PFU Environmental Action Plan

Out of our PFU ESG targets for Fiscal 2023–Fiscal 2025, we set environmental targets related to the material issues of "Creativity from Work", "Zero-Carbon Society" and "Circular Economy", and implemented initiatives to achieve these targets.

Material Issues		Environmental Targets			Results for Fiscal 2023	Results for Fiscal 2024	Targets for Fiscal 2025
Resolving social issues through business	**Creativity from Work**	Sales of high-end scanners with high added value that contribute to customers' business efficiency (fi Series: global sales)			369,824 units	327,204 units	360,000 units
	Zero-Carbon Society	Reduction rate of Scope 1 and 2 GHG emissions (compared to fiscal 2015)			5,126 tons of CO_2 (41.4% reduction)	2,059 tons of CO_2 (76.5% reduction)	2,076 tons of CO_2 (76.3% reduction)
		Reduction rate of Scope 3 GHG emissions	Product compliance with the International ENERGY STAR Program	Scanner products	Product compliance with EPEAT: 100% (3 products)	100% (1 model)	Product compliance with EPEAT: 100%
			Acquisition of EPEAT	Scanner products	Product compliance with EPEAT: 100% (3 products)	100% (1 model)	Product compliance with EPEAT: 100%
			Environmental performance index	Embedded computing products	4.01	3.82	-
				Interactive KIOSKs	14.36	11.276	10.46 or less
				Network appliance products	0.537	0.555	0.546 or less
				Security products	0.256	0.254	0.252 or less
			Amount of environmental contribution to our customers' places of business by providing customers with our products	Embedded computing products	9,465 tons of CO_2	10,598 tons of CO_2	-
				Interactive KIOSKs	1,732 tons of CO_2	1,367 tons of CO_2	762 tons of CO_2
				Network appliance products	339.6 tons of CO_2	340.8 tons of CO_2	190 tons of CO_2
				Security products	660.3 tons of CO_2	652.71 tons of CO_2	633.0 tons of CO_2
			Environmental contribution to our customers' places of business by providing environmentally conscious solutions	Documents	1,295.1 tons of CO_2	1093.6 tons of CO_2	839.3 tons of CO_2
				Solutions	5,977 tons of CO_2	6,108.1 tons of CO_2	4,126 tons of CO_2

	Circular Economy	Percentage of new resources used in products 	Percentage of new resources used	Scanner products	95.6%	95.3%	93.9%.
			Reduction in percentage of packaging materials made using virgin plastics made from fossil fuels (compared to fiscal 2020)	Scanner/keyboard products	22.5%	31.0%	14.5%

Results from Activities in Fiscal 2024

In fiscal 2024, as the second year of our three-year plan, we worked on 18 environmental targets and achieved 15 of them.

✓: Target achieved -: Target not achieved

Material Issues		Environmental Targets			Targets for Fiscal 2024	Results for Fiscal 2024	Evaluation
Resolving social issues through business	Creativity from Work	Sales of high-end scanners with high added value that contribute to customers' business efficiency (fi series: global sales volume)			390,000 units or more	327,204 units	-
	Zero-Carbon Society	Reduction rate of Scope 1 and 2 GHG emissions	Reduction of GHG emissions (compared to fiscal 2015)		5,332 tons of CO_2 or less (39.0% reduction)	2,059 tons of CO_2 (76.5% reduction)	✔
			Improvement of quality and enhancement of business efficiency		At least one suggestion per department (19 departments)	At least one suggestion per department (Achieved in all 19 departments)	✔
		Reduction rate of Scope 3 GHG emissions	Product compliance with the International ENERGY STAR Program	Scanner products	Product compliance with EPEAT: 100% (1 product)	100% (1 model)	✔
			Acquisition of EPEAT	Scanner products	Product compliance with EPEAT: 100% (1 product)	100% (1 model)	✔
			Improvement in environmental performance index score	Embedded computing products	4.30 or less	3.82	✔
				Interactive KIOSKs	11.263 or less	11.276	-
				Network appliance products	0.557 or less	0.555	✔
				Security products	0.256 or less	0.254	✔
			Improvement in the amount of environmental contribution to our customers' places of business by providing our customers with our products	Embedded computing products	8,155 tons of CO_2	10,598 tons of CO_2	✔
				Interactive KIOSKs	1,332 tons of CO_2 or more	1,367 tons of CO_2	✔
				Network appliance products	301.8 tons or CO_2 or more	340.8 tons of CO_2	✔
				Security products	645.0 tons or CO_2 or more	652.71 tons of CO_2	✔

	Circular Economy	Percentage of new resources used in products 	Improvement in the amount of environmental contribution to our customers' places of business by providing our customers with environmentally conscious solutions	Documents	762.3 tons of CO_2 or more	1,093.6 tons of CO_2	✔
				Solutions	4,023 tons of CO_2 or more	6,108.1 tons of CO_2	✔
			Promotion of environmentally conscious solutions and services		At least one suggestion per department (6 departments)	At least one suggestion per department (Achieved in 6 out of 6 departments)	-✔
			Percentage of new resources used	Scanner products	95.2% or less	95.3%	-
			Reduction in percentage of packaging materials made using virgin plastics made from fossil fuels (compared to fiscal 2020)	Scanner/keyboard products	9.5% or more	31.0%	✔

Sales of High-end Scanners That Contribute to Customers' Business Efficiency

We sold high-end scanners that helped improve our customers' business efficiency with high added value with the aim of creating more comfortable working environments for everyone through the power of people and digital technology.

High-end scanner sales volume (fi series: global sales volume)	Target for Fiscal 2024	Results for Fiscal 2024
	390,000 units or more	327,204 units

Reduction of GHG emissions

We are working toward a zero-carbon society by engaging in energy-saving activities to reduce energy consumption (*2). In fiscal 2024, we worked on updating our air-conditioning equipment and expanding our use of renewable energy.

*2: Scope 1: Gasoline and light oil (for company-owned cars used on the company premises), liquefied petroleum gas (dining hall kitchen), town gas (heating and cooling), kerosene (heating)
Scope 2: Purchased electricity and heating (district cooling and heating at the Yokohama headquarters)

Energy consumption (CO2 conversion value: t-CO2)	Target for Fiscal 2024	Results for Fiscal 2024
	5,332 tons of CO_2 or less	2,059 tons of CO_2

■ Energy conservation through changes to air conditioning shutdown times and upgrades to chiller refrigeration units

At our headquarters, we implemented the following measures in fiscal 2024 as part of our efforts to promote environmental conservation and energy conservation.

First, we have changed the air conditioning shutdown time by 1 to 2 hours earlier than before, unifying it to 5:30 p.m. This has reduced electricity consumption after working hours, resulting in an energy conservation effect of approximately 43,000 kWh.

Additionally, we have replaced the aging air conditioning chiller units in December 2024, achieving high operational efficiency through the use of R32 refrigerant, which has excellent thermal properties.

This resulted in energy savings of approximately 22,000 kWh in fiscal 2024. We forecast annual energy savings of approximately 80,000 kWh. In addition, the introduction of remote monitoring devices has led to more efficient monitoring and inspection of air conditioning equipment.

Business site	Headquarters
When improvements were made	April 2024
Amount of Reduction in CO_2 Emissions	33.32 tons of CO_2

Headquarters Building B Chiller

■Utilization of renewable energy

PFU will contribute to the wider spread of renewable energy across all of society while also working towards the adoption of renewable energy, to reach the Ricoh Group's goal of achieving virtually zero CO_2 emissions.

Renewable energy consumption in Fiscal 2024	
Headquarters, ProDeS Center	6,708 MWh (Uses 100% renewable energy supplied by Ricoh Japan Corporation)
Yokohama Headquarters	816 MWh (Used a plan that meets the "RE100 TECHNICAL CRITERIA" requirements for the power supplied to the building)

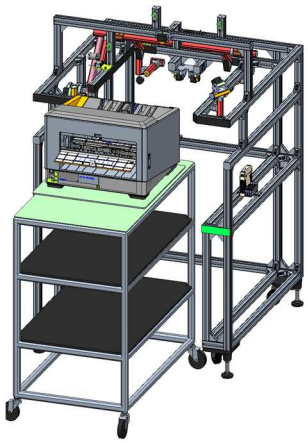
Improvement of Quality and Enhancement of Business Efficiency

Even in in-house work, we promote the reduction of the environmental impact through the enhancement of business efficiency and the improvement of quality using IT, which leads to promoting environmental activities that are focused on our core business. In fiscal 2024, we promoted quality improvement and operational efficiency of our core business at all departments.

Examples of Improvements in Fiscal 2024

■Development of a Scanner Automatic Visual Inspection System to Reduce Man-Hours

In the scanner assembly process, we automated visual inspections (silk printing, lever position, presence/absence of labels, and correctness of label orientation, etc.) that were previously scattered across various stages. Previously, workers performed visual inspections at each stage, but by developing and introducing a hands-free visual inspection machine, we achieved a reduction in inspection man-hours.
The automatic visual inspection system allows the device to be placed on the workbench and set into the visual inspection machine. Using 10 cameras, it can inspect up to 11 visual inspection points simultaneously through pattern matching using image processing software. This reduces inspection time by one-third and prevents errors such as missed inspections or incorrect lever position settings.



Automatic visual inspection system

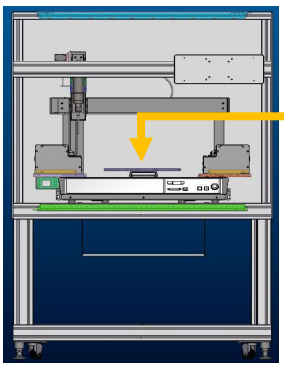
visual inspection points

Up to 11 inspection points

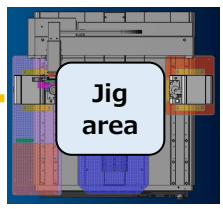
■Development of a General-Purpose Screw Tightening Robot to Reduce Man-Hours

We have automated screw tightening in the assembly process of mixed-model production lines. Previously, workers performed screw tightening manually, but by developing and introducing screw tightening robots, we have reduced the number of man-hours required for this task.
Mixed-model production lines manufacture a wide variety of products, large and small. By switching out jigs (fixtures) tailored to each product, a single robot can handle screw-tightening for multiple product types. In the future, we plan to expand the range of products covered and forecast a reduction of 50 man-hours per month.

Screw tightening robot (appearance)



Screw tightening robot (front view)



By switching out jigs tailored to each product, the robot can perform screw-tightening operations on a wide variety of products.

Eco-efficient Products, Solutions, and Services

We make efforts to develop and provide eco-efficient products that support "energy-saving", "3R design (*3)", and "management of used chemical substances" in order to reduce the environmental impact throughout the product's entire life cycle. In fiscal year 2024, we promoted the development and delivery of environmentally conscious products across all business units by setting environmental performance improvement as a key environmental objective. Through the increased provision of high-performance eco-friendly products, we contributed to at our customers' sites.

In addition, we provide environmentally conscious solutions and services that contribute to reducing the environmental impact of our customers' operations, such as energy conservation and paperless operations, through operational efficiency, reduction of material consumption, reduction of material transportation, and effective use of space.

In fiscal 2024, we moved forward with the activities that contribute to reducing the environmental impact on our customers, such as developing and shipping various solutions and services, and expanding the provision of solutions and services that utilize scanners.

Main Achievements of Fiscal 2024

Reduction of Scope 3 GHG emissions	Product compliance with the International ENERGY STAR Program Acquisition of EPEAT	Scanner products	・As planned, we complied with the International ENERGY STAR Program for 1 newly-developed model. ・As planned, we acquired certification for 1 new model that is to be expanded to North America, for EPEAT (Electronic Product Environmental Assessment Tool), an environmental evaluation system for electronic products adapted as a system for promoting green purchasing, primarily in organizations related to the American government.
	Improvement in environmental performance index score Improvement in the amount of environmental contribution to our customers' places of business by providing our customers with our products	Embedded computing products	To make environmental contributions, we made efforts to develop better products by improving the environmental contribution indexes that we defined based on our own standards. We have also made efforts to reduce the environmental impact at our customers' places of business by providing our products for customers.
		Interactive KIOSKs	To make environmental contributions, we made efforts to develop better products by improving the environmental contribution indexes that we defined based on our own standards. We have also made efforts to reduce the environmental impact at our customers' places of business by providing our products for customers.
		Network appliance products	To make environmental contributions, we made efforts to develop better products by improving the environmental contribution indexes that we defined based on our own standards. We have also made efforts to reduce the environmental impact at our customers' places of business by providing our products for customers.
		Security products	To make environmental contributions, we made efforts to develop better products by improving the environmental contribution indexes that we defined based on our own standards. We have also made efforts to reduce the environmental impact at our customers' places of business by providing our products for customers.

	Improvement in the amount of environmental contribution to our customers' places of business by providing our customers with environmentally conscious solutions	Documents/ Solutions	We have made efforts to reduce the environmental impact at our customers' places of business by providing our environmentally conscious solutions for the customers.

*3: 3R design: Design in which the concepts of "Reduce", "Reuse", and "Recycle" are taken into consideration.

Main Eco-efficient Products

We contribute to reducing the environmental impact of our customers' business by offering products that comply with the Act on Promoting Green Procurement with energy-saving and 3R design features, and furthermore that comply with various environmental standards. Information about the compliance of our scanners with environmental standards is published on our official company website.

https://www.pfu.ricoh.com/global/sustainability/environment/solution.html

fi-8950/fi-8930/fi-8820

Main Environmentally Friendly Solutions and Services

	Activity	Product
Reducing our customers' environmental impact by expanding our environmentally conscious solutions and services	・Development and shipment of environmentally conscious solutions ・Expansion of the provision of solutions and services that utilize scanners ・Promotion of virtualization, cloud negotiation, etc.	・DynaEye 11 ・BIP Smart ・PaperStream Capture ・Caora

■Development of a high-precision lithium-ion battery detection system

In recent years, the number of small products containing lithium-ion batteries has been increasing. However, when these items are mistakenly disposed of as non-combustible waste or plastic packaging, they can cause smoke or fires during collection, transport, or at waste processing and recycling facilities—leading to reports of large-scale fires.
To address this challenge, we are collaborating with partner companies to develop a lithium-ion battery detection system for practical use. This system utilizes X-ray inspection sensors and our waste sorting specialized AI engine “Raptor VISION BATTERY” to detect lithium-ion batteries mixed in with other waste even while still inside sealed waste bags.

(System Overview)
Waste transported on a belt conveyor is scanned using an X-ray device, and the resulting images are analyzed by our waste sorting AI engine specialized in detecting lithium-ion batteries. Once a battery is detected, the system uses projection mapping to highlight its location, notifying operators of the exact position for appropriate handling.

Raptor VISION BATTERY

We are pleased to announce that our system has been awarded first place in the "NEDO Challenge, Li-ion Battery 2025: Prevent Fires and Aim for Urban Mining!" contest, hosted by the New Energy and Industrial Technology Development Organization (NEDO). This recognition was granted in the category of lithium-ion battery detection devices (portable and stationary types), based on the system’s high detection accuracy.
Detection performance:
Plastic waste: Detection rate 100%, false positive rate 0%
Non-combustible waste: Detection rate 90%, false positive rate 2%

Going forward, we will continue to make improvements toward commercialization, not only to solve the global challenge of fires caused by lithium-ion batteries, but also to enable the separation and extraction of lithium-ion batteries for reuse as a resource, thereby contributing to the realization of a sustainable society.

Initiatives for Sustainable Resource Use

At PFU, we are actively working to reduce the use of virgin resources by expanding the use of recycled materials in our products and minimizing the use of virgin fossil-based plastics in packaging. These efforts are part of our broader commitment to reducing environmental impact.

■Reducing the Use of Virgin Materials in Products

We are working to reduce plastic waste by utilizing recycled plastics in our products. When incorporating recycled materials, we carefully select application areas to ensure durability is not compromised and to manage variations in color tone.
In the RICOH fi-8190/fi-8170 models, recycled plastics account for 13.8% of the total resin weight (by weight ratio), contributing to the reduction in the use of virgin materials.
Across our entire scanner product line, the virgin material usage ratio stands at 95.3%.

Main Achievements of Fiscal 2024

	Target for Fiscal 2024	Results for Fiscal 2024
Virgin material usage ratio	95.2% or less	95.3%

■Improving the Reduction Rate of Fossil-Based Virgin Plastic Packaging

Traditionally, cushioning materials used during product transportation were made from fossil-based polystyrene foam. For our scanner products, we are transitioning to recyclable paper-based packaging materials.
By replacing polystyrene foam with cardboard in selected models, we have achieved a 31.0% reduction in the use of fossil-based virgin plastic packaging materials compared to Fiscal 2020.

Main Achievements of Fiscal 2024

	Target for Fiscal 2024	Results for Fiscal 2024
Improving the Reduction Rate of Fossil-Based Virgin Plastic Packaging (compared to fiscal 2020)	9.5% or more reduction	31.0% reduction