Contribution to the Environment

Please check the sustainability website for details.
https://www.panasonic.com/global/energy/sustainability/environment/approach.html

Approach to environmental initiatives —Two material issues for realizing our Mission—

Our Mission is to "achieve a society in which the pursuit of happiness and a sustainable environment are harmonized free of conflict." With this in mind, we believe that our fundamental value is to play a leading role in transforming society into a sustainable one. At the same time, we have a responsibility to reduce our own environmental impact as we fulfill this role.

Based on our approaches and the expectations of our stakeholders, we have identified two material issues related to the environment: "Achieving decarbonization" and "Realizing a recycling-oriented society." To maximize our contribution to the environment and minimize the environmental impact on each of these, we have set a total of six KPIs and their targets for fiscal 2031 as shown in the figure on the right.

With respect to the KPIs associated with the material issue "achieving decarbonization," to expand avoided CO_2 emissions*1 from our products and solutions that are used by end users, we have set a target of 45 million tons*2 of avoided emissions in fiscal 2031. We also aim to reduce CO_2 emissions during battery production, including procurement of raw materials, production, and product distribution. To this end, we are pursuing initiatives such as expanding the number of our own Net Zero Factories*3 and increasing our electricity renewable energy ratio*4, with the goal of cutting our carbon footprint in half *5 by fiscal 2031 compared to fiscal 2022.

With respect to the KPIs associated with the material issue "realizing a recycling-oriented society," we had previously set a recycling rate (in-house waste) KPI. However, now that almost all of our sites have achieved a recycling rate of 99% or more (with less than 1% of in-house waste going to landfill), we decided that this KPI was no longer necessary, since we had a system in place within the company that could be sustainably maintained. Therefore, starting this fiscal year, our only recycling KPI will be our recycled material utilization rate. Going forward, we will strengthen our efforts to collect and recycle waste materials from the production process as well as used products, aiming to create a recycling loop through the reduction of natural resource consumption and waste. We believe that these initiatives will also contribute to reducing the carbon footprint of batteries.

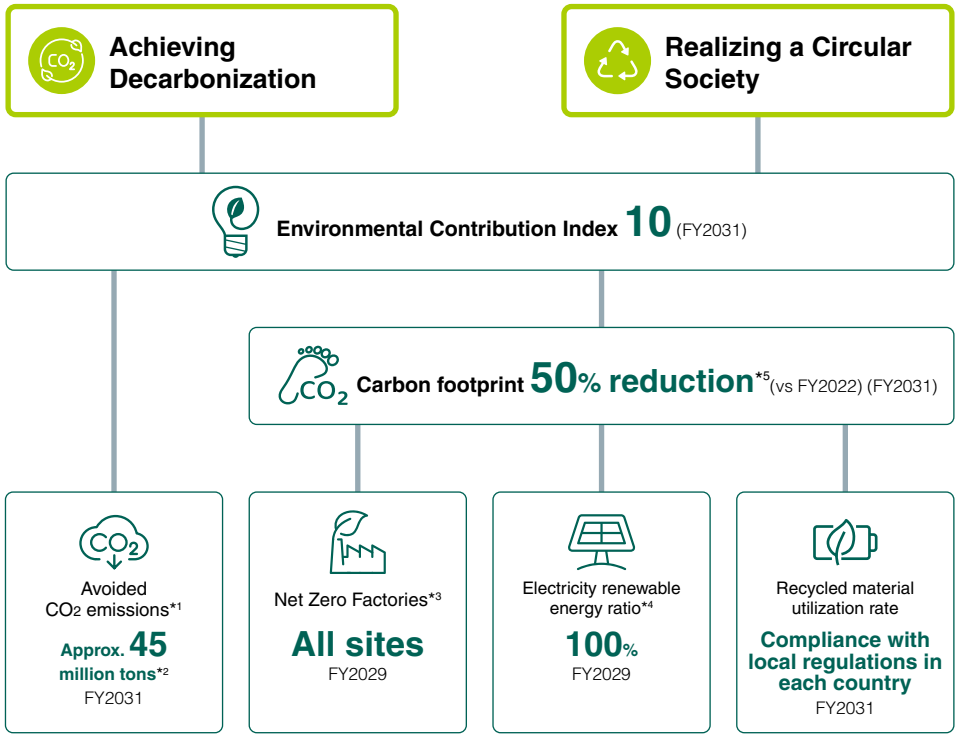
For these two material issues, we have established our own unique composite indicator, the "Environmental Contribution Index." This indicates the avoided CO_2 emissions in society through use of our batteries divided by net CO_2 emissions from our battery production. Our target value for fiscal 2031 is 10*2, which we aim to achieve by maximizing our contribution to the environment and minimizing the environmental impact of battery production.

■ **Environmental Contribution Index calculation formula**

$$\frac{\text{Environmental contribution amount: Avoided } CO_2 \text{ emissions in society through use of our batteries}}{\text{Environmental impact: Net } CO_2 \text{ emissions from our battery production}} = \text{FY2031 } 10$$

"Achieving a society in which the pursuit of happiness and a sustainable environment are harmonized free of conflict"

Two material issues on environment



*1 The amount of CO_2 emissions reductions achieved for our customers and society as a result of the introduction of our products, compared to the baseline level where no products were introduced.
*2 Target values revised based on market conditions in-vehicle business and other factors.
*3 Factories that have achieved virtually zero CO_2 emissions by conserving energy, introducing renewable energy, and using credits.
*4 Percentage of electricity, fuel, etc. used by Panasonic Energy that is derived from renewable energy sources (includes certificates, credits, and other externally procured items).
*5 CO_2 emissions per unit capacity of lithium-ion batteries for automotive use produced at the North American factory.

Please check the sustainability website for details.
https://www.panasonic.com/global/energy/sustainability/environment/decarbonization.html

Achieving Decarbonization

Policy

Our Mission is to "Achieve a society in which the pursuit of happiness and a sustainable environment are harmonized free of conflict," and therefore, responding to climate change, an urgent issue common to all humankind, is our most important challenge. To address this challenge, we will work to increase avoided CO_2 emissions (when our products and solutions are used by end-users) and reduce CO_2 emissions during battery production, including procurement of raw materials, production, and product distribution. By increasing our environmental contribution and reducing our environmental impact, we are working together as a Group and in collaboration with our stakeholders to maximize the value we provide.

KPI	FY2025	FY2031
Environmental Contribution Index	**4.9**	10*5
Avoided CO_2 emissions*1 ($10{,}000t\text{-}CO_2$)	**1,632**	4,500*5
Net Zero Factories*2	**17 sites**	All sites (FY2029)
Electricity renewable energy ratio*3	**46%**	100% (FY2029)
Carbon footprint*4	**Vs FY2022: –22%**	Vs FY2022: –50%

*1 The amount of CO_2 emissions reductions achieved for our customers and society as a result of the introduction of our products, compared to the baseline level where no products were introduced.
*2 Factories that have achieved virtually zero CO_2 emissions by conserving energy, introducing renewable energy, and using credits.
*3 Percentage of electricity, fuel, etc. used by Panasonic Energy that is derived from renewable energy sources (includes certificates, credits, and other externally procured items).
*4 CO_2 emissions per unit capacity of lithium-ion batteries for automotive use produced at the North American factories.
*5 Target values revised based on market conditions in-vehicle business and other factors.

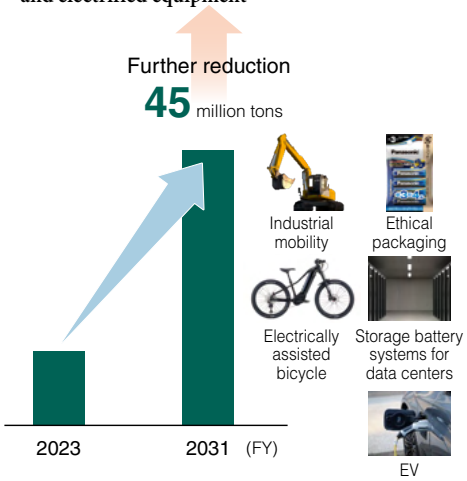
Increasing avoided CO_2 emissions

Contribution to the environment through our products

Panasonic Energy is working to increase avoided CO_2 emissions through mobility electrification and other initiatives to contribute to the environment through the spread of our products and solutions. To increase avoided CO_2 emissions, we are looking beyond products like our Li-ion batteries for vehicles and electrically assisted bicycles that reduce CO_2 emissions through product electrification, and are now considering products that can be expected to avoided CO_2 emissions through the energy saving benefits of replacing conventional products, including our storage battery systems for data centers,*6 whose avoided emissions we quantified for the first time in fiscal 2025. This brings our avoided CO_2 emissions to approximately 16 million tons in fiscal 2025.

By fiscal 2031, we aim to achieve avoided CO_2 emissions of 45 million tons by continuing to enhance our production capacity and expanding our products and solutions into areas such as industrial mobility, where electrification is progressing, thereby contributing to the decarbonization of society.

Increasing contribution from the spread of EVs and electrified equipment



Relationship between the Inflation Reduction Act (IRA) and avoided emissions

The IRA is the largest investment the U.S. has ever made to tackle climate change.*7 The law is designed to reduce CO_2 emissions by 21 billion tons between 2023 and 2050 and to prevent $5.6 trillion in global economic losses from climate change.*8

The IRA provides tax credits and subsidies for industries that contribute to energy security and climate actions. Panasonic Energy benefits from a tax credit of $35/kWh on our automotive batteries produced and delivered in North America.*9 We believe that this tax credit was made possible by our efforts to promote the spread of EVs in society and contribute to avoided CO_2 emissions through the manufacture of automotive batteries. As indicated, the amount of our tax credit under the IRA is proportional to the amount of avoided CO_2 emissions from our automotive batteries. We believe this is an example where our contribution to decarbonization through automotive batteries has been recognized by society in terms of monetary value.

*6 Reduction in the amount of electricity supplied over the lifetime of use by replacing centralized power sources with distributed power sources
*7 As of August 2022
*8 https://home.treasury.gov/news/featured-stories/the-inflation-reduction-acts-benefits-and-costs
*9 Section 45X

Reducing CO_2 emissions during battery production

Initiative policy

While contributing to avoided CO_2 emissions in society through the widespread use of our products and solutions, we are also working to reduce CO_2 emissions during battery production, including procurement of raw materials, production, and product distribution.

In our battery production process, we are working to reduce our environmental impact by both conserving energy and introducing renewable energy. Using environmental certificates and credits, we aim to achieve Net Zero Factories*1 at all sites by fiscal 2029.

Furthermore, to reduce CO_2 emissions across the entire supply chain, we are strengthening our reduction efforts in cooperation with our suppliers with the goal of cutting our carbon footprint (CFP) per unit battery capacity in half *2 by fiscal 2031 compared to fiscal 2022.

Initiatives in the battery production process

With regard to initiatives for conserving energy, we are promoting the reduction of energy loss during battery production and innovations in production methods. In addition to the reduction efforts at each site, we aim to maximize the reduction effect by spreading successful examples of improvements across the Company.

With regard to initiatives for introducing renewable energy, we are focusing on introducing renewable energy that does not rely on environmental certificates. In Japan, in addition to conventional solar power and onshore wind power, we have introduced off-site corporate power purchase agreements*3 (PPAs) for geothermal energy. This has raised our in-house renewable energy self-sufficiency rate*4 for electricity usage in Japan to approximately 30%, resulting in a reduction of approximately 50,000 tons of CO_2 annually. In the future, we are considering expanding the system globally, taking into account the regional characteristics of each country.

Off-site PPA for onshore wind power

Off-site PPA for geothermal power

Initiatives in the procurement of raw materials

Most of the CO_2 emissions associated with battery production are from resource extraction, raw material processing, and distribution processes prior to our manufacturing process. Based on this, we have made suppliers understand our CFP reduction policy through partner meetings and other means, and are collaborating with them to advance CO_2 reduction efforts. Specifically, by improving production efficiency, introducing renewable energy, switching to low CFP materials, and engaging with upstream suppliers, we have achieved a 22% reduction in CFP*2 for fiscal 2025 compared to fiscal 2022.

Partners' Meeting 2024

*1 Factories that have achieved net zero CO_2 emissions by conserving energy, introducing renewable energy, and using credits

*2 CO_2 emissions per unit capacity of Li-ion batteries for automotive use produced at the North American factories

*3 A model in which an electric power company installs power generation facilities in locations away from the demand point and supplies the generated electricity to users

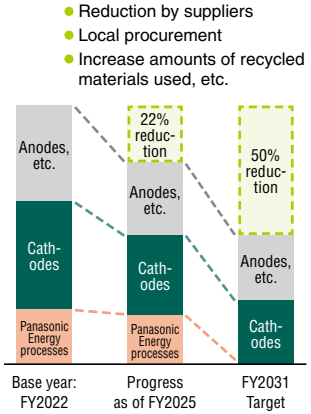
*4 An indicator showing the proportion of renewable energy supplied from in-house power generation facilities. Does not include certificate-only procurement

As part of our efforts to reduce our CFP in raw materials, in fiscal 2025 we signed investment and seven-year offtake agreements with Nouveau Monde Graphite of Canada. The integrated production of anode materials from mining to production in Canada, which has a high ratio of electricity derived from renewable energy sources, will make it possible to significantly reduce CO_2 emissions.

We are also actively promoting the use of recycled materials produced from used Li-ion batteries, thereby contributing to further reductions in CO_2 emissions.

Aiming to further reduce our CFP in the future, Panasonic Energy is accelerating efforts to expand the introduction of renewable energy, improve the ratio of local raw materials procurement, and use more recycled materials.

Progress and targets for CFP reduction*2



Initiatives in product distribution

We are also promoting initiatives to reduce CO_2 emissions in product distribution. In Japan, in addition to optimizing transportation methods and transportation routes, we have partnered with EcoTruck Co., Ltd on proof-of-concept trials to replace conventional diesel-fueled trucks with trucks fueled with biogas*5, which can be regarded as having zero CO_2 emissions during driving. We plan to roll out a partial deployment in fiscal 2026, and then, in the future, expand the rollout from product distribution to the procurement and distribution of raw materials.

Biogas truck

Initiatives to utilize next-generation energy

We are promoting the use of hydrogen as a next-generation energy source that contributes to the reduction of CO_2 emissions in society. We have introduced pure hydrogen fuel cells at our Nishikinohama Factory in Japan and at Panasonic Energy Wuxi, China. The Nishikinohama Factory in particular is working to efficiently utilize renewable energy through optimal control of energy that is from the combination of photovoltaic power generation and storage batteries. At the Expo 2025 Osaka, Kansai, Japan, as part of an event under the theme "Change the Future! Hydrogen Week," we offered off-site visit tours*6 in partnership with Iwatani Corporation and Kawasaki Heavy Industries. Going forward, we will continue to contribute to decarbonization by utilizing next-generation energy.

Hydrogen tank painted with the same design as Evolta NEO batteries (NISHIKINOHAMA Factory)

*5 Purified methane derived from biomass

*6 Expo-related experiences and tours are accessible not only in Yumeshima, the site of the Expo, but also across Osaka Prefecture and other areas in the Kansai region

Please check the sustainability website for details.
https://www.panasonic.com/global/energy/sustainability/environment/TCFD.html

Disclosure Based on TCFD Recommendations

Response to TCFD

In May 2019, the Panasonic Group endorsed the TCFD*1 recommendations. Recognizing that risks and opportunities related to climate change are critical management issues, the Panasonic Group is identifying risks and opportunities based on the recommendations and examining the resilience of its strategies through scenario analysis.

Based on the above recognition and verification results, Panasonic Energy will deepen its consideration of risks and opportunities specific to our business and proactively disclose the required information. As recommended by the TCFD, we will disclose information on 'governance', 'strategy', 'risk management', and 'indices and targets' to strengthen our dialogue with our stakeholders.

*1 TCFD: an abbreviation of Task Force on Climate-related Financial Disclosures. The task force was set up by the Financial Stability Board (FSB) in response to a request by the G20 Finance Ministers and Central Bank Governors. TCFD published its recommendations in 2017.

Panasonic Group "Environment : Response to TCFD"
https://holdings.panasonic/global/corporate/sustainability/environment/tcfd.html

Governance

At Panasonic Energy, the Board of Directors oversees risks and opportunities related to climate change based on reports and recommendations from the ESG Committee at least once a year.

Chaired by the president, the Committee includes all executive officers responsible for divisions related to climate change, such as business divisions, human resources, and legal affairs, as well as divisions in charge of the environment. The Committee formulates overall plans, monitors progress, and evaluates the status of achievement in a cross-organizational framework.

In parallel, we analyze risks and opportunities related to climate change and, based on the results, confirm the relevance of our business strategy from a resilience perspective.

In addition, to strengthen the commitment of our executive officers, performance-based remuneration (which is an incentive linked to short term and mid-long term business results) is structured to reflect climate change-related results as well as financial indicators.

Strategy

To transition society to a low-carbon economy, we have set the following targets.

- FY2029: Net Zero Factories *2 All sites
- FY2031: Create approx. 45 million tons of avoided CO_2 emissions

To establish the above goals and verify the resilience of our strategy, we have conducted a scenario analysis in line with the framework of the TCFD recommendations.

*2 Factories that have achieved virtually zero CO_2 emissions by conserving energy, introducing renewable energy, and using credits.

The scenario analysis was conducted as follows, targeting the Mobility Energy Business and part of the Energy Solution Business, which account for a large proportion of our financial performance and contribute significantly to avoided CO_2 emissions.

- Assumed timeframe: FY2031 and FY2051
- Adopted scenarios: Risks and opportunities were identified based on a set of scenarios (including the 1.5°C scenario and the 4°C scenario), which were adopted in the Panasonic Group scenario analysis. For more details, please refer to the four scenarios in the Panasonic Group entitled "Environment: Strategy Resilience through Scenario Analysis."

Panasonic Group "Environment : Response to TCFD"
https://holdings.panasonic/global/corporate/sustainability/environment/tcfd/resilience.html

Risk management

Panasonic Energy has established an Enterprise Risk Management Committee ("ERM Committee") to manage various risks, including those related to climate change, in an integrated manner.

Based on the PDCA cycle of risk management, the ERM Committee reports regularly to the Management Meeting and the Board of Directors on essential risks and the progress of countermeasures. Each year, the Committee identifies risk items in terms of "impact" and "possibility of occurrence" while also defining "operational risk" as events that have the potential to affect business activities and pose an operational threat.

In fiscal 2025, we again identified natural disasters such as earthquakes and tsunamis as important operational risks and managed progress on measures to deal with flooding and other disasters.

Regarding the transitional risks, such as an increase in the cost of compliance with environmental regulations, the relevant departments closely monitor trends and take appropriate measures while the Management Meeting continues to manage the progress. In compliance with the EU Battery Regulation in particular, we thoroughly manage risks to our business activities by managing the progress of measures and raising issues at quarterly meetings that include the relevant departments and management.

Metrics and targets

In addition to disclosing actual GHG emissions (Scope 1, 2, 3), we have set a goal of achieving all of Net Zero Factories*2 by fiscal 2029 and are working hard to reduce emissions.

We have also set targets for GHG emissions outside of our own company, including the avoided CO_2 emissions that we contribute to society and the reduction of the carbon footprint of our products, including those upstream in our supply chain.

Furthermore, we have established our own "Environmental Contribution Index" (an index that indicates the ratio of avoided CO_2 emissions to the actual CO_2 emissions from our battery production), which is a composite of the above indicators. We are working to improve this to 10 in fiscal 2031. For more details of our efforts to set and achieve our goals, please refer to the Environmental page of this report.

Significant risks and opportunities and how to respond

The items identified as significant climate-related risks and opportunities are shown in the table below. For each item, the table shows the main applicable scenarios, the timing of occurrence, the impact, and our countermeasures. We prioritize our responses to these items based on the timing of their occurrence and their degree of impact.

	Item	Impact on Panasonic Energy	1.5°C	4°C	Timing of occurrence	Impact	Countermeasures
Transitional risks	Cost of implementing carbon pricing	Increase in procurement costs due to the levy on the company and the price shift of the levy to suppliers/logistics providers due to the tightening of the carbon pricing system	■		Medium term	Large	• Promote energy conservation, utilize renewable energy
	Higher costs of complying with environmental regulations related to products and services	Increase in costs to comply with stricter battery-related regulations (including carbon footprint disclosure and traceability management) and mandatory GHG emissions reporting	■		Short term	Small	• Introduce general-purpose system capable of responding to increasingly sophisticated regulations
	Increase in R&D and capex costs for higher battery performance	Increase in R&D and capital investment costs to develop next-generation batteries for EVs and storage battery systems and to lead other companies in improving environmental performance	■		Short term	Medium	• Improve development efficiency through collaborative research with research institutes and partner companies • Tradition of skills within the company through operation of the Academy of Battery Technology and Manufacturing
	Increase in costs for energy conservation measures and renewable energy installations	Increase in procurement costs due to higher investment costs related to energy conservation/renewable energy and price shifting of GHG emission reduction costs from suppliers	■		Short term	Large	• Increase amount of renewable energy procurement
	Lower sales due to delay in responding to social and customer needs	Lower sales due to failure to respond appropriately to changing needs of corporate customers who have to address market changes, new regulations, and demands from stakeholders	■		Short term	Large	• Ensure compliance with the EU Battery Regulation, GBA, RBA, etc. • Lead policy frameworks through active participation in industry associations
	Increase in procurement costs due to soaring raw material prices and material switching	Increase in raw material procurement costs resulting from intensified competition for raw materials due to increased demand for batteries and increased protectionism	■		Medium - to long - term	Large	• Expand battery reuse, establish recycling scheme • Review manufacturing processes to help reduce process waste and loss
Physical risks	Lower sales/increased costs due to damage to the company's sites and supply chain caused by severe wind and flood damage	Increase in opportunity loss and recovery costs due to damage to the company's sites and upstream/downstream supply chain caused by severe wind and flood damage		■	Short term	Medium	• Shorten the supply chain through local procurement • Promote BCP measures for key parts and materials
	Lower sales/increased costs due to damage to own facilities and supply chain caused by sea level rise	Opportunity losses and increased costs of recovery and countermeasures due to damage to the company's facilities and supply chain sites near the coast caused by sea level rise		■	Long term	Small	• Assess supplier risk
	Lower sales/increased costs due to employee health risks from heat and cold	Opportunity losses due to disruption of employee health caused by extreme weather and increased capital investment costs for air conditioning and other equipment		■	Short and long term	Small	• Promote measures against infectious diseases in the workplace • Conduct seminars and programs aimed at improving the mental and physical health of employees
Opportunities	Cost reductions through increased resource efficiency and increased sales through improved production efficiency	Decrease in procurement costs due to recycling resources through resource recycling and increase in sales by developing the battery reuse market	■		Medium - to long - term	Medium	• Expand battery reuse, establish recycling scheme, control waste • Boost energy density, increase lifespan, increase diameter
	Decrease in energy procurement costs due to lower energy prices	Decrease in energy costs at the Company due to lower prices for renewable energy and in raw material procurement costs due to lower energy costs at suppliers	■		Medium - to long - term	Medium	• Review renewable energy options based on market prices and increase procurement volume
	Increase in sales due to higher demand for environmentally conscious products and services	Increase in sales due to growing demand for products that contribute to GHG reduction, such as automotive batteries and stationary storage batteries for use alongside renewable energy sources	■		Short term	Large	• Expand lineup of environmentally friendly products and solutions • Promote image as environmentally advanced company
	Increase in sales due to higher demand for disaster preparedness products and services	Increase in sales due to higher demand for disaster preparedness products, such as storage batteries to prepare for disruptions in energy infrastructure and battery products that contribute to the weather observation/space business		■	Medium - to long - term	Large	• Expand industrial backup power supply and residential energy storage businesses • Promote dry cell batteries as disaster preparedness measure

Please check the sustainability website for details.
https://www.panasonic.com/global/energy/sustainability/environment/circulation.html

Realizing a Circular Society

Policy

As a company that uses large amounts of natural resources in its business, we believe that using the earth's limited resources in a sustainable manner and passing them on to the next generation is crucial. For the future of children born today, we are increasing recycling to reduce the consumption of new natural resources while reducing waste to lower our environmental impact. We are also working to reduce CO_2 emissions related to the production of materials and disposal of products. We will advance these efforts in tandem with our commitment to achieving decarbonization.

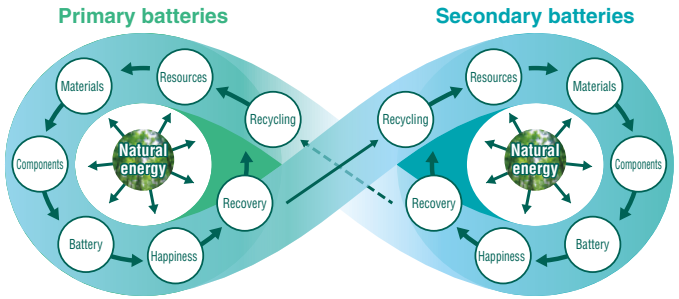


Image of the "Yarushika Circular Concept," which transcends the boundaries between primary and secondary batteries to realize resource recycling

KPI	FY2025	FY2031
Recycled material utilization rate	—	Compliance with local regulations in each country

Expansion of recycling

Promotion of using recycled materials

In the production of batteries, Panasonic Energy is working to build a recycling loop that contributes to reducing natural resource consumption and waste, for example by our efforts to collect and recycle waste materials from the production process as well as used products and utilize them as recycled materials.

Going forward, we will continue to promote the use of recycled materials as electrode materials, aiming not only to decarbonize our products, but also to realize a recycling-oriented society.

Initiatives related to secondary batteries

For secondary batteries, countries around the world are developing legal systems and mechanisms for recycling aimed at using resources more effectively and preventing environmental pollution. In fiscal 2025, in collaboration with Sumitomo Metal Mining Co., Ltd., we began operating a recycling scheme that recycles nickel, a rare metal, from battery waste materials, and re-uses it as a cathode material in our production processes.

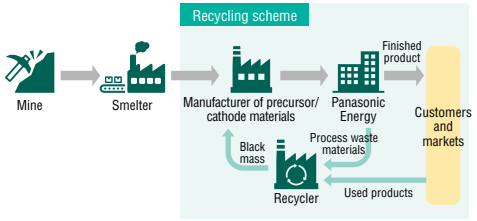
Initiatives related to dry batteries

We are working to recover and recycle used dry batteries with the aim of unlocking new value for dry batteries which are primary batteries that cannot be used repeatedly.

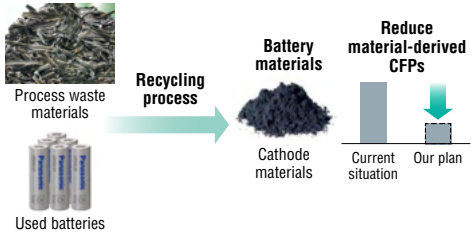
We started collecting used dry batteries made by Panasonic Energy in Thailand since 2022 in partnership with CP All Plc. (a convenience store operator) and in Japan since 2023 in partnership with AEON RETAIL Co., Ltd.

To recycle the used batteries collected, in Thailand, we are partnering with UMC Metals Ltd., a Thai steelmaker, to recover reusable materials. In Japan, we are partnering with Tokyo Steel Manufacturing Co., Ltd. to recycle batteries into steel materials, and we have also started working with TOMATEC Co., Ltd. to recycle used dry batteries into trace element fertilizer. In the future, the initiative with TOMATEC is expected to contribute to the development of agriculture and to ameliorating social problems such as hunger and poverty. We also started selling the EVOLTA NEO, which uses recycled zinc, in spring 2025.

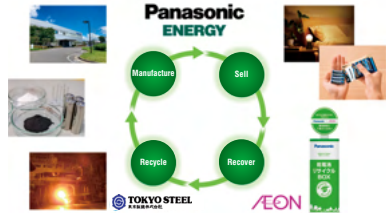
■ Recycling scheme for cathode materials in cooperation with suppliers



■ Recycling process for cathode materials in collaboration with partner companies



■ Dry battery recycling process



■ Process for recycling used dry batteries manufactured by Panasonic Energy into compound trace element fertilizer