

To reduce power used in mobile devices, HP researchers dimmed the unused parts of the display panel. Using this technology, battery life can last from two to 11 times longer, and 95 percent of users say they prefer the new interface of these energy-adaptive displays. HP is working to incorporate this technology into future products.

HP offers energy-saving products to enterprise customers as well. HP's Thermal Logic technologies adjust power and cooling to meet energy budgets. This means customers can take advantage of energy-saving features in each HP component and system—such as small drives and intelligent power supplies—as well as the entire data center. HP's BladeSystem infrastructure also saves enterprise customers money by using 40 percent less energy for power and cooling compared with conventional IT solutions.

By filling previously unmet market needs, HP is saving money while boosting the environmental performance of its products, as well as lowering energy bills and greenhouse gas emissions.

### Leading by example

Many HP products ship with a "power management" capability enabled. These features save energy by automatically switching the PC or monitor into a standby, low-power mode after a period of inactivity. Power management features can save up to 381 kWh for a monitor and 294 kWh for a desktop PC each year,\* which is enough energy to power a 75-watt light bulb burning continuously for one year.

HP inspected the settings of 183,000 of its employees' monitors and found that almost a third were not set to energy-saving mode. The monitors were reset, and the change saved 7.8 million kWh of electricity a year, equal to more than \$600,000 in energy costs and more than 4,000 tonnes of CO<sub>2</sub>.

\*For more information on the economic benefits of power-saving features, visit [http://www.energystar.gov/index.cfm?c=power\\_mgt.pr\\_pm\\_step1](http://www.energystar.gov/index.cfm?c=power_mgt.pr_pm_step1).

Since 1993, HP's instant-on fusing technology has reduced CO<sub>2</sub> emissions by an estimated 3.2 million tonnes—equivalent to a year's emissions for about 680,000 cars.



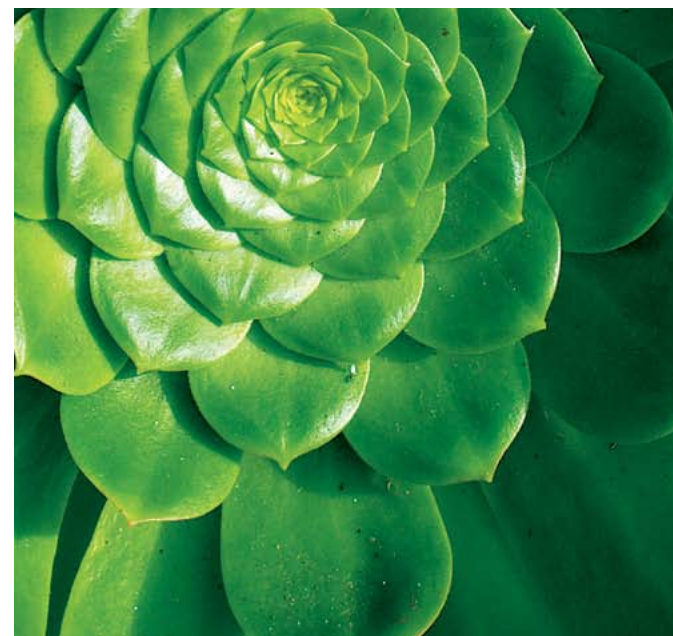
HP's Global Citizenship report addresses a variety of issues related to HP's corporate responsibility practices. For more information and to see HP's progress, please visit [www.hp.com/go/report](http://www.hp.com/go/report).

To learn more about HP's Global Citizenship policies, awards and news, please visit [www.hp.com/go/globalcitizenship](http://www.hp.com/go/globalcitizenship).

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Saving energy  
with HP



HP knows there's a lot at stake when it comes to energy efficiency, from the rising cost of resources to environmental impact. Because HP cares as much about these issues as our customers and other stakeholders do, we continue to lead the industry's efforts to develop energy-saving technologies.

HP has a long history of backing its commitment to energy efficiency with real resources—not just money, but our people and products. From product design to our own operations, HP leads by example, inspiring customers, governments, communities and other organizations to make a commitment to creating a more energy-efficient environment.

## Efficiency begins with HP products

HP has invested in energy research for ten years. Our power and cooling team alone has more than 1,000 patents. HP offers customers a holistic energy-efficiency solution, from PDAs to data centers. With HP products, customers not only save money and protect their capital investment, but also lower energy usage and protect the environment.

HP's Product Energy-Efficiency Team collaborates with HP Labs to help speed the adoption of new technologies. The team also works with industry and governmental groups to promote energy-saving programs and consistent global standards.

### HP products raise the bar

HP's Design for Environment program reduces the energy needed to manufacture and use products. The program also focuses on developing products with fewer materials and that are easier to upgrade and reuse or recycle. Approximately 1,000 HP products have been ENERGY STAR®-qualified, including a majority of HP imaging and printing products and all HP PCs and commercial displays that run on Microsoft Windows®. Many HP products meet other stringent eco-label qualifications, including Germany's Blue Angel certification.

But at HP, it's about more than just eco-labels. It's about user experience. Most HP LaserJet products require no more than 1 watt of power in Off mode, thanks to HP's "instant-on fusing" technology, which delivers a faster first page. HP has introduced more than 160 imaging products with this technology and continues to improve energy efficiency even as printing speeds have increased. All HP notebook devices with an external power supply are compliant with the European Union Code of Conduct, which requires the power supply to use less than 1 watt when plugged into a power outlet and disconnected from the device itself.

## Innovation continues with energy-efficient processes

HP goes beyond product design in thinking about energy efficiency by helping customers manage processes to save energy and money. In addition, HP works internally and with suppliers to monitor and reduce energy use all along the supply chain.

### The smart way to keep cool

Computing accounts for a growing portion of global energy use. Data centers in particular are big energy users, because of both hardware and cooling requirements. According to Morgan Stanley Research, "energy costs can make up as much as a third of total data center costs."\*\* HP offers a portfolio of energy-saving technologies to manage power usage in hardware and cooling equipment.

HP Smart Cooling (Thermal Assessment Service) is a process that models energy and airflow in data centers to determine the optimal layout for equipment, resulting in lower cooling demand and equipment investment. This HP technology allows customers to decrease data center energy consumption by approximately 25 percent, with no additional capital investment. These energy savings can translate to financial savings of several million dollars each year.

HP's Dynamic Smart Cooling, still in development, will improve HP's current system by adjusting air conditioning to a changing environment. It could double the efficiency of Smart Cooling, decreasing energy consumption by an estimated 50 percent.

HP Labs is also designing machines that generate less heat and centers that can consolidate data onto fewer servers to be shared between customers.

\*\* "Redefining the Data Center," Morgan Stanley, May 18, 2006.

### Extending good energy practices

HP has the largest supply chain in the information technology industry, and HP's Supplier Code of Conduct extends our social and environmental standards throughout the entire system. HP strictly monitors conformance to the code, auditing 175 supplier sites in the past two years.

HP also helps reduce energy consumption by using more energy-efficient transportation and packaging. For example, by replacing wooden pallets with thin slip sheets when transporting our products, HP significantly decreased the space and fuel required for transport. HP also participates in the Clean Cargo and Green Freight groups, which work with shippers and carriers to establish environmental criteria and emissions calculators for the industry. Over the past decade, HP has decreased reliance on air cargo while increasing use of ocean freight. Furthermore, HP packs products more densely so more units fit into shipping containers.

"By implementing HP's Data Center Thermal Assessment design, DreamWorks was able to accommodate additional servers and increase server density without the expense of installing additional equipment, thereby reducing the impact on the environment and cutting costs."

—DreamWorks



HP's Smart Cooling can save about \$1 million a year for a data center producing 10 MW of heat.

## HP is changing the way the world thinks about energy

As a leading, global technology company, HP is in a unique position to help the world think differently about energy. We do this in part by developing tools that reduce business travel and supporting alternative energy sources. Together, HP and customers can improve the way we live and work, and at the same time reduce our impact on the earth.

### Bringing people together—without travel

HP has developed video conferencing technology that makes remote meetings more productive while saving time, money and energy otherwise spent on business travel. The Halo Virtual Collaboration System (VCS) simulates a face-to-face meeting through high-definition video, without speed delay. HP launched the first Halo VCS in December 2005 in partnership with DreamWorks and now has 13 Halo studios worldwide. Use of the rooms has grown by 25 percent in one year.

HP's global telework program allows employees to work from home, whenever consistent with business needs, reducing commutes and travel-related energy consumption while increasing productivity. Worldwide, HP has 11,400 employees who work exclusively from their home offices. In the United States and Canada, this saves an estimated 57 million miles of travel and prevents 24,000 tonnes of CO<sub>2</sub> emissions.

HP's Imaging and Printing business achieved an 8 percent reduction in travel in 2005 by using the Halo studios, avoiding 350 tonnes of CO<sub>2</sub> emissions.

### HP gets green with power

HP's commitment to energy efficiency is reflected in its day-to-day business practices. HP manages its energy impact by calculating greenhouse gas (GHG) emissions generated by our operations and use of electricity. Goals for 2006 include conducting energy audits at a number of our largest facilities and reducing on-site energy usage by 18 percent.

Electricity use accounts for 87 percent of HP's climate change impact. Energy efficiency remains a company-wide priority, and we routinely identify and implement energy-saving technology to reduce consumption, operational costs and climate impact.

HP has incorporated green power into many of its facilities and has added hybrid vehicles to its sales fleet. In fact, HP's site in Corvallis, Oregon, is one of the leading wind power customers in the region. Although wind power makes up a small percentage of HP's power consumption, it's a starting point for the company. HP increased renewable electricity purchases fourfold in 2004, and three U.S. power sites now purchase 3 percent of their energy from renewable sources.

