



This information from our 2009 Report on Global Citizenship focuses on our environmental sustainability efforts and is just a part of Xerox's comprehensive citizenship activities. To get the full picture of our global initiatives, visit www.xerox.com/citizenship. We view environmental sustainability not as a cost of doing business, but as a way of doing business. For us, it's an integral part of developing products, serving customers and posting profits.

## Sustainability Strategy

Xerox aligns its environmental sustainability goals around four commitment areas where we can make a significant impact across our entire value chain of products and services:

## • Climate Protection

We invest in technologies that reduce the carbon footprint of our operations and the document-management solutions we offer to our customers. Our aim is to be carbon-neutral.

## • Preserving Biodiversity and the World's Forests

We work with our customers, suppliers and other stakeholders to support the development of a sustainable paper cycle through paper-sourcing guidelines and environmentally sound paper offerings, as well as products and services that decrease offices' dependency on paper.

## • Preserving Clean Air and Water

We strive to eliminate the use of persistent, bioaccumulative and toxic materials throughout the supply chain.

## • Preventing and Managing Waste

Our goal is to produce waste-free products in waste-free facilities that promote waste-free customer workplaces.

Our policy is to integrate these global environmental commitments into our core business strategy and practices. Our approach is to invest in innovation, market leadership and sound management practices that deliver measurable benefits to the environment, our customers and society, and that increase shareholder value. We recognize the importance of creative partnerships with suppliers, customers and other stakeholders to achieve these benefits and maximize their value.

We are reporting our progress on these commitments in the table on the next page.

## Governance

Our Environment, Health and Safety (EH&S) organization is charged with ensuring company-wide adherence to Xerox's environment, health and safety policy. The governance model we use to accomplish this task includes clearly defined goals, a single set of worldwide standards and an audit process that ensures conformance to these requirements. Our EH&S governance and policy, adopted in 1991, forms the foundation of our environmental leadership program. For a review of this policy, visit **www.xerox.com/environment**.

## **Standards and Programs**

Environmental, health and safety standards are our primary tool for ensuring compliance with corporate policies and goals. These worldwide standards establish specific requirements for product safety, materials safety, packaging, design for environment, environmental management and reporting, workplace safety, emergency response and asset protection. We have also established company-wide programs such as Zero Injury, Emergency Preparedness and Energy Challenge 2012 to engage and support employees worldwide.

## Supplier Environmental, Health and Safety Management

Xerox extends environmental, health and safety requirements across its supply chain. Since 1998, Xerox has asked its materials and components suppliers to meet specific environmental, health and safety requirements. These requirements were broadened in 2004 to better govern the use of chemicals in Xerox products, parts and supplies throughout the supply chain. The standard, EHS 1001: Xerox Environmental, Health and Safety Supplier Requirements: Chemical Bans/Restrictions and Part Marking, establishes requirements for regulatory compliance, chemical bans and restrictions and parts marking for parts and materials intended for use in electronic products. Further, by adopting the Electronic Industry Citizenship Coalition's Code of Conduct, Xerox has further strengthened its commitment to ensure that its suppliers are operating according to accepted industry standards for environmental management. Starting in 2003, Xerox extended requirements to companies that provide paper to Xerox for resale. More information on these standards can be found at www.xerox.com/environment.

Commitment	Strategic Goal	Objective
Protect Our Climate	Carbon-neutral	<ul> <li>Reduce total company-wide greenhouse gas (GHG) emissions.</li> <li>Help customers meet their printing needs with the most energy-efficient document management solutions.</li> </ul>
Preserve Biodiversity and the World's Forests	Sustainable paper cycle	<ul> <li>Source paper from companies committed to sound Environment, Health and Safety practices and sustainable forest management.</li> <li>Certify Xerox-branded paper to standards for sustainable forest management.</li> <li>Advance sustainable forest management tools and approaches among Xerox suppliers.</li> </ul>
Preserve Clean Air and Water	Zero persistent, bioaccumulative, toxic (PBT) footprint	• Reduce PBT footprint throughout the supply chain.

Waste-free facilities and products

Reduce material footprint of Xerox equipment and supplies.

Achieve "zero waste to landfill" for major facilities worldwide.

## Audit Program

To maintain and achieve regulatory compliance, a well-established internal audit program measures our success in implementing corporate standards and guidelines. To identify environmental, health and safety risks and potential areas of non-compliance, Xerox audits research, manufacturing and service operations on an average of once every three to five years. The duration is based on the type of operations and the inherent risks associated with the operations. Xerox audit teams evaluate operations against Xerox standards, regulations and industry guidelines and, with the assistance of the local managers and support staff, develop action plans to correct deficiencies. Senior management pays particular attention to situations with the potential to pose a high risk of environmental damage, serious injury to

Metric/Target	2008 Progress
<ul> <li>Reduce total GHGs by 25% from 2002 to 2012.</li> <li>Obtain ENERGY STAR® rating for 90% or more of eligible new product launches by 2010.</li> <li>Develop decision tools for customers to "green" their offices.</li> </ul>	<ul> <li>GHG emissions down 20% from 2002 to 2008.</li> <li>80% of eligible new products launched met the 2007 ENERGY STAR (version 1.0) standard.</li> <li>Launched the Xerox Sustainability Calculator to help customers pinpoint opportunities to reduce their office environmental footprint.</li> </ul>
<ul> <li>Supplier adherence to Xerox requirements for sustainable forest management. Goal is 100% by volume.</li> <li>Maintain Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification chain of custody (PEFC) certifications for Xerox operations in 2007 and maintain in 2008/2009.</li> <li>Successful three-year \$1 million partnership with The Nature Conservancy.</li> </ul>	<ul> <li>More than 90% of Xerox paper by volume met our requirements.</li> <li>Maintained chain of custody certification as planned, expanding portfolio of FSC- and PEFC-certified papers.</li> <li>The Xerox/Nature Conservancy partnership (2007–2009) is supporting science-based tools that provide forest managers with accessible biodiversity data, further incorporating biodiversity considerations into forest management and strengthening forestry standards.</li> </ul>
<ul> <li>Xerox's ISO 14001-certified facilities' goals are to reduce hazardous materials, as well as energy and waste.</li> <li>Conduct Life Cycle Evaluation (LCE) to prioritize areas for future technology development.</li> <li>Reduce use of PBTs in Xerox supply chain through adherence to Xerox's chemical use standards for all suppliers and Electronic Industry Citizenship Coalition's Code of Conduct requirements for our 50 key global suppliers, representing 90% of spend, by 2012.</li> </ul>	<ul> <li>Worldwide hazardous waste volumes decreased 10% from 2007 and 96% was beneficially managed.</li> <li>Xerox completed a Life Cycle Assessment of a solid ink printer compared to a laser printer and is using LCE to inform future direction of research and development in products and materials.</li> <li>As part of Electronic Industry Citizenship Coalition, on track to complete audits of all key suppliers in high-risk regions.</li> <li>In 2009, developing systems and processes to provide a complete accounting of materials throughout our value chain that will support progress toward zero PBT.</li> </ul>
<ul> <li>Continued investment in "cartridge-free" solid ink technology that produces up to 90% less waste from supplies and packaging than conventional office color printers.</li> <li>Maintain &gt;90% reuse or recycling of recovered Xerox equipment and supplies offerings.</li> <li>Expand ISO 14001-conforming environmental management system to Xerox U.S. warehouses in 2008 and additional operations and geographies in 2009–2011.</li> </ul>	<ul> <li>In 2009, launched Xerox's ColorQube<sup>™</sup> multifunction printer that reduces office waste by 90% and has 10% less global warming impact than comparable laser devices.</li> <li>Xerox achieved &gt;90% reuse or recycle rate for 106 million pounds of post-consumer equipment and supplies waste, bringing the total landfill avoidance to 2.2 billion pounds since 1991.</li> <li>Xerox's largest warehouses have adopted environmental management systems.</li> <li>We are on track to reduce the solid waste sent to landfills by 25% by 2012.</li> <li>In 2009, developing company-wide waste-free target.</li> </ul>

employees, or regulatory non-compliance. In 2008, Xerox met its goal of resolution of these issues within 90 days, and has demonstrated that the audit program has become an important mechanism for identifying and correcting performance gaps.

## **Employee Training and Education**

Through training and internal communication, Xerox makes its employees aware of how our operations impact the environment. As appropriate, employees in manufacturing and other operations receive training annually on topics such as hazardous waste management, spill prevention and response, recycling and ISO 14001. Customer service engineer training covers safety hazards, exposures and processes for risk mitigation. We post our environmental policy in our facilities, and we deploy environmental, health and safety goals for our products through our product development process. Through our ISO 14001 environmental management, employees are routinely involved in identifying the environmental aspects associated with their responsibilities.

## **Stakeholder Outreach**

Through a variety of means, Xerox communicates with stakeholders about our environment, health and safety programs, performance and goals. Stakeholders include employees, customers, investors, universities, government agencies and environmental groups. Xerox tracks inquiries from customers and other stakeholders and comments through our EH&S "hotlines" in North America and Europe. We also hear from customers through focus groups, and we hear from the larger community by participating in a number of external organizations. Through Xerox's Thought Leadership program, Xerox conducted 40 sustainability forums with customers in 2008 alone, generating awareness of the importance of sustainability, sharing company best practices and encouraging customers to reduce their environmental footprint by finding "Smarter Ways to Green." Learn more at **www.xerox.com/thoughtleadership**.

To advance global efforts to improve our environment, Xerox partners with these private and public organizations:

- Advisory Board of the Center for Sustainable Systems at the University of Michigan
- Advisory Board of Golisano Sustainability Institute at the Rochester Institute of Technology
- Business Roundtable Climate RESOLVE
- Business Roundtable S.E.E. (Society, Environment, Economy) Change
- Business for Social Responsibility
- California's Climate Action Registry
- New York State Pollution Prevention Institute
- International Leadership Council of The Nature Conservancy
- Organization for Economic Cooperation and Development (OECD) Expert Advisory Group on Sustainable Manufacturing and Eco-Innovation
- The Prince's May Day Network
- Sustainable Energy Ireland
- U.S. Climate Action Partnership
- U.S. EPA Climate Leaders
- U.S. EPA ENERGY STAR<sup>®</sup>
- U.S. EPA WasteWise
- U.S. EPA National Advisory Council for Environmental Policy and Technology Subcommittee on Promoting Environmental Stewardship

## Integrating Environmental Priorities into Product Design

Xerox recognizes that the best results – both environmental and financial – are achieved when environmental priorities are considered from the outset of product design. Customer feedback and public policy, along with a forward-looking view of global trends in technology, regulations and ecolabels, have led us to a comprehensive set of standards that encompasses: energy efficiency, chemical management, packaging, parts reuse and recycling, electrical and mechanical safety, ergonomics, electromagnetic emissions, noise, fire resistance and materials safety. Xerox business teams and the EH&S organization review Xerox products at each stage of the "time to market" product development process for conformance with EH&S standards. This is a requirement for the introduction of any new product.

## **Innovative Component Results in More for Less**

The photoreceptor is a critical component of photocopying and laser printing technology and must be replaced periodically due to surface wear that can lead to poor image quality. Xerox researchers and engineers have invented a long-life photoreceptor that offers significant advantages to our customers and for the environment. Proprietary Xerox materials were used to create a protective chemical armor or overcoat that increases the photoreceptor's usable life by more than 50%. The overcoat is a tough polymer composite that is both scratch and wear resistant, allowing the photoreceptor to operate for over 1 million revolutions.

First introduced in 2009 for the Xerox 4112/4127 production monochrome device, the long-life photoreceptor reduces the need for replacement cartridges by 33%, resulting in more-efficient resource use and less waste generation. In addition, customers experience reduced interruptions to work flow, improved productivity, and fewer service calls. The new photoreceptor works in the standard machine design with no additional hardware changes or added costs to the customer. This invention has wide applicability across Xerox's product lines, and future product introductions are planned.

## Integrating Environmental Priorities into Manufacturing Operations

All of Xerox's manufacturing operations employ an ISO 14001-conforming environmental management system. This ensures compliance with regulations and Xerox standards, identifies environmental impact and sets objectives and performance targets. The ISO 14001 system requires that day-to-day business activities be integrated with environmental planning and program management. It encourages innovative engineering solutions, creative partnerships and employee involvement. Our major manufacturing operations have been certified to ISO 14001 since 1997. In 2002, we completed the certification of all current manufacturing operations. New plants are scheduled for certification as they become operational.

In 2007, starting with our largest U.S. warehouse operations, Xerox began to expand the ISO 14001 approach beyond manufacturing. Our largest U.S. supplies warehouse operations have adopted ISO 14001-conforming environmental management systems and have set a goal to reduce solid waste sent to landfills by 25% by 2012.

## **Climate Protection**

We believe that Xerox, as a global business, must do its part to reduce the risks of climate change. While our ultimate goal is to become climate-neutral as a company, our immediate focus is reducing energy consumption in our own operations and providing sustainable document management technology and solutions to our customers to reduce the energy and environmental impacts of their business. We are making investments in several initiatives to support this goal.

## Reducing Energy Consumption through Xerox Products and Solutions

## ENERGY STAR® Savings

More than 10 years before the inception of the U.S. Environmental Protection Agency's ENERGY STAR Office Equipment program, Xerox introduced the first imaging product with an automatic power-down mode. Since joining with the EPA as a Charter Partner in 1993, we have introduced over 500 copier, printer, fax and multifunction products that have earned ENERGY STAR status. This continued success in cutting the power consumption of our laser-based printing products has been achieved by adjustments in the fuser design, changes to the properties of the toner, more-efficient electronic controls and the workings of the xerographic system as a whole.

A more exacting ENERGY STAR standard became effective on April 1, 2007. Previously the ENERGY STAR criteria for office copiers, printers and multifunction systems measured power consumed only in power-saver modes such as standby and low-power modes. The new standard asks a different question: How much energy would the device use during a typical week? It measures the energy consumed if the system mimics the tempo of a normal office, running a sample job mix with downtime for lunch, overnight and on weekends. The result is a Typical

## Xerox WorkCentre<sup>®</sup> 7435 30% less energy consumption than previous model



Xerox engineers used light emitting diode (LED) technology in newly designed printheads that last the life of the machine to reduce sleep mode power consumption to less than two watts. The result? The Xerox WorkCentre 7435 uses 30% less total energy compared with a previous comparable model.

Electricity Consumption (TEC) number that must meet the EPA's tough new requirements for a product to achieve ENERGY STAR status. The EPA's new ENERGY STAR requirements raised the bar so significantly that only 25% of products in the marketplace were expected to meet the new criteria. At Xerox, among eligible products, 80% of 2008 new product introductions passed this tough test. One example of the company's success is the Xerox WorkCentre® 7425/7428/7435 color multifunction printers with speeds from 20–35 pages per minute. Based on ENERGY STAR testing methods, the WorkCentre 7435 uses 5.8 kWh per week of electricity, about 30% less than a comparable color multifunction printer previously offered by Xerox.

The ENERGY STAR program continues to raise the standard over time with tougher requirements that went into effect on July 1, 2009, and our goal is to have 90% of new product introductions achieve this ecolabel in 2010.

## Xerox Multifunction Systems: Inherent Environmental Benefits



## 1000 kWh

Annual energy consumption of an office copier, four laser printers and one fax machine, based on U.S. EPA ENERGY STAR®-rated typical electricity consumption.

# 55% Reduction

**450 kWh** Annual energy consumption of a Xerox WorkCentre® multifunction system.

## "All in One" = Less Energy Use

Xerox multifunction systems further reduce the amount of energy required to copy, print, fax and scan by combining the functions of multiple products into one machine. The annual energy consumption of a Xerox WorkCentre multifunction system is about one-half of the combined annual energy consumption of the individual ENERGY STARqualified copiers, fax machines and printers that it replaces. Energy savings would be substantially higher if a multifunction system replaces individual products that have not earned the ENERGY STAR rating.

## "Right-Sizing" Office Printing Further Reduces Energy Use

Xerox also works with customers to improve the efficiency of their office document management by assessing their actual printing needs and developing solutions that meet that need – often by dramatically reducing the number of stand-alone and networked office equipment devices, saving energy and associated greenhouse gas emissions and reducing solid waste. In 2008, Xerox unveiled the industry's first Sustainability Calculator, designed to help customers understand the benefits of Xerox solutions and pinpoint opportunities to reduce their environmental impact while reducing costs. The software tool estimates the overall impact a company's document technologies have on the environment and allows customers to see how that can be reduced by "right-sizing" their print environment. It evaluates the current office environment of printers, copiers and multifunction devices and then estimates environmental benefits that could be achieved in terms of energy and paper use, solid waste, water, air and greenhouse gas emissions. The tool includes an evaluation of impacts that span raw material extraction, manufacturing, use and disposal. This broad view extends the evaluation to life cycle impacts, providing customers a more complete and fact-based estimate of their environmental footprint and an understanding of the kind of actions that will reduce their footprint. Xerox customer case studies reveal that life cycle impacts can be significantly reduced. By optimizing its print infrastructure, one customer reduced the number of devices in half, achieved a 27% reduction in life cycle energy consumption, cut life cycle greenhouse gas emissions by 26% and reduced solid waste by 33%. Learn more at www.xerox.com/sustainabilitycalculator.

## **Carbon Emissions**

In 2003, Xerox made a public commitment to reduce greenhouse gas emissions – our carbon footprint – by joining the U.S. EPA Climate Leaders program and launching an internal program known as Energy Challenge 2012. We adopted a goal of reducing by 10% our absolute greenhouse gas emissions, across all company operations, by 2012 from a 2002 baseline. By focusing efforts on energy efficiency, new technologies and business productivity, Xerox met this target six years early – in 2006. Recognizing our obligation to do even more, in 2007 Xerox set a new and challenging goal to reduce our greenhouse gas emissions by 25% by 2012 from a 2002 baseline. Through 2008, we have cut emissions by 20%, or 100,000 tons of carbon dioxide equivalents. This was achieved by reducing energy consumption in our facilities, manufacturing operations and across our service and sales vehicle fleet. In 2008, energy consumption was down 16% compared with 2002.

## **Greenhouse Gas Inventory**

In keeping with the international guidelines of the Greenhouse Gas Protocol developed by the World Resources Institute and the World Business Council for Sustainable Development, Xerox tracks the six major greenhouse gases: carbon dioxide ( $CO_2$ ), methane ( $CH_4$ ), nitrous oxide ( $N_2O$ ), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride ( $SF_6$ ). We express our carbon footprint in terms of carbon dioxide equivalents ( $CO_2e$ ). In fact, energy sources account for more than 99% of our greenhouse gas emissions. Xerox's greenhouse gas inventory includes direct emissions from the combustion of fossil fuels, primarily natural gas, and indirect emissions from purchased electricity and steam at our manufacturing sites, offices and warehouses. The inventory also includes the combustion of gasoline and diesel fuels in our service and sales vehicle fleet. Xerox's inventory does not yet include optional sources such as employee business travel, contract manufacturing or outsourced product distribution.

## **Energy Consumption**



Fossil Fuel Consumption



Greenhouse Gas Emissions

Direct

## Sources of Greenhouse Gas Emissions



In 2008, Xerox greenhouse gas emissions totaled 400,000 metric tons of  $CO_2e$ . About 55% were indirect emissions from purchased electricity and steam. The remaining 45% were direct emissions from the combustion of natural gas, gasoline and diesel fuel. Xerox-owned or leased facilities such as manufacturing sites, offices and warehouses are associated with 73% of our greenhouse gas emissions. The remaining 27% are emissions from our service and sales vehicle fleet and other mobile sources.

Possil Puel Consumption

## Environmental Protection Agency Recognizes Xerox for Climate Protection

Xerox was awarded the EPA's 2008 Climate Protection Award for its achievements in reducing energy use and greenhouse gas emissions. Xerox reduced its total global greenhouse gas emissions by 18% from 2002 to 2006, surpassing several years early its original goal of a 10% reduction by 2012. Xerox achieved its goal ahead of schedule by developing a clear framework for greenhouse gas management, involving the entire company by establishing clear roles and accountability, engaging the full value chain, integrating climate protection into core business strategies and practices, allocating appropriate funding and rewarding success.

Xerox has pledged to further minimize its carbon footprint by reducing greenhouse gas emissions by 25% by 2012 from a 2002 baseline.

## Strategies for Meeting Our Reduction Target

Our ultimate goal is to be climate-neutral. While our strategy for achieving that goal is evolving, our first priority is to reduce our total greenhouse gas emissions by reducing the energy intensity of our operations. To that end, we have cut our energy intensity by 25% from 2002 to 2008 (energy consumption per million dollars in revenue). Xerox is finding success with these approaches:

## • Shifts toward More Energy-Efficient Technologies

One example is Xerox's commitment to emulsion aggregation (EA) technology, or chemical toner, which is estimated to generate 25% fewer greenhouse gas emissions in the manufacturing process than conventional toner.

## Process Improvements That Reduce Energy Demand Xerox has changed the way we make certain conventional

toners, reducing energy demand by an estimated 15–25% per pound of toner. Xerox is its own best case study for the efficiency of using digital multifunction systems in workplaces instead of stand-alone printers, copiers, fax machines and scanners. In Xerox locations worldwide, employees depend on networked Xerox systems for all document management needs. One multifunction system can cut energy consumption by half compared to several singlefunction devices. • Increased Reliability of Xerox Equipment and Parts Digital technology has improved the reliability of components inside our products. This reduces service calls, which results in fewer miles driven by Xerox technicians and less gasoline consumed. Longer-lasting parts also mean that less manufacturing energy is invested over the life of a Xerox product. One example is: an office product print cartridge that needed replacement after 30,000 impressions in 1999 has been redesigned and now lasts for 500,000 impressions as of 2007.

## • Equipment Upgrades and Energy Management Programs

Every year, Xerox facilities identify opportunities to reduce energy consumption through equipment upgrades and better energy management. Some Xerox facilities save energy through "free" cooling. In winter months, the facilities cool process water by running it through outdoor pipes instead of using chillers, which are the equivalent of industrial air conditioners.

## Use of Renewable Energy Sources

By purchasing "green power," several Xerox sites, including sites in the United Kingdom and the U.S., are taking advantage of opportunities to further reduce greenhouse gas emissions. An example is the purchase of renewable energy credits that largely offset electricity consumption at our Corporate Headquarters in Norwalk, Conn.

## **Climate Change Risks and Opportunities**

Xerox has examined the regulatory, physical and commercial risks and opportunities associated with climate change. We are preparing for potential future regulation by investing in a robust greenhouse gas emission inventory. Through our 2008 participation in the U.S. Climate Action Partnership, we were actively involved in calling for a rational approach to climate legislation in the United States. Consistent with our sustainability strategy, the company will continue to invest in energy-efficient product designs and solutions to meet future customer demands and product-centric regulatory requirements.

Xerox is not subject to unique risks due to changing weather patterns, rising temperature and sea level rise. In the case that our operations or customers' operations are impacted by unpredictable events such as extreme weather, the company's well-defined crisis management plan will be executed. It covers communication with employees and customers, management of employee health and safety issues, business continuity and resumption processes, and interaction with government organizations.

## **Biodiversity and Forests: Xerox and Paper**

As one of the largest distributors of paper for office printers and copiers, Xerox recognizes its obligation to responsibly produce and source paper. Through partnerships with our customers, suppliers and key stakeholders, our long-term goal is to support a sustainable paper cycle. Starting with the source of the fiber used to make the paper, through its manufacture and use, Xerox strives to minimize environmental impact while meeting our customers' exacting business needs.

## **Paper-Sourcing Guidelines**

For companies that provide paper to Xerox for resale, we phased in stringent requirements from 2003 to 2005 that cover all aspects of papermaking, from forest management to production of finished goods. On an annual basis, Xerox suppliers submit detailed documentation that verifies compliance. In 2008, suppliers representing more than 90% of the paper Xerox supplies to our customers met these requirements. Xerox continues to work with our suppliers to increase the rate of compliance to 100%.

Key elements of the requirements include:

- Commitment to compliance with all applicable environmental health and safety regulatory requirements, including forestry codes of practice and regulations governing legal harvesting of wood.
- An effective environmental management system for mills and objectives for continual improvement in environmental performance above and beyond regulatory compliance.
- An effective procurement process that:
  - Ensures the exclusion of illegally harvested wood raw materials.
  - Ensures the exclusion of wood raw materials derived from forest areas of significant ecological or cultural importance unless certified to a sustainable forest management standard that has been accepted by Xerox.
  - Encourages all suppliers of wood raw materials to practice sustainable forest management.
- Strict limits on the use of hazardous materials, including the exclusion of elemental chlorine, in the processing and content of Xerox papers.

We recognize that one of the challenges paper companies face in meeting Xerox's requirements is to demonstrate that they are safeguarding forest areas of significant ecological or cultural importance. Xerox fully supports multi-stakeholder efforts to develop information sources and tools that will help suppliers identify these areas on their own forestlands and in their procurement of wood raw materials from third-party lands. Xerox expects its suppliers to take full advantage of these resources as part of their efforts toward sustainable forestry.

## Partnership with The Nature Conservancy

Xerox is in its third year of a three-year, \$1 million grant to The Nature Conservancy to fund efforts to advance sustainable forest management. The Xerox/Nature Conservancy partnership is focusing on forest management in Brazil, Canada, Indonesia and the U.S. It is identifying and promoting best practices that will enable environmental scientists, forest managers and paper suppliers to work cooperatively toward sustainable forest management. To date, the partnership has supported the launch of the Canadian Boreal Information Centre linking Boreal Forest data and information to diverse users to improve resource management, monitoring and conservation planning. This sciencebased approach supports several key goals of the partnership such as providing forest managers with accessible biodiversity data where there is currently little information and further incorporating biodiversity considerations into forest management, particularly on those lands that ultimately supply Xerox with fiber. The partnership is also supporting the strengthening of sustainable forest management standards governed by the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI), and activities aimed at full implementation of the High Conservation Value Forest Concept which is critical to identifying important ecological areas and implementing appropriate biodiversity management practices.

## Sustainable Forest Management-Certified Papers

Xerox has introduced papers that comply with sustainable forest management standards including FSC, Program for the Endorsement of Forest Certification (PEFC) and SFI. FSC-certified papers use raw materials from an FSC-certified source, controlled wood sources or post-consumer reclaimed sources. As a requirement for displaying the FSC label on its papers, Xerox earned FSC Chain-of-Custody certification from the Rainforest Alliance's SmartWood program. Xerox has also earned PEFC Chain-of-Custody Certification.

## **Recycled Paper**

Recycled content is another way Xerox reduces the environmental impact of its papers, offering papers with 20% to 100% post-consumer recycled content. Our recycled papers use post-consumer waste in place of new pulp. Every ton of recycled fiber avoids the use of three and one-half tons of virgin fiber.<sup>1</sup> Recycled products are required to meet the same strict performance specifications as virgin products and are designed for optimal performance in Xerox equipment.

## **Efficient Use of Paper**

Including reliable two-sided (duplex) printing, Xerox equipment and software are also designed with features that allow customers to make efficient use of paper. Software products such as DocuShare®, SMARTsend® and FreeFlow® Digital Workflow Collection help Xerox customers reduce paper consumption by facilitating electronic data management, scan to e-mail, print-on-demand, and distribute-thenprint workflows.

For more information on Xerox paper, visit www.xerox.com/supplies.

<sup>&</sup>lt;sup>1</sup> Paper Task Force Recommendations for Purchasing and Using Environmentally Preferable Paper, Updated Lifecycle Environmental Charts, 2002.

## **Clean Air and Water**

Xerox's long-term commitment is to eliminate the use of persistent, bioaccumulative and toxic materials throughout the supply chain. We apply strict internal standards and, over time, have re-engineered or substituted processes to dramatically reduce the use of toxics and heavy metals. Some examples:

- More than 15 years ago, Xerox switched to a solvent-free process for cleaning machine parts.
- Since 2005, we have nearly eliminated the use of lead and mercury from our new products.
- Since 1991, our manufacturing operations have reduced by 94% emissions of particulate and toxics into the air.

# Controlling the Chemical Content of Xerox Products throughout the Supply Chain

Xerox requirements for minimizing toxic materials govern our product design and materials selection. Xerox toxicologists conduct a comprehensive assessment of new materials in our products to ensure conformance with these criteria. They include compliance with applicable global registration, hazard communication and waste handling and disposal. The requirements prohibit the use of materials that:

- Are carcinogenic, mutagenic, or cause adverse developmental or reproductive effects.
- Pose a toxicity hazard to humans or aquatic species.
- Can cause a permanent adverse impact to the skin, eyes or respiratory system.
- Have the potential to generate hazardous waste.

In 1999, Xerox banned the use of certain flame retardants in our products, and we have made good progress in eliminating the use of mercury. Mercury-containing lamps that scan images and backlight user displays will be phased out as alternatives become available. In 2004, Xerox issued updated requirements for Xerox suppliers to better control the use of chemicals in our products. All new product designs refer to these requirements, and suppliers are expected to verify their compliance with them. To learn more about them, visit **www.xerox.com/environment**. Concern about the use of hazardous materials in electronics has prompted many countries around the world to consider restricting the use of certain substances. Most notably, the European Union's Restriction of Hazardous Substances (RoHS) directive requires new electronic products to be free of lead, mercury, cadmium, hexavalent chromium and certain brominated flame retardants, unless feasible alternatives are unavailable. Xerox products subject to RoHS meet these requirements. Since 2007, Xerox's newly launched products have been designed to meet these requirements in all markets. However, where regulations allow, some products will contain non-RoHScompliant parts in order to avoid premature disposal of existing parts that continue to have usable life.

In 2007, the first phase of the European Union's new regulatory plan for chemical control went into effect. The regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) aims to establish a framework for evaluating the impact chemicals have on the environment and human health, and for assessing whether the most potentially hazardous of those chemicals should be subject to an authorization or ban. Xerox expects to be fully compliant with all aspects of the REACH regulation as its provisions become effective and applicable.

## Low Emissions

Consistent with the world's most stringent ecolabels, Xerox designs its products to control emissions of chemicals and noise. As a result, current products have achieved chemical emission levels that are well below global regulatory requirements – often at or near the detection limit of our measurement equipment – and are considered to have a negligible impact on customers' work environments.

## **Waste Prevention**

Our waste-free commitment is to produce waste-free products in waste-free facilities that promote waste-free customer workplaces. Our aim is to design products, packaging and supplies that make efficient use of resources, minimize waste, reuse material where feasible and recycle what can't be reused. To meet this commitment, Xerox has put in place several programs:

- Xerox's Green World Alliance program provides a collection and reuse/recycling program for spent imaging supplies.
- Xerox's Product Takeback and Recycling program manages equipment at end of life.
- Xerox facilities manage their operations to our waste-free commitment as described in the Environmental Performance in Xerox Facilities section of this report.
- Xerox is investing in waste-free technologies. Our solid ink imaging process utilizes compact, "cartridge-free" solid ink sticks with no plastic housings or casings, thereby reducing office waste by up to 90% compared with comparable color laser products.

## Breakthrough Xerox Multifunction Printer Reduces Waste by 90 Percent

The Xerox ColorQube<sup>™</sup> 9200 Series multifunction printer uses Xerox's proprietary solid ink technology to lower the environmental impact of office printing. The cartridge-free design generates 90% less supplies waste and reduces the effects of manufacturing and transportation on the environment. A Life Cycle Assessment (LCA) of the ColorQube and a comparable laser device estimated that the ColorQube series uses 9% less life cycle energy and produces 10% fewer life cycle greenhouse gases than a comparable laser device. The study underwent peer review by the Rochester Institute of Technology to confirm that it adhered to generally accepted LCA methodologies. Solid ink technology, which has been used in Xerox desktop printers for more than a decade, creates an image by applying melted ink to paper where it instantly solidifies. Backed by 361 patents, each printer in the Xerox ColorQube 9200 Series features four print heads that can jet more than 150 million drops of ink per second, enabling speeds from 38 pages per minute (ppm) up to 85 ppm. With only one customer-replaceable unit (no fuser, drum, etc.), the printer is easy to maintain and lowers operating costs. All of the remaining parts, including the print head, are designed to last the lifetime of the MFD. The series also meets the U.S. Environmental Protection Agency's rigorous new ENERGY STAR® requirements.

## Xerox Green World Alliance

The Xerox Green World Alliance reuse/recycle program for imaging supplies is central to our commitment to waste-free products. This partnership with Xerox customers resulted in more than 2.5 million cartridges and toner containers being returned in 2008. Xerox processed 800,000 pounds of post-consumer waste toner for reuse, and the plastic bottles customers used to return waste toner to Xerox – over 150,000 of them – have been recycled. The annual change in the volume of returned supplies for recycling reflects primarily a change in technology and product mix.

## Xerox Green World Alliance: Total Waste Diverted from Landfills from Cartridges, Bottles and Waste Toner



## Well-Established Collecting and Reprocessing Methods

Prepaid postage labels and packaging from new supplies allow customers to return spent materials to Xerox for reuse and recycling. Return labels for toner containers are available from Xerox upon request or by downloading a prepaid label from **www.xerox.com/gwa**. Returned products are cleaned, inspected, and then remanufactured or recycled. Remanufactured cartridges, containing an average of 90% reused/recycled parts, are built and tested to the same performance specifications as new products. Similarly, waste toners that qualify for reuse may account for 25% of the weight of new toner, without compromising toner functionality. Reusing waste toner saves several million dollars in raw-material costs each year.

## **Product Take-Back and Recycling**

Begun in the early 1990s, Xerox has pioneered the practice of converting end-of-life electronic equipment into products and parts that contain reused parts while meeting new product specifications for quality and performance. We have developed a comprehensive process for taking back end-of-life products, and have established a remanufacture, parts reuse and recycling program that fully supports our waste-free initiatives.

Our approach to managing products at end of life translates into significant environmental and financial benefits. Equipment remanufacture and the reuse and recycling of parts prevent millions of pounds of waste from entering landfills each year – 106 million pounds (48,000 metric tons) in 2008 alone.

With the implementation of the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive, Xerox will continue to operate its European take-back program to enable equipment remanufacturing and parts reuse. We also participate as needed in European member states' individual collection and recycling programs.

The annual trend in reduction in waste diverted from landfills since 2004 is due in part to changes in product mix, design of lighterweight machines and the growth of regulatory-driven local recycling schemes. For example, the transition to digital equipment and lighterweight parts has reduced the weight of both office and production equipment by as much as 50% over the last 10 years. The decline also represents a decrease in the number of office machines returned for remanufacturing in Europe.

## Waste Diverted from Landfills through Parts Reuse/Recycle



## **Designing for Reuse**

Xerox maximizes the end-of-life potential of products and components by considering reuse in the design process. Machines are designed for easy disassembly and contain fewer parts. Parts are durable – designed for multiple product life cycles. Coded with instructions on how to dispose, the parts are also easy to reuse or recycle. As a result, equipment returned to Xerox at end of life can be rebuilt to as-new performance specifications, reusing 70–90% of machine components (by weight), while meeting performance specifications for equipment with parts that are all new.

Xerox also designs product families around modular product architectures and a common set of core components. These advances offer us many options for breathing new life into old equipment. A returned machine can be rebuilt as the same model through remanufacture, converted to a new model within the same product family, or used as a source of parts for next-generation models.

A Xerox product whose designs are based on previous models may have 60% of its parts by weight in common with previous equipment. The practice of reusing parts reduces the amount of raw material needed to manufacture new parts, which generates several hundred million dollars in cost savings each year, in addition to energy savings.

## **Ensuring Product Quality**

Xerox has developed unique processes and technologies to ensure that all Xerox products, regardless of their reused or recycled part content, meet the same specifications for performance, appearance, quality and reliability. Machines with reused/recycled parts are built on the same manufacturing lines as newly manufactured equipment, and they undergo the same rigorous tests for quality assurance. As a result, products with reused/recycled parts carry the same Xerox guarantees, warranties and service agreements as Xerox equipment made from all-new parts.

## **Meeting Customer Requirements**

Customer acceptance of reused/recycled parts was a significant challenge for Xerox's program throughout the 1990s. Today, with more than a decade of proof, we find that far fewer customers share the misperception that products with reused/recycled parts are inferior to those built from all-new parts. Nonetheless, we continue to educate customers about the quality and reliability of reused parts and, whenever necessary, we promote environmentally responsible purchasing policies and practices. Focusing on the quality and performance of products, regardless of recycled content, eliminates barriers to reuse.

## **Xerox Facilities**

## About Environmental Performance Results

Data in this section on environmental performance represent total quantities for Xerox's manufacturing, research, development and equipment recovery/recycle operations in nine countries. Energy consumption and greenhouse gas emissions are reported across all our operations. With the exception of solid waste figures that reflect management of recovered post-consumer electronic waste, the data do not include Xerox office equipment manufacturing operations, which were outsourced in late 2001 to Flextronics, an electronics manufacturing company. Unless otherwise noted, all numbers represent worldwide totals and are reported in generally accepted international metrics.

## **Air Emissions**

Xerox facilities released 43 metric tons of regulated chemicals and particulates into the air in 2008, a 2% increase from 2007. The increase came primarily from an increase in production and process inefficiencies in a single plant that have since been corrected.

## 2008 Air Emissions: Distribution by Type



- Dichloromethane
   Other Volatile
- Organic Compounds
- Methyl isobutyl ketone
   Particulates
- Other Regulated Pollutants\*
   2-Butoxy ethanol
- Toluene

\* Other regulated pollutants include Tetrahydrofuran, Methyl ethyl ketone, Methanol, Acetone and Diethylene glycol monobutyl ether. Most of Xerox's air emissions come from operations that manufacture Xerox imaging supplies – toners, inks, fusers and photoreceptors. Effectively executing strategies for reduction, reuse and recycling between 1991 and 1996 resulted in a reduction of air emissions by 87% during that period. Since then, declines in production, continuous improvements in our processes and changing technologies have resulted in additional reductions, totaling a 94% reduction from 1991 levels. While we have not adopted a specific target for reducing air emissions, continuous improvement remains a priority.





## **Ozone Depleting Substances**

Xerox operations worldwide conform to the Xerox Ozone Depleting Substances (ODS) Policy, established in 1992, that prohibits ODS from all Xerox products, services and processes. Use is restricted to refrigerants only.

## **Hazardous Waste**

Worldwide hazardous waste volumes decreased 10% between 2007 and 2008 due to lower production volumes. Xerox strives to deploy effective waste disposal and to minimize hazardous waste generation. Through treatment, recycling, energy recovery or fuels blending, 96% of hazardous waste generated in 2008 was beneficially managed. The remaining 4% was incinerated or disposed in landfills permitted to accept hazardous waste. The largest reported hazardous waste stream in 2008 was wastewater from an electroplating process. The rinse waters from this process are treated in a neutralization process for pH adjustment prior to discharge to the sanitary sewer under our wastewater discharge permit. The second-largest waste stream is related to organic solvent waste. Captured using efficient reclamation systems, organic waste is sent off-site for recycling or energy recovery. Off-site recycling converts waste into reusable products.

## Water Consumption and Treatment

As part of our commitment to conserve resources, Xerox monitors water consumption at its facilities worldwide. Water consumption decreased 15% in 2008 compared with 2007 due to building consolidations, production decreases, equipment decommissioning, seasonal variation and increased awareness of water usage.

Wastewater from manufacturing processes is treated where necessary before being discharged into local sanitary sewers. The treatment includes adjusting pH and, as necessary, removing suspended solids. In addition, the company engages best-management practices to prevent unwanted pollutants from entering waterways via surface contamination and run-off. Extensive sampling of wastewater discharged to both sanitary and storm sewers ensures that discharged water meets our strict requirements.

## Water Consumption



## **Hazardous Waste Generation**



Worldwide

O Normalized to revenue

## 2008 Hazardous Waste Management



O Normalized to revenue

## Non-hazardous Solid Waste

Xerox recycled 92% of its non-hazardous solid waste in 2008 – unchanged from 2007.

## Non-hazardous Solid Waste Recycling Rate: All Facilities



In addition to typical solid waste generated from manufacturing, construction and maintenance, Xerox manages end-of-life machines returned to Xerox equipment recovery/recycle facilities. Returned equipment and parts that cannot be reused through remanufacturing, which we classify as "equipment waste," made up 67% of the non-hazardous solid waste managed by Xerox operations in 2008.

## 2008 Non-hazardous Solid Waste Management: Distribution by Type



## E-Waste

Equipment that reaches the end of its useful life is returned to Xerox equipment recovery/recycle facilities. To maximize environmental and financial benefits, Xerox first evaluates returned equipment for its reuse potential. Products suitable for reuse undergo the rigorous equipment remanufacture processes described on page 12.

Returned products that cannot be remanufactured are designated as equipment waste. Xerox equipment recovery/recycle operations disassemble these machines for recycling, removing parts that can be processed for reuse according to stringent standards for quality and performance. The remaining components are recycled or disposed. Of the 41,000 metric tons collected in 2008, Xerox was able to reuse or recycle 98%.

We also carefully manage suppliers that provide recycling and waste disposal services. An audit process ensures that vendor practices are safe, environmentally sound and compliant with regulations. Where appropriate, we require these companies to document the final disposition of materials sent to their facilities, including electronic scrap. Xerox does not allow its vendors to send electronic scrap overseas for processing.

## Equipment Waste: Equipment Recovery/Recycle Operations



Disposed
 Recycled or Reused

## **Process Waste**

Xerox manufacturing operations generated 20,000 metric tons of non-hazardous solid waste in 2008, compared with 21,000 metric tons in 2007. The waste stream consists primarily of paper, wood pallets, plastics and packaging waste such as corrugated cardboard. It also includes manufacturing-related wastes such as scrap metal, waste toner, waste batteries and lamps, and miscellaneous trash. In 2008, 85% of this waste was reused or recycled, compared with 81% in 2007.

Xerox has had waste reduction efforts in place for many years that include reusable boxes, pallets and containers for parts delivery, reuse of toner that is outside the acceptable size range during manufacturing, and reusable totes for recycling scrap metal and paper.

# Process Waste: Manufacturing, Research and Development Operations



Disposed

Recycled or Reused

Normalized to revenue

## **Environmental Remediation**

For more than 20 years, Xerox has conducted a proactive program to identify and clean up contaminated sites around the world. These efforts include a voluntary assessment program, begun in 1985, that resulted in identifying 68 facilities and operations sites that have required remediation. As the sites were identified, the company, where necessary, took immediate measures to ensure the protection of employees, neighbors and the environment from possible adversity.

To accelerate some of the remedial time frames, we concentrated our initial efforts on source areas of contamination. In most instances, source area remedial measures were very successful in achieving their source reduction goals. Many of these sites may now be managed with migration control techniques that limit potential movement and exposure. Today, only 10 of the 68 sites require further remedial or control measures.

In addition to using conventional techniques for groundwater pumping and soil excavation, Xerox has been at the forefront of developing and using innovative remedial technologies. These include techniques that enhance the recovery of contaminants such as High Vacuum 2-Phase Extraction® and bedrock and hydraulic fracturing. In addition, contaminants are converted to less-harmful substances through technologies such as enhanced biodegradation and chemical oxidation. All Xerox manufacturing operations conform to the requirements of the ISO 14001 Environmental Management system. This approach, along with implementation of spill prevention plans, has resulted in only one new site identified for remediation in more than 10 years. In prior years, Xerox has centrally tracked spill and accidental chemical release information for its operations in North America and Europe but has not included those data in its annual progress reports. Starting with the 2006 report, Xerox began providing information on "reportable" releases, which Xerox defines as accidental releases of substances by Xerox that are required to be reported to a regulatory body. In 2008 Xerox's North American and European operations identified five reportable accidental spills/releases compared to two releases in 2007. Corrective action was taken in all cases. Preventing further contamination is our goal.

## **Compliance Penalties**

Xerox requires its various operations and subsidiary organizations to report allegations of regulatory violations to Xerox's corporate Environmental, Health and Safety group for tracking, evaluation and corrective action, where appropriate. Based upon this reporting system, Xerox identified one instance where it was subject to a compliance penalty in 2008 for an alleged violation.

Specifically, Xerox Chile was cited by Secretaria Regional Ministerial de Salud de la Región Metropolitana in 2007 for alleged violations of certain rules related to hazardous waste handling and disposal. In 2008, Xerox Chile paid approximately \$9,000 (U.S.) in penalties to resolve this action and further revised its approach to handling material identified as hazardous waste by the citing agency. Coupled with regular reviews of proper operating procedures and routine auditing of various operations, these actions enable Xerox to minimize the possibility of future compliance issues.

## **Cumulative Number of Sites Remediated**



\* Our goal is to complete 90% of remediation activities by 2009

## How to Reach Us

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