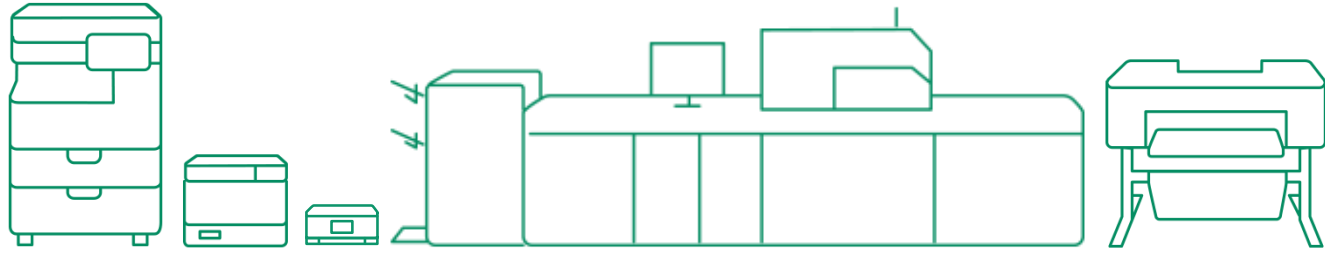


Green Initiative Guide

— 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

December 2025

Reference Materials (Sources)

"Annual Global Average Temperature". Japan Meteorological Agency. 2025-11-01 https://www.data.jma.go.jp/cpdinfo/temp/an_wld.html

"Fossil fuels". Our World in Data. 2025-11-01 <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 13.



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
- Canon's Corporate Philosophy
- Canon's Approach to Environmental Assurance

Part 2

The Printing Group's Efforts

- Approaches to Decarbonization and Resource Recycling
- Reduce Through Technology
 - Raw materials
 - Production
 - Distribution
 - Use & Maintenance
 - Disposal & Recycling
- Reduce Through Systems
 - Global Expansion of Recycling Sites
 - Collection
 - Reuse
 - Recycling





Part 1

Canon's Environmental Philosophy





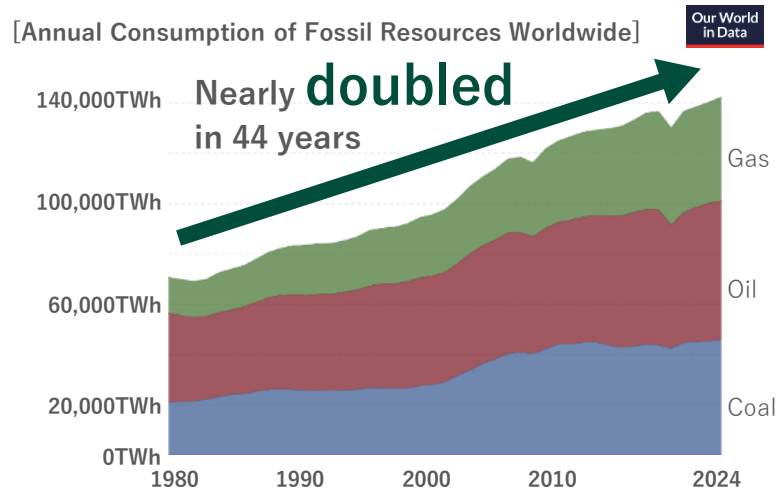
While scientific and technological advances provide prosperous living and economic development, they also create the issue of mass resource consumption.

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 CO₂ emissions and deplete fossil resources.



Data source: Energy Institute - Statistical Review of World Energy (2025); Smil (2017)
<https://ourworldindata.org/fossil-fuels> | CC BY

Global Warming

Caused by greenhouse gases such as CO₂, 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]

0.77^{*}°C rise in
100 years



*Source: Annual Changes in Annual Global Average Temperature Deviation (1891-2024 (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*.



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

Delivery

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

Established
2008

Canon Group Environmental Vision

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



Part 1

Canon's Environmental Philosophy



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**.

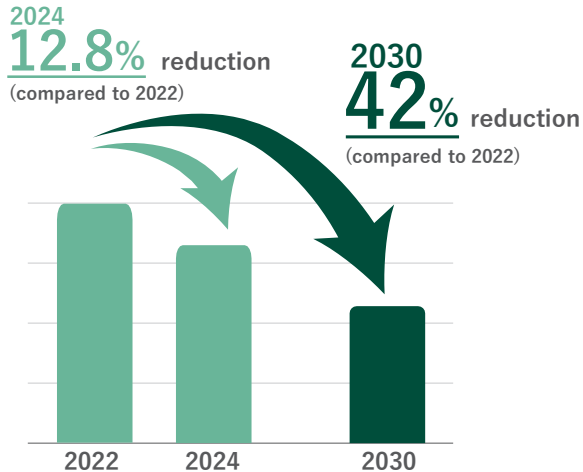


Decarbonization

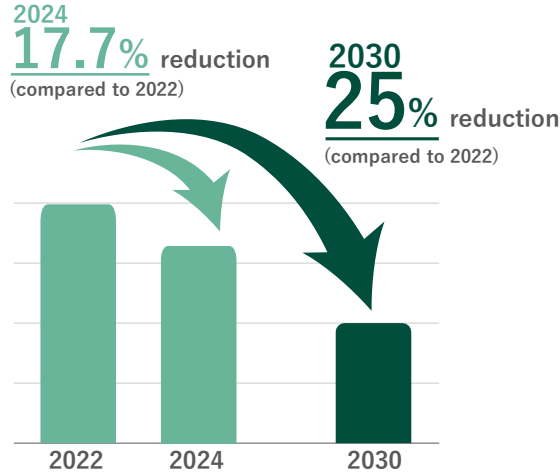
2050

Net zero CO₂ emissions throughout product lifecycle

[Scope 1 and 2 emissions]



[Scope 3 emissions]



2030 Reduce Scope 1 and 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

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)

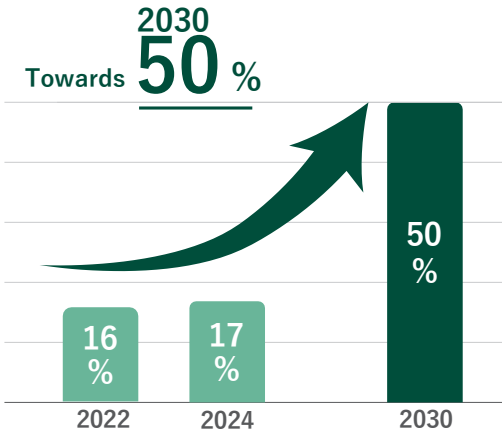
※ Values for both performance and objectives are for Canon as a whole.

Resource Recycling

2030

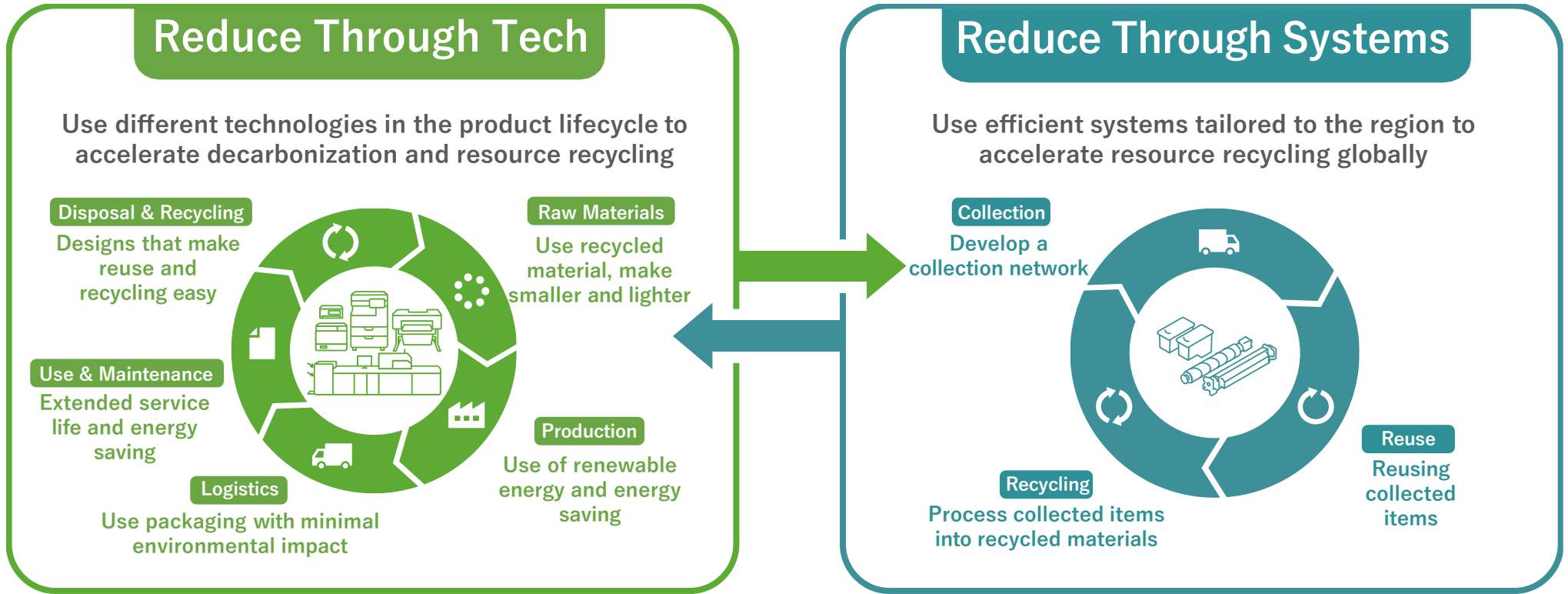
50% resource recycling rate

[Overall Resource Recycling Rate for Printing Products]





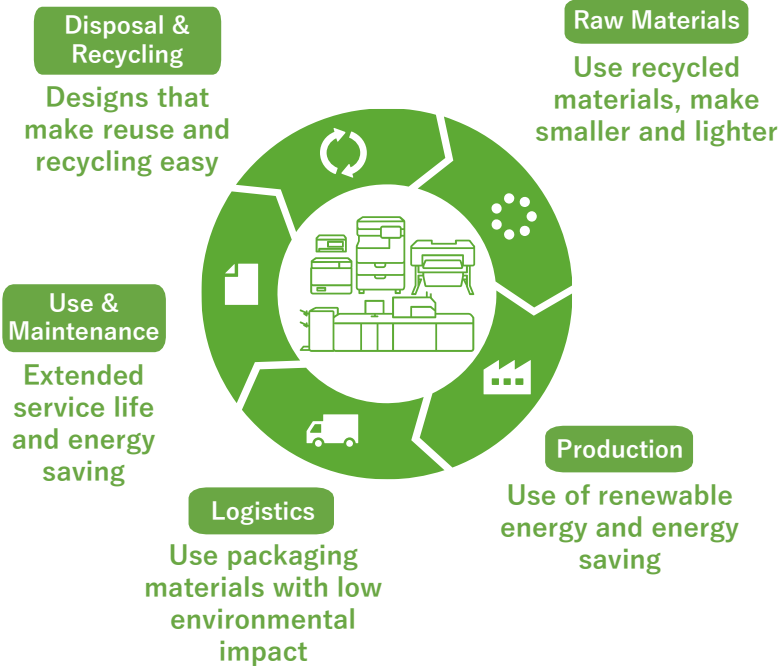
Canon strives to minimize environmental impact throughout product lifecycles using our **technology** and **systems**.



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.



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 CO₂ 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 CO₂ 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.)

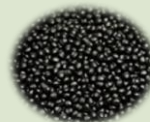
Canon products and consumables collected from the market are separated, crushed, and repelleted* at our recycling facilities, then used as molding materials for toner cartridges and more.

*Repellet: A raw plastic material made from waste plastic

Automatic recycling system for HIPS in toner cartridges

*High Impact Polystyrene

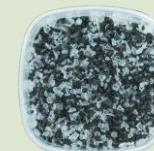
Laser printers & multifunction printers



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.





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

Examples of using plastic offcuts



Plastic offcuts



Crush



Crushed materials



Use of magnets/airflow to remove foreign matter/powder



Plastic regrind



The new parts formed from regrind





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.

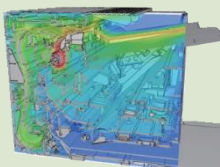
case study

Cases of products made smaller and lighter

Laser printers and multi-function printers

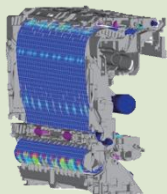
Heat & Airflow Simulation

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



Paper Feed Simulation

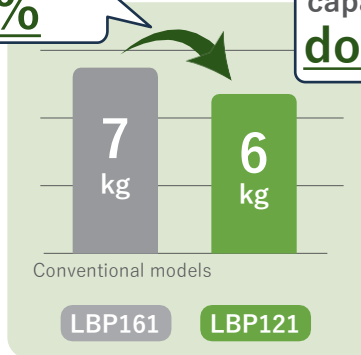
Verify paper feed path and optimize layout for miniaturization



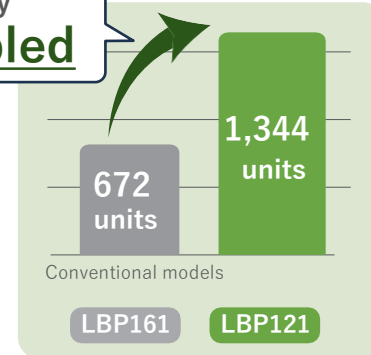
Make smaller and lighter



Product weight Reduced about **14%**



Container capacity **doubled**





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.



100% renewable energy for electricity used in 2024

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

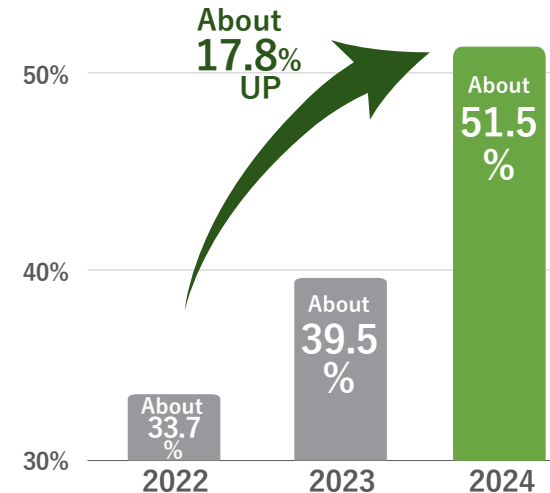
Achieved at 6 locations in 4 sites



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





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.



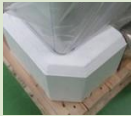
Use Easily Renewable Materials for Packaging

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



*Inkjet printers use molded pulp as package cushioning materials.

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





Adoption of power-saving designs

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

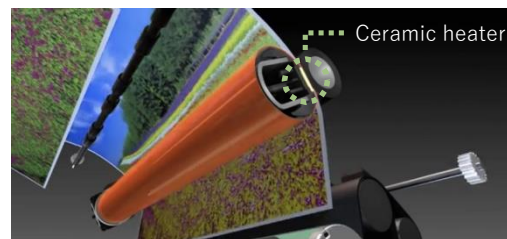


Energy-saving during fusing

- 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.



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





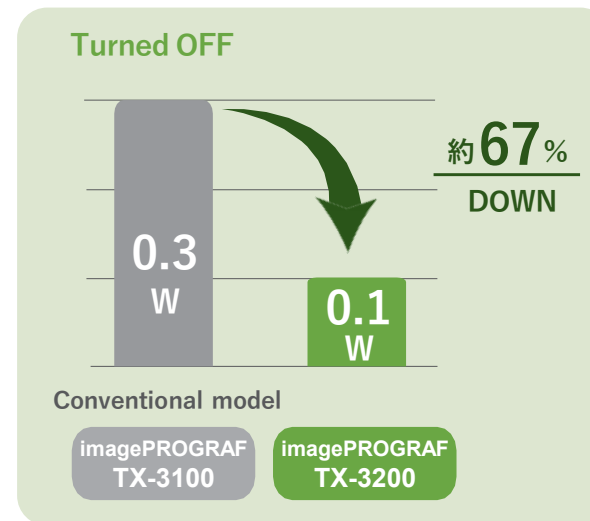
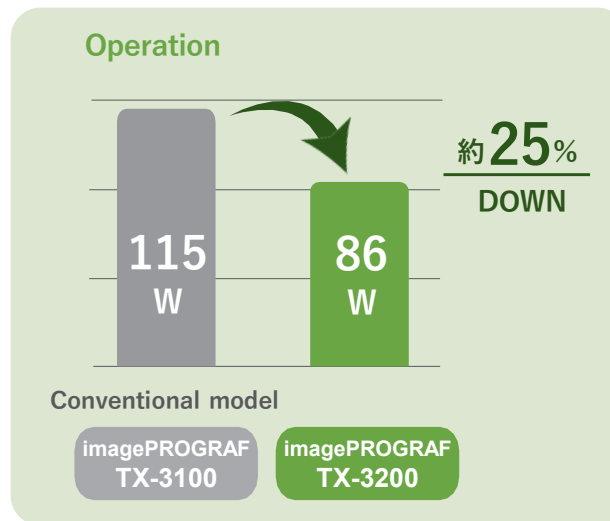
Adoption of power-saving designs



Low Power Consumption in Products



imagePROGRAF
TX-3200



imagePROGRAF TX-3100 was released in 2021





Extended Service Life of Consumable Parts

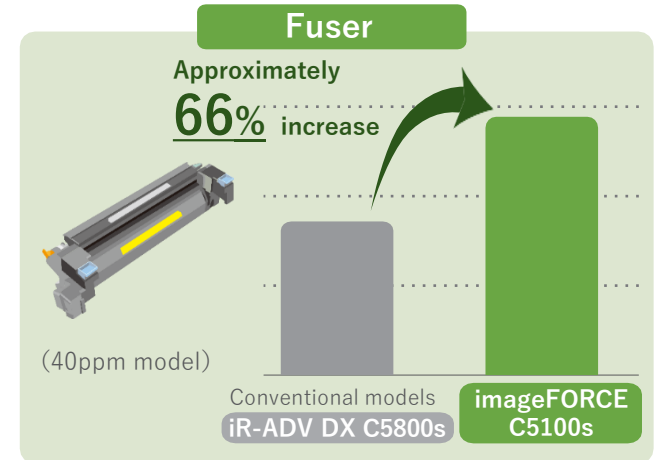
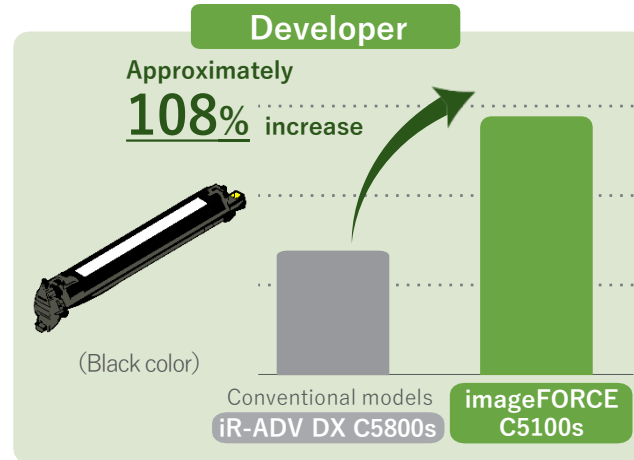
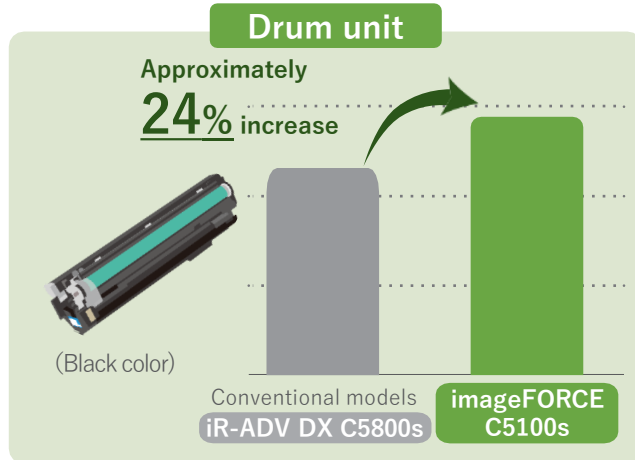
Through revision of materials and structures and technological progress, we have significantly extended the service life of consumable parts such as drum units, developers, and fusers. We strive to reduce the use of virgin resources by extending the life of consumable parts and limiting the number of 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 DX C5800 series released in 2021, the imageFORCE C5100 series significantly extends the maximum number of prints for consumable parts.





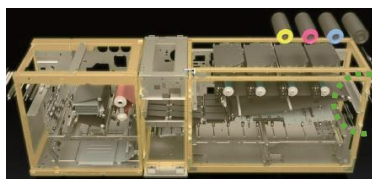
Extended Service Life of Products and Parts

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

case study

Case study from commercial printing products: imagePRESS V1350

Production printers



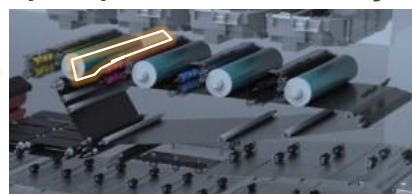
Rigid frame structure, thick and sturdy to bolster durability



Adoption of highly durable components in the drive section of the developing unit

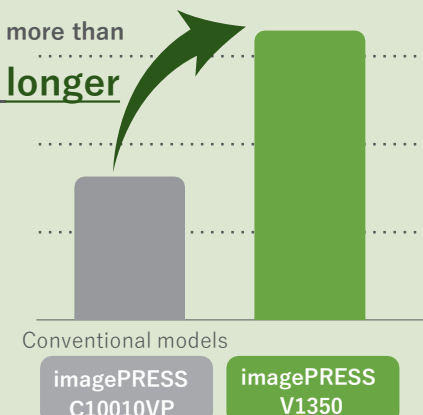


Increased durability of paper transport path for secondary transfer



**Lifespan of product
(Total lifetime printed pages)**

Lasts more than
2X longer





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 multi-function 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

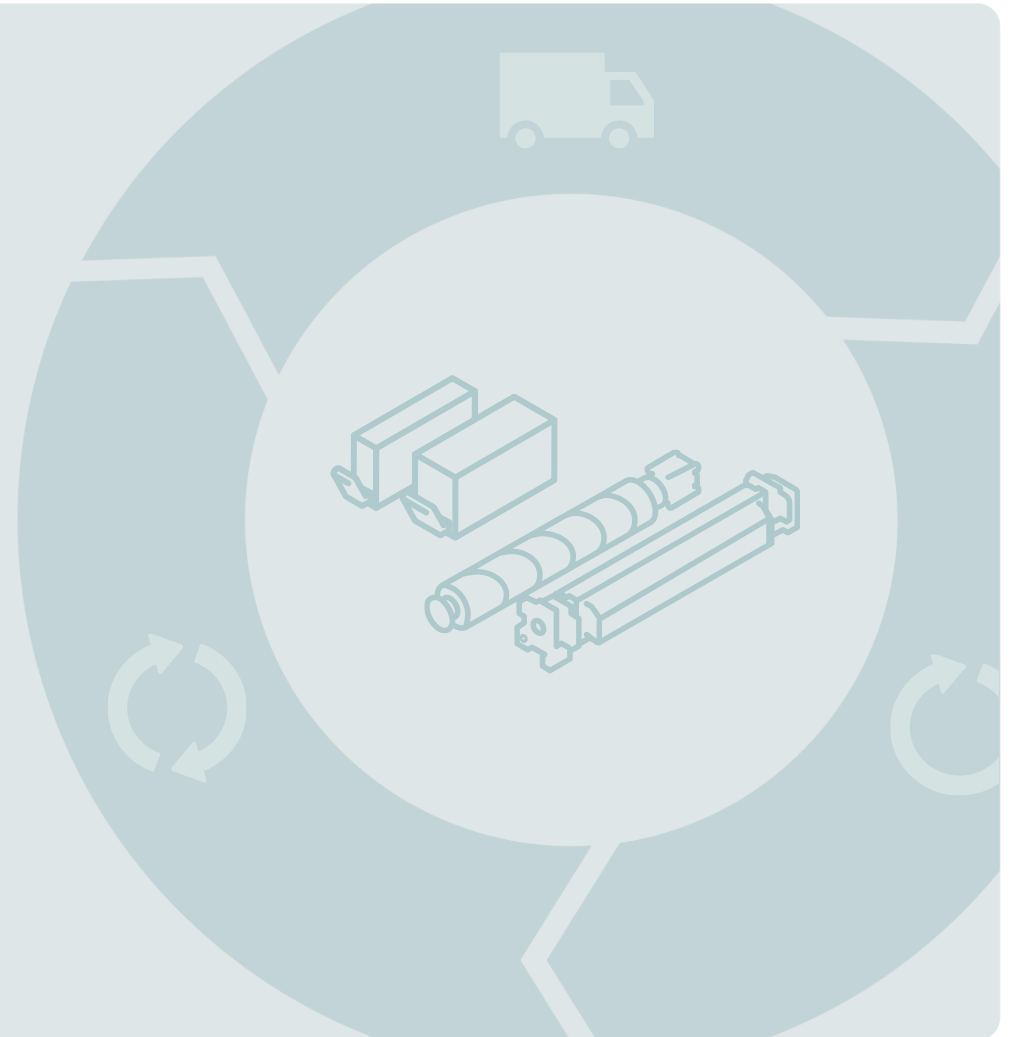
After

Discharge port shutter

Significantly reduced toner adhesion

Open Closed

Reduce Through Systems



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



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.





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.



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



Naha

Fukuoka

Osaka

Nagoya

Chiba

Bando, Ibaraki



Sapporo

Sendai

● Collection Center

● Recycling Sites



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.





Reuse Efforts: Promote 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

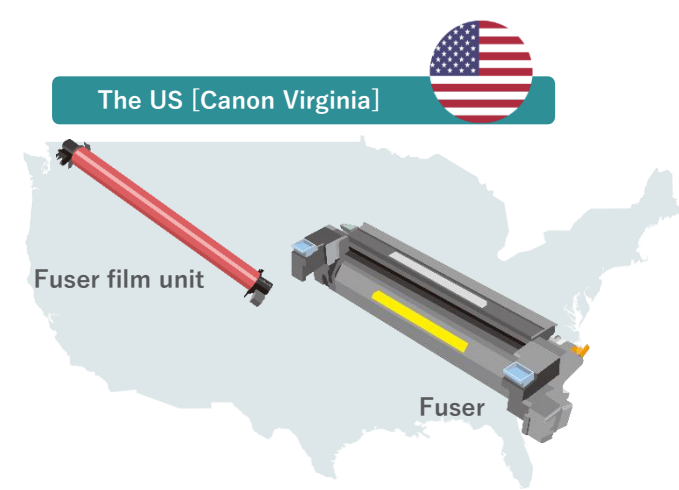
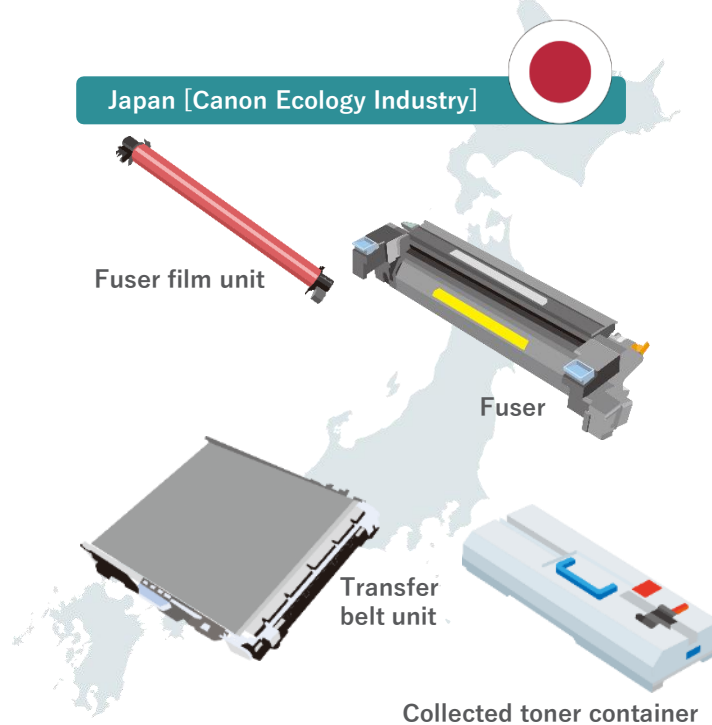
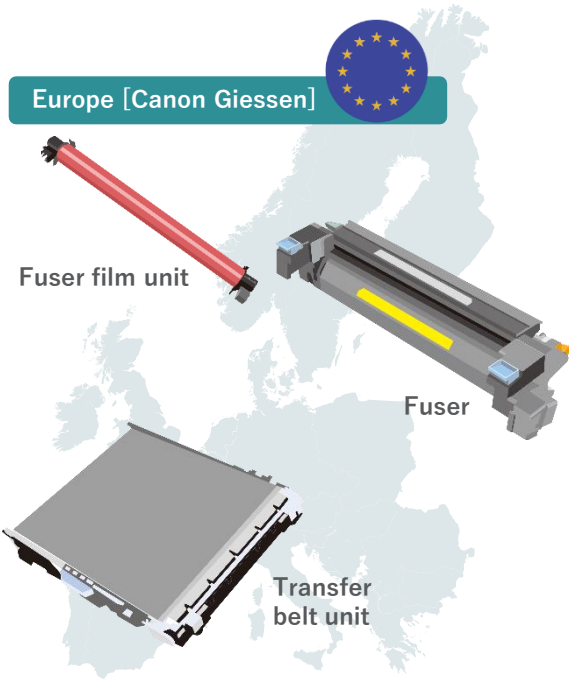
Resource Recycling



Reuse Efforts: Promote 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.



Canon Virginia has started production of recycled fuser units for office multifunction printers in 2025, in addition to Fuser film unit.



Reuse Efforts: Promote Resource Recycling

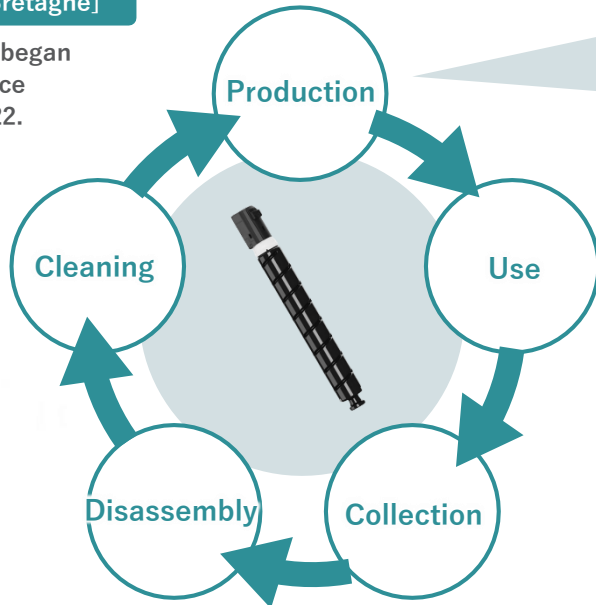
Promote Toner Bottle Reuse With “New Product-Equivalent Quality Control”

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.



Load into same production line as new bottles



Bottle cleaning



Bottle molding

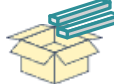
Production line



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.





Reuse Efforts: Promote Resource Recycling

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]



Used multifunction printers brought in by truck

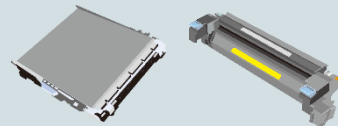


Database* Linkage

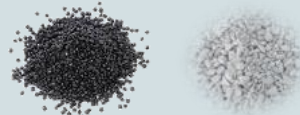
To XX



Candidates for recycling



Parts extraction (reuse)



Resource recycling



Scan serial number and sort automatically

Data on parts for each unit are collected to determine reusability.

*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.



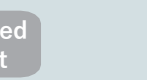
Machines collected from the market

Data on parts



Recycled machines* (ES/ES+ models)

Parts harvesting



Extract parts data and determine level of reuse



Write parts data into the main unit

*Canon Europe's recycled multifunction printer name



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



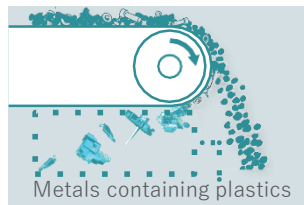
Crushing



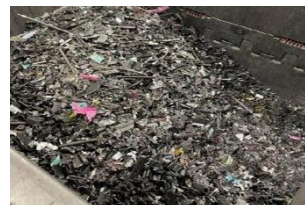
Shipment

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.



Extract metals containing plastics using magnetic force



Collect in a state of mixed plastic and metal



Separate metals and plastics using a sorting device



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

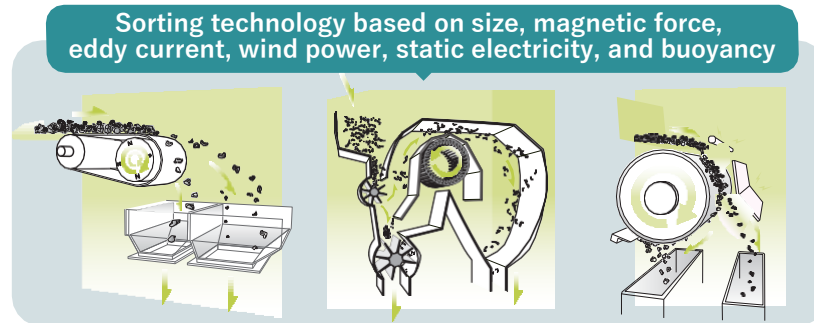
Used toner cartridges are crushed and automatically sorted.

An in-house recycling system automatically regenerates the main material, HIPS (High Impact Polystyrene), with over 99%* purity.

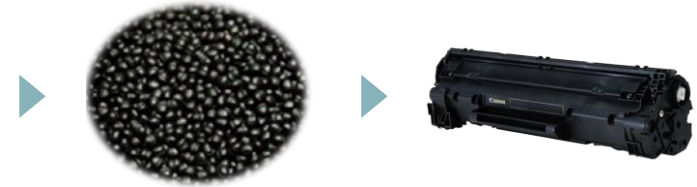
*Through a sorting method determined by Canon



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.

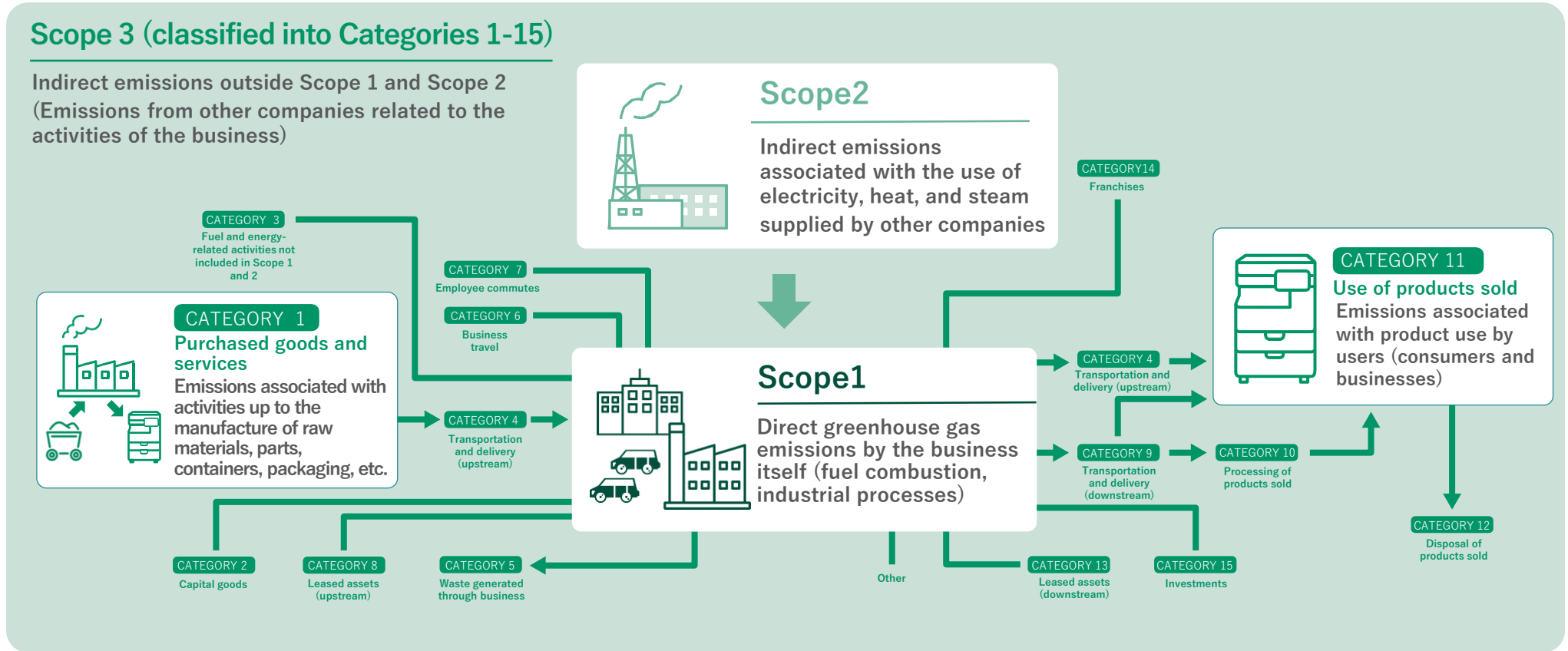


APPENDIX



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.



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

Definition of resource recycling rate for printing products

$$\text{Resource recycling rate} = \frac{\text{Recycled material volume}}{\text{Total sales weight}}$$

(● Resources recycled from Canon + ● Resources recycled outside Canon)
 (● Virgin resources + ● Resources recycled from Canon + ● Resources recycled outside Canon)

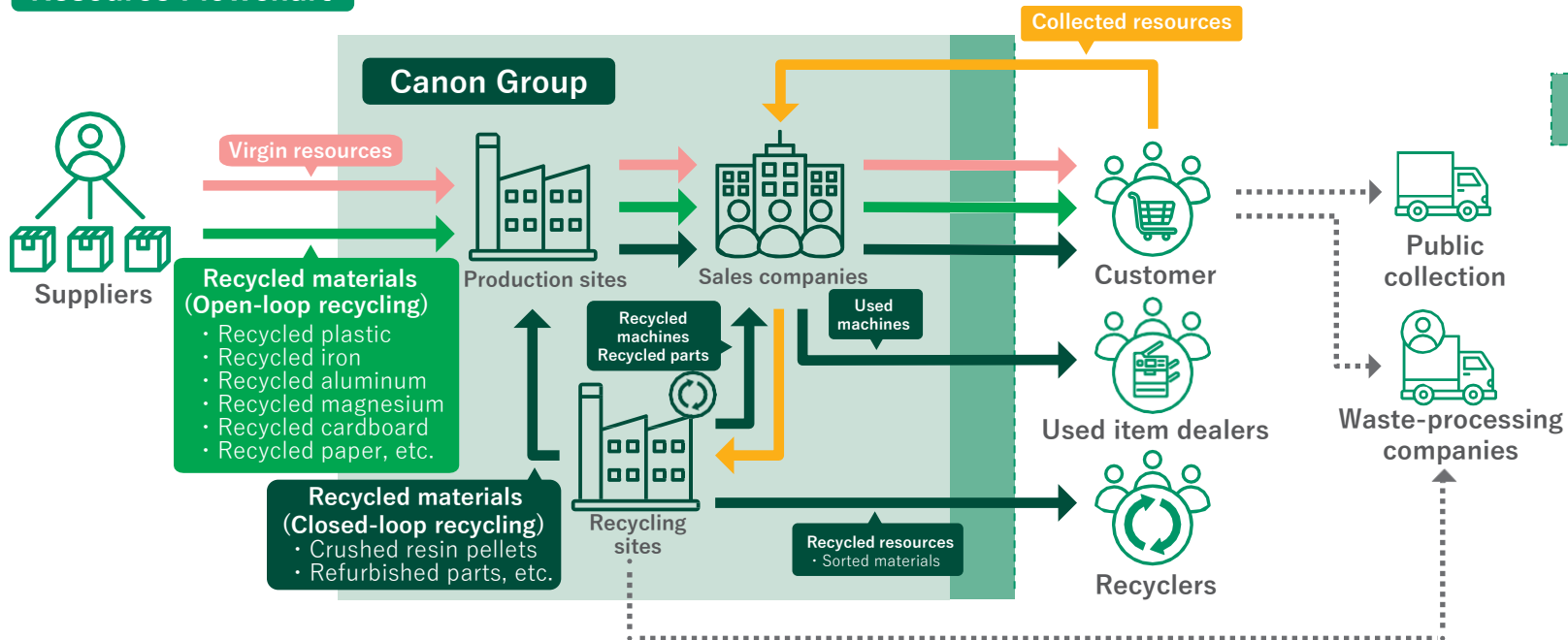
Resource recycling rate is the proportion of recycled materials to total sales weight.

2030

50*

*Target value

Resource Flowchart



Quantity Count Locations

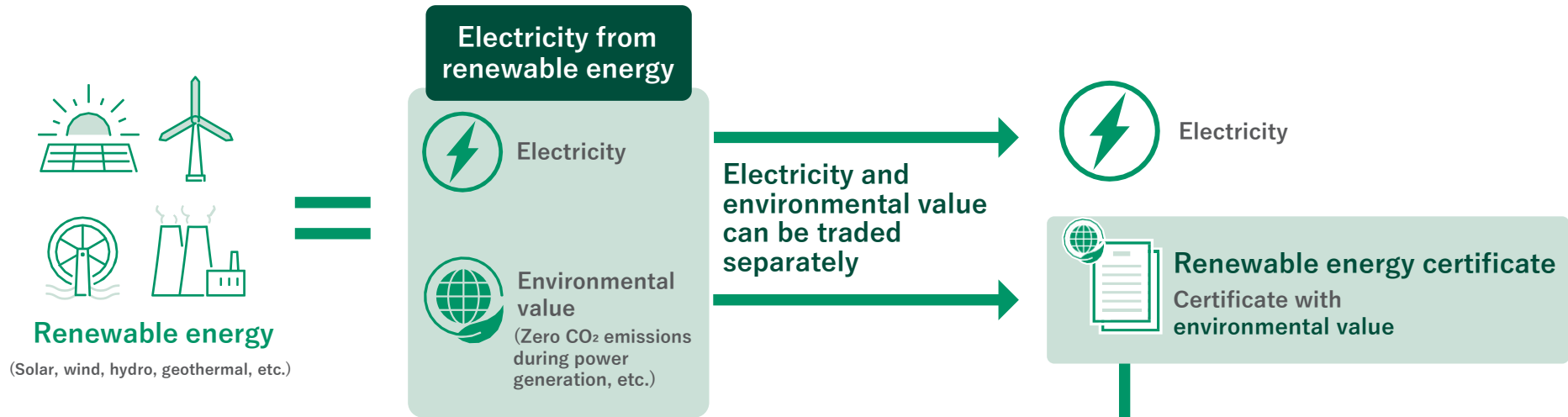
The resource recycling rate for the printing business is calculated using values from the quantity count locations shown in the figure to the left. All Canon Group businesses involved in the printing business are included in the scope.

- Virgin resources
- Resources recycled from Canon
- Resources recycled from outside Canon
- Collected resources
- ⋯ Waste



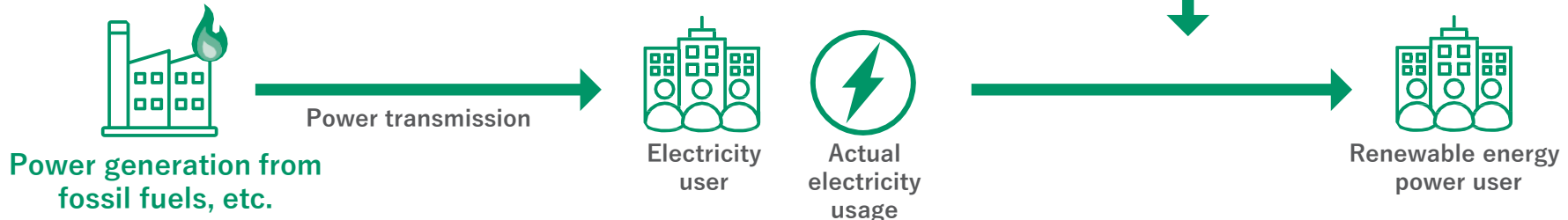
Renewable Energy Certificates

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



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.



Efficient Transportation and Transportation With Low Environmental Impact

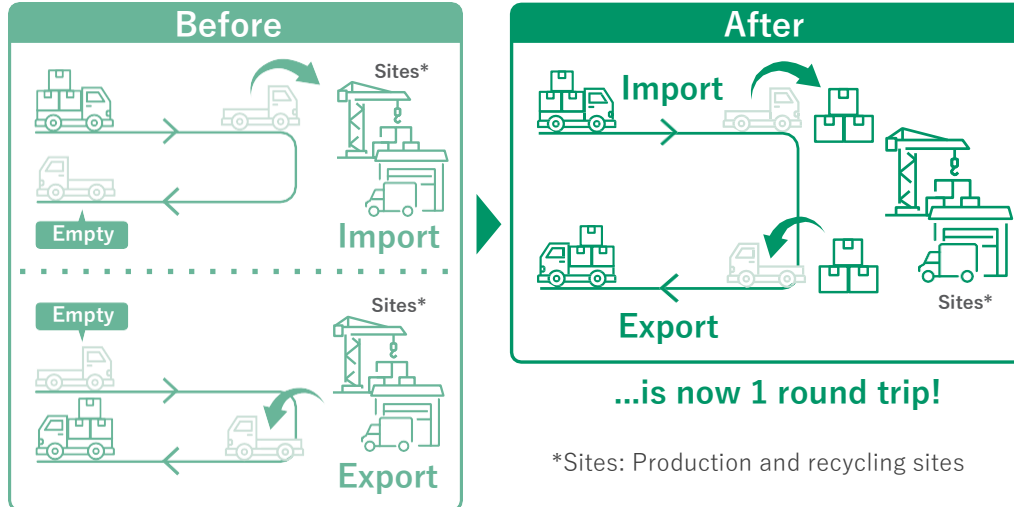


We are implementing efficient transportation efforts for products and parts in partnership with sales companies in Japan and abroad. Moreover, we are shifting to transportation methods with lower environmental impact, such as ships and railways.

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



What was once 2 round trips...

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

