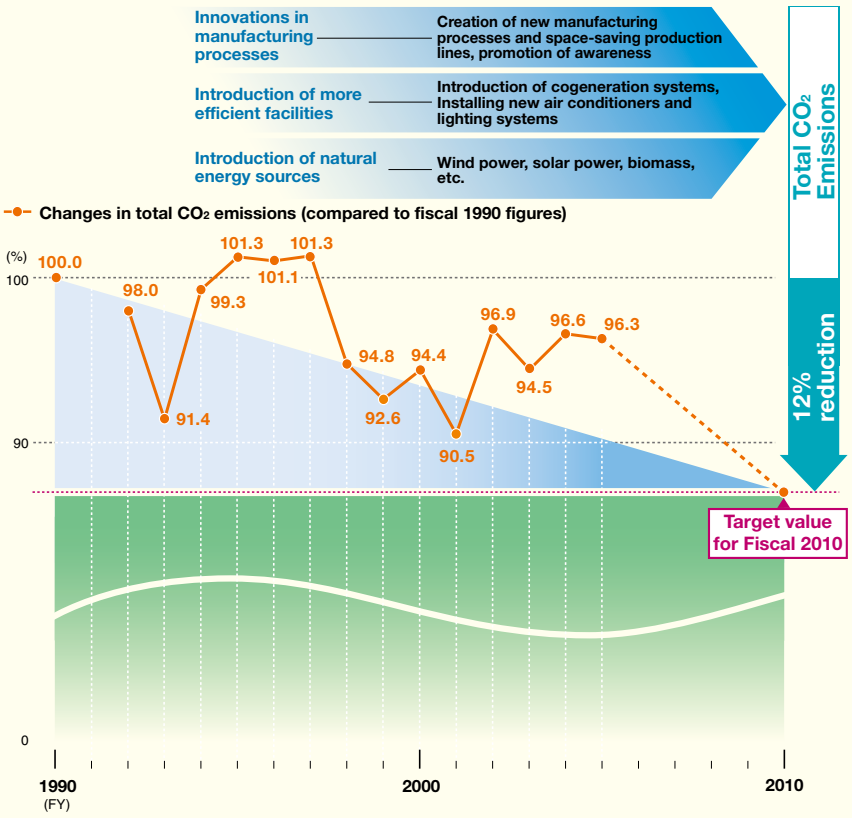
We will reduce total CO_2 emissions by 12% by the end of fiscal 2010 to help prevent global warming at a faster pace than set out in the Kyoto Protocol.

● Concept

The Ricoh Group has set goals that it wants to achieve by the end of fiscal 2010, aiming not only to attain the goals set out in the Kyoto Protocol, but also to lead the efforts to prevent global warming. Since a reduction in total CO_2 emissions is important in preventing global warming, the Ricoh Group companies in Japan have set a higher goal of reducing total emissions by 12% over the figures in fiscal 1990 by the end of fiscal 2010, compared with the goal for Japan of a 6% reduction set out in the Kyoto Protocol. Our group companies are striving to reduce global warming under this goal, which has been set in anticipation of an expansion in the scale of business. To attain this goal, the Ricoh Group is working to innovate its production processes[1], introduce more efficient facilities, and utilize natural energy sources. The Group positions its clean development mechanism (CDM)[2] as a scheme to prepare for the risks of unexpected expansions of production and fluctuating power supply rather than as a major CO_2 reduction measure. Efforts will be made to reduce greenhouse effect gases other than CO_2 by 10% over the level in fiscal 1995 by the end of fiscal 2010.

1. See page 37. 2. See page 38.

❶ Scenario for Reductions in Total CO_2 Emissions for Ricoh Group (production) in Japan up to Fiscal 2010



* Figures in and after Fiscal 2000 are recalculated using 2005 conversion factors.

Segment Environmental Accounting of Energy Conservation Activities at Business Sites (The Entire Ricoh Group)

Costs			Effects			
			Economic benefits		Effect on environmental conservation	
Item	Main cost	Costs	Item	Benefits	Reduction item	Amount
Business area cost	Cost of global warming prevention	¥741.9 million	Reduction in lighting and heating expenses	¥105.8 million	CO_2 emissions	3,432.4 (t)

* Reduction in CO_2 emissions is a total of amounts reduced through measures to prevent global warming at production sites.

● Targets for Fiscal 2007

◎ Reduce CO_2 emissions by 4% (Ricoh and manufacturing subsidiaries in and outside of Japan, compared to fiscal 2000 figures).

◎ Reduce CO_2 emissions by 4% (non-manufacturing subsidiaries in Japan, compared to figures in the base fiscal year set at each company).

◎ Reduce greenhouse gas emissions (except CO_2) in the semiconductor business division by 15% (compared to fiscal 2000 figures).

● Targets for Fiscal 2007 and Fiscal 2010

The Ricoh Group's Targets for Reducing CO_2 Emissions (Total Amount Emitted)

		Target for fiscal 2007	Target for fiscal 2010
Japan	Ricoh and Ricoh Group manufacturing subsidiaries	4% reduction (compared to fiscal 2000 figures)	12% reduction (compared to fiscal 1990 figures)
Japan	Ricoh Group non-manufacturing subsidiaries	4% reduction (goals for each company)	—
Outside Japan	Ricoh Group manufacturing subsidiaries	4% reduction (compared to fiscal 2000 figures)	10% reduction (compared to fiscal 1998 figures)

The Ricoh Group's Targets for Reducing Greenhouse Effect Gases Other Than CO_2 (Manufacturing, Total Amount Emitted)

	Target for fiscal 2010
The Entire Ricoh Group	10% reduction (compared to fiscal 1995 figures)

● Review of Fiscal 2005

CO_2 emissions at production sites increased 2.0% at home and 9.0% abroad over fiscal 2000 levels (see graphs ❷ and ❺). This was because the increased energy consumption caused by the larger production of consumables supplied in Japan, the larger production of parts in China, and the larger production of supplies in France and the United States more than offset the amount of energy saved from improvements, such as the introduction of a cogeneration system at Fukui Plant and the development/introduction of energy-saving manufacturing processes. CO_2 emissions at nonproduction sites in Japan increased approximately 0.4% over the previous fiscal year's levels (see graph ❸). As for greenhouse gases other than CO_2, the semiconductor business division achieved a 30% reduction and the entire Ricoh Group a 25% reduction over fiscal 2000 levels (see graph ❻).

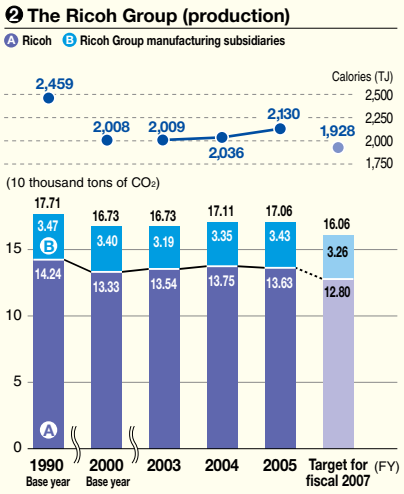
● Future Activities

In promoting activities to expand its business in fiscal 2006 and thereafter, Ricoh will strive to create a production process that uses less energy by taking various measures, such as developing an energy-saving production process through the concerted efforts of the development, design, technology, and production divisions, to reduce CO_2 emissions at production sites. Additionally, efforts will be made to improve the energy efficiency of air-conditioning and illumination systems and introduce new energy sources as a long-term project. Ricoh will also promote the sharing and horizontal development of information on the improvement activities of each business site.

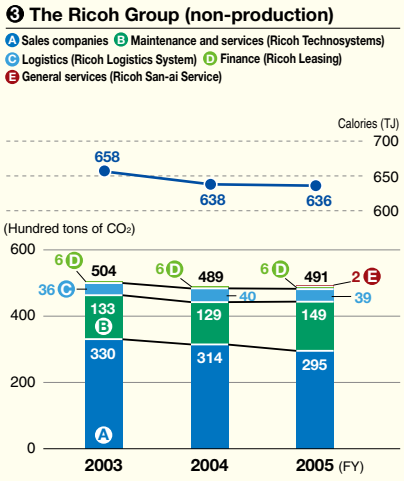
<Japan>

Energy Consumption (CO_2 conversion[1] and calories)

❷ The Ricoh Group (production)



❸ The Ricoh Group (non-production)



Breakdown of Major Energy Consumption

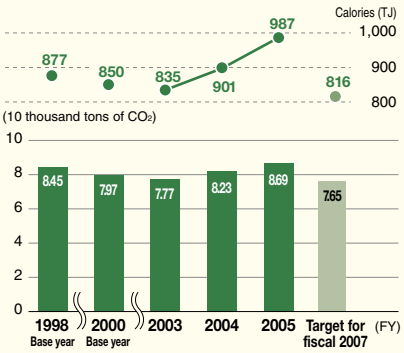
❹ The Ricoh Group (production)

	FY 2002	FY 2003	FY 2004	FY 2005
Kerosene (kℓ)	7,628	6,652	5,989	2,205
Heavy oil A (kℓ)	2,945	2,819	2,748	2,701
Town gas (1,000 m³)	12,823	14,640	15,339	15,400
Natural gas (1,000 m³)	0	0	0	6,079
Electric power purchased (1,000 kWh)	284,554	289,770	295,042	274,273

<Outside Japan>

Energy Consumption (CO_2 conversion and calories)

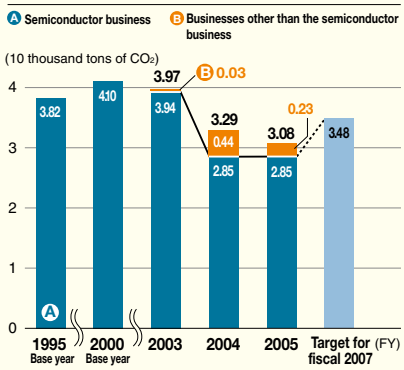
❺ The Ricoh Group (production)



<The Entire Ricoh Group>

Greenhouse Gas Emissions other than CO_2* (CO_2 conversion)

❻ The Ricoh Group (production)



* NF_3 and substances that have a global warming effect and designated in the Kyoto Protocol

* The following CO_2 emissions coefficients are used in the graphs above.
❶, ❷, ❸, and ❻: Guidelines for accounting and reporting of greenhouse gas emissions from industrial commercial sectors (2003) by the Ministry of the Environment
❺: GHG Protocol
* Data on Ricoh Printing Systems and Shanghai Ricoh Digital Equipment are not included in graphs ❶ through ❻.

Innovations in Manufacturing Processes to Achieve the Goal of CO_2 Reduction

<Ricoh Group (Japan)>

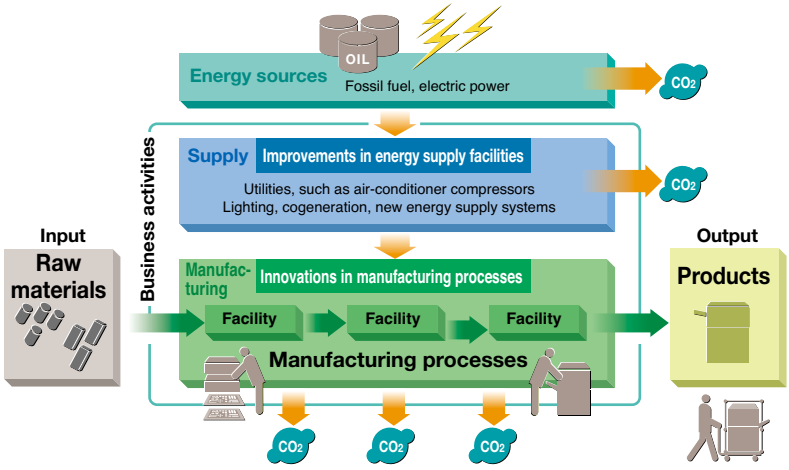
To achieve the ambitious goal of reducing CO_2 emissions by 12% of the fiscal 1990 level by fiscal 2010, the Ricoh Group established in fiscal 2004 an energy-saving production process committee made up of people in charge of the Group's major production sites in Japan. The committee checks the manufacturing processes of those production sites, identifies energy losses, and assigns a quota on reducing CO_2 emissions. Focusing on innovations in manufacturing processes may save energy at downsized production lines and have a spillover effect on associated equipment, such as air conditioners and air compressors, at production lines. In fiscal 2004, downsized production lines for photosensitive materials used in copiers were put in operation. Improving this manufacturing process further, we introduced new downsized production lines in fiscal 2005.

Downsized Production Lines for Large Photoconductors

<Tohoku Ricoh Co., Ltd. (Japan), Ricoh Asia Industry (Shenzhen) Ltd. (China)>

In fiscal 2004, by implementing innovations in the photoconductor production process, we introduced downsized mass-production lines (one-at-a-time production method) for small photoconductors into Ricoh Asia Industry (Shenzhen) Ltd. (RAI), our manufacturing subsidiary in China. This production method was further improved to double productivity, and the enforced twin compact lines were adopted at RAI in fiscal 2005. Also, in September 2005, Tohoku Ricoh Co., Ltd. succeeded in downsizing production lines for large photoconductors by applying, for the first time, its accumulated technologies and know-how to photoconductors used in large copiers. The new lines have lowered costs, reduced installation space to one-twelfth, and cut CO_2 emissions per photoconductor substantially, to one-sixteenth. In addition, such goals as shortened lead time for facility setup, detergentless operations, and zero-waste-to-landfill were achieved.

Energy-saving Manufacturing Processes and Spillover Effects



Introduction of a Cogeneration System

<Ricoh Fukui Plant (Japan)>

Fukui Plant carried out a fuel switch from kerosene to natural gas and introduced a gas-engine-type cogeneration system, which has been in operation since July 2005. Subsidies from the New Energy and Industrial Technology Development Organization (NEDO) System were used to introduce the system. The system was launched in November 2004 and resulted in about a 5,000-ton reduction in CO_2 annually, including the amount reduced by the fuel switch, which means a 20% reduction in Fukui Plant's total emissions.

Exterior of the cogeneration system: Liquefied natural gas tank (left) and gas engine power generator building (right)

Introduction/Promotion of the Use of Natural Energy Systems

<Ricoh Unitechno Co., Ltd., Tohoku Ricoh Co., Ltd., Ricoh Elemex Corporation, Ricoh (Japan)>

Many of the Ricoh Group's plants are promoting the introduction of natural energy systems to utilize solar and wind power, as well as other natural sources. Ricoh Unitechno Co., Ltd. has reduced annual CO_2 emissions by 3 tons with a solar power generation system (10kW), while Tohoku Ricoh Co., Ltd. has achieved a 0.5-ton annual reduction in CO_2 emissions by using solar and wind power generation systems (1.5kW). Ricoh Elemex Corporation has reduced annual CO_2 emissions by 2.7 tons with a solar power generation system (6kW). In the meantime, Ricoh purchased energy produced by wind power from Japan Natural Energy Company Limited under the Green Power Certification System* in 2002, reducing annual CO_2 emissions by about 357 tons. Ricoh also concluded a five-year agreement in March 2003 to purchase biomass green electricity. This will lead to a reduction in annual CO_2 emissions of about 100 tons.

* This system is carried out by power companies to promote the expansion of natural energy.
http://www.natural-e.co.jp/english/press1-e.html#J01

Green Power certification mark

Introduction of CDM

The Clean Development Mechanism (CDM) allows industrialized countries to conduct anti-global warming projects in developing countries, thereby helping those countries comply with their commitment to reduce greenhouse gas emissions specified under the Kyoto Protocol. If businesses in developed countries reduce greenhouse gases through projects in developing countries, they may have that reduction reflected in their own CO_2 reduction goals under certain rules, and ultimately such a reduction is used by the governments of their countries to meet national targets. Developing countries benefit from this mechanism as well since they are given opportunities to receive investments and technology transfers. Ricoh uses CDM as one of its risk management strategies in achieving its CO_2 reduction goal for 2010, even if its production volume far exceeds expectation. When selecting CDM projects, Ricoh takes cost performance into account. In addition, by using networks that were created through environmental activities with environmental NPOs, Ricoh tries to choose projects that contribute to the conservation of ecosystems and improvement of living standards of the local people. In terms of the organizations that execute projects, Ricoh assesses their commitment to corporate social responsibility. In fiscal 2005, Ricoh signed an agreement with the executing organization for a bagasse-based electricity generation project in El Salvador, bringing Ricoh's total CDM number to four.

The Ricoh Group established the following criteria for the selection of CDM projects.

■ Requirements for Ricoh's CDM projects

① Projects should be valuable from the perspective of biodiversity and ecosystem conservation. As for environmental afforestation projects, they should be recognized by environmental NGOs.
② Projects should be socially recognized by every stakeholder.

■ Procedure to select projects and evaluation criteria

Ricoh established evaluation criteria for each stage of selecting CDM projects, as shown below.

Procedure	Areas Evaluated
First evaluation	• Projects' basic elements
Second evaluation	• Value as a CDM project • Recipient country • Credit assessment of executing organizations/intermediaries
Third evaluation	• Contract

CDM Project on Which Ricoh Signed Agreements in Fiscal 2005

Bagasse Electricity Generation Project <El Salvador>

Among the number of projects that El Salvador is promoting to reduce its dependence on fossil fuel, electricity generation from bagasse is drawing attention as a new project to contribute to the country's environmental activities. Sugar refining is one of the major industries in El Salvador, and its CO_2 emissions can be reduced by switching from fossil fuel fired power generation to bagasse (pulp left after the juice has been extracted from sugar cane) power generation to supply energy to refining factories. To use bagasse as fuel, factories replaced their generators with high-efficiency boilers or steam turbine generators. Ricoh participated in this project and introduced generators capable of producing a total of 45 MW from 2002 to 2005. In addition, Ricoh helped improve energy utilization efficiency by introducing a cogeneration system and has created a system of selling surplus electricity through electric power companies.


Newly switched equipment

CDM Projects on Which Ricoh Signed Agreements by Fiscal 2004

Afforestation Project to Conserve Biodiversity <Ecuador>

In the Maquipucuna Nature Reserve and La Perla Forest in Ecuador, forests were cut down by stockbreeders who needed pastures for their cows, but afterwards the deforested areas were abandoned as the livestock business in Ecuador went into a recession. Conservation International (CI), an environmental NGO, has a plan to collect seeds to grow seedlings for reforestation purposes and employ local people to conduct afforestation and maintain/manage virgin forests. Ricoh has been involved in this project because of the benefits the project provides, such as afforestation, improving people's living standards, and CO_2 absorption.

Wind Power Project <India>

The rapid economic growth in India has caused concern about the increased number of coal-fired power stations that satisfy the growing need for power. Ricoh is taking part in a number of wind power projects carried out in various parts of India in order to switch from fossil fuel to wind energy to generate electricity.

Treadle Pump Project <India>

In India, small-lot farmers used to rent diesel pumps to draw underground water. In addition to their CO_2 emissions, diesel pumps were also a heavy burden for these farmers in rental fees and fuel costs. Ricoh participated in the project to introduce 20,000 treadle pumps.