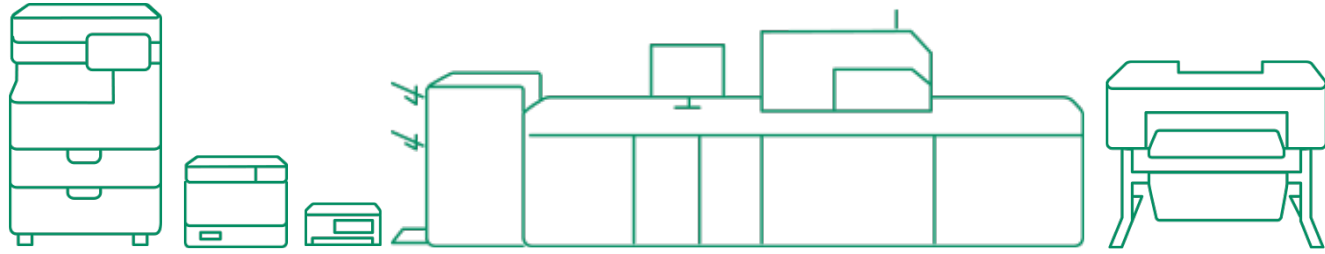# Green Initiative Guide

Printing Group

Canon Green Initiative Guide

About This Document

Purpose of This Document

The environment is a critical issue that concerns each and every one of us. The Green Initiative Guide communicates Canon's environmental philosophy and showcases our efforts toward decarbonization and resource recycling in our digital printing products.
We hope that creating a deeper understanding of this initiative aimed at environmental conservation will allow us to work together with customers through our products to build a sustainable future.

Target Products

・Office multifunction printers
・Laser printers and multifunction printers • Inkjet printers
・Production printers • Large format printers

Publication Date

October 2024

Reference Materials (Sources)

"Annual Global Average Temperature". Japan Meteorological Agency. 2024-03-01 https://www.data.jma.go.jp/cpdinfo/temp/an_wld.html

"Fossil fuels". Our World in Data. 2024-07-16
https://ourworldindata.org/fossil-fuels

"Understanding Supply Chain Emissions". Ministry of the Environment. 2024-07-16
https://www.env.go.jp/earth/ondanka/supply_chain/gvc/files/tools/supply_chain_201711_all.pdf

Disclosure Data

Past data may differ in part from data previously disclosed as a result of revisions in past data due to changes in calculation method and increased target sites.
Percentage values are truncated to the first decimal place or rounded down to the nearest whole number.

Disclaimer

This guide contains not only past and present facts about Canon, but also future projections based on plans, outlooks, and management policies & strategies as of the publication date.
These future projections are assumptions or judgments based on the data available as of the time of writing, and as such future business or events may differ from these projections due to changes in conditions.

Product Group Names and Icons

■ Office multifunction printers

Office multi-function printers

■ Laser printers and multifunction printers

Laser printers and multi-function printers

■ Inkjet printers

Inkjet printers

■ Production printers

Production printers

■ Large format printers

Large format printers

Product group name icons are used in the case studies on this Guide and on Page 15.

APPENDIX

Reference materials available（P.□□）

Detailed reference materials are provided at the end for pages with the icon above.

Part 1

Canon's Environmental Philosophy
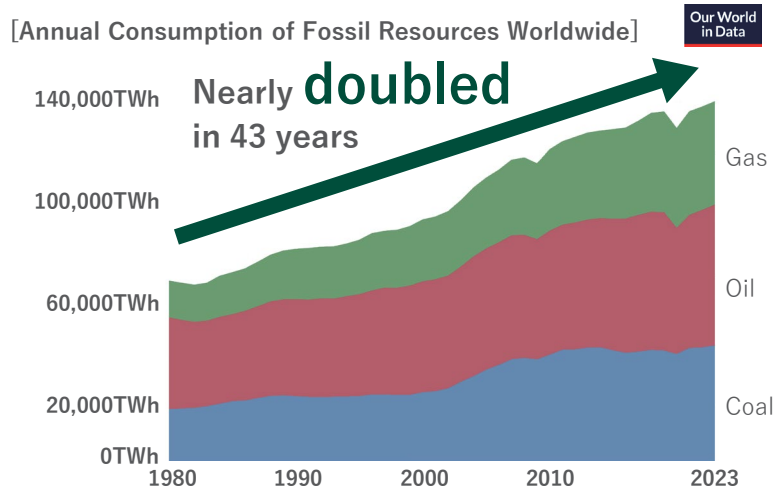
Escalating Environmental Issues

While scientific and technological advances provide affluent living and economic development, they also create the issue of mass resource consumption.
Mass production, consumption, and disposal can lead to resource depletion, environmental destruction, and climate change, potentially rendering it difficult to sustain society.
We must work together to address these issues to achieve a sustainable society.

Mass Resource Consumption

Fossil resources such as oil are essential for electricity and plastics. However, the mass consumption of such resources is said to increase CO_2 emissions and deplete fossil resources.

[Annual Consumption of Fossil Resources Worldwide]

Our World in Data

Nearly doubled in 43 years

140,000TWh
100,000TWh
60,000TWh
20,000TWh
0TWh

Gas
Oil
Coal

1980   1990   2000   2010   2023

Data source: Energy Institute - Statistical Review of World Energy (2024); Smil (2017)
OurWorldInData.org/fossil-fuels | CC BY

Global Warming

Caused by greenhouse gases such as CO_2, global warming is believed to be closely linked to global climate change, causing droughts, floods and wildfires from heat waves.

[Deviation in Annual Global Average Temperature]

0.76°C* rise in 100 years

*Source: Annual Changes in Annual Global Average Temperature Deviation (1891-2023 (Japan Meteorological Agency))

Kyosei

Canon's corporate philosophy is *kyosei.* It conveys our dedication to seeing all people, regardless of culture, customs, language or race, harmoniously living and working together in happiness into the future.

Unfortunately, current factors related to economies, resources and the environment make realizing *kyosei* difficult.

Canon strives to eliminate these factors through corporate activities rooted in *kyosei.*

Truly global companies must foster good relations with customers and communities, as well as with governments, regions and the environment as part of their fulfillment of social responsibilities.

For this reason, Canon's goal is to contribute to global prosperity and the well-being of humankind as we continue our efforts to bring the world closer to achieving *kyosei.*

Canon's Approach to Environmental Assurance

Under its corporate philosophy of kyosei ("coexistence"), Canon established
the Canon Group Environmental Charter in 1993 and the Canon Environmental Vision
in 2008, focusing early on environmental conservation efforts in four key areas:
climate change, **resource recycling**, **chemicals**, **and biodiversity**.

Corporate Philosophy

Kyosei

Established 1993

Canon Group Environmental Charter

Environmental Assurance Philosophy

Pursue maximization of resource efficiency and contribute to the creation of a society that practices sustainable development.

Basic Policy on Environmental Assurance

Environment

Companies are not qualified to manufacture goods if they are incapable of environmental assurance

Quality

Companies are not qualified to market goods if they are incapable of producing quality goods

Cost **D**elivery

Companies are not qualified to compete if they are incapable of meeting cost and delivery requirements

Established 2008

Canon Environmental Vision

ACTION for GREEN

Canon achieves highly functional products with minimal environmental burden throughout the entire product lifecycle.

See the Canon Global site for details：https://global.canon/ja/sustainability/environment/management/basic/
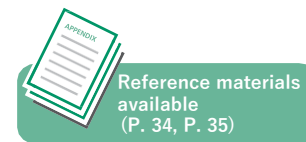
Part 2

Printing Group's Efforts

Goals for Decarbonization and Resource Recycling

As a global company, we view addressing environmental issues as our mission and promote efforts toward **decarbonization** and **resource recycling**.
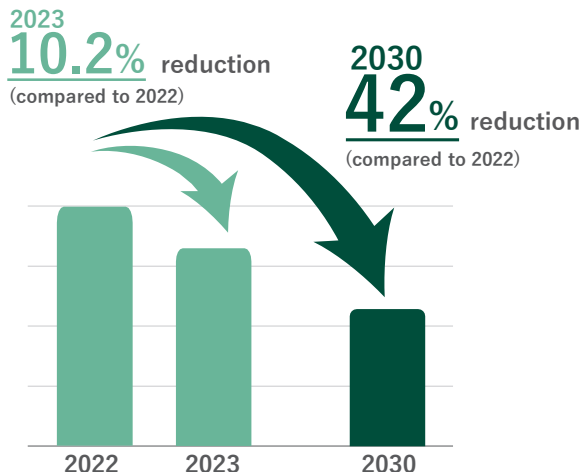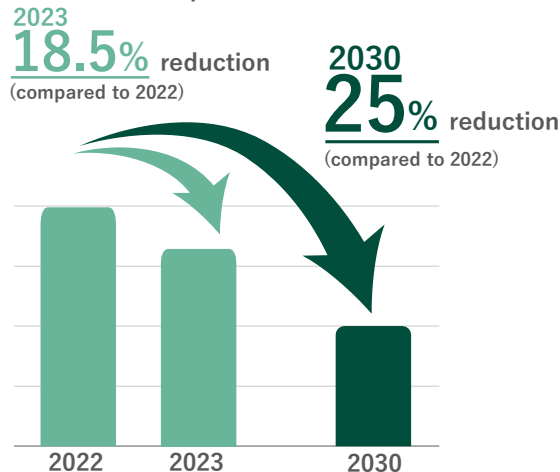
Reference materials available (P. 34, P. 35)

Decarbonization | 2050 | **Net zero CO$_2$ emissions throughout product lifecycle**

Resource Recycling | 2030 | **50% resource recycling rate**

[Scope 1/2 emissions]

2023
10.2% reduction
(compared to 2022)

2030
42% reduction
(compared to 2022)

2022   2023   2030

2030 | Reduce Scope 1/2 emissions by 42% compared to 2022

Scope1 | Direct greenhouse gas emissions from the business itself (fuel combustion, industrial processes)

Scope2 | Indirect emissions associated with the use of electricity, heat, and steam supplied by other companies

[Scope 3 emissions]

2023
18.5% reduction
(compared to 2022)

2030
25% reduction
(compared to 2022)

2022   2023   2030

2030 | Reduce Scope 3 (Categories 1 and 11) emissions by 25% compared to 2022 (in accordance with SBTi standards)

Scope3 | Indirect emissions other than Scope 1 and Scope 2 (Emissions from other companies related to the activities of the business)
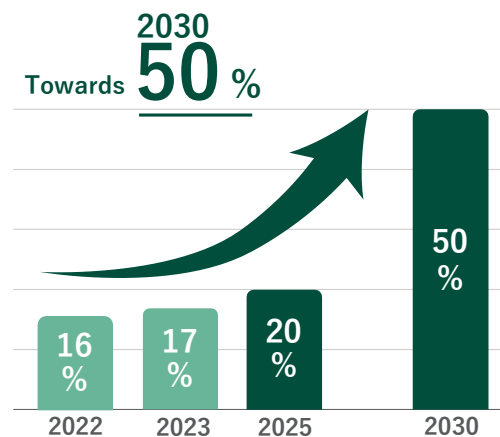
[Overall Resource Recycling Rate for Printing Products]

2030
Towards **50**%

16%   17%   20%   50%
2022 2023 2025 2030

※ Values for both performance and objectives are for Canon as a whole.

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Canon strives to minimize environmental impact throughout product lifecycles using our technology and systems.

Reduce Through Tech

Use different technologies in the product lifecycle to accelerate decarbonization and resource recycling
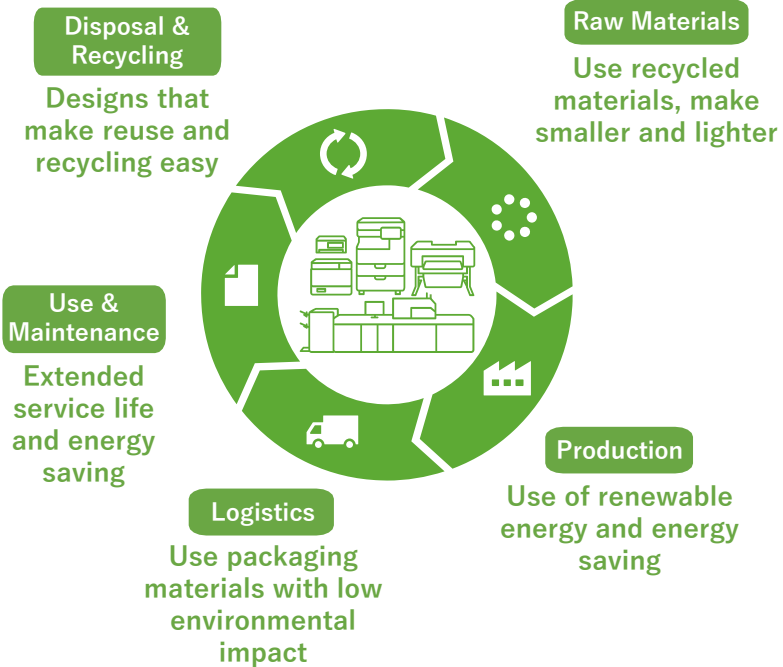
Disposal & Recycling
Designs that make reuse and recycling easy

Raw Materials
Use recycled material, make smaller and lighter

Use & Maintenance
Extended service life and energy saving

Logistics
Use packaging with minimal environmental impact

Production
Use of renewable energy and energy saving

Reduce Through Systems

Use efficient systems tailored to the region to accelerate resource recycling globally

Collection
Develop a collection network

Reuse
Reusing collected items

Recycling
Process collected items into recycled materials

Reduce Through Technology

Reduce Through Technology

We incorporate technologies and measures to reduce environmental toll at every stage of a product's lifecycle to further decarbonization and resource recycling.

Cycle diagram

Disposal & Recycling
Designs that make reuse and recycling easy

Raw Materials
Use recycled materials, make smaller and lighter

Use & Maintenance
Extended service life and energy saving

Logistics
Use packaging materials with low environmental impact

Production
Use of renewable energy and energy saving

Details

Raw Materials : Reduce use of virgin resources
[Decarbonization] [Resource Recycling]

- Increase adoption rate of recycled materials to reduce use of virgin resources
- Reduce material usage by making products smaller and lighter

Production : Reduce CO_2 emissions
[Decarbonization] [Resource Recycling]

- Switch to renewable energy sources for electricity
- Reduce electricity use at production sites, conserve energy by visualizing/analyzing electricity consumption

Logistics : Reduce waste
[Decarbonization] [Resource Recycling]

- Change packaging materials from plastic to paper during shipping

Use & Maintenance : Reduce CO_2 emissions, reduce use of virgin resources
[Decarbonization] [Resource Recycling]

- Reduce power consumption during product use
- Extend product life to reduce frequency of product/part replacement

Disposal & Recycling : Reduce use of virgin resources
[Decarbonization] [Resource Recycling]

- Promote reuse through parts modularization
- Promote reuse through easier disassembly/cleaning and grime resistance

Improve Recycled Material Adoption Rate

We are working to adopt and increase the content ratio of recycled plastics. By using recycled plastics not only the products themselves but also in accessories and consumables, we strive to reduce the use of virgin resources. Going forward, we will promote the proactive use of recycled iron.

* Products made with recycled plastics may develop black spots due to mixing various colors of the raw plastic materials, but this does not affect performance or strength.The overall appearance of products, including parts made with recycled plastics, is managed to enable the manufacture of products that meet Canon's quality standards.

Case Studies of Recycled Materials Use in Japan (Canon Ecology Industry Inc.)

Canon products and consumables collected from the market are separated, crushed, and repelleted[*] at our recycling facilities, then used as molding materials for toner cartridges and more. *Repellet: A raw plastic material made from waste plastic

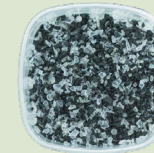**Automatic recycling system for HIPS[*] in toner cartridges**
*High Impact Polystyrene

Laser printers & multifunction printers
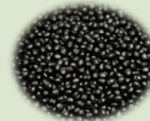
Automated line for recycling PP[*] in ink cartridges, etc.
*Polypropylene

Inkjet printers

case study

Reducing Waste Through Recycled Iron Use (Planned)

Recycled iron, once difficult to supply stably, can now be reliably sourced now as distribution channels have been established. We will continue working to increase the adoption and product content ratio of recycled iron.

Decarbonization   Resource Recycling

# Use of Offcuts Produced in Production

Use of Plastic Regrind

Non-defective plastic offcuts from our production facilities that were once discarded are now crushed in-house and transformed into plastic regrind. We now manufacture new parts with high-quality recycled materials from which foreign matter such as iron and fine particles have been removed.

case study

Recycled Material Use Abroad
Canon Prachinburi (Thailand)

Office multifunction printers
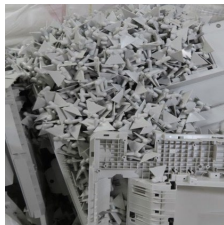
Plastic offcuts → Crush → Crushed materials → **Use of magnets/airflow to remove foreign matter/powder** → Plastic regrind → **Drum cases formed from regrind**

Used for the iR-ADV DX C3900/4900 Series and others
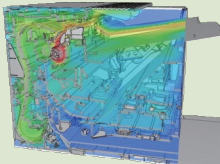
Make Smaller & Lighter

By verifying physical phenomena in simulations, we reduce the use of resources during development, as well as make products smaller and lighter. Reducing product weight reduces the use of resources, and increasing container capacity also decreases the environmental burden during transportation.
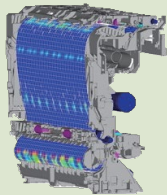
case study

Cases of products made smaller and lighter

Laser printers and multi-function printers

Heat & Airflow Simulation

Make lighter by verifying heat and airflow inside the machine to eliminate fans

Paper Feed Simulation

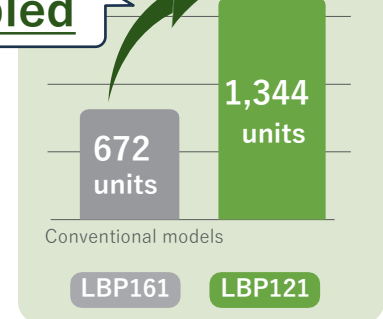Verify paper feed path and optimize layout for miniaturization

Make smaller and lighter

Product weight
Reduced about **14%**

Container capacity doubled

7 kg — Conventional models — LBP161
6 kg — LBP121

672 units — Conventional models — LBP161
1,344 units — LBP121

Reduce resource consumption by about 50 tons/year*

*Calculated for one year based on sales performance during the 10-month period from May 2023 to February 2024

*Calculated based on reduced product weight and sales performance (from May 2023 to February 2024)

Decarbonization **Resource Recycling**

Improve renewable energy usage rate

We aim to use renewable energy for all electricity used at printing product production sites. In addition to solar panel power generation at certain sites, we have also promoted acquiring Renewable Energy Certificates that certify the environmental value of renewable energy.

Reference materials available (P.36)

100% renewable energy for electricity used in 2023

Canon Suzhou (Suzhou Factory)

Canon Hi-Tech Thailand (Ayutthaya Factory), Canon Prachinburi Thailand
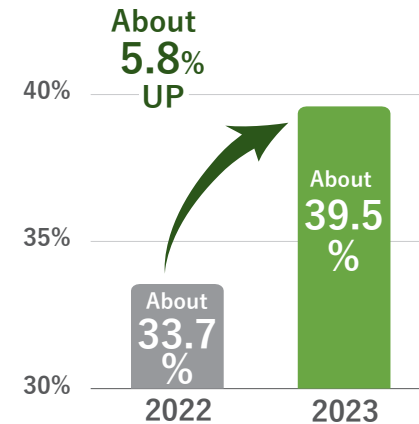
Canon Vietnam (Thang Long Factory, Tien Son Factory)

Achieved at 5 locations in 4 sites

Canon Vietnam's Thang Long Factory generates power with solar panels introduced in 2022.

Increase renewable energy usage rate

Renewable energy usage at final assembly sites for printing products

About
5.8% UP

40%

About
39.5%

35%

About
33.7%

30%

2022   2023

Decarbonization   Resource Recycling

16

Energy Saving

We are working to reduce electricity consumption in manufacturing equipment and auxiliary facilities (such as air conditioning and lighting) at our production sites worldwide. Going forward, we will implement new systems to visualize and analyze electricity usage, further promoting elimination of wastefulness and efficient use. We plan to compile improvement actions into a database for rapid company-wide implementation.

New System Overview (Planned)

1. Visualize electricity usage

Check factory electricity by location and narrow down reduction targets, such as production heat and drive systems.

2. Analyze electricity usage

Focus on equipment that uses large amounts of electricity and break down operations and phenomena to identify hidden wastefulness.

3. Rollout swiftly to production sites worldwide

Systematize actions aimed at reduction, compile into a database, and rapidly implement across the company.
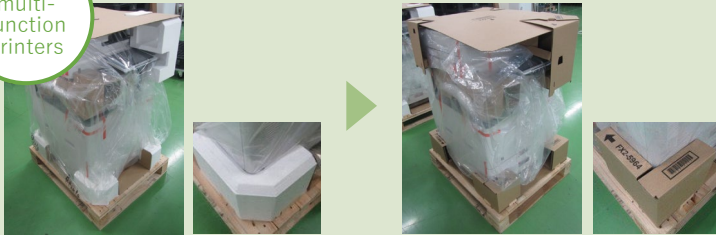
Use Easily Renewable Materials for Packaging

Switch from conventional plastic materials to paper materials（cardboard, molded pulp）
to reduce plastic consumption and thus help reduce global warming and environmental pollution.

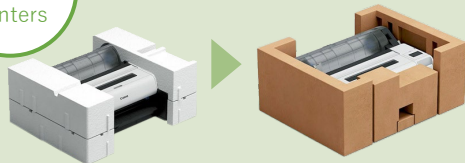**case study**

Change product packaging materials to paper

Office multi-function printers

Inkjet printers

Large format printers

Change accessory and consumable packaging materials to paper

Packaging materials for toner cartridges

Laser printers and multi-function printers

Packaging materials for optional cassette feeders

*Inkjet printers use molded pulp as package cushioning materials.

Decarbonization   Resource Recycling

Implement Power-Saving Measures

We have reduced power consumption during operation and sleep mode.
We have incorporated such measures as operation panel power control, power-saving circuits, and energy-saving technologies for fusing* and will continue to work on further reductions leveraging the wide range of technologies and knowledge we have cultivated as a manufacturing company.

*Fusing: The process of bonding toner to paper using heat and pressure

case study

Power-saving technologies involving fusing
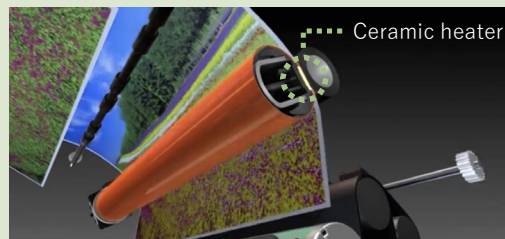
Office multi-function printers

Energy-saving during fusing

- On-demand fusing
- Low-melting point toner
- Optimization of fusing temperature, etc.

On-demand fusing technology

Reduces power consumption by applying heat only when and where necessary when fusing toner to paper through heat and pressure.

Ceramic heater

Uses a ceramic heater to heat the fuser film directly. Operates only when the fuser film is heated.

Low-melting point toner

Reduces heat energy and power consumption by using toner with a lower melting point than conventional toners. Also makes warm-up times shorter.

［Melting Point］

Conventional toner

Low-melting point toner

Decarbonization   Resource Recycling
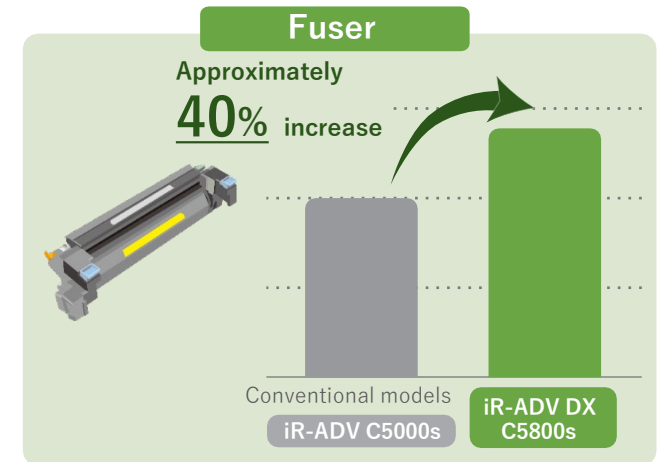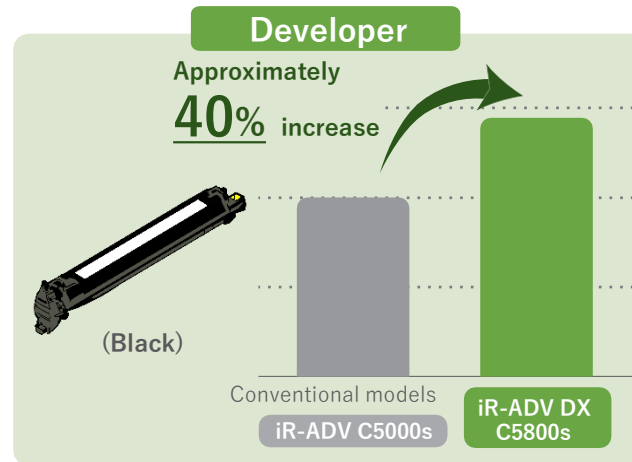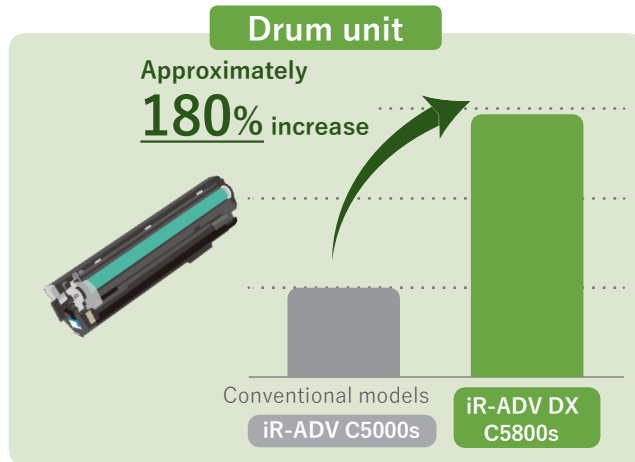
19

Extended Service Life of Consumable Parts

Through revision of materials and structures and technological progress, we have significantly extended the service life of consumable parts such as drum units, developers, and fusers. We strive to reduce the use of virgin resources by extending the life of consumable parts and limiting the number of parts manufactured while taking into account product lifespan and market replacement frequency.

case study

Lifespan of consumable parts（maximum number of prints）［Calculated based on assumed usage conditions such as print volume and color ratio］

Office multi-function printers

Compared to the imageRUNNER ADVANCE C5000 series released in 2009, the imageRUNNER ADVANCE DX C5800 series significantly extends the maximum number of prints for consumable parts.

Drum unit

Approximately
180% increase

Conventional models
iR-ADV C5000s

iR-ADV DX C5800s

Developer

Approximately
40% increase

（Black）

Conventional models
iR-ADV C5000s

iR-ADV DX C5800s

Fuser

Approximately
40% increase

Conventional models
iR-ADV C5000s

iR-ADV DX C5800s

Decarbonization

Resource Recycling

20

Extended Service Life of Products and Parts

By adopting highly durable parts, we have extended product service life are promoting the reduction of resource consumption.
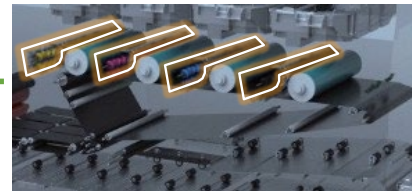
case study

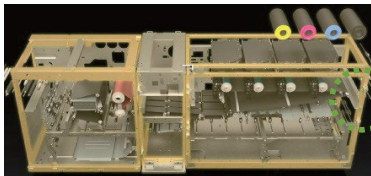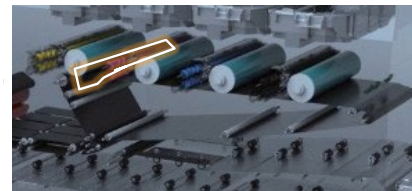Case study from commercial printing products: imagePRESS V1350

Production printers

Use **highly durable parts** in drive components

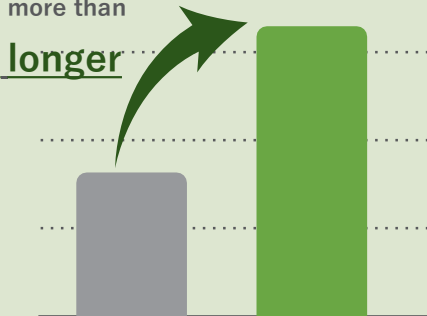Make paper transport path **highly durable**

Rigid frame structure, thick and sturdy to bolster durability

Product print durability volume

Lasts more than

2X longer

Conventional models

imagePRESS C10010VP

imagePRESS V1350

Decarbonization　**Resource Recycling**

Modular Design to Promote Reuse

Canon is incorporating designs to make reuse easier, such as modularizing parts.This reduces the use of new parts, contributing to decarbonization and resource recycling.

Everything is Easy to Reuse!

Modular Design

Standardization of product structure and modularization of parts and production lines are underway for multifunction printers for offices. This makes reuse easy across different products.

Easy to peel

Easy to disassemble

Easy to clean

Grime resistant

Scratch resistant

imageRUNNER ADVANCE
DX C5800 series

imageRUNNER ADVANCE
DX 6800 series

imageRUNNER ADVANCE
DX C3900 series

imageRUNNER ADVANCE
DX 4900 series

case study

Toner bottle that eliminates staining

Office multifunction printers

The toner discharge port has been narrowed and a movable shutter installed for a design resistant to external toner adhesion.This significantly reduces toner contamination during attachment, making reuse easier.

Before

High amounts of toner adhesion

After

Significantly reduced toner adhesion

Discharge port shutter

Open

Closed

Decarbonization

Resource Recycling

Reduce Through Systems

Reduce Through Systems

We incorporate optimal systems and measures
at each recycling and production center globally
to contribute to resource recycling.

Collection
Develop collection networks

Recycling
Process collected items into recycled materials

Reuse
Reuse collected items

Collection : Promote resource recycling | Decarbonization | Resource Recycling |

· Efficiently collect used products and consumables and bring them to recycling sites

Japan Develop collection networks
Europe and the US Strengthen and expand collection of consumables

Reuse : Promote resource recycling | Decarbonization | Resource Recycling |

· Disassemble, wash, clean, and replace necessary parts of collected products and consumables, then recycle according to strict quality standards

Recycling : Promote resource recycling | Decarbonization | Resource Recycling |

· Efficiently sort materials from collected products and parts to create recycled materials

Closed-loop recycling Reuse collected our used products as materials for in-house products

Open-loop recycling Reuse materials collected and recycled from the market for in-house products
Reuse materials collected and recycled in-house for external use

Global Expansion of Recycling Sites

Canon's 5 recycling sites in Japan, the US, and Europe efficiently collect, renew, and recycle parts and products in a proactive effort toward global resource recycling.

France

Germany

China

The US
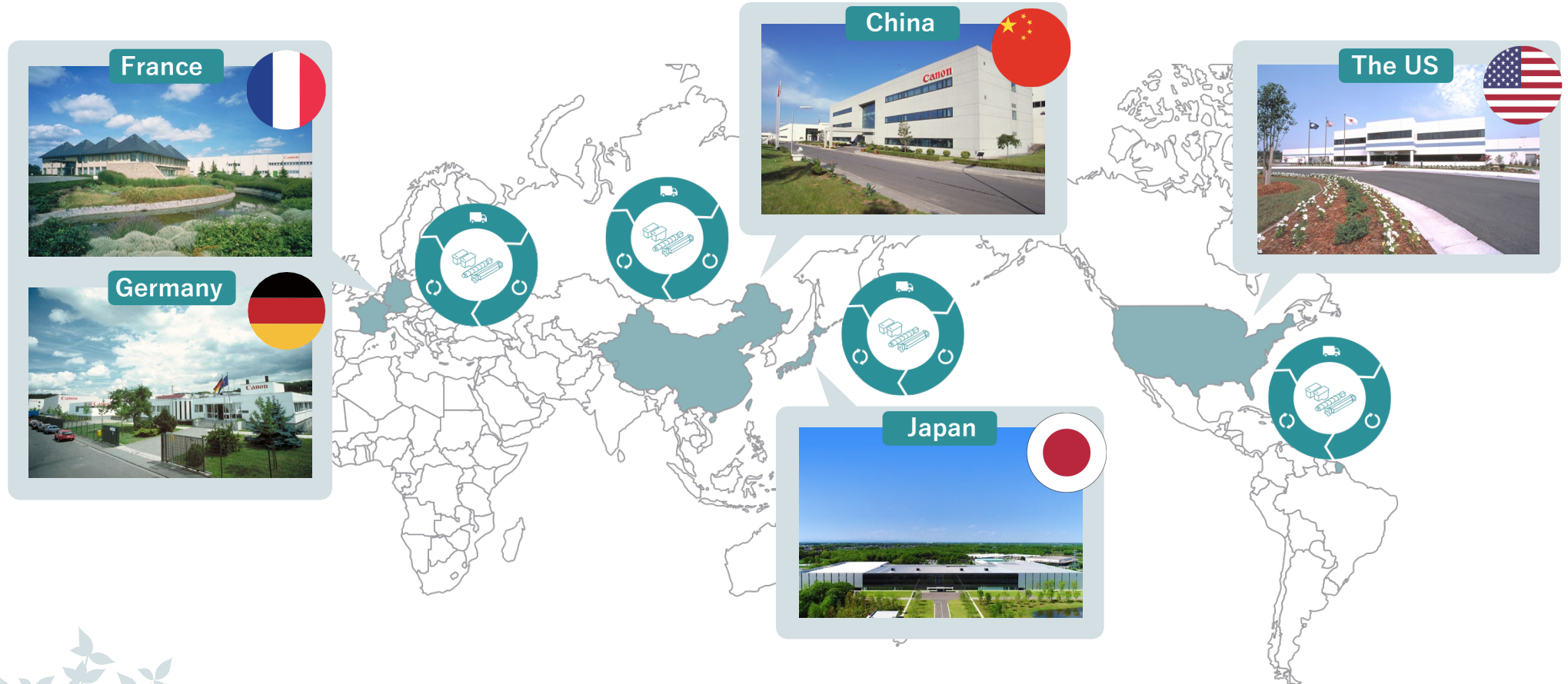
Japan

Efficient Resource Collection to Promote Reuse & Recycling

Canon is bolstering and expanding its efficient collection of products and consumables. Collected parts are reused and recycled at various recycling facilities.

Reference available（P.37）

Japan: Established Collection Points for Office Printers

In Japan, 7 collection centers act as logistics hubs to send used products to 2 recycling sites. Nearly all printers are collected efficiently.

Consolidation at 2 Recycling Sites
(Processed within the prefecture for Hokkaido and Okinawa)

Nagahama, Shiga

Bando, Ibaraki

Sapporo
● Collection Center
○ Recycling Sites
Sendai
Chiba
Naha
Fukuoka
Osaka
Nagoya

Europe & US: Bolstering & Expanding Consumable Collection

In Europe, we have been reinforcing the collection of toner bottles in addition to toner cartridges and ink cartridges by sales companies in each country.

Canon Virginia in the US has been collecting toner and ink cartridges for a long time.

Canon Bretagne

Canon Virginia

Decarbonization   Resource Recycling

Strengthen Product Recycling With "New Product-Equivalent Quality Control"

Our recycling sites in Japan, the US, and Europe collect used products from the region to recycle products, consumables, and parts.

Reuse rate for product parts

Japan [Canon Ecology Industry]

Target products: Refreshed Series

About **89** % ~ **95** %

Europe [Canon Giessen]

Target products:
imageRUNNER ADVANCE DX ES Series

About **90** % or more

Product Recycling

Japan
[Canon Ecology Industry]

Check function and exterior condition

Disassembly

Cleaning

Assembly

Adjustment and inspection

Packaging and shipping

Disassemble down to the parts, wash, and clean.

Reuse usable parts according to strict recycling standards. Replace deteriorated/worn parts.
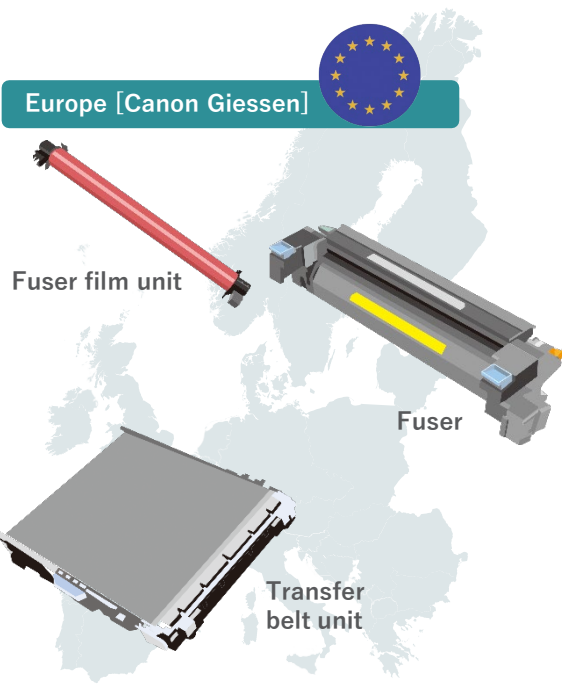
Decarbonization

Resource Recycling

Promote Reuse of Consumables and Parts Through "New Product-Equivalent Quality Control"

Reuse consumables and parts collected from the market, achieving quality equivalent to new products.
We clean products, replace parts as needed, and ship under stringent quality standards.
We will continue to expand the items and sites where this practice is implemented.
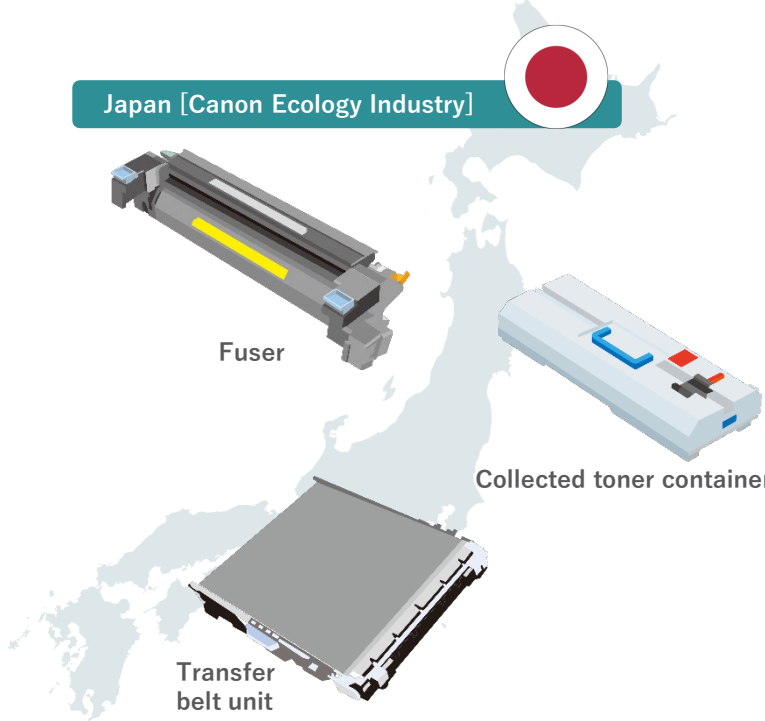
Europe [Canon Giessen]

Fuser film unit

Fuser

Transfer belt unit

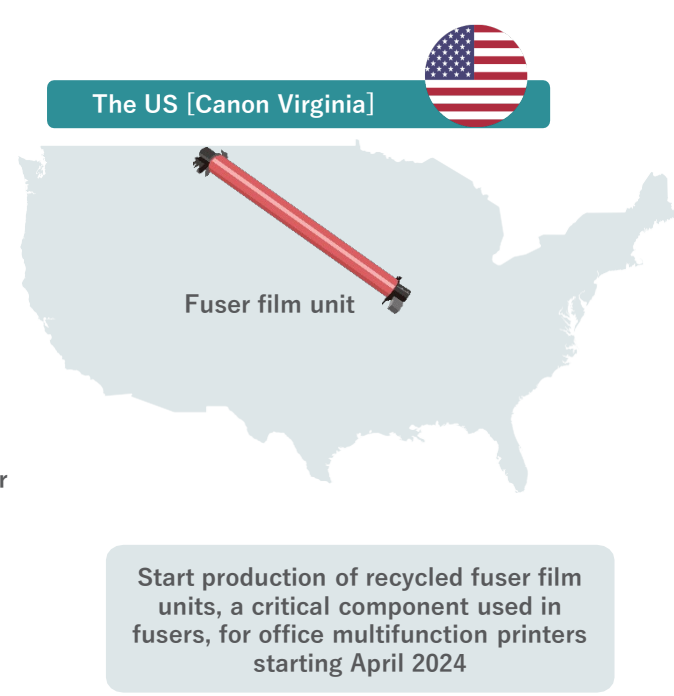**Japan [Canon Ecology Industry]**

Fuser

Collected toner container

Transfer belt unit

The US [Canon Virginia]

Fuser film unit

Start production of recycled fuser film units, a critical component used in fusers, for office multifunction printers starting April 2024

Decarbonization

Resource Recycling

Promote Toner Bottle Reuse With "New Product-Equivalent Quality Control"

Collected toner bottles are disassembled, cleaned, refilled with toner, then reused.

Incorporating consumables development and production technologies that improve disassembly and reusability allows us to promote toner refills, thus contributing to resource recycling.

Europe [Canon Bretagne]

In the European market, we began reusing toner bottles for office multifunction printers in 2022.

Production
Use
Collection
Disassembly
Cleaning
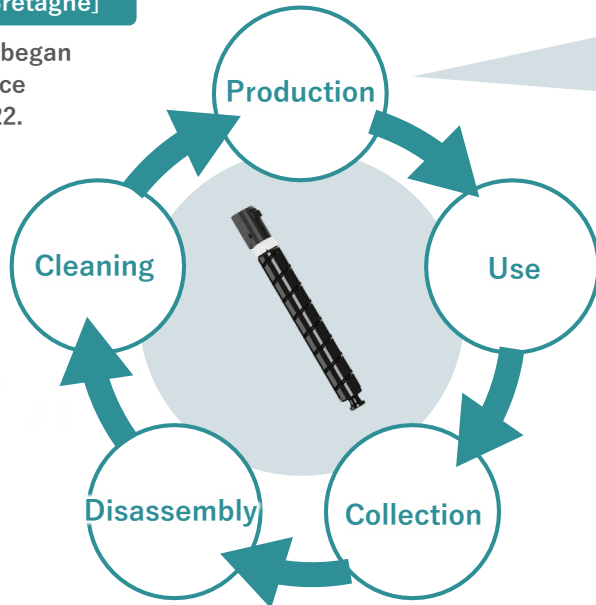
Load into same production line as new bottles

Bottle cleaning   Bottle molding

Production line

Printing toner refilling   Assembly inspection   Packaging shipment

Japan
[Canon Ecology Industry, Ueno Canon Materials]

Parts collected are disassembled and thoroughly cleaned at Canon Ecology Industry. They are then refilled with toner at Ueno Canon Materials and shipped as products.

Decarbonization   Resource Recycling

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Streamline Collection and Recycling Through "Digital Foundation Technology"

Recycling sites automatically select the best method of reuse based on the state of wear of the unit collected. We are working toward efficient recycling.

Japan [Canon Ecology Industry]

Database* Linkage

Candidates for recycling

To XX
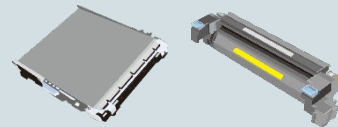
Parts extraction (reuse)

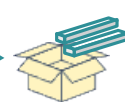Used multifunction printers brought in by truck

Scan serial number and sort automatically
Data on parts for each unit are collected to determine reusability.

Resource recycling

*Database of operational data from Canon products on the market

Europe [Canon Giessen]

At Canon Giessen, a recycling site in Germany, data on parts is collected for each unit to determine reusability. We also run a system that records data from collected parts and reflects them into recycled machines to improve efficiency.

Data on parts

Parts harvesting

Machines collected from the market

Recycled machines* (ES/ES+ models)

Extract parts data and determine level of reuse

Write parts data into the main unit

*Canon Europe's recycled multifunction printer name

Decarbonization | **Resource Recycling**

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Promote Use of Recycled Materials Through Efficient Material Extraction

A wide variety of materials including metals such as iron, aluminum, and copper, as well as plastic, glass, and rubber are used for printing products. Collected units are disassembled and crushed to extract and recycle these materials. The use of recycled materials not used within the Canon Group is promoted through open-loop recycling.

Japan [Canon Ecology Industry]

Improve efficiency through automation to extract high-quality recycled materials.

Disassembly
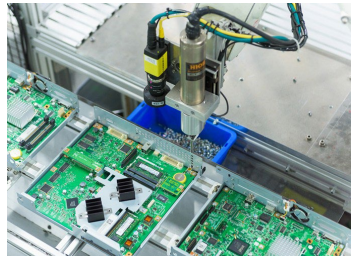
Sort using automation

Check plastic type, remove foreign matter/labels

Crushing

Shipment

The US [Canon Virginia]

Canon Virginia collects and recycles toner bottles and toner cartridges. For toner cartridges, they have developed a device using sorting technology to extract and separate metals and plastics.
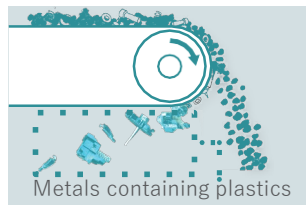
Metals containing plastics
Extract metals containing plastics using magnetic force
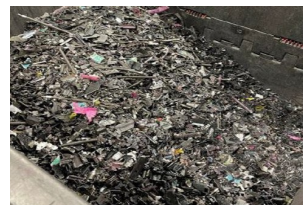
Collect in a state of mixed plastic and metal
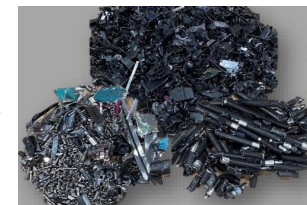
Separate metals and plastics using a sorting device

Decarbonization

Resource Recycling

In-House Material Creation and Product Use to Promote Recycled Material Use

Plastics from collected market products are separated and repelleted,* then used as recycled materials within the Canon Group. *Pellets: Granular shaped synthetic resins (plastics).Used as raw materials for molded products

Toner Cartridge Recycling

Japan: Canon Ecology Industry

Used toner cartridges are crushed and automatically sorted.
An in-house recycling system automatically regenerates the main material, HIPS (High Impact Polystyrene), with over 99%* purity.

*Through a sorting method determined by Canon

Sorting technology based on size, magnetic force, eddy current, wind power, static electricity, and buoyancy

Toner cartridges crushed automatically
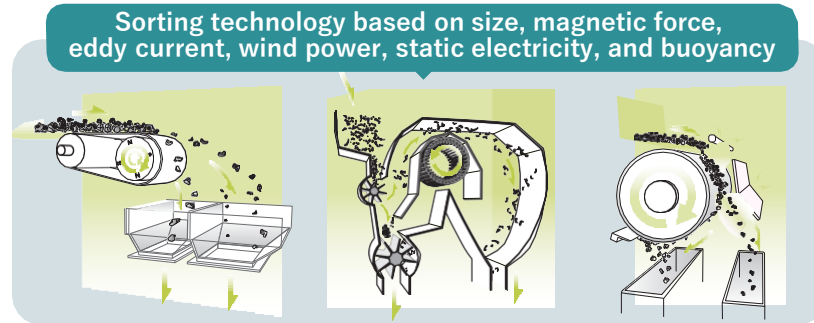
HIPS materials extracted based on the characteristics of iron, aluminum, rubber, and plastic

High-purity HIPS materials are pelletized, finished, and shipped

Molding at a cartridge production factory

Europe: Canon Bretagne & **US**: Canon Virginia

HIPS material (High Impact Polystyrene) from collected used toner cartridges is recycled at recycling sites in France and the US as well.

Decarbonization

Resource Recycling

APPENDIX

Goals for Decarbonization and Resource Recycling (→ P11)

The total emissions of all greenhouse gases (GHG) occurring in the supply chain, including raw material procurement, manufacturing, logistics, sales, and disposal, are classified as Scope 1, Scope 2, and Scope 3.

*Shown in the international standard "GHG Protocol" established for calculating and reporting GHG emissions.

Scope 3 (classified into Categories 1-15)

Indirect emissions outside Scope 1 and Scope 2 (Emissions from other companies related to the activities of the business)

Scope2
Indirect emissions associated with the use of electricity, heat, and steam supplied by other companies

Scope1
Direct greenhouse gas emissions by the business itself (fuel combustion, industrial processes)

CATEGORY 3 — Fuel and energy-related activities not included in Scope 1 and 2

CATEGORY 7 — Employee commutes

CATEGORY 6 — Business travel

CATEGORY 1 — Purchased goods and services
Emissions associated with activities up to the manufacture of raw materials, parts, containers, packaging, etc.

CATEGORY 4 — Transportation and delivery (upstream)

CATEGORY 2 — Capital goods

CATEGORY 8 — Leased assets (upstream)

CATEGORY 5 — Waste generated through business

CATEGORY 14 — Franchises

CATEGORY 4 — Transportation and delivery (upstream)

CATEGORY 9 — Transportation and delivery (downstream)

CATEGORY 10 — Processing of products sold

Other

CATEGORY 13 — Leased assets (downstream)

CATEGORY 15 — Investments

CATEGORY 11 — Use of products sold
Emissions associated with product use by users (consumers and businesses)

CATEGORY 12 — Disposal of products sold

*Reference: Supply Chain Emissions Calculations (Ministry of the Environment)

Definition of resource recycling rate for printing products

Resource recycling rate is the proportion of recycled materials to total sales weight.

2030 **50** % *

*Target value

$$\text{Resource recycling rate} = \frac{\text{Recycled material volume } (\bullet\,\text{Resources recycled from Canon} + \bullet\,\text{Resources recycled outside Canon})}{\text{Total sales weight } (\bullet\,\text{Virgin resources} + \bullet\,\text{Resources recycled from Canon} + \bullet\,\text{Resources recycled outside Canon})}$$

Resource Flowchart

Collected resources

Canon Group

Virgin resources

Suppliers

Recycled materials (Open-loop recycling)
・Recycled plastic
・Recycled iron
・Recycled aluminum
・Recycled magnesium
・Recycled cardboard
・Recycled paper, etc.

Production sites

Sales companies

Customer

Public collection

Recycled machines Recycled parts

Used machines

Used item dealers

Waste-processing companies

Recycled materials (Closed-loop recycling)
・Crushed resin pellets
・Refurbished parts, etc.

Recycling sites

Recycled resources
・Sorted materials
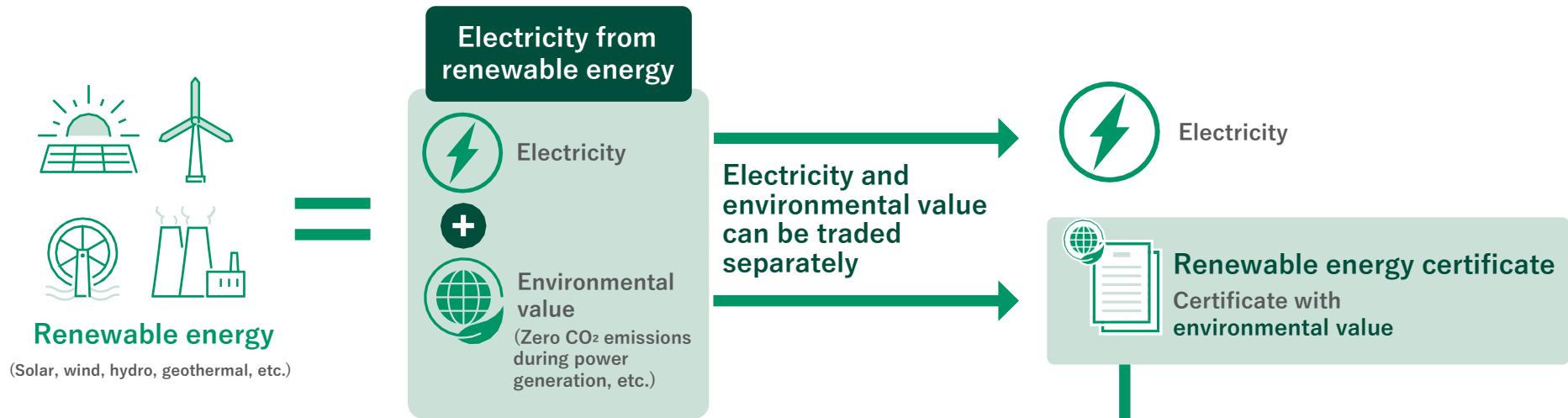
Recyclers

Quantity Count Locations

The resource recycling rate for the printing business is calculated using values from the quantity count locations shown in the figure to the left.
All Canon Group businesses involved in the printing business are included in the scope.

→ Virgin resources
→ Resources recycled from Canon
→ Resources recycled from outside Canon
→ Collected resources
⋯▶ Waste
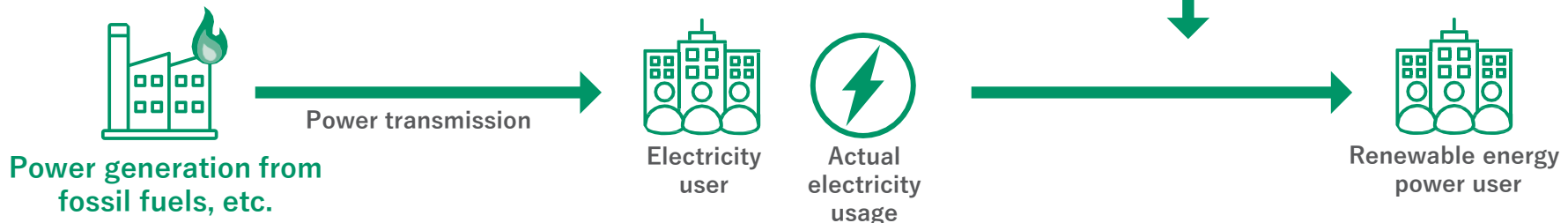
Production Efforts: Reduce CO_2 Emissions (→ P18)

Renewable Energy Certificates

These certificates prove the environmental value of electricity produced from renewable energy sources.

Renewable energy
(Solar, wind, hydro, geothermal, etc.)

=

Electricity from renewable energy

⚡ **Electricity**

+

🌐 **Environmental value**
(Zero CO_2 emissions during power generation, etc.)

Electricity and environmental value can be traded separately

⚡ Electricity

Renewable energy certificate
Certificate with environmental value

Use of Renewable Energy Certificates

Assigning environmental value to actual electricity usage itself through certificates allows it to be considered electricity derived from renewable energy.

Power generation from fossil fuels, etc.

Power transmission →

Electricity user

Actual electricity usage

Purchase of certificates

Renewable energy power user

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APPENDIX

Efficient Transportation and Transportation With Low Environmental Impact
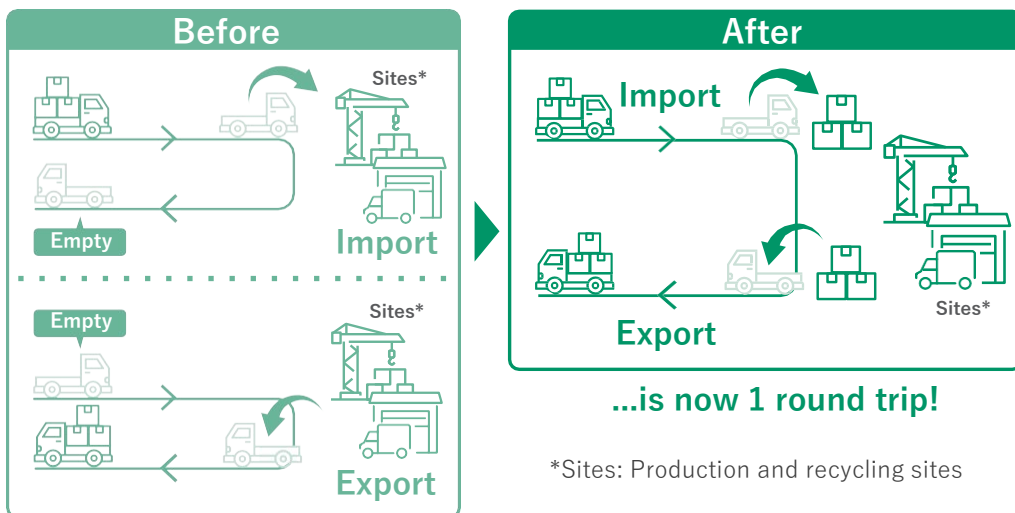
We are implementing efficient transportation efforts for products and parts in partnership with sales companies in Japan and abroad. Moreover, we are shifting to transportation methods with lower environmental impact, such as ships and railways.
At production sites, we are also focusing on efficient transportation of parts in partnership with suppliers to promote decarbonization and resource recycling.

Efficient operation of transportation trucks

Inland utilization of containers used for import/export that were used in single cargo transportation

Before

Sites*

Empty

Import

Empty

Sites*

Export

What was once 2 round trips...

After

Import

Export

Sites*

...is now 1 round trip!

*Sites: Production and recycling sites

Change from different transportation for each part supplier to circular transportation to reduce the number of transport vehicles and trips

Before

Suppliers

Production sites

After

Circular

Suppliers

Production sites

Decarbonization   Resource Recycling

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