

## We are promoting the renovation of the working style aiming to create an office environment with less environmental impact and higher operational efficiency.

### ■ Concept

Non-production sites of the Ricoh Group carry out energy-saving and discharged matter reduction activities using the PDCA cycle, adopting the same concept as production sites. They quantify the environmental impact of air-conditioning, lighting, disposal of waste, etc. to see what causes a higher environmental impact. Based upon the quantified data, systematic efforts are made to carry out measures to reduce the impact. The Ricoh Group promotes measures for improvement incorporating even the revision of employees' working styles and workflows, including how to manage documents and use of telephones and computers, so that environmental impact can be reduced and operational efficiency improved to a greater degree. We will continue to engage ourselves in sustainable environmental management of offices through the renovation of working styles.

### ■ Target for Fiscal 2010

◎ Control CO<sub>2</sub> emissions in non-production activities so that they will not exceed the emissions in fiscal 2006 (Ricoch and non-manufacturing subsidiaries in Japan).

### ■ Review of Fiscal 2010

CO<sub>2</sub> emissions in offices were reduced by 10.3% from fiscal 2006, achieving the 2010 target, as a result of improvement activities incorporating the revision of working styles and workflows. Among

these efforts, a major contribution was made by decreased gasoline consumption. As part of the working style-related initiatives, sales subsidiaries have been reducing their fleet of vehicles and switching to low-emission cars, which account for 64.6% of the total currently held. For activities participated in by all employees, including a campaign to have all employees leave the office without working overtime on particular days, we have achieved continuous results. We also conduct activities to promote the use of energy-saving features in Ricoh products in our own offices—including reviewing the settings of energy-saving modes—which leads to reduced environmental impact. The information obtained is also being used as know-how

that can be referred to when we recommend such features to customers, thereby expanding the use of the environmental functions of our products. In addition, we are increasingly using the print on demand (POD) method for printing our catalogs and manuals, as part of our efforts to reduce costs and environmental impact.

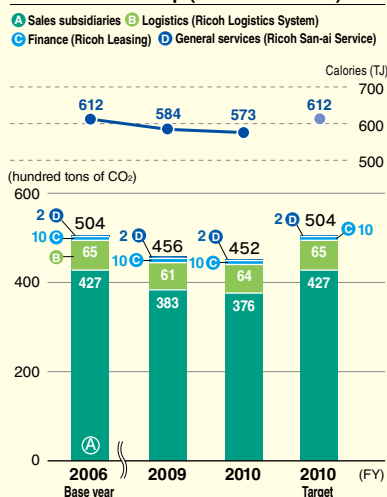
### ■ Future Activities

Particular efforts will be made for the reduction of CO<sub>2</sub> emissions, mainly through the improvement of operations. The know-how obtained from in-house activities will be shared throughout the Group, while being accumulated as know-how to be used in the office solution business as well as in recommendations to be provided for our customers.

#### <Japan>

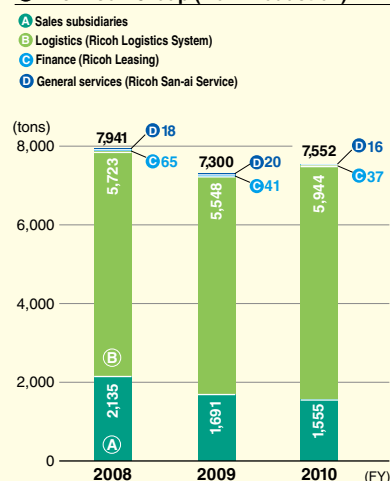
#### Energy consumption (CO<sub>2</sub> conversion and calories)

##### ① The Ricoh Group (Non-Production)



#### Total amount of discharged matter generated

##### ② The Ricoh Group (Non-Production)



### Super Fresh-up Day enhanced by reduced lighting

#### <Ricoh Co., Ltd. (Japan)>

Ricoh designates two days per week as "Super Fresh-up Days," for the prevention of excessive overtime work by employees, the promotion of physical and mental refreshment, and the reduction of environmental impact at business sites. On a Super Fresh-up Day, employees are expected to leave the office by 18:30. As a measure to strictly implement this campaign, the office lighting control system is programmed to turn off half the lights in each room at 18:15 and the other half at the finishing time. To continue to work after hours at offices on days this measure is implemented, employees need to switch on their desk lights, which is

expected to help eliminate unnecessary lighting in unoccupied spaces. Our calculation of the effects of this campaign at the Head Office, where 1,939 employees work, showed that CO<sub>2</sub> emissions were reduced by about 0.127 tons on average on a Super Fresh-up Day, or a total of about 11.9 tons per year. In relation to this, the Ginza Mitsui Building, which houses Ricoh's Head Office, received one of the top awards of the Tokyo Metropolitan Government on May 26, 2011 in recognition of efforts to address global warming under the Tokyo Metropolitan Ordinance on Environmental Preservation.

## TOPIC

### Printing catalogs and manuals via POD

**Introducing color production printing to support POD operations, aiming to reduce costs and environmental impact**

#### <POD Center, Ricoh Creative Service Company, Ltd. (Japan)>

Ricoh Creative Service Company, Ltd. (RCS), a subsidiary which prints manuals and catalogs of Ricoh products, has begun to switch from offset printing to print on demand (POD)<sup>1</sup> for printing these documents, aiming to reduce costs and environmental impact. RCS runs a network of five POD Centers based in Heiwajima (main), Gotemba, Ebina and other locations, where the company undertakes the production and printing of documents for Ricoh's products and corporate communications. Ricoh launched its production printing business in 2008, and then developed the high-quality color production printer RICOH Pro C900 series. RCS introduced this printer to the POD Centers to undertake self-printing via POD and reduce outsourced printing operations. Behind this move is the diversification of Ricoh's product mix, which has been intensifying in recent years with an enhanced lineup of imaging products and shorter lead time to the launch of new models. In response to the shift toward high-mix low-volume manufacturing, the company began to review its catalog/manual printing operations, in order to deal with the need to shorten the lead time as well as to print diversified documents in small quantities due to the rising number of product models while the number of copies required for individual models is declining. Offset printing is highly cost-efficient for mass volume printing, but less cost-effective for high-mix low-volume production. Another issue with this conventional printing technology is the considerable inventory costs incurred due to the printing process, which requires a relatively long lead time for new print production, attributable to the need for resetting for each document and tuning according to document design. This compels the company to keep a substantial stock of catalogs/manuals in order to provide them promptly on receiving a request. Worse yet, it often happens that a large portion of the stored copies end up being disposed of as waste after the end of their applicable period. All these issues were solved by introducing the RICOH Pro C900 printers to launch POD, which, by eliminating the work required for different settings and dramatically reducing lead time and inventory costs, is particularly suitable for limited-volume printing. We surveyed roughly 1,300 items of our catalogs/manuals to compare cost-competitiveness for the two types of printer, and calculated the break-even point. The calculation results show that offset printing performs better when printing more than 10,000 copies annually or booklets with more than 25 pages; otherwise POD has the advantage. Following this analysis, we conducted a detailed evaluation of printing quality and selected



POD Center in Heiwajima

178 catalog/manual items to go POD. As a result of this, we reduced costs related to plate making, printing, storing and disposing of printed material by a total of ¥14 million. One of the key elements for promoting POD is to create documents by effectively using POD features, aiming at enhanced visual quality of printed documents. To ensure understanding and practice of this principle across the Group, RCS's POD Centers have developed instructions and manuals for POD document design and creation, which have been distributed to related departments of the Group companies. Use of the POD functions of the RICOH Pro C900 printers has expanded, including variable data printing (VDP)<sup>2</sup>, a feature technique for printing direct-mail advertising and educational materials for training and seminars. Drawing on the know-how developed in these in-house POD operations, RCS plans to provide a POD service to a wide range of customers as an innovative solution to reduce costs, lead time and environmental impact while enhancing operational efficiency and advertising effectiveness.

1. Print on demand (POD): A method of printing developed as a feature of office digital printers which is suitable for high-mix low-volume printing
2. Variable data printing (VDP): A form of on-demand printing, in which elements, such as text and images, can be changed from one printed piece to the next, without slowing down the printing process. It is anticipated to increase the advertising effectiveness by creating marketing and promotion tools tailored to individual customers.

\* For details of the color production printer RICOH Pro C900 series, please refer to the related section of the web page at: <http://www.ricoh.com/products/index.html#01>

#### Variable Data Printing

Text and image data, including address and background picture, can be changed.

Text can be incorporated into image data. (image variable)

