

Sustainability Data Book **2019**

Panasonic Corporation



Panasonic

About the Sustainability Data Book 2019

Panasonic reports on sustainability through our Sustainability page on our website and this Sustainability Data Book.

The topics of this report are selected based on an analysis of the concerns of stakeholders and material issues (topics ranked as critical by Panasonic). For the company's environmental activities, Panasonic reports on the goals it has set for itself in its Panasonic Environment Vision 2050, and environmental action plan, "Green Plan 2018."

The Sustainability Data Book highlights important information including topics reported on our Sustainability website, our policies and approaches to various issues, performance data, and more. For themes that have been omitted, for specific examples of initiatives, and more details generally, please refer to the Panasonic Sustainability website.

► Sustainability Site

<https://www.panasonic.com/global/corporate/sustainability.html>

Scope of Reporting

Except when noted otherwise, results are calculated based on the following:

Period: Fiscal 2019 (April 1, 2018 to March 31, 2019)

Organization: Panasonic Corporation and consolidated subsidiaries (Not included: Hussmann Parent Inc., Ficosa International S.A., consolidated subsidiaries since April 2016 and April 2017 respectively, and consolidated subsidiaries of these two companies.)

Data:

- Data concerning manufacturing business sites cover all the manufacturing business sites (totaling 246) that constitute the Panasonic Group's environmental management system
- Data for which the fiscal year and region are not expressly stated are global results for fiscal 2019

Assurances

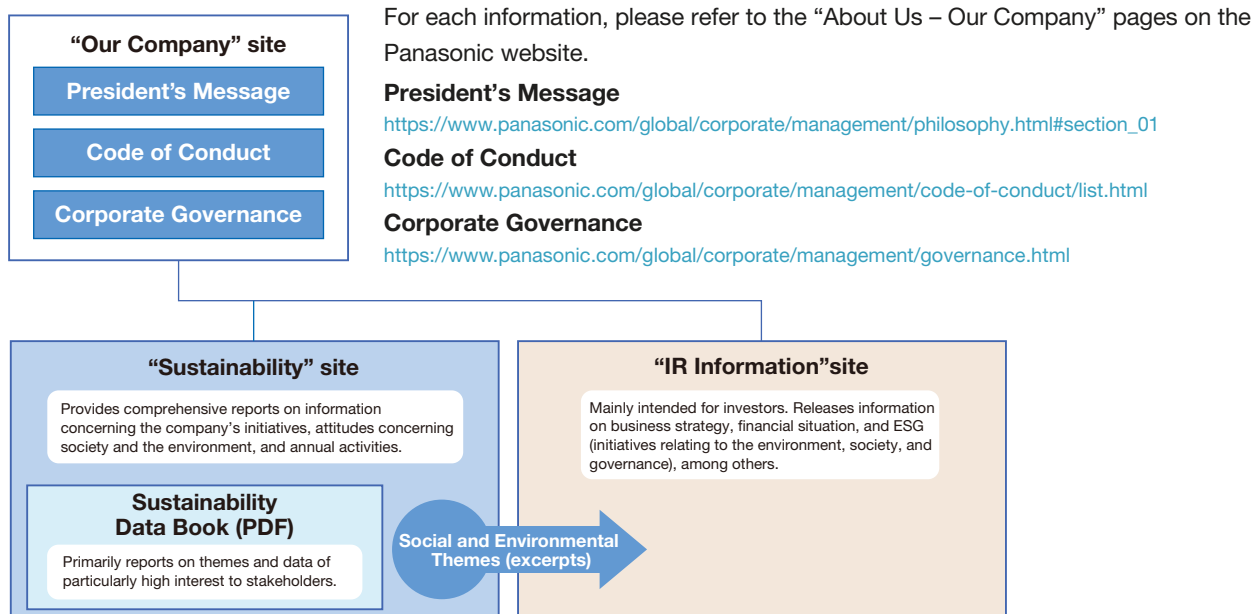
Main data relating to the environment have been assured by KPMG AZSA Sustainability Co., Ltd. For details on the indicators covered by the assurance, please refer to the Independent Assurance Report on P159

Reference Guidelines

Reporting requirements of the GRI Standards

Japanese Ministry of the Environment, "Environmental Reporting Guidelines 2018"

Structure of Reporting on Social and Environmental Initiatives



Sustainability Data Book 2019 Contents

About the Sustainability Data Book 2019... 1

Corporate Profile 4

Our Unchanging Management Philosophy and Sustainability 5

System for the Promotion of CSR Activities 6

Risk Management 8

Examples of Initiatives Aimed at Addressing Social Issues (Relationship with SDGs) 11

Environment

Policy	13
Panasonic Environment Vision 2050	17
Environmental Governance.....	22
Environmental Management Systems	24
Environmental Risk Management	25
Climate Change Risks and Opportunities, and Resilience of Strategy through Scenario Analysis	28
Environmental Information Systems	31
Overview of Environmental Impact and Environmental Accounting	32
Eco-conscious Products and Factories	35
CO ₂ Reduction	40
CO ₂ Reduction through Energy-saving/creating/storing Products	42
Global Warming Mitigation and Adaptation	44
Global Warming Prevention at Factories	46
Green Logistics	50
Resources	53
Reduction in Resources Used and Use of Recycled Resources.....	56
Factory Waste Management – Zero Waste Emissions ...	59
Product Recycling	61
Water Resource Conservation	65
Chemical Substance Management.....	67
Biodiversity Conservation	75
Collaboration Across the Supply Chain	80
Human Resource Development	82
Environmental Communication	84
History of Environmental Activities	86

Respect for Human Rights

Management System	89
Policy	89
Education	89
Responsible Executive and Framework	89
Human Rights Support Desk	90
Participation in International and Industrial Partnerships ..	90
Performance Evaluation	91
Efforts Concerning Fundamental Human Rights	92
Initiatives Relating to Global Standards, Legislation, Regulations, and So Forth	96

Human Resources Development and Promoting Diversity

Numbers of Employees	100
Policy	100
Responsible Executive and Framework	100
Organization in Charge of Diversity and Inclusion	101
Performance Evaluations	101
Managerial Promotion	101
Performance-Linked System of Remuneration	102
Human Resources Development	103
Diversity	105

Occupational Health and Safety

Management System	110
Policy	110
Education	111
Responsible Executive and Framework	112
Occupational Health and Safety Support Desk	113
Key Initiatives	113
Performance Evaluation	116

Responsible Supply Chain

Overview of Supply Chain	118
Management System	118
Policy	118
Education	120
Responsible Executive and Framework	120
Enforcement of CSR for Suppliers	121
Responsible Minerals Procurement	122

Fair Operating Practices

Management System	125
Policy	125
Compliance Training	127
Responsible Executive and Framework	127
Whistleblowing Systems	128
Performance Evaluation (Grave Violations and Corrective Measures)	129
Compliance Programs	130
Measures Taken Against Counterfeit Goods	133

Customer Relations

Management System	134
Policy	134
Responsible Executive and Framework	135
Management Indicators	137
Activities for Improving Customer Satisfaction in BtoB Systems Solutions Business	138
List of Awards	139

Raising Quality Levels and Ensuring Product Safety

Management System	140
Policy	140
Education	141
Responsible Executive and Framework	141
Committees and Organizations	142
Global Safety Standard Certifications Obtained	143
Major Accidents and Responses (Responding to Product-Related Incidents)	144
List of Awards	145

Product Security

Product Security	146
------------------------	-----

Information Security and Protection of Personal Information

Promoting Information Security Across the Globe	147
Information Security Training	147
Personal Information Protection and Compliance	147

List of Social Performance Data	148
---------------------------------------	-----

External Recognition	153
----------------------------	-----

Content Index:

RBA Code of Conduct	155
---------------------------	-----

Independent Assurance Report by KPMG AZSA Sustainability Co., Ltd. ...	159
--	-----

Reports on Business Activities of Panasonic	160
---	-----

Corporate Profile

as of March 31, 2019

Company Name: Panasonic Corporation

Company Headquarters:

1006 Oaza Kadoma, Kadoma City, Osaka 571-8501, Japan

Tel: +81-6-6908-1121

Incorporated: December 15, 1935

Founded: March 7, 1918

President: Kazuhiro Tsuga

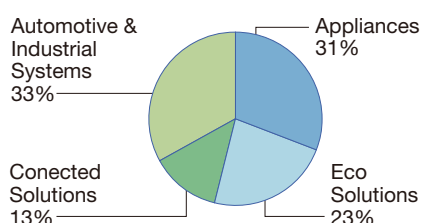
Common Stock: 258.7 billion yen

FY2019 Financial Result

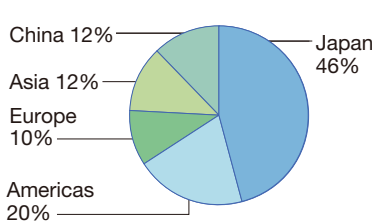
Net sales 8,002.7 billion yen **Operating profit** 411.5 billion yen **Profit before income taxes** 416.5 billion yen

Net profit attributable to Panasonic Corporation stockholders 284.1 billion yen **Number of Employees** 271,869

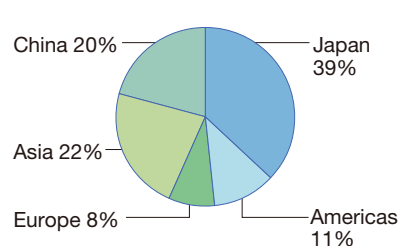
Sales by Segment (FY2019)



Sales by Region (FY2019)



Employees by Region (End of FY2019)



Main Products and Services

The Panasonic Group's major products and services, by segment, are as follows:

Appliances

Room air-conditioners, large-sized air-conditioners, TVs, digital cameras, video equipment, home audio equipment, fixed-phones, refrigerators, washing machines, vacume cleaners, microwave ovens, rice cookers, personal-care products, compressors, fuel cells, showcases

Eco Solutions

Lighting fixtures, lamps, wiring devices, solar photovoltaic systems, kitchen & bath, interior furnishing materials, exterior finishing materials, ventilation and air-conditioning equipment, air purifiers, detached housing, rental apartment housing, land and buildings for sale, home remodeling, bicycles, nursing care service

Conected Solutions

Aircraft in-flight entertainment systems and communications services, electronic-components-mounting machines, welding equipment, projectors, professional AV systems, PCs and tablets, surveillance cameras

Automotive & Industrial Systems

Automotive-use infotainment systems, electrical components, automotive mirrors, dry batteries, small lithium-ion batteries, automotive-use batteries, automation controls, electric motors, semiconductors, electronic components, electronic materials, LCD panels

Our Unchanging Management Philosophy and Sustainability

Our mission at Panasonic is to contribute to the advance of world culture by working to improve society through the products we produce and sell. Panasonic's Basic Management Objective clearly expresses the purpose of our business activities as well as the purpose of our existence.

This management philosophy has formed the foundation of all our business activities. As the key element of this philosophy, we have the basic concept of the "company as a public entity of society." All the management resources of a company-including the people, money, and commodities-all come from society. While the company engages in business activities using the resources entrusted by society, it also develops along with society, and so the company's activities must be transparent, fair, and just.

Basic Management Objective

Recognizing our responsibilities as industrialists, we will devote ourselves to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world.

The entire Panasonic Group takes care to ensure that our management and business activities are appropriate for "a public entity of society," and we will continue to implement this management philosophy through manufacturing as our primary business. This is also the very essence of the Panasonic Group's sustainability. As we stand at historical turning points in many areas today-society, economy, global environment-the Panasonic Group will continue to promote sustainability management globally and to contribute to the future of society and the world by proposing the lifestyles of tomorrow.



Konosuke Matsushita, Founder of Panasonic Corporation, My Management Philosophy (issued in June 1978)

"There is much discussion today regarding 'social responsibility,' but while the meaning of that concept can be wide-ranging depending on social conditions at a particular time, the fundamental social responsibility of a corporation, in any era, should be to improve society through its business activities. It is extremely important to manage all business activities based on this sense of mission."

Konosuke Matsushita,
Founder of Panasonic Corporation

The Panasonic Code of Conduct was formulated in 1992 as a specific guide to the practice of the Company's management philosophy. (Subsequently revised and updated, the 2016 edition is the current standard.)

<https://www.panasonic.com/global/corporate/management/code-of-conduct/list.html>

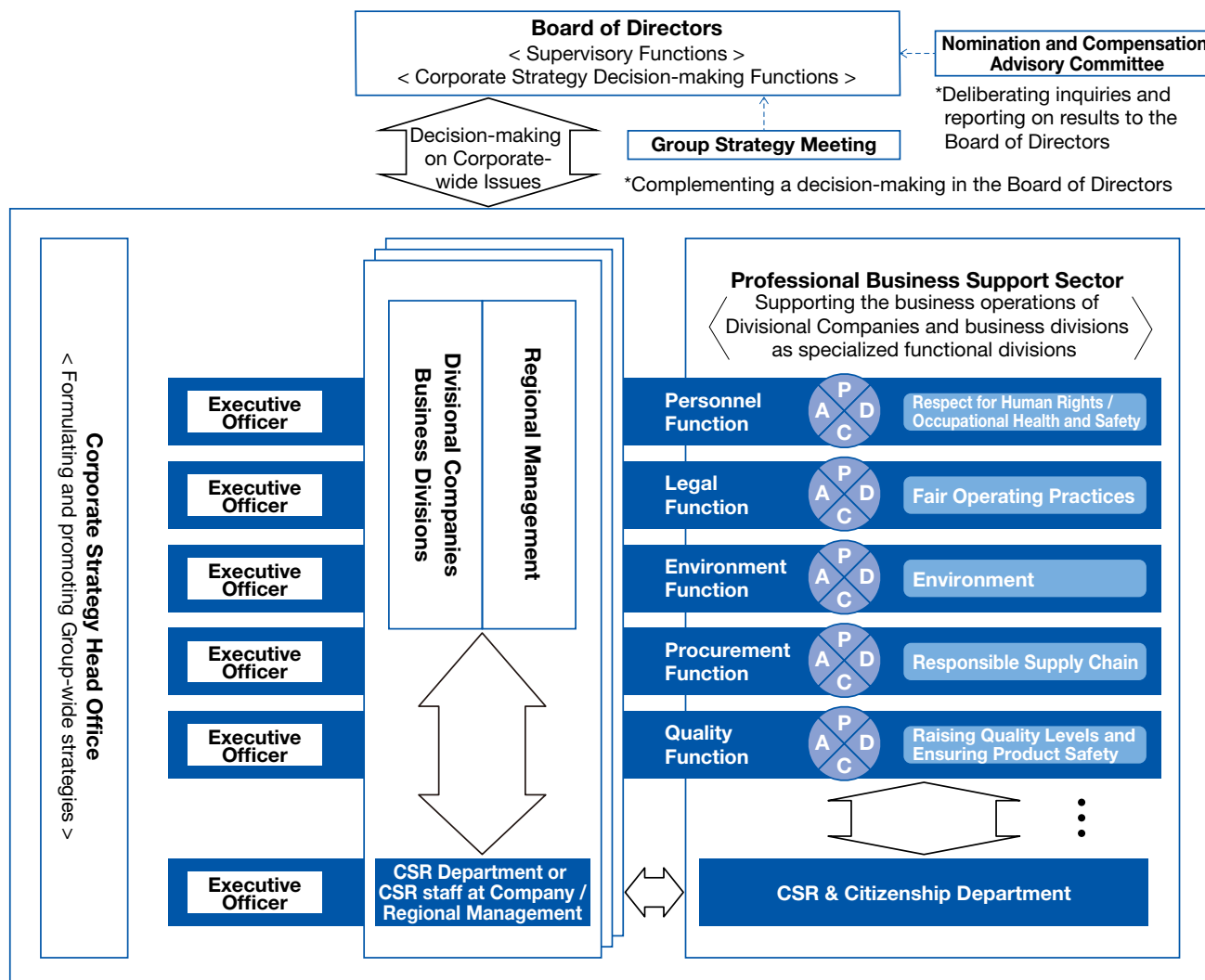
System for the Promotion of CSR Activities

Continuously and Organizationally Managing Issues and Progress Relating to Sustainability

For each area of activity relating to CSR—including human rights, fair operating practices, and the environment—Panasonic establishes executive officers and functional divisions. Each Company, business division, regional office, and functional division has created various group meetings and opportunities for stakeholder engagement, the results of which are incorporated into everyday activities. Using PDCA cycles, these Panasonic Group constituents monitor their progress and act autonomously.

For issues affecting the entire group for which there are strong demands from society for us to respond, including by contributing to climate change mitigation and adaptation, as well as to water-related issues, decisions are made at board of directors' meetings and at Group Strategy Meetings. Concerning issues that are deemed the most material, the company makes an analysis of and identifies such issues for each area of activity, and incorporates these important issues into its operational policies. For material issues in each area of activity and the background to their selection, please refer to the items on "Management System" for the respective area ("Policy" for the environmental area). Panasonic conducts its CSR activities with respect for worldwide guidelines and stakeholders' voices as a fundamental concept.

System for the Promotion of CSR Activities



Respecting Global Standards, Norms, Guidelines, and Initiatives

Panasonic conducts its business based on global standards, specifications, norms, guidelines, and various initiatives. These concepts are reflected in the Panasonic Code of Conduct and the Sustainability Policy that form the guidelines for the company's business activities.

Global Standards, Norms, Guidelines and Initiatives

Universal Declaration of Human Rights	ILO Fundamental Labour Standards
Organisation for Economic Co-operation and Development Guidelines for Multinational Enterprises	Guiding Principles on Business and Human Rights
Japan Business Federation (Keidanren) Charter of Corporate Behavior	Industry specific codes of conduct, such as the Responsible Business Alliance (RBA), and others
ISO 26000	Global Reporting Initiative (GRI) Standards

Promoting Initiatives Based on Dialogues with Stakeholders

Panasonic conducts dialogues with its wide range of stakeholders around the world—including customers, investors, suppliers, governments, industry bodies, NPOs, NGOs, local communities, and employees—on various aspects of its business. The company incorporates the opinions it receives into its business activities and product creation.

Major Stakeholders



Risk Management

Fundamental Stance

Panasonic's founder, Konosuke Matsushita, coined numerous aphorisms which are still used at the company: "Hardship now, pleasure later," "The source of our failures is within us," "There are signs before all things," and "Small things can create big problems; one must be alert to signs of change and act accordingly," among many others. Using these ideas as a cornerstone in its thinking, the company conducts groupwide risk management activities covering its operations around the world, with the aim of taking preemptive actions to eliminate "sources of failure"—that is any factors that could impede the accomplishment of business goals.

At Panasonic, risk management functions in parallel with the development and execution of management strategies. The company believes that by combining these two functions, it is better positioned to accomplish its business objectives and to increase its corporate value. Furthermore, by disclosing appropriate information concerning risks to the public, improving the transparency of its management, and reducing risks through preemptive measures, the company gives its customers and other stakeholders—as well as local communities and the public as a whole—greater confidence in its organization.

Role of Risk Management in Business Management

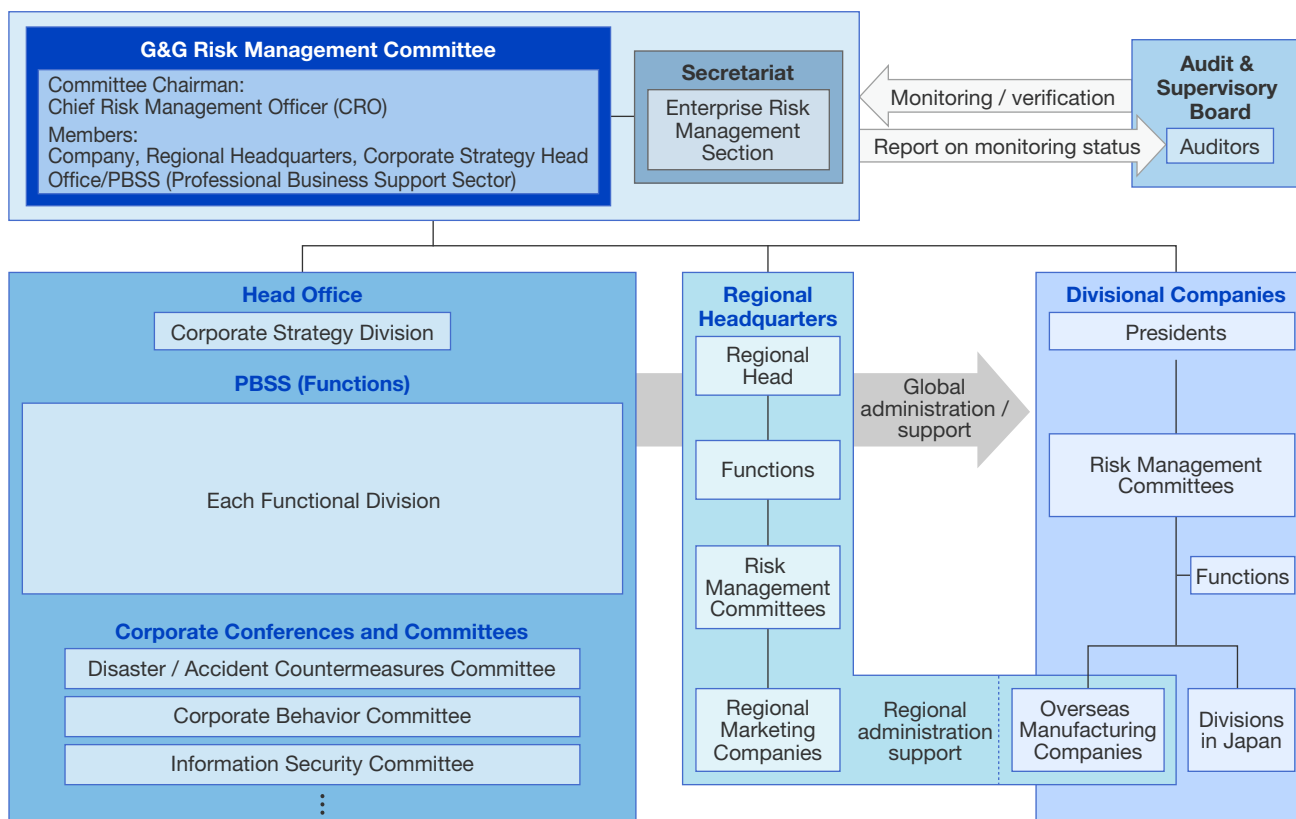


Organizational System

In April 2005, Panasonic established the Global & Group Risk Management Committee (G&G Risk Management Committee), which promotes risk management throughout the whole Panasonic Group. The Chief Risk Management Officer (CRO) , who is nominated from among Group management, chairs the committee whose membership consists of Company Chief Risk Officers (CROs) and managers from regional headquarters, the Corporate Strategy Head Office, and functional divisions. The Legal and Regulatory Affairs Department Enterprise Risk Management Section serves as the committee's secretariat.

The G&G Risk Management Committee determines what serious risks the entire company faces, as corporate major risks, based on the results of risk assessments conducted by each Company, affiliates, the Panasonic headquarters, and regional headquarters. This constitutes part of Panasonic's corporate compliance with legal mandates. The committee also monitors the progress of plans instituted by the Companies, affiliates, Panasonic headquarters, and regional headquarters for countering serious risks. As needed, it provides instructions to functional divisions and various committees, as well as assistance for Companies, affiliates, Panasonic headquarters, and regional headquarters, promoting continuous improvement. The activities of the G&G Risk Management Committee are reported regularly at Board Meetings, and are monitored and verified by the auditors.

Panasonic Global and Group Risk Management Promotion Framework



Basic Framework

Panasonic has three levels of management cycles for risk management: the G&G Risk Management Committee, four Panasonic Companies, and business divisions. Each year, an assessment of the impact of risks that could affect the business management of Companies and affiliated business divisions is undertaken using a single, global set of standards incorporating the potential impact on business operations, probability of risk occurring, and other factors. Steps are then taken to identify major Company risks and to ensure that appropriate countermeasures are implemented. Taking into consideration these major Company risks, the G&G Risk Management Committee considers and identifies those major risks that require attention from a Group-wide perspective. The G&G Risk Management Committee also monitors progress made concerning countermeasures as a means to improve and strengthen Group-wide risk management.

Basic Framework for Risk Management

	Plan		Do	Check	Action
G&G RM Committee	Risk assessment	Selecting corporate major risks and confirming measures	Promoting measures	Monitoring	Developing and promoting improvement measures
Companies/ Regional Headquarters	Risk assessment	Selecting Companies major risks and formulating measures	Promoting measures	Monitoring	Developing and promoting improvement measures
Divisions	Risk assessment	Selecting Divisions' major risks and formulating measures	Promoting measures	Monitoring	Developing and promoting improvement measures

• Corporate Major Risks for FY2019

Natural disasters (earthquakes, tsunamis, weather-related disasters, etc.)

Quality problem

Serious fraud (cartels, bribery of public officials, accounting fraud)

Cyberattacks

• Corporate Major Risks for FY2020

Natural disasters (earthquakes, tsunamis, weather-related disasters, etc.)

Quality problem

Serious fraud (cartels, bribery of public officials, accounting fraud)

Cyberattacks

Considerations on geopolitical risks in addition to strategic risks

Increasing Risk Sensitivity

The G&G Risk Management Committee systematically educates, and raises awareness among, Panasonic Group employees to ensure the thorough dissemination of knowledge of basic policies on risk management and for these to be put into practice. In addition to disseminating information to all employees through internal communications on its activities (selected corporate major risks and the progress of measures for handling those risks), the G&G Risk Management Committee provides annual seminars on risk assessment for managers in charge of risk management promotion. The committee aims to increase the level of skills for the effective conducting of risk assessments by explaining Panasonic's basic policy on risk management, "The Risk Management Guidelines."

In addition, to prevent risks from becoming even more severe when they have manifested and responses have been insufficient, the committee issues "Guidelines for Business Unit Directors on Responding to Risk Occurrences" to the business unit directors and ensures that these guidelines are put in place thoroughly. The committee improves the ability to handle risks on the ground overseas by providing training on the essentials of risk management, how to respond when risks have manifested, and related matters for newly appointed presidents of overseas affiliates and for employees who are about to be posted overseas.

The committee has organized hotlines as a mechanism for employees to report latent risks regarding matters such as compliance violations, various forms of workplace harassment, and improprieties in procurement processes. Employees and suppliers are able to report any perceived problem independently and at any time. The company has also established a mechanism by which all employees can independently report latent compliance-related risks in the workplace through annually conducted compliance awareness surveys. Feedback concerning reported risks is provided to each workplace, and these risks are dealt with.

Initiatives Relating to Business Continuity Management (BCM)

As a public entity of society, Panasonic has established as part of its management philosophy that it will contribute to the advancement of world culture by working to improve the quality of life of society through the products that it produces and sells. Since 2005, the company has been keenly aware of the necessity of activities relating to business continuity—one of the company's duties to society. The company thus engages in business continuity management (BCM), whose goal is to prevent a halt to the supply of products or the provision of services when contingencies such as disasters have occurred, or, in the rare event that service has halted, to restart operations as quickly as possible.

Specifically, if disasters or other incidents were to occur within our supply chain, they would impact the production or sales of our group companies. In the case of BtoB, this impact would also affect the production and sales of companies to which we deliver. This is why Panasonic believes it is critical to have BCM that includes our supply chain.

For this reason, we have conducted a hazard survey of various risks posed by natural disasters in countries around the world—earthquakes, floods, tropical depressions, tsunamis, naturally occurring fires, landslides, tornadoes, and volcanic eruptions. We have also shared these findings with each of the four Companies and have put priority-ranked measures in place, both within our own group and in our supply chain. We also work hard to obtain information on disasters and incidents and to respond swiftly in real time, both in order to confirm the safety of our employees and to provide uninterrupted supply to customer companies.

Forecasts indicate a high probability of a major earthquake in Japan, directly under the Tokyo metropolitan area or in the Nankai Trough, within the next 30 years. In response to these predictions, Panasonic has established a cross-Company task force, which is promoting earthquake resistance and disaster responses, based on the latest government damage predictions. The task force conducts annual groupwide disaster-preparedness training drills. It has established emergency response headquarters at every level of the group, within the four Companies, and within business divisions. These headquarters are intended to maintain and improve Panasonic's initial response capabilities—including confirmation of the safety of employees and reporting among different emergency response headquarters on the degree of damage.

In terms of procurement activities, we also manage the securing of replacement sourcing and the building up of inventory for emergencies, based on evaluations of the criticality and interchangeability of procured parts.

Concerning fires, the task force conducts periodic fire risk assessments, independent fire prevention checks, and fire prevention audits and strives to prevent similar accidents from occurring again by sharing case studies of dealing with fire-related accidents.

Examples of Initiatives Aimed at Addressing Social Issues (Relationship with SDGs)

Example Initiatives	Main Activities
Contributions to Creation of Clean Energy Society While reducing the amount of energy that we use, we are promoting the creation and utilization of clean energy and aiming to realize a society that is made more comfortable by clean energy. Looking ahead to 2050, Panasonic works toward the creation of energy which exceeds the amount of energy used.	<ul style="list-style-type: none"> • Reduction of energy used: Provision of products featuring high energy-saving performance and energy management systems, promotion of energy saving at our factories and offices • Expansion of energy created (increase in opportunities to utilize clean energy): Provision of battery systems for eco-cars, photovoltaic systems and fuel cells
Providing A Better Life in Entire Towns To resolve social issues and improve the value of entire regions, we are promoting the creation of towns that continue to develop through co-creation with partner companies, public organizations, universities and residents.	<ul style="list-style-type: none"> • Having established Sustainable Smart Towns (SSTs) in the cities of Fujisawa and Yokohama (Tsunashima) in Japan, we provide solutions that contribute to energy, security, mobility, wellness and community • We are now deploying the knowhow gained from having established the SSTs on a global basis, including in Europe and the Americas (for example in Denver in the United States), China, India and Southeast Asia
Contributions to Creation of Safe Transportation Societies We develop and provide solutions that make driving safer and more secure by combining highly developed technologies, for example in sensing, image recognition and communications, and conveying easily understood information to users	<ul style="list-style-type: none"> • Provision of Advanced Driver Assistance Systems (ADAS), for which we utilize camera/sensing technologies and image processing technology • Further safety improvements through the development of communications technology that focuses on connectivity, whereby cars and networks are interlinked • Provision of ITS solutions that support safety
Corporate Customers Drawing on the know-how amassed in the manufacturing industry as well as robotics technologies, we are working to innovate the production, transportation, and selling processes of customers, who confront such wide-ranging challenges as increasingly diverse and sophisticated consumer needs and a shortage of labor. At the same time, we are endeavoring to improve productivity on the operational front and continuously create value.	<ul style="list-style-type: none"> • Manufacturing: Improving productivity by visualizing real-time production frontline operating status and other data to secure improvements in a timely manner • Logistics: Working to increase efficiency and save labor in the fields of onsite warehousing, transportation, and delivery in the logistics industry, which is experiencing a sharp increase in items handled • Distribution: Co-developing new business models and services in the distribution industry based mainly on systems solutions that are supported by advanced products and ICT
Contributions to Creation of Recycling-Oriented Society As the duty of a manufacturer who uses a large volume of resources, we are promoting the reduction of the total resources used, product recycling, expanding the amount of recycled resources used in our products with the aim of contributing to the sustainable use of resources.	<ul style="list-style-type: none"> • To minimize total resources used, we promote reductions in the size and weight of our products • Globally promoting the recycling of home appliances that are no longer used • Providing products whose resources (including plastic and steel) are recovered from used products under the concept "Product to Product" • Reduction in amount of waste generated at factory, improvement of recycling rate
Contributions to Creation of Societies That Respect Human Rights As a corporate group that conducts business on a global basis, we are promoting initiatives aimed at respecting human rights and decent work that take entire supply chains into consideration.	<ul style="list-style-type: none"> • Initiatives to prevent forced labor, child labor • Protecting rights of workers, including foreign migrant workers • Occupational health and safety management
Contributions to Creating Societies in Which Diverse People Actively Participate While respecting people's diversity, we are working to become a corporate group where people who have diverse characters and abilities get together and actively participate through a variety of systems and efforts geared toward inclusion.	<ul style="list-style-type: none"> • Promotion of women's participation in management (including the holding of study groups for female employees, career advancement seminars for female managers) • Creation of workplaces that facilitate work regardless of employees' sexual orientation/gender identity • Creation of workplaces that enable employees with disabilities to actively participate
Being of Service through Corporate Citizenship Activities By providing our own products free of charge and by providing management expertise to organizations working on solving social issues, we aim to eliminate poverty and increase educational opportunities in emerging and developing countries, while we are helping to build a sustainable society in which each of the individuals can become independent.	<ul style="list-style-type: none"> • 100 Thousand Solar Lanterns Project / Off-grid Solutions Project / Bringing Light to People (helping to solve social problems in developing countries by solar power generation) • Panasonic NPO/NGO Support Fund for SDGs (support for strengthening the organizational capacity of NPOs and NGOs aiming to eliminate poverty) • Sustainable Seafood (protection of fisheries resources by the utilization of certified marine products)

SDGs to Which We Contribute	Detailed Information
 	<p>Sustainability Data Book 2019 Page 17 Panasonic Environment Vision 2050 Page 40 CO₂ Reduction</p> <p>Website Panasonic Environment Vision 2050 CO₂ Reduction</p>
       	<p>Website Fujisawa SST Tsunashima SST CityNOW Project</p>
 	<p>Website Bringing Personal Safety to Our Driving Society</p>
 	<p>Website Business Solutions (Japanese Version Only)</p>
	<p>Sustainability Data Book 2019 Page 53 Resources</p> <p>Website Resources Recycling</p>
	<p>Sustainability Data Book 2019 Page 89 Respect for Human Rights Page 118 Responsible Supply Chain</p> <p>Website Respect for Human Rights</p>
 	<p>Sustainability Data Book 2019 Pages 100 Human Resources Development and Promoting Diversity</p> <p>Website Human Resources Development and Promoting Diversity Inclusion & Diversity (Japanese Version Only)</p>
      	<p>Website 100 Thousand Solar Lanterns Project Off-grid Solutions Project Bringing Light to People Panasonic NPO/NGO Support Fund for SDGs (Japanese Version Only) Sustainable Seafood (Japanese Version Only)</p>

Environment: Policy



Contributing to society has been the management philosophy for Panasonic ever since its founding, and we have been taking measures against pollution since the 1970s. We announced the Environmental Statement in June 5, 1991, clarifying our approaches to address global environmental issues as a public entity of society. Since then we have been carrying out initiatives including matters on global warming prevention and resources recycling corporate-wide, aiming to attain a sustainable, safe, and secure society.

After the completion of the Green Plan 2010 which was established in 2001, the Green Plan 2018 was established in 2010 to clarify our targets for fiscal 2019 (from April 1, 2018 to March 31, 2019) as well as an action plan for all employees in order to achieve the targets. The Green Plan 2018 will continue our initiatives in five areas: CO₂ reduction, resources recycling, water, chemical substances, and biodiversity.

In 2013, the Panasonic Group introduced a new brand slogan, “A Better Life, A Better World,” aiming to realize a better life for all its customers, and is promoting environmental initiatives as an important element in achieving that goal. Based on this, the Green Plan 2018 was revised in 2013, followed by the newly-established Environmental Action Guideline. Furthermore, in response to rising demand by the society for CO₂ reductions following the 21st session of the Conference of the Parties (COP21) of the United Nations Conference on Climate Change, and to the need to make changes to our business structure, including growth in the automotive and B2B businesses, the Plan was revised again in 2016.

Additionally, we formulated the Environment Vision 2050 in 2017 to achieve “a better life” and “a sustainable global environment,” aiming for a society with clean energy and a more comfortable lifestyle. Under the Vision, through the development of products, technologies, and solutions relating to energy creation, storage, saving, and management, Panasonic will work towards creation and more efficient utilization of energy which exceeds the amount of energy used.

Environmental Policy

Environmental Statement

Fully aware that humankind has a special responsibility to respect and preserve the delicate balance of nature, we at Panasonic acknowledge our obligation to maintain and nurture the ecology of this planet. Accordingly, we pledge ourselves to the prudent, sustainable use of the earth's resources and the protection of the natural environment while we strive to fulfill our corporate mission of contributing to enhanced prosperity for all.

Environmental Action Guideline

Toward achieving a sustainable society, we will strive to develop our business through the creation of environmental value. For this purpose, we will address environmental challenges through our business activities and will expand our environmental initiatives based on collaboration with stakeholders.

(1) Initiatives to address environmental challenges

- We will reduce CO₂ emissions through production activities and products/services.
- We will work to efficiently use resources by pursuing Recycling-oriented Manufacturing.
- We will conserve water resources through efficient use of water and prevention of contamination.
- We will reduce the impact of chemical substances on human health and the environment.
- We will consider and conserve biodiversity.

(2) Initiatives based on collaboration with stakeholders

- We will provide products and services that create environmental value for customers with our technical strengths.
- We will expand our environmental contributions with our partner companies.
- We will deepen communications with local communities and work as a team to address environmental challenges.

Environmental Action Plan

We strive to grow and develop our business through the creation of environmental value for customers with our technical strengths while each and every employee follows the Environmental Policy to address environmental challenges. Therefore, collaboration with stakeholders including our partners is essential. We will continue to sincerely work on environmental sustainability management through further collaboration with stakeholders.

Environmental Action Plan “Green Plan 2018”

The Green Plan 2018 is focused on maximizing the size of our contribution in reducing CO₂ emissions through products and services (see pages 40-41), which is an indicator that represents our efforts for CO₂ reduction, as well as on steady and continual reduction in CO₂ emissions from our factories to contribute to making net CO₂ emissions from the entire community peak and decline thereafter at an earlier timing.

Panasonic has introduced its own indicator called “the size of contribution in reducing CO₂ emissions” to strengthen CO₂ reduction efforts through products and services. The size of contribution in reducing CO₂ emissions had been disclosed from the fiscal 2011 results to represent the volume of our direct contribution to CO₂ emissions reduction by cutting down power consumption during product use through energy-saving designs for our key consumer products. Now, we are also engaged in business development in the areas of housing, automotive, and B2B. Accordingly, more of our products are being integrated into finished goods and services of other companies, contributing to their energy-saving performances. For this reason, we have defined the CO₂ emissions reduction effect in these business areas as “the size of indirect contribution to reduction,” and disclosed the figures from the fiscal 2015 results. In addition, the revised Green Plan 2018 clearly stated the target amount of CO₂ reduction to clarify our contribution in these areas.

Furthermore, we define our products and services that accelerate the transition to a sustainable society, such as energy-saving performances, as Strategic Green Products (GPs). Of these, we call the products that deliver the industry's top class

environmental performance “Super GPs,” and are actively working for business expansion and wider use.

In production activities, exhaustive energy-saving measures have been implemented in all factories worldwide, pushing for further CO₂ emissions reduction in our production activities. As for resources recycling, we promote higher recycled resource utilization ratio and factory waste recycling rate, as well as create more resources recycling-oriented products to materialize recycling-oriented manufacturing.

In addition, the revised Green Plan 2018 has set new targets such as 100% completion of water risk assessments for our factories. It also clearly states zero violation of laws and regulations related to environmental pollution by factories, and products.

Further, we have expanded the coverage of our eco-conscious products and business to B2B products, services, and solutions, while inheriting our conventional business strengths in the area of home appliances. We have been working to create environmental value for customers, towards concrete targets set in accordance with our updated Green Plan 2018. We also have been expanding our environmental initiative beyond Panasonic to cover the entire supply chain by deepening alliances with various partners to engender a positive effect across society.

By continuing such efforts over the past nine years since 2010, we have achieved almost all the targets we set out in Green Plan 2018.

Environmental Action Plan “Green Plan 2018” and Results

Priority issues	Targets for 2018	Results in FY2019 (Numerical)	Pages
(1) Initiatives to address environmental challenges			
CO ₂ Reduction	• Maximize the size of contribution in reducing CO ₂ emissions through products and services ^{*1} (Size of contribution in reducing CO ₂ emissions through products and services: 55million tons)	69.13 million tons	P41
	• Reduce CO ₂ emissions per basic unit in factories (Basic unit: -5% or more compared with 2013)	14%	P46
	• Expand the use of renewable energy (In-house renewable energy adoption: 10,000 MWh or more)	25,000 MWh	P48
	• Reduce CO ₂ emissions per basic unit in logistics (Basic unit of weight ^{*2} : -5% or more compared to 2013 [in Japan])	2.6%	P50
	• Increase the Business of Energy Conservation Support Service for the Entire Factory	P47	
Resources Recycling	• Reduce total resources used and increase recycled resources used (Recycled resin consumption: 45,000 tons or more (2014-2018 total))	79,000 tons	P54
	• Achieve “zero waste emission” from production activities at sites both in and outside Japan (Factory waste recycling rate ^{*3} : 99% or more)	99.1%	P59
	• Expand the creation of Resources Recycling-oriented Products	P56-57	
Water	• Increase products to save water and contribute to water recycling	P65	
	• Reduce water consumption in production activities and increase the use of recycled water	P66	
	• Water risk assessment of factories: Complete 100%	100%	P65
Chemical Substances	• Develop alternative technologies for environmentally hazardous substances	P70-72	
	• Discontinue the use of substitutable environmentally hazardous substances in products	P71-72	
	• Minimize the release of environmentally hazardous substances from factories	P72-73	
Biodiversity	• Increase products contributing to biodiversity conservation	P77	
	• Use green areas in business divisions to contribute to biodiversity conservation	P75-76	
	• Promote green procurement for wood toward sustainable utilization of forest resources	P76	
Compliance	• Compliance with laws and regulations (Factories and products); Zero violations	2 violations	P25

(2) Initiatives based on collaboration with stakeholders

Customers	• Offering products, services, and solutions that improve people's lifestyles, reduce burden on the environment, and help to make our society more sustainable			
	Improvement of energy-saving performance of major consumer electronics products ^{*4}	Energy-saving performance improvement: 35% (compared to 2005)	45%	P42
	Dissemination of household fuel cells	Total power generation: 440,000 MWh (2010-2018)	460,000 MWh	P43
	Dissemination of LED lighting (Residential and non-residential buildings)	LED lighting sales ratio: 75%	77%	P42
	Dissemination of photovoltaic power generation systems	Total power generation: 5.0 million MWh (2012-2018)	5.40 million MWh	P43
	Air quality improvement in living environment (air purification)	Amount of air with improved quality: equivalent to 14 million rooms (2015-2018)	14.06 million rooms	P37
	Dissemination of Net Zero Energy Houses (ZEH)	ZEH ^{*5} ratio to all detached houses: 22%	36%	P44
	Development of smart cities	Start construction/sales: 3 sites (870 lots) (2015-2018) ^{*7}	3 sites (607 lots)	P44
	Increasing automotive battery supply	Battery supply meeting the demand: 200% (compared to 2014)	268%	P43
	Dissemination of eco-conscious B2B equipment ^{*6}	Expansion of sales in Strategic GPs: 120% (compared to 2015)	141%	P36
	• Promote 'eco' marketing firmly rooted in each region and country		website ^{*8}	
Supply Chain	• Increase environmental contributions through the promotion of Green Procurement with suppliers (Establish environmental management systems and address five major environmental challenges)		P80	
	• Promote the ECO-VC (Value Creation) Activity aimed at simultaneously achieving environmental contributions and cost reductions		P81	
Local Communities	• Participate in presenting proposals for environmental policies by the government, aimed at the creation of a sustainable society		P84	
	• Implement initiatives contributing to local communities and educate children who will be the major players in the next generation (Promote Panasonic Eco Relay for Sustainable Earth) (Provide environmental education to 3 million children or more around the world by 2018)		2.934 million children ^{*9}	website ^{*10}

*1 The size of contribution in reducing CO₂ emissions is defined as the amount achieved by deducting the actual emissions from the amount that would have been emitted without the improvements by the energy-saving performance of our products and productivity from fiscal 2006, and this amount is combined with the emission reduction resulting from power generation by energy-creating products. This total of size of direct contribution through our key consumer products, and indirect contribution through our main housing, automotive, and B2B businesses. (see pages 36-37)

*2 CO₂ emissions per basic unit in logistics = CO₂ emissions in logistics/Transportation weight

*3 Factory waste recycling rate = Amount of resources recycled/ (Amount of resources recycled + Amount of landfill)

*4 Air conditioners, refrigerators, TVs, washing machines, etc.

*5 A ZEH is a house designed to produce net-zero or nearly zero consumption of primary energy per year by improving the energy-saving performance of the housing structure and equipment and utilizing energy efficient means such as renewable energy. The Japanese government aims to make ZEH as the standard for new houses by 2020. Including Nearly ZEH (A house that reduces its primary energy consumption per year by 75% to less than 100% by utilizing energy efficient means such as renewable energy).

*6 Audio-visual solutions and mobility solutions equipment (such as laptop PCs) etc.

*7 Smart cities constructed and sold by Panasonic Homes Co., Ltd.

*8 Environmental sustainability management across the world

<https://www.panasonic.com/global/corporate/sustainability/eco/globalprojects.html>

*9 Cumulative total from 2009 to 2018. Results for 2018 alone is 49,000.

*10 Contribution to Local Communities and Education for the Next Generation

<https://www.panasonic.com/global/corporate/sustainability/eco/community.html>

Environment: Panasonic Environment Vision 2050

Panasonic Environment Vision 2050

While the global attention being paid to the social issues surrounding the environment and energy is intensifying, the focus on the Sustainable Development Goals (SDGs) set by the United Nations and the Paris Agreement—through which a number of countries allied together to work towards global warming prevention—indicates the seriousness of these issues worldwide.

Also, in the World Economic Forum held in January 2018, where political and economic leaders from across the world gathered, the issues concerning the environment and energy, such as climate change and natural disasters, occupied the major part of the list of the most significant risks. Based upon the results of these discussions, the world leaders initiated actions that could lead to fundamental solutions.

Aware that society's expectations of the role of corporations in resolving these global social issues is rising, Panasonic formulated the Panasonic Environment Vision 2050 in 2017 to determine our own initiatives in responding to the expectations and requests from our stakeholders.

The Environment Vision 2050 means to work towards creation and more efficient utilization of energy which exceeds the amount of energy used, aiming for a society with clean energy and a more comfortable lifestyle.

Currently, relative to the amount of energy used (energy used in our operation, and energy used by products in consumer use), the amount of energy created (clean energy that is created and/or made available by products and services by Panasonic, such as photovoltaic power generation systems, storage batteries, and energy solutions) is merely one-tenth. From now on, for the energy used, we will develop technologies for improving energy-saving performances of products and innovate manufacturing processes to reduce the amount of energy consumption. For the energy created, we will expand energy-creation and storage businesses as well as contribute to new social systems such as a hydrogen society to increase the use of clean energy.

Through these efforts, Panasonic will endeavor to make the “energy created” exceed the “energy used” toward the year 2050.

Panasonic Environment Vision 2050

To achieve “a better life” and “a sustainable global environment,”
Panasonic will work towards
creation and more efficient utilization of energy
which exceeds the amount of energy used,
aiming for a society with clean energy and a more comfortable lifestyle.

Energy used < Energy created

Panasonic

Activities for Achieving the Environment Vision 2050

In order to realize the Environment Vision 2050, we promote two major activities.

One of the initiatives to realize the Environment Vision 2050 is “creating a safe and secure society with clean energy.” To be specific, we will work to provide eco-conscious and smart living spaces as well as contribute to eco-conscious and smart travel and transport.

Another initiative is “promoting businesses aiming for a sustainable society.” We will work to promote effective utilization of resources as well as promote the creation of factories with zero CO₂ emissions.

1. Panasonic will Create a Safe and Secure Society with Clean Energy

The eco-conscious and smart living spaces that Panasonic strives to provide means living spaces that create electricity and/or hydrogen using clean energy and then storing/transporting the created energy. Such living spaces offer a safe and secure life with clean energy enabled through appropriate energy management for energy-saving equipment and buildings with high insulation performances. Here, living spaces refer to not only homes of individuals but also working or learning spaces, and spaces for living or leisure. It refers to all spaces relating to people’s lives.

In order to realize this, Panasonic will work on development of environmental technologies from the four viewpoints of energy creation, energy saving, energy storage, and energy management.

As for energy creation, in particular, we will develop a next-generation solar cell technology and fuel cell technologies that use hydrogen derived from clean energy as energy source. At the same time, for energy storage, we will work on technologies relating to storing and/or supplying hydrogen, and storage batteries. These will expand the possibilities of utilizing clean energy anywhere in the society.

We will also work on developing environmental technologies to realize eco-conscious and smart travel and transport. With further development in technology of storage battery systems for eco-cars such as electric vehicles, we will contribute to promoting the shift from fossil fuels to clean energy. Additionally, for a safe mobility society, we will work on further development of support systems for autonomous driving and utilize our IoT technology etc. to realize next-generation logistics/transport solutions that help arteries in the society flow more smoothly.

As an example of the utilization of clean energy in all aspects of society, a study on projects involving experiments on demonstrations of the use of hydrogen commenced in 2018 to build a future carbon-free society. Specifically, the H₂ Kusatsu Farm (hydrogen station) set up at the Kusatsu Factory will be used to create CO₂-free hydrogen with photovoltaic power generation, used as a source of renewable energy, via a water electrolysis hydrogen production device, and high-pressure compression of the hydrogen for supply to fuel-cell-powered forklifts. The hydrogen supply is to be used for logistics within the Factory starting in FY2019.



H₂ Kusatsu Farm

2. Panasonic will Promote Businesses Aiming for a Sustainable Society

As efforts to promote effective utilization of resources, Panasonic will aim for sustainable use of resources through the reuse of parts and materials and product recycling.

To create factories with zero CO₂ emissions, we have switched lighting to LEDs, completing the transition by the end of fiscal 2019¹. Furthermore, FEMS² and other innovative energy-saving technologies will be introduced to promote smart manufacturing. In activities to expand energy creation, photovoltaic power generation systems will be installed by fiscal 2021 at sites where system implementation is viable.

As prior examples of our efforts for creating zero-CO₂ factories, two factories in Japan and Europe at Panasonic Eco Technology Center Co., Ltd. (PETEC), a home appliance recycling company, and Panasonic Energy Belgium N.V. (PECBE), which produces dry batteries, have become the first zero-CO₂ factories for Panasonic.



PETEC

This was achieved by the two factories by installing renewable energy power generation systems such as photovoltaic power generation system and wind power generation system, procuring 100% renewable electricity, and utilizing carbon credits to offset CO₂ emissions from fossil fuels^{*3}.

Additionally, all three factories under Panasonic do Brazil (PANABRAS) in Extrema, Sao Jose and Manaus, that became the first factories in Panasonic to achieve manufacturing with 100% renewable electricity in 2016, have also become the first zero-CO₂ factories on the American continent for Panasonic by reducing the use of fossil fuels and utilizing of carbon credits, in addition to procurement of 100% renewable electricity.

By making these factories the leading model of the company's zero-CO₂ factories, and by gradually expanding the activities to global plants, Panasonic will steadily promote production that does not emit CO₂, aiming for a sustainable society as envisioned by the "Environment Vision 2050."

*1 Installable sites

*2 Factory Energy Management System

*3 Press release dated February 28, 2019

Panasonic Realizes Its First Zero-CO₂ Factories at Two Sites in Japan and Europe under 'Panasonic Environment Vision 2050'

<https://news.panasonic.com/global/press/data/2019/02/en190228-2/en190228-2.html>



Wind power generation system in PECBE



Extrema factory in PANABRAS

Environmental Action Plan “Green Plan 2021”

Upon completing the targets we set out in Green Plan 2018, we have newly created Green Plan 2021 towards realizing Panasonic Environment Vision 2050, which aims at building a society based on clean energy and a more comfortable lifestyle in order to achieve both a better life and a sustainable global environment.

Green Plan 2021 sets targets that focus on “energy” and “resources,” which are the materiality to address to realize Environment Vision 2050. We also set out integrated and simplified targets as our continuing efforts for issues other than the above material issues, based on the Environmental Action Guidelines while taking account of environmental challenges and understanding society. We plan to direct our efforts to make “energy created” exceed “energy used” towards the year 2050, or even earlier.

To this end, in terms of “energy”, we will “increase amount of energy created” and “increase the size of contribution toward energy savings” in the area of products and services.

The size of contribution toward energy savings through our products and services is an index to indicate the amount of our efforts toward energy savings when our products and services are used by customers. We aim to increase the value of this index. The initiative to increase this index is similar to our aims concerning the size of contribution in reducing CO₂ emissions through our products and services (see pages 40-43), which indicates the amount of our efforts to reduce CO₂ emissions in order to bring forward the peak of total CO₂ emissions in whole society. When the size of contribution in reducing energy consumption is converted to CO₂ emissions, it can be transferred to the size of contribution in reducing such emissions.

As a means of “energy,” Panasonic factories will undertake “promoting zero-CO₂ model factories,” “increasing the use of renewable energy,” and “promoting energy efficiency in production.”

In our production activities, we are currently working to further reduce energy consumption and CO₂ emissions by employing thorough energy-saving measures in all factories across the globe.

In terms of “resource,” we will “create circular economy business models,” “reduce resources consumption and increase the use of sustainable materials,” and “achieve Zero Waste Emissions from factories globally.”

As other environmental sustainability goals, We will strive to take initiatives in solving issues concerning water, chemical substances, and biodiversity, as well as in promotion of community contributions and education for the next-generation, and to prevent pollution in factories and thoroughly comply with product-related laws and regulations.

To spread a positive influence across society, we are accelerating our environmental efforts by rolling them out beyond Panasonic across the entire supply chain through close collaboration with a variety of partners.

We will steadily put this environmental action plan into practice to achieve the set targets by fiscal 2022.

Environmental Action Plan “Green Plan 2021”

Category		2021 targets		
Material Issues	Energy	Increase the ratio of total energy created to total energy used		
		Total energy created*1 : total energy used*2 = 1 : 8.5		
		Products & Services	Increase amount of energy created	Amount of energy created*1: 30,000 GWh or more
			Increase the size of contribution toward energy savings through products and services	Size of contribution toward energy savings through products and services*3: Direct*4: 25,000 GWh or more Indirect*5: 2,000 GWh or more
			Expand energy creation businesses	
			Expand energy efficient products and services business, focusing on products and services utilizing IoT/AI	
		Factories	Promote zero-CO2 model factories - Establish model factory using advanced hydrogen technology - Establish at least one zero-CO2 model factory in each region*6	
			Increase the use of renewable energy through the generation of renewable energy on-site and procurement of renewable energy	Renewable energy generated on our sites*7: 40,000 MWh or more
	Promote energy efficiency in production - Reduce energy loss through IoT - Improve productivity through manufacturing innovation			
	Resources	Create circular economy business models		
		Analysis of the development of circular economy options for existing businesses: 100%		
Reduce resource consumption and increase the use of sustainable materials				
Recycled resin usage*8: 42,000 tons or more (2019 to 2021 total)				
Achieve Zero Waste Emissions from factories globally				
Factory waste recycling rate*9: 99 % or more				
Other environmental sustainability goals	Water	Reduce water consumption in production activities		
	Chemical substances	Minimize the environmental impact of chemical substances usage in production activities and products		
	Biodiversity	Promote procurement of sustainable materials		
	Local communities	Promote environmental initiatives to contribute to local communities and educate the next generation		
	Compliance	Ensure compliance with environmental laws and regulations		

*1 Clean energy that is created/efficiently utilized in business activities as well as for products/services made through such activities.

*2 Energy that is used in business activities as well as for products/services made through such activities.

*3 The amount of energy achieved by deducting the actual emissions from the amount that would have been emitted without the improvements by the energy-saving performance of our products.

*4 Size of contribution by our major products.

*5 Size of contribution by our solutions, or materials and components built into products of other companies.

*6 Five areas, covering: Japan; China & Northeast Asia; Southeast Asia & Oceania, India & South Asia, and Middle East & Africa; North America and Latin America; and Europe & CIS.

*7 Usage in Panasonic's sites of renewable energy (solar, wind, biomass, etc.) generated by renewable power generating facilities in Panasonic's sites.

*8 Mass of recycled materials contained in the recycled resin used in our products.

*9 Amount of resources recycled/(Amount of resources recycled + Amount of landfill).



Environment: Environmental Governance

Promoting Corporate-wide Environmental Sustainability Management Centering on PDCA

Striving for the creation of a sustainable society, we are following our initiative under the Chief Quality Officer (CQO) (Hiroto Uehara Executive Officer, as of April 2019) and working to fulfill our corporate social responsibility through eco-conscious business activities as well as resolve environmental issues such as climate change, resources, water, etc. through our products and services. The Panasonic Group formulates its annual environmental management policy in accordance with the Group management policy, Environment Vision 2050, Environmental Action Guidelines, and the environmental action plan (Green Plan). The annual environmental policy is shared across the entire organization through the Operation Policy Meeting led by the CQO, whose authority is delegated by the president. Companies and business divisions establish their own environmental policies and targets based on this Group policy, and plan and promote their activities accordingly.

The progress and results of activities for the key environmental targets we pledged to society to achieve under the Green Plan 2018 and the Green Plan 2021, as well as Environment Vision 2050, are examined in the Group Strategy Meeting. This meeting is attended by the presidents of the Panasonic Corporation and the Companies along with other members of senior management, for reviews of policy directions, issues, and, particularly important measures to be adopted.

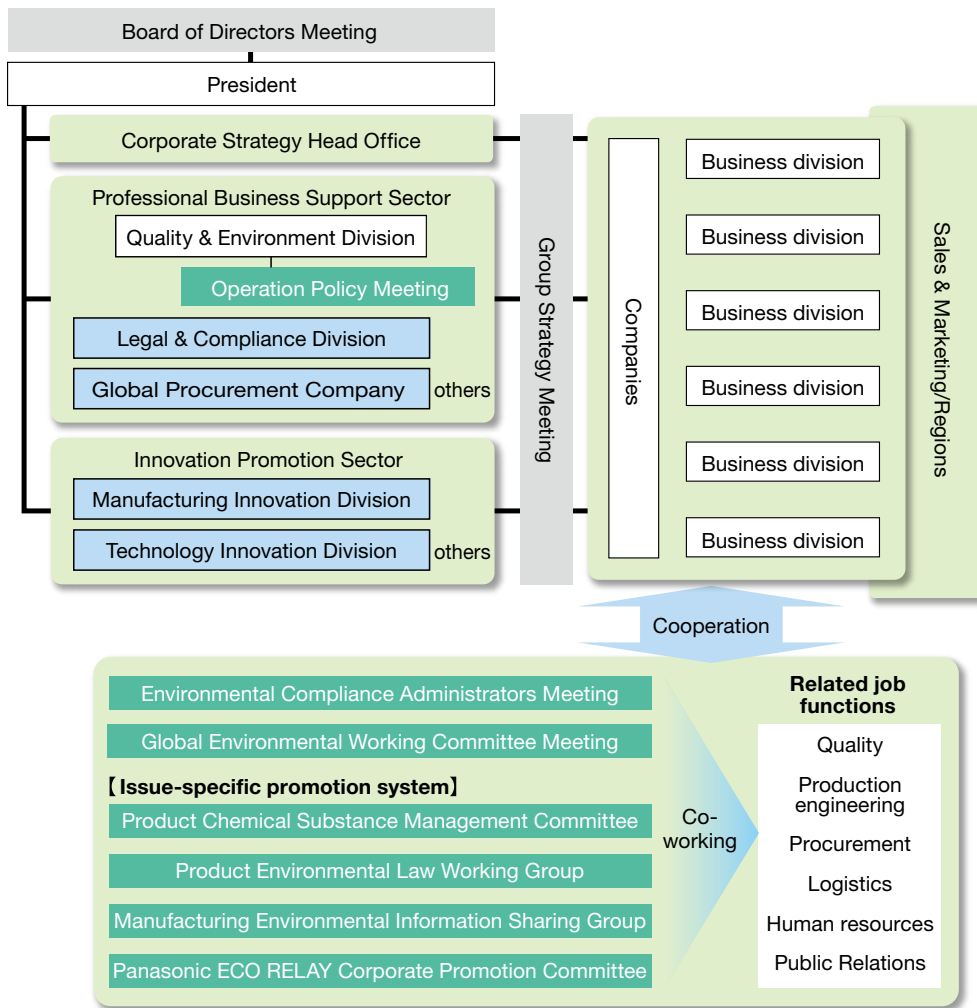
In fiscal 2017, the Environmental Compliance Administrators Meeting (held twice a year) attended by the executive officer in charge of environmental affairs and environmental compliance administrators at the Companies was newly established to accelerate decision-making for corporate-wide action in the area of the environment. In addition, as has been the way until now, successful practices, challenges in implementation, and approaches to mid-term to long-term targets at Companies and various regions are shared and discussed at the Global Environmental Working Committee Meeting, held twice a year, which consists of environmental compliance administrators and environmental operation administrators at Companies and Regional Headquarters, seeking to enhance the level of corporate-wide environmental sustainability management through the PDCA management cycle.

In principle, results of activities relevant to environmental targets are gathered and assessed on a monthly basis as environmental performance data, to identify the achievements, and additional measures are taken as needed. Feedback of annual performance data is given internally and disclosed externally after review, onsite audits, and independent assurance by a third-party. Moreover, reviews and feedback from stakeholders are utilized in subsequent measures to ensure further continuous improvement.

Promotion System for Environmental Sustainability Management

To implement key measures across the entire company, theme-specific committees and working groups are formed to set a promotional structure that enables coordinated action across Companies, related job functions, and Regional Headquarters outside Japan. Specific examples include the Product Chemical Substance Management Committee which deliberates and ensures the implementation of chemical substance management guidelines, and the Product Environmental Law Working Group which engages in information sharing regarding product-related laws and regulations and reviews the actions to be taken.

Promotion System of Environmental Sustainability Management in Fiscal 2020



Environment: Environmental Management Systems

Environmental Sustainability Management Founded on Environmental Management Systems (EMS)

As the foundation of environmental sustainability management, Panasonic established EMS in all of our manufacturing sites across the world in fiscal 1999, and has continued to have the sites ISO14001 certified since then.

In order to further reinforce environmental sustainability management globally, we have established EMS in all our sites including non-manufacturing sites across the world, and these sites have certified ISO14001 in principle. In October 2011, we published the Environmental Management System Establishment Guidelines that summarize EMS concepts for different business forms such as manufacturing, sales and services, and head office administration, aiming to build EMS in accordance with the Basic Rules for Environmental Affairs on a global scale. Based on the Guidelines, we have practiced Environmental Sustainability Management to achieve the targets set in the Green Plan 2018.

With the ISO14001 updated in 2015, integration of environmental and business activities, and broader view activities have been required. We implemented activities to improve members' understanding level, through study meetings for transforming to the updated situation, trainings for internal audit, information sharing relevant information with advanced Business Division(BD)s, and provision of dedicated self-learning documents for upper management, per respective Company or BD. Thereby, we completed the transformation by Sept. 2018, due date.



Training session for internal auditors

Acquired status of the ISO 14001 Certification (as of end of March 2019)

Region	Number of certifications obtained*1		Total
	Manufacturing	Non-manufacturing	
Japan	14	12	26
North America & Latin America	16	0	16
Europe & CIS	11	2	13
Southeast Asia, & Oceania	41	9	50
China & Northeast Asia	53	0	53
India, South Asia, Middle East & Africa	8	2	10
Total	143	25	168

*1 The above number includes the one for integrated certification. The number of acquired status varies every year depending on the situation such as reorganization or closure of BDs, or promotion to acquire integrated certification.

► Obtaining of ISO 14001 Certification

https://www.panasonic.com/jp/corporate/sustainability/pdf/eco_isolist2018.pdf

Environment: Environmental Risk Management



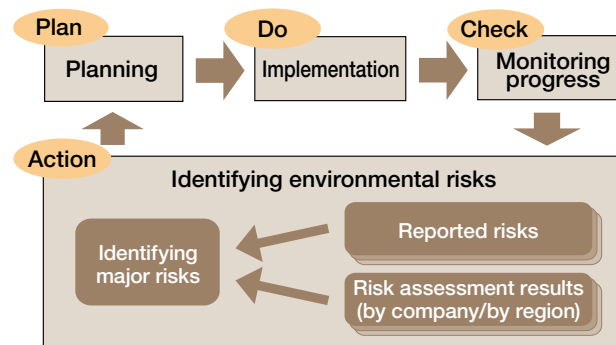
Group-wide Systems to Manage Environmental Risks

As a tool to continuously reduce environmental risks, Panasonic has established an Environmental Risk Management System specific to each Company. In accordance with the basic risk management policy for all Companies (see page 8), we promote (1) identification of environmental risks and group-wide risk management each year, and (2) ensuring quick responses to reported environmental risks.

To identify environmental risks and implement the management system, environmental risks are identified for each Company and for each region in the world each year. From these risks, environmental risks on a group-wide level are selected. The risks that show a high level of frequency or seriously impact business management are designated as major risks and prioritized in planning and executing risk-reducing measures. These measures are implemented for each major risk, and progress is monitored and followed up on a quarterly basis in the PDCA cycle.

When an environmental risk is found, the relevant Company, related job functions, and Regional Headquarters collaborate to promptly implement emergency measures and recurrence prevention measures adapted to the risk level. Also, the management flow in case of risk discovery is standardized to prevent the occurrence of secondary risks as a result of confusion.

Classification of Environmental Risks and Countermeasure Implementation



Environmental Compliance Management at Factories

Panasonic manages its environmental systems in full compliance with laws and regulations. We regularly measure emissions of gas, wastewater, noise, odor, etc., and introduce preventative measures for cases that may lead to serious violations.

Furthermore, key human resources are developed for information sharing among the Companies/Business Divisions, environment-related job functions, and Regional Headquarters, to ensure exhaustive compliance with legislation related to factory environment management in respective countries where Panasonic manufacturing sites are located. Specifically, activities to share information as well as specialized training are conducted for factory management officers in charge of the management of chemical substances, waste, wastewater, and exhaust gas, either by country or by region in Japan, Europe, China, and Southeast Asia. Field surveys on laws and regulations using checklists were conducted on a global scale to confirm comprehensive implementation of environmental compliance, and we also conducted verification of the effectiveness of various measures.

However, in fiscal 2018, we discovered five violations of environment-related legislation across the world. These cases were promptly reported to the respective authorities along with implementation of countermeasures against the causes of such violations and we have already corrected the issues in order to meet the standard requirements. We continue our efforts for thorough legal compliance and the prevention of any recurrence.

Case of Violations of Laws and Ordinances (e.g. excess of the standard legal level) in Fiscal 2019

Region	Environmental pollution					Other	Total
	Air	Water quality	Noise	Odor	Waste	Permission / Approval	
Global (including Japan)	1	1	0	0	0	0	2
(Japan)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Compliance with Environmental Regulations Relating to Products

Panasonic manages compliance with regulations relating to its products through a quality management system. Compliance with regulations is ensured with our Products Assessment System, a mechanism which incorporates environmental performance targets such as customer demands for environmental performance, the energy efficiency labeling program, and third-party certification systems, as well as evaluation of compliance with regulations on chemical substance management, energy efficiency, 3R, and recycling, to (1) set up overview for achieving targets at the product planning stage, (2) define concrete targets at the design planning stage and confirm compliance at the design stage, (3) conduct interim assessment at the design completion stage, and (4) conduct final assessment at the mass production decision-making stage. Additionally, incoming inspections are being conducted on a regular basis for purchased components to ensure compliance with the RoHS Regulations which regulates the content of six hazardous substances (see page 67 “Chemical Substances Management”).

However, in fiscal 2019, two regulatory violation related to chemical substance management occurred, one in Japan and the other overseas. We will tighten the criteria to judge potential inclusion of regulated substances to ensure thorough compliance with the laws and regulations.

Measures Against Soil and Groundwater Contamination and Air Pollution

In the latter half of the 1980s, soil and groundwater contamination due to chlorinated organic solvents was detected at some Panasonic sites. In response, we have conducted anti-contamination activities across the company. Specifically in 1991 we created the Manual for Preventing Contamination of Soil and Groundwater and began conducting necessary surveys and measures. In 1995 we discontinued the use of chlorinated organic solvents, and in 1999 created Guidelines on the Prevention of Environmental Pollution to ensure there would be no recurrence of similar problems at our sites. In fiscal 2003 we began enhancing our surveys and measures to comply with relevant laws and regulations, including the Soil Contamination Countermeasures Act, which was enforced in Japan in 2003, and in fiscal 2004 started implementing measures to place all our bases across the globe under management supervision with regard to soil and groundwater.

Specifically, we conduct onsite inspections and interviews at the bases, in addition to surveying their use of VOCs and heavy metals. Furthermore, we implement surface soil surveys within the premises. For the sites where contamination was detected beyond the regulatory pollution standards, we conduct detailed borehole surveys to identify the boundaries of the contaminated areas and take remedial measures.

As a result of these efforts, we were able to place all our bases under management supervision in 2008. Furthermore, in fiscal 2011, the management supervision scheme was purpose-specifically reorganized and reinforced to establish a new management supervision scheme. With the highest priority given to preventing dispersion of pollution beyond our premises, this new scheme is implemented across all operating sites to further improve the level of measures against contamination. In fiscal 2017, we reviewed the new management supervision guidelines in response to the amended Soil Contamination Countermeasures Act in Japan.

Soil and Groundwater Risk Management Policy

Conditions subject to management supervision	Procedure
Pollution dispersion prevention beyond Panasonic premises	<ol style="list-style-type: none"> 1. Conduct historical surveys 2. Determine and install monitoring wells at the premises' borders 3. Analyze groundwater at the borders 4. Check possibility of pollution from external sources 5. Report to management department 6. Determine the external pollution dispersion prevention methods 7. Install the external pollution dispersion prevention methods 8. Install assessment wells 9. Begin assessments (monitoring)
Thorough pollution source elimination	<ol style="list-style-type: none"> 10. Conduct brief status check 11-1. Horizontal direction detailed analysis 11-2. Vertical direction detailed analysis 12. Determine the magnitude of pollution 13. Discuss the areas and methods of purification 14. Conduct purification and install pollution dispersion prevention measures 15. Monitor pollution source (groundwater) after purification 16. Report purification completion to management department

Soil and Groundwater Pollution Surveys and Remedial Measures for Fiscal 2019

Region	Number of sites that completed remedial measures	Number of sites currently taking remedial measures
Global (including Japan)	0	40
Japan	(0)	(34)

In addition to the above, we implement measures for air pollution. The efforts made in factories are as matters of course, we are working as a company to comply with the Act Concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter from Automobiles in Specified Areas (Act No. 70 of 1992), which regulates nitrogen oxides and particulate matter emitted from company cars owned and/or managed by Panasonic.

The company cars owned and/or managed by Panasonic Japanese business sites are centrally managed on the corporate-wide vehicle management system. Annually required reports are submitted through the vehicle management system. Also each business site undertakes thorough regular vehicle checkup and fuel economy management on these cars, as well as taking the initiative in reducing air pollution, such as by advising employees on eco-driving techniques and hosting related workshops, and promoting introducing hybrid cars.

Initiatives for PCB Pollution

Our initiatives for PCB pollution are introduced on the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html>

Environment: Climate Change Risks and Opportunities, and Resilience of Strategy through Scenario Analysis



We recognize risks and opportunities concerning climate change as a critical business challenge and we are making action as follows based on the Recommendation by TCFD.^{*1} We have identified risks and opportunities in the business areas of home appliances, housing, and automotive that are judged to be susceptible to climate change. The identified risks are categorized into those related to transition to a low-carbon economy and others related to physical changes caused by climate change, and further studies are then undertaken. Opportunities are also being investigated to create new businesses mainly in the areas of energy resources, products, and services.

^{*1} TCFD: 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.

Identifying Risks

Risks concerning Transition to a Low-Carbon Economy

The energy efficiency standards for products are becoming increasingly demanding and products that do not meet such standards may be banned from sale. In concrete terms, meeting with a minimum energy performance standard (MEPS) is legally stipulated under the laws and regulations such as US federal law, the California State law, and the EU ErP Directive. Not only in advanced countries, the standard is also legally binding as mandatory in many developing countries and sales of non-standard products are prohibited. Many countries also adopt energy efficiency labeling programs, under which the products display their energy efficiency level so that customers are able to choose eco-conscious products more easily. Minimum energy performance standards and energy efficiency labeling programs for electric and electronic products significantly contribute to CO₂ reduction during product usage, which occupies the largest percentage in the product lifecycle. These standards and programs are constantly reviewed and discussed for amendments and their scope of the covered products in each country or region continue to expand. At the same time, their requirements are becoming stricter. Because these standards and programs in different countries rely on various criteria and measurements, if we fail to keep up to date with the latest requirements in the product design stage, the products that we developed with massive investment may not even be released into the market. This is a potential risk that may cause a significant business loss.

Physical Risks

As the Panasonic Group operates its business globally, its production sites face physical risks in their operations that may be hindered by abnormal weather conditions associated with global warming, such as flooding. Other than direct damage to factory buildings and facilities, losses from the cessation or suspension of operations must also be taken into account. If such a situation should occur, the costs required to restore the business becomes excessive.

Identifying Opportunities

Energy Sources

In order to optimize energy consumption in our production factories, we install the Factory Energy Management System (FEMS) in each site. See page 47 for more details. We also proactively utilize renewable energy, such as solar power, in our sites across the world according to the suitability of regional feature. Panasonic promotes the utilization of renewable energy among customers by expanding the energy solution business in addition to the manufacturing business of solar cell modules. See page 48 for more details.

Products and Services

In 2018, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) introduced a financial support system to promote energy-efficient housing. The system provide incentives in proportion to the expenses paid for installation and construction when building a new house with high energy efficiency, when building a new house with high energy efficiency, renovating a house with installation of thermal insulation, and/or installing energy-saving equipment. Not only do we own Panasonic Homes Co., Ltd, a housing company; furthermore, we deal with wide range of products for energy creation and energy storage. Therefore, introduction of this incentive system by government could become huge business opportunity to Panasonic. Panasonic Homes has been working, focusing development, sales, and spread of high energy efficient houses, with target of building Net-Zero energy houses (ZEH) up to 50% of the total number of built detached houses by 2020.

Because more countries are employing environmental policies concerning reduction of greenhouse gas emissions, the

regulations for engine mounted vehicles are tightening. As a result, vehicles are becoming more electrified and HVs and EVs are expected to become ever more common. Panasonic produces and sells high performance automotive batteries. As HVs and EVs spread in society, demand for such secondary batteries, the core component of such vehicles, is expected to increase. With this in view, we aim to sell 2.5 times the number of automotive secondary batteries in fiscal 2022 than we did in fiscal 2018. As a means to grasp this opportunity, we have started full operation of automotive battery factories in the US and China and will commence mass production of the batteries in Himeji Factory in 2019.

Scenario Analysis

World Energy Outlook 2017 (WEO2017) issued by the International Energy Agency (IEA) presents the New Policies Scenario (NPS=4 degree scenario), a set of policies to realize the targets set by various countries in the Paris Agreement, and the Sustainable Development Scenario (SDS=2 degree scenario) that could “hold the increase in the global average temperature to well below 2°C above pre-industrial levels” if executed.

Towards realization of Environment Vision 2050, we analyzed the impact of climate change on our business based on the said scenarios, discussed the countermeasures, and verified the resilience of our strategy.

Respective SDS and NPS were created on the assumption that the average temperature would rise 2°C or 4°C by 2100. Assuming that we continue the current business activities, we analyzed the impact of climate change on our business as of 2030.

SDS, the 2°C rise scenario, forecasts rapid changes in society to restrain greenhouse gas emissions by 2030. For example, the scenario estimates that an emission restriction measure possibly charging more than 100 dollars per one ton of CO₂ emissions, may be adopted. Using this 2°C rise scenario as a reference, we analyzed the impact from regulation changes on our business by 2030, assuming that there will be no major impact to the business from physical risks from climate change, such as water shortages and more frequent abnormal weather conditions.

At the same time, using NPS, the 4°C rise scenario, we analyzed the impact from physical changes due to climate change to our business by 2030, assuming that such impact from physical changes would be greater than that from regulation changes.

Analysis results based on the 2°C rise scenario suggested that the burden from CO₂ emissions would increase as carbon pricing is adopted in major countries. However, we should be able to avoid this burden by minimizing the impact from carbon pricing through striving to reduce carbon emissions in products (by adopting energy efficiency and creating energy) as well as during their manufacturing process to realize Panasonic Environment Vision 2050.

We also understand that changes or amendments in environmental laws will greatly affect our home appliance business that covers a wide range of energy-saving products. To prepare for such changes, we understand information as on updated environmental laws and regulations environmental laws and regulations across the world through close coordination among management departments and environmental departments in different regions as early as possible. We obtain the latest environmental legal information through the environmental regulation databases, and share the information among the relevant departments. When we identify some issue to address, we notify this to Companies and relevant departments, as well as acquiring the information on current situations to formulate countermeasures.

When referring to the 4°C rise scenario, we need to take account of the impact from the predicted increase in abnormal weather conditions, such as flooding and tropical storms, on the supply chain, and reduced economic activity in society. For example, we experienced large scale flooding in Thailand in 2011 and we suffered massive losses. Although we established a range of countermeasures in case of a recurrence, if some disaster hinders our business operations—or those of any party in the supply chain—sales will be affected and we would still need to direct significant funds to recover damaged facilities. To prepare for such situations, we create Business Continuity Plans (BCP) based on past experience of damage from abnormal weather conditions. At the beginning of 2012, we established the Business Continuity Management (BCM) Guidelines that focus on minimizing various risks related to factories and operations in accordance with the BCM System. As a means to reinforce disaster and accident countermeasures, we have established the Disaster/Accident Countermeasure Committee under the Global and Group Risk Management Committee, which is chaired by the Chief Risk Management Officer (CRMO), comprising directors of the Professional Business Support Sector (PBSS) under the head office. The Disaster/Accident Countermeasure Committee is now establishing a readiness against a range of serious risks from natural disasters, such as earthquake and flooding, to large scale accidents, including fire and explosion. We have also established working groups dedicated to different types of risk under the Disaster/Accident Countermeasure

Committee to create concrete measures against risks through liaison between related departments.

We plan to undertake further analyses on impacts from climate change on the supply chain and on markets and production areas that may be sensitive to climate conditions. Changes in social movements and the underlying scenarios will be monitored by environment departments, and promotion of investment and collaboration will be monitored by respective Companies.

* Note that these scenarios presented by the IEA are merely potential prospects with a high degree of uncertainty. The analysis results obtained based on these scenarios are our forecasts developed from those scenarios and our own medium- to long-term future prospects may be different in actuality.

Environment: Environmental Information Systems



Integrated Management of Corporate Environmental Information

In order to implement the PDCA cycle for environmental sustainability management, it is essential to collect a significant amount of data, such as amounts of used energy, waste, valuables, discharged and transferred chemical substances, and used water, etc. at each business site in a prompt and accurate manner.

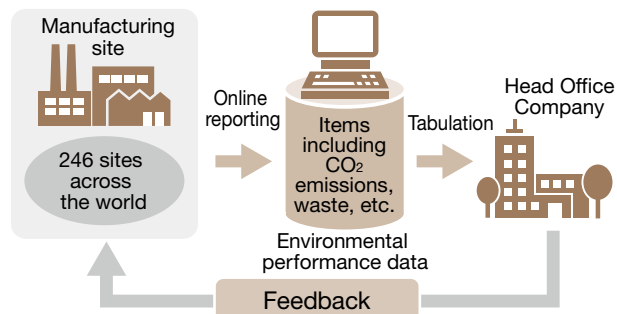
Panasonic has built and introduced an environmental performance system, the Eco System (Factory), to globally collect and manage environmental data from all of own business sites. With this system, monthly CO₂ emissions are managed in particular, allowing checking the progress of initiatives and identifying issues. The system plays an important role in achieving the reduction of CO₂ emissions by sharing the information and taking measures.

The Eco System (Factory) is also functioning as a scheme for sharing information on the status of compliance among sites across the world. In the event of complaints from local community residents or when a specific value exceeds ordinance-regulated levels, as soon as the person in charge at the business site inputs the data on the system, information of the data is instantaneously e-mailed to relevant persons at the Company and the Head Quarters. Thereby, the system enables rapid information-sharing and appropriate actions.

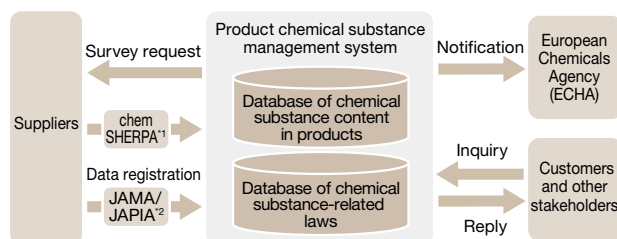
As for products, legislation relating to chemical substances in products is becoming more stringent, and communication and disclosure of chemical information in the EU supply chain are mandatory under the REACH Regulations. Panasonic developed own management system for chemical substances in products based on industry-standard information handling methods in order to respond to a wide range of regulations and requirements. In January 2017, Panasonic renewed the system to adopt chemSHERPA,^{*1} the new format for information handling of chemical substances in products led by the Ministry of Economy, Trade and Industry (METI). With the expansion of Panasonic automotive business, we also adopted the JAMA/JAPIA sheet,^{*2} the standard material data format for the Japanese automotive industry, in order to respond to increasingly complex and diverse regulations covering chemical substances used in products.

Also, Panasonic aim to cut down CO₂ emissions during product use by improving the energy-saving performance of own products. For this reason, the Eco System (Product) is used to globally assess the size of contribution in reducing CO₂ emissions by linking product performance data such as annual power consumption for each product category with other data such as sales volume and CO₂ emission factors in each region.

Mechanism of the Eco System (Factory)



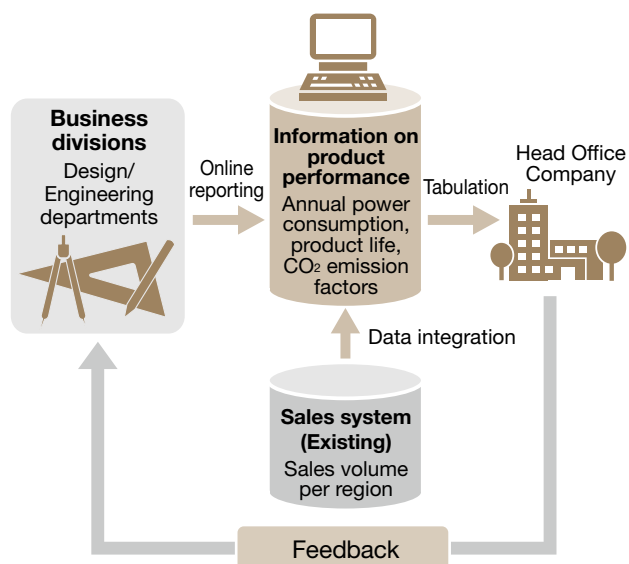
Mechanism of the Product chemical substance management system



*1 New chemical information format led by METI and recommended by the Joint Article Management Promotion-Consortium (JAMP).

*2 A standardized datasheet for chemical compounds contained in automotive components in automotive industry.

Mechanism of the Eco System (Product)



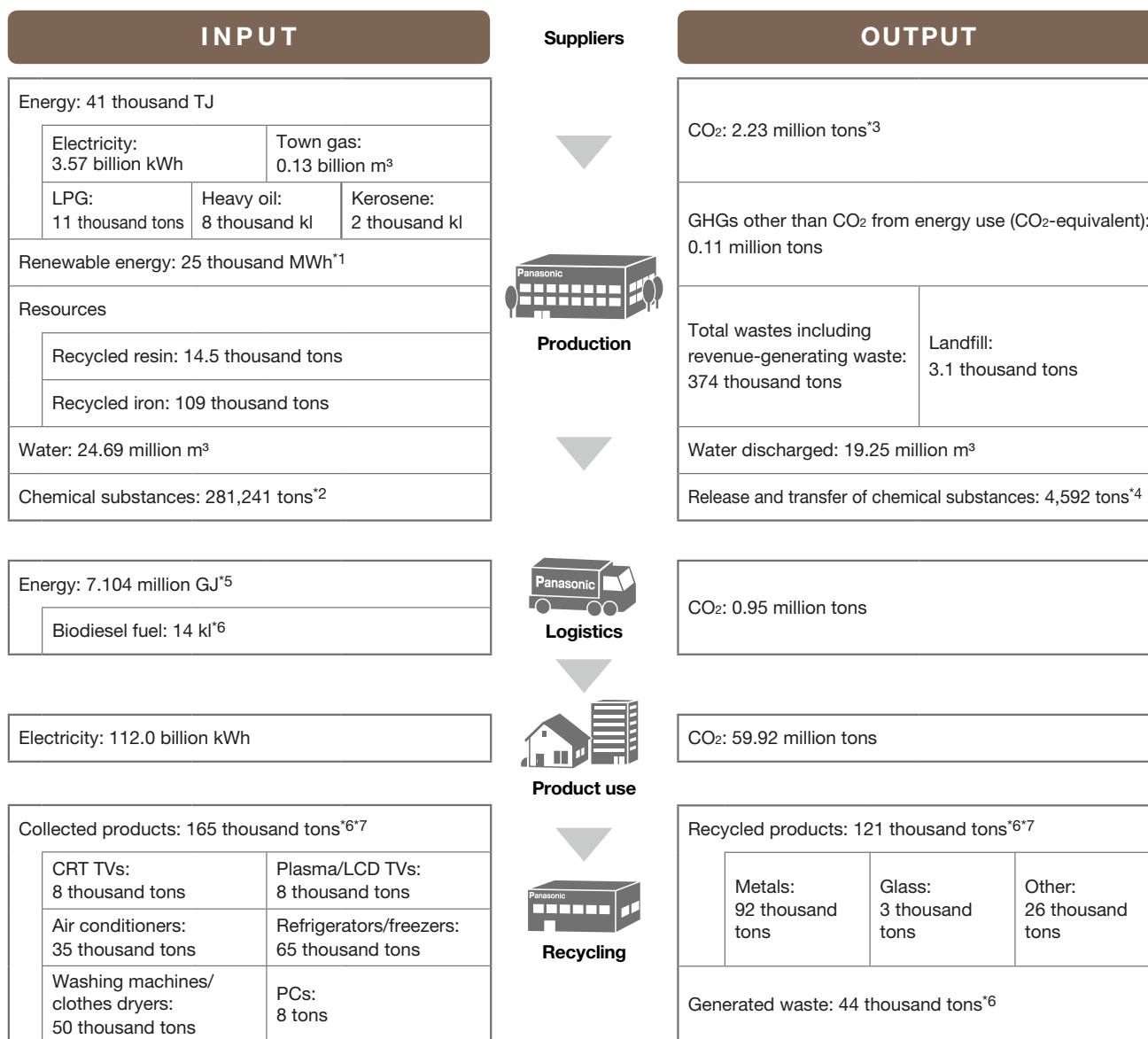
Environment: Overview of Environmental Impact and Environmental Accounting



Overview of Environmental Impact from Business Operation

In order to mainly manufacture and market electrical and electronic products, Panasonic consumes petroleum and electricity as energy sources and resources as raw materials of parts and components. As a result, we emit CO₂ and wastes into the environment. This diagram maps the environmental impact from our business operation from a procurement stage to recycling activities. Also, GHG throughout the entire supply chain is classified into Scope 1, Scope 2, and Scope 3 and assessed according to the GHG Protocol, the international calculation standard.

Overview of Environmental Impact from Business Operation



Production: 246 manufacturing sites

Logistics: Logistics stage of procurement, production, marketing and waste by partner companies and Panasonic.

Product use: Lifetime power consumption (a) of major products^{*8} with large amounts of energy use and CO₂ emissions (b) associated therewith.

a = Annual power consumption of a model sold^{*9} x Sales quantity x product life^{*10}

b = Annual power consumption of a model sold^{*9} x Sales quantity x product life^{*10} x CO₂ emission factor^{*11}

Recycling: Recycling of products means to use by oneself or to make into a state available for sale or free of charge the components and materials of a separated product.

*1 Figures from photovoltaic, wind, and biomass sources. Heat pumps not included.

*2 Target substances include all substances in the Panasonic Group Chemical Substances Management Rank Guidelines (For Factories).

*3 The factors related to fuels are based on the Guidelines for Calculation of Greenhouse Gas Emissions (version 4.3.1) published by the Japanese Ministry of the Environment. The CO₂ emission factor for electricity purchased in Japan (kg-CO₂/kWh) is fixed at 0.410. The factors above are also used for electricity purchased from power producers and suppliers (PPS). The GHG Protocol factors for each country are used for electricity purchased outside Japan.

*4 Release amount: Includes emissions to air, public water areas, and soil.

Transfer amount: Includes transfer as waste and discharge into the sewage system. Recycling that is free of charge or recycling where Panasonic pays a fee for treatment under the Waste Management and Public Cleaning Law is included in "Transfer." (Different from the transferred amount reported under the PRTR Law.)

*5 Intra-region outside Japan not included.

*6 Figures for Japan.

*7 Air conditioners, TVs, refrigerators/freezers, washing machines/clothes dryers, and PCs.

*8 Household air conditioners, commercial air conditioners, fluorescent lamps, LED lamps, household refrigerators, commercial refrigerators, LCD TVs, washing/drying machines, fully-automatic washing machines, clothes dryers, dish washer and dryers, IH cooking heaters, EcoCute, bathroom ventilator-dryers, humidifiers, dehumidifiers, air purifiers, extractor fans, vending machines, electronic rice cookers, microwave ovens, warm-water washing toilets, clothing irons, hair dryers, under-rug heaters, vacuum cleaners, electric thermal pots, extractor hoods, telephones, security cameras, projectors, production modulars etc.

*9 For each product category, the model that was sold in the largest quantity in the region was selected.

*10 Number of years during which spare parts for the product are available (defined by Panasonic).

*11 Regional CO₂ emission factors (kg-CO₂/kWh) used: 0.410 (Japan); 0.487 (Europe); 0.579 (NorthAmerica); 0.740 (China & Northeast Asia); 0.927 (India & South Asia); 0.527 (Southeast Asia & Oceania); 0.332 (Latin America); and 0.599 (Middle East & Africa).

GHGs from the Whole Supply Chain (by Scope)

Category		Emissions(10,000 tons)	
		FY2018	FY2019
Scope 1 *12		46	41
Scope 2 *13		195	192
Scope 3 *14	1. Purchased goods and services	1,294	1,395
	2. Capital goods	112	86
	3. Fuel- and energy-related activities	13	13
	4. Upstream transportation and distribution	94.4	95.0
	5. Waste generated in operations	1.8	1.8
	6. Business travel	2.6*15	2.8*15
	7. Employee commuting	3.6*15	3.1*15
	8. Upstream leased assets	0.8*15	2.0*15
	9. Downstream transportation and distribution	2.1*15	2.0*15
	10. Processing of sold products	–	–
	11. Use of sold products	6,449	5,992
	12. End-of-life treatment of sold products	127	125
	13. Downstream leased assets	–	–
	14. Franchises	–	–
	15. Investments	–	–

*12 Direct emissions from facilities owned and controlled by Panasonic (e.g. emissions from use of town gas or heavy fuel oil).

*13 Emissions from production of energy consumed at facilities owned and controlled by Panasonic.

*14 Other indirect emissions, excluding Scope 1 and Scope 2.

*15 Figures for Japan.

Environmental Accounting

Panasonic globally collects data on its environmental conservation costs and economic benefits obtained through its environmental activities in relation to generated/controlled environmental impact. This data is internally utilized as basic information for our continuing environmental sustainability management.

Environmental Accounting for Fiscal 2019

Environmental conservation in factories	
Investments*16	3,098 million yen
Expenses*16,*17	75 million yen
Economic benefit	1,444 million yen

*16 Includes all investments relating to environmental conservation. The difference or appropriate portions (divided proportionally) are not calculated.

*17 Expenses include a cost of capital investment depreciation. For example, if latest energy-saving facilities were installed, the value includes depreciation for the first year but not for the second year and later.

Environmental Conservation Benefits for Fiscal 2019 (in physical terms)

Categories	Emission reduction	Reference indicator: environmental impact	
		Fiscal 2018	Fiscal 2019
CO ₂ emissions from production activities	0.02 million tons	2.28 million tons	2.23 million tons
Human Environmental Impact	4 thousand counts	522 thousand counts	538 thousand counts
Landfill of waste	0.0 thousand tons	3.1 thousand tons	3.1 thousand tons
Water consumption	1.48 million m ³	25.84 million m ³	24.69 million m ³

Fiscal 2019 data on the reduced amount of electricity and effect of reduced electricity costs through our energy-saving products are as shown in the chart below.

Economic Effects for Customers for Fiscal 2019

Electricity cost reduction from product usage (global)	
Reduced amount of electricity*18	77.6 billion kWh
Reduced electricity costs*19	1,622 billion yen

*18 Calculated under the same conditions as when determining the size of contribution in reducing CO₂ emissions through energy-saving products (see page 40).

*19 Electricity costs were set for each region based on IEA Statistics.

Panasonic is also engaged in research and development that will lead to new creation of environmental value. The R&D expenses related to environmental management were approx. 8.8 billion yen in fiscal 2019.

Environment: Eco-conscious Products and Factories

Initiatives for Eco-conscious Products (Green Products)

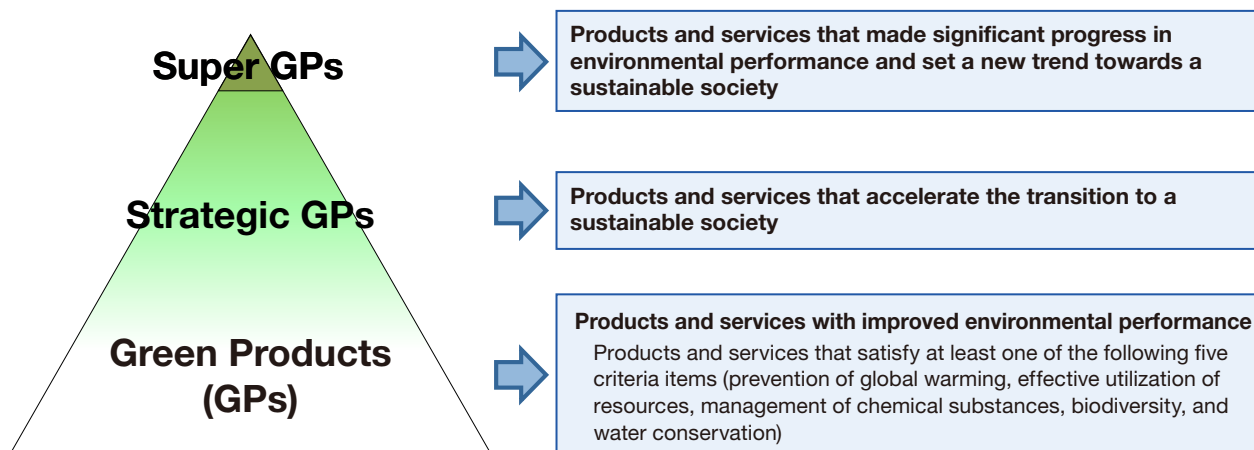
Based on the product assessment system where the environmental impacts of products and services area assessed from the planning and the design stages, Panasonic accredits own products and services that achieved high environmental performance as Green Products (GPs).

In the GP accreditation criteria, we assess the performance of our products in terms of prevention of global warming, effective utilization of resources, and management of chemical substances by comparing them not only with our own products but also with competitors' products. Since fiscal 2012, we have conduct various activities to further enhance our accreditation criteria by adding biodiversity and water conservation to existing items. This has in turn enabled the creation of a wider range of GPs. The products and services which have been developed from the conventional superb Green Products*¹ starting from fiscal 2014, and which can accelerate the transition to a sustainable society, are newly defined as Strategic GPs.

Among these products, those that particularly create new trends are certified as Super GPs.

*¹ Products and services that showed superb environmental performance to products in the same category in the industry.

Green Product Structure



Definition of Strategic GPs

Products and services that accelerate the transition to a sustainable society:

(1) Products and services that reduce environmental impact with top-level environmental performance in the industry

(Energy-/Resources-/Water-saving products, etc.)

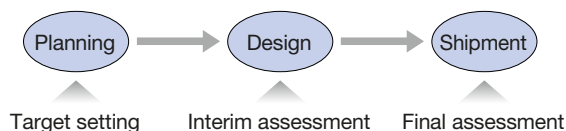
(2) Products and services whose promotion and dissemination lead to reducing environmental impact

(Recyclable or energy-creating products, energy-storing products, energy management systems, Smart Houses and Smart Cities, smart meters, products/services that support next-generation vehicles and environmental performances of stores, LED lighting, etc.)

(3) Products and services that reduce environmental impact on a specific region, or support measures to address environmental impact

(Air filtration devices, water filters, environmental engineering service, etc.)

Products Assessment System



Product Environmental Assessment		
Items for assessment		Assessment criteria
(1) Products	Prevention of global warming	CO ₂ emissions and energy saving
	Effective utilization of resources	Resource saving, light weight/downsizing, number of reused parts, durability, amount of recycled resources used, structure to recovery/recycling, etc.
	Water and biodiversity conservation	Water saving, consideration for biodiversity
	Comparison with competitors' products	
(2) Production process (of relevant products)	Prevention of global warming	CO ₂ emissions and energy saving
	Effective utilization of resources	Resource saving, mass of packaging materials to be wasted, amount of resources used, amount of waste from factories, etc.
(3) Packaging	Effective utilization of resources	Resource saving, light weight/downsizing, amount of foamed plastic used, amount of recycled resources used, etc.
(4) Instruction manual	Effective utilization of resources	Resource saving, light weight/downsizing, amount of recycled resources used
(1) (2) (3) (4)	Management of chemical substances	Panasonic's Chemical Substances Management Rank Guidelines (for products and factories)
LCA* ²		Global warming
Information management		Green procurement, information provision across the supply chain, etc.

Laws/regulations and criteria, guidelines, and
 environmental action plan of Panasonic

*² Life Cycle Assessment: Method of quantitatively assessing the environmental impact of products at each life cycle stage.

Increase in sales volume of Strategic GPs

In fiscal 2014, Panasonic newly defined 'Strategic GP' in order not only to pursue the environmental performance of consumer products, but also to commit ourselves to further increase sales volume of various products and services which lead to mitigation of environmental impact in the course of structural reform of business such as expansion of B2B business. Based on the definition, we have worked to create such products and services. In addition to reducing environmental load on a global scale with top-level environmental performance, we aim to accelerate a shift to a sustainable society through various business operations, including products or services whose contribution to reduce environmental load can be expected by promoting diffusion of them, as well as whose contribution to reduce environmental load directly in specific regions can be expected.

The sales ratio of Strategic GPs in fiscal 2018 accounted for approx. 24% of the total sales. Additionally, in our Green Plan 2018, we have set the fiscal 2019 target as 120% of expansion of sales in eco-conscious B2B Strategic GPs (compared with fiscal 2016). The result of fiscal 2018 was 141% compared to fiscal 2016. Panasonic will work to further push up the sales ratio of Strategic GPs in the future.

Improving Air Quality in Living Environments

Air pollution caused by PM2.5 etc. is now a major social issue not only in developed countries such as Japan but also in emerging countries including China and India. With this background, Panasonic has set offering products, services, and solutions that improve people's lifestyles, reduce burden on the environment, and help make our society more sustainable as the fiscal 2019 target in its Green Plan 2018. One specific element of the Plan is to improve the air quality of living environments (air purification), with a target figure equivalent to 14 million rooms with improved air quality over fiscal 2016 to 2019. The cumulative total for over fiscal 2016 to 2019 is equivalent to 14.06 million rooms.

Examples of air purifiers are introduced in the following website.

https://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html

Initiatives for Eco-conscious Factories (Green Factories)

Panasonic is leading Green Factories (GF) activities in its efforts to cut down the environmental load caused by manufacturing. On the assumption of compliance of laws and regulations in each factory, concretely we formulate a plan to reduce environmental loads in manufacturing activities, such as amounts of CO₂ emission, generated wastes and valuables, water consumption, and discharged and transferred chemical substances, conduct Progress management for total reduction amount with basic unit of discharged amount and the like, and improve the activities. Thereby, we intend to achieve reduction of environmental loads and increase of our business at the same time. In fiscal 2011, we started the GF assessment system^{*1} aiming to further improve GF activities by visualizing the progress status in each factory.

In addition, we share information on global activities for reducing environmental loads, relevant laws and regulations, and social trends through the Manufacturing Environmental Information Sharing Group.

In Europe, Southeast Asia, China, and Latin America, we hold information exchanges and competitions on best practices by region to reduce environmental impact (presentation of awards for best practices and roll-out of good examples to other regions). By doing so, we promote GF activities suited to the issues in each region to expand and accelerate the activities.

As measures to strengthen the company-wide foundation aiming at improving the structures with energy efficiency, we have developed a BA (Before/After) chart search system to share and spread knowhow across the world on the Internet. With the system, each factory can register and share their best practices concerning managing CO₂, waste, chemical substances, water, etc. Further, we prepared "Energy-Saving Potential Diagnosis Sheet" which is a tool with which users can evaluate visualized energy-efficient structure and extract of effective measures, based on the existing support tools and manuals for energy-efficiency which we reviewed and updated. And then, we rolled out the sheet to all sites. In fiscal 2019, we confirmed validity of the Diagnosis Sheet.

Besides, in China and Southeast Asia, we started a cross-company compliance assessment (CCCA) as a new activities to comply with environmental laws and regulations more definitely. In the CCCA, one factory A conducts an environmental assessment for other factory B in the same region, while the factory B conducts an assessment for the factory A, beyond own Company border. In China, we have newly trained 20 internal assessors in fiscal 2019 and

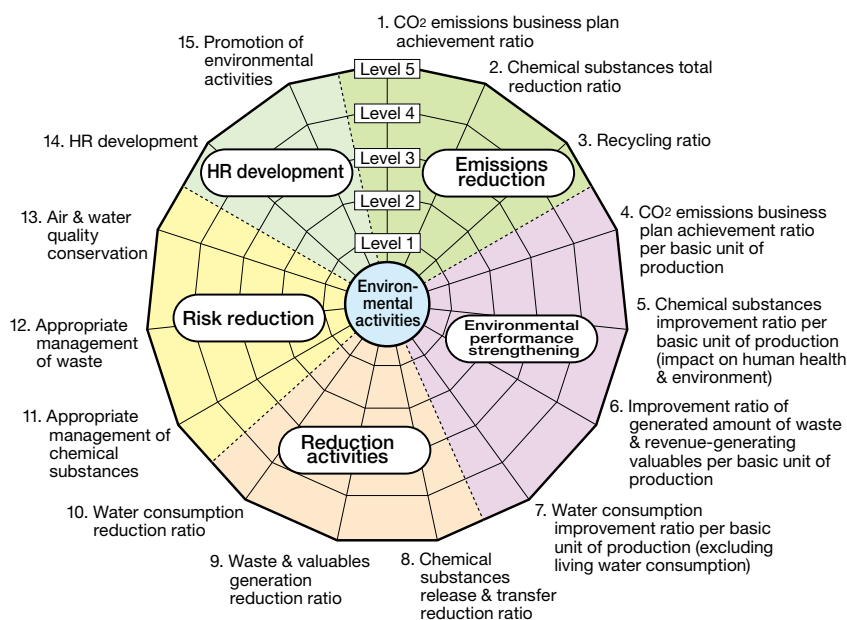
conducted assessments in 11 factories; as a result, some points need to be improved were extracted. In Southeast Asia, we conducted CCCA in groups formed by country. In fiscal year 2019, we conducted the CCCA at 22 factories in 6 countries, i.e. 24 sites. We will further upgrade the level of activities, by accelerating the CCCA, learning each other through checking compliance with relevant laws and regulations, and utilizing accumulated corporate-wide knowhow.

*1 The GF assessment system enables factories to evaluate themselves on a five-point scale across 19 environmental activity items, classified into six basic groups: emissions reduction; environmental performance enhancement; reduction activities; risk reduction; human resource development; and management. Factories then compare their self-assessment results with the results from other factories to obtain a relative assessment to identify issues to be addressed and determine corrective measures. The system was improved in fiscal 2014, in the way that items to assess could be added to the standard 19 items as required by each Company. For example, a Company may implement tasks concerning compliance with environmental laws and compliance management to strengthen risk management in its factories. Then, in the assessment questionnaire, they can set questions with their own standard values stricter than the legal requirements, for example, for their ventilation systems or other facilities that control air and water quality.



cross-company compliance assessment (CCCA)

Indicators for GF Assessment System



Management

- 16. CO₂ emissions management/activity level
- 17. Chemical substances management level
- 18. Waste management level
- 19. Water management level

Essential items

Continuous acquisition of ISO14001
Compliance with environmental legislation
Promotion of measures against soil and groundwater contamination
Monthly data registration

Furthermore, by setting up our own regulatory limits, we are working on optimal management of sulfur oxides (SO_x) and nitrogen oxides (NO_x), the principal causes of air pollution, as well as indicators of water contaminant concentration biochemical oxygen demand (BOD) and chemical oxygen demand (COD).

SOx/NOx management example: Tajima Factory, Device Solutions Business Division, Industrial Solutions Company

	FY	Facility name	Average measured	Maximum measured
SOx(Nm ³ /h)	2017	Absorption Water Heater No. 1	0.004	0.005
		Absorption Water Heater No. 2	0.004	0.005
		Absorption Water Heater No. 3	0.004	0.005
	2018	Absorption Water Heater No. 1	0.003	0.004
		Absorption Water Heater No. 2	0.001	0.002
		Absorption Water Heater No. 3	0.003	0.004
	2019	Absorption Water Heater No. 1	<0.004	<0.004
		Absorption Water Heater No. 2	<0.003	<0.004
		Absorption Water Heater No. 3	<0.002	<0.003

Absorption Water Heater No. 1: Legal limit: 6.5, Voluntary limit: 5.0, Measuring frequency: Twice a year

Absorption Water Heater No. 2: Legal limit: 6.5, Voluntary limit: 5.0, Measuring frequency: Twice a year

Absorption Water Heater No. 3: Legal limit: 6.5, Voluntary limit: 5.0, Measuring frequency: Twice a year

	FY	Facility name	Average measured	Maximum measured
NOx(ppm)	2017	Absorption Water Heater No. 1	52	53
		Absorption Water Heater No. 2	40	43
		Absorption Water Heater No. 3	43	47
	2018	Absorption Water Heater No. 1	52	55
		Absorption Water Heater No. 2	51	58
		Absorption Water Heater No. 3	47	48
	2019	Absorption Water Heater No. 1	65	77
		Absorption Water Heater No. 2	61	65
		Absorption Water Heater No. 3	66	75

Absorption Water Heater No. 1: Legal limit: 180, Voluntary limit: 150, Measuring frequency: Twice a year

Absorption Water Heater No. 2: Legal limit: 180, Voluntary limit: 150, Measuring frequency: Twice a year

Absorption Water Heater No. 3: Legal limit: 180, Voluntary limit: 150, Measuring frequency: Twice a year

BOD/COD management example: Hikone Factory, Beauty And Personal Care Business Division, Appliances Company

	FY	Facility name	Average measured	Maximum measured
BOD(mg/l)	2017	Factory wastewater outlet	1.2	5.1
	2018	Factory wastewater outlet	1.4	2.9
	2019	Factory wastewater outlet	1.3	3.7

Legal limit: 20.0, Voluntary limit: 18.0, Measuring frequency: four times a month

	FY	Facility name	Average measured	Maximum measured
COD(mg/l)	2017	Factory wastewater outlet	1.1	2.3
	2018	Factory wastewater outlet	1.0	3.4
	2019	Factory wastewater outlet	0.9	2.4

Legal limit: 20.0, Voluntary limit: 18.0, Measuring frequency: four times a month



Environment: CO₂ Reduction

Approaches to CO₂ Reduction

The Paris Agreement that went into effect in November 2016 sets out a target to limit global temperature increases to less than 2°C above pre-industrial levels and a more ambitious target to keep global temperature increases to less than 1.5°C above pre-industrial levels, as well as sets the goal for CO₂ and other greenhouse gas emission levels for the second half of this century to be virtually zero.

In addition to the announcement of the Environment Vision 2050 (see page 17) focusing on energy, in consistent with the goal set by the Paris Agreement, Panasonic has set the targets for emission of greenhouse gas (GHG) in our business activities to reduce 30% by 2030 (vs. 2013), and Zero by 2050, and in usage of our products to reduce 30% by 2030 (vs. 2013).”, and obtained accreditation for the targets as Science Based Targets (SBT*1) in October 2017. Our activities to reduce CO₂ emissions have been progressed to achieve the SBT targets.

In order to achieve the goals set by the Paris Agreement, we must reduce CO₂ emissions as much as possible. Therefore, all corporations are expected to further contribute to reduction in CO₂ emissions.

*1 SBT: an abbreviation of Science Based Target. It is a target to reduce GHG emissions consistent with scientific knowledge toward the goals to limit global temperature increases to less than 2°C above pre-industrial levels.

Size of Contribution in Reducing CO₂ Emissions through products and services

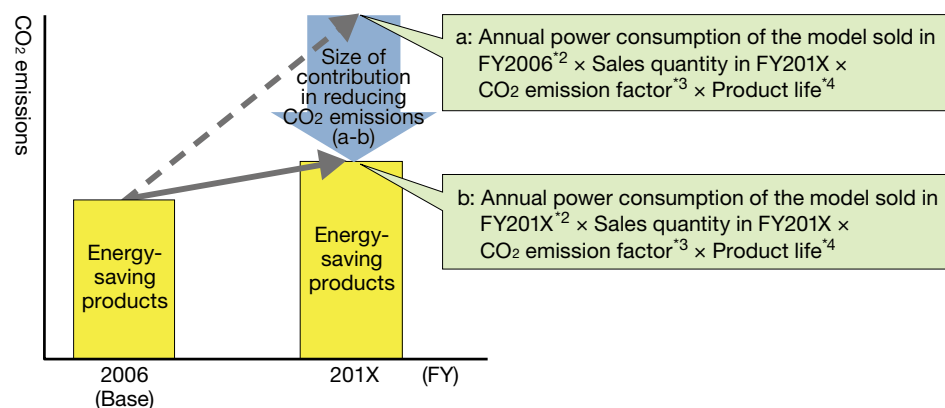
Panasonic has introduced a unique indicator “size of contribution in reducing CO₂ emissions” to accelerate emissions reduction, targeting our products (for energy saving and energy creation). The size of contribution in reducing CO₂ emissions is defined as the amount achieved by deducting the actual emissions from the amount that would have been emitted without the improvements by the energy-saving performance of our products from fiscal 2006, and this amount is combined with the emission reduction resulting from power generation by energy-creating products. In other words, it reflects the continuous efforts being made to reduce CO₂ emissions.

Panasonic will continue to maximize the size of contribution in reducing CO₂ emissions.

Size of Direct Contribution in Reducing CO₂ Emissions through Energy-saving Products

We will improve the energy-saving performance of our products to reduce the energy consumed in using the products. The more energy-saving products are introduced and promoted, the size of contribution in reducing CO₂ emissions will further increase.

Size of Direct Contribution in Reducing CO₂ Emissions through Energy-saving Products



*2 For each product category, the model that was sold in the largest quantity in the region was selected.

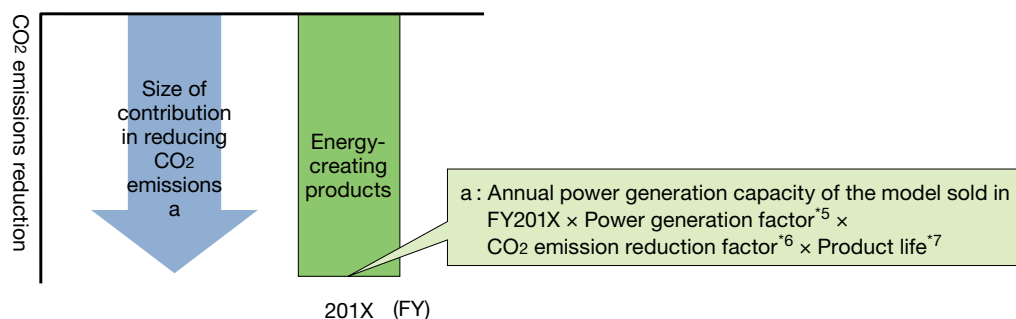
*3 Regional CO₂ emission factors (kg-CO₂/kWh) used: 0.410 (Japan); 0.487 (Europe); 0.579 (North America); 0.740 (China & Northeast Asia); 0.927 (India & South Asia); 0.527 (Southeast Asia & Oceania); 0.332 (Latin America); and 0.599 (Middle East & Africa).

*4 Number of years during which spare parts for the product are available (defined by Panasonic).

Size of Direct Contribution in Reducing CO₂ Emissions through Energy-creating Products

By using electricity generated by solar power generation and such, we can reduce CO₂ emissions from thermal power plants. Panasonic will further foster its energy creation business to increase the size of contribution in reducing CO₂ emissions.

Size of Contribution in Reducing CO₂ Emissions through Energy-creating Products



*⁵ For photovoltaic power generation: 1,204 kWh/kW (after fiscal 2015), 1,193 kWh/kW (fiscal 2014 and prior). Considering sunshine conditions, system loss, and other variables.

*⁶ For photovoltaic power generation: 0.360kg-CO₂/kWh (Source: Voluntary Rules on Indication (2010) by the Japan Photovoltaic Energy Association).

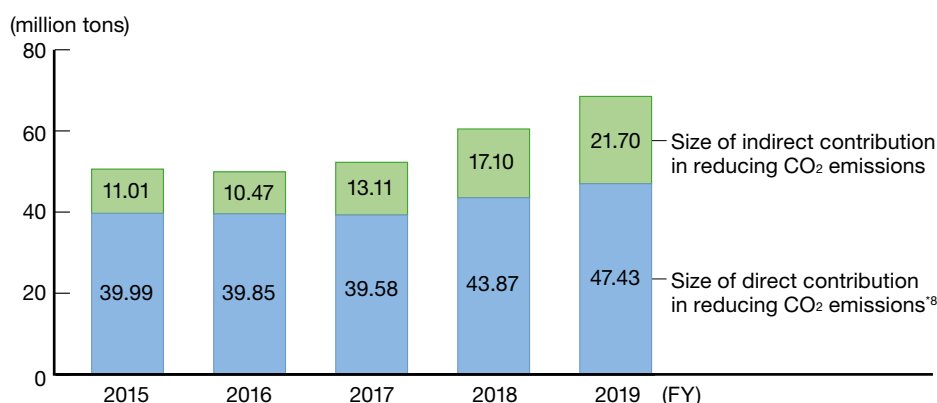
*⁷ For photovoltaic power generation: 25 years (fiscal 2019), 20 years (fiscal 2018 and prior).

Size of Indirect Contribution in Reducing CO₂ Emissions

Effects of reducing CO₂ emissions in domains of housing, automotive, and B2B businesses which we are focusing on are shown as the size of indirect contribution to reducing CO₂ emissions to distinguish it from the size of direct contribution in reducing CO₂ emissions from Panasonic-brand products. The size of indirect contribution in reducing CO₂ emissions represents the CO₂ emissions reduction effects from other companies' products, in which our components contribute to reducing CO₂ emissions. Specifically, the data represents "air conditioning load reduction effects from improved insulation performance in Panasonic housing," "energy-saving effects from products by other companies equipped with Panasonic energy-saving compressors, motors, and vacuum insulation materials" and "improved fuel economy effects from electric vehicles equipped with Panasonic automotive batteries." From the results for fiscal 2017, CO₂ reduction effects as a result of energy saving such as less travelling made possible through the use of our HD Visual Communication Systems, and from the results for fiscal 2018, the energy-saving effects from using our HEMS and BEMS are also calculated and disclosed.

Our size contribution in reducing CO₂ emissions through products and services amounted to 69.13 million tons in fiscal 2019. Of this, direct contributions amounted to 47.43 million tons, and indirect contributions to 21.70 million tons.

Size of Contribution in Reducing CO₂ Emissions through Products and Services



*⁸ Total amount of contribution in reducing CO₂ through energy-saving products and energy-creating products.

Environment: CO₂ Reduction through Energy-saving/creating/storing Products



Energy-saving Products

The size of direct contribution in reducing CO₂ emissions through our energy-saving products in fiscal 2019 was 39.80 million tons which is more than the previous fiscal year mainly because of the shift in lighting to LED, etc. In the breakdown of the size of contribution in reducing CO₂ emissions by global product category, 82% was from air conditioners, lighting equipment, LCD TVs, and refrigerators. By region, Japan, Southeast Asia & Oceania, China & Northeast Asia made up approx. 79%. CO₂ emissions from the use of our major products^{*1} in fiscal 2019 is estimated to be approx. 59.92 million tons. We will continue to further reduce the CO₂ emissions from the use of major products by making energy-saving products even more widely available.

Also, improvement in energy efficiency of major consumer electronics by 35% compared to the fiscal 2006 level is our numerical target for fiscal 2019 under our Green Plan 2018. The results for fiscal 2019 marked 45% because of an increase in sales of high energy-saving performance models. The Green Plan 2018 also includes a numerical target for fiscal 2019 to achieve a 75% sales ratio for LED lighting (residential and non-residential buildings), and the fiscal 2019 results marked 77%.

^{*1} Lifetime CO₂ emissions from major products^{*2} with large amounts of energy use.

Lifetime CO₂ emissions = Annual power consumption of a model sold^{*3} x Sales quantity x Product life^{*4} x CO₂ emission factor^{*5}

^{*2} Household air conditioners, commercial air conditioners, fluorescent lamps, LED lamps, household refrigerators, commercial refrigerators, LCD TVs, washing/drying machines, fully-automatic washing machines, clothes dryers, dish washer and dryers, IH cooking heaters, EcoCute, bathroom ventilator-driers, humidifiers, dehumidifiers, air purifiers, extractor fans, vending machines, electric rice cookers, microwave ovens, electric bidet toilets, irons, hair dryers, electric carpets, vacuum cleaners, electric thermo pots, extractor hoods, telephones, security cameras, projectors, production modulars etc.

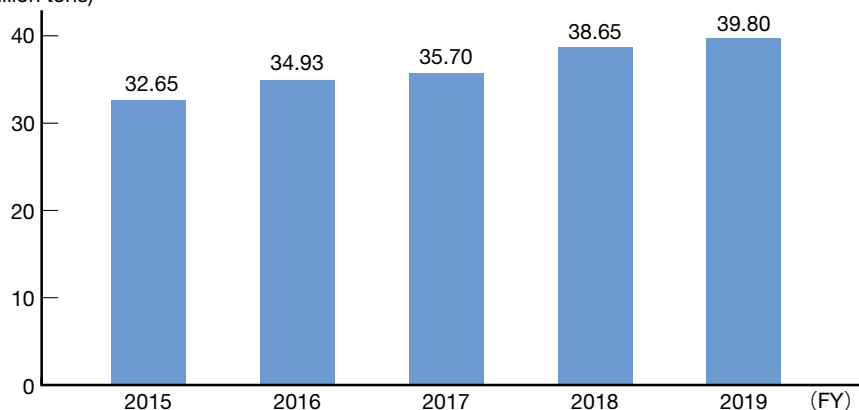
^{*3} For each product category, the model that was sold in the largest quantity in the region was selected.

^{*4} Number of years during which spare parts for the product are available (defined by Panasonic).

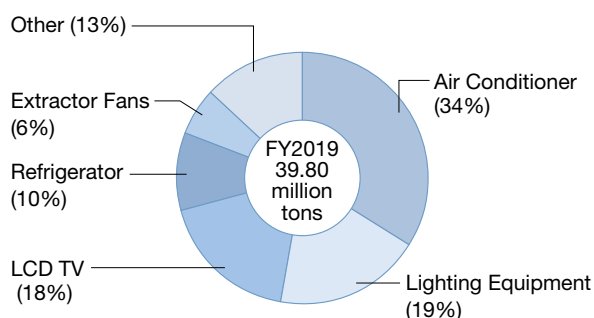
^{*5} Regional CO₂ emission factors (kg-CO₂/kWh) used: 0.410 (Japan); 0.487 (Europe); 0.579 (North America); 0.740 (China & Northeast Asia); 0.927 (India & South Asia); 0.527 (Southeast Asia & Oceania); 0.332 (Latin America); and 0.599 (Middle East & Africa).

Size of Contribution in Reducing CO₂ Emissions through Energy-saving Products

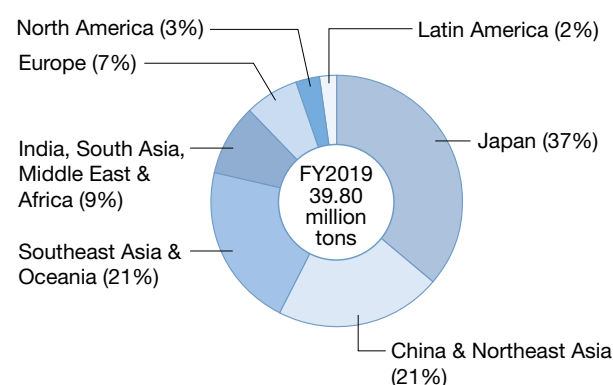
(million tons)



Size of Contribution in Reducing CO₂ Emissions through Energy-saving Products (by product)



Size of Contribution in Reducing CO₂ Emissions through Energy-saving Products (by region)



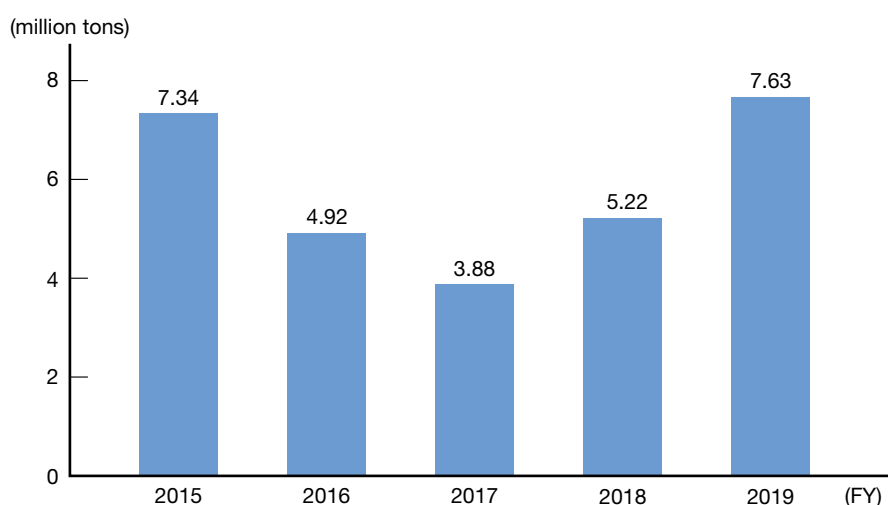
Energy-creating Products

We actively develop our energy creation business to maximize the size of contribution in reducing CO₂ emissions. By delivering photovoltaic power generation systems and household fuel cell cogeneration systems as means to create necessary electricity with few CO₂ emissions, we reduce CO₂ emissions in society.

The size of direct contribution in reducing CO₂ emissions through energy-creating products in fiscal 2019 was 7.63 million tons due to the expansion of global demand for photovoltaic power generation solar panels. By region, North America accounts for approx. 55%.

Other fiscal 2019 targets under the Green Plan 2018 include achieving 440,000 MWh of total power generation from dissemination of household fuel cells (fiscal 2011 to fiscal 2019), and 5 million MWh of total power generation from dissemination of photovoltaic power generation systems (fiscal 2013 to fiscal 2019). The results of total power generation up to fiscal 2019 were 460,000 MWh from household fuel cells and 5.40 million MWh from photovoltaic power generation systems.

Size of Contribution in Reducing CO₂ Emissions through Energy-creating Products



Initiatives for Energy-storing Products

Energy-storing products such as lithium-ion batteries can be used in various situations for electric power storage and contribute to reducing CO₂ emissions through installation in homes, cars, and offices. In particular, automotive lithium ion batteries support spreading environmentally friendly car as key device. Panasonic is actively engaged in the development of energy-storing products that contribute to reducing CO₂ emissions.

Under our Green Plan 2018, we have set the target as 200% for battery supply demand for increase in automotive battery supply (compared to the fiscal 2015 level). The results up to fiscal 2019 were 268%.

Examples of Energy-saving/creating/storing products are also introduced on the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/co2/product.html>

Environment: Global Warming Mitigation and Adaptation



Global Warming Mitigation

While people seek for affluent lifestyles, the acceleration of global warming caused by the increase in CO₂ emissions from people's daily lives and corporate activities is becoming a concern. Panasonic promotes measures to mitigate the progress of climate change and to minimize the impact by reducing the greenhouse gases emitted from its products and services as well as production activities.

As measures to mitigate the impact of our products and services, we offer energy-management products and solutions that link and control a range of energy-saving/creating/storing products.

In promoting our Net-Zero Energy House (ZEH), we set a numerical target in Green Plan 2018, which is "achieving the ZEH ratio of 22% in all detached house". The achievement in fiscal 2019 was 36%.

In addition to these energy management solutions in the housing area, the Panasonic Group is also promoting Smart Town projects in Fujisawa City and Yokohama City in Kanagawa Prefecture. Under Green Plan 2018, we are aiming to start construction/sales at three locations (870 lots) from fiscal 2016 through fiscal 2019. The results up to fiscal 2019 were three locations (607 lots).

More details on reducing CO₂ emissions at our factories can be found on pages 46-49. For details on reducing CO₂ emissions in logistics, see pages 50-52.

Examples of solutions for global warming mitigation are also introduced on the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/co2/solution.html>

Global Warming Adaptation

Panasonic is also making efforts for adaptation to address unavoidable impacts on the global environment that cannot be addressed by mitigation measures. Such adaptation is based on the matters indicated by the Intergovernmental Panel on Climate Change (IPCC) etc., focusing on the impact of climate change on the ecosystem, society, and the economy. Further, we understand that it is important for the measures to take account of regional feature, as impacts of climate change vary according to the region.

Our measures are currently implemented from the viewpoints of the following two aspects:

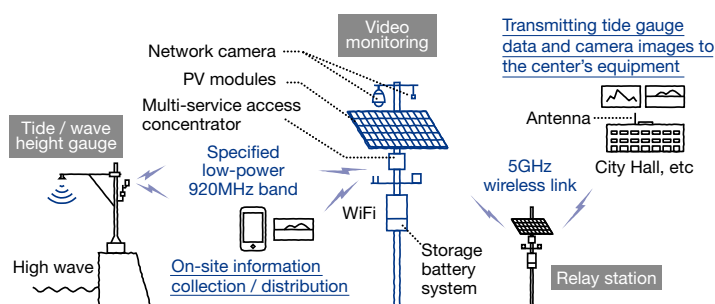
- (1) Activities to reduce the impact of climate change through our products, services, and solutions; and
- (2) Activities to reduce the impact on our corporate activities

Specific examples of (1) include the coastal monitoring system and the Green Air-Conditioner. Panasonic has developed the coastal monitoring system that sources power independently. This system always operates wireless network cameras and wireless transmission devices by photovoltaic power generation modules and storage batteries. It would contribute to preparing for high tides that are expected to increase due to climate change.

As for Green Air-Conditioner, we are working on to develop new products in joint project with other company to commercialize them towards the Olympic and Paralympic Games Tokyo 2020 (for commercialization in April 2019). Dry-type mist made by mixing fine particles of water and air to minimize the sense of wetness as well as air curtains that will create dome-shaped cooling spaces under shades are designed to provide relief from the summer heat in open spaces. These systems are expected to reduce heat stroke and other adverse effects on everyday life caused by global warming.



Coastal tsunami monitoring system in Higashi Matsushima City in Miyagi Prefecture



Coastal Tsunami Monitoring System Configuration

▶ Coastal tsunami monitoring system in Higashi Matsushima City in Miyagi Prefecture (An example of a coastal monitoring system) (Japanese)

<https://www2.panasonic.biz/es/solution/works/higashimatsushima.html>

▶ [Press release] Introduction of the “Green Air-Conditioner,” outdoor mist cooling system equipped with micro mist

<https://news.panasonic.com/jp/press/data/2019/04/jn190419-1/jn190419-1.html>

As for (2), the first priority is to identify the issues to be addressed by assessing the impact of climate change on Panasonic. One such issue is the effect of water shortages on our production activities. Panasonic completed all water risk assessments for its production sites in fiscal 2018. As of now, we have not identify any visible water risk that may affect its business activities. For further details, please see Water Resource Conservation (Pages 65-66).



Micro mist



Air curtain creating dome-shaped cooling space



Environment: Global Warming Prevention at Factories

Reducing CO₂ Emissions through Production Activities

Panasonic engages in energy-saving measures to reduce CO₂ emissions in factories, aiming at reinforcing our environmental management structure for contribution to climate change mitigation, increase of productivity and reduction of energy costs in factories. In the revision of Green Plan 2018, our Environmental Action Plan for 2016, the “CO₂ basic unit” has been used as an indicator for CO₂ reductions in our production activities. Members at our respective factories are proactively working to achieve the fiscal 2019 target of reducing “CO₂ basic unit” by 5% or more compared to fiscal 2014 (more than a 1% annual reduction on average).

In energy-saving and CO₂ emission reduction measures, we roll out good examples, nurture environmental specialists, and conduct CO₂ ITAKONA activities^{*1} corporate-wide, in addition to individual activities conducted at each factory. At the same time, we are also promoting the introduction and utilization of photovoltaic power generation to achieve our fiscal 2019 target of adopting “at least 10,000 MWh of in-house renewable energy.” Adopted amount of in-house renewable energy reached 25,000 MWh^{*2} companywide^{*3} in fiscal 2019, exceeding the target. At the same time, we introduced a scheme to switch to LED lighting at our factories, offices, and showrooms that will reach completion at all business divisions^{*4} by fiscal 2019.

Our investment in CO₂ emissions reductions in fiscal 2019 was 2.9 billion yen.^{*5}

As a result, the CO₂ emission per basic unit in fiscal 2019 was reduced by 14% compared to fiscal 2014 (annual average of 2.8%), which exceeded the target level. Not only the emission per basic unit, but also that of the total energy is steadily reducing.

Additionally, Panasonic has participated in Keidanren’s “Action Plan for Low Carbon Society”, a voluntary action program to prevent global warming across the whole of the electrical and electronic engineering industry, with targets set for 2030. Specifically, we are steadily implementing energy-saving measures in our factories and offices to achieve the goals set by the industry in Japan, aiming to improve the energy consumption consumption per basic unit in our factories and large offices at an annual rate of 1% on average towards 2030.

^{*1} ITAKONA is a coined word created by Panasonic, which is a concept for a method to find unnecessary activities, MUDA in Japanese, by analyzing costs of materials and components of a product in details in order to find unnecessary activities in product design at the stage of product development. CO₂ ITAKONA activities are the ones where ITAKONA activities are applied to find unnecessary activities related to reduction of CO₂ emission. Through CO₂ ITAKONA activities, energy consumption per production amount (energy consumption per basic unit) are continuously visualized, and factors of variations of the energy consumption per basic unit, measures to manufacture products with minimum energy consumption per basic unit are analyzed and discussed. Thereby, new viewpoints for energy efficiency, as well as effective measures are found.

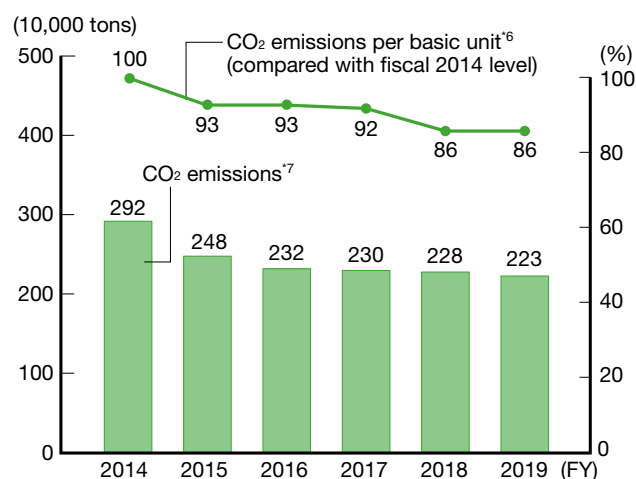
^{*2} Covers solar energy, wind power and biomass energy. Excludes heat pumps.

^{*3} Includes renewable energy use at the company’s non-manufacturing sites.

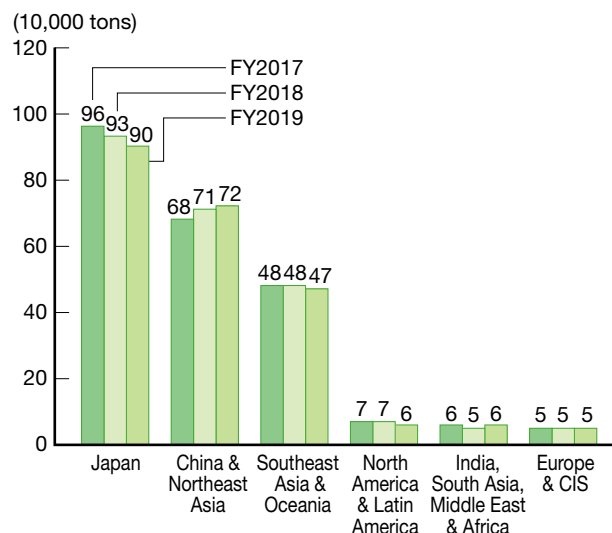
^{*4} The targets were installable sites

^{*5} Includes all investments concerning CO₂ emissions reduction. Differences or proportion are not calculated.

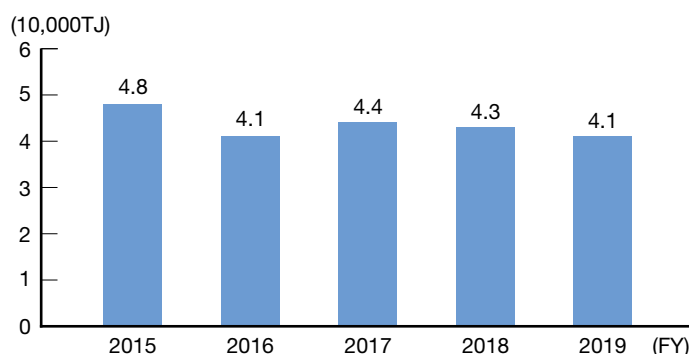
CO₂ Emission in Production Activities and CO₂ Emission Per Basic Unit



CO₂ Emission in Production Activities (by region)



Energy Consumption in Production Activities



*6 Calculated using the weighted average value of improvement rates compared to the fiscal 2014 in CO₂ emissions per basic unit, which is calculated by dividing CO₂ emissions by the volume of activity closely related to CO₂ emissions, including production amounts and volumes, etc. of each factory. As for the weighted factor, the CO₂ emission amount of each factory on the assumption of no improvement is used.

*7 The factors related to fuels are based on the Guidelines for Calculation of Greenhouse Gas Emissions (version 4.3.2). The CO₂ emission factor (kg-CO₂/kWh) for electricity purchased in Japan in each fiscal year is fixed at 0.410 to accurately reflect efforts for CO₂ emissions reduction. If the factors set for each fiscal year are used instead (0.570 for fiscal 2014, 0.554 for fiscal 2015, 0.587 for fiscal 2016, 0.512 for fiscal 2017, 2018 and 2019), total CO₂ emissions will be 3.34 million tons for fiscal 2014, 2.77 million tons for fiscal 2015, 2.68 million tons for fiscal 2016, 2.50 million tons for fiscal 2017, 2.47 million tons for fiscal 2018, and 2.41 million tons for fiscal 2019. The factors above are also used for electricity purchased from power producers and suppliers (PPS). The GHG Protocol factors for each country are used for electricity purchased outside Japan.

Promoting CO₂ Reduction Activities in our Factories

To ensure steady progress with reducing CO₂ emissions, it is important to visualize trend of the energy consumption of each facility in factory and the effects of specific emissions reduction measures. To date, we have worked on CO₂ reduction by introducing more than 40,000 measurement equipment systems and Factory Energy Management System (FEMS) at all of our global manufacturing sites, promoting METAGEJI (Meter and Gauge)*⁸, which visualizes and analyzes energy consumption.

Based on this scheme, the CO₂ ITAKONA activities have been implemented since fiscal 2011. Through CO₂ ITAKONA activities, energy consumption per production amount (energy consumption per basic unit) are continuously visualized, and factors of variations of the energy consumption per basic unit, measures to manufacture products with minimum energy consumption per basic unit are analyzed and discussed. Thereby, new viewpoints for energy saving as well as effective measures are found.

An example of factory energy conservation support service is introduced on the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/co2/service.html>

*8 METAGEJI is a coined word created by Panasonic which refers to visualizing energy consumption and implementing measurable reduction initiatives by introducing measurement instruments, such as meters and gauges.

Activities at factories

Members in our respective factory are actively and continually working on to reduce CO₂ emissions. In fiscal 2019, we received four awards including the Grand Prize of the Minister of Economy, Trade and Industry for Energy Conservation Best Practices in the Energy Conservation Grand Prize 2018. In the area of Best Practices, our two factories received awards stated below; both of the activities conducted with production reform on-site in the factory, and the advanced activities for innovation in production were highly evaluated.

●Prize of the Director General of the Agency for Natural Resources and Energy (Industrial category)

Niigata Factory, Lighting Business Division, Panasonic Corporation, Life Solutions Company*

“Energy saving activities in the factory whose backbone is to manufacture energy-saving LED lighting fixtures”

The activities conducted in Niigata factory, which supplies energy-saving products by energy-saving manufacturing



Niigata Factory, Lighting Business Division, Panasonic Corporation, Life Solutions Company

were highly evaluated on the activities to improve its production processes involving a degreasing agent manufacturer, in addition to the activities which all employees participate in.

●Grand Prize of the Minister of Economy, Trade and Industry (Energy-saving Category)

Manufacturing Innovation Division, Innovation Promotion Sector, Panasonic Corporation

“Development of Smart EMS and energy saving activities by fully utilizing the Smart EMS.”

The activities to build a unique system through collaboration of all members from production sites and engineers by utilizing IoT/AI were highly evaluated.

*Name of the company: Eco Solution Company when it received award.

In addition, the Manufacturing Innovation Division, who leads innovation in manufacturing at Panasonic, are working on to reduce energy consumption to use in our factories, through multiplying our strength in manufacturing, with “Manufacturing Vision” which aims at trying to solve customer issues and social issues. We will continuously strive for making Zero CO₂ factories, activities to realize the “Environmental Vision 2050”, through closely collaborated with relevant divisions.



Received the Energy Conservation Grand Prize



Manufacturing Vision

Utilization of Renewable Energy

To reduce CO₂ emissions, Panasonic actively and globally promotes the adoption of renewable energy suited the characteristics of the region, such as photovoltaic power generation systems. The principal applications of renewable energy in fiscal 2019 are the installation of photovoltaic power generation systems in China, Southeast Asia and Japan.

In China, Panasonic Industrial Devices Materials (Guangzhou) Co., Ltd. (PIDMGZ) installed a large-scale photovoltaic power generation system with a generation capacity of approx. 1.4 MW.

In Southeast Asia, a 500-kW photovoltaic power generation system has been introduced in Panasonic Asia Pacific Pte. Ltd. (PA) in Singapore.

Additionally, a 100-kW photovoltaic power generation system was started up at the Kadoma site of the Industrial Solutions Company (IS). In addition to reducing CO₂ emissions at the site, it is being used to gather verification test data for starting up photovoltaic power generation systems at other sites.

As a result of these activities and full operation of photovoltaic power generation system at respective existing sites, our in-house renewable energy adoption across the entire company⁹ reached 25,000 MWh¹⁰ in fiscal 2019, exceeding the fiscal 2019 target.

Photovoltaic power generation system is being promoted at other global sites in addition to those mentioned above, and will be installed by fiscal 2021 at sites where system implementation is viable.

We will continue our efforts to achieve further reductions in CO₂ emissions.

Examples of the use of renewable energy are introduced on the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/co2/site.html>

⁹ Includes renewable energy utilization at non-production sites.

¹⁰ Includes photovoltaic, wind, and biomass power but not power from heat pumps.



Photovoltaic power generation system at PIDMGZ



Photovoltaic power generation system at PA



Photovoltaic power generation system at IS, Kadoma

Approach towards the CO₂ Emissions Trading Scheme in China

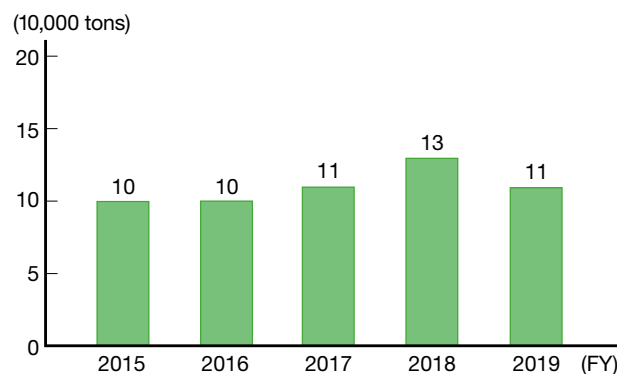
In China, an Emissions Trading Scheme (ETS) targeted for more than 1,700 companies in the power industry has been implemented from December 2017. China's Ministry of Ecology and Environment publicized Tentative Regulations for the Administration of Carbon Emissions Trading at the end of March, 2019. It is expected that the regulations become stricter. As we have many business divisions located in China, we continue to take measures for the possibilities that Panasonic may be a target in the light of risks and opportunities, by making use of our strength in terms of reducing CO₂ emissions in production activities we have conducted.

Reducing the Emissions of GHGs Other than CO₂ from Energy Use

GHGs other than CO₂ from energy use emitted by Panasonic include nitrogen fluoride (NF₃) and sulfur hexafluoride (SF₆) used as cleaning gases in LED and semiconductor factories, hydrofluorocarbons (HFCs) used in air conditioner factories as refrigerants for products. To reduce these gases, we implement a variety of measures, such as installing removal devices, preventing leakage of refrigerants, collecting and destroying refrigerants, and replacing the gas with substitute non-GHG.

GHG emissions other than CO₂ from energy use (CO₂-equivalent; hereinafter the same) in fiscal 2019 amounted to 110,000 tons, which was 20,000 tons less than the previous fiscal year.

Emissions (CO₂-equivalent) of GHGs Other than CO₂ from Energy Use in Production Activities

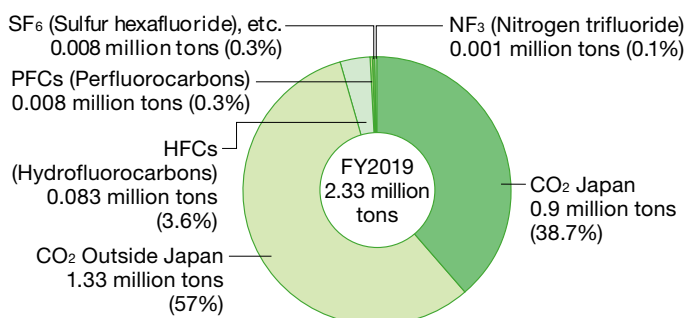


Breakdown of Total GHG Emissions (by gas and by scope)

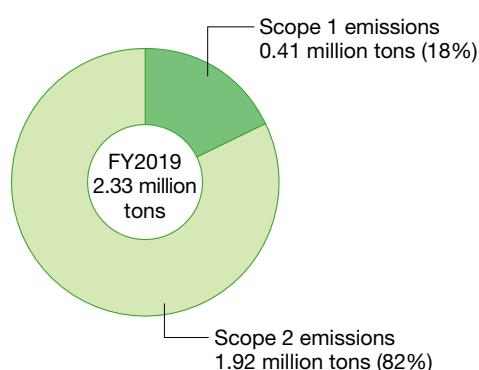
Our GHG emissions, including emissions from energy sources and other sources, reached 2.33 million tons in fiscal 2019, the breakdown being 18% for Scope 1 emissions^{*11} and 82% for Scope 2 emissions^{*11} (see page 33 for Scope 3 emissions).

^{*11} GHG emissions defined by the GHG Protocol, an international calculation standard for GHG emissions. Scope 1 emissions refer to all direct GHG emissions from facilities that are owned or controlled by the reporting entity (e.g. emissions from usage of town gas or heavy oil). Scope 2 emissions refer to GHG emissions from manufacturing of the energy that is consumed in facilities owned or controlled by the reporting entity (e.g. emissions from generation of electricity that the reporting entity purchased).

Breakdown of Total GHG Emissions (CO₂-equivalent) in Production Activities (by category)



Breakdown of Total GHG Emissions (CO₂-equivalent) in Production Activities (by scope)



Environment: Green Logistics



Reducing CO₂ Emissions in Logistics

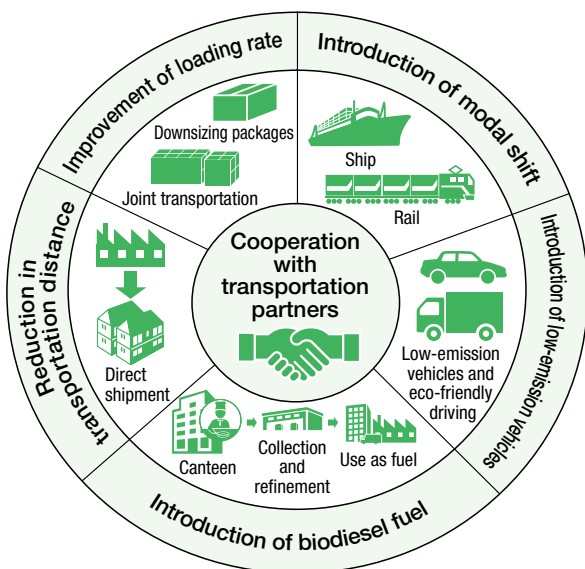
To contribute to the prevention of global warming as well as to improve transportation efficiency while reducing costs, Panasonic is working to reduce CO₂ emissions in logistics.

In the revision to our Environmental Action Plan “Green Plan 2018” in fiscal 2017, numerical targets for reducing CO₂ emissions per basic unit of transportation within Japan by 1% or more year-on-year and reducing them by 5% or more in fiscal 2019 over the fiscal 2014 level were announced. To achieve these targets, we have taken actions, focusing introduction of modal shift, low-emission vehicles, and biodiesel fuels, reductions in transportation distances, and improvement of the loading rate.

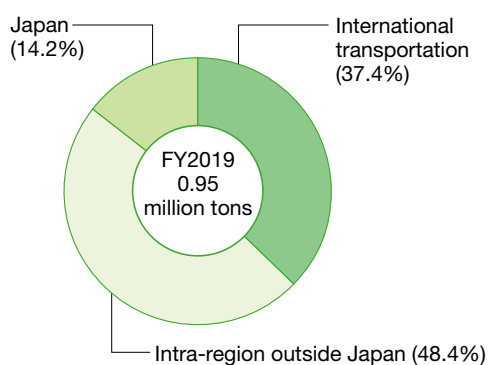
In fiscal 2019, our global CO₂ emissions from logistics activities came to 0.95 million tons across the world, of which international transportation was 0.355 million tons, and domestic transportation within Japan was 0.135 million tons. CO₂ emissions per basic unit of transportation within Japan reduced by 2.6% from the fiscal 2014 level.

*1 CO₂ emissions per transportation weight.

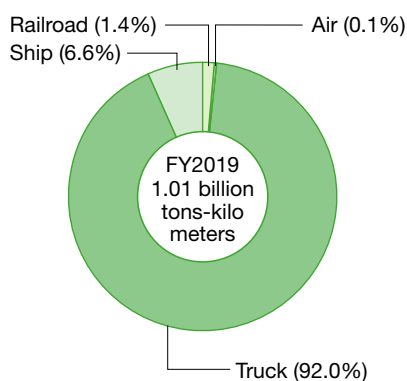
Focused Activities for Green Logistics



CO₂ Emissions from Logistics



Transportation Amount by Transportation Method (Japan)



Consolidated Shipment (ship/load of different products at the same time) in Collaboration with Sales Division

Making best use of that products are shipped from the same warehouse, Panasonic has shipped products in consolidated cargo (ship/load of different products at the same time) in collaborating with its sales division. Under the system of order finalization two days before the shipment, which was introduced in 2017, the followings have been realized: 1) allocation of a tack for the shipment one day before the shipment instead of on the shipment day, and 2) consolidated shipment of water heaters and air conditioners. As a result, the number of ordering trucks for shipment has been reduced, which has contributed to CO₂ reduction, and at the same time, actions for shipment risk have been realized. In fiscal 2019, the number of actually ordered trucks for consolidated shipment was 2,512 trucks, whose consolidated rate was 27%, and CO₂ reduction effect was equivalent to 61 ton per year; for the subject shipment, 4.7% of CO₂ was reduced.

Modal Shift^{*2} Initiative in Collaboration with Logistics Partners

Panasonic promotes a modal shift in transportation from trucks to railroad and ships in order to reduce CO₂ emissions.

As a part of this initiative, we have been working together with Suzuyo & Co., Ltd., Suzuyo Cargo Net Co., Ltd. and Nittsu Panasonic Logistics Co., Ltd. towards a new manner of transportation since 2017. Panasonic has conventionally used cargo trucks to transport its washing machines from Fukuroi City in Shizuoka Prefecture to Tosu City in Saga Prefecture. We have managed to switch this means of transportation to domestic shipments twice per week by reducing the shipping volume variation to average out the transportation load. This initiative generates a CO₂ emissions reduction effect equivalent to 98 tons.



Domestic vessel transportation

^{*2} Switch from truck and air transport to railroad and sea vessel transport that has less environmental impact.

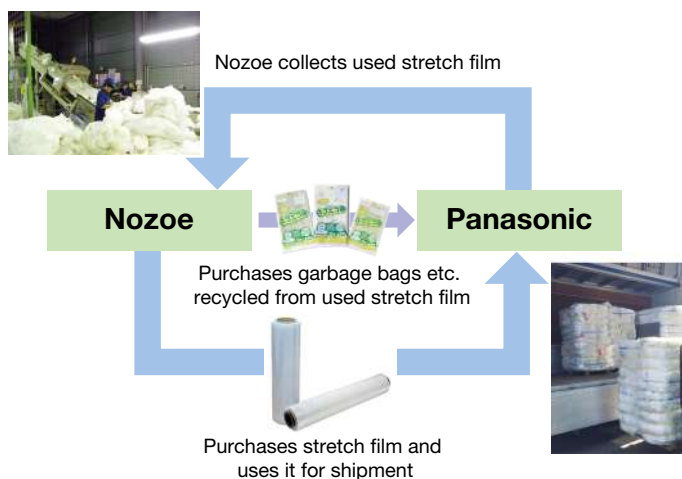
Use of Biodiesel Fuel (Japan)

Panasonic promotes transforming waste cooking oil collected from its business sites into biodiesel fuel and utilizing it for vehicles used in production, procurement, and marketing activities. Since fiscal 2010, we have been using 100% biodiesel fuel for the joint transportation with the Asahi Shimbun Company in the Tokai and Tokyo Metropolitan areas to enhance further usage of biodiesel fuel. Biodiesel fuel usage in fiscal 2019 was 13,777 liters. We will increase opportunity to use the biodiesel fuel in non-road vehicles such as forklifts.

Recycling of Stretching Film Used in Shipment

As an activity to reduce logistics waste, in fiscal 2015, we started recycling and reusing used stretch films with Nozoe Industry Inc. (Nozoe), and in fiscal 2019, we have continued the activity. It used to that all the stretch films used for shipment were discarded after use, however, the used films are now recycled and used as raw materials for polyethylene bags by Nozoe, while Panasonic has purchased the bags made of recycled materials. As Chinese government started banning imports of waste plastics in the end of 2017, Panasonic's other sites who did not have business contact with Nozoe in Japan started similar activities with Nozoe. In addition, with the launch of full operation of Nozoe's recycling factory in Saitama Prefecture led to expand our recycling scheme for used stretch film in Kanto region. As a result, the total 358 tons of stretch film was recycled. In FY2019, we have started to purchase recycled products from Nozoe in Panasonic, to further increase purchase volume of Nozoe's recycled products. We continue to make effective use of used stretch films, while reducing logistics wastes.

Stretch Film Recycling Scheme with Nozoe



Landing Shipments at a Port Close to the Target Sales Area

Aiming for higher efficiency in transporting products, Panasonic is expanding its efforts to land imported products at a port close to the target sales area in Japan. Conventionally, landing of products was centralized to a port near the West Japan Global Logistics Center (GLC) in Amagasaki City in Hyogo Prefecture, stored at the West Japan GLC, and then transported to respective locations as required. Landing the products at ports closer to the target sales areas can reduce the distance required for land transport within Japan, thereby contributing to reducing not only CO₂ emissions but also inbound and outbound deliveries between sites as well as distribution costs. This effort has reduced CO₂ emissions by 1,014 tons per year in fiscal 2019.

We will further refine projection of sales demand in various regions and optimize stock amounts held in those areas, and expand landing products at ports near target sales areas.

Environment: Resources



Recycling-oriented Manufacturing

As economic grow rapidly on a global scale, more and more people has become concerned and pay more attention to issues of resources. Particularly, mining new resources is a big issue, as it not only greatly has burdened on environment, but also has heightened people's concerns on depletion of mineral resources and rise of resource price.

In such a situation, to address the concerns, and as our responsibility as a manufacturer that uses a large volume of resources, Panasonic has worked for Recycling-oriented Manufacturing under the theme of circulating resources since 2010, positioning it as an important issue along with CO₂ emissions reduction. Under the Green Plan 2018 revised in 2016, we have further worked for realizing recycling-oriented manufacturing, by continuously increasing the used amount of recycled resin, the recycling ratio in factories, and recycling-oriented manufacturing has been further implemented through efforts such as expanding the creation of resources recycling-oriented products. Particularly for recycled resin, in to definitely increase its usage amount, we have promoted to use recycled one by setting the target.

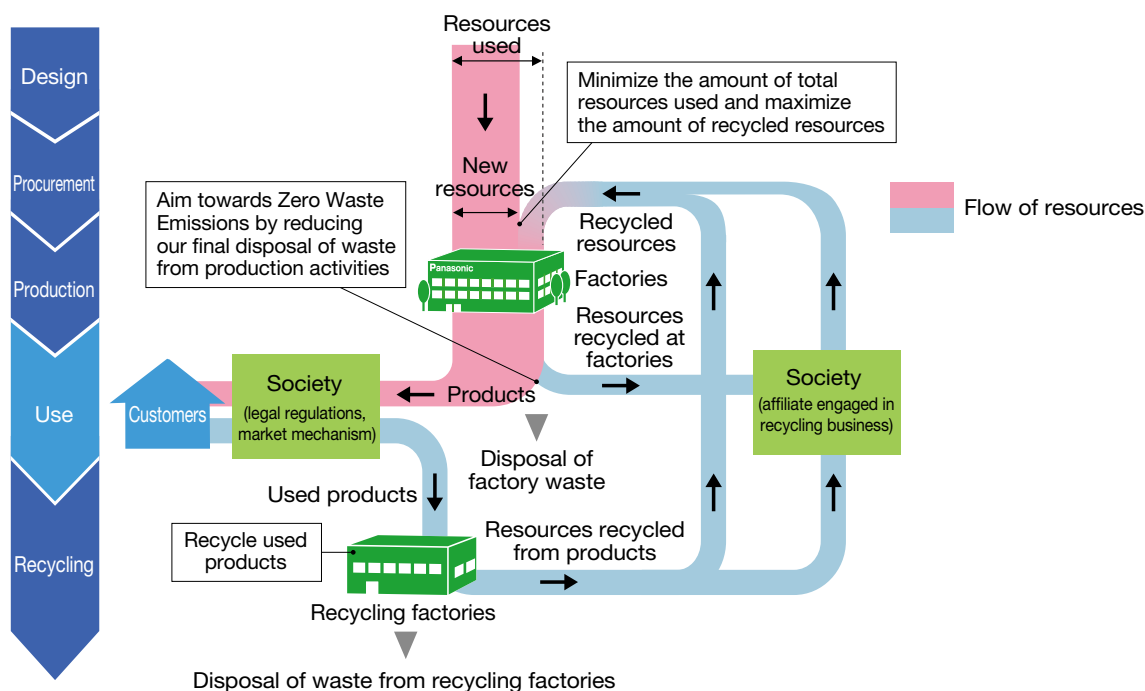
Recycling-oriented Manufacturing has three aspects in the activities: 1) minimizing the amount of total resources used and maximizing the amount of recycled resources, 2) aiming towards Zero Waste Emissions by reducing our final disposal of waste from production activities, and 3) recycling used products.

As for 1), in addition to activities to make a product lighter and smaller, we are working on to introduce new recycle technologies and a system for increase collected amount of resources, in order to increase the amount of recycled resources.

Furthermore, by reducing the amount of factory waste and thoroughly recycling resources from waste, we are working to reduce the amount of landfill disposal to as close as Zero.

We have proceeded activities towards sustainable business for product lifecycle by establishing a whole system where not only the resources ,which were wasted from the upper streams to the lower streams in the production process, are utilized, but also products which are manufactured using resources collected from used products; thereby, customers purchase and use the eco-friendly products.

Ideal Image of Recycling-oriented Manufacturing



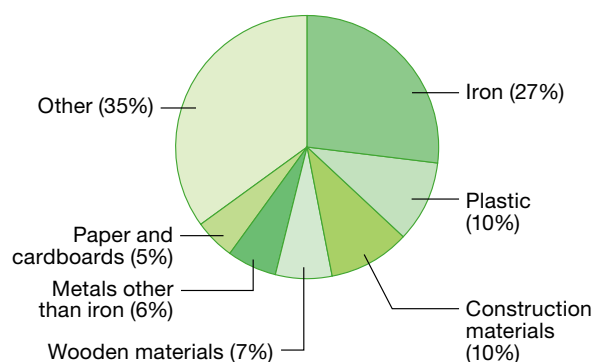
We use many kinds of resources, including iron (27% of total resources used) and plastic (10% of total resources used), because of our wide range of products and businesses, from home appliances, components such as semiconductors and batteries, to housing. In Recycling-oriented Manufacturing, we are further working on reducing input of virgin resources, at the same time for increasing the usage amount of recycled resources, we are working on to establish a circular system according to feature of the resource per resource type.

Furthermore, we clarify recycled resource utilization issues by identifying the volume of each type of resource used across the Panasonic Group. For example, in the case of recycled resin, we used approx. 14,500 tons of recycled resin in our products in fiscal 2019 by evolving the actions to take for the features required for components to use, securing stable amounts of supplied components, improving for using the components at manufacturing side, and developing new recycling technologies. Total usage of recycled resin since fiscal 2015 has reached approx. 79,400 tons. As stated above, Panasonic has achieved the targets of the Green Plan 2018, by minimizing input of virgin resources, while maximizing use of recycled resource.

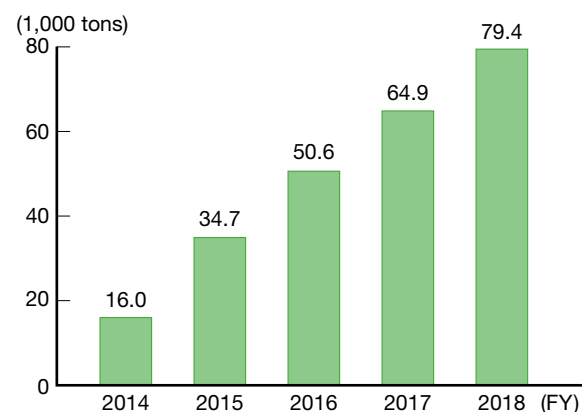
In addition, as for the factory waste recycling rate, we had traditionally set different targets for Japan and countries outside Japan according to the relevant local infrastructures. However, with the awareness of the importance of zero waste emission activities, we have set a globally standardized target since fiscal 2011 and are taking steps to improve the standard level of waste recycling across the entire Group. The factory waste recycling rate^{*1} has reached its target, achieving 99.1 % for fiscal 2019 against the target of 99% or more in fiscal 2019 (see Page 59).

^{*1} Factory waste recycling rate = Amount of resources recycled/(Amount of resources recycled + Amount of landfill)

Breakdown of Input Virgin Resources Used in Fiscal 2019 (by category)



Results of Recycled Resin Usage (Cumulative total from fiscal 2015)



Promotion of Circular Economy

Alongside changes in customer lifestyles, there is now a growing global trend for customers to use only specific functions of a product, rather than using or owning the whole product. In Europe, building a circular economy for sustainable economic growth has become a major economic strategy, in a move away from continuous resource consumption. This trend is spreading around the world along with the change in customers' sense of values. Amid this development, Panasonic is introducing the idea of the circular economy and moving forward in efforts to promote effective utilization of resources and maximization of customer value. The circular economy activities we promote have two aspects: 1) creation of circular economy businesses, and 2) evolution of recycling-oriented manufacturing.

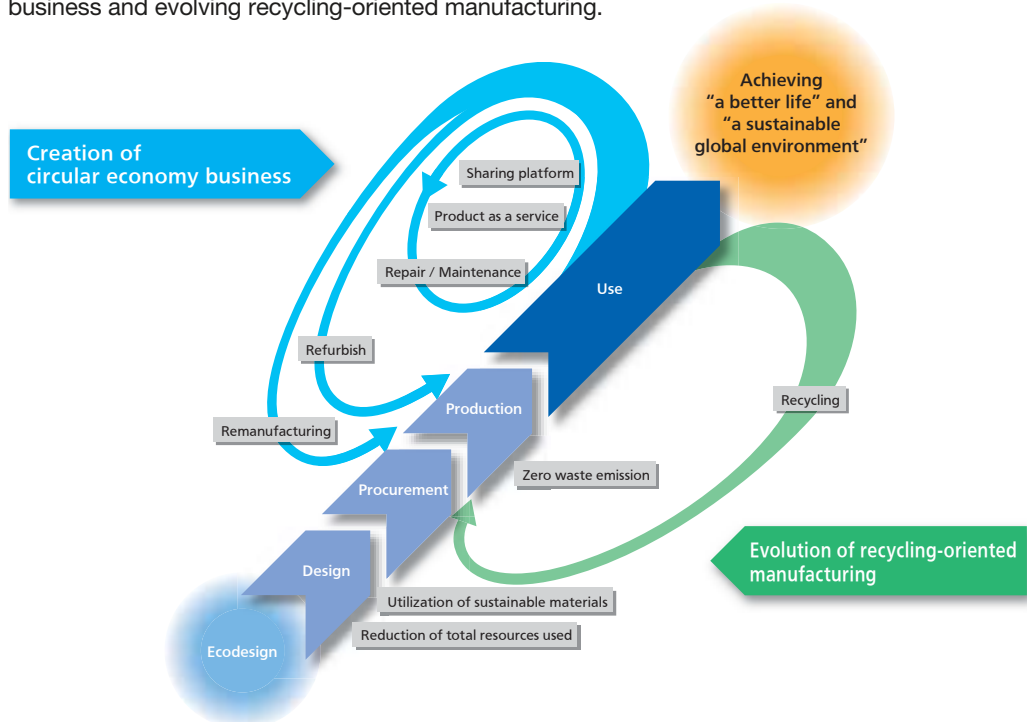
In order to realize the new value of using only product functionalities, instead of using or owning the whole product, we will strive to create circular economy businesses. These include a "Sharing service", where multiple users use the same individual product, a "Product as a service" where services are fulfilled based on functions, and "Repair and Maintenance, Refurbish and Remanufacturing", where functions, values, and the life cycle of a product are utilized in the most efficient manner by recycling or reusing the product itself or the components used in the products.

Alongside this, we continue to implement recycling-oriented manufacturing by reduction of the total resources used, utilization of circulative resources, zero waste emission, and recycling. Furthermore, we will develop recycling-oriented manufacturing to a higher level by using new materials and the latest digital technologies.

With all these activities, we aim to realize both "A better life" and a "Sustainable global environment" towards our Environmental Vision 2050, based on an eco-design concept which maximizes customer value in use by increasing resource efficiency at each process in design, procurement, and production.

Concept for the Actions toward Circular Economy

We will promote effective utilization of resources and maximization of customer value by creating circular economy business and evolving recycling-oriented manufacturing.



As specific activities, we will take actions to meet our targets regarding resources in Green Plan 2021. First, in order to create circular economy businesses, we will complete mapping of the relationships between our existing business and the circular economy, and then, to shift the existing business to circular economy businesses based on the mapping.

Next, we aim to use 42,000 tons or more of recycled resin (cumulative from FY2020-2022), by further developing the actions needed to achieve necessary component features, securing stable amounts of supplied components, improving the use of components in manufacturing, and developing recycling technologies.

Furthermore, as Zero waste emission activities are important in utilizing resources, we will continue to work toward achieving 99% or more for factory waste recycling rate at each factory as stated in the Green Plan 2018.

Environment: Reduction in Resources Used and Use of Recycled Resources



Reduction in Resources Used

To minimize the use of resources for production, we continuously look to reduce the weight of our products. Through the Product Environmental Assessment (see page 36), Panasonic has been promoting resource saving from the product planning and design stage, such as using less resources, making our products lighter and smaller, and using less components. We also implement various measures from the standpoint of resource recycling throughout the product life cycle, such as component reuse, longer durability, use of recycled resources, easier battery removal, and labels necessary for collection/recycling.

Examples of weight reduction and recyclable product design are also introduced in the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/resource/reduce.html>

Products Using Recycled Resources

Under the concept of “product-to-product”, we are enhancing our initiatives of utilizing resources recovered from used products. As for resin, we promote the reuse of resin recovered from our used home appliances (refrigerators, air conditioners, washing machines, and TVs) for our products. We also started recycling scrap iron recovered from used home appliances in our products in 2013.

► Our approaches to Resources Recycling

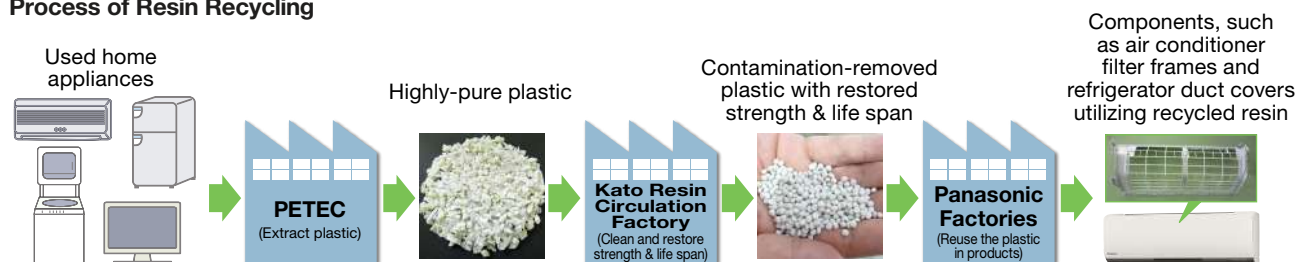
https://www.panasonic.com/global/corporate/sustainability/eco/resource_sp.html



Enhanced Use of Recycled Resin in Home Appliances

To efficiently utilize resin recovered from collected waste home appliances in addition to metals such as iron, copper, and aluminum, our recycling factory, Panasonic Eco Technology Center Co., Ltd. (PETEC), and Kato Plastic Recycling Factory of the Appliances Company work together for resin recycling.

Process of Resin Recycling



Using technologies such as our original near-infrared identification technology, PETEC is capable of sorting shredder residue of waste home appliances into three major types of resins with different purposes and properties—polypropylene (PP), acrylonitrile butadiene styrene (ABS), and polystyrene (PS)—at a material purity of over 99%.

The recycled single resins sorted and recovered at PETEC are then transferred to the adjacent Kato Plastic Recycling Factory to be further purified and processed to recover their chemical properties. Kato Plastic Recycling Factory is a manufacturing and development site that demonstrates promotion of use of recycled resin at our Appliances Company, a home appliance manufacturer and seller. The factory plays an important role in enhancing recycled resin utilization by developing recycling technologies, such as a more efficient method for improving the purity of recycled resins. Recycled resin is generally weaker in strength and has a shorter life than new resin. This is why its chemical properties have to be recovered to the level of new resin to make them usable as materials and components in new products. The properties required by our customers vary depending on the resin. We have established techniques that make full use of the properties optimal to each resin such as PP, ABS, and PS, which include adding antioxidants or mixing recycled and new resins.



Near-infrared sorting machine that can sort three types of resin simultaneously

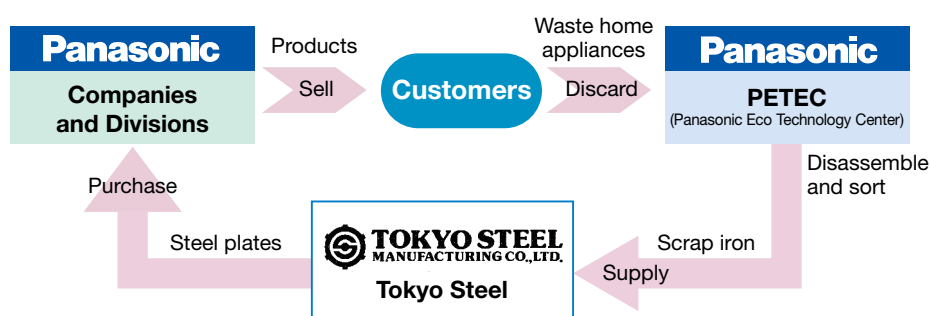
A new development in our activities in fiscal 2019 is the development of a polypropylene (PP) resin containing plant-derived cellulose fiber. The new, eco-conscious PP resin with cellulose fiber is currently used in structural components for cordless, stick-type vacuum cleaners, contributing to its main feature of lighter weight.

Kato Plastic Recycling Factory is developing and materializing eco-conscious new materials, such as plant-derived materials, for practical use, in addition to reusing resins from waste home appliances, to expand our use of resources.

Building a Recycling Scheme for Scrap Iron

Jointly with Tokyo Steel Co., Ltd., we started a recycling scheme for scrap iron in July 2013. In this scheme, we recover the scrap iron from used home appliances and Tokyo Steel makes it into steel sheets. We then purchase the sheets back as a material for our products. Supplying scrap iron for recycling and repurchasing the recycled iron is the first scheme of its kind in the Japanese electrical manufacturing industry.

Self-recycling Scheme for Electric Steel Plates



Specifically, scrap iron from home appliances collected and treated at PETEC is supplied to Tokyo Steel's Okayama Plant, where the scrap iron is processed into electric steel plates.^{*1} Panasonic procures the recycled steel plates and utilizes them in products. Discussions with Tokyo Steel commenced in 2010, and we have worked together since then to improve the quality of recycled iron to a level sufficient for production use, as well as developing the technology to improve the applicability of the recycled iron. From this we identified the optimum application of the electric steel plates, and refined its specific features (e.g. shape, strength, and weldability) to meet application-specific requirements. Use of thin electric steel plates in our products was first made possible in 2011. Through this close collaboration, we materialized this recycling scheme in 2013, a scheme where a home appliance recycling company that we own supplies scrap iron to be used to make electric steel plates.

The amount of scrap iron we initially supplied to Tokyo Steel was about 50 tons per month. In fiscal 2019, it reached over 2,600 tons, and the recycled steel is being used in our products, including washing machines and ceiling materials for housing.

Self-recycling Scheme Process



The increase in electric steel plate usage leads to an increase in the usage of scrap iron, which is one of the most important resources in Japan. In addition, producing steel plates from scrap iron emits much less CO₂ compared with producing steel plates from scratch. This scheme also stabilizes the procurement price, because the price of scrap iron supplied from PETEC and the price of electric steel plates procured from Tokyo Steel are determined by the scrap iron fluctuation rate agreed between the two companies. We will further expand this recycling scheme for more efficient resource utilization, CO₂ emissions reduction, and stabilization of procurement prices.

*1 Steel produced from scrap iron melted and refined in an electric arc furnace.

Environment: Factory Waste Management – Zero Waste Emissions



Improving Factory Waste Recycling Rate

From the viewpoint of effective usage of resources, we believe that generation of waste and revenue-generating waste at factories must be minimized, even if such waste could be sold as valuable commodities. Based on this belief, we identify the amount of generated waste (including both revenue-generating waste and factory generated waste) and classify it into: (1) recyclable waste (including those that can be sold and those which can be transferred free of charge or by paying a fee), (2) waste that can be reduced by incineration or dehydration, and (3) landfill (waste with no option other than being sent to landfills).

We reduce the emission of waste by boosting yield in our production process and increasing the recycling rate of our waste materials. Accordingly, we strive globally toward achieving our Zero Waste Emissions from Factories^{*1} goal by reducing the amount of landfill to nearly zero. We have reinforced such efforts particularly in China and other Asian countries, where many of our factories are located.

The factory waste recycling rate reached 99.1% in fiscal 2019, exceeding the target of 99% in Green Plan 2018. We will continue to promote these activities to maintain and improve our factory waste recycling rate.

As a means to reduce the generation of waste, we are fostering resource-saving product design. In our production activities, we are engaging in resource loss reduction, employing our own unique material flow analysis methods. We consider materials that do not become products and excessive use of consumables as resource losses, and make the material flow and lost values for each process visible in order to resolve the issues with close collaboration with the design, manufacturing, and other relevant business divisions. In the future, we will promote further reductions in resource losses through the Resource Loss Navigation, our original system developed to automatically display information to help reduce resource losses.

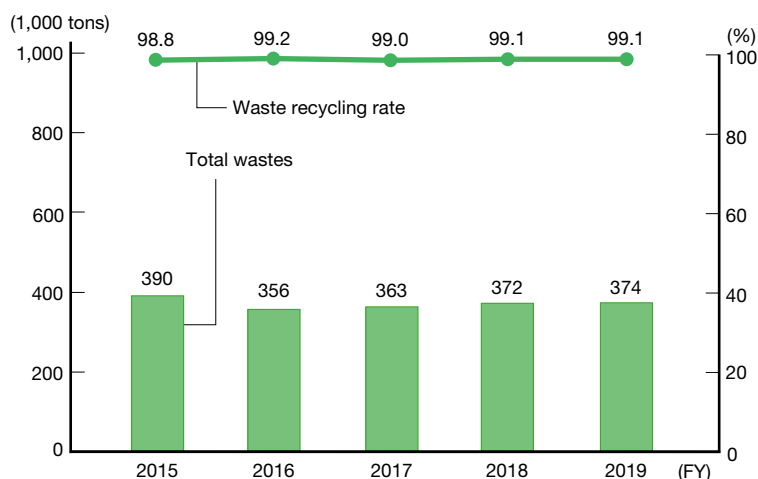
As measures to reduce the amount of landfill of waste and revenue-generating waste, we constrain the amount of waste materials that are particularly difficult to recycle, such as thermosetting resin. We are also strictly adhering to waste sorting practices in production processes to further expand the reuse of resources.

Because waste recycling rates in our overseas factories lag behind those in Japan, we have worked to improve the average level of recycling activities by sharing information within and between regions outside Japan. Specifically, in addition to accelerating the information sharing on waste recycling issues between our local factories and group companies in Japan, we also promote the sharing of excellent examples and know-how among our factories across regions by utilizing BA Charts^{*2} prepared by each region, following our long-standing approach toward CO₂ reduction activities.

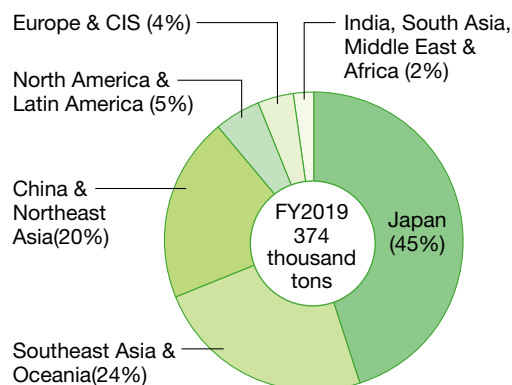
^{*1} Definition by Panasonic: Recycling rate of 99% or higher. Recycling rate = Amount of resources recycled/(amount of resources recycled + amount of landfill).

^{*2} A chart-format summary of comparisons between “before and after” implementation of waste reduction and recycling measures.

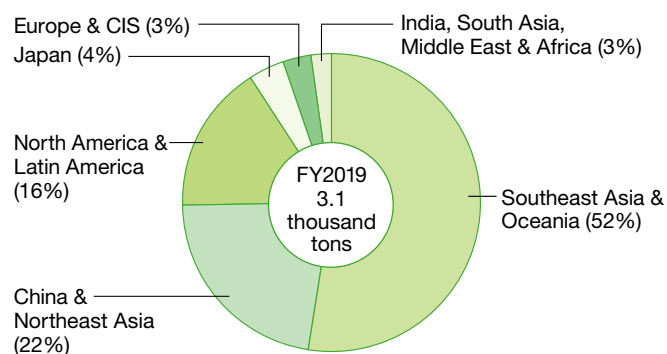
Amount and Recycling Rate of Total Wastes Including Revenue-generating Waste



Breakdown of Total Wastes Including Revenue-generating Waste (by region)



Breakdown of Landfill (by region)



Breakdown of Total Wastes Including Revenue-generating Waste for Fiscal 2019 (by category)

(1,000 tons)

Items	Total wastes	Recycled	Landfill
Metal scrap	144	143	0.6
Paper scrap	41	40	0.05
Plastics	44	40	0.6
Acids	32	22	0.1
Sludge	15	11	0.7
Wood	30	29	0.002
Glass/ceramics	6	6	0.05
Oil	26	24	0.08
Alkalies	21	19	0.03
Other *3	16	14	0.9
Total	374	348	3.1

*3 Combustion residue, fiber scraps, animal residue, rubber scraps, debris, ash particles, items treated for disposal, slag, infectious waste, polychlorinated biphenyls (PCBs), waste asbestos.

An example of factory waste reduction is also introduced in the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/resource/zero.html>

Environment: Product Recycling



Global Initiatives for Used Product Recycling

For the purpose of efficient use of natural resources and prevention of environmental pollution, many countries around the world have been enacting recycling laws and developing their recycling systems. Examples include: the Law for Recycling of Specified Kinds of Home Appliances (Home Appliance Recycling Law) and the Act on the Promotion of Effective Utilization of Resources in Japan, the WEEE Directive in the European Union, and recycling laws in many states in the United States. In China as well, a similar recycling law has taken effect. In addition to complying with the Basel Convention which controls the transfer of hazardous waste to non-OECD countries as well as with related laws in respective countries, we strive to establish the most efficient recycling system in each country that is in line with its local recycling infrastructure, including the utilization of third parties.

Product recycling results in fiscal 2019 are as shown below. Because the collected products are becoming more compact and lighter due to the less volume of collection and recycling of CRT TVs and more flat screen TVs, and because the volume of collection and recycling has decreased due to reforms of business areas in various countries, the weight of collected products is on a flat or downward trend.

FY2019 Results

Japan	Processed approx. 165,160 tons of four kinds of used home appliances
Europe	Collected approx. 24,761 tons of used electronic products
USA	Collected approx. 275 tons of used electronic products

Product Recycling Initiatives in Japan

In response to the Home Appliance Recycling Law of 2001, which covers four specified kinds of home appliances, we established Ecology Net Co., Ltd. jointly with Toshiba Corporation to operate and manage a geographically dispersed recycling network through the effective use of existing recycling facilities nationwide. This recycling management company operates comprehensive recycling-related services on behalf of the “Group A” manufacturers (17 companies including Panasonic), and supervises 333 designated collection sites (shared by “Group A” and “Group B”) and 28 recycling facilities. Our recycling factories, Panasonic Eco Technology Center Co., Ltd. (PETEC), Panasonic Eco Technology Kanto Co., Ltd. (PETECK), and Chubu Eco Technology Co., Ltd. (CETEC)^{*1} conduct unique research to improve our processes for further efficient recycling of the four kinds of used home appliances^{*2} and for the recovery and supply of many resources. In fiscal 2019, we processed approx. 165,160 tons of the four specified used home appliances.

Amendment of the Home Appliance Recycling Law was considered in 2014 in order to make recycling fees clearer and lower, as well as to increase recycling rates.^{*3} This resulted in the revision of the statutory recycling rate^{*4} in April 2015.

Panasonic recycling factories are working to further enhance resource recycling by improving the productivity and recycling rates through efforts of applying different recycling methods appropriate to the characteristics and materials of respective products.

PETECK has developed and put into practical use a space-saving, low-cost compact crushing and sorting system, aiming to efficiently sort air conditioner heat exchangers into single materials. The system can crush heat exchangers in indoor and outdoor air conditioner units simultaneously as they are, and removes grease with centrifugal force generated by high-speed rotating blades on the crushing machine. Aluminum, copper, and iron are sorted by gravity and blower. Copper can be recovered at a high purity of 99%.



Compact crushing and sorting system for heat exchanger of air conditioner in PETECK

^{*1} PETECK and CETEC are joint ventures between Mitsubishi Materials Corporation and Panasonic.

^{*2} Air conditioners, TVs, refrigerators/freezers, and washing machines/clothes dryers.

^{*3} Recycling rate = Valuable resource weight/Total weight of used home appliances.

*4 The amended statutory recycling rates are at least: 80% for air conditioners, 55% for CRT TVs, 74% for LCD and plasma TVs, 70% for refrigerators and freezers, and 82% for washing machines and clothes dryers.

► Overview of Recycling of Specified Home Appliances (Japan)

<https://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery/recycling.html>

► Panasonic Eco Technology Center Co., Ltd. (PETEC)

<https://panasonic.net/eco/petec/>

► PC Recycling

<https://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery/pc.html>

Recycling Efforts in the Europe / CIS Region

In 2018, we collected approx. 24,761 tons^{*5} of used products covered by the WEEE Directive across Europe.

Circular Economy Package (Legislative review of Directives on Waste)

The EU Circular Economy Waste Package has entered into force on July 4, 2018 with new requirements on EPR (Extended Producer Responsibilities) for WEEE, Packaging and Batteries.

This Waste Package is the EU's approach towards "closing the loop" of product lifecycles through greater recycling and re-use measures. The provisions include setting ambitious recycling targets for waste recycling and measures on extended producer responsibility.

Panasonic is working through the industry association DIGITALEUROPE on proper implementation of the new requirements.

WEEE Open Scope

From August 15, 2018 onwards, the scope of the WEEE Directive was extended to include basically all kinds of electrical and electronic equipment (EEE).

In 2018, all EEE had to be re-classified within 6 WEEE categories from the initially established 10 WEEE categories.

Most national WEEE collection schemes provided new price lists as well as new declaration categories and subcategories for producers.

In response to this, Panasonic Europe thoroughly updated, with tremendous efforts, their European recycling information database with the newly applicable national categories in order to be able to generate declarations of EEE put on the market according to the new requirements.

The Russian Waste Law has been amended several times. The most recent amendments came into force in July, August, and October 2018. They define new declaration forms and declaration procedures. Producers and importers must manage waste from their product and packaging waste either through self-compliance or a collective organization, or pay an environmental fee. 14 members (including Panasonic) are registered as members of the collective organization EPR E-WASTE RECYCLING.

Panasonic is working on further developing appropriate regulations and on improving the recycling infrastructure in Russia through the industry association RATEK.

*5 Calculated by multiplying the weight of collected products per collection system by Panasonic market share in terms of weight per collection system.

Promoting Recycling Activities in North America

Panasonic continues its leadership role in establishing and operating a recycling system for waste batteries and consumer electronic products in North America. Following the startup of a state recycling law in Minnesota in July 2007, we established the Electronic Manufacturers Recycling Management Company, LLC (MRM), jointly with Toshiba Corporation and Sharp Corporation in September of the same year, and began recycling TVs, PCs, and other electronic equipment.

With collaborative ties to several recycling companies, MRM operates collection programs on behalf of 43 companies across 20 states and the District of Columbia. The cumulative total of collection by MRM has reached 1 billion lbs. (approximately 460 thousand tons) since its inception in 2007. With the changes in Panasonic's business strategies in the US in 2016, our remaining collection obligations are de-minimis, MRM will continue operating its collection programs on behalf of the manufacturers it serves.

As for waste batteries, we established Call2Recycle in 1994 jointly with other battery manufacturers, and now provide recycling programs for rechargeable batteries throughout the US and Canada. Call2Recycle provides collection programs and a robust retail collection network for over 300 companies, and collected approx. 52,278 tons of primary and

rechargeable batteries in the U.S. and Canada since the organization's inception. In terms of accessibility, 86% of US residents live within 10 miles of a Call2Recycle collection site.

Recycling end-of-life products in Canada started in 2004 with the Alberta Government Extended Producer Responsibility (EPR) Regulation. Since then a total of ten provinces and two territories have legislated WEEE, each with their own unique parameters and requirements. In an effort to harmonize these programs, Panasonic Canada takes an active role in the governance of the Electronic Product Recycling Association, a not-for-profit management organization which was established with the mandate to standardize operations and bring about economies of scale on a national basis through 3,400 collection sites. They are now responsible for managing all the provincial programs with the exception of Alberta and the two territories, as these three programs are under the direct jurisdictions of their governments and not industry. The currently active provincial EPR programs have proven to be very effective in diverting e-waste as reflected in last year's totals, where 115,890 tons in Canada were collected.

As the number of heavy CRT televisions entering the e-waste stream is on the decrease and the trend of light weighting of our products continues, it is therefore apparent that a new measurement/target must be agreed upon as weight collection alone is no longer a valid indicator of program performance.

In 2017, New Brunswick was the last province and the Yukon the last territory to launch their end-of-life recycling programs resulting in all of Canada regulating WEEE programs.

Initiatives in China

In China, through the Executive Committee of Foreign Investment Companies (ECFIC) and other organizations, we are engaged in activities to clarify the products covered by the Second Catalog (published in February 2015) of the Regulation for the Administration of the Recycling and Treatment of Waste Electrical and Electronic Products, which was published in May 2012 and enforced in July of the same year. In addition, we actively gather information and submit comments on setting unit-based rates for the covered products, toward early disclosure of information by Chinese governmental organizations such as the Ministry of Environmental Protection and the Ministry of Finance.

We are also carrying out an assessment of the development of the Plan on Promoting Extended Producer Responsibility promulgated by the government in January 2017 and reviewing our response.

International Collaboration in Southeast Asia and Oceania

Vietnam

Since the introduction of recycling law in Vietnam in July 2016, producers and importers are required to establish a take back scheme for their products sold in Vietnam. Panasonic Sales Vietnam has since set up 7 collection points in Hanoi, Ho Chi Minh, Haiphong, Thanhhoa, Nghean, Danang, and Cantho. In 2018, 32 tons of e-waste were collected and sent to licensed recyclers for proper treatment.

Australia

The National Television and Computer Recycling Scheme was established in Australia in 2011.

Panasonic Australia is a member of the MRI PSO, a co-regulatory arrangement approved by the Australian government to fulfill its obligation under the national scheme. Between July 2018 and June 2019, 1,161 tons of e-waste were recycled.

Other Southeast Asia countries

Regulators in Malaysia, Thailand, and Singapore are also gearing towards the global trend of mandating responsible end-of-life product recycling. Discussions with regulators and industry bodies are in progress. Such examples include Malaysia Department of Environment-Japan International Cooperation Agency (JICA) e-waste management mechanism development project and Thailand local industry association.

Through such engagements between the government and industry bodies, Panasonic hopes to contribute to the formulation of sustainable e-waste management policy in each country.

Recycling Efforts in India

In India, the new e-waste recycling law has been implemented by the Ministry of Environment, Forests and Climate Change (MoEFCC) from the 1st of October 2017, with Extended Producer Responsibility (EPR) targets based on end-of-

life (EoL) defined in the e-waste (Management) rules 2016. To fulfill the compliance, we will collect and recycle waste home appliances through the “I Recycle” program already established by Panasonic India (PI).

Panasonic has also been taking part in the Consumer Electronics and Appliances Manufacturers Association (CEAMA), which promotes an analysis of current recycling activities in India as well as a long-term plan for waste problem solutions.

We are having various dialogues with the Indian government, jointly with CEAMA, about the EPR target and EoL definition for recycling management.

We are also actively engaged in different active associations including the Federation of Indian Chambers of Commerce and Industry (FICCI) and Confederation of Indian Industry (CII) to establish an even more efficient and robust recycling system and to submit industry comments to the Indian government for a better governance system.

Recycling Initiatives in Latin America

In response to a growing trend in stricter environmental laws in Latin American countries, discussions on the establishment of recycling laws and actual enforcement are being conducted.

In Brazil, through industry groups, we are discussing the establishment of local recycling systems with the government, as well as actively participating in collection campaigns in major cities.

In Peru, under the recycling law that came into force in 2016, we joined a nonprofit organization Asociacion Peruana de Actores para la Gestion de Residuos (ASPAGER) as a leading member, and started a used-product recovery program.

In Mexico, a collection program is implemented under the government-approved recycling and management plan.

In Chile, the legislation process has also been accelerated and preparations for setting up a collection program are underway through continuous discussions with the government.

In Argentina, we are participating in the Latin American Battery Association (ALPIBA) and engaging in continuous discussions with the government for effective legislation on the regulation of dry cell batteries.



Environment: Water Resource Conservation

Approaches to Water Resource Conservation

It is said that available fresh water is only about 0.01% of the Earth's total water resources. In addition, the World Economic Forum, host of the Davos meetings, has stated in its annual report on global risks that the water crisis continues to be one of the top risks with global impact, in view of the increase in water consumption to be caused by future economic growth and population increases.

With water shortages becoming an increasingly grave social problem, Panasonic is working to conserve water resources both in its products and production activities, in order to fulfill its social responsibility and to reduce management risks. Our Environmental Policy (page 14) stipulates that we make efforts to conserve water resources by using water efficiently and preventing pollution. Under Green Plan 2018, our Environmental Action Plan for fiscal 2019, we are working to expand our range of products that contribute to saving and recycling water. At the same time, we have worked on reducing the volume of water we consume, while using more recycled water in our production processes to conserve water resources throughout our business activities. In risk management, we worked for our water risk assessment at all our production sites to be completed by fiscal 2019, and have completed 100% of the assessments.

Specifically, we evaluated the scale of water risk at all regions where our production sites are located, in order to identify and mitigate effects of water on our business activities. In the evaluation, we utilized evaluation tools such as Aqueduct supplied by the World Resources Institute (WRI) and the Water Risk Filter supplied by the World Wide Fund for Nature (WWF), which can evaluate risks in various aspects; not only from physical risks such as water shortages, but also from the risks in water-related regulations as well as reputation risks in each region. We also made use of public databases available from respective national governments. In areas with higher water risks, we collected information through public local information as well as through hearings with relevant organizations, etc. By conducting detailed analyses and close examination of the local information and the site data including water use volumes, we, more specifically, identified the effects on our business activities. We steadily proceeded processes of the water risk assessments, and in fiscal 2018, completed water risk assessments at all of our production sites. At present, no water risks that could affect our business activities have been reported. Yet, we will continue to make efforts to reduce water consumption in our production activities in the future under the water risk assessment that had been implemented.

In promoting these activities, we have built a structure to promote environmental management, including water management, (see pages 22-23) under the responsibility of the CQO (Uehara Hiroshi, as of August 2019), to proceed activities using PDCA cycle and upgrade the environmental management level.

In addition, we have established an Environmental Risk Management Structure to continuously reduce environmental risks, and (1) identify environmental risks and promote company-wide risk management every fiscal year and (2) promptly respond to occurrence of environmental risks (see page 25). Through these activities, we will continue to manage our environmental risks.

Moreover, we have participated in the Water Project, a public-private partnership project aimed at boosting awareness of water conservation, which was launched under the initiative of Japan's Ministry of the Environment in 2014. Objectives of the project are to maintain a sound water cycle and promote its recovery. The project distributes water-related activities conducted by corporations, and water-related information including importance of water. We will work in cooperation with the Japanese government and other companies to conserve water resources.

Water Resource Conservation through Products

By thoroughly analyzing the use of water through our products, we have developed functionalities that allow a considerable amount of water conservation by utilizing water at a maximum level through improvement of water flow control and cyclic use. In fiscal 2012, we enhanced one of the criteria, water conservation, in our Green Product accreditation criteria (see page 35), and has accelerated the development of industry-leading products that contribute to water saving.

► Example of water-saving products are introduced in the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/water.html>

Initiatives for Water Resource Conservation through Production Activities

By collecting and reusing wastewater from our manufacturing processes and air conditioning systems, we reduce the amount of water use and wastewater effluent. This reduces the impact of the intake and effluent of water in production activities on water resources. With many regions around the world threatened by water shortages, we focus on certain regions to address our use of water in our activities.

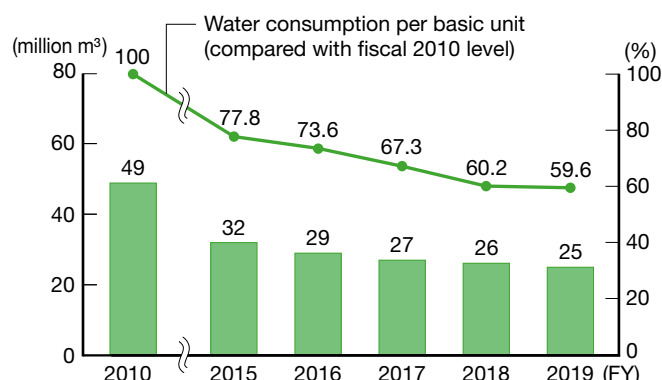
Water used at factories in fiscal 2019 resulted in 24.69 million m³, reduced by 4.4% compared to fiscal 2018. The water used at our factories per basic unit of production^{*1} improved year-on-year through impacts of structural reform, promotion of reuse, etc.

Our use of recycled water^{*2} in fiscal 2019 amounted to 5.17 million m³, accounting for 20.9% of our total water consumption. Discharged water in fiscal 2017, 2018, and 2019 resulted in 21.84 million m³, 20.47 million m³, and 19.25 million m³, respectively.

^{*1} Water used at factories per basic unit of production = Water used at factories / Production volume.

^{*2} The calculation excludes the water circulating for a single purpose (e.g. water in a cooling tower).

Water Consumption in Production Activities and Water Consumption Per Basic Unit



Note: Then-SANYO Electric and Panasonic Liquid Crystal Display not included in fiscal 2010.

FY2019 Breakdown of Water Consumption (by region)

(10,000 m³)

Region	Consumed	Municipal water/ industrial water	Groundwater	Rivers/lakes	Discharged	Sewer systems	Waterways
Japan	1,506	501	1,004	0	1,277	190	1,086
China & Northeast Asia	476	474	1	0	320	238	82
South East Asia, & Oceania	414	364	47	4	293	169	123
North America & Latin America	25	13	12	0	12	10	1
Europe & CIS	21	10	11	0	17	8	10
India, South Asia, Middle East & Africa	27	2	25	0	7	7	0
Total	2,469	1,365	1,100	4	1,925	623	1,303

In the Automotive & Industrial Solutions^{*3} Company under the Panasonic Group, water used at factories in fiscal 2019 resulted in 14.44 million m³, against a target of 16.01 million m³.

Panasonic Industrial Devices (Qingdao) Co., Ltd. is located in Qingdao, China, where water shortage is their concern. In the factory, water is used to treat hydrochloric gas produced during manufacturing processes of electrostatic capacitance-type touch panels. In order to take measures for increase in the amount of water to use because of product expansion, expansion, they introduced a system in which alkaline drainage water discharged in other processes. With the system, efficient neutralization of the treated alkaline water, i.e. acid water has become possible, which has contributed to reduction in the amount of used water. Panasonic continue our efforts to conserve water resources.



Panasonic Industrial Devices (Qingdao) Co., Ltd.

^{*3} Company name for fiscal 2019 is Automotive & Industrial Systems.

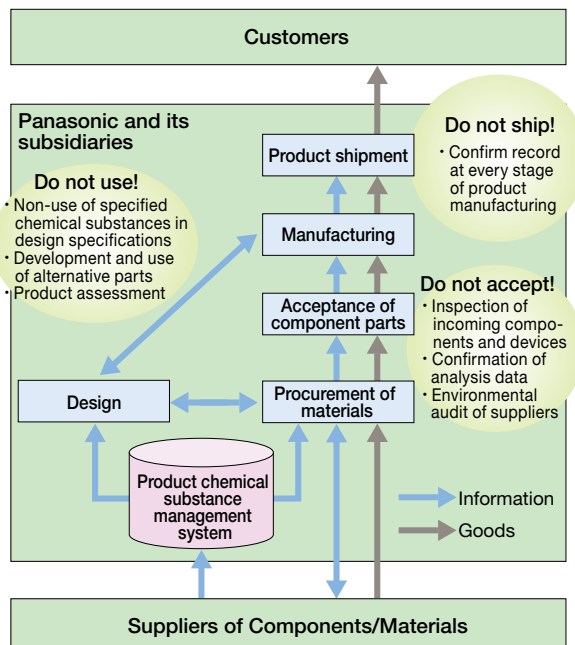
Environment: Chemical Substance Management

Approaches to Reduce the Environmental Impact of Chemical Substances

In order to prevent contents of hazardous substances prohibited under the EU RoHS Directive^{*1}, published in 2002 and revised in 2011, and the like to Panasonic products, it is important not only to pay attention to the contents at the stage of product design, but also to ensure that specified substances are not contained in products to purchase.

Therefore, Panasonic has rolled out the “Do not accept! Do not use! Do not ship!” campaign throughout the each production process from designing to shipment inspection in production activities at business sites across the world since October 2005. Specifically, as for the stage of inspection for incoming components, we have established a mechanism to check and analyze whether specified chemical substances are included by introducing an analyzer. In addition, we have supported to establish a Product Chemical Substances Management Structure, by periodically conducting environmental audits for suppliers of components/materials which may have high risks of containing specified chemical substances.

Specified chemical substance management system

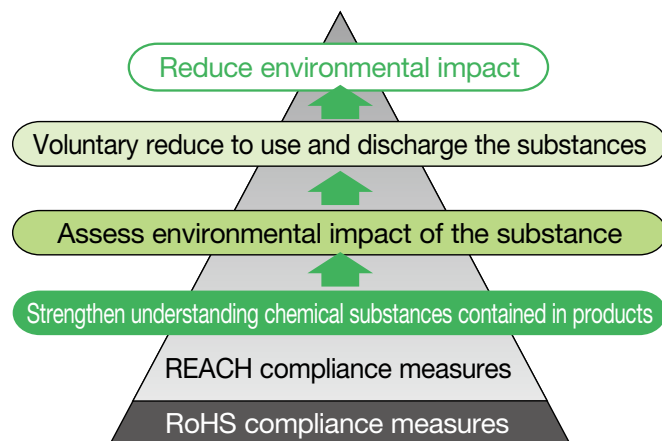


Meanwhile, as represented by the enforcement of the REACH regulation^{*2} in the European Union, the world is moving toward the goals agreed at the World Summit on Sustainable Development (WSSD) held in 2002, which is to produce and use all chemical substances in a manner that minimizes their impact on human health and the environment by 2020. In support of the precautionary approach proposed in the Rio Declaration made at the Earth Summit in 1992, Panasonic aims at manufacturing products in line with our basic policy of reducing the use of chemical substances that might adversely affect human health and the environment throughout their lifecycles. As for concrete activities, we have worked to comply with relevant regulations such as EU RoHS, as a matter of course. In addition, we have worked to reduce the environmental impact of our products by (1) identifying hazardous substances contained in our products, (2) evaluating these substances on their environmental impact, and (3) voluntarily reducing or discontinuing their use in case of any environmental risks.

^{*1} Directive on the Restriction of the use of certain Hazardous Substances in electrical and electric equipment

^{*2} Regulations on the registration, evaluation, authorization, and restriction of chemical substances.

Process to Reduce the Environmental Impact of Chemical Substances



To promote our initiatives clearly, we set forth our Chemical Substances Management Rank Guidelines, which prohibit or specify certain substances for management in terms of our products and factory activities. Companies in the Panasonic Group are requested to follow the Guidelines, and suppliers are also requested for support as necessary. In fiscal 2013, we added Level 3 to the Chemical Substances Management Rank Guidelines (For Products) to review the timing for the prohibition of further substances that may adversely affect humans and the environment, in addition to the current and forthcoming prohibitions.

Chemical Substances Management Rank Guidelines (For Products) and relevant documents, which prohibit or specify certain substances for management, can be downloaded from the website shown below (Green Procurement).

► Green Procurement (Download of Chemical Substances Management Rank Guidelines (For Products))

<https://www.panasonic.com/global/corporate/management/procurement/green.html>

Chemical Substances Management Rank Guidelines (For Products)

Rank		Definition
Prohibit	Level 1	(1) A substance contained in products that is prohibited by existing laws and regulations; or a substance where the upper limit of concentration is specified. (2) A substance that will be prohibited in products by laws and regulations or where the upper limit of concentration will be specified within one year of the revision of these Guidelines.
	Level 2	(1) Substances other than those specified as the Level 1 Prohibited Substances that will be prohibited in products after a certain period by a treaty, law, or regulation. (2) Substances that are prohibited in products by the Panasonic Group prior to the effective period specified by a treaty, law, or regulation. (3) Substances whose use is voluntarily restricted by the Panasonic Group.
	Level 3	Any substance other than those specified as a Level 1 or Level 2 Prohibited Substance that is reviewed for prohibition by legislation etc., and the clarification of substitution-related issues as well as the timing for prohibition is reviewed by the Panasonic Group in light of future legislation trends.
Manage		Substances whose consumption needs to be monitored and for which consideration needs to be given to human health, safety and hygiene, adequate treatment, etc. The intentional use of these substances is not restricted, but their use and contained concentration must be monitored.

Note: Covered legislation and chemical substances include: Class I Specified Chemical Substances under the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.; substances whose manufacture etc. is prohibited by Article 55 of the Industrial Safety and Health Act; EU RoHS Directive; and Annex XVII of the EU REACH Regulation. For more details, see the chapter on Specified Managed Substances in the Chemical Substances Management Rank Guidelines (For Products).

Chemical Substances Management Rank Guidelines (For Factories)

Rank		Definition
Prohibit		Use of the following substances should be immediately discontinued: Carcinogens for humans Ozone depleting substances Substances whose use is prohibited by Panasonic Chemical substances designated as Class I Specified Chemical Substances by the Japanese Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. Substances whose manufacture is prohibited by the Japanese Industrial Safety and Health Act Substances whose manufacture and use are prohibited by international treaties
Reduce		Substances whose use, release and transfer should be identified and reduced. Substances other than prohibited substances that might pose risks to human health and the environment.

Note: Covered legislation include: PRTR Act (chemical substances), environmental criteria under the Basic Environment Act; the Industrial Safety and Health Act; and the Stockholm Convention. For more details, see the contents on The Aim of Establishing the Chemical Substances Management Rank Guidelines (For Factories) in the Chemical Substances Management Rank Guidelines (For Factories).

History of Our Initiatives to Reduce the Environmental Impact of Chemical Substances

Social trends	1989: The Montreal Protocol entered into force	1992: Earth Summit in Rio de Janeiro—Agenda 21	1996: Discontinuance of the use of specified chlorofluorocarbons by industrialized countries	2002: WSSD in Johannesburg	2006: The RoHS Directive entered into force	2007: The REACH Regulation entered into force		
Panasonic	1990	1995	2000	2005	2010	2015		
All products		1992: Discontinued use of PVC resin in packaging materials		March 2003: Discontinued use of lead in solders globally*3	October 2005: Discontinued use of six RoHS substances globally*3	March 2009: Discontinued use of PVC in internal wiring of new products to be sold in Japan*3	March 2011: Discontinued use of PVC in internal wiring of new products globally*3	July 2018: Discontinue use of the four phthalates specified by the RoHS Directive in new products globally
Individual products	1991: Released mercury-free manganese dry cells	1992: Released mercury-free alkali dry cells	1995: Discontinued use of CFC refrigerant in refrigerators globally	2002: Discontinued use of HCFC refrigerant in air conditioners (Japan)	2004: Refrigerators in Japan market became fluorocarbon-free (Japan)	2006: Released lead-free plasma display panels	2010: Released fluorocarbon-free freezers using CO2 refrigerant and compatible display cases	2013: Released air conditioners using new refrigerant R32 with low Global Warmer Potential (GWP) (Japan)
Chemical substances used at factories			1996: Discontinued use of chlorinated organic solvents	1997: Began identification work for PRTR	1999: Launched the “33/50” reduction activity*4		2004 (Japan): Achieved Voluntary Action Plan Reduced use by 75% Reduced release and transfer amount by 62% compared to fiscal 1999 level	2010 (Global): Achieved Voluntary Action Plan Reduced release and transfer amount of key-reduction target substances by 46% compared to fiscal 2006 level

^{*3} Excluding applications where the quality such as safety cannot be ensured, or applications where the material is designated by laws and regulations.

^{*4} A reduction activity that promotes cutbacks in the use, release, and transfer of chemical substances by 33% in three years and by 50% in six years, compared to the fiscal 1999 level.

Management of Chemical Substances in Products

To minimize the environmental impact of chemical substances contained in products, we endeavor to identify chemical substances used in the components and materials of our products. In addition, for substances that are prohibited in products in major developed countries because of laws and regulations such as the European RoHS Directive, we manage the substances not to be used and/or contained in our products by designating them as prohibited substances except the substance for specific usage which is unavoidable to use its substitution. We will also conduct environmental impact assessments for the managed substances contained in our products. As for a substance whose impact on human health and/or the environment cannot be ignored, we plan to reduce or prohibit use of the substance.

Keep understanding updated information concerning chemical substance contents

The electrical and electric products Panasonic manufactures and sells consist of various raw materials and components supplied through a long supply chain from material manufacturers to many component manufacturers. To contribute to the achievement of the global goals set at the WSSD, it is important for us to disclose and communicate information on the chemical substances used in our products across the supply chain, for which we must promote cross-industrial initiatives to establish and disseminate an effective system. Panasonic is a member of the Joint Article Management Promotion consortium (JAMP). Approx 440 major companies from various industries, such as chemical, component, and equipment manufacturers are also members of JAMP. We are proactively formulating, utilizing, and disseminating chemical substance management standards and systems through this organization.

We have started up a product chemical substance management system in fiscal 2005. From July, 2009, Panasonic's 10,000 suppliers of materials and components provided us the data on chemical substances contained in their products, using JAMP's data transmission formats (JAMP_AIS and JAP_MSDSplus).

Meanwhile, in Japan alone, the workload of upstream suppliers increased, as a number of hazardous substance inspections were carried out throughout the supply chain using own company format. Having recognized the issues obtained from the inspections, the Ministry of Economy Trade and Industry proposed a new scheme to introduce “chemSHERPA,” for sharing and exchanging information on chemicals contained in components and products. Because the format adopted for chemSHERPA complies with IEC62474, the international standard on material declaration for the electrical and electronic machinery industry and their products, we agreed to use chemSHERPA format, and in January 2018, started full-scale use of chemSHERPA as a data gathering format. With the supply chain expanding to a global scale, it is particularly important for overseas suppliers to deepen their understanding on the handling of hazardous chemical substances. Therefore, we carried out education programs for persons in charge of chemical substance management and suppliers at more than 100 of our business sites in ten countries including China and other Asian countries. At the same time, we completed conversion from JAMP format to chemSHERPA by June, 2018, when the JAMP format became unusable.

► chemSHERPA website: <https://chemsherpa.net/>

(The JAMP website was merged into chemSHERPA on March 15, 2019)

Companies that procure electronic components need to fully understand the information on the substances contained in the components at the point of selection or usage in order to comply with the EU RoHS Directives and REACH regulations. Particularly, as the REACH Substances of Very High Concern (SVHC) List is updated every six months, those companies expect their suppliers to speedily provide information on the latest substance to Panasonic. In order for the companies procure electric components to speedily and effectively understand information on chemical substance contents, we have published a table of RoHS and REACH compliance status on our website since November 2012. The table covers our RoHS Directive compliance information and the substances designated in the RoHS / REACH Confirmation Report for all our major generic electronic components.

► RoHS / REACH Confirmation Report for major generic electronic components

<https://industrial.panasonic.com/ww/downloads/rohs-reach>

For products covered by the Act on the Promotion of Effective Utilization of Resources of Japan, the Panasonic Group does not manufacture, import, or sell products that contain specified chemical substances which exceeds the limited value in non-exempt parts. For more details, see Information on the Content of specified chemical substances Chemical Substances in Covered Products below.

► Information on the Content of specified chemical substances Chemical Substances (Japanese)

<https://www.panasonic.com/jp/corporate/sustainability/eco/chemical/jmoss.html>

In June 2015, the Act on Preventing Environmental Pollution of Mercury was enacted to implement measures agreed in the Minamata Convention on Mercury. The act requires manufacturers of products containing mercury to provide information such as labelling so that such products are appropriately sorted and discharged when being disposed of. In order to communication information concerning the mercury used in our products to customers, we have established a new webpage, Information Based on the Act on the Preventing Environmental Pollution of Mercury, in May 2017.

► Act on Preventing Environmental Pollution of Mercury

https://members.wto.org/cnattachments/2015/TBT/JPN/15_2560_00_e.pdf#search=%27Act+on+Preventing+Environmental+Pollution+of+Mercury%27

► Information Based on the Act on Preventing Environmental Pollution of Mercury (Japanese)

<https://www.panasonic.com/jp/corporate/sustainability/eco/chemical/jmoss/mercury.html>

Assessing the Impact of Chemical Substances

Scientifically identifying the impact on human health and the environment of products containing chemical substances is vital to the development of products with low environmental impact. We are engaging in activities designed to assess the levels to which customers are exposed to substances of very high concern (SVHC), as well as safety during product usage.

To date, we have assessed effects of ceramic fibers used in certain models of commercial microwave ovens. As part of our efforts to comply with the EU REACH regulation which requires preparing information for the safe use of products containing a certain amount of SVHC, we have created and publicized the safety assessment document. The exposure was considered to be nominal with little concern for any effects on human health. Furthermore, usage of ceramic fibers in our products was discontinued in December 2010.

► Management of Chemical Substances in Products

https://www.panasonic.com/global/corporate/sustainability/pdf/RCF_Professional_microwave_oven.pdf

Reduction in Used and Discharged Amount of Chemical Substances

Fluorocarbons used as a refrigerant for freezers and air conditioners, or heat insulator, have property which may damage ozone layer, and cause global warming. We developed the technology to utilize CO₂, which has much smaller impact than fluorocarbons, as a refrigerant and have been supplying a home boiler using CO₂ refrigerant since 2001. Although the CO₂ refrigerant is suitable for heating purposes, it was difficult to apply to refrigerators and freezers, especially in large professional equipment due to insufficient cooling efficiency and size. However, with support from the New Energy and Industrial



OCU-CR2001MVF, a fluorocarbon-free freezer using CO₂ refrigerant



FPW-EV085, a display case compatible with a fluorocarbon-free freezer

Technology Development Organization (NEDO), we developed a refrigeration system using CO₂ refrigerant, and started supplying these fluorocarbon-free freezers and refrigerator display cases to supermarkets and convenience stores in Japan from 2010.

Making the best use of our expertise in the Japanese market, in August 2018 we also started sales of non-fluorocarbon freezers with a 10-horsepower capacity, in addition to our existing two-horsepower capacity products, and offered proposals designed for small stores and small warehouses in the European market, where stricter F-gas regulations and other environmental regulations are enacted. These products have appealed to small shops and warehouses. We have conducted installation trainings in countries such as France and Germany because that the freezers were sold mainly in North Europe in the first year. Thereby, we succeeded in spreading sales of the freezer to other countries. Sales doubled over the last fiscal year.

As for Asian and Oceanian markets, we are at the stage to determine whether we can place the freezer in full-scale to the markets in accordance with relevant environmental regulations and user's policy, continuing demonstration experience in Taiwan, Malaysia, and Indonesia to determine the possibility of full-scale implementation in compliance with environmental regulations and user policies.

In addition, as measures against ozone depletion caused by HCFCs, a refrigerant called R410 that does not deplete the ozone layer was used in room air conditioners; however, this substance has an issue of its very high very high Global Warming Potential (GWP). Therefore, Panasonic developed a model that uses a new refrigerant R32, which has a lower GWP and introduced it launched sales of the model in 2013. Furthermore, PT. Panasonic Manufacturing Indonesia, which owns the factory for manufacturing room air conditioners in Indonesia, redesigned its production facility that used an ozone-depleting HCFC refrigerant R22 to one using R32 in fiscal 2015, and started supplying new R32-based air conditioners. Thereby, Panasonic contributed to the Indonesian government's initiative to eliminate the use of HCFCs.

Mercury lamps are currently widely used as the light source for projectors, because they provide high luminosity easily. However, mercury can have a serious impact on human health and the environment if not treated properly, and the short life of the lamps causes high consumption of resources as well as high environmental impact. For these reasons, Panasonic is developing products that adopt laser light sources. The PT-RZ31K Series are projectors for professional use that provide high luminosity by employing a high-output semiconductor laser light source module and a heat-resistant phosphor wheel. In addition, the cabinet does not use halogenated flame retardant, making the projector an eco-friendly product that contributes to reducing the use of hazardous substances.



Example of two 10-horsepower freezer and one two-horsepower freezer at Carrefour Express (small stores)



PT-RZ31K Series, a laser projector for professional use

Restriction on Use of PVC Resin

Polyvinyl chloride (PVC) is a material of concerns to the generation of hazardous substances from inappropriate disposal, as well as the harmful effects of certain additive agents (phthalates) used to render PVC more pliable. In light of the significant potential for inappropriate disposal of the PVC resin used in the internal wiring of products, due mainly to difficulties associated with the sorting of this resin from used products, we have switched our new products launched from April 2011 to non-PVC.

▶ List of Our PVC-free Products https://www.panasonic.com/jp/corporate/sustainability/pdf/eco_pvclist2016.pdf

Restriction on Use of Phthalates

Phthalates are often used in PVC products, and the use of four phthalates⁵ will be restricted under the EU RoHS2 from July 22, 2019.

Panasonic classified these substances as Level 1 Prohibited Substances in our Chemical Substances Management Rank Guidelines Ver. 11 (for products) issued in July 2018, and delivery of materials and components contain the phthalates will be prohibited from July 22, 2019. We have classified other phthalates as Level 3 Prohibited Substances, and are promoting their substitution.

We are currently working on creating an analysis and management structure for the four phthalates to ensure their substitution. Since phthalates have a migration characteristic (where a substance from another article migrates through contact), materials may be contaminated by migration from production facilities as well as process equipment containing the four phthalates, which are specified as Level 1 Prohibited Substances. Accordingly, we are also discussing introducing preventive measures against contamination through contact.

To build a structure for incoming inspection for phthalate, we amended the standard for incoming inspection and determined to conduct incoming inspections on supplied components with a high chance of containing phthalates, such as PVCs, elastomers and glues. We have already selected and assessed an analyzer for phthalates to use for these inspections, and installed the analyzer at our business division. The phthalates contained in our products exported to Europe used to be as high as 10 tons. However, total elimination of the phthalates has been completed as of March 31, 2019.

*5 Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP).

Activities to Reduce Negative Environmental Impact at Factories

Panasonic is working to minimize environmental impact by identifying the hazardous substances used in our products, assessing the impact of such use, and voluntarily discontinuing the use or reducing the release of such substances. Since 1999, we have been conducting the 33/50 Reduction Activity to materialize reduction by 33% in three years and by 50% in six years. In Japan, we started promoting reduction of amounts to use, release, and transfer specified chemical substances at our factories in fiscal 2000. Against the target in our voluntary action plan, a reduction by 50% from the fiscal 1999 level, we achieved a 75% reduction in the chemical substance use and a 62% reduction in the release and transfer in fiscal 2005. Since then we have been continuing the activity, focusing on substances with particularly large amounts of release and transfer, setting a voluntary action target of reduction by 30% compared to the fiscal 2006 level. As a result, we achieved a 46% reduction in the amounts of release and transfer of specified key reduction-target substances across all factories worldwide in fiscal 2011.

Reflecting international trends in chemical substance management, our reduction measures have focused increasingly on particularly hazardous substances from fiscal 2011. Our Chemical Substances Management Rank Guidelines (for Factories) was established in 1999 as a guideline to help manage the above chemical substance reduction activities. In Version 1, the guidelines specified a list of chemical substances to be managed, mainly focusing on carcinogenic substances. The guidelines were later updated to Version 2 in 2000 to include rules concerning the Japan PRTR Law. Version 3, introduced in 2004, additionally covered a list of substances specified by chemical substances management legislation in Japan. The chemical substances covered by Version 4 and later from 2009 are those specified in legislation on human health and environmental impact in Japan, the U.S., and Europe, as well as those specified under international treaties.

Under our Chemical Substances Management Rank Guidelines (For Factories), we have focused our management on select chemical substances that are hazardous to human health and the environment. Further, we have created a unique indicator, the Human Environment Impact,^{*6} which is used globally in all our factories. Conventionally the chemical substances were managed by “quantity,” such as usage amount or emissions/release. However, such quantity-based management has a problem in that some highly hazardous substances do not become subject to reduction or management if the usage amount was small, and therefore would fall out of the scope of impact assessments. In addition, the toxicity criteria varied according to substance types and regional legislation, which made standardized management across the Group difficult. To address this issue, Panasonic worked together with experts from both within and outside the company, reclassified chemical substances based on an overall assessment of their hazardousness, and specified a hazardousness factor for each classification. Specifically, we set a hazard classification to each substance by utilizing carcinogen risk assessments issued by international organizations, together with publically available hazard information and lists of ozone depleting substances. For substances that have multiple hazard information items, the item ranked with the highest hazard risk is used for classification. We utilize this internal indicator as the Human Environmental Impact indicator to promote efforts to ensure reduction of highly hazardous substances with greater environmental impacts, such as carcinogens and ozone depleting substances, according to the risk level. The Panasonic Group Chemical Substances Management Rank Guidelines is also available on the website on our Green Procurement activities to promote collaboration with our suppliers, encouraging them to offer materials that do not contain hazardous substances.

► Green Procurement (PDF Download of Chemical Substances Management Rank Guidelines (For Factories))
<https://www.panasonic.com/global/corporate/management/procurement/green.html>

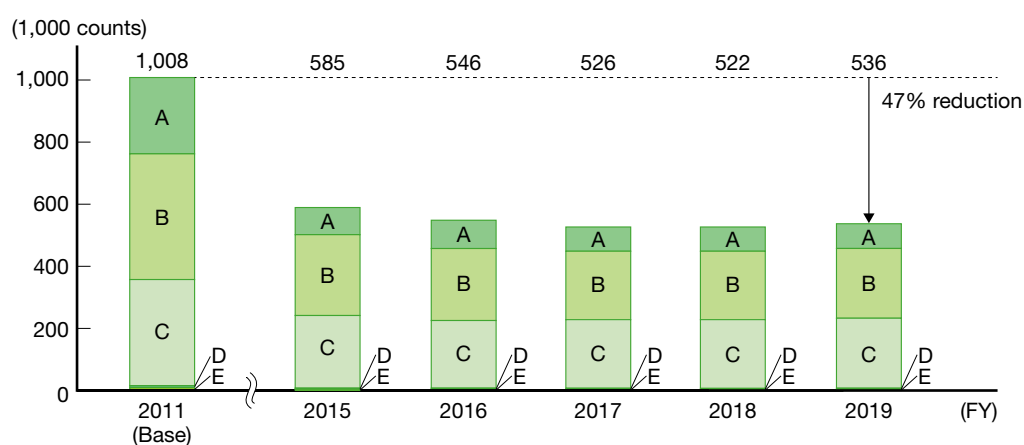
*6 Human Environmental Impact = Hazardousness factor x Release and transfer amount.

Classification of Hazards

Classification	Hazards*7	Hazardousness factor
A	Carcinogenicity/Ozone layer depletion	x 10,000
B	Serious or direct impact	x 1,000
C	Medium impact	x 100
D	Small or indirect impact	x 10
E	Minor impact or not assessed	x 1

*7 In addition to carcinogenicity, hazards to human health include genetic mutation, reproductive toxicity, and acute toxicity. In addition to ozone depleting substances, hazards to/substances with impact on the environment include ecological toxicity, substances that impact global warming, and substances that generate photochemical oxidants.

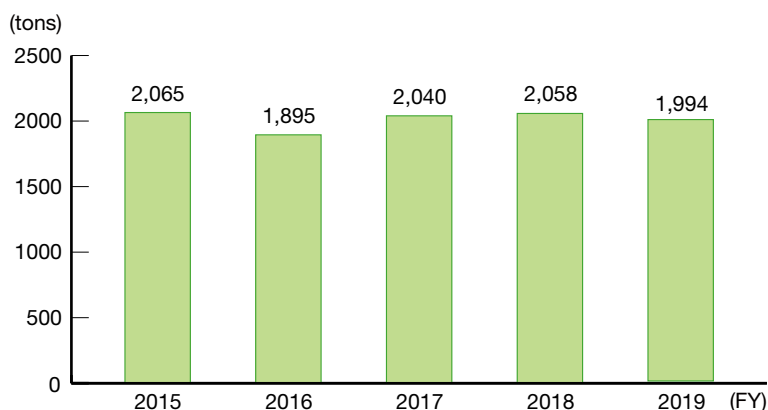
Human Environmental Impact



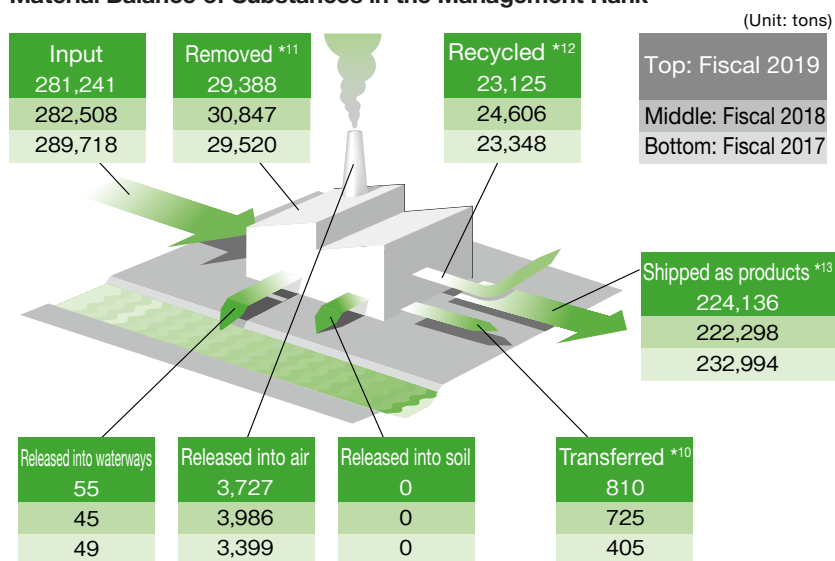
Note: Overseas sites of former SANYO Electric not included in fiscal 2011.

In fiscal 2019, we were able to reduce Human Environmental Impact by 48% compared to fiscal 2011 by substituting highly hazardous substances in paints, improving yields, promoting recycling, introducing substances with low-solvents and hazards, and improving processes, including reviewing the amount of paint or the number of washing cycles, as well as improving the efficiency of removal/deodorization equipment. We will continue our initiatives to minimize the amount of substances with environmental impact released through our production activities.

VOC*8 Emissions



*8 Emissions of Volatile Organic Compounds (VOC) into the air caused by use. The calculation covers 100 major VOC substances that Panasonic selected from those listed in the Air Pollution Control Act.

Material Balance of Substances in the Management Rank*⁹

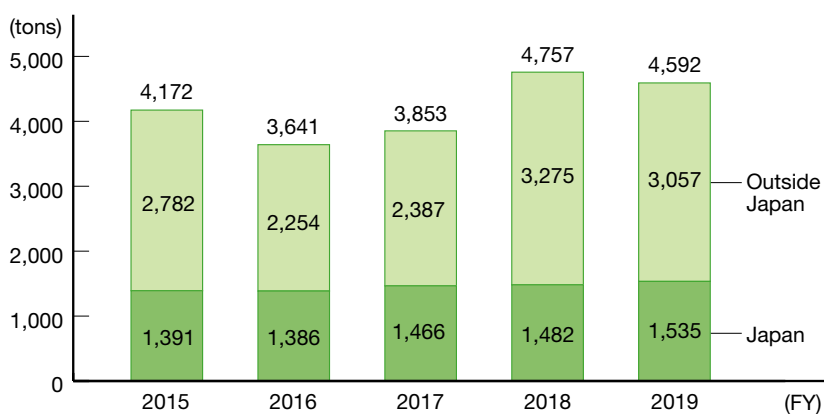
*⁹ Based on the Chemical Substances Management Rank Guidelines (for factories). Includes all the substances specified in the Pollutant Release and Transfer Register Act.

*¹⁰ Includes substances transferred as waste, as well as those discharged into the sewage system. Recycled amount which is free of charge or accompanies treatment cost under the Waste Management Law is included in "Recycled." (Different from the transferred amount reported under the PRTR Law.)

*¹¹ The amount of substances converted into other substances through neutralization, decomposition, or other chemical treatment.

*¹² The amount of substances recycled with revenue, as well as those recycled free of charge or with any payment.

*¹³ The amount of substances that have been changed to other substances as a result of chemical reactions, and/or those that are contained in or accompanied with products and shipped out of factories.

Release/Transfer of Substances Requiring Management

Environment: Biodiversity Conservation



Approaches to Biodiversity

Business management and human life in our society is founded on the ecosystem services—a multitude of nature's blessings provided by our natural capital, including soil, air, water, and animals and plants. It is important to preserve biodiversity to continuously receive blessings from this natural capital towards the future; however, this biodiversity has been declining at an unprecedented speed and scale.

Contributions by private companies to the Aichi Biodiversity Targets adopted by the 10th Conference of the Parties (COP 10) and to the United Nations Sustainable Development Goals (SDGs) have also been required. In the Sharm El-Sheikh Declaration of COP 14, held in November 2018, "Mainstreaming of biodiversity in the energy and mining, infrastructure, manufacturing and processing sectors industries" was adopted. Aiming to properly understand effects of our business activities on biodiversity, and to contribute to its conservation, we have promoted the activities, collaborating with local governments, environmental conservation NGOs, and relevant professional institutions. Concretely, we have focused on the three key areas of land use, procurement, and products, in order to promote biodiversity conservation activities incorporated into our businesses. In promoting the key areas, we formulate a biodiversity action plan (BAP), which is the basic concept of Article 6 of the Convention on Biological Diversity, and implement measures, check the achievement progress, and improve the initiatives accordingly.

Activities for Land Use

Green areas in our business divisions have a lot of potential to contribute to conserving biodiversity in that area. In particular, hardly any natural environments where wild animals can live and breed remain in urban areas. Therefore, even small areas of green in corporate premises can become a precious habitats of a variety of living things if they have indigenous vegetation and a watery environment.

Preservation of Biotopes in Collaboration with Governments and Experts

Once an ecological network that connects greenery in our business divisions, neighboring woodlands and parks is formed, living things such as birds, butterflies, and dragons in each area can move around wider areas for flowers and water through the ecological networks, and their habitats are expanded. In addition, the Ministry of the Environment and municipalities designate rare species of living things in local areas as endangers species for their preserving. Therefore, we have conducted preservation activities, in collaboration with environmental officers and experts. For example, 1) Biotope of Panasonic Life Solution Company in Kadoma City, through a Biodiversity Partnership (BP) Agreement concluded with Osaka prefectural government, Osaka Prefecture University, and Research Institute of Environment, Agriculture Fisheries (RIEGF) under Osaka prefectural government, and 2) "Tsunagari no Hiroba (i.e. Place for green networking)" of Panasonic Homes Co., Ltd, Headquarters, through a BP concluded with Osaka prefectural government, Toyonaka city government, Osaka Prefecture University, and RIEGF, Osaka prefecture by participating a project to build "Kazeno michi (Wind street with greens)".

Examples of activities are introduced in the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/biodiversity.html>

Acquisition of External Certification Based on Quantitative Evaluation

The Kusatsu Factory of the Panasonic Appliances Company in Kusatsu City, Shiga Prefecture, obtained a certificate from the Association for Business Innovation in harmony with Nature and Community (ABINC) in March 2018 for its contribution to biodiversity. In the course of assessment, we received high ratings concerning how we are building greenery to suit diverse living creatures by appropriately preserving the natural environment, keeping invasive alien species under control and regularly monitor them to track their status, and the proactive use of greenery in liaison with external organizations and local people, such as the local public bodies and primary school students. In the monitoring survey we have conducted since 2011, 840 species of living things were recognized. At the same time, the survey result



Sustainable Forest
Biodiversity Report II of
Panasonic Appliances Company



Three-star rating in Shiga
Biodiversity Action
Certification Program

<https://panasonic.co.jp/ap/ecological/index.html>

indicated that our greenery is an important biotope in the urbanizing area, which contributes to the formation of local ecological networks. We won recognition for our activities, earning the top three-star rating in Shiga Prefecture's fiscal 2018 Shiga Biodiversity Action Certification Program.^{*2}

*1 ABINC is a certification system by third-party evaluation on greenery improvement and management at business divisions based on the land use score (biodiversity quantitative assessment tool in environmental assessment) and Guidelines for Sustainable Business Sites developed by the Japan Business Initiative for Biodiversity (JBIB).

*2 Shiga Biodiversity Action Certification Program is the first system in Japan for rating wide range of activities conducted by business enterprises in the area of biodiversity conservation with 1 to 3 stars granted by governor.

The Matsumoto Factory of the Automotive & Industrial Systems Company^{*3} obtained rank A in the JHEP Certification^{*4} in September 2015. The certification is updated annually through assessment and our biodiversity preservation activities for greening are maintained continuously.

*3 The company name: Automotive & Industrial Systems when it received the certification

*4 A quantitative biodiversity assessment method developed by Ecosystem Conservation Society Japan based on the Japan Habitat Evaluation and Certification Program (HEP) used for environmental assessments.



Panasonic Appliances Company's Sustainable Forest

Efforts in Procurement

With the aim of biodiversity conservation and sustainable use of natural resources, we consulted extensively with World Wide Fund for Nature (WWF) Japan and formulated Panasonic Group Green Procurement Guidelines for Wood.

Exclusion of timbers and wood materials whose regulatory compliance in their logging has not been confirmed (Category 3)

In fiscal 2019, the total procurement of timber and wood materials was measured at approx. 350,000 m³. By category, this breaks down to 79.3% meeting Category 1 "Priority" procurement standards (a 2.0+point year-on-year decrease), 20.7% in Category 2 "Acceptable" (a 2.0-point year-on-year increase), and 0% in Category 3 "Avoiding" (same as previous year). Ever since the establishment of our Green Procurement Guideline, we have worked on to achieve zero procurement for Category 3, and have achieved zero procurement for the Category 3 continually since fiscal 2015. We will continue our efforts and maintain zero procurement for Category 3.

Green Procurement Guidelines for Wood Consulted and Formulated with WWF



At the end of every fiscal year, we confirm the progress status at the end of the fiscal year as well as review the measures for the subsequent fiscal year.

► Green Procurement Guidelines for Wood

https://www.panasonic.com/jp/corporate/management/procurement/green/pdf/green_wood_E.pdf

We are also engaged in the reduction of the use of natural raw materials, in terms of timber resource conservation. In Fit Floor Natural Wood Type (heat resistant and non-heat resistant) which is used as flooring materials (woody flooring materials), our unique newly developed materials where 100% recycled wood materials (excluding adhesives), called "Fit Board", is used.

► Compliance with the Clean Wood Law (Japanese)

<https://www2.panasonic.biz/es/sumai/law/cleanwood/>



Fit Board
Cross section of a Fit Floor (heat resistant & non-heat resistant)

Activities in Products

In collaboration with Bird Life International, an international NGO, we have established a third-party assessment method in order to provide customer with information on product contributions to biodiversity. Using this method, we have assessed products which are closely linked to biodiversity. In addition, with our Green Product accreditation criteria (see page 35), we defined products that contribute to biodiversity conservation as those that use biodiversity-friendly materials in their major components and those that include functions to help biodiversity conservation.

In fiscal 2014, Panasonic Environmental Systems & Engineering Co., Ltd. developed ATPS-BLUEsys, a Ballast Water Management System (BWMS) to mitigate effects of transit of vessels in the surrounding sea area on marine ecosystem. Ballast water is sea water held in tanks in a vessel to increase its stability and maneuverability during transit when the vessel does not hold cargos. As the ballast water held in the ballast tank is different from the water of its discharging country's sea area because of transit of the vessel, effects of harmful foreign aquatic creatures such as plankton and bacteria, on the local ecosystem, environment, and resources has been big issues. ATPS-BLUEsys enables to treat microorganisms in the water with the first inline electrolysis method developed in Japan without using filters to a level lower than the standards by the International Maritime Organization (IMO). The company acquired the IMO G9 Basic Approval (G9BA) for the system. Marketing of this system has been fully launched in fiscal 2018, as the company acquired a certification equivalent to the IMO approval for the system from Japan's Ministry of Land, Infrastructure, Transport and Tourism in March 2017. Furthermore, the company has conducted tests to comply with the U.S. regulation.

▶ Ballast Water Management System ATPS-BLUEsys

<https://www2.panasonic.biz/ls/air/eng/water/atps-blue/>

▶ [Press Release] Ballast Water Management System was certified by MLITT as equivalent to the IMO approval.

<https://news.panasonic.com/global/press/data/2014/01/en140128-2/en140128-2.html>

In addition, Panasonic has developed Sustainable Smart Towns (SSTs) in Fujisawa City and Yokohama City in Kanagawa Prefecture. We are currently planning to develop another SST in Suita City in Osaka Prefecture. The SST urban design guidelines adopt the idea of biodiversity for greening towns as well as plans for reducing greenhouse gas emission, in order to establish sustainable towns by growing indigenous trees and plants and forming ecological networks that coexist in communities. Based on the SST guidelines, we have completely eradicated invasive foreign species in landscaping (planted zone) at the Fujisawa SST, and "Sora shima (literally Sky Island)", the largest SST in western Japan.

Biodiversity Conservation Through Collaboration with and Support to NGOs and NPOs

Panasonic participates in Keidanren Committee on Nature Conservation, aiming to promote activities for biodiversity collaborating with industrial sectors, as well as activities for biodiversity conservation on a global scale through NGOs and NPOs.

Through corporate and private donations to the Keidanren Nature Conservation Fund, including donations from Panasonic, Keidanren Committee on Nature Conservation provided support worth approx. ¥4.3 billion to 1,490 NGO projects in Japan and overseas in cumulative total till fiscal 2019.

In fiscal 2019, we visited the site where environmental education is provided to children in the Independent State of Samoa. The site is run by Conservation International collaborating with a local NGO and residents, under the fund. At the site, we confirmed that the learning of children on various environmental issues particularly linked to island countries, such as effects of climate change, conservation of coral reefs, and issues of oceanic plastics as well as wastes generated from household in the island is disseminated to members of their family and community.

Panasonic has also been involved in marine protection activities⁵ for some 20 years through collaboration with WWF Japan.

Main activity at the present is continual supply of MSC- and ASC-certified⁶ sustainable seafood⁷ to employee canteens that started for the first time in Japan from at Panasonic headquarters in March 2018. The six catering companies who



Samoa children learning about the environment

support our activity acquired CoC certification.^{*7} Three other companies who have collaborated for this activity with Panasonic also adopted sustainable seafood in their canteen. The number of sites where sustainable seafood is introduced in Panasonic canteen was increased to 12 sites. We aim to introduce sustainable seafood to canteens at new 30 sites in fiscal 2020, and to all Panasonic canteens in Japan in fiscal 2021. Through a supply of sustainable seafood at employee canteens, we promote to change consumption behaviors of our employees who are consumers, in order to mainstream biodiversity and contribute to SDG 14, “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”. Panasonic was highly evaluated with aforementioned activities, and won the excellent award in “Select” section in the Biodiversity Action Award held by Japan Committee for UNDB.



Sustainable seafood menu at the employee canteens



Fried oysters grew in Tokura, Sanriku region, granted the 1st ASC certification in Japan with Panasonic support

^{*5} Including supports for the conservation of the tidal flats in Ariake Sea (2001 to 2006) and the Yellow Sea Ecoregion (2007 to 2015).

^{*6} MSC certification is certified by Marine Stewardship Council for sustainably and properly managed fisheries. ASC certification is certified by Aquaculture Stewardship Council for responsible fish farming to minimize environmental load on the environment and society.

^{*7} Seafood that has been certified sustainable production with MSC and ASC certification and managed under CoC certification

^{*8} CoC is the acronym for Chain of Custody. Certification on securing management and traceability in processing, distribution, and marketing.



“Sustainable seafood” received an excellent award in “Select” section, of the Biodiversity Action Award

Participation in the Japan Business Initiative for Biodiversity

Panasonic has worked hard to try to understand global trends in biodiversity and potential risks, and has provided their feedbacks to own businesses, through participating Japan Business Initiative for Biodiversity (JBIB).

In fiscal 2019, we held a symposium on ocean plastic wastes was organized in EcoPro 2018. We also produced a 1st booklet by companies for member companies, titled “Let’s Try Biodiversity!”, through participating in the Biodiversity Working Group of four Electrical and Electronic Industry Association^{*9}. With the booklet, we conducted three study sessions. The working group of the four Electrical and Electronic Industry Association reported on the activities in the business forum at the COP 14 meeting and other venues, which appealed the biodiversity activities conducted by Japanese companies to overseas. These activities by the four Electrical and Electronic Industry Association were highly evaluated. As a result, the four Electrical and Electronic Industry Association won an excellent award in “Communicate” section, of the Biodiversity Action Award 2018 held by the Japan Committee for UNDB.



“Let’s Try Biodiversity!”



“Let’s try Biodiversity”, collaboration of the four EEIA won an excellent award in “Communicate” section, of the Biodiversity Action Award

^{*9} Four industry associations of: The Japan Electrical Manufacturers’ Association (JEMA), Japan Electronics and Information Technology Industries Association (JEITA), Communications and Information Network Association of Japan (CIAJ), and Japan Business Machine and Information System Industries Association (JBIMIA).

Restoration of Satoyama^{*10} in Coordination with Citizens Groups

Panasonic have conducted various activities for environmental conservation through the Panasonic ECO RELAY JAPAN (PERJ) together with our domestic business sites, labor union, and retiree group.

Unitopia Sasayama Satoyama Restoration led by PERJ is an activity , aiming at circular use of Satoyama resources by reproducing the Satoyama conditions as they used to be, in the 26.4 ha of premises in the Unitopia Sasayama Resort owned by the Panasonic Group Workers Unions Association. In 2017, this activity was certified as a partner project of the Japan Committee for the United Nations Decade on Biodiversity in recognition of our unique activities such as utilizing a private company's resort facility as a trial field for biodiversity conservation and environmental education, as well as organizing nature conservation activities and related educational programs in collaboration with various stakeholders including local authorities, corporations, universities, NPOs and local farmers. The ongoing project was also awarded the Biodiversity Action Award 2018.



"Unitopia Sasayama Satoyama Restoration" won the Biodiversity Action Award

^{*10} Satoyama is a Japanese traditional living area with rich nature that has been utilized by people, and where multiple organisms exist

▶ Panasonic ECO RELAY Japan (Japanese)

<https://www.panasonic.com/jp/corporate/sustainability/citizenship/environment/perj.html>

▶ Unitopia Sasayama Satoyama Revitalization Project (Japanese)

<https://unitopia-sasayama.pgu.or.jp/ecorelay/>



Environment: Collaboration Across the Supply Chain

Collaboration with Suppliers and Transportation Partners

As a company backed by a number of suppliers, we must consider the environmental impacts of our entire supply chain, and not just of our own operations. Through our coordination efforts with suppliers and transportation partners, who form an integral part of our business operations, we strive to minimize our environmental impact across the entire supply chain, focusing on the reduction of CO₂ emissions, resource recycling, chemical substance management, and biodiversity conservation.

Activities for Green Procurement

Since the publication of the Green Procurement Standards in 1999, we have been promoting the manufacture of eco-conscious products in partnership with our suppliers. Furthermore, in the Green Procurement Standards, we set out the establishment of a group of suppliers who support our Environmental Policy in supplying products and goods in order to materialize the targets in supplier collaboration in our Green Plan 2018. In addition to cooperation in “reducing environmental impact in supplier business operations” and “sharing achievements through collaboration,” we are asking our suppliers to “seek the cooperation of upstream business partners” to expand the scope of activities of reducing environmental impact throughout the entire supply chain.

Also, based on the Green Procurement Standards, we have been conducting the Green Procurement Survey, where we monitor the implementation status of our suppliers regarding our requests, to promote environmental impact reduction activities more effectively with our suppliers. In fiscal 2013, we conducted a trial survey targeted at our major global suppliers. We received responses from 415 companies, and were able to confirm the level of activity in areas such as environmental management system development, thorough implementation of chemical substance management, reduction of greenhouse gas emissions, promotion of resource recycling, and biodiversity conservation. From fiscal 2014, we have replaced surveys conducted on a group-wide scale with surveys at a site level as a means of communication with our suppliers.

In China, seminars on our CSR Procurement Policy and Chinese environmental regulations were held in September 2016 for more than 400 suppliers in Guangzhou, Dalian, and Shanghai. By calling for exhaustive implementation of CSR through the supply chain by using the CSR self-assessment checklist as well as sharing China’s latest environmental regulations, we are making efforts to grasp the risks and reduce environmental impacts across the supply chain. In fiscal 2018, self inspection using the CSR self-assessment checklists was expanded to other Asian countries besides China to gain a wider understanding of environmental impact from our business activities.

In response to the enhancement of regulations such as EU RoHS Directive, we have been engaging in continual environmental quality assurance audits of our suppliers since 2005 to improve the management level throughout the entire supply chain. In fiscal 2019, we assessed the environmental quality assurance systems of some 1,200 suppliers and have supported their efforts to upgrade their management levels.

► Green Procurement Standards

<https://www.panasonic.com/global/corporate/management/procurement/green.html>

Estimation of Environmental Impacts in Business Activities by Suppliers

In order to assess greenhouse gas (GHG) emissions across the entire supply chain (scope 3^{*1}), we made our original calculations based on the Greenhouse Gas Protocol, the international accounting standard for GHG emissions. Since fiscal 2012 we have conducted assessment surveys on four occasions, with the cooperation of 185 suppliers in the areas of raw materials, electrical and electronic components, and processed parts.

From fiscal 2012, we started estimating our overall GHG emissions in the upstream range by multiplying the volume of materials purchased with the resource-specific GHG emissions per basic unit based on the Input-Output Table published by the Japanese government. The estimation results based on fiscal 2018 data is 13.95 million tons, roughly 6 times the GHG emissions of our own production activities.

^{*1} Other indirect emissions, excluding Scope 1 (direct emissions from facilities owned and controlled by Panasonic) and Scope 2 (emissions from production of energy consumed at facilities owned and controlled by Panasonic).

Sharing Achievements through Collaboration

Since fiscal 2010, we have been implementing the ECO-VC^{*2} Activity with our suppliers. This program is a collaboration between Panasonic and our suppliers, aimed to both reduce environmental impact as well as reinforce product capability and achieve further rationalization for our products and our suppliers. In fiscal 2010, the target for reducing environmental impact was limited to energy saving (CO₂ emission reduction). However, this was extended in fiscal 2011 to Recycling-oriented Manufacturing aiming at saving resources and using recycled materials. The geographical range of our activities has also extended. Initially centered in Japan, actions accelerated to China and other parts of Asia in fiscal 2013, and later extended to a global scale in fiscal 2015.

Case examples of ECO-VC activities are stored and accumulated in a database for effective use within the Panasonic Group. We have shared these progressive case examples of the activities with suppliers for their references, so that they can make the best use of them in their activities, through awarding outstanding case examples in the ECO VC Presentation of Award and Information Exchange Meeting, and have exhibited the examples at the meeting venue.

In Panasonic's centennial year, fiscal 2019, the number of entries for achieved activities drastically increased to 820 from 354 in fiscal 2018, with a large number of proposals submitted on the main theme of "Creating New Values."

*2 VC: Value Creation

Environmental Achievements Made through Proposals

Items	FY2016	FY2017	FY2018	FY2019
Number of proposals	933	622	354	820
CO ₂ reductions derived from proposals	484,532 tons	253,265 tons	58,448 tons	30,499 tons
Use of recycled resources derived from proposals	19,153 tons	18,421 tons	2,671 tons	80 tons
Reduction in resources used derived from proposals	21,243 tons	20,224 tons	1,090 tons	3,027 tons

Collaboration with Environmental NGOs

In fiscal 2016, Panasonic started asking our suppliers (approx. 7,000 in number) in China, where a large number of its production sites are located, to fill in and submit CSR self-check lists. At the end of fiscal 2019, we completed collecting the list from all existing suppliers. Additionally, we began an on-site CSR and environment check of key suppliers (approx. 20 companies), collecting their CSR self-check lists at the same time.

In face of rising social pressure in China for suppliers to take necessary actions for environmental issues, guidance for suppliers has become an important issue from points of CSR. For this reason, we have conducted CSR and environmental inspections in China in the form of audits not only for CSR compliance but with great attention to the environmental activities of the suppliers. Through the CSR and environmental inspections, we have asked them to improve the condition, if necessary, and also have conducted follow-up inspections.

At the same time, we are engaged in environmental improvement for suppliers through communication with the Chinese environmental NGO, Institute of Public and Environmental Affairs (IPE). In the Green Supply Chain ranking of suppliers to major business corporations (CITI Index) published since fiscal 2015 by the Institute of Public and Environmental Affairs (IPE), Panasonic has been rated in high ranks every year. In fiscal 2019, Panasonic was ranked as the fourth in the IT industry (one place higher than previous year) and the 1st in overall ranking in Japanese companies.

Environment: Human Resource Development



Encouraging All Employees to Become Practitioners of Environmental Activities

We believe that the development of human resources is important in laying the foundations and promoting environmental sustainability management. To put this into action, a training curriculum is in place for each specialty and position. General Programs are organized for all employees to acquire environmental knowledge as well as learn about our environmental policy and activities. Specialized Programs are designed to bring employees' environmental skills to an advanced level.

General Programs are held every year at each business site for employees to acquire a wide range of knowledge, such as energy problems, trends in global society, and environmental activities by Panasonic. Additionally, training catered to the distinctive features of each operation is organized to provide information directly linked to business and operational activities. Other creative initiatives that we continue include environmental sustainability education to new employees and engineering-related employees using exclusive textbooks specific to their respective job experiences and skills to enable them to practice environmental action in their job activities.

In fiscal 2018, ten courses were held in the Specialized Programs, such as ISO 14001 internal environmental auditor training, environmental legislation, chemical substance management, and factory energy conservation diagnosis, and a total of 77 people took the courses.

We hold continual group training on environment risk and other key points in management for members who are assigned to overseas production sites, as companies are expected to take more and more actions for better environment a global scale.

Fostering Environmental Awareness and Skills through Global Competitions and On-site Training

The Eco Mind Skills Competition and Energy Conservation Diagnosis Skills Competition are held; as environment-related events in the Panasonic Group Manufacturing Skills Competition held annually for Panasonic employees worldwide, aimed at training employees to acquire advanced skills and become top runners in Panasonic manufacturing. We hope that these events will bring greater environmental awareness and continuous environmental activities among our employees, and thus lead to more active proposals to address and resolve wide-ranging environmental issues and business risks.

The Eco Mind Skills Competition tests the participants' capabilities in overall environmental knowledge and expertise including global environmental issues and environmental sustainability management by Panasonic, as well as environmental improvement skills of proposing and implementing improvement measures that cut down environmental impact. Training materials for the Competition, preparatory study sessions, and mock tests are held at each business site, aiming for promising contenders to win high-ranking places. Additionally, voluntary activities are being organized actively to encourage competitors to acquire and improve their knowledge in the area. In fiscal 2018, 84 members, with increased number of participants from China and Thailand, participated in the completion.

In China, which is one of the major regions where we focus business strategies on, the Eco Mind Skills Competition China has been held since fiscal 2012 at the Manufacturing Technology Learning Center (our in-house center for manufacturing education) in Hangzhou. In fiscal 2016, it was also held in Beijing.

Matters unique to the region, including essential environmental impact reduction at the business site, energy-saving and improvement activities and environmental trends and laws in China, are being included to foster greater employee awareness of the environment.

In the energy conservation diagnostic skills competition, contests are held, including skills competitions in the various fields of air conditioning, furnace & heat. In fiscal 2019, the number of participants increased to 84, including participants from China and Thailand.



Eco Mind Skills Competition



Energy Conservation Diagnosis Skills Competition

The Competition requires competitors to identify energy-saving issues and improvement measures through analysis of the state of facility operations and energy use within a designated time period. It is an event that requires problem-solving capabilities based on advanced expertise and experience in environmental engineering. We award outstanding performers in the competition, and continue to promote further development of human resources capable of more advanced practices to raise the overall level of the company.

Raising the Level of Human Resources Development Through Environmental Education and Internal Certification System

In May 2017, Panasonic Homes^{*1} Co., Ltd. received recognition of its excellence in environmental human resources development at the Environmental Human Resources Development Business Awards 2016, sponsored by the Ministry of the Environment and another organization.

The company has been offering environmental education to all its employees via e-learning since fiscal 2008. In fiscal 2014, the company introduced an internal certification system in which employees who demonstrate continuing excellence in performance are recognized as Eco-Men or Eco-Jo (which mean eco-conscious men/women; the names have been registered as trademarks) to promote human resources development in the environment field. Under the HR system of the company, the Eco Kentei (certification test for environmental specialists) is a requirement in a program granting subsidies for acquiring public certification (for labor union members), as well as a promotion requirement for all employees based on job performance standards. Accordingly, the e-learning training covers questions similar to the Eco Kentei.



Environmental training via e-learning

^{*1} Its name was PanaHome Corporation as of receiving the award.



Environment: Environmental Communication

Promoting Environmental Communication

Panasonic has been focusing on maintaining close communications with stakeholders. We are actively engaged in environmental communication with our customers, business partners, local communities, governments, investors, employees, NGOs, experts, etc., through a variety of perspectives, including products and services, factories, and cooperation in environmental activities, as well as advertising, exhibitions, and website communication. And at the same time, we utilize stakeholder's opinions to further improve our environmental management.

Proposals on Environmental Policy

In addition to publicity through Keidanren (Japanese Business Federation) and other industrial organizations, we submit environmental policy proposals not only to the Japanese government but also to governments of other countries through a wide range of opportunities. We joined in policy deliberations on environmental issues that the society is facing today: a future vision for national governments, industry, and people's lives aimed at the creation of a sustainable society, and information sharing and exchange related to international activities. Through this approach we established a deeper understanding of government policy. Based on this, we are engaging in a drive to promote environmental management with an awareness of preventing business risks as well as creating opportunities, through actively presenting proposals from the standpoint of manufacturing, marketing, and technology development.

Communication with Assessment Bodies and Investors

Panasonic has been engaged in constant communication with domestic and international assessment bodies and investors in order to inform them of our contribution to the environment and deepen their understanding of it. Among our contributions, great attentions have been paid especially to our initiatives to reduce the environmental impact of our products across their entire life cycle; to realize a smart society; and our medium and long term environmental vision.

We will continue to engage in such communication.

Engagement with Third Parties

Panasonic actively conducts a number of dialogues with experts from both within and outside Japan, and utilizes their comments in its environmental strategies.

With the Natural Step, in particular, we have built a partnership since 2001. We hold meetings with them to share the most advanced environmental information in Europe and seek their opinions on our environmental strategies and activities to assist us in further improvements.

Publishing Environmental Information

Panasonic has been publishing its environmental reports since 1997. In fiscal 2014, we integrated the webpage for our environmental activities with that of for our CSR activities in order to publish comprehensive information in relation to sustainability. From fiscal 2016, among information published on our website, topics of great interest to our stakeholders, such as our environmental policy, approach, and performance data, are also provided in a Sustainability Data Book.

To increase further awareness on our Environmental Vision and environmental activities for CO₂ reduction, resources recycling, water conservation, chemical substances, and biodiversity among customers worldwide, we are offering summary information on our activities on Panasonic websites in 59 countries (in 35 languages). In the area of chemical substances, for example, activities involving the entire supply chain to control certain chemical substances hazardous to the human health and the environment are presented in an easy-to-understand style.

▶ Example of the Panasonic website for general customers (Australia)

<https://www.panasonic.com/au/corporate/sustainability/eco.html>



Example of the management of chemical substances

For information on specified chemical substances in products regulated by the Act on the Promotion of the Effective Utilization of Resources, please refer to "Information on the Content of Certain Chemical Substances in Covered Products"

below. We do not manufacture, import, or sell products that contain certain chemical substances beyond specified standards, other than in exempted parts.

▶ Information on the Content of Certain Chemical Substances (Japanese)

<https://www.panasonic.com/jp/corporate/sustainability/eco/chemical/jmoss.html>

In addition, we have established a new webpage, Information Based on the Act on Preventing Environmental Pollution of Mercury, in May 2017 to communicate information concerning the mercury used in our products to customers.

▶ Information Based on the Act on Preventing Environmental Pollution of Mercury (Japanese)

<https://www.panasonic.com/jp/corporate/sustainability/eco/chemical/jmoss/mercury.html>

Other examples of environmental communication are introduced in the following website.

<https://www.panasonic.com/global/corporate/sustainability/eco/communication.html>

Environment: History of Environmental Activities



Era	Year	Panasonic Group	World	Japan
~1970s	1967			• Basic Law for Environmental Pollution Control enacted
	1968			• Air Pollution Control Law enacted
	1970	• Pollution Survey Committee established		• Water Pollution Control Law enacted • Waste Disposal and Public Cleansing Law enacted
	1971			• Environment Agency established
	1972	• Environmental Management Office established	• U.N. Conference on Human Environment held in Stockholm (Declaration of Human Environment adopted)	
	1973		• First oil shock occurred	
	1975	• Environmental Management Regulations enacted		
	1979		• Second oil shock occurred	• Energy Conservation Law enacted
1980s	1985		• Vienna Convention for the Protection of the Ozone Layer adopted	
	1987		• Montreal Protocol on Substances that Deplete the Ozone Layer adopted • World Commission on Environment and Development (the Brundtland Commission) advocated the concept of sustainable development	
	1988	• CFC-reduction Committee established		• Ozone Layer Protection Law enacted
	1989	• Environmental Protection Promotion Office established		
1990s	1991	• Matsushita Environmental Charter (Environmental Statement and Code of Conduct) enacted • Matsushita Product Assessment adopted and implemented		• Keidanren Global Environment Charter enacted by Japan Federation of Economic Organizations • Law for Promotion of Effective Utilization of Resources enacted
	1992	• Environmental Policy Committee established	• The Earth Summit held in Rio de Janeiro, Brazil; Agenda21 and Rio Declaration on Environment and Development adopted • United Nations Framework Convention on Climate Change adopted	
	1993	• Matsushita Environmental Voluntary Plan (Year 2000 targets) adopted • Matsushita Group' global environmental internal audits launched		• The Basic Environment Law enacted
	1995	• Acquired Environmental Management System Certification at AV Kadoma Site (first in the Matsushita Group)	• First Conference of Parties to the U.N. Framework Convention on Climate Change (COP1) held in Berlin	• Containers and Packaging Recycling Law enacted
	1996		• ISO 14001 International Standard on Environmental Management Systems launched	
	1997	• Corporate Environmental Affairs Division (CEAD) established • Environmental Conference established (held semi-annually)	• COP3 held in Kyoto and adopted the Kyoto Protocol	• Keidanren Appeal on the Environment announced by Japan Federation of Economic Organization
	1998	• Love the Earth Citizens' Campaign commenced • Recycling Business Promotion Office established • First environmental report (1997) published		• Home Appliance Recycling Law enacted (took effect in 2001) • Law Concerning the Promotion of the Measures to Cope with Global Warming enacted • Energy Conservation Law revised: Top Runner Approach introduced
	1999	• Green Procurement launched • Chemical Substances Management Rank Guidelines established • Acquired ISO14001 Certification in all manufacturing business units		• PRTR (Pollutant Release and Transfer Register) Law enacted
2000s	2000	• Lead-free Solder Project commenced • Held first environmental exhibition for general public in Osaka	• Global Reporting Initiative (GRI) issued The Sustainability Reporting Guidelines	• Basic Law for Establishing the Recycling-based Society enacted • Law for Promotion of Effective Utilization of Resources enacted
	2001	• Environmental Vision and Green Plan 2010 adopted • Held first Environmental Forum in Tokyo and Freiburg, Germany • Panasonic Eco Technology Center launched	• Reached final agreement on the actual rules of Kyoto Protocol in COP7 held in Marrakesh	• Reorganized into the Ministry of the Environment • Law Concerning Special Measures against PCBs enacted
	2002	• Panasonic Center Tokyo opened	• Johannesburg Summit (Rio+10) held	• Kyoto Protocol ratified • Vehicle Recycling Law enacted • Law for Countermeasures against Soil Pollution enacted

Era	Year	Panasonic Group	World	Japan
	2003	<ul style="list-style-type: none"> Declared 'Coexistence with the Global Environment' as one of the twin business visions Factor X advocated as an indicator for Creating Value for a New Lifestyle Completely introduced lead-free soldering globally Super GP Accreditation System launched Achieved zero waste emissions in Japanese manufacturing business sites (ongoing program) Held Environmental Forum in Tokyo 	<ul style="list-style-type: none"> EU's WEEE Directive was enacted 	
	2004	<ul style="list-style-type: none"> Environmental Vision and Green Plan 2010 revised PCB Management Office established Superior GP Accreditation System launched 		<ul style="list-style-type: none"> Prohibited manufacturing and use of products containing asbestos in principle
	2005	<ul style="list-style-type: none"> Participated in Expo 2005 Aichi, Japan as an official sponsor Green Plan 2010 revised Continued with the nationwide Lights-out Campaign 3R Eco Project launched Completed the elimination of specified substances (6 substances) in products Matsushita Group's Green Logistics Policy established CF Accreditation System introduced Panasonic Center Osaka opened Eco & Ud HOUSE opened Installed the first commercial household fuel cell cogeneration system in the new official residence of the Japanese Prime Minister Won the first place in Nikkei Environmental Management Survey 	<ul style="list-style-type: none"> Kyoto Protocol entered into force 	<ul style="list-style-type: none"> Expo 2005 Aichi, Japan held National campaign against global warming "Team -6%" launched Marking for the presence of the specified chemical substances for electrical and electronic equipment (J-Moss) established
	2006	<ul style="list-style-type: none"> Environmental specialist position established ET Manifest introduced into all manufacturing sites of Panasonic in Japan Realized lead-free plasma display panels and introduced them to the market Full-fledge introduction of biodiesel fuel in logistics 	<ul style="list-style-type: none"> Restriction of Hazardous Substances (RoHS) Directive took effect in EU 	<ul style="list-style-type: none"> Relief Law for Asbestos Victims enacted Energy Conservation Law revised: new cargo owner obligations, widened product scope of its application, and top runner standard revision
	2007	<ul style="list-style-type: none"> Energy conservation activities at our factories in Malaysia approved as CDM project by the U.N. A new environmental mark 'eco ideas' introduced Panasonic Center Beijing opened Environmental Forum in China held "Declaration of Becoming an Environmentally Contributing Company in China" announced Panasonic 'eco ideas' Strategy announced 	<ul style="list-style-type: none"> The Fourth Assessment Report of the Intergovernment Panel on Climate Change (IPCC) released Registration, Evaluation, Authorisation and Restriction of Chemicals entered into force in EU Framework for CO₂ reduction agreed at Heiligendamm Summit (G8) The Bali Road Map for the post Kyoto Protocol agreed at COP13 Administration on the Control of Pollution Caused by Electronic Information Products (China RoHS) came into effect 	<ul style="list-style-type: none"> 'Cool Earth 50' announced by Prime Minister Abe '21st Century Environment Nation Strategy' formulated 'The Third National Biodiversity Strategy of Japan' formulated 'Ministerial ordinance partially amending the Enforcement Regulation of the Waste Management and Public Cleansing Law' promulgated 'Domestic Emissions Trading Scheme Review Committee' established 'The Second Fundamental Plan for Establishing a Sound Material-Cycle Society' formulated
	2008	<ul style="list-style-type: none"> Established the Corporate CO₂ Reduction Promoting Committee Held environmental exhibitions, 'eco ideas' World Home Appliances Company announced environmental statement in which named its Kusatsu site as 'eco ideas' Factory Announced 'eco ideas' Declaration in Europe Established Environmental Strategy Research Center 	<ul style="list-style-type: none"> G20 (conference of key countries' environmental and energy ministers) held Hokkaido Toyako Summit held 	<ul style="list-style-type: none"> Cool Earth Promotion Program announced by Prime Minister Fukuda Mislabeling incident of waste paper pulp percentage Long-term Energy Demand and Supply Outlook announced Japan's Voluntary Emission Trading Scheme started
	2009	<ul style="list-style-type: none"> Opened the 'eco ideas' House to demonstrate a lifestyle with virtually zero CO₂ emissions throughout the entire house Announced the Asia Pacific 'eco ideas' Declaration Announced 'eco ideas' factories (in Czech, Malaysia, Thailand, and Singapore) Sanyo Electric joined the Panasonic Group 	<ul style="list-style-type: none"> China WEEE law promulgated New framework for countermeasures against global warming on and after 2013 (post-Kyoto Protocol), the Copenhagen Accord, was adopted at the COP15 (Copenhagen conference) Seeking to emerge from the Lehman collapse, countries throughout the world accelerated actions for the Green New Deal 	<ul style="list-style-type: none"> Energy Conservation Law amended: Covered area expanded from factories to commercial sector facilities Flat-panel TV and clothes dryer added as covered products under the Home Appliance Recycling Law 'Eco point' system started
2010s	2010	<ul style="list-style-type: none"> Announced "Vision looking to the 100th anniversary of our founding in 2018" Announced new midterm management plan, "Green Transformation 2012 (GT12)" Announced 'eco ideas' Declarations (Latin America, Asia Pacific, and Russia) Established 'eco ideas' Forum 2010 in Ariake, Tokyo Launched Panasonic ECO RELAY for Sustainable Earth Kasai Green Energy Park eco-friendly factory completed 	<ul style="list-style-type: none"> COP10 held in Nagoya—Nagoya agreement made APEC meeting held in Yokohama Ruling party lost in US midterm election—changes in anti global warming policy Cancun agreement made in COP16—Post-Kyoto framework still to be discussed 	<ul style="list-style-type: none"> Draft legislation of Basic Law of Global Warming Countermeasures submitted but remained in deliberation Obligatory greenhouse gas emissions reduction started as a part of Tokyo Emissions Trading Scheme Waste Management and Public Cleansing Law amended: self treatment regulations tightened Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (CSCL) and Law concerning Pollutant Release and Transfer Register (PRTR) amended
	2011	<ul style="list-style-type: none"> Announced North America & Taiwan 'eco ideas' Declarations Announced establishment of Panasonic Dadi Dowa Summit Recycling Hangzhou Co., Ltd. Announced the Fujisawa Sustainable Smart Town Project Established Corporate Electricity Saving Division that bridges functions across the organization 	<ul style="list-style-type: none"> Rare earth prices soared Revised RoHS directives enforced in EU COP17 (Durban Climate Conference): Agreement made on long-term future of the scheme, and the second commitment period for the Kyoto Protocol (Japan announced non-commitment) 	<ul style="list-style-type: none"> Home appliance eco-point incentive program finished The Great East Japan Earthquake Revised Air Pollution Control Act and Water Pollution Control Act enforced Act on Special Measures Concerning Procurement of Renewable Electric Energy by Operators of Electric Utilities enacted (Feed-in tariff system to be enforced July 2012)

Era	Year	Panasonic Group	World	Japan
	2012	<ul style="list-style-type: none"> Business reorganization due to full acquisition of Panasonic Electric Works and SANYO Electric Commenced sales of Resources Recycling-oriented Product series Terminated production of household incandescent light bulbs Establishment of Environmental Management Group, Environment & Quality Center, Global Manufacturing Division Communication of 'eco ideas' Declaration (Vietnam) 	<ul style="list-style-type: none"> United Nations Conference on Sustainable Development (Rio +20) "Doha Climate Gateway" adopted at COP 18 Doha 2012, to lay down a future legal framework in which all nations can participate by 2020 and onwards Revised WEEE Directive implemented in Europe 	<ul style="list-style-type: none"> The Recycle Resource Project, national campaign by Ministry of the Environment, commenced 2012 Japan Tax Reform Bill enacted (Environment tax came into force in October 2012) Feed-in tariff for recyclable energy put into effect
	2013	<ul style="list-style-type: none"> Announced new midterm management plan Cross-Value Innovation 2015 Announced new brand slogan "A Better Life, A Better World" PETEC's home appliance recycling reached a cumulative total of 10 million units Announced 'eco ideas' factory (Philippines) 	<ul style="list-style-type: none"> Phase I of the Kyoto Protocol ends. Japan's target expected to be achieved in combination with forest CO₂ absorption and application of the Kyoto Protocol mechanisms. GRI announced G4, the next guidelines for CSR reports Minamata Convention on Mercury to internationally regulate import and export of mercury adopted at UN conference IPCC Fifth Assessment Report (Working Group 1) announced the possibility of human activity being the principal cause of global warming observed since the mid-20th century is "extremely high." Global average surface temperature is expected to rise as high as 4.8°C COP 19 Warsaw reaffirmed participation of all nations in the future framework of the Convention for 2020 and later. Nations were asked to submit emission pledges well in advance of 2015 	<ul style="list-style-type: none"> Home Appliance Recycling Law for small household appliances enforced Basic Plan for Establishing a Recycling-Based Society implemented Keidanren's "Action Plan Towards Low-Carbon Society" started (until FY 2021) Amended Law Concerning the Rational Use of Energy and Amended Law Concerning the Promotion of the Measures to Cope with Global Warming established. Amended Act on the Rational Use and Management of Fluorocarbons promulgated (June) Voluntary Action Plan by the electric and electronics industry terminated. Achieved improvement by 48% in CO₂ emissions per basic unit in average actual production output for fiscal 2009–2013 (compared with fiscal 1991 level) to the target of 35% Japan announced in November its fiscal 2021 reduction target of 3.8% over fiscal 2006 and registered this with UNFCCC Office (but with a possible review of the tentative target, which does not include possible resumption of nuclear power plant operations)
	2014	<ul style="list-style-type: none"> Panasonic DADI DOWA Summit Recycling Hangzhou Co., Ltd., started operation Opening of Fujisawa Sustainable Smart Town Announced Eco Declaration (Southeast Asia & Pacific) Communication of housing & town development at the International Greentech & Eco Products Exhibition & Conference (IGEM) (Malaysia) 	<ul style="list-style-type: none"> Targets for product environmental regulations in Europe begin to shift from energy saving to resource efficiency and environmental impact EU Parliament reelection results in the appointment of Mr. Jean-Claude Juncker as President of the European Commission. Review of the circular economy package was decided. IPCC 5th Assessment Report analyzed that the current multiple ways to achieve control of global temperature rise to less than 2°C cannot be materialized unless the target becomes nearly zero by the end of the century. Attention to "adaptation" is growing. COP12 Convention on Biodiversity, PyeongChang concluded the interim assessment of the Aichi Biodiversity Targets as "progress has been made but remains inadequate" COP 20 (Peru) reached agreement on the policy of developing reduction targets based on common rules for publication of "a new legal framework beyond 2020 applicable to all Parties" 	<ul style="list-style-type: none"> The amended Energy Conservation Act was enforced, incorporating action on power conservation during peak periods into existing qualitative reduction targets Phase II of the Commitment to a Low Carbon Society, a voluntary program promoted by Keidanren as measures against global warming, was newly established in response to government request, setting the target year to 2030 Toyota Motor launched fuel-cell vehicle MIRAI into the commercial market
	2015	<ul style="list-style-type: none"> Won Zayed Future Energy Prize 2015 Wonder Japan Solutions (Tokyo) held for the first time Announced the introduction of indirect contributions through housing, automotive, and B2B solutions in the size of contribution in reducing CO₂ emissions Announced the Tsunashima Sustainable Smart Town development project, together with Yokohama City and Nomura Real Estate Development Company 	<ul style="list-style-type: none"> Paris Agreement on the international legal framework for global warming control from 2020 and later was adopted at COP21 (Paris) 2030 Agenda for Sustainable Development was adopted at the UN Summit, focusing chiefly on sustainable development goals (SDGs) 	<ul style="list-style-type: none"> Draft proposal to cut greenhouse gases by 26% over 2013 levels as its 2030 greenhouse gas reduction target announced by the Japanese government COOL CHOICE, a new nationwide movement for greenhouse gas reduction, started
	2016	<ul style="list-style-type: none"> Establishment of Environmental Management Department, Quality & Environment Division Announced R&D 10-Year Vision Revised Green Plan 2018 Announced participation in Future Living Berlin, the first Smart City project in Germany Announced collaboration with Tesla Motors for solar batteries 	<ul style="list-style-type: none"> G7 Toyama Environment Ministers' Meeting held; ministers representing the G7 nations and the EU discussed policies on seven themes including resource efficiency and 3R, biodiversity, climate change, and related measures UK decided to leave the EU (Brexit) in a national referendum GRI announced "GRI Standard," the new guidelines for CSR reports COP 22 held in Marrakesh, Morocco. Agreement reached on establishing a rulebook to make the Paris Agreement effective by 2018 Donald Trump won the US presidential election COP 13, the 13th meeting of the Conference of the Parties on Biological Diversity, held in Cancun, Mexico 	<ul style="list-style-type: none"> The 2016 Kumamoto Earthquake The Plan for Global Warming Countermeasures was decided by the Cabinet. Direction of Japan's global warming countermeasures to achieve the Intended Nationally Determined Contributions under COP 21 was clarified. Long-term goal of reducing greenhouse gas emissions by 80% by 2050 was set Act on Promotion of Global Warming Countermeasures was amended; focuses on promoting the enhancement of Cool Choice, the reinforcement of international cooperation, and regional global warming countermeasures
	2017	<ul style="list-style-type: none"> Announcement of Panasonic Environment Vision 2050 Opening of Tsunashima Sustainable Smart Town 	<ul style="list-style-type: none"> France, UK, and China announced the prohibition of sales of gas and diesel cars and the conversion to EVs in the future 	<ul style="list-style-type: none"> Revision of the Charter of Corporate Behavior delivering on the SDGs through the realization of Keidanren Society 5.0
	2018	<ul style="list-style-type: none"> Announcement of Monozukuri (Manufacturing) Vision Achievement of zero-CO₂ factories at Panasonic Eco Technology Center Co., Ltd. (PETEC), Panasonic Energy Belgium N.V. (PECBE), and Panasonic do Brazil (PANABRAS) 	<ul style="list-style-type: none"> COP24 was held. The policy based on the Paris Agreements to be uniformly applied to all member countries was adopted 	<ul style="list-style-type: none"> The fifth Basic Environment Plan was decided by the Cabinet. Set up six cross-field strategies utilizing the concepts of SDGs

Respect for Human Rights

Management System

The Panasonic Code of Conduct expressly states that “we must respect human rights and do our best to understand, acknowledge and respect the diverse cultures, religions, mindsets, laws and regulations of people in the different countries and regions where we conduct business.” Panasonic supports the fundamental principles of the United Nations Universal Declaration of Human Rights, the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, and the OECD Guidelines for Multinational Enterprises. The major parts of these principles are embodied in the Panasonic Code of Conduct.

Panasonic is also taking an active approach to reflecting ideas concerning global human rights in its management, including by making reference to the Guiding Principles on Business and Human Rights, which were adopted by the UN Human Rights Council in June 2011.

In fiscal 2016, Panasonic complemented the Code of Conduct by setting a “Global Human Rights and Labor Policies” and by implementing a management system for abiding by that policy. The management system consists of self-assessment checklists for properly evaluating risks involving, and the impact on, human rights and for identifying risks, a manual outlining the procedures for correcting the risks that have been identified and for carrying out continuous improvement, and other components.

Going forward, in addition to efforts conducted with its employees, Panasonic will continue to cooperate with its suppliers throughout the world to fully understand laws and labor practices in different countries and to respect human rights.

Policy

As a company doing business globally, Panasonic treats, as a fundamental principle behind its business activities, interactions with not just its employees but all stakeholders with the maximum degree of concern and respect for their human rights. Panasonic’s policies concerning human rights are expressly outlined in Panasonic Code of Conduct and Global Human Rights and Labor Policies. These policies include items concerning such issues as working hours; wages; humane treatment; prohibition of discrimination; protection of privacy; concern for the human rights of foreign workers, trainees, and younger laborers; and the freedom of association plus labor-management dialogues, among others.

► Panasonic Code of Conduct, Chapter 3: Employee Relations

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-3.html>

Education

Panasonic conducts periodic training concerning its Code of Conduct—which sets forth its policies on respect for human rights—including when employees join the company or are promoted.

The company conducts “Overseas Employee / Pre-Overseas Appointment Training” for employees on assignment from Japan and posted at overseas subsidiaries. It provides education on issues of human rights that demand particular attention overseas, including fair treatment, the prohibition of employment discrimination, and respect for union activities.

In 2019, we investigated human rights risks at more than 100 electronics and electric corporations in China. Through these investigations, we identified risks that included insufficient management of young workers, gender bias during hiring and promotions, and overtime work beyond legal limits. To share these results and discuss possible preventive measures, we held training meetings in three cities in China, and 53 employees from 34 group companies attended.

Responsible Executive and Framework

The Chief Human Resources Officer (CHRO) is Executive Officer Shigeki Mishima (as of August, 2019).

The departments responsible consist of the Human Resources & Industrial Relations Department established at the Panasonic headquarters, the human resources departments established at each of the seven Panasonic Companies* (Appliances, Life Solutions, Connected Solutions, Industrial Solutions, Automotive, US, and China & Northeast Asia), and all business divisions and affiliated companies under the Panasonic umbrella.

*as of April, 2019

Human Rights Support Desk

Panasonic has established an Equal Employment Opportunity Office at its headquarters and appointed full-time consultants to staff it. In addition, a consultation desk was established at each Company and business division in an effort to provide a place for employees and temporary staff to go to discuss any concerns relating to human rights and all forms of harassment, including sexual harassment (which encompasses harassment related to sexual minorities (LGBT*)); harassment related to pregnancy, childbirth, or taking childcare leave; and harassment based on power differentials.

Furthermore, in conjunction with the revisions to the Equal Employment Opportunity Act and the Child Care and Family Care Leave Act that took effect January 2017, Panasonic has revised the leaflet containing Company Policy toward harassment, definitions and examples of various types of harassment, internal regulations on harassment, and internal systems for discussing and reporting harassment. We have also notified all employees of these changes. The Equal Employment Opportunity Office also conducts activities aimed at resolving workplace problems and creating workplaces without barriers to employees performing their jobs. For example, people from divisions who are responsible for training sessions on human rights have expressed opinions such as, “all staff should attend this training” and “I want to hold this training every year to improve employee awareness and the workplace environment.” They at their respective business divisions strongly recognize the necessity of wider employee awareness, and they are promoting independent initiatives toward this goal.

In August 2018, Panasonic established its Global Compliance Hotline (under the Legal & Compliance Division) for all regions, and it has since accepted discrimination and harassment complaints online or by phone and investigated violations or suspected violations of the law or Panasonic’s corporate principles.

*LGBT: An acronym for lesbian, gay, bisexual, and transgender

Participation in International and Industrial Partnerships

As a member of the Japanese Business Federation's task force on its Charter of Corporate Behavior, Panasonic partnered with other member companies to create the Implementation Guidance of a new human rights section on the Charter of Corporate Behavior, which was revised in 2017 for the first time in seven years.

Additionally, Panasonic took part in formulating the “Joint Declaration Toward Correcting Business Practices that Lead to Long Working Schedules,” which was jointly issued in September 2017 by economic organizations, including the Japanese Business Federation, and various industry organizations, including the Japan Electronics and Information Technology Industries Association (JEITA).

Panasonic is a vital member of JEITA, through which we actively strive to address the issues that our industry faces-together with other companies in the electronics and IT industries. The JEITA CSR Committee, which Panasonic chairs, works with the EU, the OECD, and the ILO to promote the project, Responsible Supply Chains in Asia.

► Joint Declaration on Rectifying Correcting Business Practices That Lead to Long Working Hours

<https://www.keidanren.or.jp/en/policy/2017/071.html>

► The Responsible Supply Chains in Asia programme

https://www.ilo.org/tokyo/events-and-meetings/WCMS_651504/lang--en/index.htm

► ILO and the JEITA CSR Committee Host a Seminar Promoting CSR in Global Supply Chains

https://www.ilo.org/tokyo/information/pr/WCMS_732917/lang--en/index.htm

Respect for Human Rights: Performance Evaluation

As a company doing business in countries around the world, Panasonic strives to respect human rights and considers it a precondition for all its behavior to abide by international standards, the laws and regulations of each country or region, and the Panasonic Code of Conduct.

Further to these efforts, since 2007, the company has been conducting Overseas Human Resources and Labor Assessments intended to identify, comprehend, and resolve issues in personnel management and labor management overseas. The checklist used in the survey contains around 300 items, including those concerning proper implementation of labor management; compliance with local labor laws, employment systems, and business practices; and discovery of bad influences on business and of latent labor-related risks that could cause problems.

After the local affiliate has conducted a self-assessment based on the checklist, an assessor who belongs to a Company or business division in Japan performs an audit. Efforts to resolve problems discovered via assessments are undertaken primarily by Assessor-Leaders (mainly managers in charge of human resources), who strive to raise the level of labor management.

Furthermore, since fiscal 2015, Panasonic has implemented risk assessment and improvement efforts based on a “Self-Assessment Checklist” relating to human rights and labor that was established that year.

Because issues with working hours management have been observed at some companies through self-assessments, we have proposed improvement plans that include revisions to the organization of personnel, work management methods, and equipment automation, and are moving forward in our efforts to correct these issues.

In addition, Panasonic receives audits from the clients that we supply. We were audited over 20 times in fiscal 2018, and we are engaged in correcting and improving the areas that our clients have indicated may be problematic in terms of human rights and labor standards. These efforts include reviewing our work regulations and management methods.

Key Issues and Countermeasures

Social trends indicate an increase in the rate of consultations about harassment based on power differentials (bullying and verbal harassment). The most common reason that Panasonic employees consult with the support desk also happens to be harassment based on power differentials. As part of our goal to create workplaces in which harassment does not exist, we are conducting training and educational activities for organizational management in an effort to provide basic knowledge, to further raise awareness so as to incite changes in harassing behavior, and to otherwise improve their management abilities.

Respect for Human Rights: Efforts Concerning Fundamental Human Rights

Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers

When recruiting employees, Panasonic adopts a perspective of protecting fundamental human rights and engages in recruitment activities that comply with the laws and regulations of the respective countries. It also prohibits forced labor, labor against the will of any employee, or child labor. In order to prevent child labor, we have built items such as age verification into the “Self-Assessment Checklist” used when individuals join the company. The risk that child labor will be performed is thought to be especially high in China and elsewhere in Asia, and Panasonic is thoroughly implementing age checks in these regions. The company does not make employees under the age of 18 engage in heavy labor and offers them consideration and support so that they may have opportunities to receive education.

Providing Employment Opportunities for Young People

Panasonic holds our Professional Internship Program (PIP) twice annually through industry-university cooperation.

PIP has the following three goals:

- To train human resources in industry-university cooperation
- To provide an opportunity for learning through work experience
- To eliminate employment mismatches by verifying work appropriateness

Employing Foreign Workers

Because there tend to be greater human rights and labor-related risks for migrant and foreign laborers, Panasonic has established items to be checked that include ensuring that Panasonic-affiliated entities are not allowing temp agencies to collect any fees and are not retaining workers’ passports or identification documents, as well as ensuring that they are providing workers with employment contracts, including terms of employment, in those workers’ native languages. Panasonic recruits employees and accepts temporary workers based on the laws and regulations of the respective country, so that no employees are made to work against their will or are unduly subjected to disadvantageous working conditions.

Prohibition of Discrimination

Panasonic strives to create workplaces where diverse and talented individuals can respect one another as vital partners irrespective of differences such as race, sex, age, nationality, beliefs, religion, social status, disability, sexual orientation and gender identity, and can work in a lively and active manner in a supportive environment, with consideration of the laws and regulations of each country.

The company has established recruitment standards that select employees based on the applicants’ aptitudes, capabilities, and desires. To thoroughly implement these standards, the company in Japan, for instance, educates interviewers based on the handbook “Recruitment and Human Rights,” which the “Hellowork” public employment stability office established by the national government has drafted for the purpose of promoting fair recruitment selection.

For employee discipline, Panasonic has, among other provisions in its work regulations, those mandating respect for human rights, those forbidding illegal behavior, and those forbidding sexual harassment in the workplace; in the event of a violation of any one of these provisions, expressly stated disciplinary measures are to be taken.

Furthermore, the company is engaged in the following efforts to prevent sexual discrimination, including sexual harassment, as well as harassment based on power differentials, and to comply with the Act for Eliminating Discrimination against Persons with Disabilities in order to create a more fair, equal, and pleasant workplace:

- Establishment, publication, and thorough implementation of policies concerning sexual harassment
- Distribution of leaflets and manuals concerning sexual harassment
- Seminars and training on sexual harassment, harassment based on power differentials, and revitalizing workplace culture
- LGBT training
- Distribution of educational materials to help employees understand people with disabilities

Managing Working Hours

Based on labor standards legislation in the respective countries and on labor agreements, Panasonic has established in its work regulations provisions relating to appropriate working hours, break times, overtime work, holidays, leave, and so forth.

To abide by these provisions, the company operates a working-hours management system and is also engaged in comprehensive employee health management.

With a work management system, Panasonic has implemented a variety of measures with an eye to employees' health, including a mechanism by which warnings are issued and other steps are taken at the point when a certain length of overtime has been reached; optimal placement of personnel so that overtime is not overly imposed on only certain employees; and additional health checks performed in the rare event that an employee has worked excessively long hours.

In addition, since fiscal 2018, Panasonic Japan has been engaged in programs for all employees, including management, meant to eliminate overtime in excess of 80 hours per month and to have all employees go home every day by 8 p.m.

Managing Wages

Along with Panasonic Group establishing groupwide compensation system design guidelines and aiming to realize competitive and attractive compensation levels, and based on labor standards legislation in the respective countries and on labor agreements, Panasonic has established in its employee wage regulations provisions for adequate wages, allowances for commuting and other expenses, bonuses, other compensation paid on occasional bases, retirement allowance, and so forth.

The company has implemented a "Role / Grade System" that determines compensation based on the work or role in which employees are currently engaged; there are no gender-based inequalities in this compensation system.

In Japan, to ascertain whether employees' wages are being paid correctly, labor unions conduct annual surveys of wage conditions among their members and check whether those members are being properly paid the salaries resulting from wage negotiations decided between labor and management.

Overseas, Panasonic establishes, by country, company regulations that comply with all wage-related laws and regulations pertaining to matters such as the minimum wage, statutory benefits, and overtime. The company conducts its operations based on these regulations and—for the specified period of payment and at the specified time of payment—notifies its employees through pay statements and electronic data, and pays them directly.

In cases where the laws of the country or region in question do not prohibit monetary disciplinary action, Panasonic recognized such disciplinary action as a possibility, and does not prohibit it. However, this is all predicated on the procedures for such actions as well as the monetary amounts involved being established within legal limits with consideration given to the impact on the recipient's life, as well as such measures being codified in internal regulations and made well known to employees. Japanese law does not prohibit monetary discipline, but Panasonic's disciplinary rules within Japan do not include monetary disciplinary measures.

The Freedom of Association and Respect for the Right to Collective Bargaining

Panasonic believes that the freedom of association, combined with the right to collective bargaining, is one of the fundamental human rights that companies should respect.

In countries and regions that permit the formation of labor unions—for instance, in Japan—Panasonic and the Panasonic Group Workers Union Association have stipulated in their labor agreement that unions retain the rights to organize, to collectively bargain, and to strike.

In addition, even in countries and regions where the formation of labor unions is not permitted because of legislation, regulations, or conventional labor practices, the Panasonic Code of Conduct stipulates the de facto promotion of issue resolution through labor-management dialogues, which are the goals of the principles of the freedom of association and the right to collective bargaining. In addition, the company expressly lists these dialogues as one of the conditions for doing business with suppliers in its Standard Purchase Agreement and demands suppliers comply with this condition.

Panasonic Code of Conduct (Excerpts)

Chapter 3: Employee Relations

(Omitted)

(2) Respect for Human Rights

5) Taking into account the laws and labor practices of each country, the Company will try to foster a good relationship with its employees and to resolve issues of, among others, workplace and working conditions by constantly having a sincere and constructive dialogue.

► Panasonic Code of Conduct, Chapter 3: Employee Relations

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-3.html>

Standard Purchase Agreement (Excerpts)

(Demand on Suppliers to Respect Human Rights)

The Supplier shall try to foster a good relationship with its employees and to resolve issues by constantly having a sincere and constructive dialogue.

Japan

Panasonic has adopted a “union shop” system, whereby all full-time company employees automatically become labor union members upon being hired with that status, and it has concluded labor agreements and a basic agreement with the Panasonic Group Workers Unions Association (PGU). Except for some employees engaged in work relating to management, all full-time Panasonic employees in non-managerial jobs belong to a labor union (96.7% of all employees except management are labor union members). In addition, the company respects the right of non-regular employees to join a labor union if they choose to do so. At Panasonic, important management issues are discussed in advance with the labor union, and Management-Labor Committees are established as a forum for people to express their opinions on these issues. Particularly, important decisions are explained to the labor unions, and Labor-Management Councils are held to provide an opportunity for people to express their approval or proposals for change.

Both Management-Labor Committees and Labor-Management Councils are held periodically and separately at the groupwide, Company, and business division levels. The groupwide-level Management-Labor Committee includes the Panasonic Group President, executives officer in charge of human resources, the head of the PGU Central Executive Committee, and others, and is held once per month. The groupwide-level Labor-Management Council includes the Panasonic Group President and directors whose attendance the President acknowledges as necessary, and the head of the PGU's Central Executive Committee and these whose attendance the head acknowledge as necessary.

In the Labor-Management Agreement, there is no established minimum notification period when a vital matter for consideration, such as a structural change, has arisen. However, Panasonic internal bylaws establish a basic rule that this period should be one month plus one week prior to the date that discussions are to commence. In addition, after the company has issued a proposal, there will be discussions, if necessary, every single day at every level—groupwide, Company, and business division—until both labor and management have reached complete agreement.

Europe

Following an EU directive* adopted in 1994, Panasonic set up a voluntary labor-management agreement to provide a venue for meaningful discussions between labor and management, and established the Panasonic European Employee Congress (PEEC).

In fiscal 2019, 32 employee representatives and 15 company representatives assembled in Palma, Spain; exchanged information concerning management strategy, business issues, and other matters; and had spirited discussions.

* EU directive: A directive that obliges all companies employing 1,000 or more employees in two or more countries of the European Union to establish a pan-European labor-management consultation committee

China

The unionization rate among private companies in China varies among different groups of firms, but nearly all Panasonic affiliated companies have organized labor unions (gōnghuì) and are actively engaged in labor-union related activities.

Specifically, Panasonic conducts—among other initiatives—periodic labor-management dialogues, proactive joint labor-management recreational events, and prior explanations to unions concerning important management decisions. The company is thus focusing its efforts on building good relations between labor and management—the basis for business development. The Union and management have discussed 28 points regarding remuneration, employee benefits, training, and other matters for 2019. We have successfully reached an agreement that adequately accounts for the many varied factors of our business, including improving corporate efficiency and profit, as well as providing our employees' families with a better quality of life.

Structure of the Fundamental Human Rights that Panasonic Respects

The major structure of the fundamental human rights that Panasonic respects is shown in the following diagram:

Structure of the Fundamental Human Rights that Panasonic Respects



Respect for Human Rights: Initiatives Relating to Global Standards, Legislation, Regulations, and So Forth

State of Efforts Relating to the ILO Core Labour Standards

Panasonic supports the fundamental principles of the United Nations Universal Declaration of Human Rights, the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, and the OECD Guidelines for Multinational Enterprises. The major parts of these principles are embodied in the Panasonic Code of Conduct. Panasonic's headquarters and each regional headquarters serve as bases for the collection of information on critical changes in legal requirements related to human rights and labor, and every one of our business sites works to ensure and strengthen our compliance with them.

The freedom of association and the right to collective bargaining

No. 87 (Freedom of Association and Protection of the Right to Organise Convention)

No. 98 (Right to Organise and Collective Bargaining Convention)

▶ "The Freedom of Association and Respect for the Right to Collective Bargaining"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach/#freedom

Prohibition of forced labor

No. 29 (Forced Labour Convention)

No. 105 (Abolition of Forced Labour Convention)

▶ "Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach/#labor

Effective abolition of child labor

No. 138 (Minimum Age Convention)

No. 182 (Worst Forms of Child Labour Convention)

▶ "Prohibition Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach/#labor

Rejection of discrimination in employment and occupation

No. 100 (Equal Remuneration Convention)

No. 111 (Discrimination (Employment and Occupation) Convention)

▶ "Prohibition of Discrimination"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach/#discrimination

Initiatives for the Prevention of Slavery and Human Trafficking

Modern Slavery can occur in various forms including servitude, forced or compulsory labor and human trafficking, all of which include the deprivation of a person's (an adult or child's) liberty by another (collectively "Modern Slavery"). The following sets out the procedures Panasonic has put in place with the aim of preventing opportunities for Modern Slavery to occur within our business or supply chain.

Panasonic is committed to a work environment that is free from Modern Slavery in accordance with the laws and regulations of the respective countries in which we operate.

We operate a zero-tolerance approach to Modern Slavery and we are committed to acting ethically and with integrity in all our business dealings and relationships and to implementing and enforcing effective systems and controls to ensure Modern Slavery is not taking place anywhere in our own business or in any of our supply chains. We will not knowingly use Modern Slavery in any of our products and/or services supplied, nor will we accept commodities, products and/or services from suppliers that we believe to engage in acts of Modern Slavery.

Our Business and Key Risk Areas

Our Business

Panasonic's business is organized into five key business segments: (as of April, 2019)

- Appliances
- Life Solutions
- Connected Solutions
- Automotive
- Industrial Solutions

Our Supply Chain

Our supply chain management includes principles regarding the sourcing of raw materials and minerals primarily related to the provision or manufacture of electrical products. For more details, please refer to "Responsible Minerals Procurement."

https://www.panasonic.com/global/corporate/sustainability/supply_chain/minerals.html

Our Key Risk Areas

The risk that Modern Slavery will occur is thought to be especially high in certain regions of the world. We are also aware there are greater human rights and labor related risks in areas where migrant foreign workers are widely employed. Panasonic is actively implementing a program of enhanced checks in these regions to ensure compliance with local legislation.

Due Diligence Process for the Prevention of Modern Slavery and Human Trafficking

As part of our initiative to identify and mitigate risks, we have taken a number of actions to verify the absence of Modern Slavery in our supply chain, including the following:

Panasonic Code of Conduct

This includes requirements on ensuring respect for human rights and that Panasonic will not employ people against their will.

Chapter 3: Employee Relations

(Omitted)

(2) Respect for Human Rights

2) The Company will not employ people against their will, and will not use child labor.

The Company will comply with the employment laws and regulations of the countries and regions in which it conducts business.

► Panasonic Code of Conduct, Chapter 3: Employee Relations

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-3.html>

Recruitment

When recruiting employees, Panasonic adopts a perspective of protecting fundamental human rights and engages in recruitment activities that comply with the laws and regulations of the respective countries in which we operate. Panasonic also prohibits forced labor including child labor. In order to prevent child labor, we have included age verification in the 'Self-Assessment Checklist' which is used when individuals join the company. The risk of child labor is thought to be especially high in China and elsewhere in Asia and Panasonic is implementing age verification in these regions. The company does not allow employees under the age of 18 to engage in overtime work and heavy labor, and offers them consideration and support so that they have opportunities to receive education.

Training

We conduct training for all new, permanent staff on our Basic Business Philosophy and Code of Conduct. This includes training on: compliance with local laws and a respect for basic human rights with emphasis on not employing persons against their will and on compliance with local employment laws.

Confidential Whistle-Blowing

We protect whistle blowers by providing an anonymous whistle-blowing hotline for employees. Employees are regularly reminded of the whistle-blowing hotline and are encouraged to use it if they suspect any potentially illegal behavior or practice.

3 Step Procurement Policy

This ensures respect for human rights and safety of labor.

► “Procurement Policy”

<https://www.panasonic.com/global/corporate/management/procurement/policy.html>

Request to Suppliers

We ask our suppliers to meet our CSR requirements, including safeguarding human rights and the health and safety of laborers.

Panasonic Supply Chain CSR Promotion Guidelines (Excerpts)

1-1 Prohibition of Forced Labor

Suppliers shall employ all workers of their own free will with no worker being subject to forced labor.

Specific action items

- Suppliers shall not engage in all forms of forced labor, involuntary prison labor, bonded labor, compulsory labor, indentured labor, or trafficking in persons.
- Suppliers shall not impose unreasonable restrictions on entering or exiting dormitories and workplaces.
- Suppliers shall give written notice to a worker concerning working conditions in the national language of the worker before entering into a definitive agreement (in the case of a foreign worker, before leaving his/her home country).
- Suppliers shall permit workers to freely terminate their employment.
- Suppliers, manpower supply companies, and staffing agencies shall not retain any government-issued identification card, passport, working permit (except the case where the retention of a working permit is required by law), immigration application, and any other similar document.
- Suppliers, manpower supply companies, and staffing agencies shall not collect any recruitment fee from workers.
- Suppliers shall inform workers of all items deducted from their salaries.
- Suppliers shall request and confirm that manpower supply companies and staffing agencies comply with above items.

► “For Suppliers”

<https://www.panasonic.com/global/corporate/management/procurement/for-suppliers.html>

Standard Purchase Agreements (Excerpts)

(Demand on Suppliers to Respect Human Rights)

The Supplier shall not engage in forced or child labor, illegal employment of foreign workers, or other illegal or illegitimate employment practices; employment conditions, including wages and shift lengths, shall be based on the laws and regulations of the respective countries and regions in which the Supplier does business.

CSR Self-Assessments for Suppliers

We ask our suppliers to conduct CSR self-assessments. The checklists used for these self-assessments require responses to questions that address all the issues related to modern slavery, including the confirmation of worker ages in order to prevent child labor, prohibitions against the collection of fees or retention of worker passports or identification documents by recruitment agencies, the requirement to provide employment contracts (including terms of employment) in workers' native languages. In fiscal 2019 we requested CSR self-assessments from roughly 3,000 suppliers, including new suppliers. When any of a supplier's answers cause concern, we engage that supplier further and in some cases, conduct site visits to investigate. We discuss the risks that have been identified with the supplier, and when necessary, Panasonic also provides support for corrective action plans. In fiscal 2018, on-site visits were conducted at four suppliers in Thailand and three in China. These resulted in the identification of issues including health and safety concerns, and Panasonic has requested that these suppliers take corrective action.

Continuous Improvement Activities for the Future

Some of Panasonic's supply chains fall in high-risk areas, and we are very much aware that there are serious risks in those areas with respect to human rights and labor. This has led us to announce publicly our commitment to doing everything we can to more fully understand our own supply chains, fulfill our responsibility to the workers in it, and improve transparency. Given the complexity of these supply chains, completely eradicating Modern Slavery at all our suppliers will take time and effort. For this reason, we are committed to making sustained initiatives against the problem of Modern Slavery.

In fiscal 2018, we have considered and developed a number of initiatives, including the creation of a hot line for workers employed by suppliers and the use of an external information service for monitoring suppliers, but for various reasons, neither of these has come to fruition. Panasonic will continue to promote compliance with our own CSR policies and applicable laws and regulations in cooperation with our suppliers through the ongoing implementation of CSR self-assessments and follow-up activities.

Initiatives Relating to Compliance with Matters Demanded by SA8000

SA8000 is an international standard concerning labor and human rights that has been issued by the US NGO Social Accountability International. The standard provides for voluntary requirements that employers should fulfill, including those concerning the rights of workers in the workplace, the working environment, and management systems. The eight requirements that SA8000 demands and the state of Panasonic's initiatives concerning each management system are publicly available from the following websites:

1. Child Labor

▶ "Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#labor

2. Forced or Compulsory Labor

▶ "Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#labor

3. Health and Safety

▶ "Occupational Health and Safety"

https://www.panasonic.com/global/corporate/sustainability/health_safety.html

4. Freedom of Association & Right to Collective Bargaining

▶ "The Freedom of Association and Respect for the Right to Collective Bargaining"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#freedom

5. Discrimination

▶ "Prohibition of Discrimination"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#discrimination

6. Disciplinary Practices

▶ "Prohibition of Discrimination"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#discrimination

7. Working Hours

▶ "Managing Working Hours"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#hours

8. Remuneration

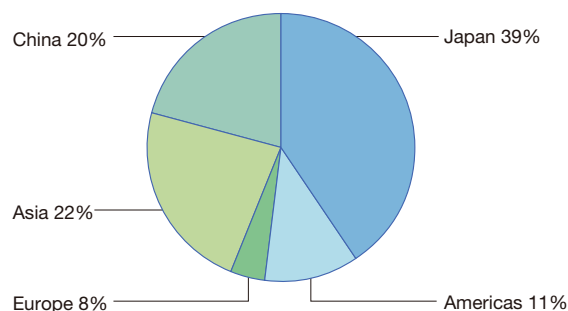
▶ "Managing Wages"

https://www.panasonic.com/global/corporate/sustainability/human_rights/approach.html#wages

Human Resources Development and Promoting Diversity

Numbers of Employees

Total Number of Employees on a Global Consolidated Basis: 271,869 (as of the end of March 2019)



Policy

To deliver products and services that contribute to society and our customers around the world, and to develop Panasonic's business, it is essential for the company to continue its efforts to develop human resources that can actively participate and grow in the global business environment. It is also essential that the company creates an organizational culture in which all individual employees can fully deploy their talents regardless of age, gender, or nationality. Thus, Panasonic regards the promotion of diversity as a crucial part of its business strategy, provides a broad range of opportunities for anyone with ability and ambition, and actively strives to create a rewarding work environment.

In fiscal 2011, Panasonic compiled this thinking into a Global Diversity Policy. Since then, this policy has been implemented globally.

Global Diversity Policy

Panasonic Group is now one of the world's leading business groups which offer a wide variety of products in electronic business areas related to our daily lives. With an aim to contribute to progress in society and to enrich people's lives through manufacturing, every employee plays a leading role in their job and promoting business activities of Panasonic.

Panasonic is a collection of people with various backgrounds, such as in terms of region, culture, and history, who possess diverse capabilities, as well as diverse traits in terms of various factors including gender, age, race, belief, religion, nationality, sexual orientation, and gender identity. Each person has various different ideas, and by sharing these ideas across countries and business areas, we can create more innovative values. Thus, Panasonic will continue to be a Group which always gathers wisdom and spurs innovation with the concerned efforts of all. We have a strong hope that using our diverse mindsets and viewpoints we can deliver products and services like no other in the world to our customers.

In order to achieve this, it is important to give a chance for success to motivated people of all countries and regions, regardless of their gender, nationality or any other characteristics. We have expanded our diversity activities to make the best of the individuality and abilities of each employee and to support their success towards the group on a global basis. We will continue to take up the challenge of becoming "No.1 in Diversity Promoting Activities in each country and region."

Responsible Executive and Framework

The Chief Human Resources Officer (CHRO) is Executive Officer Shigeki Mishima. The departments responsible for these matters consist of the Human Resources & Industrial Relations Department at Panasonic headquarters, plus the human resources departments in each of the seven Panasonic Companies (Appliances, Life Solutions, Connected Solutions, Automotive, Industrial Solutions, US and China & Northeast Asia) and in all business divisions and affiliated companies under the Panasonic umbrella. (As of August 2019)

Organization in Charge of Diversity and Inclusion

In 1999 Panasonic began its Equal Partnership initiative, and since this time, it has promoted the creation of an open and fair work environment—one that does not discriminate based on gender, age, nationality, or similar factors—through initiatives such as the establishment of the Panasonic Positive Action Program, special training programs for female employees, and the naming of Equal Employment Opportunity Officers.

Soon thereafter, in 2001, efforts to appoint women to positions of responsibility—previously largely the purview of the human resources department—were more forcefully recognized as drivers of diversity for the entire organization. Accordingly as part of the management policies to change the corporate climate by facilitating the participation of women in management, the Corporate Equal Partnership Division was established directly under the office of the President.

In 2006, the division was further developed as an organization, and it became the Corporate Diversity Promotion Division—with an expanded mandate that focused on diversity of age and nationality, in addition to gender, while extending its efforts worldwide. At the same time, Panasonic established its e-Work Promotion Office, an organization dedicated to promoting telecommuting (internally called “e-Work”) as an efficient way of working.

Now, in 2018, on the 100th anniversary of the company’s founding, Panasonic has established its Office for A Better Workstyle, which reports directly to the head office. This editorial board is responsible for further increasing the rewarding nature of work for all employees, who are the driving force the firm needs to continue servicing society and its customers for the next 100 years.

Performance Evaluations

Panasonic believes “individuals and organizations that continue to evolve” to be an engine of growth and that it is crucial to combine the individual strength of each of the employees—who all are eager to work and to challenge themselves—in order to fully realize the potential of the organization. Therefore, Panasonic believes it is essential to create an organization that is broad-minded and open.

Putting this belief into action, Panasonic conducts surveys of its employees’ opinions—both in Japan and abroad—to understand the state, needs, and problems of its employees and organization. Problems discovered in these surveys are factored into action plans, and each relevant corporation and organization works to implement the plans and resolve the problems. From fiscal 2016, Panasonic has been conducting its Japanese and various overseas opinion surveys—which were conducted individually—by using a common platform. By doing so, the company is—through a common global perspective—gaining a clearer understanding of both its organizational strengths and problems to be resolved, able to enhance the quality of its management, and striving to achieve an organizational culture in which all employees can find their work meaningful.

List of Awards

Randstad Award 2018: Overall first place, first place in the industry

The Randstad Award is based on a survey of companies by an independent organization, using common global standards. The awards are given to the companies found to have the best employer brand (based upon the appeal of a company as an employer).

Managerial Promotion

Panasonic has established its Panasonic Global Competencies (PGC)—common global guidelines for action based on the Company’s management philosophy. These guidelines clarify the leadership competencies needed from its leaders and the core competencies needed by all employees. In this way, the Company is promoting behavioral change and improved practical initiatives among its leaders worldwide.

With the release of the PGC, Panasonic has unified its candidate selection criteria, processes, and IT policies on a global basis. This step contributes to efforts to discover the most suited candidates, irrespective of age, gender, or nationality, and to provide a systematic approach to career development and promotions.

These guidelines play a particularly vital role in defining policies for nurturing executive and other management candidates, as well as developing perspectives for selecting from these candidates. Furthermore, the Company uses assessments from outside organizations to gain an objective understanding of candidates’ aptitudes, abilities, and other distinguishing

characteristics. Panasonic then motivates these candidates by sharing the assessment reports to promote self-driven growth among its senior managers. The Corporate Division has established the Talent Management Committee as a venue to openly discuss and examine management candidates. The CEO, company presidents, the CHRO, and other committee members discuss how to find the best candidates worldwide, as well as matters related to career development and promotions.

The Company will continue to enhance its processes for discovering, nurturing, and promoting talent irrespective of age, gender, and nationality.

Performance-Linked System of Remuneration

Panasonic has adopted a performance-linked remuneration system that sets the levels of bonuses for the current fiscal year based on the company's performance during the previous fiscal year. The degree to which the performance of the company is reflected in compensation increases at higher levels of management.

In addition, the amount of each individual's bonus is determined based on the previous fiscal year's performance of the jobs of which he or she was in charge.

Thus, by reflecting the company's performance and individual performance within certain limits in compensation, Panasonic inspires the desire to improve individual and corporate performance.

In particular, the compensation of directors and executive officers consists of a fixed "basic compensation," a "performance-linked remuneration"—which serves as a short-term incentive—and stock options—which serve as a long-term incentive.

Performance-linked remuneration is evaluated by considering the performance of the entire Panasonic Group and of the executive's area of responsibility, based on indicators including sales, operating profit, free cash flows. Stock options are allocated so that executives can share profit awareness with other shareholders and strive to improve corporate value, taking a long-term perspective.

HR Development and Diversity: Human Resources Development

Human Resources Development Initiatives and Performance

Basic Education and Training System

Panasonic's education and training system offers all levels of Panasonic Group employees a system of global core common knowledge, which defines the minimum knowledge necessary for all global aspects of Panasonic's business. Panasonic works to develop human resources in all regions and at all levels using this system.

Basic Education and Training System



Human Resources Development Company

Panasonic has established the Human Resources Development Company (HRDC) as an organization that specializes in human-resources-related development and training for employees of all levels worldwide.

The HRDC provides new employee training (in Japan) so that new employees can quickly become active at Panasonic; as well as business skills training that teaches IT, communications, languages, and other skills required to facilitate employee tasks; and Job-function-specific training so that employees can learn the specialized knowledge and skills needed for their jobs, whether they be technical, manufacturing, or sales and marketing. In addition, HRDC offers elective management development training for employees who meet certain conditions, management skill training meant to give managers greater management capabilities and the ability to practically implement Panasonic's management philosophy, and other forms of job-rank-based training.

- Number of employees in attendance

In fiscal 2019, the amount of time employees spent at the HRDC in Japan was 187,214 person-days*.

* Person-days = Number of people × Number of days

Global Human Resources Development

To better nurture leaders who can play a leading role in promoting business that goes beyond national and regional borders and who can serve as loci for cooperation, Panasonic has established regulations for inter-regional personnel transfers and strives to place its employees wherever in the world they can best display their abilities. For example, Panasonic began full implementation of a program called "Working In Japan" in 2007, with the aim of accelerating the development of talent from overseas through the experience of working in Japan.

In each country and region, Panasonic conducts and is expanding training programs to increase mutual understanding among people from all nations around the globe. For example, in Europe, as part of the two-year "Talent for Tomorrow" (TFT) human resources development program, employees join separate project teams, and each team works to promote CSR-based projects. These projects take several months and receive support and praise from non-profit organizations.

The participating employees work on social issues while making use of their work skills and then apply the knowledge and experience that they gain from these activities to product development and business creation.

In each region, Panasonic operates local elective management development training that is linked with the same training held in Japan. Additionally, as a part of its global policy, Panasonic conducts the Global Onboarding Program for mid-career hires and provides e-learning services, through which all global employees can learn the knowledge they need, regardless of time or place, based on the system of global core common knowledge.

Efforts to Develop Employee Employability

Career Create System Supports Employees' Ambitions to Create New Careers

We at Panasonic believe in the great importance of giving each and every one of our employees the opportunity to make the most of their own desires and creativity, to develop their talents and skills, and reach their full potential based on what their individuality brings to the table. Based on this philosophy, we have devised our Career Create System to advertise job opportunities within the company and to support our employees' efforts to advance their careers. In this system, departments that need new personnel must first formulate a clear statement of their requirements and seek to fill their positions within the company, which we call "e-Challenge." We also have the e-Appeal Challenge system, which allows employees to offer their skills directly to those departments where they wish to work and to challenge themselves with new types of work. These systems support all employees equally, irrespective of age, gender, or nationality.

Career and Life Design Seminars

To foster individuals who are improving their social employability and continuing to strive for a better future, Panasonic recommends career and life design seminars for all its employees.

Employees take stock of their careers, verify their core values, and make an inventory of their skills. They ask questions about the issues they face in building their careers and engage in other activities designed to promote an understanding of the importance of independent careers. Employees also clarify their career visions for the next five years. The seminars also offer employees opportunities to brush up on their knowledge of personal finances and health maintenance, thus supporting the realization of fulfilling life plans.

Building Total Rewards Systems That Treat Both Our Organization and Our Ambitious Employees the Way They Deserve

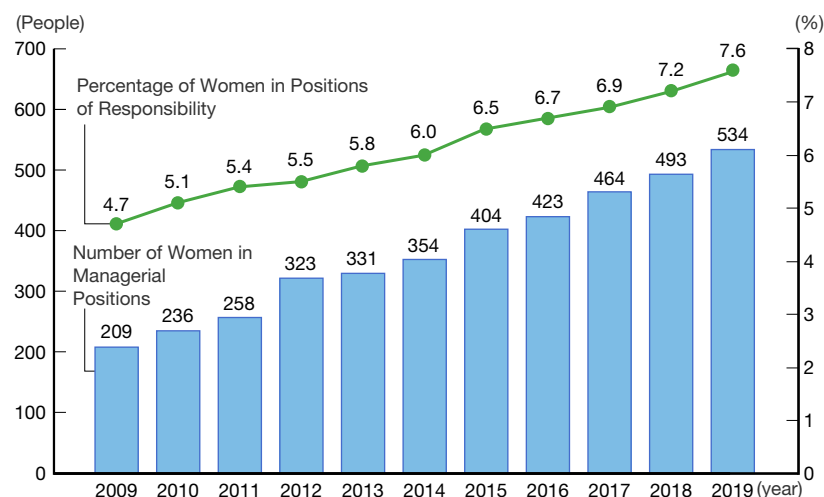
At Panasonic Corporation and some Japanese affiliates, a "Role/Grade System" has been implemented. This system determines work/role grades for employees according to the size of the work or role they currently perform to form the basis for employee benefits. The aim of this system is to treat the wide variety of employees at Panasonic based on the scope of their work and responsibilities. This helps to enhance the transparency of our human resources systems, and fosters understanding among employees. By setting clear goals for employees to strive for, we encourage employees to be bold to achieve their goals. We believe this helps make both our people and our organization bolder. In these ways, both our people and our organization can reap the rewards of our ambitions, with the aim of building an organizational culture that is brimming with vitality.

HR Development and Diversity: Diversity

To exploit the knowledge capital of society to the greatest extent possible, Panasonic believes that it is crucial to take advantage of all forms of diversity in the workplace whether in terms gender, age, nationality, or any other cohort. The company has implemented a “Role / Grade System” that determines compensation based on the work or role in which employees are currently engaged; there are no gender-based inequalities in this compensation system. However, particularly in Japan, Panasonic is aware that there is a need to employ greater numbers of women in upper management and decision-making positions; it is striving to ensure gender diversity.

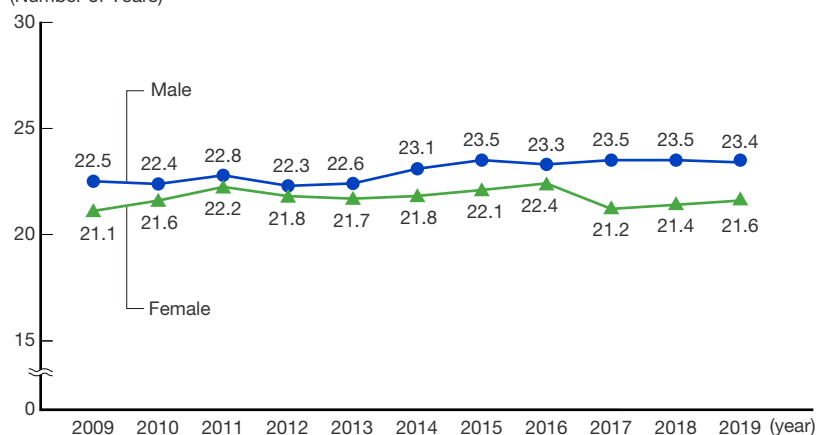
In terms of senior management, a female director (current board member Hiroko Ota) was appointed in fiscal 2014, and, in fiscal 2016, a female executive officer (current executive officer Michiko Ogawa) has been named. To accelerate female participation in management, Panasonic holds study groups for female employees and provides career-advancement seminars for women leaders, creating opportunities for women to encounter role models' values and views on working, as well as further strengthening the management capabilities of superiors. Furthermore, to raise the consciousness of all employees concerning the promotion of diversity, Panasonic has established that every July be Diversity Promotion Month, hosting forums and creating opportunities in the workplace for discussions on the theme of promoting diversity. As Panasonic welcomes its 100th anniversary, it is essential that all employees, who serve as the driving force behind Panasonic's continued usefulness to society and its customers in the next 100 years, undergo self-growth while feeling rewarded in their work. From November 2017, Panasonic has endeavored to create “A Better Workstyle” (meaning undertaking reforms that make work rewarding), with a focus on creating opportunities for growth by reaching outside of the company, supporting voluntary changes among employees, and encouraging an environment in which diversity thrives. In April 2019, Panasonic introduced A Better Dialogue, a program meant to accelerate the growth and ambition of each employee and to create an organization, a corporate culture, and a workforce that will realize the Company's business strategies. Along with being an update to our career/skill development and goal management systems, A Better Dialogue also aims to achieve qualitative and quantitative improvements in interactions between employees and their superiors through one-on-one meetings.

Number of Women in Managerial Positions, Percentage of Women in Positions of Responsibility



Average Number of Years of Service

(Number of Years)



Diversity in the United States

Diversity naturally generates creativity and innovation in the work community. PNA is committed to building and maintaining a workforce as diverse as the communities we serve. The Inclusion & Diversity (I&D) programming at PNA includes the Business Impact Groups (BIGs) Women Connect, Veterans Group, and PRISM (LGBTQ), which launched in 2018. Our newest BIG is called Level Up (Millennials) and it launched in 2019. These groups are just one way that we support the recruitment, retention, and internal advancement of a diverse workforce.

Our efforts in I&D have led us to receive many awards including



Woman Engineer Magazine
Top 50 Employers



STEM Workplace Diversity Magazine
Top 50 Employers



Minority Engineer Magazine
Top 50 Employers

Here at PNA, 37% of our employees within underrepresented groups hold leadership positions throughout North America, and that number is improving every year. In addition, 31% of our leadership in North America is female. The insights and contributions made by our women leaders help move us forward. We are proud to share that our number of women in leadership roles has increased over the last three years, as well as our female workforce under age 30.

In 2017, our Talent team worked with the Marketing organization to produce a video called Wall of Inclusion. We invited employees in Newark & Harrison, NJ to create Post-It notes explaining what they love about working in an environment of diversity. The video allowed an opportunity to see how these notes were used to create a Panasonic Logo mural, but also gave many employees a moment on camera to share all that they gain from our commitment to continuing to make moves forward in Inclusion & Diversity initiatives.

View our Wall of Inclusion video here. <https://vimeo.com/237451786/7239079828>

Work-Life Management

Realizing Diversity in Working Styles—e-Work*

Panasonic promotes “e-Work” as an efficient way of working that exploits information and communication technologies to effectively utilize time in any location. It has implemented a Work-at-Home System that covers around 40,000 employees. The company has also created “Spot Offices”—places with equipment and a network connection where employees can work when traveling on business at 16 locations groupwide (15 of them in Japan).

The Spot Offices have reduced travel time and accelerated customer service, and Panasonic plans to create an environment in which employees can work even more efficiently. The company will increase productivity and improve the work-life balance for its employees through a number of flexible working styles.

*The term “e-work” refers generally to working from home, mobile work, work at satellite offices, remote conferencing, and other such initiatives.

Supporting Diverse Ways of Working through Work-Life Management

As part of Panasonic's efforts to create an environment that enables everyone to play an active role, the company is implementing initiatives to support a good work-life balance for employees.

In order for childcare, nursing care, and work to coexist, employees need to actively respond to all aspects of their lives. However, this active response may not be sufficient in itself, in which case, employees require the understanding and support of their supervisors and workplaces. Panasonic also creates guidebooks with hints for work-life balance, including explanations of the systems needed for maintaining personal and business responsibilities and information on how supervisors and subordinates can work together. This is another way in which Panasonic helps its employees continue their careers without worry, regardless of the situations they face with childcare or nursing care.

Examples of Systems Supporting Work-Life Management

Child Care Leave

A non-consecutive total of two years of leave that can be taken until the end of the April following the child starting at elementary school

Work and Life Support Program

A flexible work system for those raising children, or providing nursing for an elderly person, that includes short work-hours; half-days; adjustable, fewer-day working weeks; and other appropriate schedules

Family Support Leave

A leave system that can be used for a wide range of events, including care or nursing of family members, or attending a child's school events

Child-Rearing Support Café Point

A system by which the company will cover some of the costs for childcare during overtime work or when a child is ill

Child Planning Leave

System of leave for fertility treatments

A Comprehensive Program for Supporting a Balance between Nursing Care and Work

- Holding of seminars on nursing care, launching of portal site with information concerning nursing care
- Counseling for employees facing the prospect of nursing care, support for related procedures
- Company support for half of the daily costs of nursing care through the Nursing Care Support Café Point
- Ability for employees to take leave up to a total of 365 days per person requiring nursing care, payment of 70% of wages plus an allowance for the employee-borne portion of social insurance premiums for leave totaling 183 days or fewer
- Other measures, including the establishment of a nursing care financing system

Creating a Workplace Where People with Disabilities Can Take an Active Part

As of June 2018, individuals with disabilities represented 2.15% of Panasonic's workforce in Japan, while the figure for the group as a whole was 2.17%.

*As of April 2018, the national average employment rate was 2.05%, and in fiscal 2020, the statutory employment rate will change to 2.2%.

Employment of Workers with Disabilities (Japan)

	2012 June	2013 June	2014 June	2015 June	2016 June	2017 June	2018 June
Panasonic Corporation	2.04%	2.15%	2.16%	2.15%	2.18%	2.15%	2.15%
Key Group Companies	2.11%	2.21%	2.24%	2.46%	2.50%	2.24%	2.47%
Group (whole)	2.06%	2.17%	2.18%	2.21%	2.23%	2.16%	2.17%

In cooperation with local communities and governments, the Panasonic Group manages seven special subsidiaries to promote the employment of workers with severe disabilities.

These subsidiaries take extraordinary measures to create an appropriate workplace, which include apparatus that allow individuals to independently use production tools in the context of their disabilities, as well as the installation of specially designed workbenches and materials suitable for people in wheelchairs. These companies also actively welcome interns, trainees, and observers.

In other group divisions, Panasonic promotes the creation of workplaces where all employees can learn together and where workers with disabilities can take an active part. All workplaces offer sign language courses, sign-language interpreters for skill development sessions, and subtitled broadcasts of company meetings. The Company also creates educational materials to improve employee understanding about people with disabilities.

Special Subsidiaries (employee figures are as of June 2018)

Company Name	Year of Establishment	Number of Employees (Number of Persons with Disabilities)	Description of Business
Panasonic Kibi, Co., Ltd.	1980	84 (41)	Assembly of video camera LCD units, video accessories
Panasonic Katano Co., Ltd.	1981	40 (33)	Assembly of avionics products, inspection and packaging of AV accessories
Panasonic Associates Shiga Co., Ltd.	1994	58 (35)	Assembly of electronic circuits (for massage chairs, shavers, etc.)
Panasonic Ecology Systems Co., Ltd.	1980	44 (25)	Assembly of ventilating fan parts, printing of user manuals
Panasonic Heart Farm Associates Co.,Ltd.	1998	62 (33)	Growing / selling orchids, distribution of company-internal mail
Harima Sanyo Industry Co., Ltd.	1982	42 (22)	Assembly of vacuum cleaner parts, maintenance of internal environment
Panasonic Associates Tottori Co.,Ltd	1992	48 (19)	Manufacture of LED products, light sensors

Employing Workers Post Retirement

In 1982, Panasonic created the Senior Partner System, allowing workers past retirement age to enter into employment contracts under new conditions. In 2001 we introduced our Next Stage Program, renewing our position as an industry leader in formulating policies for the employment of older workers in Japan.

Next Stage Program

The Next Stage Program is a system that consists mainly of the Next Stage Partner Program, which allows workers who wish to continue working after mandatory retirement at age 60 to do so until age 65. In April 2008 we relaunched this as the New Next Stage Program. Our basic thinking here is an emphasis on personal autonomy. The new system is easier to understand, more flexible, and easier to use than ever before. In 2015, we updated this system once again, based on new ideas of longer-term careers, aimed at encouraging each employee to map out his or her own career from an early stage. Our new system offers a broader range of measures to meet the diverse needs of older workers. More specifically, across the entire company, we are developing and promoting training seminars on career design and life design for various stages of people's lives. As increasing numbers of people desire to continue working into their later years, social attitudes are changing. This has economic ramifications, in terms of retirement and pension benefits—specifically, the need for many employees to continue to work during the gap between when they officially retire and when they start to receive pension payouts—as well as ramifications in terms of the emergence of older workers as a potential resource. We are striving to ensure that everyone who wishes to continue working beyond the age of 60 has the opportunity to do so, and we are finetuning the conditions of our Next Stage Partner System to accommodate this change.

We are also offering economic support for employees who wish to retire early and seek new activities elsewhere, as well as support for those who wish to work elsewhere after reaching retirement age.

Create a Good Work Environment for all Regardless of Sexual Orientation or Gender Identity

Policy

Panasonic's Code of Conduct makes it clear that discriminatory speech or conduct with regard to sexual orientation or gender identity, as defined by applicable laws, are not permitted.

► Panasonic Code of Conduct, Chapter 3: Employee Relations (2) Respect for Human Rights

<https://www.panasonic.com/jp/corporate/management/code-of-conduct/chapter-3.html>

*LGBT: An acronym for lesbian, gay, bisexual, and transgender, LGBT is used in this section to refer to these and other sexual minority groups.

Treatment of Individuals in Panasonic's HR Systems

Effective April 2016, Panasonic Corporation now recognizes same-sex domestic partners as equivalent to legal spouses within its HR systems, except in areas where such recognition cannot be applied due to legal restrictions. This is part of the company's promotion of diversity in management, which is based on valuing, accepting and making the most of individuality. Affiliates both within and outside of Japan are addressing this matter on an individual basis, subject to the condition of compliance with applicable local laws.

Advancement in Understanding

In order to create a more friendly workplace regardless of sexual orientation or gender identity, Panasonic has been conducting successive seminars geared toward HR functional divisions, managerial positions, and employees, since February 2016. Seminars for HR functional divisions offer not only basic knowledge about sexual orientation or gender identity concerns, but also methods for dealing with discriminatory speech or conduct, and methods for responding to the needs of those involved. Information on how to advance understanding and invitations to participate in related events are also sent out via Panasonic's intranet system.

Creating Support Desks

Panasonic has created support desks through which employees can engage in email or telephone consultations about any internal company topics, including cases of sexual harassment or abuse of authority. (Employees may use these support desks anonymously.)

Support for External Activities

Since fiscal 2015, Panasonic has been engaged in cooperation with work with Pride, a private organization that works on initiatives to create more friendly workplaces regardless of sexual orientation or gender identity. Panasonic provided a hall in its Tokyo building as a venue for an event in 2014, with roughly 200 people taking part, most of them from corporate HR departments.

Every year since then, the company has cooperated with work with Pride on their Tokyo Rainbow Week exhibits and has provided ongoing cooperation for other events. Panasonic has made contributions to the policy working group for a corporate LGBT evaluation index held from December 2015 to May 2016 as a secretariat member.

Occupational Health and Safety

Management System

The purpose of the Panasonic Group's occupational health and safety management is to promote a comfortable, safe workplace based on the most advanced and best practices. Its aim is to contribute to the welfare of the Group's employees and the development of Panasonic's business. In addition, the Group has established in its regulations that it will give careful consideration to the health and safety of the subcontractors' employees who work full-time on Panasonic premises.

To maintain our occupational health and safety efforts—and to continuously improve them—Panasonic has implemented an occupational health and safety management system at nearly all of its global manufacturing locations (some of which are now under construction). The systems implemented at company locations consist primarily of the Panasonic Occupational Safety and Health Management System (OSHMS), which encompasses the OHSAS 18001 standard, supplemented with the Company's unique perspective. Panasonic also acquires and updates external OHSAS 18001 certifications for locations in all countries—52 in Japan and 92 overseas, as of December 31, 2018—where customers have requested it. At present, with the release of ISO 45001, Panasonic is preparing to shift from OHSAS 18001 to the ISO standards.

Panasonic uses OSHMS to give all employees clear roles and responsibilities, promoting engagement in health and safety-related activities by setting clear targets. The system also involves periodic reviews by the directors of business sites, thus allowing the Company to revise these activities as needed. Panasonic periodically—at least annually—conducts risk assessments to uncover any remaining risks of workplace accidents or illnesses and to reduce these risks, which it does decisively and in order of severity. Furthermore, when a workplace accident happens within the Company, Panasonic shares it as a case study through its corporate intranet, so that it can implement steps to prevent recurrences at all business sites.

Through OSHMS, all business sites in Japan have health and safety committees, composed of employees and managers, that investigate and debate employee hazard prevention measures, the causes of and recurrence prevention measures for occupational accidents, employee personal health problem prevention measures, and employee health maintenance and promotion measures. Moreover, to prevent occupational accidents caused by working together with employees of contractors operating on our premises, Panasonic has established occupational health and safety councils with these contractors, through which it maintains open lines of communication among workers and otherwise comprehensively manages health and safety.

At business sites where workplace accidents have occurred, Panasonic investigates the causes behind the incidents, implements measures to prevent recurrence, and shares accident case studies groupwide so that all business sites may implement preventative measures so as not to experience the same kinds of accidents themselves.

In March of each year, Panasonic establishes key groupwide directives, and during July's National Safety Week and October's National Occupational Health Week, the company endeavors to fully inform all employees of these directives, through efforts that include the president separately issuing memoranda related to the key groupwide directives for that fiscal year.

Panasonic Group staff in charge of health and safety also participate in an annual Employee Personal Health and Occupational Health and Safety Forum, where together they study case studies of efforts at different business sites, attend lectures by visiting instructors, and engage in other activities to increase their knowledge and to put it into practice at each business site.

In addition, Panasonic's Occupational Health and Safety staff attend presentations given by outside experts, share best practices on health and safety among business sites (including those overseas), and give awards to business sites with exceptional safety records at the health and safety forum held each year in September. These actions are designed to create a high standard of health and safety at Panasonic.

Policy

Panasonic strives to ensure the personal and occupational health and safety of its employees by sharing the Panasonic Code of Conduct, created by the board of directors, and the Panasonic Occupational Safety and Health Policy, issued by the president, to all Panasonic Group companies worldwide.

Panasonic Code of Conduct (Excerpts)

Panasonic has established that it will pay attention to the health of its employees and strive to secure a safe and comfortable workplace environment for them.

Chapter 3: Employee Relations

(2) Respect for Human Rights

4. The Company will give due consideration to the health of its employees and will maintain a comfortable workplace that meets all applicable safety standards.

► Panasonic Code of Conduct, Chapter 3: Employee Relations

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-3.html>

Panasonic Occupational Safety and Health Policy

The Panasonic Occupational Safety and Health Policy consists of an Occupational Safety and Health Declaration, as well as a set of Activity Guidelines for Occupational Safety and Health. The Company has set initiatives in eight areas that it is thoroughly undertaking.

Occupational Safety and Health Declaration

Panasonic Corporation is committed, based on its management philosophy of respecting people, to creating safe and both physically and mentally healthy workplaces through consistent effort and appropriate and careful attention.

Activity Guidelines for Occupational Safety and Health

1. Legal and regulatory compliance

Each business unit should establish its own internal policies and procedures to fulfill the relevant legal and regulatory obligations relating to occupational safety and health, and to ensure compliance.

2. Management resources

Each business unit should devote staff, technology, and capital to creating workplaces that are safe and healthy.

3. Establish, maintain, and improve an occupational safety and health management system

Each business unit should establish an occupational safety and health management program, and regularly maintain and improve it.

4. Definitions of roles, authorities, and responsibilities, and organizational maintenance

To administer the occupational safety and health management program and to promote continuous autonomous improvement, each business unit should define the roles, authorities, and responsibilities of the elected head, legal staff, managers, and supervisors of the program.

5. Removal and reduction of hazards and potential causes of damage

Each business unit should assess risks, identify hazards and potential causes of damage, and remove or reduce them.

6. Setting goals and formulating and implementing a plan for occupational safety and health management

The management and employees of each business unit should work together to assess the occupational safety and health status of workplaces, identify disasters and potential threats to health, establish goals, and formulate and execute a management plan for the occupational safety and health program.

7. Auditing and review by management

Each business unit should conduct regular audits to monitor the occupational safety and health program. Management should review the audit results and recommend improvements to the program.

8. Education and training

Each business unit should provide its employees and those of its business partners on its premises with education and training in accordance with the occupational safety and health management program. Each business unit should ensure that all relevant people are kept informed of and familiar with the program's charter and management system.

April 1, 2013

President Kazuhiro Tsuga, Panasonic Corporation

Education

Panasonic educates employees, managers, and occupational health and safety staff using the Safety and Health Education Guideline and the Mental Health Education Guideline that it has established.

HQ Training and Numbers of Trainees (Fiscal 2019)

Name of Training	Period/Time	Number of Trainees
Occupational Health and Safety Staff Training (Introduction)	Three days	26
Human Resources Basic Roles Course	Two hours, 30 minutes	29
OSHMS Internal Auditor Training	Two days	17
Machinery and Equipment Safety Standards Lectures	Two days	17
Training Before Sales Praxis	55 minutes	851
Career Hires Introductory Training	60 minutes	450
Occupational Health and Safety Seminar for Executives and Plant Managers	Two days	18
Occupational Health and Safety Seminar for HR Personnel	Two days	33
Production Engineering Manager Occupational Health and Safety Seminar	Two days	23

*All seminars are for employees of Panasonic Corporation and its affiliated companies in Japan.

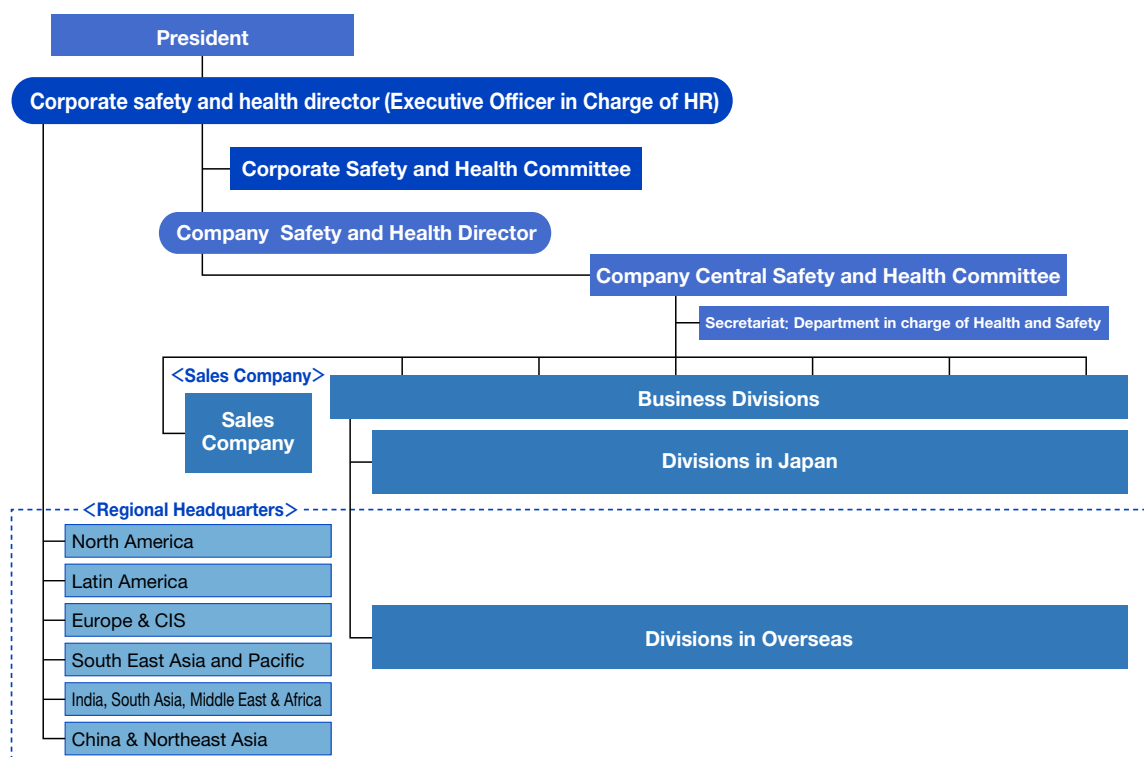
Moreover, in September of each year, Panasonic holds its Employee Personal Health and Occupational Health and Safety Forum—a place where employees from all business sites can learn good examples of personal health and occupational health and safety promotion activities from each other, and where Panasonic can award business sites that have achieved zero accidents or shown outstanding effort—as part of its aim to raise the standards of its health and safety activities.

Responsible Executive and Framework

The executive officer responsible for occupational health and safety is Chief Human Resources Officer (CHRO) Shigeki Mishima. (As of August 2019)

Per its Occupational Health and Safety Management Regulations, which the Company established for groupwide occupational health and safety management, Panasonic uses the management structure shown below. Company presidents (or executives of at least executive officer rank) supervise occupational health and safety at all group companies.

Corporate Occupational Health and Safety Management Organization (Japan)



To continually maintain and improve its occupational health and safety activities, Panasonic has also built the Occupational Safety and Health Management System (OSHMS) and provided various related regulations for all business sites worldwide.

Occupational Health and Safety Support Desk

Panasonic has established the following lines of support to help employees prevent or deal with mental or physical stress:

Employee Consultants (or the human resources department of the employee's place of work)

Since 1957, Panasonic has designated employees with abundant work experience as “consultants,” and it has implemented a “Consultant System” whereby other employees may confer with them. The consultants answer any questions other employees have concerning welfare systems, and they provide support aimed at helping employees take charge of resolving worries or problems that they face in their work or private lives.

EAP* Consultation Office

For this program, Panasonic has engaged specialist counselors to listen to the personal concerns of employees, who can rest assured that what they have discussed will not be disclosed to the company or to their health insurance association.

* EAP: Employee Assistance Program

Company Clinic

Panasonic staffs these offices with full-time physicians and occupational health staff to provide a health support program that performs functions such as handling illnesses that manifest during work, consulting on mental and physical health, preventing lifestyle-related diseases, and helping in smoking cessation.

Key Initiatives

Safety

Creating Equipment Safety Standards

To prevent occupational safety risks involving equipment, Panasonic reviews safety conditions for all newly installed equipment by evaluating compliance with its Equipment Safety Standards. These precautionary audits take place when the Company builds new plants and installs new production equipment in existing workplaces. The Equipment Safety Standards Creation Guidelines form the basic outline for the Equipment Safety Standards at each workplace, and they take into account laws and ordinances in Japan, international standards, our know-how, and real disaster case studies. Panasonic offers these Guidelines in multiple languages.

Promoting Three-Year Occupational Accident Prevention Plans

In an effort to prevent the most common occupational accidents—getting caught in, pulled into, sliced by, or scraped by equipment and falling in halls or stairwells, among others—Panasonic defines groupwide initiatives, and each business site is working to formulate implementation plans for fiscal 2019–2021.

Occupational Health

Regarding special tasks such as the handling of heavy objects or chemical substances, Panasonic will conduct work reviews and provide appropriate safety equipment according to Safety Data Sheet (SDS), while aiming to reduce such work as much as possible. Coinciding with the new obligation to conduct chemical substance risk assessments (as of June 2016), we will review target substances, conduct additional health checkups in compliance with all laws and regulations, and continually monitor the situation so that there are no negative effects on employee health.

Panasonic Group is working to ensure that all Panasonic Group employees at all business units take the Stress Check Test—part of the Stress Check System—through efforts such as combining the Stress Check Test with regular health checkups. In addition to providing employees an opportunity to notice their own stress levels, the Stress Check Test results offer workplace feedback in the form of a diagnostic analysis. This analysis is used to develop measures intended to prevent the occurrence of mental illness and to revitalize the workplace.

Employees who work more hours or whose regular health screening results suggest a need for monitoring their safety receive consultation, based on Panasonic's own criteria, from an occupational physician, while measures are taken to

prevent damage to the employee's health by addressing working conditions, etc. Furthermore, with regard to the employee death that occurred at the Toyama Plant in June 2016, we solemnly accept the February 2017 official recognition of this as an occupational accident due to too many working hours, and we are making effects Group-wide to prevent a recurrence by reviewing operating processes and improving ways of working and of taking rest, etc.

Personal Health

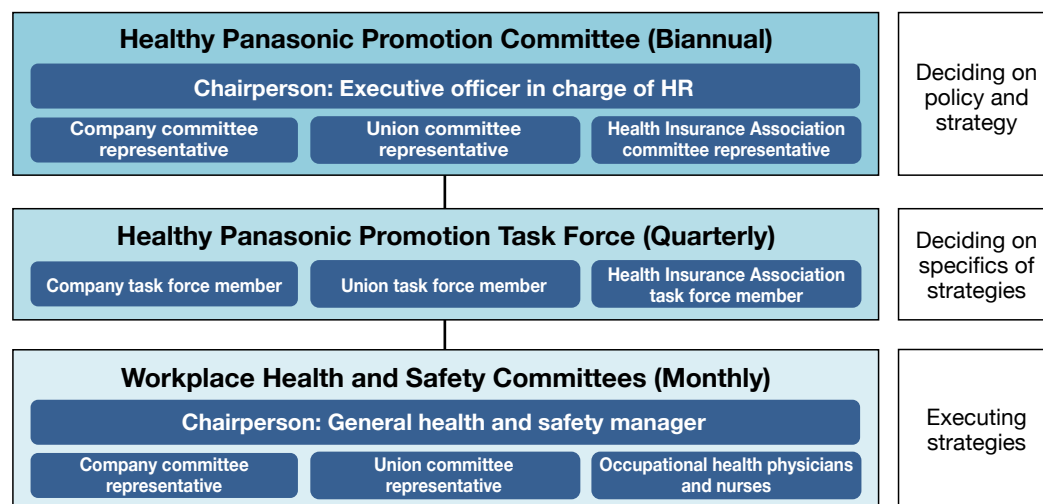
Panasonic promotes Healthy Panasonic, a groupwide campaign for healthy lifestyles started in FY2002, for all members of its companies, the labor union, and the health insurance association. To ensure sustainable growth, and as its average employee age advances, Panasonic aims to prevent falls, reduce the risks of brain and heart disease, improve the mental and physical condition of its employees, and exhibit top performance groupwide.

Promotional Framework

As of August 2019, the Healthy Panasonic promotional manager is Executive Officer and CHRO Shigeki Mishima.

Panasonic has established the Healthy Panasonic Promotion Committee as the organization that determines the policies and strategies for Healthy Panasonic. Under this committee, the Healthy Panasonic Promotion Task Force decides on the specifics of these strategies, while the Health and Safety Committees at each workplace execute these strategies.

Promotional organization of "Health Panasonic" and the role of each organization



Employee Health Problems

As Panasonic's employees age, the number of individuals with obesity or other health problems is increasing, as is the number of falling accidents. At the same time, improvements in lifestyle habit metrics have remained stagnant, except in the rate of employees who are aware of how much they walk and who do not smoke. To address health problems, Panasonic needs to raise its employees' health literacy and create plans to increase the number of employees who engage in healthy behavior.

Health Promotion Initiatives

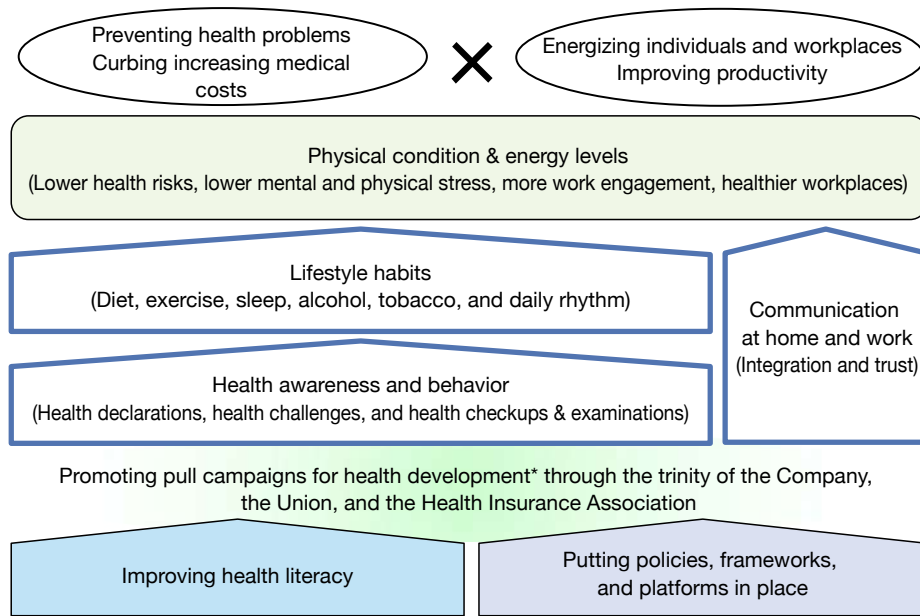
Panasonic Group carries out groupwide initiatives for raising employee health awareness, including the annual No Smoking Day (May 31) and Health Improvement Day (October 1). In FY2019, 87% and 71% of workplaces, respectively, held events promoting second-hand smoke prevention, nonsmoking, healthy diets, and exercise. Thirty-seven thousand employees from 129 workplaces have joined AJTA, a competitive taimaire organization that aims to improve physical strength and communication. Panasonic also offers ICT-based health promotion solutions through web services and lifestyle habit apps. These solutions provide health information, records of health checkups, health challenges, and health care point programs, and 46% of all Panasonic Group employees use these services and apps.

In terms of environmental improvements, Panasonic promotes non-smoking workplaces and certifies 77 workplace cafeterias across Japan through the internal Health Improvement Cafeteria Certification System. Thanks to these certifications, 89% of cafeteria users can choose from a selection of health-conscious meals.

Meanwhile, Panasonic also considers employee safety as necessary by actively offering health guidance and occupational counseling through mainly the 160 health management offices across Japan. These efforts are for individuals who are subject to specific health guidance and who are at high risk of facing health problems.

Starting in fiscal 2020, Panasonic will further expand the scope of its activities through Healthy Panasonic: One Step Today and Continuing to the Future. This initiative aims to raise health awareness among individuals and encourage them to take charge of their own health.

Overview of “Health Panasonic” from FY2020



*Promoting health through self-directed initiatives individuals take for the sake of themselves and their families

Panasonic also supports HIV/AIDS prevention and gives aid to those infected and their families. Based on the ideas that AIDS prevention is possible only with the correct knowledge and that this information can help avoid unnecessary worry and workplace confusion, Panasonic fundamentally prioritizes education and awareness-raising activities for its employees. Moreover, in its HR management practices, Panasonic places primary importance on protecting the human rights of those infected with HIV/AIDS, with its four principles being maintaining the confidentiality of personal information, prohibiting discrimination in HR-related matters, forbidding HIV testing without consent, and conducting educational and awareness-raising activities.

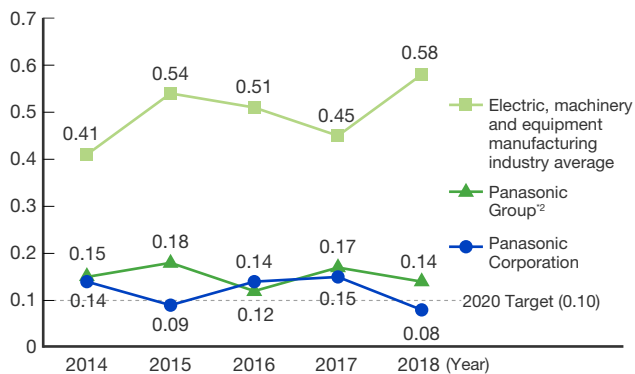
Occupational Health and Safety: Performance Evaluation

Incidence of Occupational Accidents and Responses

Disabling Injury Frequency Rate**¹

(Number of accidents that require time off from work per one million working hours)

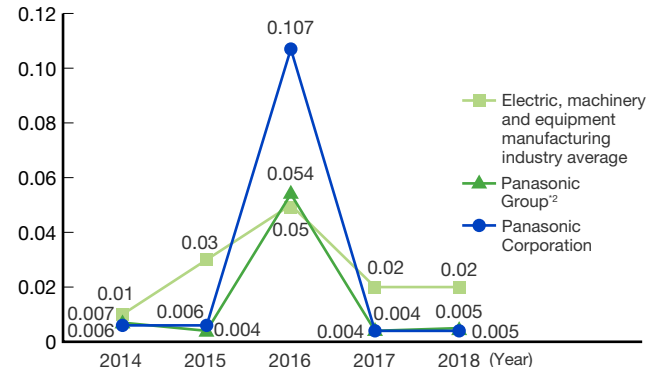
(Number of accidents / one million working hours)



Severity Rate**¹

(Proportion of time lost per 1,000 hours of total working hours)

(Number of accidents / one million working hours)



Source: Research on Occupational Accident Trends (Ministry of Health, Labour and Welfare)

Number of Fatal Accidents (Global)**³

2014	2015	2016	2017	2018
0	0	1 (Japan: An employee)	0	1 (Overseas: A local employee)

*1 Excludes employees stationed overseas, temporary employees, and onsite contractor employees

*2 The period from 2014–2017 excludes PanaHome, while 2018 includes it. The data also exclude temporary employees and onsite contractor employees.

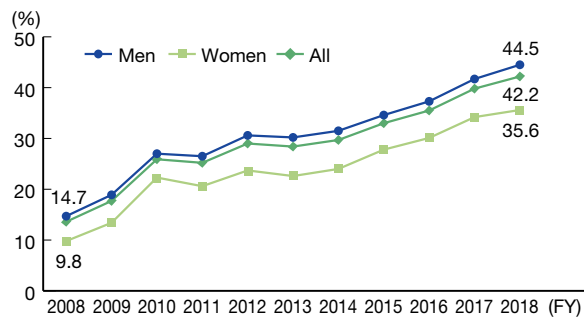
*3 Includes employees stationed overseas, temporary employees, and onsite contractor employees

Panasonic aims to get its groupwide disabling injury frequency rate—which annually falls below the machinery and electronics manufacturing industry benchmarks—down to 0.10 in 2020.

Its severity rate also annually falls below these industry benchmarks, except in 2016, when there was one case of death in Japan after an employee was caught in the equipment.

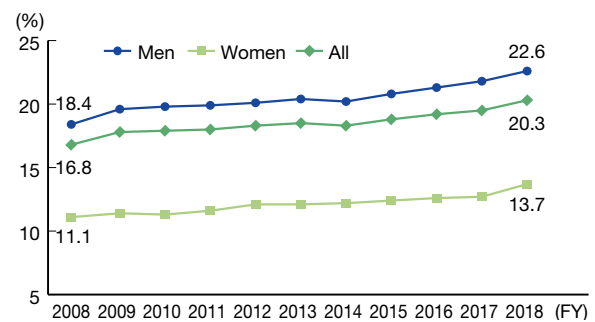
Rate of awareness of steps taken

Rate of awareness of steps taken: The percentage of people who are generally aware of how many steps they take in a week



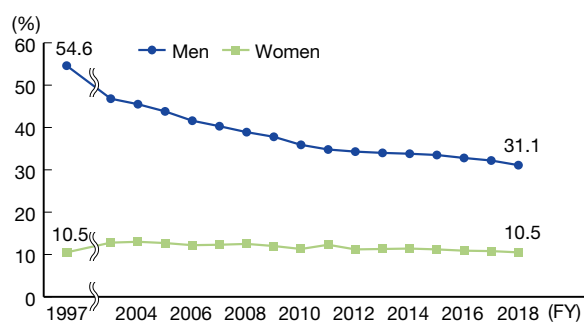
Rate of exercise

Rate of exercise: The percentage of people who have exercised for at least 30 minutes, at least twice a week, over at least one year



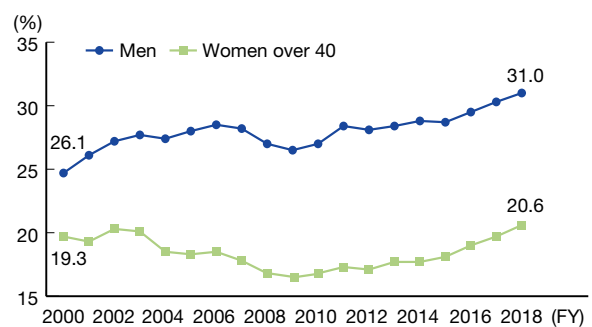
Smoking rate

Smoking rate: The percentage of people who smoke cigarettes



Obesity rate

Obesity rate: The percentage of people who have a BMI of 25 or more



After promoting groupwide efforts to raise awareness of steps taken starting in fiscal 2019, we raised the 10-year rate of awareness by nearly threefold, while gradually increasing the rate of exercise, as well. Panasonic's initiative to move from separate indoor smoking areas to 100% smoke-free buildings has lowered the smoking rate among men by just over 20% and among women by 2.5% from the peak figure. At the same time, while health promoting initiatives temporarily lowered obesity rates, they have continued to make gains again, so the Panasonic Group needs to expand the scope of its health promotion activities even further.

Responsible Supply Chain

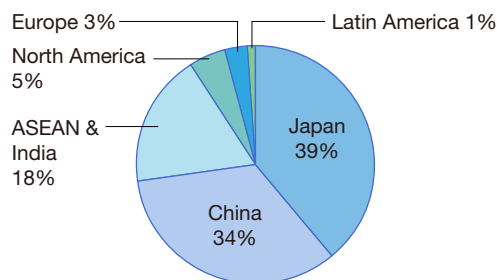
Overview of Supply Chain

Panasonic does business with approximately 10,000 companies worldwide.

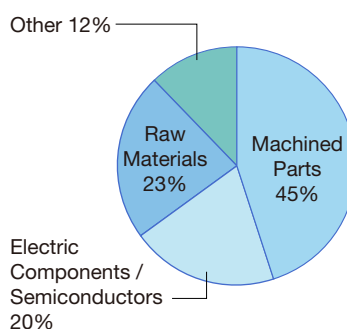
Roughly 70% of these business partners are in Japan and China. And 45% of them supply machined parts.

Panasonic promotes activities with its global business partners to meet its CSR responsibilities across the entire supply chain.

Breakdown of Transactions by Region (%)



Breakdown of Transactions by Product (%)



Management System

With the global demand for social responsibility in procurement—including consideration for the environment and human rights, satisfactory labor conditions, and fair trade—we at Panasonic are working to conduct our business with suppliers that not only provide excellent technology and quality but also honor social responsibilities including human rights and labor, occupational health and safety, green procurement, clean procurement, compliance, and information security.

Panasonic considers the promotion of CSR in its procurement departments to be crucial and conducts periodic management reviews.

To ensure that employees involved in procurement activities better understand CSR procurement, and in order to raise their awareness of CSR procurement, we have created internal rules and manuals on CSR procurement, and disseminated the necessary information via handouts, our intranet, and training sessions.

We ask each of our suppliers to agree to our Supply Chain CSR Promotion Guidelines, which is a summary of our management philosophy, CSR procurement policies, and other matters with which we want our suppliers to comply. We also ask them to perform CSR self-assessments before we start doing business with them. We also enter into a Standard Purchase Agreement with them. This Agreement includes items related to CSR such as human rights, safe working environments, and consideration for the environment.

Furthermore, we conduct regular evaluations of supplier initiatives related to CSR in addition to evaluations related to standards for evaluating quality, cost, delivery, and service (QCDS) and to business results.

With regard to conflict minerals that fund organizations that behave without proper regard for human rights, engage in environmental destruction, practice corruption, and otherwise act unethically in conflict zones, we strive to adhere to the Organisation for Economic Cooperation and Development's (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

Through these efforts, together with our suppliers, we strive to create sustainable supply chains.

Policy

Procurement Policy

Panasonic has summarized its core thinking on procurement in a 3-item set of Procurement Policy. The fundamental basis of this policy is the concept that, based on relationships of mutual trust, and through diligent study and cooperation, our suppliers are invaluable partners in creating the value our customers demand.

• Implementation of Global Procurement Activities

The Company globally establishes partnerships with suppliers to respond to production activities on a global scale, and works to create the functions and values our customers demand based on relationships of mutual trust and through diligent studies and cooperation.

• Implementation of CSR Procurement

Complying with laws and regulations, social norms, and corporate ethics, the Company promotes procurement activities together with suppliers that fulfill their social responsibilities, such as human rights, labor, safety and health, global environmental conservation, information security.

• Procurement Activities Working Closely with Suppliers

In order to achieve product values expected by customers, the Company serves as the contact point of suppliers with respect to information, such as the market trends of materials and goods, new technologies, new materials, and new processes, and works to ensure and maintain the quality of purchased goods, realize competitive prices, and respond to market changes.

► For details, please see our Procurement Policy at our Procurement Activities website.

<https://www.panasonic.com/global/corporate/management/procurement/policy.html>

Supplier Selection and Evaluation

When selecting new suppliers, Panasonic makes it a condition of doing business that the suppliers practice CSR. Panasonic conducts checks from a perspective that encompasses such aspects as human rights, labor, health and safety, protecting the global environment, and information security. Panasonic asks all suppliers to perform CSR self-assessments and concludes Standard Purchase Agreements that include CSR requirements only with the suppliers that it has confirmed fulfill its requirements.

CSR self-assessments of existing suppliers are also conducted. As required by the results of evaluations, Panasonic provides guidance or raises awareness with the aim of improving the situation.

Clean Procurement

Because Panasonic believes that a company is a public entity of society, it engages in fair transactions with its global suppliers. There is a need for “a more stringent sense of moderation and ethics” in relationships with suppliers. In 2004, Panasonic made the Clean Procurement Declaration and since then has followed a code of conduct in its procurement activities.

Throughout the year, Panasonic regularly ensures that its purchasing personnel and departments are thoroughly knowledgeable about clean procurement practices and it visits key suppliers to request their cooperation with such practices.

• Prohibition of receiving money, valuables, and anything else that is improper from suppliers. Prohibition of benefiting in the form of hospitality, entertainment, or meals.

Panasonic has established Rules on Entertainment and Gifts from Suppliers, which lays out strict rules that prohibit receiving any entertainment or meals, money, goods, or property, obtaining any advantages, or receiving other payoffs from any business partners from which Panasonic purchases goods or obtains services, or who may become such business partners. These rules also both encourage reporting to or consultation with superiors in the workplace, HR or Legal departments, or the internal hotline established for when a violation has been discovered, and lay out disciplinary actions for those who violate these rules.

• Establishing a global hotline

Panasonic promotes fair and equal procurement activities based on our Clean Procurement Declaration.

We have created a global hotline to act as a reporting system in the event that any of our procurement staff or departments have violated any laws or regulations, agreements with suppliers, the Panasonic Code of Conduct, or other procurement rules, or are suspected to be about to do so.

► Global hotline

<https://panasonic.ethicspoint.com>

► Our Company (Clean Procurement Declaration)

<https://www.panasonic.com/global/corporate/management/procurement/declaration.html>

Education

Panasonic holds training on procurement-related contracts, purchasing, and planning, with the aim of developing professional buyers. CSR procurement training is divided into two stages: CSR First Class, which is meant to provide specialized knowledge so that buyers can solve issues where they arise, and CSR Second Class, which is meant to instill basic CSR compliance while allowing buyers to carry out normal procurement tasks.

To receive a professional buyer accreditation, procurement staff must take both CSR classes and pass their tests.

	FY 2016	FY 2017	FY 2018	FY2019
Number of CSR 1st grade	One	Two	Two	One
Number of students	10	12	11	9
Number of CSR 2nd grade	Two	Four	Five	seven
Number of students	99	174	248	278

The purposes of this training are to make employees able to gain a basic knowledge of our approach to CSR and procurement compliance (including, for instance, how to prevent forced or child labor) and to train our personnel to become individuals who can fulfill their responsibilities to society in the context of procurement work.

Responsible Executive and Framework

The Chief Procurement Officer (CPO) is Senior Managing Executive Officer Yoshiyuki Miyabe. (As of August 2019)

The department responsible is the Global Procurement Company. Each of our group Companies and their business divisions and other affiliated companies has its own procurement department.

The Global Procurement Company is responsible for CSR procurement activities at the company-wide level. It works together with the group Companies and their business divisions and other affiliated companies to strengthen our efforts in this area.

Each Company and business division draws up plans to follow and promote the company-wide rules and manuals, in order to keep the PDCA cycle in motion. Issues that arise in this process are addressed by the conference and other opportunities composed of executives responsible for the procurement functions in each Company and business division, which devises appropriate solutions.

Responsible Supply Chain: Enforcement of CSR for Suppliers

Enforcement of the Panasonic Supply Chain CSR Promotion Guidelines

In March 2016, in light of growing CSR demands from NGOs and our client companies, the Panasonic Group issued our CSR requirements—the Panasonic Supply Chain CSR Promotion Guidelines, Rev. 1—to convey our stance on CSR procurement, which we want our suppliers to follow, with reference to international standards and industry-standard approaches. However, CSR requirements for corporations frequently change, so in July 2018, we revised these guidelines for the Panasonic Supply Chain CSR Promotion Guidelines, Rev. 2 (“Procurement Guidelines”).

The Procurement Guidelines establish the following provisions while meeting legal and regulatory requirements and accounting for international conventions and standards:

- 1) Labor rights: Prohibition of forced and child labor, payment of wages commensurate with hours worked, humane treatment and elimination of discrimination, and freedom of association
- 2) Occupational health and safety: Training to ensure workplace safety and responses during emergencies, safety policies for machinery and equipment, and occupational health and safety rules for facilities
- 3) Environment: Compliance with the latest edition of Panasonic’s Green Procurement Standards
- 4) Ethics: Prohibition of corruption and bribery, fair trade, and responsible mineral procurement
- 5) Information security: Prevention of information leaks and defense against computer/network attacks
- 6) Product quality and safety: Creation of a product quality management system, provision of accurate product and service data, and ensuring product safety
- 7) Social contribution: Contributions to society and the local community
- 8) Management systems

These Procurement Guidelines have been created in Japanese, English, and Chinese, and we are distributing them to all our suppliers via email and posting them on our website.

We aim to continue holding supplier meetings in regard to revision of the Panasonic Supply Chain CSR Promotion Guidelines and the CSR self-assessments sheets as necessary so that our CSR ideals reach throughout our supply chain.

For details, please see our “For Suppliers” regarding our procurement activities.

<https://www.panasonic.com/global/corporate/management/procurement/for-suppliers.html>

Related Links

► The Freedom of Association and Respect for the Right to Collective

<https://www.panasonic.com/global/corporate/sustainability/humanrights/approach.html#freedom>

► Initiatives for the Prevention of Slavery and Human Trafficking

https://www.panasonic.com/global/corporate/sustainability/human_rights/global_standards.html#anti-slavery

Requests to Our Suppliers for CSR Self-Assessments

In fiscal 2016, we began requesting that our suppliers conduct CSR self-assessments concerning the state of their initiatives related to human rights, health and safety, the environment, and ethics, and we have conducted these self-assessments annually ever since.

In fiscal 2017, we requested CSR self-assessments based on the Panasonic Supply Chain CSR Promotion Guidelines from roughly 5,000 suppliers, mostly in China, Southeast Asia, and India; in fiscal 2018, from roughly 2,000 suppliers, primarily in Japan; and in fiscal 2019, from roughly 3,000 new and existing suppliers.

These self-assessments include items for confirming the prohibition of child labor and the prevention of forced labor.

Panasonic asks its suppliers to employ workers per the laws and regulations of their respective countries, to ensure that no workers engage in labor against their will.

Based on the results of the self-assessments, we visit suppliers, check conditions on the ground, and hold interviews whenever necessary. In fiscal 2018, we checked conditions on the ground at four suppliers in Thailand and three suppliers in China. We identified issues related to occupational health and safety in Thailand and China, while also finding issues related to the environment in China, and we requested that corrections be made. We will continue to request self-assessments from our suppliers and to communicate with them about CSR. We will work to take swift corrective action in the event that we find any issues and to build up a solid, healthy supply chain.

Cooperation with Suppliers in Reducing the Burden on the Environment

We work to reduce the burden we place on the environment through cooperation with our suppliers and logistics partners.

► Collaboration Across the Supply Chain

<https://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html>

► FY2020 ECO-VC Activity Proposal and Application Guidelines

<https://www.panasonic.com/global/corporate/management/procurement/partner/contest.html>

Responsible Supply Chain: Responsible Minerals Procurement

Panasonic's Basic Stance on Responsible Minerals Procurement

Panasonic had taken a basic stance on conflict minerals in 2012, and reviewed it in April 2018 based on recent social trends in regard to responsible minerals procurement.

Panasonic recognizes that the procurement of certain minerals (notably tin, tantalum, tungsten, gold and cobalt) from states in conflict areas and other high-risk areas carries with it a risk of funding organizations that are involved in all kinds of illegal or unethical activities including human rights abuses such as child labor, harsh working conditions, environmental destruction and corruption. This is a matter of grave social concern.

In order to fulfill our corporate social responsibility, Panasonic promotes responsible procurement of minerals in the global supply chain.

However, at the same time, there are companies and individuals in such areas who are conducting business activities with no connection to any illegal activities.

Panasonic is therefore mindful of our obligation to avoid using minerals that are associated with illegal or unethical behavior, while striving to ensure that legitimate companies' and individuals' business activities and livelihoods are not harmed by such efforts.

To this end, Panasonic needs to work in cooperation with a wide range of stakeholders, including countries, companies, and non-profit organizations (NPOs) that are taking measures to build fair supply chains of minerals in such affected locations.

As a foundation to this position, Panasonic is conducting its activities continuously based on the "Due Diligence Guidance" of the OECD (Organization for Economic Co-operation and Development), and is building management processes which conform to global standards, with the aim of contributing to the international efforts being made to address these issues.

To effectively promote the responsible procurement of such minerals, a number of due diligence efforts throughout the supply chain are required. The promotion of responsible minerals procurement requires due diligence throughout the entire supply chain, including certifying that upstream mining companies, smelters, and refineries are clean, and conveying information on smelters and refineries among downstream enterprises.

Panasonic requires all related suppliers to provide information on smelters/refineries through the supply chain, and it promotes procurement from suppliers who are working to the same ends.

Panasonic is also continuing to support the international contribution towards responsible minerals procurement while actively considering our future role in such global efforts.

Panasonic's Systems for Responsible Minerals Procurement

Panasonic is making efforts toward responsible minerals procurement by building company-wide systems, with ultimate responsibility residing with the Chief Procurement Officer (CPO). In partnership with each of its Companies, Panasonic strives to build systems and carry out investigations based on the characteristics of their respective businesses.

Due Diligence Efforts

Panasonic communicates its policies to its suppliers and receives their support in following these policies. At the same time, the Company, to meet its social responsibilities, promotes responsible minerals procurement throughout the entire supply chain.

Responsible investigations of conflict minerals require the cooperation of all suppliers and the refineries/smelters with which they work. To reduce the burden on suppliers and to enhance the efficiency of such investigations, we have found it effective to use common investigating tools and explanatory materials. Based on this realization, Panasonic uses, as an investigative tool, the Conflict Minerals Reporting Template (CMRT) and the Cobalt Reporting Template (CRT) issued by the Responsible Minerals Initiative (RMI). We also participate as a presenter at investigative briefings held by the Japan Electronics and Information Technology Industries Association's (JEITA) Responsible Minerals Trade Working Group, and we actively use the same investigative manuals and procedures as Japanese automobile manufacturers and the Japan Auto Parts Industries Association (JAPIA).

Investigations Conflict Minerals

In fiscal 2019, the Panasonic Group as a whole surveyed around 2,300 suppliers on conflict materials and collected responses from 97% of them (as of the end of February 2019). Based on the data from the surveys (CMRTs) we have collected, we have already conducted a risk analysis and assessment, and we have requested, according to the risks we have uncovered, further investigations from suppliers.

The Panasonic Group has identified a total of 322 smelters and refineries for all conflict minerals. Of these, 80% have received the “Conformant Smelter” certification (for smelters/refineries that pass RMI’s audit).

At present, we have not confirmed that any of the minerals that survey respondents have identified as being sourced from suspect countries have financed, either directly or indirectly, any armed forces, but we will continue our work of carefully examining and identifying smelter/refinery information.

Furthermore, through our industry activities, we have urged smelters and refineries to participate in the Responsible Minerals Assurance Process (RMAP). Our suppliers continue to perform due diligence, but in the rare event that minerals are discovered to have funded conflicts, we are asking that these suppliers change their suppliers or take other steps to eliminate the use of these minerals.

Cobalt Investigations

As part of its efforts to promote responsible minerals procurement, Panasonic pursues initiatives that follow the Organisation for Economic Co-operation and Development’s (OECD) “Due Diligence Guidance” and creates management processes that conform with global standards. Specifically, the Company continually conducts cobalt supply chain investigations, identifies and investigates refineries and smelters, and carries out other related initiatives.

Panasonic will continue conducting appropriate cobalt surveys and procurement while watching industry trends.

Participation in Forums on Implementing Due Diligence for Responsible Mineral Supply Chains

Beginning in 2011, Panasonic has been participating in OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas projects (currently, the Forum on Responsible Mineral Supply Chains).

At the forum in November 2013, we learned about ongoing efforts toward conflict-free minerals procurement, including mines, exchanges, and traceability systems for responsible minerals procurement, in Rwanda, and ways to identify mines through analysis of mineral composition and generation. We attended the forums held in Paris in 2016 and 2017, and continued discussions with our stakeholders in regard to effective approaches to addressing issues of conflict minerals.

Industry Cooperation Initiatives

Investigations of responsible minerals require the cooperation of all suppliers in the supply chain. Accordingly, Panasonic has been working with JEITA (Japan Electronics and Information Technology Industries Association) as co-chair and co-leader of the Responsible Minerals Trade Working Group, engaging in educational activities and efforts to make the investigative process more efficient through industry cooperation.

More specifically, we have been working with industry groups both inside and outside Japan and holding seminars and briefings about investigations to promote correct efforts regarding responsible minerals. We have checked information on smelters / refiners, and helped plan the IPC-1755 standards for the sharing of U.S. data on conflict minerals. In November 2013, JEITA’s Responsible Minerals Trade Working Group teamed up with Japanese automakers to create the Conflict-Free Sourcing Working Group, in order to engage in dialog with the smelting industry and to accelerate efforts to verify information about smelters / refiners. Panasonic was also a participant in this activity.

Since January 2016, along with other corporate members of JEITA’s Responsible Minerals Trade Working Group, we have begun working to have smelters and refineries that have not yet participated in RMAP audited and certified. We continued these efforts in 2018.

Furthermore, Panasonic joined the Responsible Minerals Initiative (RMI) in July 2017, with the aims of learning the latest industry trends and promoting appropriate procurement procedures. In 2018, we attended the RMI Annual Conference held in the US. Panasonic will continue to ensure the responsible scrutiny of minerals while staying on top of industry trends.

Support for Sustainable Development of the Covered Countries

As part of Panasonic's corporate citizenship activities in this region, in 2010, we launched the Panasonic NPO Support Fund for Africa, as a means of supporting and strengthening the public relations foundation for NPOs / NGOs working to resolve issues in African nations. Through this fund, we have supported organizations working to resolve issues in African nations. In April 2018, we also revised the Panasonic NPO/NGO Support Fund for SDGs program, and we have been helping NPOs and NGOs active in these nations bolster their organizational foundations.

Among the organizations we have supported are the NPO Terra Renaissance (2011–2013), which works on issues including landmines, small arms, and child soldiers in Uganda and the Democratic Republic of the Congo; and Reborn Kyoto (2014–2016), an NPO that provides opportunities for women in Rwanda to take part in vocational training that supports their economic independence. This list also includes Positive Living through AIDS Orphan Support (PLAS; 2014–2015), an NGO that works to support the education of Ugandan children orphaned due to AIDS; WaterAid Japan (2015–2017), which addresses water and hygiene issues in Uganda and South Africa; and the Japan Overseas Christian Medical Cooperative Service (JOCS; 2017), which offers cooperative aid in the health care field in Uganda and Tanzania.

In March 2016, Panasonic donated roughly 500 of its solar lanterns to the United Nations High Commissioner for Refugees (UNHCR), which offers humanitarian assistance in the Democratic Republic of the Congo. In March 2017, Panasonic donated its 900 solar lanterns to the Democratic Republic of the Congo through the United Nations Development Programme (UNDP), to be used at vocational training facilities to help former child soldiers, internally displaced people, and repatriated refugees. Furthermore, in September 2017, Panasonic donated its 342 solar lanterns to a Healthcare Center in Rwanda through the International Organization for Migration (IOM), to be used for healthcare activities for internally displaced persons (IDPs).

Fair Operating Practices

Management System

As corporate activity expands globally, improprieties occur with some frequency, due not just to deliberate dishonest and criminal acts but also to a lack of awareness and understanding. Employees doing business in countries and regions where legal systems are incompletely realized must perennially exercise a high degree of awareness of norms.

We at Panasonic have set down a clear set of rules for compliance with the law and corporate ethics. We strive to achieve thorough adherence to these rules, with the aim of promoting fair operating practices in all countries and regions of the world, and to realize a sustainable society. This is the “Panasonic Code of Conduct,” which incorporates the requirements of the OECD (Organisation for Economic Co-operation and Development) Guidelines for Multinational Enterprises and other norms.

In our observance of our own Code of Conduct, we have a global network of legal departments, directors and executive officers in charge of ensuring adherence to the Code of Conduct, as well as managers in charge of export control and other persons responsible for supervising various other functions in our Companies, business divisions, and regional headquarters outside Japan.

In Autumn each year at Panasonic we designate a certain period devoted to enhanced compliance promotion activities, during which time we strive to raise employee awareness about the need to observe ethical and legal requirements. Once each year, we also review how our business locations around the world observe and practice the Panasonic Code of Conduct, and we hire an external auditing firm to conduct an internal control audit.

In addition, to prevent misconduct and achieve quick resolutions, we have established hotlines for whistleblowers in our domestic and foreign business locations, as well as for our business partners.

Besides initiatives aimed at correcting the issues that we have discovered through such efforts at the business division level, we also bring those issues together centrally and comprehensively at our Head Office and reflect them in groupwide policies with consideration to societal conditions and the like, and repeat this process in the pursuit of continuous improvement. We are currently promoting additional actions as part of our focus on inhibiting cartel activity and preventing corruption and bribery.

Policy

Panasonic has established as part of our management philosophy the Basic Management Objective set forth by Konosuke Matsushita, Founder of Panasonic Corporation, that says “Recognizing our responsibilities as industrialists, we will devote ourselves to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world.” With this Basic Management Objective, we will engage in our business activities in a manner that ensures that our business contributes to the improvement of living standards around the world and to the progress of society. In order to put our management philosophy into practice, we have established the Panasonic Code of Conduct which includes elements from the OECD (Organisation for Economic Co-operation and Development) Guidelines for Multinational Enterprises and other norms, have translated it into 22 languages, and share our basic stance as a company in terms of our aspirations for the Panasonic brand and answering the demands of society in relation to corporate social responsibility (CSR) with all of our directors and employees globally.

Panasonic Code of Conduct (Excerpts)

The Panasonic Code of Conduct defines our efforts to establish fair business practices as a public entity of society.

Chapter 1: Our Core Values

An Enterprise as a Public Institution

Since our business is dependent on our customers and other stakeholders, we must remember that “an enterprise is a public institution,” that must strive to fulfill its social responsibilities. In addition to listening to stakeholders’ opinions, we must conduct our business activities transparently in order to be accountable. In short, we must continue to be fair, truthful, honest and swift in taking action to comply with our social responsibilities.

► Panasonic Code of Conduct, Chapter 1: Our Core Values

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-1.html>

Chapter 2: Implementing the Code in Business Operations

II-3. Compliance with Laws, Regulations and Business Ethics

(1) Compliance with Laws, Regulations and Business Ethics

We will conduct business with integrity, a law-abiding spirit, and the highest ethical standards.

We will fulfill our tasks by always observing not only applicable laws and regulations, but also the highest standards of business ethics. Compliance with laws, regulations and business ethics in all our business activities is essential to the survival of our business.

(2) Fair and Sincere Action

We will respect free and fair competition, and abide by all applicable antitrust (competition law) and other laws and regulations. All of our transactions shall be properly and fairly recorded.

We will not engage in bribery of any kind. We will be sensitive to, and shall abide by laws and regulations and social ethics that govern the offer of benefits of any kind, including gifts, meals and entertainment. In the same manner, we will not receive personal benefits from any of our stakeholders.

Moreover, we remain steadfast in our attitude to oppose any illegal group or organization.

(3) Thorough Observation of Relevant Laws and Regulations

To ensure that all employees observe applicable laws and regulations and respect their spirit, we will establish appropriate in-house codes and promote employee understanding through seminars and training.

(4) Prompt Redress and Strict Treatment for Violations of Laws and Regulations

If we suspect that our activities violate applicable laws, regulations or business ethics, we will report such information to a superior, or to the legal affairs section or other relevant section, or via an in-house notification hotline. Whistleblowers shall be protected from dismissal, demotion, or any other retaliatory treatment because of their well-intentioned reporting of possible violations of any law or regulation. We will ensure thorough and confidential treatment of information reported.

Once we have established that a law or regulation has been violated, we will immediately seek to remedy the violation, take appropriate action and prevent it from recurring.

► Panasonic Code of Conduct, Chapter 2: Implementing the Code in Business Operations

II-3. Compliance with Laws, Regulations and Business Ethics

<https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section2-3>

Communications

Panasonic aims to make compliance and fair business practices the norm at all our worksites globally, through the legal departments, directors and executive officers in charge of ensuring adherence to the Code of Conduct; and the export control managers and other individuals with various job function responsibilities at the Companies, within certain business divisions, and at regional headquarters, this is based on the idea that each chief executive's compliance awareness is of the utmost importance. In particular, at the beginning of each fiscal year at our Global Legal and Compliance Meeting, we share the compliance policies for the forthcoming fiscal year with the Companies and regional headquarters, and in Autumn each year we designate a certain period devoted to enhanced compliance promotion activities (for details, refer to Compliance Training). We also contact and notify those responsible for legal matters at the Companies and other relevant organizations whenever there are changes to laws, governmental or ministerial ordinances, or notices from other authorities that have any effect on our business.

Compliance Training

Panasonic conducts training on compliance and the Code of Conduct regularly, including when employees join the company or are promoted.

We have assembled a Compliance Guidebook to serve as a tool for putting into practice items related to compliance with the Code of Conduct. The Guidebook explains 54 topics that Panasonic considers critical from a compliance perspective, explaining each of them through examples in a way that is easy to understand, addressing how employees at Panasonic can stay in compliance with the law in the course of their daily work activities and answer societal expectations, covering topics such as preventing corruption and preventing cartels.

We also implement e-learning on compliance with a variety of laws that involve antitrust laws including those concerned with cartels, export controls, and copyright laws in sales, procurement, engineering, and other functional divisions at each Company.

In Autumn each year we designate a certain period devoted to enhanced compliance promotion activities, that are designed to confirm that efforts are being made to establish a global awareness of ethics and legal compliance, and improve risk response. In recent years, as our business and the business environment have changed, this has presented opportunities to strengthen our efforts to accurately grasp signs of changing risks, legal violations, and improprieties in specific fields / units of business, countries and regions.

During this period, the President, the heads of Companies and business divisions, regional representatives, and other senior executives have clarified policies and positions on the observance of ethics and the law, ensuring the dissemination of the importance of compliance down to the ground level.

In fiscal 2019, Panasonic held compliance e-learning for all its employees, and roughly 140,000 employees took part in the trainings.

Responsible Executive and Framework

The General Counsel (GC) in charge is Director Laurence Bates (as of August 2019).

To ensure the dissemination of compliance and fair business practices at the ground level throughout the world, we have legal departments, directors, and executive officers in charge of ensuring adherence to the Code of Conduct, as well as managers in charge of export control and other persons responsible for supervising various other functions in our Companies, business divisions, and regional headquarters outside Japan.

Whistleblowing Systems

In August 2018, Panasonic integrated its existing whistleblower hotlines for compliance-related issues to create a unified global hotline, and it began conducting investigations into all reports received through this hotline. We also have an Equal Employment Opportunity Office for consultation in Japan about fair treatment in the workplace, sexual harassment, and power harassment, as well as an Auditor Reporting System for company accounting and auditing issues.

The Panasonic Code of Conduct stipulates that “Whistleblowers shall be protected from dismissal, demotion, or any other retaliatory treatment that results from their legitimate reporting of possible violations of any law or regulation. We will ensure the thorough and confidential treatment of all reported information.” The mistreatment of whistleblowers is strictly forbidden, and their confidentiality is assured. Anonymous reporting is also possible.

In fiscal 2019, the whistleblower hotline accepted approximately 380 reports or consultations. The hotline worked with relevant divisions to investigate, confirm, and respond to all matters discussed in these reports or consultations.

In July 2019, Panasonic enacted two new internal regulations: Internal Reporting and Investigation Rules, and Rules on the Prohibition of Retaliatory Behavior against Whistleblowers, and Others. The former—to quickly detect and resolve violations of laws, corporate regulations—establishes operational procedures and systems for reporting suspected violations, appropriately receiving these notifications, and investigating and correcting any violations. The latter also prevents retaliatory action toward whistleblowers and cooperating investigators and defines the code of conduct for protecting whistleblowers. These regulations ensure the proper administration of investigations related to the whistleblower system and individual reporting.

Fair Operating Practices: Performance Evaluation

To monitor the understanding of compliance policies, the effectiveness of measures, and the degree of adherence, once each year we conduct checks on the status of observance and practice of the “Panasonic Code of Conduct” in all our business locations around the world.

More specifically, at each group member company, a director / executive officer is appointed to be in charge of ensuring adherence to the Code of Conduct. Education and training are conducted regarding the Code of Conduct; written pledges regarding the observance of the Code of Conduct are obtained; and checks are made regarding the status of these items. Our auditor conducts an audit of internal control.

Grave Violations and Corrective Measures

Panasonic and its US subsidiary, Panasonic Avionics Corporation (PAC), were subject to an audit by the US Securities Exchange Commission (SEC) and the US Department of Justice (DOJ; collectively, “US authorities”) in connection to the Foreign Corrupt Practices Act and other US securities-related laws. The US authorities investigated PAC’s actions related to specific transactions with airlines and its appointment of agents and consultants for these transactions. In May 2018, after negotiating with the US authorities, we agreed to pay a fine, which we have since paid. We are taking this matter seriously and managing operations to prevent further recurrences. See the section titled, “Fair Operating Practices: Compliance Programs,” for more information on our corruption prevention strategies.

In the event that Panasonic becomes aware of any serious violations of laws or corporate regulations, we stop the violating behavior immediately, and in addition to reporting to executive management, we will consider countermeasures after verifying facts and analyzing the causes of the violation in relevant divisions. We report on such matters to the Board of Directors as necessary and correct the violations swiftly and cross-sectionally groupwide based on the resolution of the Board.

Fair Operating Practices: Compliance Programs

Panasonic promotes a companywide compliance program for serious misconduct, including cartelization and bribery. In fiscal 2019, the company put forward the following initiatives to strengthen its compliance infrastructure worldwide, with a focus on anti-bribery efforts:

- **Executive-level participation:** The management team, consisting of the CEO, company presidents, regional directors, and general counsel, issued compliance memoranda for all employees and discussed compliance at board of directors' meetings and other executive conferences. Another example of executive management's direct involvement in compliance is when the general counsel visits international group companies and discuss compliance with local managers.
- **Compliance awareness and a culture of compliance:** Panasonic creates and distributed comics and posters covering serious misconduct. It also planned and held participatory compliance events for employees. Moreover, all employees were subject to taking the Compliance Awareness Survey. In fiscal 2019, roughly 146,000 employees responded, a 12.5% increase over fiscal 2018.
- **Education and awareness:** Panasonic offers e-learning courses about serious misconduct to all employees, and in fiscal 2019, approximately 140,000 employees took these courses. The company also publishes a quarterly newsletter on serious misconduct for business division heads.
- **Establishing a new global hotline:** As described in the Whistleblowing Systems section above, Panasonic has realized unified report management by establishing a global hotline. The company immediately conducts internal investigations when it discovers potentially illegal activities through hotline notifications and reporting or through related audits. After confirming the facts surrounding illegal activities through these internal investigations, Panasonic immediately addresses the violations, while seeking out their actual causes, implementing measures meant to prevent recurrences, and punishing all relevant parties.
- **Improving and enhancing anti-bribery programs:** In light of Panasonic's global bribery risk assessment results, management teams of each company and the General Counsel have been discussing compliance, sharing issues, and investigating countermeasures. In fiscal 2020, each company is already implementing and promoting the outcomes of these discussions as specific initiatives.
- **Strengthening compliance auditing and investigation functions:** In fiscal 2019, divisions of the Panasonic main office conducted compliance audits for bribery and corruption risks to quickly detect, prevent, and handle these risks. Starting in fiscal 2020, Panasonic intends, as part of its organizational efforts, to periodically conduct compliance audits at all new locations and to follow up on points discovered in such audits. Additionally, on July 1, 2019, Panasonic updated its companywide whistleblowing and investigation systems with its new global regulations: Regulations Concerning Whistleblower Reports and Their Investigations, and Regulations Concerning the Prohibition of Retaliatory Treatment Toward Whistleblowers. (For details, see the chapter on Whistleblowing Systems.)

Moreover, in fiscal 2020, while continuing to further last year's initiatives, Panasonic is promoting new projects, including the establishment of a separate compliance committee. This committee will form to discuss and give direction to focal points regarding risks and compliance infrastructure at the management level.

Preventing Cartels

We at Panasonic are taking the fact that our company has been implicated in multiple international cartel incidents seriously, and we are working to prevent cartelization activities. If Panasonic were to become involved in the creation of a cartel, we would not only lose the trust of our customers but also be required to pay high penalties and compensation for damages, as well as lose our designation in public procurement. We take very serious and detailed care to prevent any such involvement, because it would have a variety of negative impacts on our business.

Basic Policies

We have put the following basic policies in place in an effort to prevent cartels, collusive bidding, and other such violations.

- Contact with competitors is allowed only in absolutely necessary cases and subject to prior approval.
- Agreements and exchanges of information with competitors regarding prices, quantity, and other competition-related matters are strictly prohibited.

- One who encounters behaviors that may give rise to suspicions of cartel must make an objection, leave the room, and file an internal report.
- The company establishes whistle-blowing systems and internal leniency systems to improve its ability to self-regulate and conduct appropriate monitoring based on risk assessment, whereby maintains an effective anti-cartel system.

Rules Concerning Activity and Relationship with Competitors

In 2008, we established the Rules Concerning Activity and Relationship with Competitors for the purpose of preventing behaviors that could lead to cartels or bid rigging or cause suspicion of same, which apply to all group employees. These rules include items such as the following:

- Prohibition of agreements or exchanges of information regarding product pricing, quantity, performance or specifications that may cause suspicions of cartels or bid rigging
- Prior approval system under which contact with competitors requires prior approval of the head of the business group and the person in charge of legal affairs
- Responses to inappropriate activities
- Duty of reporting possible violations
- Measures taken in response to violations
- Internal leniency system

In the device business where the risk is particularly high, we are promoting global initiatives meant to prevent cartels through activities including making sure once again that these policies are fully understood by executives at Company Management Conferences and Managing Directors Conferences at overseas subsidiaries, cartel prevention training for all employees, identifying suspicious behaviors, submitting written pledges, conducting audits, and speeding up personnel rotations.

Ensuring Transparency of Political Contribution Funds

The Japan Business Federation says of political donations: “Costs commensurate with the task are essential to properly maintaining democratic politics. Political donations by companies are a crucial part of companies’ social responsibilities.”

(“In order to maintain democratic politics in a proper manner, matching costs are required, and it is important for businesses to make political donations as part of their social contribution.”) Panasonic abides by this policy and makes political donations as a part of its corporate social responsibilities.

When making donations, Panasonic complies with the Political Funds Control Act, all other relevant legislation, and with its own strict rules.

In Japan, the legal duty of disclosing political fund income and expenditures falls on political groups. These disclosures are publicly available from the Official Gazette or from official prefectural bulletins.

They are also available on the web.

http://www.soumu.go.jp/main_content/000455747.pdf#page=1

*Japanese Only

Preventing Corruption

In addition to preventing the bribery of public officials, Panasonic, through the stipulations in the Panasonic Code of Conduct, has prohibited offering benefits of any kind—regardless of whether they occur as entertainment, gifts, or in any other form—or receiving any personal benefits in any situation in which they would be in violation of laws or social ethics. To more thoroughly prevent bribery and corruption worldwide in a manner appropriate for today’s reality, Panasonic, on July 1, 2019, enacted new global regulations that apply to all Panasonic Group employees and executives. These regulations include the Global Anti-Bribery/Anti-Corruption Policy, Rules on Third-Party Intermediary Risk Management for Anti-Bribery/Anti-Corruption, Rules on Gift and Hospitality for Anti-Bribery/Anti-Corruption, and Rules on Conflict of interest. The company will also introduce processes for reviewing new risks to discover bribery and corruption risks before transactions take place when starting or renewing dealings with “Third-Party Intermediary”.

The company enacted the Global Anti-Bribery/Anti-Corruption Policy to effectively prevent, discover, investigate, and correct acts of genuine corruption or those deemed to be corruption with regard to the bribery of public officials and

corruption related to business partners. Specifically, it prohibits facilitation payments and acts considered bribery or corruption in connection with political contributions, donations, or sponsorships; lobbying; hiring and recruitment; and mergers, acquisitions, and joint ventures. It also specifies procedures for preventing bribery and corruption.

Panasonic enacted Rules on Third-Party Intermediary Risk Management for Anti-Bribery/Anti-Corruption to establish general rules for identifying, reviewing, selecting, and registering intermediary sellers and special subcontractors, as well as for initiating and terminating transactions with such parties. These rules are meant to mitigate the risks of bribery and other forms of corruption regarding intermediary sellers or service providers and to prevent, discover, investigate, and correct genuine or potential problems related to these risks.

With the Rules on Gift and Hospitality for Anti-Bribery/Anti-Corruption, the company enacted specific procedures for prohibiting the provision or receipt of gifts or entertainment, including meals, hospitality, and travel costs, in relation to public officials or business partners. These procedures are meant to prevent the risks related to these acts of bribery or corruption.

The Rules on Conflict of Interest establish specific actions that could be conflicts of interest, while also establishing rules related to preventing, identifying, managing, and correcting conflicts of interest.

To ensure full compliance with these new global regulations on bribery and corruption prevention, Panasonic will continue raising awareness and promoting efforts companywide.

Fair Operating Practices: Measures Taken Against Counterfeit Goods

The most part of counterfeit goods originate from China, and catalyzed by the growth of the internet, these goods are spreading worldwide. In recent years, counterfeit goods have also expanded from consumer products to B2B products. Not only does this lead to quality concerns (accidents and injuries) for all customers, but it also leads to economic loss (reduced tax revenue and reduced incentive for companies to develop new products) and security issues (national security threats and funding opportunities for criminal/terrorist organizations) for society.

In its efforts to eradicate counterfeit goods, Panasonic implements extensive measures globally to protect our customers and society. These measures are targeted at various stages of counterfeit goods production and distribution, including manufacturers, major trade shows, importers/exporters, wholesalers, and distributors.

Our brand is an irreplaceable asset that is testimony to the trust and satisfaction our customers and society place in us, so we will continue to resolutely respond to counterfeit goods that illegally display our brand.

Specific countermeasures

- Raid manufacturing plants that counterfeit goods and seize them
- Prevent negotiations about counterfeit goods from taking place at major trade shows in China
- Work with customs officials in various countries to suspend counterfeit goods
- Prevent the sale of counterfeit goods by retailers (including on ecommerce sites) in various countries
- Raise market awareness about counterfeit goods by collaborating with relevant authorities in various countries
- Urge countries with insufficient legal systems and legal practice to make improvements to these frameworks



A celebration of counterfeit goods destruction held by a relevant authorities in Vietnam

Counterfeit consumer products

Batteries



Home electronics



Counterfeit B2B products

Automatic doors



Wiring devices



Electronic parts



Motors



Customer Relations

Management System

Panasonic has established a set of Basic Rules for Response to Customers (compliant with ISO 10002 and JIS Q 10002) for responding appropriately groupwide to inquiries and complaints from customers. The CS Planning Office at the Panasonic Head Office oversees the implementation of these regulations, which apply to all work relating to customer relations in Japan by Panasonic or by affiliates that handle products bearing the Panasonic brand. In those business sites in Japan, the company has implemented a Management System for Response to Customers as a mechanism for utilizing information in management that is received from customers. These sites conduct periodic self-audits and make other efforts to improve the quality of customer relations.

Overseas, the company has implemented ISO-compliant management systems based on the Basic Rules for Response to Customers and tailored to the legal system in each country or region.

Policy

Fundamental Stance on Customer Satisfaction (CS)

Since its foundation, Panasonic's management philosophy has been to contribute to society through its products and services while always putting the customer first. Based on this philosophy, the company strives to improve customer satisfaction and offers products, solutions, and services that enrich the lives of people around the world.

When providing customer service, Panasonic strives for sincerity, accuracy, and speed, and acts with humility and appreciation. This finds its basis in the principle of "true service" that the company's founder described. The company's fundamental stance is thus to provide customers with trust, peace of mind, and satisfaction.

The Fundamental Concept of Customer Satisfaction (The Pursuit of Customer Satisfaction)

The only way for those of us engaged in business to earn trust is to have everyone, regardless of whether they are working in the manufacturing division or the sales division, cater completely to the demands of the customers on all points and work strictly under the basic rule of producing or selling not even one product that cannot perform its function well.

Perfection can be reached only by paying careful attention not only to the manufacturing details but also to where our products are going and making efforts to completely satisfy the customers and provide flawless service.

Konosuke Matsushita

August 1940 statement calling for a quality products campaign
(From Matsushita Electric's 50-Year History)

Service Philosophy (True Service)

The customer's satisfaction is our satisfaction.

True service resides in mutual satisfaction.

Service is an integral part of any business. A business that does not provide service is no business at all. Service, therefore, is the duty and obligation of any business person. But there's nothing more aggravating than service provided only out of a sense of duty. Customers can sense it.

Service means satisfying customers, and when we satisfy our customers, we in turn find satisfaction in a job well done.

Satisfied customers and satisfied employees: This is what constitutes true service.

Konosuke Matsushita

August 1967 issue of PHP Magazine

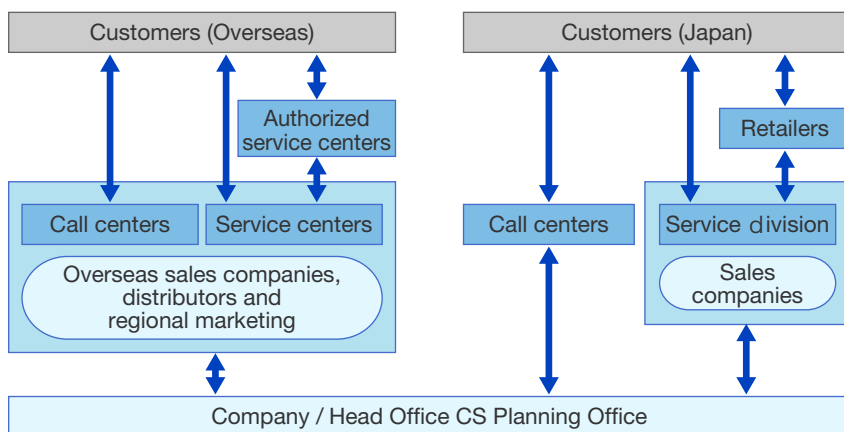
Responsible Executive and Framework

The executive officer in charge of CS is Managing Executive Officer Yukio Nakashima (as of August, 2019).

The CS Planning Office at the Panasonic Head Office and the CS departments at each of the five Panasonic Companies (Appliances, Life Solutions, Connected Solutions, Automotive and Industrial Solutions) cooperate to implement Panasonic's customer satisfaction initiatives. Overseas, the CS departments of Panasonic's sales companies around the world collect local information concerning services and quality, as well as customer requests and so forth. This information is used to ensure the quality and safety of products and to help develop products that match the needs of customers in each department.

CS staff in Japan and abroad share the knowledge and experience that they have accumulated to endeavor to provide better customer service around the world.

Customer Relations Structure



Customer Inquiry Response System

In Japan, Panasonic deals with inquiries from customers before they purchase products as well as with their concerns about how to use them after purchase through the Customer Care Center. The Customer Care Center is open from 9:00 am to 6:00 pm, 365 days per year. There are separate phone numbers for each product. Customers rarely spend a long time on hold; the Customer Care Center is organized to provide accurate and rapid service.

When customers make inquiries on the Panasonic website by typing in a question, the site displays multiple relevant FAQs. Thus, the company strives to provide quick responses to questions.

Regarding the content of its FAQ pages, the company analyzes the search keywords that bring customers to FAQs, as well as the number of times that the questions are viewed, to increase the precision of the FAQs, so that the information that customers require is accurate and displayed quickly.

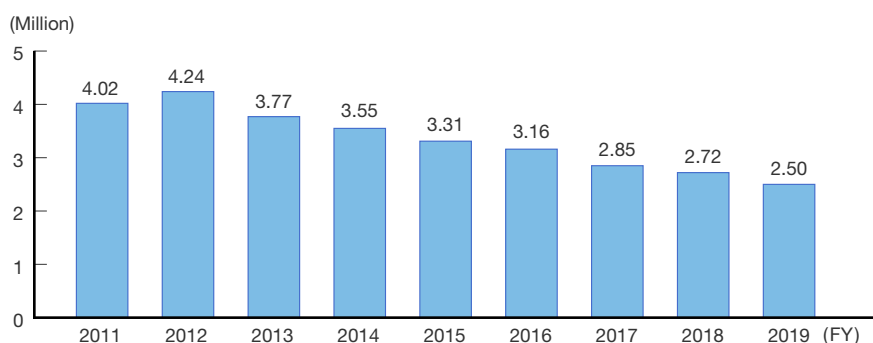
In recent years, the company has also been undertaking initiatives to use Facebook and other social media outlets to post various types of useful information in a timely manner, such as when the seasons change, and to entice customers to visit relevant FAQ pages using LINE's autoreply service.

Because these FAQs are organized so that customer's problems can be solved without the customer needing to contact the Customer Care Center, the number of inquiries at the center is trending downward.

Panasonic operates call centers in each country/region outside of Japan as well, handling all types of inquiries as well as intake for repairs.

The website for each country also includes FAQs, and we are working on building ways to allow customers to resolve their own issues as they are able to in Japan.

Number of Inquiries at the Customer Care Center (for Individual Customers) Over Time



Repair Service Organization

The CS Company (repairs and spare parts department) of Panasonic Consumer Marketing Co., Ltd. is in charge of repair services for consumer electronics products in Japan. Panasonic LS Techno Service Co., Ltd. is in charge of housing facility products.

These service companies constitute a network across Japan and employ full-time customer engineers who have close ties to their local regions as well as advanced technical skills and experience. The network provides swift and reliable at-home repair services in response to customer requests. The repair services system is organized such that repair requests are received 24 hours per day, 365 days per year; Panasonic makes particular efforts to provide repair services as quickly as possible for products that are everyday necessities.

Number of Service Locations of the CS Company, Panasonic Consumer Marketing Co., Ltd. and affiliates: 105 locations throughout Japan (as of April 2019)

Number of Service Locations of Panasonic LS Techno Service Co., Ltd.: 45 locations (as of April 2019)

Initiatives for Improving Repair Service Windows

With the goal of making it more convenient for customers requesting repairs, Panasonic has made arrangements for receiving requests via websites and for courier services to pick up customers' products before repair and to deliver the repaired products when they are ready.

Customers can get a diagnosis from our website before applying for repairs, allowing them to confidently use our online repair service. To receive a diagnosis, customers enter their product numbers and select the appropriate symptoms, and the system provides useful troubleshooting approaches to solving their problems. If the system deems repairs to be necessary or is unable to resolve their problems, customers can review the estimated costs for repairs and apply for them.



LUMIX GINZA

Panasonic has also established repair service windows at its Repair Factory in Tokyo's Akihabara, with same-day service for Let's Note notebook PCs and repair consultation/service for its LUMIX digital cameras. It has also established a comprehensive consultation system for digital cameras through the LUMIX Concierge Service—which offers consultation, repair, and cleaning services—at the new LUMIX GINZA TOKYO.

These efforts demonstrate that Panasonic is working to provide service offerings that mesh with customer lifestyles and life stages, including one-stop service.

Global Repair Service Centers

Repair services outside Japan are handled by Panasonic sales companies, service centers operated by dealers, and certified service providers. Panasonic aims to provide services that will satisfy its customers in all the countries and regions where our products are available, and to that end, we tailor services to the needs of customers in each specific area. In some countries we are able to offer not only on-site repair services but also door-to-door handling for the returns of our products for the convenience of our customers.

Number of Repair Service Centers (FY2019)

Region	Number of Repair Service Centers
Japan	150
North America	1,200
Latin America	1,150
Europe & CIS	550
Southeast Asia & Pacific	1,500
India, South Asia, Middle East & Africa	600
China & Northeast Asia	600

*Japan: CS Company, Panasonic Consumer Marketing Co., Ltd. and affiliates,
Panasonic LS Techno Service Co., Ltd.

CS System for Enterprise Business

Housing Facilities-Related Products

Through its corporate customer-oriented support window for energy-related products—which include lighting fixtures, information systems, electrical facility materials, housing facilities and materials, and solar power generators / power storage facilities—Panasonic has created a rapid system that can respond to its corporate customers (partners) with problems regarding construction, installation, and configuration.

Commercial Equipment

In the area of commercial equipment—which includes video, security, information communications, automotive, and commercial air conditioning equipment—Panasonic's sales companies in each field provide unified support at every stage, from proposals for devices and systems to their design, construction, customer inquiries, and repair services. By providing total solutions that meet its customers' needs, Panasonic strives to improve its CS.

Commercial Solutions

Panasonic Group sales companies that are in charge of commercial solutions, as well as Panasonic sales partners, understand the diverse needs of individual customers and provide total solutions that include everything from system implementation to sales, construction, maintenance, repairs, operations services, and cloud services. These solutions support customers in the implementation of their product strategies and the improvement of their operations.

Through its CS-related activities, the Company uses its points of contact with its customers—including support desks, repair services, and maintenance—to build trusting relationships. Panasonic has created a responsive system that provides quick, continuous support to its customers when they experience difficulties.

Automotive Equipment

Concerning automotive equipment, the Panasonic group sales company (Panasonic Automotive Electronics Co., Ltd.) cooperates with dealerships to provide after-service for Panasonic-produced car navigation, audio, and other equipment in an effort to improve CS.

Panasonic is also building organizations and systems that allow early detection and early resolution of nonconforming products to provide rapid and thorough services to meet the needs of car manufacturers in the provision of genuine on-board equipment.

Management Indicators

Panasonic has established common global management items whose goal is to deliver higher levels of service quality by setting targets. It periodically measures its success at achieving those targets and strives to make improvements based on the results. The company is also engaged in creating new standards and indicators with the aim of optimizing service costs.

Activities for Improving Customer Satisfaction in BtoB Systems Solutions Business

Periodically, Panasonic surveys customer satisfaction in its solutions business, from sales proposals to maintenance and service, to check for gaps between customers' expectations and their evaluations of Panasonic, and the company reviews those results as part of its efforts to connect with its customers. Based on analyses of the survey results, the company follows a cycle of improvement, as follows: Draft plans for improvement initiatives → Execute these initiatives → Verify progress → Survey (evaluate) customer satisfaction. The company works to improve customer satisfaction by implementing improvements to products, system solutions and services by making the most of the results of the survey, in cooperation with manufacturing divisions such as product planning, design, engineering, and quality, and customer support divisions such as marketing, sales, construction, and maintenance services.

The website below describes Panasonic's other customer relations initiatives:

<https://www.panasonic.com/global/corporate/sustainability/customer.html>

Customer Relations: List of Awards

Two Organizations Awarded for Consumer-Oriented Activities

On February 15, 2019, at the 2019 Consumer-Oriented Management Seminar—jointly sponsored by the Association of Consumer Affairs Professionals (ACAP^{*1}), KEIDANREN, and the Consumer Affairs Agency—Panasonic received the fourth ACAP Consumer-Oriented Activities Award^{*2} for two of its initiatives:

- Consumer education on the topics of educational safety, security, comfort, and environments for consumers (CS Department, Eco Solutions Company (now, Life Solutions Company), Panasonic Corporation)
- Environmental education practices and rousing consumer interest in the Home Appliance Recycling Act to promote a sustainable society (Panasonic Eco Technology Center).

These awards honor the praiseworthy activities of corporations, organizations, and individuals, from the perspectives of consumer-oriented management promotion and support. Two of our initiatives have previously won this award at the second ACAP Consumer-Oriented Activities Award, making Panasonic the company with the most commendations from this organization.

^{*1} ACAP: The Association of Consumer Affairs Professionals is a Public Interest Incorporated Association, as recognized by the Prime Minister, that has as its members managers from the consumer affairs departments of corporations and trade associations.

It aims to build trust with consumers and makes various efforts in its mission to realize consumer-oriented management.

^{*2} The Consumer-Oriented Activities Awards: Established in FY2015, this awards program is the ACAP's way of commending the activities of corporations, organizations, and individuals that merit praise for their consumer-oriented management.

The Eco Solutions Company (now, Life Solutions Company) also received recognition for its initiatives, winning a merit award at METI's Ninth Career Education Awards. This award recognizes corporate activities in the field of career education, which gives children and young people a look at the relationship between school education and working society.

[Life Solutions Company]



[Panasonic Eco Technology Center]



Raising Quality Levels and Ensuring Product Safety

Management System

Based on the management philosophy that its founder espoused—that the Company should strive “to contribute to society through its products and services while always placing the customer first”—Panasonic engages in manufacturing while continuously improving its various systems and mechanisms to raise quality levels and ensure product safety. As a company, it sets unique targets for itself that are even more demanding than the generally accepted standards and regulations. All the while, the Company keeps an eye on changing social trends and acts in line with the growth of its business coverage, including the addition of service businesses.

As a part of its fundamental policy regarding product quality, Panasonic has established a unique set of Basic Rules for Quality Administration under the responsibility of Chief Quality Officer, who holds ultimate responsibility for all Panasonic quality. The creation and use of the Panasonic Quality Management System is part of Panasonic’s continuous engagement in improving the quality of its products, with a perspective that puts the customer first. In October 2016, Panasonic enacted unique standards of duty for its medical equipment manufacturing and sales business to promote a smoother and more appropriate performance of duties involved in the manufacturing and sales of medical equipment.

Panasonic has expressed profound regret for the accidents involving FF-type kerosene heaters and reflects the lessons it has learned when ensuring the safety of its products. The company regards product safety to be its top management priority. Specifically, Panasonic applies unique product safety standards to each phase (from planning and design to service and disposal) for every product to ensure product safety. Furthermore, Panasonic strives to take product safety to the next level in line with changes to its businesses or products by convening its groupwide Corporate Product Safety Committee whenever necessary. The company also uses its website as a means to make announcements and provide up-to-date information regarding the safety of all of its products to customers.

Policy

Panasonic’s Groupwide Quality Policy is unique in its statement that the company will “truly serve customers by way of providing products and services that continuously meet and satisfy the needs of customers and society.”

The company has also established a basic policy regarding the autonomous code of conduct for product safety. (This basic policy was approved at a meeting of the board of directors—held on June 27, 2007—of what was then called Matsushita Electric Industrial Co., Ltd.) Under this policy, Panasonic actively strives to ensure the safety of its products, keeping to its principles of “the customer comes first” and of maintaining a “super-honest” attitude.

► Basic Policy Regarding the Autonomous Code of Conduct for Product Safety (Japanese only)

<http://www.panasonic.com/jp/corporate/management/code-of-conduct/quality-policy.html>

The Panasonic Code of Conduct also states, in its “Product Safety” section, that the company will strive to ensure the safety of its products.

► Panasonic Code of Conduct, Chapter 2: Implementing the Code in Business Operations; II-2. Product Safety

<http://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section2-2>

Regulations

Quality Management System

To establish self-sufficient quality assurance processes in each company, Panasonic published its Product Quality Management System (P-QMS) Guidelines in 2004. These Guidelines supplement the requirements of the ISO 9001 standard with Panasonic’s own quality assurance methods and experiences to create a quality management system that aims to deliver the level of quality that the Company demands. It has also revised these Guidelines to comply with ISO 9001-2015.

These Guidelines also serve as the basis for the quality management systems established within each company and workplace that are tailored to their specific business specialties. We also conduct quality assessments and internal audits to verify the progress of these systems at every level (group, company, workplace, etc.), all as part of the Company’s commitment to continuous improvement in quality.

Panasonic strives to evolve in accordance with each of its business sectors, and so it has established standards for each of its business areas—including consumer electronics, automotive, housing, devices, BtoB solutions, and pharmaceuticals—by specifying which portions of the P-QMS apply groupwide and which portions apply to specific businesses, with the aim of moving toward compliance in all its diverse business areas.

Education

To thoroughly spread Panasonic's approach to quality among its employees, the company holds training for all quality managers in each company, business division, and overseas subsidiary designed to teach employees about Panasonic quality twice each year (once per half). In November of each year, Panasonic also holds its Quality Control Circles World Conference to improve the quality control skills of on-site employees through the horizontal expansion of Quality Control (QC) activities, by which employees learn methods for solving problems in the workplace. At the 56th conference, held in fiscal 2019, 28 quality control circles were picked from a total of 4,565 groupwide circles to compete in a quality control grand prix.



A scene from the Quality Control Circle World Conference

To establish a culture in the workplace that makes product safety the top priority in manufacturing, Panasonic holds product safety training lectures to train product safety experts. To further ensure that this culture of prioritizing product safety reaches all group employees, Panasonic conducts product safety education, such as by providing employees with self-directed learning opportunities, including the Fundamentals of Product Safety e-learning program, and by holding Product Safety Forums, where employees can consider product safety-related issues through cases seen inside and outside the company.



Product Safety Learning Square

Panasonic has also established a Product Safety Learning Square at the Human Resources Development Company in Hirakata, Osaka, with the aims of conveying lessons based on actual sites and actual items, and of providing instruction on product safety-related skills. The Product Safety Learning Square offers an opportunity to see actual products that were recalled in the past—such as those recalled after the FF-type kerosene heater accidents—as well as the internal recall announcements and other information on the causes of their problems, the steps taken during the recall, and the measures taken to prevent the essentially unsafe phenomena (including tracking or strength degradation).

In fiscal 2019, 6,286 employees—students of the Product Safety Learning Square, ranging from new hires to executive managers—visited the facility. After learning about accidents from the customer's perspective, they resolved to never allow another accident to happen.

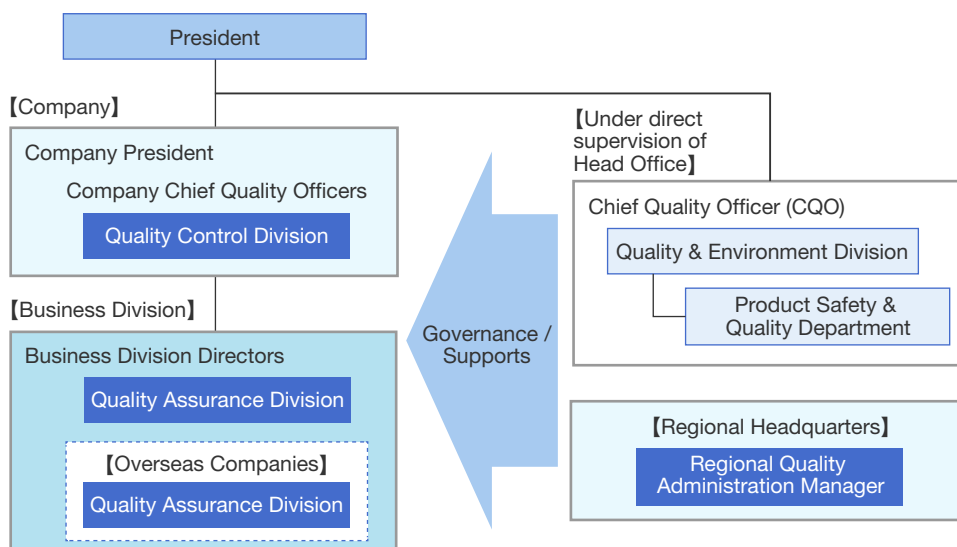
In order to further spread and establish P-QMS among all manufacturing associates in the group, Panasonic also provided e-learning to 3,804 managers, roughly 90% of the managers at all divisions in companies in Japan.

Responsible Executive and Framework

As of August 2019, the Chief Quality Officer (CQO) is Executive Officer Hirotohi Uehara.

With the support and governance of the Panasonic head office, each company, business division, and overseas subsidiary has implemented systems for undertaking its business with independent responsibility and self-sufficiency.

Quality Management Structure



Since September 2014, regional quality administration managers have been appointed for six regions: North America; Latin America; Europe and CIS; Southeast Asia and the Pacific; India, South Asia, Middle East; and China and Northeast Asia.

These managers monitor regional quality conditions and promptly share information on product safety-related defects with the various business divisions. They also share information on public safety standards and public safety certifications in their regions, reinforcing the organizational structure of their business divisions.

Committees and Organizations

Activities of Quality Managers Meetings

Panasonic investigates and summarizes groupwide quality improvement efforts and the state of product quality within the group at its semiannual CQO Meetings. Group CQOs, CQOs from each company, and stakeholders in relevant job functions all attend these meetings. At the meetings, the attendees discuss how Panasonic should handle quality over the medium and long terms, and they decide on policies and actions meant to further strengthen the foundation of quality for the whole group.

Panasonic also periodically holds Quality Managers' Meetings—attended by the quality managers at each company—as a place for more practical discussions on the quality policies covered during CQO meetings. These meetings both enhance cooperation within the group and promote quality improvement efforts. Since fiscal 2016, Panasonic has also held an annual Global Quality Managers' Meeting for quality managers from around the world. It is an opportunity for these managers to share regional issues and annual plans with companies from other regions, facilitating quality improvement efforts.

Activities of the Corporate Product Safety Committee

To conduct manufacturing with safety as its top priority, in 2012, Panasonic organized its groupwide Corporate Product Safety Committee made up of key people in product quality assurance at each Company and established a Safety Technology Working Group and a Safety Standards Working Group under its umbrella. Using these working groups, the company began to develop safety technologies and upgrade its product safety standards on a regular basis, in response to the 2005 FF-type kerosene heater accidents.

This Committee holds semiannual roundtable discussions for representatives of each company to investigate approaches to maintain and improve Panasonic quality, including the use of AI to formulate policies for ensuring safety and quality for lithium-ion battery and network connectivity products.

Activities of the Safety Technology Working Group

The Safety Technology Working Group takes into account the possibility that customers may use products longer than anticipated at the design stage. It develops scientific evaluation methods for testing the durability of materials used in

products—including accelerated deterioration tests—accumulates data and creates testing databases. In fiscal 2019, the working group gathered data on impact safety ratings in preparation for the future expansion of our service robot business.

Activities of the Safety Standards Working Group

To realize a higher level of product safety beyond just complying with public safety standards, Panasonic has established the Panasonic Corporation Safety Standards (PCSS), consisting of internal design rules that are even stricter than public standards that must be followed when developing products.

The Safety Standards Working Group has reflected in the PCSS what it has learned from the activities of the Safety Technology Working Group, and it has strengthened standards relating to major safety issues, such as long-term use, flame-retarding measures, and fall prevention. In fiscal 2019, it prioritized preventing lithium-ion batteries from catching fire by enhancing Panasonic's unique standards that should be followed for products that use such batteries.

The working group is also making efforts to expand the scope of its product safety standards in each of the areas in which the Company does business. For example, the working group revised the Panasonic Personal-Care Robot Safety Standards (PRSS), which cover Panasonic's personal care robots.

Global Safety Standard Certifications Obtained

Personal care robot safety certification ISO 13482^{*1} acquired: January 2017

In February 2014, Resyone—a robotic device for nursing care that combines the functionality of a bed and a wheelchair—was the first device worldwide to acquire the global safety standard ISO 13482. Resyone PLUS, which improved on Resyone's convenience, safety, and aesthetics, acquired certification based on ISO 13482 in January 2017.

See: <http://sumai.panasonic.jp/agefree/products/resyoneplus/> (Japanese only)

Road vehicle functional safety standard ISO 26262^{*2} acquired: February 2012

Panasonic acquired process certification in the ISO 26262 road vehicle functional safety^{*3} standard from the German third-party organization TÜV SÜD. The body recognized that Panasonic is able to comply with the highest level of safety in the standard, ASIL-D, during the process of developing onboard devices and device software.

See: https://www.jeita.or.jp/japanese/exhibit/2015/1111/pdf/02_Functional.pdf (Japanese only)

*1: The international standard relating to the safety of personal care robots, issued by the International Organization for Standardization (ISO). Three types of robots are covered: physical assistant robots, mobile servant robots, and person carrier robots.

*2: An international standard for road vehicle functional safety that was published on November 15, 2011. The standard sets out four Automotive Safety Integrity Levels (ASILs): ASIL A through ASIL D.

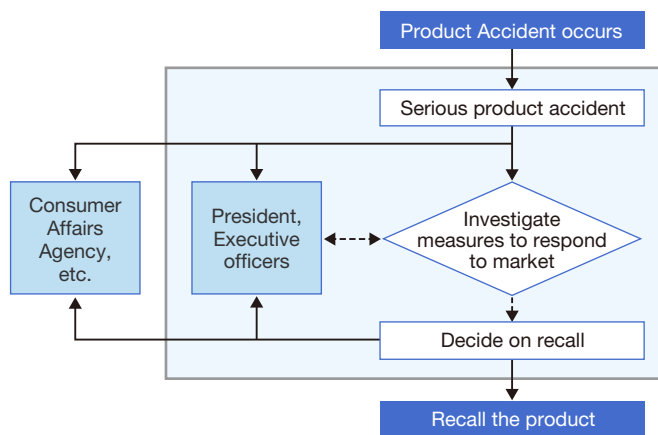
*3: Safety achieved through the working (functioning) of electric or electronic devices, such as microcomputers. Functions include the detection of malfunctions, safe stop controls, and user warnings.

Quality and Product Safety: Major Accidents and Responses

Responding to Product-Related Incidents

In the event that a product-related accident has occurred in the market, Panasonic immediately confirms the facts relating to the incident, and analyzes and verifies its causes. If a product-related incident is deemed to be serious, the group's head office and each of its companies and business sites work together to take appropriate measures to ensure the safety of its customers. Specifically, the company's first response is to notify relevant government bodies such as the Consumer Affairs Agency, as well as the company president and senior management, and then considers how to respond to the market.

Product Accident Response Flowchart



Serious Product-Related Accident Information

In Japan, Panasonic publicly reports serious product accidents*1, accidents suspected of being caused by products*2, and accidents for which it has been determined that it is unclear whether a product was the cause*3, based on the Consumer Product Safety Act and Panasonic's basic policies, as laid out in its Autonomous Code of Conduct for Product Safety.

*1 "Serious product accidents" are the following accidents specified in the Consumer Product Safety Act:

1. Accidents resulting in death;
2. Accidents resulting in serious injury or illness (injury or illness requiring at least 30 days of treatment), or accidents resulting in permanent injury;
3. Carbon monoxide poisoning;
4. Fires (confirmed as such by firefighting authorities).

*2 "Accidents suspected of being caused by products" are defined as follows:

- Accidents relating to gas devices or kerosene devices (including accidents in which it has yet to be determined whether the product was the cause);
- Accidents relating to products other than gas or kerosene devices for which it is suspected that the product was the cause. Panasonic promptly releases information on these types of accidents.

*3 "Accidents for which it has been determined that it is unclear whether a product was the cause"

Panasonic publicly releases information on accidents for which the Product Safety Group of the Consumer Affairs Council of the Ministry of Economy, Trade and Industry has determined that it remains unclear whether a product was the cause.

List of Information Concerning Serious Product-Related Accidents

<https://www.panasonic.com/jp/corporate/info/psc.html>

Quality and Product Safety: List of Awards

Recipient of the METI Minister's Award and the Director-General for Technology Policy Coordination and Industrial and Product Safety's Award at the 12th Best Contributors to Product Safety Awards*

(For more details, see: https://www.meti.go.jp/product_safety/ps-award/3-consumer/h30_award.html#anc-1-1 (Japanese only))

- METI Minister's Award, Large Manufacturer and Importer Category: Laundry and Cleaner Division, Appliance Company, Panasonic Group
The company was awarded this prize due to its high ratings in the following three criteria:
 - 1) Creating systems for reliably executing product safety
 - 2) Ensuring improved quality and traceability in key safety components
 - 3) Promoting innovative projects in the product development process
- Director-General for Technology Policy Coordination and Industrial and Product Safety's Award, Large Retailer Category: Panasonic Homes
The company was awarded this prize for the following three criteria:
 - 1) Conducting initiatives to ensure safety when replenishing procured stock
 - 2) Defining the position and authority of product safety managers per quality standards and product safety management standards
 - 3) Creating initiatives to prevent the recurrence of product flaws by sharing cause analysis and occurrence mechanisms as quality troubleshooting knowledge

* This awards program was launched by the Ministry of Economy, Trade and Industry (METI) in 2007 with the aim of encouraging private enterprises to make a greater commitment to improving product safety, as well as to firmly establish the value of product safety in society as a whole.

Recipient of 2018 IAUD Gold and Silver Awards

Panasonic won two gold awards for the Walking Training Robot and the Smile Bathtub at the 2018 IAUD International Design Awards, sponsored by the International Association for Universal Design (IAUD). This is the seventh consecutive year that the company has received a gold award.

It also won a silver for the Power Multi Light. With these awards, Panasonic won the most awards of all this year's competitors. (For more details, see: <https://www.iaud.net/award/10936/> (Japanese only))

Reference: Panasonic's UD communications

URL: <https://www.panasonic.com/jp/corporate/technology-design/ud.html> (Japanese only)

* Panasonic won the Grand Prize at the 2017 IAUD Awards (since renamed the IAUD International Design Awards)

Product Security

Product Security

Various products utilize software and provide the ability to connect to networks for convenient usage. This makes it necessary to ensure the security of our products in order to prevent leaks or alteration of information and to prevent damages that may result from a malicious third-party attempting to make the product malfunction.

At Panasonic, we ensure the security of our products by streamlining our internal structure and rules, regularly reviewing these so that customers can safely use our products.

Collection and Distribution of Information and Education of Employees

Issues in product security and how to address them change daily. At Panasonic, we have joined various security focused organizations and attend various global conferences to collect the most up to date information on product security. This information is shared with any relevant divisions and incorporated into training materials for product security to improve the knowledge and awareness of product security throughout the entire organization.

Promoting Product Security from Development

During the development phase of a product, assets and functions that need to be protected and any potential attacks against them are considered as risks. Products are developed while minimizing these risks. Then, security experts perform tests on the product prior to shipment, to ensure that Panasonic products do not contain any “security vulnerabilities” in a product from both a hardware and software standpoint.

Post-shipment Response

When information on a product security issue (vulnerability information, etc.) is obtained, the information will be verified in cooperation with the relevant division. If it is confirmed that a product has a security issue, security of the product will be ensured by providing an update, etc. Checking mechanisms will be reviewed to prevent reoccurrence.

Information Security and Protection of Personal Information

Promoting Information Security Across the Globe

Panasonic is well aware of the importance of protecting personal information and other information entrusted by its customers. To prevent data leaks and data tampering, the company has created a system to manage information security as part of its effort to enforce global rules and ensure information security through the implementation of organizational, technological, and physical security management policies. Panasonic periodically conducts internal information security audits and reviews to evaluate how it handles information, working in this way to implement improvements. In the unlikely event that an incident occurs, Panasonic has reporting and support systems in place to minimize harm, and it works to uncover the cause of such incidents to prevent their recurrence.

Information Security Training

To raise employee awareness and knowledge about information security and to ensure proper information management, Panasonic provides all employees with position-appropriate information security training, including education for employees who handle customer or personal information.

Personal Information Protection and Compliance

As Panasonic's IoT business grows, its employees are increasingly likely to handle customer lifelogs and other personal data from all around the world. Therefore, Panasonic strives to improve its data management to provide a higher level of privacy protection, while bolstering its efforts to comply with local laws and meet its social accountability responsibilities.

Panasonic Privacy Policy

Panasonic Corporation (hereinafter referred to as "Panasonic") aims to ensure the satisfaction of customers and gain their confidence by providing superior products and services, guaranteeing transparency based on the Basic Business Philosophy.

To achieve these goals, Panasonic will strive to establish a better relationship not only with our customers but also stakeholders such as business partners, shareholders, employees, etc.

As part of its efforts, Panasonic will implement the following policies to protect and handle Personal Information appropriately.

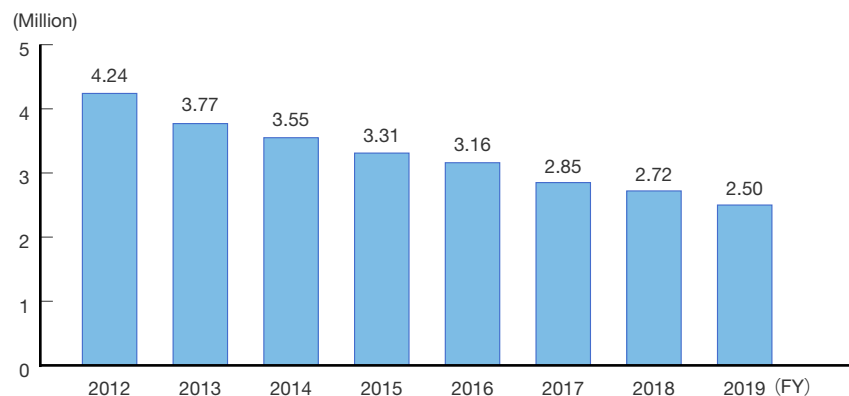
1. Panasonic will appoint a personal information protection manager in each organization where personal information is handled, whose role will be to manage such information appropriately.
2. Panasonic will collect personal information with the consent of individuals after specifying the purpose of use, contact for inquiries, etc.
3. Panasonic will use personal information only within the scope of the purpose of use consented to by the information subject.
4. Panasonic will not provide or disclose personal information to any third party without prior consent from the information subject except when prescribed by laws and regulations.
5. Panasonic will respond properly to inquiries from the individuals about his/her personal information.
6. In order to prevent any unauthorized access to, and loss, destruction, falsification, or leakage of personal information, Panasonic will manage personal information safely and make efforts to guarantee and enhance its information security.
7. In addition to complying with the relevant laws and regulations, Panasonic will continue to improve its personal information protection activities, taking environmental changes into consideration.

List of Social Performance Data



Customer Relations

Number of Inquiries at the Customer Care Center (for Individual Customers) Over Time



Repair Service Organization

Number of Service Locations of the CS Company, Panasonic Consumer Marketing Co., Ltd.: 105 locations throughout Japan (as of April 2019)

Number of Service Locations of Panasonic LS Techno Service Co., Ltd.: 45 locations throughout Japan (as of April 2019)

Numbers of Repair Service Centers (Overseas Numbers for FY2019)

Region	Number of Repair Service Centers
Japan	150
North America	1,200
Latin America	1,150
Europe & CIS	550
Southeast Asia & Pacific	1,500
India, South Asia, Middle East & Africa	600
China & Northeast Asia	600

*Japan: CS Company, Panasonic Consumer Marketing Co., Ltd. and affiliates, Panasonic LS Techno Service Co., Ltd.



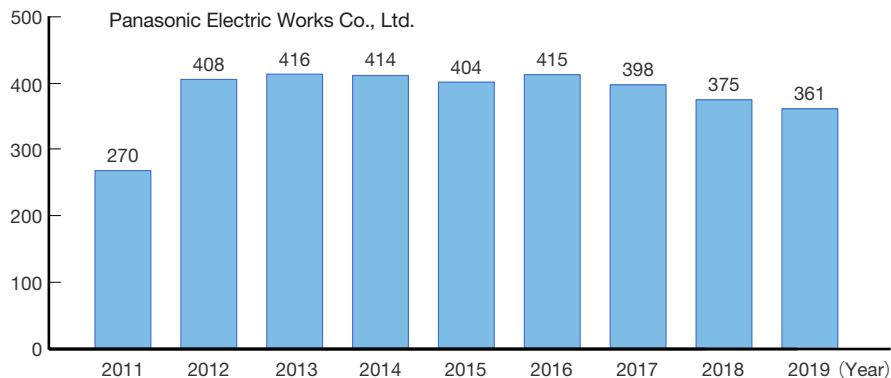
Initiatives Related to Improving Customer Satisfaction

Promoting the Acquisition of Consumer Affairs Advisor Credentials

Number of Employees Certified over Time (as of April 2017)

(People)

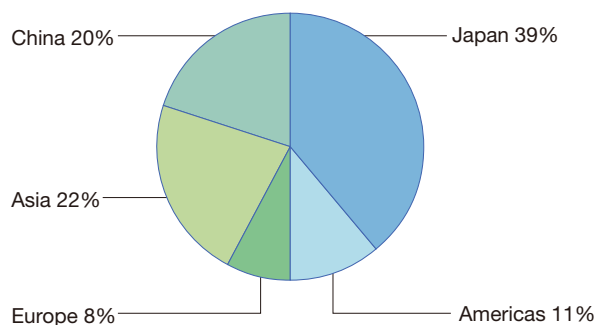
*From 2012, the figures include employees from the former
Panasonic Electric Works Co., Ltd.



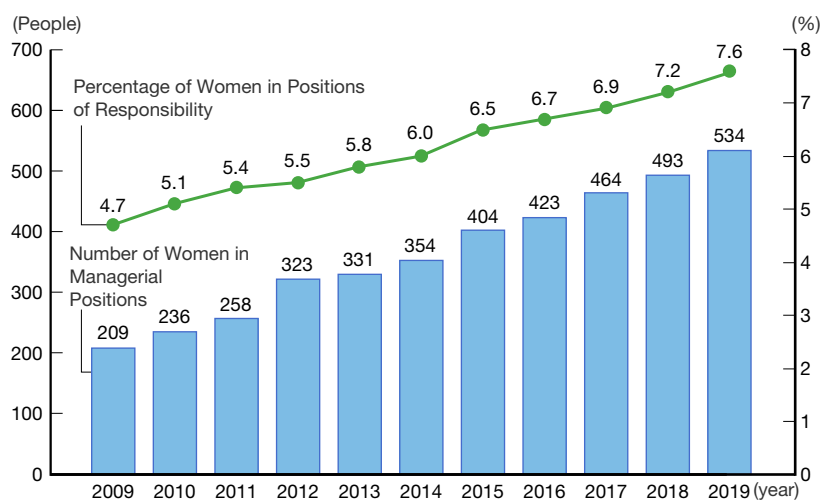
Employees

Proportions of Employees by Region

Total Number of Employees on a Global Consolidated Basis: 271,869 (as of the end of March 2019)



Number of Women in Managerial Positions, Percentage of Women in Positions of Responsibility

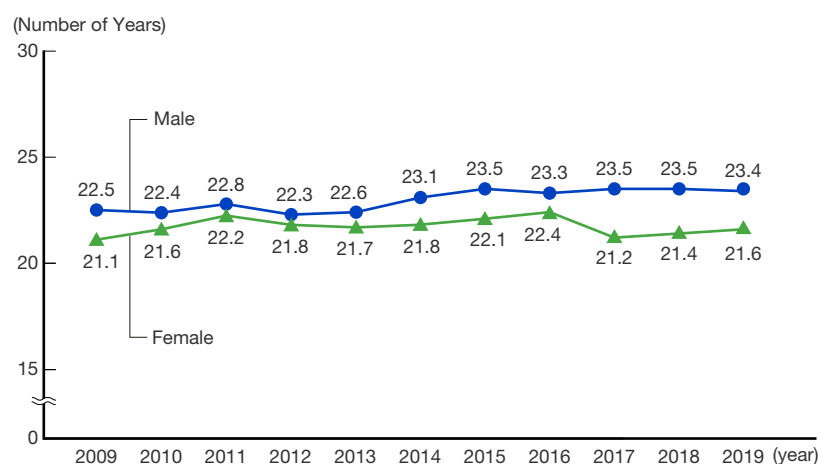


Note: Figures as of April in each year

*1: Managerial position is defined as section leader or higher. Total of Panasonic Corporation and its key domestic affiliates (excluding SANYO Electric Co., Ltd. [SANYO], and including the former Panasonic Electric Works Co., Ltd. [PEW] from 2012)

*2: Positions of responsibility include positions such as chief or assistant chief. Total of Panasonic Corporation and its key domestic affiliates (excluding SANYO, and including the former PEW from 2012)

Average Number of Years of Service



Notes:

Figures as of March in each year

Total of Panasonic Corporation and its key domestic affiliates (excluding SANYO, and including the former PEW from 2012)

Employment of Workers with Disabilities (Japan)

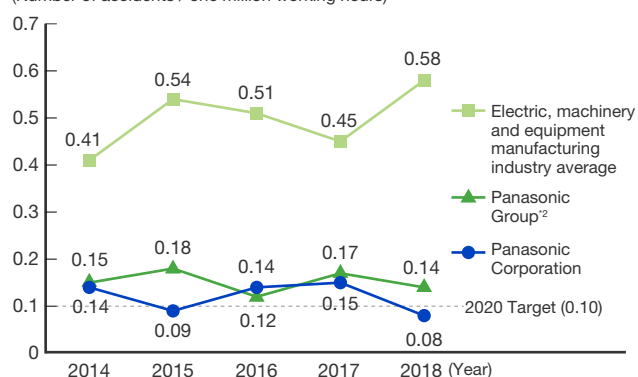
	June 2012	June 2013	June 2014	June 2015	June 2016	June 2017	June 2018
Panasonic Corporation	2.04%	2.15%	2.16%	2.15%	2.18%	2.15%	2.15%
Key Group Member Companies	2.11%	2.21%	2.24%	2.46%	2.50%	2.24%	2.47%
Group (whole)	2.06%	2.17%	2.18%	2.21%	2.23%	2.16%	2.17%

Special Subsidiaries (employee figures are as of June 2018)

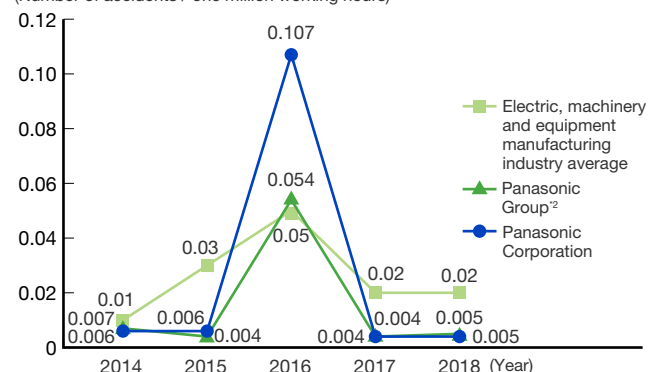
Company Name	Year of Establishment	Number of Employees (Number of Persons with Disabilities)	Description of Business
Panasonic Kibi Co., Ltd.	1980	84 (41)	Assembly of video camera LCD units, video accessories
Panasonic Katano Co., Ltd.	1981	40 (33)	Assembly of avionics products, inspection and packaging of AV accessories
Panasonic Associates Shiga Co., Ltd.	1994	58 (35)	Assembly of electronic circuits (for massage chairs, shavers, etc.)
Panasonic Ecology Systems Kyoei Co., Ltd.	1980	44 (25)	Assembly of ventilating fan parts, printing of user manuals
Panasonic Heart Farm Associates Co., Ltd.	1998	62 (33)	Growing/selling orchids, distribution of company-internal mail
Harima Sanyo Industry Co., Ltd.	1982	42 (22)	Assembly of vacuum cleaner parts, maintenance of internal environment
Sendai Sanyo Industry Co., Ltd.	1992	48 (19)	Manufacture of LED products, light sensors

Work-related Accidents**Incident Rate of Work-related Accidents**
Disabling Injury Frequency Rate*¹
 (The number of incidents of leave taken due to disabling injury per one million total working hours)

(Number of accidents / one million working hours)


Disabling Injury Severity Rate*¹
 (The number of days not worked per 1,000 total working hours)

(Number of accidents / one million working hours)



Source: Research on Occupational Accident Trends (Ministry of Health, Labour and Welfare)

Number of Fatal Accidents (Globally)*³

2014	2015	2016	2017	2018
0	0	1 (Japan: An employee)	0	1 (Overseas: A local employee)

*1 Excludes employees stationed overseas, temporary employees, and onsite contractor employees

*2 The period from 2014–2017 excludes PanaHome, while 2018 includes it. The data also exclude temporary employees and onsite contractor employees.

*3 Includes employees stationed overseas, temporary employees, and onsite contractor employees

Panasonic aims to get its groupwide disabling injury frequency rate—which annually falls below the machinery and electronics manufacturing industry benchmarks—down to 0.10 in 2020.

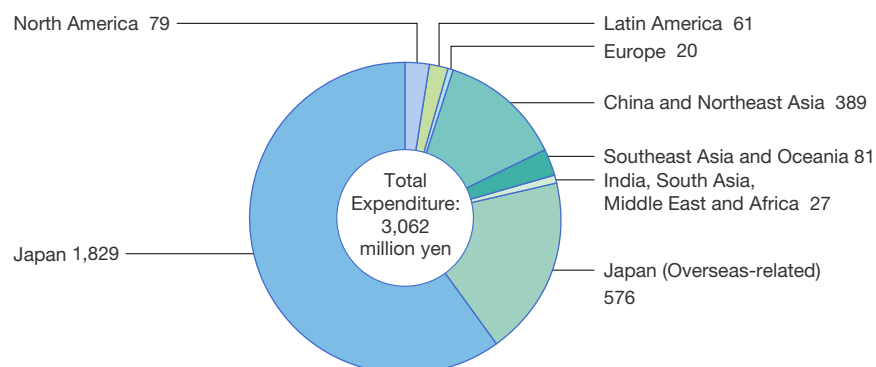
Its severity rate also annually falls below these industry benchmarks, except in 2016, when there was one case of death in Japan after an employee was caught in the equipment.



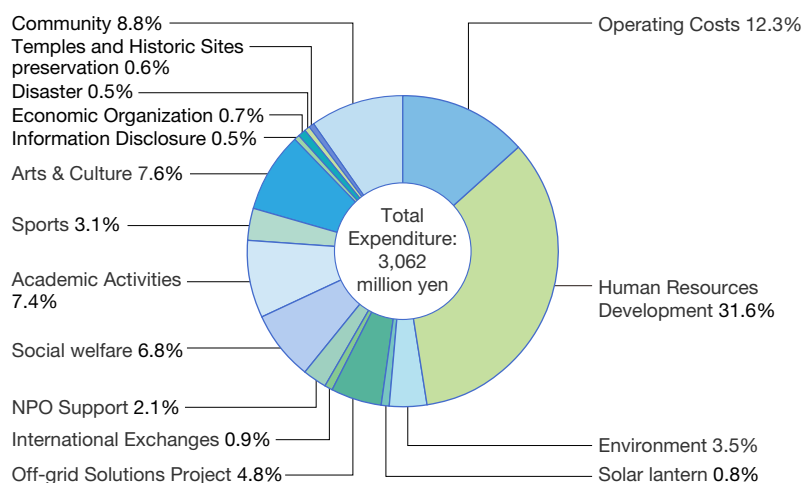
Spending on Corporate Citizenship Activities

Spending on Activities by Region (FY2019)

(Million Yen)



Spending on Activities by Area of Activity (FY2019)



Types of Donations

(million yen)

Type of Donation and amount		Percentage of Total Costs
Charitable Donations	1,052	34%
Community Investments	1,777	58%
Commercial Initiatives	233	8%
Total	3,062	100%

Methods of Donation

(million yen)

Method of Contribution	Amount
Cash Contributions	1,257
Expense Relating to Employees Volunteering	45
Product on Service Donations Cash Support for Programs	1,383
Management Overhead	377
Total	3,062

External Recognition

Major Recognition in the CSR and Environmental Fields

FTSE4Good Index Series

Panasonic Corporation has again been selected for the FTSE4Good Index Series, one of the world's leading socially responsible investment (SRI) indices. The index was created by FTSE Russell a part of London Stock Exchange Group in 2001, and Panasonic has been included for 19 consecutive years since its launch.

And Panasonic has become a constituent of the FTSE Blossom Japan Index since July 2017 when FTSE launched it.

🔗 FTSE website <http://www.ftse.com/products/indices/FTSE4Good>



MSCI ESG Indexes

Panasonic Corporation has been a constituent of the MSCI ESG Leaders Indexes (formerly MSCI Global Sustainability Indexes), one of the world's leading indexes for ESG investment that values enterprises focusing on environmental, social and governance factors, for 9 consecutive years. In addition to the above, Panasonic has become a constituent of the MSCI Japan ESG Select Leaders Index since its inception in July 2017. These are the indexes of MSCI Inc. of the United States.

🔗 MSCI website <https://www.msci.com/esg-indexes>



THE INCLUSION OF Panasonic Corporation IN ANY MSCI INDEX, AND THE USE OF MSCI LOGOS, TRADEMARKS, SERVICE MARKS OR INDEX NAMES HEREIN, DO NOT CONSTITUTE A SPONSORSHIP, ENDORSEMENT OR PROMOTION OF Panasonic Corporation BY MSCI OR ANY OF ITS AFFILIATES. THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCI OR ITS AFFILIATES.

GPIF S&P/JPX Carbon Efficient Index

The world's largest pension fund, the Government Pension Investment Fund (GPIF), selected Panasonic as part of the portfolio for its S&P/JPX Carbon Efficient Index, one of the fund's environmental stock indices it adopted in September 2018.

EcoVadis

Panasonic has again been awarded a Gold Recognition Level in sustainability performance in a survey conducted by EcoVadis for a 4rd consecutive year. EcoVadis operates a collaborative platform that allows companies to monitor sustainability performance within their global supply chain to improve the environmental and social performance of their global suppliers, with coverage for 150 purchasing categories and 110 countries. The Gold Rating places Panasonic among the top 5% of eligible corporations worldwide for sustainability performance.

CDP 2018

The results of the 16th iteration of a survey by the U.K.-based non-profit organization CDP (formerly the Carbon Disclosure Project) which evaluates companies around the world in regard to measures against climate change and information disclosure were announced in January 2019. Panasonic earned a Leadership score (A-), the second highest among eight grades.



Environmental Brand Survey by Nikkei BP Eco Management Forum

Panasonic was ranked 4rd in the ranking of the 19th Environmental Brand Survey conducted in 2017 by Nikkei BP Eco Management Forum. The company received high evaluations in the areas such as energy saving, creation, and storage; resources recycling; as well as environmental communication.

Fiscal 2019 Awards in the Environmental Field

Environmental activities by Panasonic gained recognition again in fiscal 2019, with various awards received globally.

Major Awards and Achievements in the Environmental Field (Fiscal 2019)

Category	Presenter and awards	Specific prize	Recipient companies and details (URL)
Products & Services	Energy Conservation Center Japan (ECCJ) Energy Conservation Grand Prize 2018	ECCJ Chairman's Prize in the Product/Business Model category	Smart Energy Systems business division, Appliances Company, Panasonic Corporation (Shared with Shizuoka Gas Co., Ltd., and Toray Construction Co., Ltd.) T-Grid System, an adaptive electric power system for apartment complexes https://news.panasonic.com/jp/topics/164382.html
		Judging Committee's Special Prize in the Product/Business Model category	Appliances Company, Panasonic Corporation (Shared with Tokyo Gas Co., Ltd.; Yanmar Energy System Co., Ltd.; Aisin Seiki Co., Ltd.; Daikin Industries, Ltd.; Osaka Gas Co., Ltd.; and Toho Gas Co., Ltd.) Smart-Multi, a hybrid air conditioning system https://news.panasonic.com/jp/topics/164382.html
	Japan Electrical Manufacturers' Association (JEMA) The 67th (FY2018) Electrical Industry Technical Achievement Awards	Honorable Mention in the Home Appliances category	Appliances Company, Panasonic Corporation Developing the Dual-Channel Inverter Air Conditioner https://www.panasonic.com/jp/corporate/technology-design/award/list/2018/67th_jema.html
		First Prize in Committee Activities	Appliances Company, Panasonic Corporation (Shared with other organizations) For developing and promoting international and JIS standards for electric refrigerators, and for formulating energy-saving strategies https://www.panasonic.com/jp/corporate/technology-design/award/list/2018/67th_jema.html
		Second Prize in Committee Activities	Quality & Environment Division, Panasonic Corporation (Shared with other organizations) For creating a simple formula for calculating product lifecycles and developing calculation tools https://www.panasonic.com/jp/corporate/technology-design/award/list/2018/67th_jema.html
	Japan Gas Association (JPA) JPA Technology Awards	Technology Award	Appliances Company, Panasonic Corporation (Shared with other organizations) For developing the Energy-Efficient Natural Chiller, a gas absorption chiller with highly efficient energy savings https://www.gas.or.jp/pdf/gijutsu/CommendationTechnologyAward2018.pdf
	2018 Japan Demand-Side Management Awards	Heat Pump and Thermal Storage Center Promotion Award	Appliances Company, Panasonic Corporation F-Series Upright Ultra-Peak Natural Chiller http://www.hptcj.or.jp/Portals/0/data0/documents/2019年度アモンドサイドマネジメント表彰/応募/平成30年度表彰%20%20受賞者一覧.pdf
	United States Environmental Protection Agency Energy Star Awards	Partner of the Year Sustained Excellence	Panasonic Life Solutions Company America For leadership in the environmental protection field through outstanding energy efficiency https://na.panasonic.com/us/news/panasonic-earns-2019-energy-star-partner-year-sustained-excellence-award
	United States Green Electronics Council (GEC) EPEAT	Bronze certification	Panasonic Systems Solutions Company of North America Scanners: KV-S2087, KV-S8127, KV-S8147, and others https://na.panasonic.com/us/news/three-panasonic-scanners-receive-environmental-distinction-epeat-bronze-certified-rating
Production Activities	Energy Conservation Center Japan (ECCJ) Energy Conservation Grand Prize 2018	Minister of Economy, Trade and Industry Prize in the Examples of Energy Savings category (energy efficiency division)	Manufacturing Innovation Division, Innovation Promotion Section, Panasonic Corporation For developing the Smart EMS and promoting extensive energy savings through applications for this system https://news.panasonic.com/jp/topics/164382.html
		Agency for Natural Resources and Energy Commissioner Prize in the Examples of Energy Savings category (industrial division)	Niigata Plant, Lighting Division, Eco Solutions Company, Panasonic Corporation Energy-saving initiatives in a manufacturing plant to aid in the production of energy-saving LED light fixtures https://news.panasonic.com/jp/topics/164382.html
Environmental activities	2018 Japan Biodiversity Action Award	Let's Select Award	Panasonic Corporation Contributing to marine biodiversity by offering sustainable seafood in an employee cafeteria, a first in Japan http://5actions.jp/award2018/result.html
		Honorable Mention	Panasonic Eco Relay Japan Sasayama Woodland Revitalization Project http://5actions.jp/award2018/result.html
	Japan River Association 21st Japan River Awards	Minister of Economy, Trade and Industry Prize	Lake Biwa Eco Idea Club (A private volunteer organization led by employees of the Appliances Company, Panasonic Corporation) For ecosystem preservation activities at Lake Biwa and education on Lake Biwa aquaculture (traditional fishing techniques and food culture) for children https://news.panasonic.com/jp/topics/165252.html
Environmental Communication	Japan Magazine Advertising Association 61st Japan Magazine Advertising Award	Gold Medal and others	Panasonic Corporation LED Round Lantern and others http://www.zakko.or.jp/prize/work/index.html
	Dentsu Advertising Awards Screening Committee (Japan) 71st Dentsu Advertising Awards	First Prize in the First Division, Magazine Advertising	Panasonic Corporation Round Lantern (Dimmed Light) https://adawards.dentsu.jp/prize/list71/
		First Prize in the Second Product Division, Film Advertising	Panasonic Corporation Panasonic Evolta NEO (Fjord 1,000 m Summit Challenge) https://adawards.dentsu.jp/prize/list71/

Note: Company names are given as of the time of award.

Content Index: RBA Code of Conduct

Panasonic adheres to The Responsible Business Alliance (RBA) Code of Conduct Version 6.0 as follows.

	Standards	Location of Information at Sustainability Website or Other Relevant Websites, and Notes (URL)	Management System	Location of Information at Sustainability Website or Other Relevant Websites, and Notes (URL)
A Labor	1) Freely Chosen Employment 2) Young Workers	Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#labor Employing Foreign Workers https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#foreign	1) Company Commitment	Respect for Human Rights - Policy https://www.panasonic.com/global/corporate/sustainability/human_rights.html#policy
	3) Working Hours	Managing Working Hours https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#hours	2) Management Accountability and Responsibility	Respect for Human Rights - Responsible Executive and Framework https://www.panasonic.com/global/corporate/sustainability/human_rights.html#structure
	4) Wages and Benefits	Managing Wages https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#wages	3) Legal and Customer Requirements	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights - Initiatives Relating to Global Standards, Legislation, Regulations, and So Forth https://www.panasonic.com/global/corporate/sustainability/human_rights/global_standards
	5) Humane Treatment	Prohibition of Discrimination https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#discrimination	4) Risk Assessment and Risk Management	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
	6) Non-Discrimination	Prohibition of Discrimination https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#discrimination	5) Improvement Objectives	Respect for Human Rights: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
	7) Freedom of Association	The Freedom of Association and Respect for the Right to Collective Bargaining https://www.panasonic.com/global/corporate/sustainability/human_rights/approach#freedom	6) Training	Respect for Human Rights - Education https://www.panasonic.com/global/corporate/sustainability/human_rights.html#education
				Respect for Human Rights - Management System (to employees) https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management
			7) Communication	Respect for Human Rights - Policy (to employees) https://www.panasonic.com/global/corporate/sustainability/human_rights.html#policy
			8) Worker Feedback and Participation	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			9) Audits and Assessments	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			10) Corrective Action Process	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			11) Documentation and Records	Respect for Human Rights - Management System https://www.panasonic.com/global/corporate/sustainability/human_rights.html#management
			12) Supplier Responsibility	Responsible Supply Chain: Enforcement of CSR for Suppliers https://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
B Health and Safety	1) Occupational Safety		1) Company Commitment	Occupational Health and Safety - Policy - Panasonic Code of Conduct https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Policy - Panasonic Occupational Safety and Health Policy https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
	2) Emergency Preparedness	Management System "The respective standards are covered within the occupational health and safety management system implemented at each company location.	2) Management Accountability and Responsibility	Occupational Health and Safety - Responsible Executive and Framework https://www.panasonic.com/global/corporate/sustainability/health_safety.html#structure
	3) Occupational Injury and Illness	Please also refer to the following websites for relevant information.	3) Legal and Customer Requirements	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 1. Legal and regulatory compliance https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
	4) Industrial Hygiene	Occupational Health and Safety Occupational Health and Safety : Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/health_safety.html#management	4) Risk Assessment and Risk Management	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 5. Removal and reduction of hazards and potential causes of damage https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Management System https://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
	5) Physically Demanding Work	https://www.panasonic.com/global/corporate/sustainability/health_safety.html https://www.panasonic.com/global/corporate/sustainability/health_safety/performance.html	5) Improvement Objectives	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 6. Setting goals and formulating and implementing a plan for occupational safety and health management https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
	6) Machine Safeguarding		6) Training	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 8. Education and training https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Management System https://www.panasonic.com/global/corporate/sustainability/health_safety.html#management

	7) Sanitation, Food, and Housing		7) Communication	Occupational Health and Safety - Management System (to employees) https://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
	8) Health and Safety Communication			Occupational Health and Safety - Policy - Panasonic Code of Conduct (to employees) https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
				Occupational Health and Safety - Policy - Panasonic Occupational Safety and Health Policy (to employees) https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
			8) Worker Feedback and Participation	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 4. Definitions of roles, authorities, and responsibilities, and organizational maintenance https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
				Occupational Health and Safety - Responsible Executive and Framework https://www.panasonic.com/global/corporate/sustainability/health_safety.html#structure
				Occupational Health and Safety: Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/health_safety/performance.html
			9) Audits and Assessments	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 7. Auditing, and review by management https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
			10) Corrective Action Process	Occupational Health and Safety - Policy - Activity Guidelines for Occupational Safety and Health 7. Auditing, and review by management https://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
			11) Documentation and Records	Occupational Health and Safety - Management System https://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
			12) Supplier Responsibility	Responsible Supply Chain: Enforcement of CSR for Suppliers https://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
C Environmental	1) Environmental Permits and Reporting	Panasonic Environment Vision 2050 https://www.panasonic.com/global/corporate/sustainability/eco.html Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html	1) Company Commitment	Environmental Policy https://www.panasonic.com/global/corporate/sustainability/eco/policy.html
	2) Pollution Prevention and Resource Reduction	Eco-conscious Products and Factories https://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	2) Management Accountability and Responsibility	Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Global Warming Prevention at Factories https://www.panasonic.com/global/corporate/sustainability/eco/co2/site.html		Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Business of Factory Energy Conservation Support Service https://www.panasonic.com/global/corporate/sustainability/eco/co2/service.html		Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Green Logistics https://www.panasonic.com/global/corporate/sustainability/eco/co2/logistics.html	3) Legal and Customer Requirements	Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Resources https://www.panasonic.com/global/corporate/sustainability/eco/resource.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Reduction in Resources Used and Use of Recycled Resources https://www.panasonic.com/global/corporate/sustainability/eco/resource/reduce.html		Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Product Recycling https://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery.html		Water Resource Conservation https://www.panasonic.com/global/corporate/sustainability/eco/water.html
		Factory Waste Management – Zero Waste Emissions https://www.panasonic.com/global/corporate/sustainability/eco/resource/zero.html	4) Risk Assessment and Risk Management	Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Water Resource Conservation https://www.panasonic.com/global/corporate/sustainability/eco/water.html		Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
	3) Hazardous Substances	Chemical Substance Management https://www.panasonic.com/global/corporate/sustainability/eco/chemical.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
	4) Solid Waste	Eco-conscious Products and Factories https://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	5) Improvement Objectives	Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Resources https://www.panasonic.com/global/corporate/sustainability/eco/resource.html		Environmental Policy https://www.panasonic.com/global/corporate/sustainability/eco/policy.html
		Reduction in Resources Used and Use of Recycled Resources https://www.panasonic.com/global/corporate/sustainability/eco/resource/reduce.html	6) Training	Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Product Recycling https://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
	5) Air Emissions	Factory Waste Management – Zero Waste Emissions https://www.panasonic.com/global/corporate/sustainability/eco/resource/zero.html		Human Resource Development https://www.panasonic.com/global/corporate/sustainability/eco/hr.html
		Eco-conscious Products and Factories https://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	7) Communication	Environmental Policy (to employees, suppliers, and customers) https://www.panasonic.com/global/corporate/sustainability/eco/policy.html
	6) Materials Restrictions	Chemical Substance Management https://www.panasonic.com/global/corporate/sustainability/eco/chemical.html		Collaboration Across the Supply Chain (to suppliers) https://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html
		Biodiversity Conservation https://www.panasonic.com/global/corporate/sustainability/eco/biodiversity.html		Environmental Communication (to customers, and suppliers) https://www.panasonic.com/global/corporate/sustainability/eco/communication.html
		Collaboration Across the Supply Chain https://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html	8) Worker Feedback and Participation	Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
	7) Water Management			Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Water Resource Conservation https://www.panasonic.com/global/corporate/sustainability/eco/water.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
				Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html

	8) Energy Consumption and Greenhouse Gas Emissions	Panasonic Environment Vision 2050 https://www.panasonic.com/global/corporate/sustainability/eco.html	9) Audits and Assessments	Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Eco-conscious Products and Factories https://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html		Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Energy-saving/creating/storing Products https://www.panasonic.com/global/corporate/sustainability/eco/co2/product.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Global Warming Prevention at Factories https://www.panasonic.com/global/corporate/sustainability/eco/co2/site.html		Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Global Warming Mitigation and Adaptation https://www.panasonic.com/global/corporate/sustainability/eco/co2/solution.html		Environmental Governance https://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Business of Factory Energy Conservation Support Service https://www.panasonic.com/global/corporate/sustainability/eco/co2/service.html	10) Corrective Action Process	Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Green Logistics https://www.panasonic.com/global/corporate/sustainability/eco/co2/logistics.html		Environmental Risk Management https://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Collaboration Across the Supply Chain https://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html		Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
			11) Documentation and Records	Environmental Management Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
				Environmental Information Systems https://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
D Ethics	1) Business Integrity	Preventing Corruption https://www.panasonic.com/global/corporate/sustainability/fair_practices/fairtrade#decrease	1) Company Commitment	Fair Operating Practices - Policy https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy
	2) No Improper Advantage	Policy https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy Preventing Corruption https://www.panasonic.com/global/corporate/sustainability/fair_practices/fairtrade#decrease	2) Management Accountability and Responsibility	Fair Operating Practices - Responsible Executive and Framework https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#structure
	3) Disclosure of Information	Panasonic Code of Conduct Chapter 2. II-5. Information Disclosure https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section2-5	3) Legal and Customer Requirements	Panasonic Code of Conduct Chapter 2. II-3. Compliance with Laws, Regulations and Business Ethics (3) Thorough Observation of Relevant Laws and Regulations https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section2-3
	4) Intellectual Property	Panasonic Code of Conduct Chapter 2. I-1. Research and Development (3) Respect for Intellectual Property Rights https://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section1-1	4) Risk Assessment and Risk Management	Fair Operating Practices - Management System https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
	5) Fair Business, Advertising and Competition	Responsible Publicity and Advertising https://www.panasonic.com/global/corporate/sustainability/communication.html	5) Improvement Objectives	Fair Operating Practices - Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
	6) Protection of Identity and Non-Retaliation	Whistleblowing Systems https://www.panasonic.com/global/corporate/sustainability/fair_practices/whistleblowing.html	6) Training	Fair Operating Practices - Compliance Training https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#education
	7) Responsible Sourcing of Minerals	Responsible Supply Chain: Responsible Minerals Procurement https://www.panasonic.com/global/corporate/sustainability/supply_chain/minerals.html	7) Communication	Fair Operating Practices - Management System (to employees) https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management Fair Operating Practices - Policy (to employees) https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy
	8) Privacy	Information Security and Protection of Personal Information https://www.panasonic.com/global/corporate/sustainability/security	8) Worker Feedback and Participation	Fair Operating Practices - Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html Fair Operating Practices - Whistleblowing Systems https://www.panasonic.com/global/corporate/sustainability/fair_practices/whistleblowing.html
			9) Audits and Assessments	Fair Operating Practices - Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
			10) Corrective Action Process	Fair Operating Practices - Performance Evaluation https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
E Management Systems	1) Company Commitment	Our Unchanging Management Philosophy and Sustainability https://www.panasonic.com/global/corporate/sustainability/management/philosophy.html Panasonic Code of Conduct https://www.panasonic.com/global/corporate/management/code-of-conduct/list.html		Fair Operating Practices - Management System https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
	2) Management Accountability and Responsibility	System for the Promotion of CSR Activities https://www.panasonic.com/global/corporate/sustainability/management/structure.html		Responsible Supply Chain: Enforcement of CSR for Suppliers https://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
	3) Legal and Customer Requirements	System for the Promotion of CSR Activities - Respecting Global Standards, Norms, Guidelines, and Initiatives https://www.panasonic.com/global/corporate/sustainability/management/structure.html		
	4) Risk Assessment and Risk Management	Risk Management https://www.panasonic.com/global/corporate/sustainability/management/riskmanagement.html		
	5) Improvement Objectives	*Please refer to 5) Improvement Objectives of each section, A through D.		
	6) Training	Compliance Training (training on the Code of Conduct) https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#education		

	7) Communication	Our Unchanging Management Philosophy and Sustainability (to employees) https://www.panasonic.com/global/corporate/sustainability/management/philosophy.html
		Panasonic Code of Conduct (to employees) https://www.panasonic.com/global/corporate/management/code-of-conduct/list.html
		Sustainability Initiatives website (to customers) https://www.panasonic.com/global/corporate/sustainability.html
		Responsible Supply Chain - Policy (to suppliers) https://www.panasonic.com/global/corporate/sustainability/supply_chain.html#policy
		Responsible Supply Chain: Enforcement of CSR for Suppliers (to suppliers) https://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
	8) Worker Feedback and Participation and Grievance	Risk Management - Organizational System https://www.panasonic.com/global/corporate/sustainability/management/riskmanagement.html#structure
		Risk Management - Increasing Risk Sensitivity https://www.panasonic.com/global/corporate/sustainability/management/riskmanagement.html#education
	9) Audits and Assessments	Fair Operating Practices - Management System (checks on the status of observance and practice of the Code of Conduct) https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
		Fair Operating Practices - Performance Evaluation (checks on the status of observance and practice of the Code of Conduct) https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
	10) Corrective Action Process	Fair Operating Practices - Management System (checks on the status of observance and practice of the Code of Conduct) https://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
		Fair Operating Practices - Performance Evaluation (checks on the status of observance and practice of the Code of Conduct) https://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
	11) Documentation and Records	*Please refer to 11) Documentation and Records of each section, A through D.
	12) Supplier Responsibility	Responsible Supply Chain - Management System https://www.panasonic.com/global/corporate/sustainability/supply_chain.html#management

Independent Assurance Report by KPMG AZSA Sustainability Co., Ltd.



Independent Assurance Report

To the Board of Directors of Panasonic Corporation

We were engaged by Panasonic Corporation (the “Company”) to undertake a limited assurance engagement of the environmental performance indicators listed in the table below (the “Indicators”) for the period from April 1, 2018 to March 31, 2019 included in its Sustainability Data Book 2019 (the “Data Book”) for the fiscal year ended March 31, 2019.

Table: The Indicators subject to the independent assurance and corresponding page numbers in the Data Book

Indicators	Pages	Indicators	Pages
Size of indirect contribution in reducing CO ₂ emissions	41	Emissions (CO ₂ -equivalent) of GHGs Other than CO ₂ from Energy Use in Production Activities	49
Size of direct contribution in reducing CO ₂ emissions	41	Total GHG Emissions (CO ₂ -equivalent) in Production Activities (Scope 1 emissions)	49
CO ₂ emissions from the use of our major products	42	Total GHG Emissions (CO ₂ -equivalent) in Production Activities (Scope 2 emissions)	49
Size of Contribution in Reducing CO ₂ Emissions through Energy-saving Products	42	CO ₂ emissions from domestic transportation within Japan	50
Size of Contribution in Reducing CO ₂ Emissions through Energy-creating Products	43	Amount of Total Wastes Including Revenue-generating Waste	59
CO ₂ Emissions in Production Activities and CO ₂ Emission Per Basic Unit	46	Water Consumption in Production Activities	66
Energy Consumption in Production Activities	47	Release/Transfer of Substances Requiring Management (Total)	74
In-house renewable energy adoption	48		

The Company's Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria (the “Company's reporting criteria”), as described in the Company's website.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed. We conducted our engagement in accordance with the ‘International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information’ and the ‘ISAE 3410, Assurance Engagements on Greenhouse Gas Statements’ issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Data Book, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than for, a reasonable assurance engagement. The level of assurance provided is thus not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company's responsible personnel to obtain an understanding of its policy for preparing the Data Book and reviewing the Company's reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company's reporting criteria, and recalculating the Indicators.
- Visiting three of the Company's production sites selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

Conclusion

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Data Book are not prepared, in all material respects, in accordance with the Company's reporting criteria as described in the Company's website.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.
Osaka, Japan
August 9, 2019

Reports on Business Activities of Panasonic

Please visit our Sustainability website for the detailed information on our CSR and environmental initiatives, and IR Information website for our business strategies and financial data intended for shareholders and investors.

Sustainability website

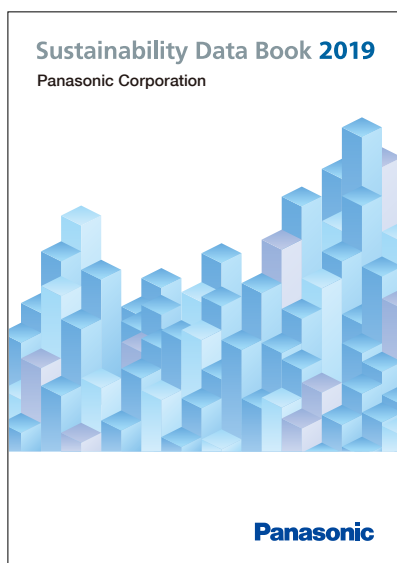
► <https://www.panasonic.com/global/corporate/sustainability.html>

Sustainability Data Book [PDF] is also available on this website

IR Information website

► <https://www.panasonic.com/global/corporate/ir/annual.html>

Annual Report, covering management strategy; financial situation; and ESG (initiatives relating to the environment, society, and governance) among others, is also available





Inquiries

Panasonic Corporation CSR & Citizenship Department / Quality & Environment Division
1-5-1, Higashi-Shimbashi, Minato-ku, Tokyo 105-8301, JAPAN

Issue: October 2019 (2nd edition)