for its customers. Hewlett-Packard reports a 35% increase in high-end server energy efficiency between 2002 and 2003 alone. IBM saved \$791 million reducing emissions 37.8% from energy conservation measures. The state of California – by itself the world’s sixth largest economy – has already saved itself \$20 billion in electricity and natural gas expenditures and by 2011 forecasts saving \$57 billion more. Even large utilities – like Kansai Electric Power, Cinergy and Entergy – are telling the same carbon down profits up story.

The Climate Group is to be applauded for compiling this straightforward report and broadcasting it to the world. This report is so suggestive and compelling that it should be required reading in every company boardroom and every national and international ministerial meeting. It should spark managers to look opportunistically at emissions reductions and embolden regulators to impose meaningful standards. This report is telling us that through the profitable pursuit of energy efficiency, we can safely take our first steps with carbon management on a large scale, overcome our crippling fear of economic ruin, and look forward optimistically toward a low carbon future.

By Michael Northrop

Michael Northrop directs the Sustainable Development program at the Rockefeller Brothers Fund in New York.



Rockefeller
Brothers Fund

Philanthropy for an Interdependent World

The Climate Group is an independent, non-profit organisation dedicated to advancing business and government leadership on climate change. We are based in the UK, the USA and Australia and we operate internationally.

The organisation was founded in 2004 by a diverse group of companies, governments and supporters who saw the opportunity to create new momentum in the international effort to stop global warming.

Proactive companies, states and cities around the world are demonstrating that cuts in greenhouse gases required to stop climate change can be achieved whilst growing the bottom line. Using the work of these leaders as a catalyst, The Climate Group works to accelerate international action on global warming with a new, strong focus on practical solutions.

We promote the development and sharing of expertise on how business and government can lead the way towards a low carbon economy whilst boosting profitability and competitiveness.

The Climate Group represents a new approach. Focused on solutions and positive collaboration across the government, business and non-profit sectors, we act independently of special interests and political affiliations.

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CARBON DOWN PROFITS UP

SECOND EDITION 2005



Dear reader,

We hope you find this second edition of **CARBON DOWN PROFITS UP** useful and stimulating reading. Our thanks go to HSBC and Rockefeller Brothers Fund for supporting the production of the report, to the team that compiled the data, and to The Carbon Disclosure Project for providing a significant proportion of the information reported.

We believe the findings of this report make an important contribution to the international debate still raging about the economics of addressing climate change. Its central finding is that a growing multitude of well-known, well-respected international companies are cutting their greenhouse gas emissions whilst thriving financially. World cities are also finding that climate leadership is possible and not at odds with preserving municipal budget and taxpayer dollar alike. The range and extent of reductions achieved together with the value created is impressive and shows that the first steps to a low carbon economy can be highly beneficial for many

The data presented have almost all been presented publicly elsewhere. The primary purpose of this report is to draw them together as a reference and as evidence that greenhouse gas reduction is not necessarily at odds with financial and economic success.

Synthesizing the financial data reported by diverse organizations has not been straightforward. The process is hampered by the variety of reporting styles used by companies and cities when assessing and disclosing the financial implications of their actions. Reported savings include net and gross, annual and cumulative, municipal and community, historical and projected. The report's aggregated savings from the corporate sector (US\$11.6 billion) and world cities (US\$745 million) inevitably therefore hide variability in the raw data. For transparency we have provided further clarification overleaf on the summary data. We strongly encourage interested readers to refer to the data tables as well as the summary and we welcome your feedback and suggestions for improving future editions.

Yours sincerely

Steve Howard
CEO
THE CLIMATE GROUP

Mark Kenber
Policy Director

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NOTES ON AGGREGATION OF FINANCIAL SAVINGS

CORPORATE SAVINGS

The corporate aggregate saving of US\$11.6 billion presented in the report is indicative and represents a range of savings types reported by 43 of the 74 companies included in the report (the remaining 31 companies reported on greenhouse gas reductions only). Twenty-one companies report cumulative savings totalling US\$9.4 Billion over the period of implementation of their measures to reduce greenhouse gas emissions (typically 2-14 years). A further 14 companies report annual gross savings totalling US\$844 million per year (reported over periods ranging from one to 14 years). Five companies report savings totalling US\$971 million that are wholly, or include an element of, projected savings in the future. Finally three companies report a total of US\$371 million of savings from their environmental programmes where GHG reduction appeared to generate a significant proportion of the financial benefit received. The aggregated figure reflects the total of the four categories, taking the conservative approach of including only once any annual cost savings reported. Figures represent a mix of gross and net savings. Payback on investment was rarely reported but figures range from 10% (UTC) to 200% (Tembec).

CITY GOVERNMENT SAVINGS

Twenty-two cities reported on financial savings from greenhouse gas reduction measures. Thirteen cities reported cumulative corporate savings of US\$262 million (saved over periods of four to 13 years). Three reported additional, cumulative city-wide savings of US\$403 million (e.g. business and residential energy bill savings from city programmes). Ten cities also reported annual corporate savings totalling US\$80 million per year. Several cities reported more than one type of saving. The aggregate figure of US\$745 million reflects the total of these figures, again counting any annual figures only once. Savings reflect a mix of gross and net figures. Only one city (Newcastle, Australia) reported on payback on investment, estimating 24% over nine years.