IBM AND THE ENVIRONMENT

2006 Annual Report

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Environmental Protection

IBM has a long history of environmental leadership. The company established a corporate policy on environmental protection in 1971. The policy is supported by a comprehensive global environmental management system that governs IBM's operations worldwide.

IBM's long-standing recognition of the importance of protecting the environment arises from two key aspects of its business. First is the intersections of the company's operations with the environment. The second is the enabling aspects of its innovation and technology.

IBM's operations can potentially have an effect on the environment in a number of ways. For example, chemicals needed for research, development and manufacturing must be properly managed from selection and purchase through storage, use and disposal. Some processes are energy- and/or water-intensive and IBM continually looks for ways to reduce resource consumption. The company designs products to be efficient in their use of energy, to utilize environmentally preferable materials, and to be capable of being reused, recycled or disposed of safely at the end of their useful lives. Moreover, as IBM has outsourced more of its manufacturing, its greater use of an expanded supply chain has made the environmental responsibility of its suppliers and the environmental attributes of the parts and products they provide of central importance.

The enabling aspect of IBM's innovation and technology makes it a significant force in developing solutions that can help both IBM and its clients to be more efficient and protective of the environment. In addition, the massive computational power, software advancements and visualization capabilities of IBM's technology can bring increased understanding and swifter solutions to some of the world's most demanding scientific and environmental problems. This report demonstrates IBM's programs and performance in both areas.

GLOBAL ENVIRONMENTAL MANAGEMENT SYSTEM

IBM's corporate environmental affairs policy calls for environmental affairs leadership in all of the company's business activities. The policy objectives range from workplace safety, pollution prevention and energy conservation to product design for the environment, continual improvement and application of IBM's expertise to help address some of the world's most pressing environmental problems.

The policy is supported by corporate directives that govern IBM's operations worldwide. These directives cover areas such as pollution prevention, chemical and waste management, energy conservation, environmental evaluation of suppliers, product stewardship, and incident prevention and reporting. Every employee is expected to follow this policy and report any environmental, health or safety concern to IBM management. Managers are expected to take prompt action.

In 1997, IBM became the world's first major multinational to earn a single global registration to the ISO 14001 Environmental Management System Standard. The registration covered IBM's manufacturing, product design and hardware development operations across its business units worldwide. IBM has since expanded its global ISO 14001 registration to include chemical-using research locations. Some IBM country organizations have also obtained ISO 14001 registration covering their nonmanufacturing locations.

As its business model has evolved to include more services offerings, IBM continues to update its environmental management system (EMS) to appropriately address environmental intersections in the services areas.

IBM's environmental policy and more information on the company's EMS and programs supporting its environmental objectives may be found at: **www.ibm.com/ibm/environment.**

ENVIRONMENTAL EVALUATION OF SUPPLIERS

IBM's EMS includes environmental requirements for its supply chain. IBM conducts substantive environmental evaluations of a relevant subset of its suppliers to focus on their environmental responsibility. The requirements for these evaluations were established by an IBM corporate directive in 1972 requiring environmental assessments of hazardous waste services suppliers. The directive was designed to prevent the transfer of responsibility for environmentally sensitive operations to any company lacking the commitment or capability to manage such operations properly.

The corporate directive was updated in 1980 to include environmental evaluations of certain production-related suppliers. The requirement for environmental evaluations of product recycling and disposal suppliers was added in 1991.

The suppliers, their facilities and methods are evaluated prior to IBM approving them for use. In order to verify that their environmental operations remain satisfactory, vendors are reevaluated periodically. Any concern during the evaluation is addressed with the supplier and must be resolved to IBM's satisfaction. IBM's conformance with these supplier evaluation requirements is part of its comprehensive audit programs.

In 2003, to address concerns about recycling operations in the extended supply chain, IBM expanded the environmental evaluations of its product recycling and disposal suppliers to include assessments and on-site evaluations of certain subcontractors that IBM may use to handle recycling and/or disposal operations in countries that are not members of the Organization of Economic Cooperation and Development.

The evaluations described above are in addition to those conducted in conjunction with IBM's Supplier Conduct Principles, which include environmental requirements. IBM also was one of the companies that developed the Electronics Industry Code of Conduct (EICC), an initiative that assists suppliers by providing a single common code of standards for their work in the electronics industry. IBM accepts the EICC code as equivalent and an alternate to the IBM Supplier Conduct Principles. As part of its environmental management leadership, IBM also encourages its suppliers to pursue ISO 14001 registration.

RELATIONSHIPS

IBM has a variety of outreach programs through which it engages with various groups and individuals on the subject of the environment.

Though they may vary by site, the company's community outreach programs range from open houses and emergency preparedness drills with local organizations to support of and participation in local environmental projects and environmental education efforts.

IBM also has ongoing dialogues with many socially conscious investment and environmental organizations on a number of environmental issues. These dialogues are valuable. They allow the company to share ideas and obtain feedback about its programs, activities and performance.

Further, IBM has joined a number of voluntary performance initiatives and partnerships with governmental and nongovernmental organizations. Examples include the U.S. Environmental Protection Agency's (EPA) ENERGY STAR and Climate Leaders programs. Partnerships with nongovernmental organizations include, among others: member of the World Resources Institute's (WRI) Green Power Market Development Group; charter member of the World Wildlife Fund's Climate Savers program; and membership in the Pew Center on Global Climate Change. IBM also works with and supports organizations such as The Conservation Fund, the Environmental Law Institute, the World Environment Center and the WRI.

In 2006, IBM joined the U.S. EPA's Green Power Partnership and its SmartWay℠ Transport Partnership, as well as WRI's Green Power Market Development Group—Europe.

IBM partners with the Wildlife Habitat Council (WHC) to manage its properties in ways that enhance habitats. Six IBM sites, including Corporate Headquarters, have had their land management and wildlife habitat programs certified by the WHC.

IBM encourages its employees to support environmental efforts. For example, through its Matching Grants program, the company matches contributions made by U.S. employees to groups ranging from The Nature Conservancy and the World Wildlife Fund to smaller groups dedicated to preserving lands and habitats in local communities.

IBMers can also support environmental organizations in their local communities through IBM's On Demand Community (ODC) program. ODC is a first-of-its-kind global initiative to encourage and sustain corporate philanthropy through volunteerism. It provides IBM employees and retirees with a rich set of IBM technology tools they can use to help schools and the nonprofit community organizations in which they volunteer, including environmental organizations. The program combines the strengths and skills of IBMers with the power of the company's innovative technologies and solutions to help schools and nonprofit organizations be more effective in addressing community issues and needs.

INVESTMENT AND RETURN

Over the past 5 years, IBM has spent $165 million in capital and $528 million in operating expense to build, maintain and upgrade the infrastructure for environmental protection at its plants and labs, and to manage its worldwide environmental programs.

ENVIRONMENTAL CAPITAL AND EXPENSE WORLDWIDE

($ in Millions)

	02	03	04	05	06
Capital	$ 52	$ 18	$ 21	$ 55	**$ 19**
Expense	119	104	102	106	**97**
TOTAL	**$171**	**$122**	**$123**	**$161**	**$116**

IBM compares its environmental expenses to the estimated savings resulting from its policy of environmental leadership. Savings come from energy, material and water conservation, recycling, packaging improvement initiatives, reductions in chemical use and waste, and process improvements from pollution prevention. Ongoing savings from previous years' initiatives are not carried over in this comparison, yielding very conservative estimates.

IBM also realizes savings through the avoidance of costs that likely would occur in the absence of its EMS. These savings are not measurable in the same way that expenses are, but avoiding these environmental costs does result in savings for IBM, and a reasonable attempt has been made to quantify them.

IBM estimates that over the past 10 years, annual savings from its focus on pollution prevention and design for the environment have exceeded environmental expenses by an average of two-to-one.

2006 ENVIRONMENTAL EXPENSES WORLDWIDE

($ in Millions)

Personnel	$34.4
Consultant fees	3.5
Laboratory fees	1.7
Permit fees	0.9
Waste treatment and disposal	12.1
Water and wastewater management operations	3.4
Air emission control operations	1.2
Groundwater protection operations	1.3
Other environmental systems operations	2.7
Waste and materials recycling	3.0
Superfund and former IBM site remediation	26.1
Miscellaneous/other	6.3
TOTAL	**$96.6**

2006 ESTIMATED ENVIRONMENTAL SAVINGS AND COST AVOIDANCE WORLDWIDE

($ in Millions)

Location pollution prevention operations	$ 43.5
Corporate operations*	4.1
Packaging improvements	12.9
Environmentally preferable materials usage	3.2
Energy conservation and cost avoidance	18.5
Superfund and site remediation efficiencies	2.4
Insurance savings**	15.0
Spill remediation cost avoidance***	1.4
Compliance cost avoidance***	96.0
TOTAL	**$197.0**

** Savings or costs avoided by having internal professional staff and tools versus using external consultants and tools.*

*** Savings achieved through use of RCRA financial assurance in lieu of environmental impairment liability insurance.*

**** These savings are estimates based upon certain assumptions. The figure for spill remediation cost avoidance is estimated from IBM's actual experience with remediation costs. Compliance cost avoidance includes consideration of potential penalties, legal fees and business interruptions that are avoided. A figure for potential penalties and legal fees was estimated from an analysis of 2005 U.S. EPA data. An estimate for business interruption was based upon potential impact of a plant shutdown.*

PRODUCT STEWARDSHIP

Protecting the environment throughout the product life cycle

IBM's Product Stewardship program was established in 1991 as a proactive and strategic approach to the company's environmental management of products. The program's objectives are to develop, manufacture and market products with improved energy efficiency, which can be upgraded to extend product life, which incorporate recycled content and environmentally preferable materials and finishes, and which can be recycled and disposed of safely. IBM's environmental product design requirements are integrated into its EMS and are also part of the Integrated Product Development Guide used by process and product development engineers.

MATERIALS USE

Among its objectives, IBM's environmental policy calls for the company to use development and manufacturing processes and provide products that are protective of the environment. As an integral part of its EMS supporting this objective, IBM routinely and consistently monitors and manages the substances it uses in its manufacturing and development processes and in its products.

The company's precautionary approach includes the careful scientific review and assessment of certain substances prior to their use in IBM's processes and products. In specific instances, IBM has chosen to ban, restrict or substitute substances used in IBM processes and products when sound science determines an adverse effect upon human health or the environment for that use, even when their use is permitted by law.

In addition, IBM conducts scientific investigations of approved substances when new processes or major modifications to existing processes are being developed. The objective of these scientific investigations is

to identify potential substitutes that may be environmentally preferable. IBM believes that the same scientific rigor is required when investigating the human health and environmental preferability of potential substitutes as was given to the original substance.

This early leadership in proactively addressing substances of concern enabled IBM to ban or restrict many substances from its processes or products long before regulatory requirements were imposed. The paragraphs that follow provide some examples.

IBM was the first major manufacturer of information technology products to announce a phase-out of chlorofluorocarbons (CFCs) from its manufacturing processes. IBM completed the phase-out of Class I ozone-depleting substances in 1993, nearly 10 years ahead of the production phase-out date under the Montreal Protocol. Subsequently, IBM eliminated Class II ozone-depleting chemicals from its manufacturing processes in 1995.

Other chemicals which IBM voluntarily prohibited from its manufacturing processes include trichloroethene (late 1980s) and ethylene-based glycol ethers (to mid-1990s), and dichloromethane (2003).

A few examples of prohibitions in the product area include polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) and cadmium. IBM prohibited PBBs and PBDEs from its product designs in the early 1990s and then extended the prohibition to purchased commodities through its procurement specifications in 1993.

Cadmium was prohibited in inks, dyes, pigments and paints on IBM parts in 1993. The prohibition of cadmium in plastics and plating was added in 1994. The use of cadmium sulfide for phosphorescence in CRT monitors and nickel cadmium batteries in notebook computers was eliminated in the mid-1990s.

Most recently, IBM has prohibited the use of specific perfluorinated compounds (PFOS and PFOA) in any new IBM manufacturing, development and research processes. In addition, IBM is banning their use in any known application in existing processes after December 31, 2009. The company has an active program to identify appropriate alternatives for these existing uses.

IBM has also prohibited the use of polyvinyl chloride (PVC) and tetrabromobisphenol A (TBBPA) as an additive flame retardant in IT system enclosures for newly released products.

IBM's restrictions on specific substances and other environmental requirements for its products may be found in its *Engineering Specification: Baseline Environmental Requirements for Supplier Deliverables to IBM.* The most recent version of the specification may be found at **http://www.ibm.com/ibm/environment/products/especs.shtml.**

RESTRICTION OF HAZARDOUS SUBSTANCES (RoHS) DIRECTIVE

As a result of IBM's early focus on substances of concern, IBM eliminated most of the applicable substances subject to restrictions under the European Union (EU) RoHS Directive many years ago and had restricted the use of other substances. Accordingly, IBM's primary emphasis in meeting the requirements of the RoHS Directive was on finding alternatives for hexavalent chromium (used as a surface treatment for sheet metal) and lead and lead solder.

IBM completed its product transition to compliance with the EU RoHS regulations as of July 1, 2006. All new IBM product shipments to the EU are fully compliant with the RoHS regulations.

The conformance milestones were accomplished with the aid of some exemptions permitted by the EU for server, storage and telecommunication products. Most notably, eutectic tin-lead solder is still utilized to join electrical components to printed circuit boards for IBM server, storage and telecommunication products. However, IBM did not utilize the EU moratorium on the ban of hexavalent chromium metallic coatings and is not utilizing the EU exemption permitting continued usage of leaded (Pb) lead-frames for electrical components.

Significant internal development efforts continue today to find lead-free replacement technologies to permit phasing out of the remaining exempted lead usages. For example, the continued usage of leaded push-pin or "compliant pin" connectors is being phased out as new lead-free materials are being qualified.

The 2006 RoHS compliance milestone required supplier declarations and chemical analyses to confirm material content. These supplier declarations were essential to IBM's compliance management system and required an accelerated program to get the entire IBM supply chain to respond in time to meet the July 1, 2006, EU RoHS deadline. IBM procurement had anticipated such a reporting requirement so that the necessary data systems were in place to handle the massive influx of supplier data.

In 2006, the IBM brands initiated a new technical management council to coordinate all environmental regulations worldwide across all product lines in a consistent and efficient manner. The Environmental Implementation Council (EIC) has membership from Global Logistics, Global Services, Corporate Environmental Affairs, Systems and Technology Group, Global Procurement, Worldwide Manufacturing and brand Legal Counsel.

One major focus item for the new EIC is to maintain a high level of compliance quality so that 100 percent conformance is maintained on all products over the product lifetime. In addition, the EIC will ensure that all new product regulations have implementation plans and plan owners defined on a timely basis. Two environmental regulations that will be focus items in 2007 are China RoHS and EU Battery Marking. In addition, some early actions will be initiated on the EU REACH regulations, which will impact chemical usage in the EU.

IBM continues to actively participate in, and provide leadership to, a variety of industry consortia concerned with various environmental regulations, test procedures and materials issues. In one such effort, IBM chairs the multi-stakeholder Partnership Project on Flame Retardants in Printed Circuit Boards for the U.S. EPA's Design for Environment Program. This project, launched in February 2006, aims to identify and evaluate commercially available flame retardants and their environmental, human health and safety, and environmental fate aspects in FR-4 printed circuit boards. Potential hazards associated with flame retardants and potential exposures throughout the life cycle of flame retardants used in FR-4 printed circuit boards are being explored. For example, the project will conduct testing of incineration by-products of these materials. Hazard assessments employ criteria from the EPA's New Chemicals Program to evaluate hazard concerns for each flame retardant formulation. In addition to influencing design decisions, this information will inform industry and other stakeholders on environmentally preferable disposal or recycling scenarios.

IBM HAS A NUMBER OF GOALS FOR ITS PRODUCT STEWARDSHIP PROGRAM

2006 GOALS AND PERFORMANCE*

Product Energy Efficiency

Powder Coatings	99.2% of the decorative metal covers of IBM products were finished using powder coatings, versus IBM's goal of maintaining powder use at or above 90%. This environmentally preferred material enabled IBM suppliers to avoid the emission of more than 203 metric tons of volatile organic compounds (VOCs). Since the inception of the Powder Coatings program 10 years ago, IBM has avoided the emission of 4.1 million pounds of VOCs.
Recycled Plastics	38.6% (by weight) of all plastic resins IBM procured through its corporate contracts contained recycled plastic content. The net recycled plastic content weight represented 11.7% of IBM's total purchases (recycled and virgin plastics) versus the corporate goal of 5%.
Use of Landfills	IBM's product end-of-life management operations worldwide processed 49,083 metric tons of end-of-life products and product waste, and only sent 0.8% of the total to landfills, versus IBM's goal to minimize its product landfill use rate to no more than 3%.
Printers, Multifunctional Devices, & Monitors	Of all the applicable new products first shipped in 2006, 100% of printers, 92% of multifunctional devices, and 100% of flat panel monitors met ENERGY STAR criteria, meeting our voluntary goal of 100% for printers and monitors.
Servers	**System i™:** Two models reported a 15.8% and 12.1% reduction in typical operating power consumption per relative performance against comparable previous generation models. **System p™:** Two new models both reported a 10.4% reduction in operating power consumption per unit of relative performance against comparable previous generation models. **System x™:** Metrics vary by machine type and customer application. **System z™:** Two new models both reported a 19% reduction in operating power consumption per unit of relative performance against comparable previous generation models.
Point-of-Sale Terminals	The SurePOS™ 500-4846 achieved a 6% reduction in maximum power consumption in watts per composite theoretical performance.
Storage Subsystems	The midrange DASD subsystem, DS4700-1814, achieved a 10.1% reduction in the calculated power in watts per gigabyte over the previous generation.
Optical Storage	The Optical Storage Library 3996 achieved a 68.8% reduction in power in watts per gigabyte from the previous generation model.

**Note: Product energy efficiency goals vary by product type, but all are measured by their increase in energy efficiency over previous generation products or models.*

PRODUCT AND DATA CENTER ENERGY EFFICIENCY

IBM's environmental policy and Product Stewardship program commit the company to providing energy efficient products and solutions for IBM and its customers.

This commitment is underpinned by IBM's innovations in both hardware and software, which are driving product and data center energy efficiency improvements:

- **Power supply efficiency:** IBM provides high efficiency power supplies on many of its systems, with conversion efficiencies of more than 85 percent over the 40 - 70 percent loaded operating range, the typical operating range of redundant power supplies.

- **Processor level power management and processor energy efficiency:** IBM continues its long-standing product stewardship efforts by enhancing processor level power management capabilities in the company's product line beginning with its blade servers. In addition, IBM continues to innovate in semiconductor process capability. For example, IBM recently announced hafnium-based gates and airgap insulating technology to add to its other leading-edge, energy efficient processor innovations like strained silicon and silicon-on-insulator.

- **Shared components:** IBM rack and server designs are increasingly sharing memory, storage and communication systems. As products are designed with multi-core processors and multiple processors in a system, product designers are implementing component sharing for memory, storage, communications and other systems. By "sharing" components among processors in a rack or a system, the component can be run more fully utilized, reducing the overall energy required to carry out the required tasks.

- **Smarter IT cooling solutions:** On System z, the processor systems are cooled with small refrigeration units—the most efficient cooling solution. IBM offers the Cool Blue™ Rear Door Heat eXchanger, a water-cooled, rear door unit which removes up to 55 percent of the server heat load and is combined with a chassis design that optimizes cooling air flow to deliver efficient cooling. This technology is also now available on other IBM servers.

- **Upgrade of IBM Tivoli® management software:** IBM announced that the upgrade of its Tivoli management software will enable data center energy management across the data center by such actions as data center level power monitoring (using data provided by IBM's Active Energy Manager), department-level charging for power usage and automatic idling of inactive systems.

- **Mobile Measurement Technology (MMT) cart:** Developed by IBM Research, the MMT cart has over 120 temperature and other sensors mounted in a prescribed three-dimensional (3D) pattern on a mobile, scaffold system. The data collected by the cart is processed in a modeling system and provides a 3D characterization of the thermal characteristics of an operating data center space. The maps of the data can be analyzed to identify hot spots, areas where hot and cold air flows are intermixing, and areas of inadequate or overprovisioned airflow—all conditions which sap the energy efficiency of the data center.

IBM has also initiated a range of new data center services to help IBM and its clients improve the energy efficiency of their data center operations. IBM announced Project Big Green in May 2007, an initiative that is redirecting $1 billion per year across the company's businesses, mobilizing IBM's resources to dramatically increase the level of energy efficiency in IT. The project includes new products and services for IBM and its clients to sharply reduce data center energy consumption.

These services can reduce power, cooling and/or space requirements from 10 - 80 percent in existing data centers, reducing energy usage and bills, and freeing up space and capacity for business growth.

IBM recently made two key energy efficiency commitments for its own data center operations. It has committed to double the computing capacity at its own data centers in three years—without increasing power consumption or the company's carbon footprint. In addition, a consolidation project was announced which will move the workload from about 3,900 computer servers onto about 30 System z mainframes running the Linux® operating system, reducing power, cooling and space requirements for these operations by approximately 80 percent.

PRODUCT RECYCLING AND REUSE

As part of its product end-of-life management (PELM) activities, IBM began offering product take-back programs in Europe in 1989 and has extended and enhanced them over the years.

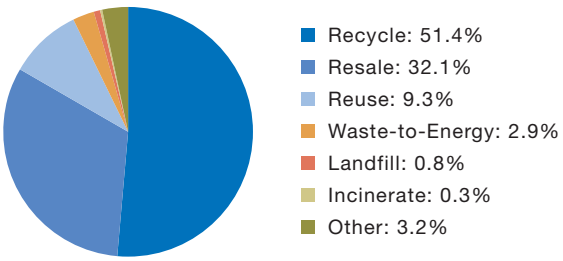
IBM's Global Asset Recovery Services organization offers Asset Recovery Solutions to commercial customers in all 57 countries in which IBM Global Financing operates today. This includes the management of data security and disk overwrite services, a worldwide remarketing network for product resale and state-of-the-art refurbishing and recycling capability for IT equipment, and optional logistic services such as packing and transportation. Additionally, in many countries, IBM offers solutions to household consumers for the end-of-life management of computer equipment, either through voluntary IBM initiatives or country programs in which the company participates.

In 2006, IBM's PELM operations worldwide processed 49,083 metric tons of end-of-life products and product waste. This represents 49 percent of the estimated 100,000 metric tons of new IBM IT equipment manufactured and sold in 2006. These PELM operations sent only 380.7 metric tons (0.8 percent) of the total amount processed to landfills, a 55.4 percent decrease in volume compared with 2005.

Since 1995, when IBM first began reporting the volumes of product waste it collected and recovered in the company's annual corporate environmental report, IBM has documented the collection and recovery of more than 1.4 billion pounds (642.5 million kilograms) of product and product waste worldwide through year-end 2006.

PRODUCT END-OF-LIFE MANAGEMENT OPERATIONS

(2006: Percentage by Weight)



PRODUCT PACKAGING

Packaging is often the initial source of waste generated by a product once it enters the market. To minimize this source of waste, IBM strives to keep packaging to a minimum and, whenever feasible, composed of recyclable and/or reusable materials. IBM's Packaging Guidelines, developed in 1990, are updated periodically. They prohibit the use of ozone-depleting chemicals, heavy metals, polybrominated biphenyls and polybrominated biphenyl oxides. The guidelines also provide direction to minimize toxic elements in packaging materials; identify methods, processes and designs to reduce packaging volume; and promote the use of packaging materials that are reusable, recyclable and/or contain recycled content.

For over 10 years, IBM has prohibited the use of polyvinyl chloride (PVC) and the use of free-flowing cushioning materials (such as "plastic peanuts") in IBM packaging. It has also prohibited the use of permanently commingled but dissimilar materials except in cases in which they are part of reusable packaging designs or technically required to ensure product quality, such as in static-shielding bags.

Key elements of IBM's Packaging Guidelines have been embedded in various engineering specifications and procurement documents, which extend their reach beyond IBM to include its supply chain and other business partners.

These documents may be found at **http://www.ibm.com/procurement/proweb.nsf/-ContentDocsByTitle/United+States~Information+for+suppliers.**

One recent example is this: In 2007, IBM developed a package for a System x server in which all primary and secondary packaging materials are derived from 100 percent post consumer recycled content. This includes nestable "foamless" HDPE cushions made in part from recycled milk jugs, a poly bag for dust protection and an outer carton made from 100 percent recycled fiber. It is believed to be the first package in this industry made totally from previously recycled materials.

IBM's package design team also is now factoring aspects such as transport modes, fuel efficiencies and other options resulting in less CO_2 emissions in the early phases of the package development cycle.

PRODUCT SAFETY

IBM's product safety requirements are included in various steps of the product design, development, manufacture and test process, and include the supply chain. Required reviews by IBM Product Safety Review Boards help product and project managers comply with applicable standards and national regulations, and help IBM to obtain third-party certifications where required.

Programs for continual improvement include both customer and third-party assessment of IBM's products' safety and conformity assessment programs. These assessment results are continually fed back into the evaluation and planning cycle. This process is augmented by incident management tools that provide effective capture and management of any product safety-related incident.

POLLUTION PREVENTION

HAZARDOUS WASTE

One way to prevent pollution is to reduce the generation of hazardous waste at its source. This has been a basic philosophy behind IBM's pollution prevention program since 1971.

Where possible, IBM redesigns processes to eliminate or reduce chemical use and substitute more environmentally preferable chemicals. Chemicals needed for research, development and manufacturing must be properly managed, from selection and purchase through storage, use and disposal.

For waste that is generated, IBM focuses on preventing pollution through a comprehensive, proactive waste management program.

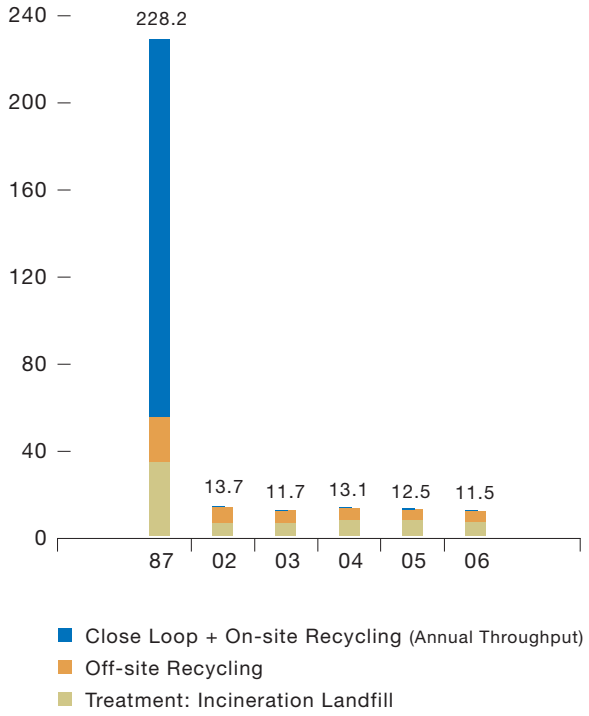
In 2006, IBM's hazardous waste generation indexed to output was reduced 8.1 percent. This means that source reduction efforts reduced the generation of hazardous waste by 315 metric tons. IBM's goal in this area is to achieve a continual reduction of hazardous waste indexed to output over the previous year's generation. The goal covers approximately 90 percent of IBM's manufacturing and hardware development-related hazardous waste, which comes from four sites. Hazardous waste from other operations, such as assembly and facility operations, is not included in this metric.

IBM's hazardous waste generation from 2005 to 2006 decreased by 950 metric tons, or 7.6 percent. In 2006, IBM recycled 43 percent of its hazardous waste, and 33 percent was sent to landfills. Of the total amount landfilled, 73 percent was sludge from industrial wastewater treatment plants. Local government regulations required disposition of this sludge in secure hazardous waste landfills.

IBM's total hazardous waste decreased by 16 percent over the past 5 years, and has decreased by 94.9 percent since 1987, the base year of this metric.

HAZARDOUS WASTE QUANTITIES WORLDWIDE

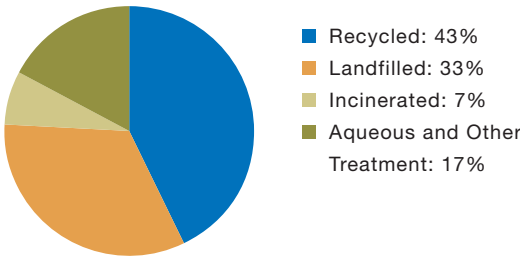
(2006 Quantities: Metric Tons x 1,000)



Some numbers updated to reflect the expansion of PELM operations and reporting.

HAZARDOUS WASTE MANAGEMENT WORLDWIDE

(2006 Quantities: 11,542 Metric Tons)



NONHAZARDOUS WASTE

IBM's nonhazardous waste goal in 2006 was to recycle 67 percent of its nonhazardous waste. Nonhazardous waste includes such waste as paper, metals, plastics, deionized resins and nonhazardous chemicals. The metric also includes IT waste generated by IBM's business, e.g., equipment scrapped from IBM locations as well as IBM-owned equipment returned by external customers at the end of lease.

In 2006, IBM recycled 74.3 percent of its nonhazardous waste, with 63 percent of the locations achieving or exceeding the 67 percent recycling goal.

NONHAZARDOUS WASTE GENERATED AND RECYCLED WORLDWIDE

(Metric Tons x 1,000)

YEAR	02	03	04	05	06
Total Recycled	120	82	83	83	90
Total Generated	154	106	109	108	121
Percent Recycled	**78%**	**77%**	**76%**	**77%**	**74%**

CHEMICAL USE AND MANAGEMENT

IBM's operations rely on the use of some chemicals on the U.S. Toxic Release Inventory (TRI) list. The company uses this list to track its chemical use and management globally. Since 1993, the base year of this metric, IBM has reduced its total TRI chemical quantities worldwide by 82.4 percent.

INTERNATIONAL PERFORMANCE MEASURES

Under the U.S. Superfund Amendments and Reauthorization Act (SARA) of 1986 and the U.S. Pollution Prevention Act (PPA) of 1990, companies are required to file an annual inventory of routine releases and off-site transfers in addition to recycling, treatment and energy recovery activities for more than 600 TRI chemicals.

IBM began using this U.S. metric to measure its chemical quantities, releases and transfers for its operations globally in 1993. In 2006, IBM sites worldwide used 15 of these chemicals in quantities greater than the reporting threshold of 10,000 pounds (4.54 metric tons) of use per year.

From 2005 to 2006, IBM's total chemical quantities covered by both SARA and PPA worldwide increased by 871 metric tons to a total of 5,415 metric tons. The increase from 2005 to 2006 was primarily due to the installation of a new treatment plant at the IBM East Fishkill facility in New York to reduce the amount of nitrates generated from current operations. The startup for the plant required approximately 500 metric tons of sulfuric acid over a period of 3 months.

TOTAL CHEMICAL QUANTITIES WORLDWIDE*

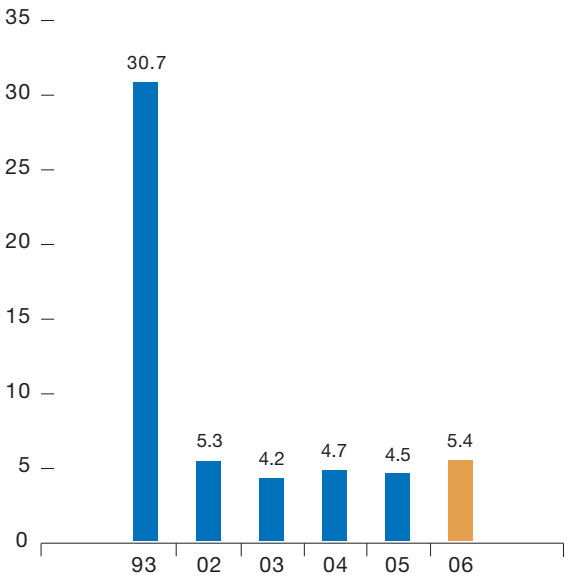
(2006 Reportable Quantities)

CHEMICAL	METRIC TONS
Nitrate Compounds	1,647
Xylene	986
Copper Compounds	700
Sulfuric Acid	545
n-methyl-2-pyrrolidone	391
Hydrogen Fluoride	191
Tetrachloroethylene	166
All others	789
TOTAL	**5,415**

**As defined by U.S. SARA Section 313 and PPA.*

TOTAL CHEMICAL QUANTITIES WORLDWIDE*

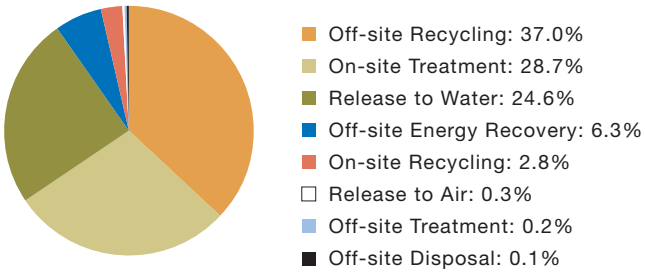
(Reportable Quantities in Metric Tons x 1,000)



**As defined by U.S. SARA Section 313 and PPA. Includes recycling, treatment, energy recovery, releases and off-site transfers.*

TOTAL CHEMICAL QUANTITIES WORLDWIDE*

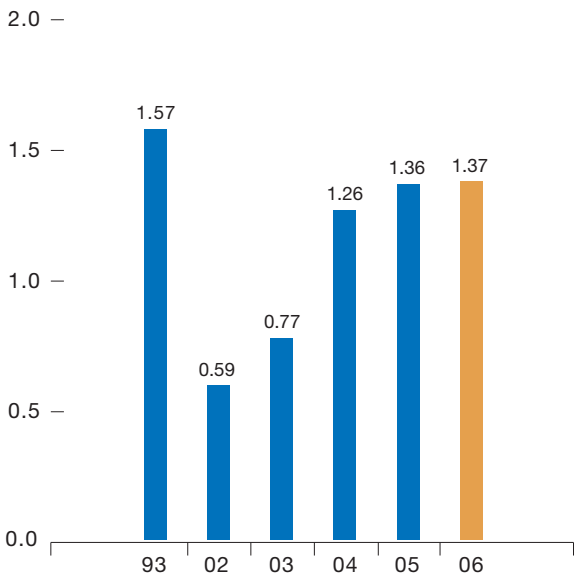
(2006 Reportable Quantities: 5,415 Metric Tons)



**As defined by U.S. SARA Section 313 and PPA.*

TOTAL RELEASES TO ENVIRONMENT & WASTES TRANSFERRED OFF-SITE FOR TREATMENT AND DISPOSAL WORLDWIDE*

(Metric Tons x 1,000)



*As defined by U.S. SARA Section 313.

In 2006, the total releases to the environment and waste transferred off-site for treatment and disposal from IBM's worldwide operations increased by less than 1 percent to 1,366 metric tons. The increase in releases and transfers from 2002 through 2006 was due to the increase in discharges to water of nitrates associated with production at IBM's new 300mm chip fabrication facility in East Fishkill, N.Y., which became operational in 2002 and ramped up to full production in 2004. Though not required by regulations, IBM voluntarily constructed a new treatment plant to capture and treat the nitrates. The plant became fully operational at the end of 2006.

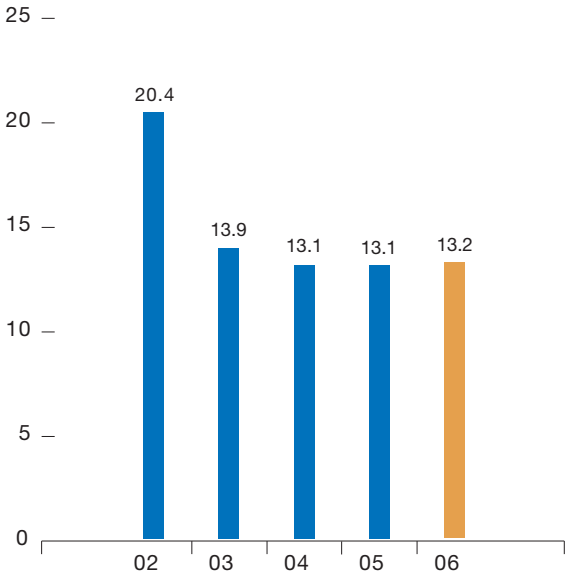
WATER CONSERVATION

In 2000, IBM's semiconductor manufacturing operations established an annual water savings goal of 2 percent of total water usage, based on the water usage of the previous year and measured as an average over a rolling 5-year period. In 2006, IBM's semiconductor operations achieved a 2.3 percent savings rate, translating to a savings of 353 thousand cubic meters (TCM) of water. In addition, ongoing recycling and reuse activities in semiconductor manufacturing operations accounted for an additional 1,256 TCM of water conserved. Over the past 5 years, the semiconductor division has achieved an average annual water savings of 7 percent versus the 2 percent goal established in 2000.

Overall, IBM's water consumption at its plants and labs worldwide increased slightly in 2006, from 13,057 TCM in 2005 to 13,190 TCM in 2006.

WATER CONSUMPTION IN PLANTS AND LABS WORLDWIDE

(Thousand Cubic Meters x 1,000)



CLIMATE PROTECTION

IBM recognizes climate change is a serious concern that warrants action on a global basis to stabilize the atmospheric concentration of greenhouse gases (GHGs). All sectors of society, the economy and governments will need to participate in solutions to climate change.

The company believes there are cost-effective strategies available to reduce GHG emissions, and it has a comprehensive program to address climate change. IBM has applied its technical and engineering expertise to voluntarily reduce emissions associated with its own operations and to help its clients by creating products and offering solutions that are increasingly energy efficient. This not only protects the environment but also enhances the value of the company's products, offerings and "green" business solutions.

IBM's "carbon management hierarchy" starts with energy efficiency and resource conservation efforts to avoid GHG emissions, followed by the use of renewable, low CO_2-emitting energy generating sources and the use of abatement technology (to manage perfluorinated carbon [PFC] emissions) to reduce GHG emissions from its operations. Similarly, in the area of hardware products, the hierarchy begins with designing energy efficient products and providing energy efficient solutions that offer the greatest positive impact on climate protection.

IBM prioritizes its available resources to maximize the climate benefit of the carbon management hierarchy. While legitimate carbon offsets offer another means to address CO_2 emissions, IBM believes these should be limited to situations when there are no other reduction opportunities available. Accordingly, IBM's focus has been on delivering results that increase energy efficiency, investing in programs to reduce emissions from the company's operations and providing products and solutions that enable clients to be more energy efficient.

Conserving energy

Energy conservation is a major component of IBM's comprehensive, multifaceted climate protection program because the release of CO_2 by utility companies powering the company's facilities represents the greatest potential climate impact associated with IBM's operations.

In 2006, IBM updated its corporate-wide energy conservation goal, decoupling the measurements for energy conservation from renewable energy sourcing. The company's commitment to increase renewable energy sourcing was incorporated into a new CO_2 emissions reduction goal. The updated energy conservation goal is to achieve annual energy conservation savings equal to 3.5 percent of IBM's actual annual electricity and fuel use. The company's stringent energy conservation standard recognizes only those projects which actually reduce or avoid the consumption of energy in its operations. Reductions in energy consumption from downsizings, the sale of operations and cost avoidance actions, such as fuel switching and off-peak load shifting, are not included in the energy conservation goal.

In 2006, IBM's energy conservation projects across the company delivered savings equal to 3.9 percent of consumption versus the corporate goal of 3.5 percent. These projects avoided the consumption of 180 million kWh of electricity and 2.4 million gallons of fuel, representing the avoidance of 99,000 metric tons of CO_2 emissions. The conservation projects also avoided $18.6 million in energy spending.

Between 1990 and 2006, IBM saved 4.5 billion kWh of electricity consumption, avoided nearly 3 million metric tons of CO_2 emissions (equal to 44 percent of the company's 1990 global CO_2 emissions) and saved over $290 million through its annual energy conservation actions.

ELECTRICITY AND FUEL USE AND RELATED CO_2 EMISSIONS

YEAR	ELECTRICITY AND FUEL USE *(Thousand MMBTU)*	CO_2 (EST) *(Metric Tons x 1,000)*
2002	25,044	2,633
2003	21,695	2,334
2004	21,360	2,192
2005	22,630	2,489
2006	22,491	2,420

The above figures include estimates for portions of IBM's office space that are leased. CO_2 emissions are calculated for all energy use, including electricity, fuel oil and natural gas.

IBM uses the greenhouse gas reporting protocol developed by the World Resources Institute and the World Business Council for Sustainable Development to gather and report its CO_2 emissions.

Using renewable energy

IBM's worldwide use of renewable energy increased from 2.7 percent in 2005 to 7.3 percent of its worldwide electrical usage in 2006, a year-to-year increase of 180 percent. Renewable energy purchases in the U.K. increased to 250,000 megawatt hours (MWH), increasing the total direct purchases of renewable energy to 272,000 MWH. This was augmented by a purchase of 96,000 MWH of Renewable Energy Certificates (RECs) in the U.S. to bring the total purchase of renewable energy to 368,000 MWH, representing a CO_2 avoidance of 167,000 metric tons.

Renewable energy purchases in the U.S., either through direct purchases or purchases of RECs, totaled 109,000 MWH, positioning IBM in the top 20 renewable energy purchasers on the 2006 U.S. EPA Green Power Partners List. IBM was recognized in December 2006 with a Green Power Leadership Award for its global efforts to purchase renewable energy. The company's energy conservation efforts and renewable energy use avoided the emissions of more than 266,000 metric tons of CO_2 and other combustion-related gases.

For 2007, IBM is maintaining these renewable energy purchases and adding an additional 19,865 MWH of renewable energy purchases in the Netherlands and Australia, bringing total anticipated direct renewable energy purchases to 357,000 MWH.

Solutions and voluntary programs

The evolution of IBM's energy conservation initiatives necessitates new approaches and technologies to capture further opportunities for energy efficiency, and the company is increasingly deploying its information technology solutions to assist in these efforts. One example: IBM has increased the number of monitored connections to nearly 1,000 electrical meters at more than 24 of its North American locations to perform real-time monitoring of electrical usage. This system collects energy readings every 15 minutes and allows IBM's energy team to identify savings opportunities that may be embedded in day-to-day operations.

The system enabled the identification of 47 energy conservation projects for 2006, which saved $611,000. In two years, the system has enabled IBM to identify over 105 energy conservation projects with a total savings of $1.35 million.

IBM joined the Chicago Climate Exchange (CCX) as a charter member in November 2003. Under the CCX pilot program, IBM committed to reducing its direct CO_2 and CO_2 equivalent emissions and electrical usage by 1 percent per year (4 percent total) from 2003 to 2006. This reduction is measured against a baseline that represents the annual average emissions and electrical usage from 1998 to 2001. The program covers IBM's facilities in Canada, Mexico and the United States.

At year end 2006, IBM had achieved total reductions of 16.6 percent compared to the 4 percent goal. After meeting and exceeding its phase I commitment, IBM has extended its participation in CCX to the second phase of the program. The phase II commitment is for an additional 2 percent reduction in its direct emissions (CO_2 and CO_2 equivalents) and electricity purchases from 2007 through 2010.

TRANSPORTATION INITIATIVES

Commuting and Leased & Rental Vehicles

IBM has been active in promoting programs that reduce the commute to work for its employees. Two key contributors to this effort are IBM's work-at-home program, which allows employees' "work" office to be in their homes, and IBM's mobile employees program, which enables employees to work from home a designated number of days each week. These important aspects of IBM's work/life balance programs help its employees better balance their personal and work responsibilities. They also benefit the environment.

More than one-third of IBM's global workforce (more than 100,000 employees) participate in one of these two flexible work programs. In the United States alone, IBM's work-at-home program conserved approximately 8 million gallons of fuel and avoided more than 61,600 metric tons of CO_2 emissions last year and assisted IBM to rank 15th on the 2006 list of FORTUNE 500 companies participating in the U.S. EPA's Best Workplaces for Commuters℠ program. In addition, more than 3,600 metric tons of CO_2 emissions were avoided in 2006 by employees using other commute-choice programs such as carpooling, vanpooling, etc.

Globally, many IBM locations provide support for the use of public transit systems, including shuttles from locations to mass transit stations, and alternate transportation or "loaner" cars for business trips during the work day. Where IBM provides leased vehicles for employees, the company is seeking to increase the use of more fuel-efficient vehicles. In France and Belgium,

programs to offer fuel-efficient vehicles have resulted in more than 95 percent of 2,600 leased vehicles emitting 140 gm of CO_2/km or less, despite the availability of vehicles with emission levels up to 200 gm of CO_2/km. A similar program is being offered in the U.K.

Logistics

IBM's climate programs include addressing the emissions and efficiency of its logistics operations. In 2006, the company joined the U.S. EPA's SmartWay Transport Partnership, a collaboration between freight carriers and shippers and the U.S. EPA to improve fuel efficiency and reduce GHG emissions. IBM increased the percentage of freight it shipped with SmartWay carriers inside the U.S. or to Mexico and Canada (based on cost of shipping in U.S. dollars) from 55 percent to 68 percent from 2005 to 2006.

IBM is extending its SmartWay commitment to its global operations, initiating "no idling" and other dock policies which reduce CO_2 emissions and fuel usage across its global operations and including environmental clauses in its Statement of Work requirements for all shipping contracts.

IBM's packaging programs also help reduce transport-associated CO_2 emissions by reducing the volume and weight of the company's product shipments through innovative packaging design. Accomplishments in this area were discussed earlier in the report.

AUDITS AND COMPLIANCE

IBM measures its environmental performance against both external and internal requirements. Each manufacturing, hardware development and research site completes a standard annual self-assessment, and some operations and functions are assessed more frequently. In addition, approximately three to five sites are audited for environmental, health and safety compliance by IBM's Corporate Internal Audit staff each year. Audit results are communicated to top management. Follow-up, accountability and actions are clearly delineated.

In addition, as part of IBM's single, global registration to ISO 14001, approximately 15 sites are audited each year by an independent ISO 14001 registrar. The company's manufacturing, hardware development and chemical-using research sites are audited, by either the corporate audit team or the external ISO 14001 registrar, at least once every two years.

ACCIDENTAL SPILLS AND RELEASES

IBM sites around the world report environmental incidents and accidental releases to IBM management through the company's Environmental Incident Reporting System (EIRS). Every event meeting IBM's environmental incident reporting criteria, which equal or surpass legal reporting requirements, must be reported through EIRS. Each IBM location must also have a documented incident prevention program (including provisions for preventing environmental incidents or their recurrence) and reporting procedure.

In 2006, a total of 42 accidental releases were reported through EIRS. Of these, 5 were releases to secondary containment, leaving 37 actual releases to the environment. Of those 37, 4 involved petroleum products, and 2 involved anti-freeze. Emissions to air ncluded 10 refrigerants, 1 natural gas and 1 ozone. There were three additional releases to air—two ammonium salts, and one nitric/hydrofluoric acid. Releases involving water included six releases of chilled water, one treated industrial wastewater and one untreated industrial wastewater. In addition, there were three releases of untreated groundwater and five releases, two of treated and three of untreated, sanitary wastewater.

The root cause was investigated for all releases, and corrective actions were taken as appropriate. None of the releases were of a duration or concentration to cause long-term environmental impact.

FINES AND PENALTIES

One significant measure of a company's environmental performance is its record of fines and penalties. IBM received 122 agency visits worldwide in 2006, but was not assessed any fines during the year. Over the past five years, IBM has paid one environmental fine for a total amount of $800.

FINES AND PENALTIES WORLDWIDE

($ in Thousands)

	02	03	04	05	06
Number	1	0	0	0	0
Fines	$0.8	$0.0	$0.0	$0.0	$0.0

REMEDIATION

IBM voluntarily began monitoring groundwater at its manufacturing and development locations around the world when groundwater contamination was first discovered at one of its sites in 1977. Worldwide, IBM today has approximately 2,865 monitoring and 116 extraction wells. In 2006, approximately 13,609 pounds of solvents from past contamination were extracted while remediating, controlling and containing groundwater at 7 currently operating sites and 11 former sites in 3 countries. At 4 of these sites, an additional 413 pounds of solvents were removed by soil vapor extraction or other methods. IBM also has financial responsibility for remediation at two other former sites.

As a result of the U.S. Superfund law, IBM is also involved in cleanup operations at some non-IBM sites in the U.S. The Superfund law creates a retroactive responsibility for certain past actions even though they may have been technically and legally acceptable at the time.

As of year-end 2006, IBM had received notification (through federal, state or private party) of its potential liability at 108 sites. Of these, 56 are on the U.S. National Priority List. At the majority of the 108 sites, it has been determined that IBM either never had liability or has resolved liability. As a result, IBM believes it may have potential liability at only 17 sites.

When investigation and/or remediation at an IBM location or an off-site facility is probable, and its costs can be reasonably estimated, IBM establishes accruals for loss contingency. Estimated costs connected with closure activities (such as removing and restoring chemical storage facilities) are accrued when the decision to close down a facility is made. As of December 31, 2006, the total accrual amount was $252 million.

AWARDS & RECOGNITION

INTERNAL RECOGNITION

Chairman's Environmental Award Program

IBM established the Chairman's Environmental Award Program in 1991 to encourage leadership and recognize achievement and progress in environmental affairs on the part of IBM's organizations. Recipients are selected based upon the leadership, comprehensiveness, progress and results of their environmental, energy and safety programs within the framework of IBM's corporate policy on environmental affairs.

In 2006, the program focus was solely on energy, given the increased interest and expectations in this area. Recipients were selected based on their degree of leadership, results, innovation and integration with regard to their programs and initiatives in the areas of energy conservation and energy efficiency. Performance against these criteria was evaluated against each nominee's opportunity to contribute, given its mission and operations.

Two IBM organizations received the 2006 IBM Chairman's Environmental Award for the significant contributions they have made to energy conservation and energy efficiency—both for the company and its clients.

IBM Research

Research developed a wide range of innovations for product energy efficiency, collaborated with clients to provide solutions that optimize their operations and processes to increase energy efficiency, and demonstrated laudable energy conservation in its own operations. Some of the highlights of their leadership in these areas include:

- Leading edge research and collaboration with IBM's Systems and Technology Group to develop more energy efficient processors and systems (e.g., VLSI circuit design, design automation tools and power-aware microarchitecture, PowerExecutive™, EMPATH, and Blue Gene®/L)
- Sponsorship of the Austin Energy Efficiency Institute, focusing on IBM's low power initiatives at the component and systems levels
- Development of combined workload/power management tools and a data center thermal profiling device that increase the energy efficiency of data centers
- Leveraging multiple disciplines and areas of expertise in collaboration with Global Business Services and Global Technology Services to provide energy efficiency and competitive advantage in clients' product, production and business processes
- Strong internal energy conservation programs that exceeded IBM's 4 percent energy goal for the 3 years covered by the award program this year

IBM Global Real Estate Site Operations (RESO)

RESO achieved excellent results in energy conservation and cost reduction, was instrumental in IBM's procurement of renewable energy, and also used their experience to provide clients with energy management solutions. Some of the highlights of their leadership in these areas include:

- Exceeded IBM's voluntary 4 percent energy goal as a result of its energy conservation projects, which also avoided an average of 174,000 tons of CO_2 emissions and saved IBM $12.8 million per year during the 3 years covered by the nomination
- Implemented an innovative initiative called Electrical Energy Monitoring System for the detailed monitoring of energy consumption at 20 IBM sites in North America that reduced energy use by approximately 20,000 MWH and saved the company $1.4 million
- Proactively expanded the use of renewable energy from 2.5 percent of IBM's global energy use in 2004 to approximately 6 percent through third quarter 2006, which contributed to significant external recognition for IBM
- Driving the implementation of employee commuting programs at IBM locations across the U.S., which reduced CO_2 emissions and enabled IBM to be named among the U.S. EPA's Top 20 Best Workplaces for Commuters from the FORTUNE 500 Companies for the past 3 years
- Provided energy expertise in collaboration with Global Business Services to help improve the energy efficiency of client operations

EXTERNAL RECOGNITION

IBM's environmental leadership and significant environmental accomplishments were externally recognized during 2006 in many ways. Some examples are:

- IBM received the U.S. EPA's Climate Protection Award and became the first corporation to win it twice.
- IBM was recognized by the U.S. EPA under its Climate Leaders Program for attaining its Climate Leaders goals.
- IBM Japan received, from the governor of Chiba-ken, an architectural culture award in environmentally conscious building design of the headquarters office of Mabuchi Motor Co., LTD., for its excellence in the comprehensive assessment system for building environmental efficiency.
- IBM received a Premier League rating in Business in the Community's Environment Index 2005 and also rated first in the information technology sector. The Environment Index benchmarks companies against both their sector peers and all companies which have participated in the Index on the basis of their environmental management and environmental performance and impact in areas such as climate change and waste and resource management.
- IBM received a Silver Star rating in the Australian Corporate Responsibility Index (CRI) 2005. Categories rated included corporate strategy, integration, management, performance and impact, and assurance and disclosure.
- IBM Brazil received a 2006 Brazil Environmental Award from the American Chamber of Commerce of Brazil in the solid waste management category.
- IBM was named in the U.S. EPA's Top 20 Best Workplaces for Commuters from the FORTUNE 500 companies. IBM ranked 15th.
- IBM Bromont received an Energia Award 2006 in the category of "technical innovation" for its innovative water cooling project.
- The U.S. Department of Energy (DOE) and U.S. EPA awarded IBM a 2006 Green Power Leadership Award for its use of renewable energy purchases in the U.S., including wind, solar and biomass-generated electricity. As part of the company's commitment to climate stewardship, IBM purchased 96,000 MWH of RECs and 272,000 MWH of electricity generated by wind turbines, solar panels or biomass.
- IBM Burlington, VT, U.S., received a 2005-2006 Vermont Governor's Award for Environmental Excellence & Pollution Prevention for its Solvent Usage Reduction and Elimination Projects in Wafer Manufacturing Operations. This marked the thirteenth consecutive year IBM has been recognized with at least one of these awards—which is every year the competition has been held.

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For more information about
IBM's environmental initiatives,
please visit our Web site:
http://www.ibm.com/ibm/environment

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