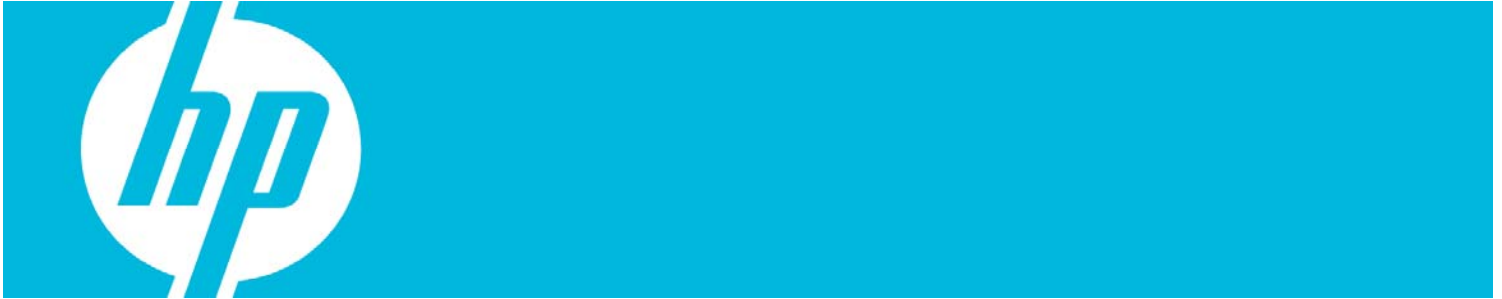


HP Eco Solutions Program
HP's Climate Strategy
Whitepaper

June 2008



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Introduction

Climate change has emerged as one of the most serious problems facing global society today. According to the Intergovernmental Panel on Climate Change (IPCC), the current warming of the climate system is “unequivocal”—eleven of the last twelve years rank among the warmest twelve years in the record of global surface temperature and it is “likely” that average Northern Hemisphere temperatures during the second half of the 20th century were the highest in at least the past 1,300 years. This warming is “very likely” due to human-caused greenhouse gas (GHG) emissions according to the IPCC, which recommends reducing global GHG emissions by between 50 and 85 percent by 2050 from 2000 levels in order to limit global temperature rise to 2.0-2.4°C by the end of the 21st century.

The implications of climate change are vast and both societal and economic in nature. Extreme weather events, rising sea levels, water scarcity, crop yield reduction, and species extinction are already occurring.

Climate change is playing an increasing role in the worldwide business community as well. Global efforts to meet the IPCC’s recommended reductions will create opportunities for individual companies as well as entire industries that lead the shift to a low-carbon economy. Climate touches on the whole range of business drivers, from risk-heavy drivers—like increased requirements for the public sector and increased regulatory pressure on businesses—to competitive opportunities—like customers wanting to reduce their own footprint and therefore demanding low-carbon solutions.

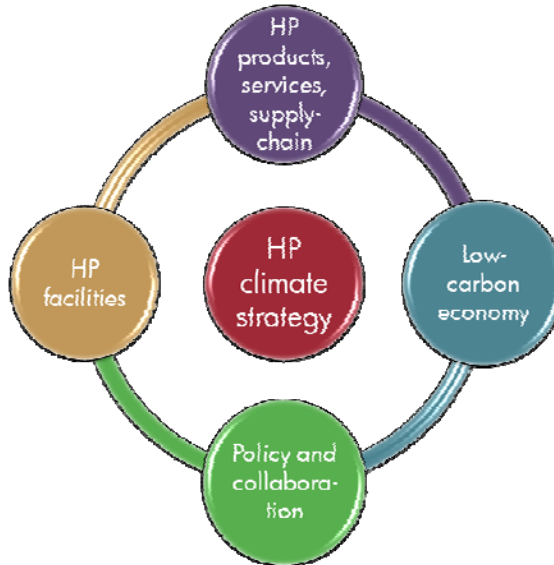
In the Information Technology (IT) industry, we understand our role as leaders in the fight against climate change. While we are responsible for only two percent of the world economy’s global GHG emissions, we believe we also have an important role to play in helping to reduce the other 98 percent of global GHG emissions. At HP, we accept our leadership role and have partnered with the World Wildlife Fund (WWF) to establish projects aimed at addressing the causes and consequences of climate change on a global basis.

As we further understand what has and is happening with regard to climate change, it is becoming increasingly clear that we must also focus on the future. At HP, we are exploring future scenarios for climate change to properly prepare our business, customers and consumers of what is to come.

HP’s Climate Strategy

HP is focused on making the biggest impact we can on climate change and we have developed a comprehensive climate strategy to make that happen. Our climate strategy framework includes reducing the footprint of HP-owned operations, reducing the impact of our products and services on the climate, developing products and services that will reduce the footprint of the rest of the economy, and advocating for effective public policy to enable the transformation of the economy to low-carbon.

Figure 1. Climate Strategy Framework



Although our strategy will remain constant, HP's commitment and goals are ever-evolving, reflecting company achievements, technological advances, and our constant desire to accelerate progress toward a low-carbon economy. In 2007, for example, our goal was to reduce energy use from HP products and operations by 20 percent over 2005 levels by the end of 2010. But by the end of October 2007, we had already reached a 19.2 percent reduction. In conjunction with our announcement to join the WWF Climate Savers Program, a group of leading corporations from around the world that are working together to reduce GHG emissions, HP announced that we were raising the bar for ourselves. Today, our 2010 goal is to reduce the energy consumption of HP products and operations combined by 25 percent below 2005 levels.

Operations

To credibly advocate for a low-carbon economy, we must lead by example and reduce the carbon footprint of our own operations. HP's goal is to reduce the absolute energy consumption of our facilities by 16 percent from 2005 levels by 2010.

To do this, we are employing many of the same features internally that we offer our customers – data center consolidation, energy efficient servers and smart cooling, to name a few. We are consolidating our real estate—HP now owns and leases less space than we did a year ago, even as business has grown. In 2007, HP decommissioned 179 sites around the world, yielding a net reduction of 2.9 million square feet, or 5.7 percent of our total space. We are also reducing our environmental impact by expanding our use of renewable energy resources—HP increased its use of renewable energy more than fivefold between 2006 and 2007, from 11 million kWh to 61 million kWh. For our facilities in Ireland, we are purchasing wind-generated electricity from wind farms throughout Europe which will make up 90 percent of electricity use of our operations, and in

the United States, HP installed a large-scale solar power system at our San Diego facility, generating an estimated 1.7 million kWh of electricity.

In addition, HP works to build a company culture in which employees are educated about climate change and the environment and are rewarded for innovative ideas to reduce HP's environmental impact. During an ideas competition in 2007, HP employees around the globe came up with 4,600 ideas around reducing our environmental footprint and many of them are being implemented. Our Live Green program supports employees in making smart environmental choices every day. In addition to providing tips on how to use less energy, reduce carbon emissions and save money, HP asked employees to make a pledge to take action. By tracking how much HP's 172,000 employees worldwide are reducing carbon emissions—and by promoting friendly internal competition—HP is fostering a work environment in which carbon reducing practices are common, easy and encouraged. Worldwide, many HP sites hold annual Earth Day and World Environment Days for employees with a variety of activities that focus on helping employees reduce their environmental impact at home and at work.

Products and Services

Products and services offer businesses perhaps the biggest opportunity to reduce emissions, also providing customers with the environmental options they demand. At HP, we are focusing heavily, as always, on emissions during customer use, or “use-phase” of a product, which, depending on the product, can be the most energy intensive phase of the product life cycle. We are also expanding our focus to include reducing the emissions of our products and services throughout their life cycles.

HP has set specific goals for representative product categories to help us achieve our overall goal of reducing the combined energy consumption and associated GHG emissions of HP operations and products to 25 percent below 2005 levels. These product-specific goals include:

- Improve energy efficiency for high-volume printer families by 30 percent, relative to 2005 levels
- Improve energy efficiency for high-volume server families by 50 percent, relative to 2005 levels
- Reduce the energy consumption of high-volume desktop and notebook PC families by 25 percent, relative to 2005 levels

Through HP's Design for Environment (DfE) program, HP's product designers identify, prioritize and recommend environmental improvements for products during the design stage, focusing on energy efficiency, materials innovation and design for recyclability as the top priorities. The smaller size of the HP Consumer Slimline PC, for example, saved enough metal in 12 months—8,500 tonnes—to build another Eiffel Tower. By designing for the environment from the start, we can ensure greater efficiency throughout the life cycle of a product – from design, raw materials, manufacturing and distribution through the use and end-of-use phases.

Beyond the design of the device itself, HP offers products that help our customers help themselves, from the individual to the business. Energy efficient products help the individual consumer cut their personal energy use. For businesses, HP offers expert, customizable assessment and site-planning services to help customers evaluate their data centers and develop more effective and efficient power and cooling strategies. In October 2007, HP launched our Dynamic Smart Cooling (DSC) service to help substantially reduce the energy needed for cooling data centers, which can represent 40 to 50 percent of their total power needs. Furthermore, HP's recent acquisition of EYP Mission Critical Facilities is helping us expand our end-to-end facilities management capabilities that help our customers design, build and operate their data center environments.

We are going beyond operational management solutions as well; by developing virtualization capabilities that enable fewer devices to be used, we're helping the economy to cut down on

unnecessary energy expenditure. HP's Halo Collaboration Studio, for example, replaces worldwide business travel with high-quality, virtual meeting venues.

In addition to reducing the carbon footprint of products, business supply chains present a great opportunity to reduce emissions beyond any given industry. As we transfer our expertise in carbon reduction to our suppliers in Asia and elsewhere in the world, we help them to reduce their overall emissions as well. HP is working with the Carbon Disclosure Project (CDP) to assess the greenhouse gas emissions throughout our supply chain. Through the CDP, we are working with our suppliers to develop strategies to reduce their carbon footprint, thereby reducing the footprint of HP's overall supply chain.

Low-Carbon Economy: Products, Services and Industry Influence

The challenges presented by climate change and the urgency of the situation require significant institutional changes to achieve environmental progress. But for the technology industry, the transformation of global business toward a low-carbon economy presents significant opportunity, and companies like HP are in a position to help customers reduce their emissions. With the introduction of creative disruptions such as the introduction of the PC, the Internet, and mobile telecommunications, the IT sector has a proven track record in decoupling economic growth from energy consumption. That is why we believe that IT solutions can further power the transformation towards a low carbon economy, improving the way we live, work, consume, and recreate.

For example, HP was able to help the City of London review their emergency services with the environment in mind. HP's system modeling and analysis process demonstrated how the distribution of ambulance services across a geographical area could be improved while also reducing the carbon load and improving probable casualty survival rates.

Technology solutions stand to reduce carbon footprints in all sectors of the economy. In fact, technology systems pave the way for the reduction of energy intensity and carbon footprint by developing and supplying: large-scale sensor networks to provide real-time monitoring and optimization of the use of energy and resources throughout the economy, from buildings to agriculture, roads and vehicles. HP digital publishing solutions enable on-demand printing of books, magazines, marketing collateral. Technology can substitute carbon-intensive processes for low-carbon ones—like HP's Halo Collaboration Studio. In addition, web services replace traditional physical economic processes with lower carbon ones, such as eCommerce, eBilling and online entertainment, helping decouple economic growth from GHG emissions growth. Technology products can also enable low-carbon economy management by providing carbon trading platforms, carbon monitoring and reporting software.

The publishing industry is a great example of what technology can do to help other industries reduce their carbon intensity, thereby pushing the entire economy towards low carbon. Digital publishing saves paper by printing books, magazines, and marketing collateral on demand. Instead of large batch runs, HP Industrial Digital Printing systems such as Indigo, Scitex or Nur for example, enable printing of the exact quantities needed close to point-of-use, avoiding paper waste due to over capacity or obsolescence, while reducing transportation needs as well.

HP's climate strategy extends beyond our own business to our industry as a whole. HP's partnership with the World Wildlife Fund is exploring how information and communication technologies services can reduce up to one billion tonnes of carbon dioxide globally each year. And in HP Labs—our company's research arm—we are looking at the big picture. In our Sustainable IT Ecosystem Lab, we are looking to transform the philosophy behind creating, purchasing and operating IT systems and pioneering technologies that lead to least energy and least materials usage.

Policy Advocacy & Collaboration

A solid groundwork must be laid internationally for climate change initiatives to be effective—specifically, we must have adequate public policy to support innovative efforts to combat climate change. HP actively supports policy efforts to mitigate climate change in order to protect society and global economic development from adverse climate impacts.

In addition, the importance of collaboration cannot be understated. Companies who are able to make a large impact on their own can multiply their success by joining with other companies, industries or causes under a unified effort, creating a more powerful voice on the issue than one voice alone. For example, with our membership in the 3C Initiative—Combat Climate Change—HP is joining with other companies to demand an integration of climate issues into the global economy by developing a global framework for action. And through our work with policy advocacy groups such as WWF, Global e-Sustainability Initiative (GeSI), the International Climate Change Partnership (ICCP) and the Pew Center on Global Climate Change, HP is part of a global coalition whose members are dedicated to the responsible international policy process concerning climate change. HP has been particularly active in supporting policy developments in Europe by contributing to several reports such as the AeA Europe report on “How can the High-Tech sector help the EU to achieve its goal of reducing Energy Consumption 20% by 2020?”¹ and EICTA’s (European ICT Association) report on “High Tech: Low Carbon”². By joining with others, we are more effective ourselves.

In Conclusion

The foundation of an effective plan to combat climate change is communication. By talking about climate change—research, initiatives, business strategies, product efficiency, public policy, and internal communication – we raise awareness of the problem, which is needed to ignite collective action.

At HP, we are constantly communicating with our stakeholders about climate change and environmental initiatives. We are serious about providing transparency when it comes to the energy consumption of our products, services and operations. And we are as committed to our strategy internally—rough our operations, Live Green and other employee programs—we are externally—through our products, services, and policy advocacy.

Climate change is not the responsibility of a single person, a single company, single industry, or a single government. Climate change is a global challenge and requires broad and serious commitment. For the business community, and for the technology industry, the impacts of climate change will be substantial. It is in everyone’s best interest to confront climate change with serious, measurable goals and with a deep commitment to reduce the global carbon footprint to levels that will enable sustained global economic growth in a safe climate.

For more information

HP and the Environment www.hp.com/environment
HP and WWF collaboration www.hp.com/go/wwf

¹ <http://www.aeanet.org/EUenergy>

² http://www.eicta.org/index.php?id=32&id_article=223

HP's low carbon IT solutions report

www.hp.com/hpinfo/globalcitizenship/environment/pdf/billiontons.pdf

Halo Website www.hp.com/go/halo

HP Global Citizenship report www.hp.com/go/report

Eco Declarations <http://www.hp.com/hpinfo/globalcitizenship/environment/productdata/itecopersonal-c.html>

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