

Sustainability Data Book **2018**

Panasonic Corporation



Panasonic

About the Sustainability Data Book 2018

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

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

Scope of Reporting

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

Period: Fiscal 2018 (April 1, 2017 to March 31, 2018)

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 244) 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 2018

Assurances

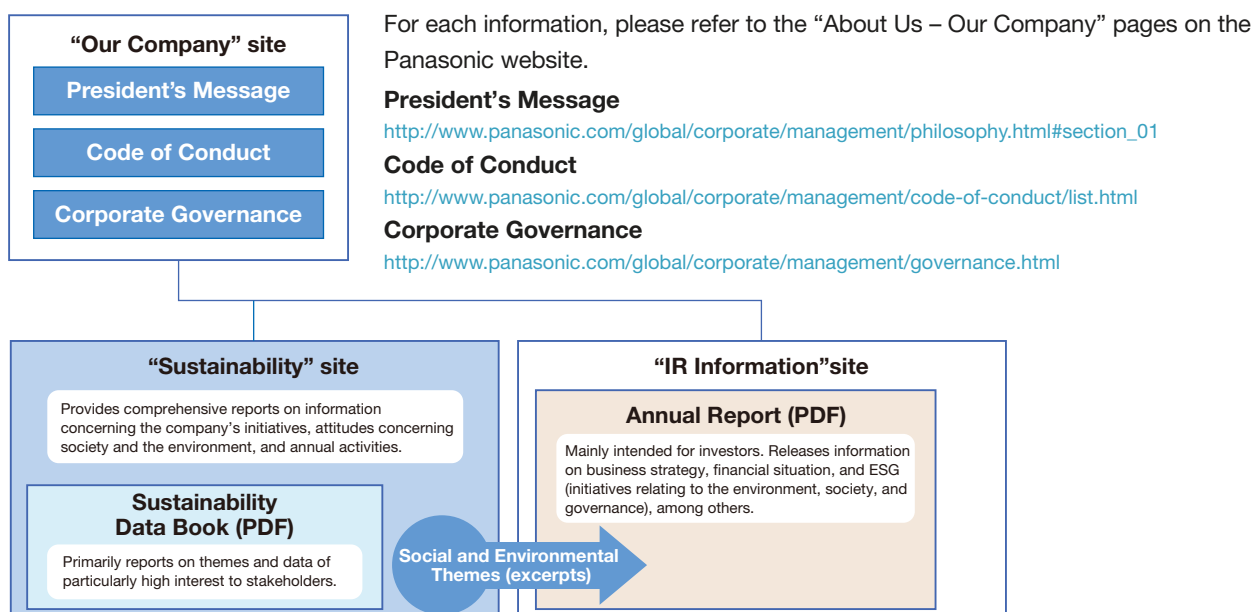
Main data relating to the environment have been assured by KPMG AZSA Sustainability Co., Ltd. For details on the indicators covered by the assurance, please refer to the Independent Assurance Report on P149

Reference Guidelines

Reporting requirements of the GRI Standards

Japanese Ministry of the Environment, "Environmental Reporting Guidelines 2012"

Structure of Reporting on Social and Environmental Initiatives



Sustainability Data Book 2018 Contents

About the Sustainability Data Book 2018... 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

Panasonic Environment Vision 2050	13
Policy	16
Environmental Governance.....	21
Environmental Management Systems	23
Environmental Risk Management	24
Environmental Information Systems	27
Overview of Environmental Impact and Environmental Accounting	28
Eco-conscious Products and Factories	31
CO ₂ Reduction	36
CO ₂ Reduction through Energy-saving/creating/storing Products	38
Global Warming Mitigation and Adaptation	40
Global Warming Prevention at Factories	42
Green Logistics	46
Resources Recycling	48
Reduction in Resources Use and Use of Recycled Resources.....	50
Factory Waste Management – Zero Waste Emissions ...	53
Product Recycling	55
Water Resource Conservation	59
Chemical Substance Management.....	61
Biodiversity Conservation	69
Collaboration Across the Supply Chain	73
Human Resource Development	75
Environmental Communication	77
History of Environmental Activities	79

Respect for Human Rights

Management System	82
Policy	82
Education	82
Responsible Executive and Framework	82
Human Rights Support Desk	83
Performance Evaluation	84
Efforts Concerning Fundamental Human Rights	85
Initiatives Relating to Global Standards, Legislation, Regulations, and So Forth	89

Human Resources Development and Promoting Diversity

Numbers of Employees	93
Policy	93
Responsible Executive and Framework	93
Organization in Charge of Diversity and Inclusion	94
Performance Evaluations	94
Managerial Promotion	94
Performance-Linked System of Remuneration	95
Human Resources Development	96
Diversity	98

Occupational Health and Safety

Management System	103
Policy	103
Education	105
Responsible Executive and Framework	105
Occupational Health and Safety Support Desk	106
Key Initiatives	107
Performance Evaluation	109

Responsible Supply Chain

Overview of Supply Chain	110
Management System	110
Policy	110
Education	111
Responsible Executive and Framework	112
Enforcement of CSR for Suppliers	113
Responsible Minerals Procurement	114

Fair Operating Practices

Management System	116
Policy	116
Compliance Training	118
Responsible Executive and Framework	118
Whistleblowing Systems	119
Performance Evaluation (Grave Violations and Corrective Measures)	120
Fair Trade (Preventing Cartels, Preventing Corruption).....	121
Measures Taken Against Counterfeit Goods	124

Customer Relations

Management System	125
Policy	125
Responsible Executive and Framework	126
Management Indicators	128
Activities for Improving Customer Satisfaction in B2B Systems Solutions Business	129

Raising Quality Levels and Ensuring Product Safety

Management System	130
Policy	130
Education	131
Responsible Executive and Framework	131
Committees and Organizations	132
Global Safety Standard Certifications Obtained	133
Major Accidents and Responses (Responding to Product-Related Incidents)	134
List of Awards	135

Product Security

Product Security	136
------------------------	-----

Information Security and Protection of Personal Information

Policy	137
Information Security Management System	137

List of Social Performance Data	138
---------------------------------------	-----

External Recognition	143
----------------------------	-----

Content Index:

RBA Code of Conduct	145
---------------------------	-----

Independent Assurance Report by KPMG AZSA Sustainability Co., Ltd.	149
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Reports on Business Activities of Panasonic	150
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Corporate Profile

as of March 31, 2018

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

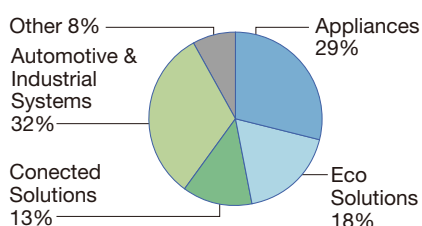
Common Stock: 258.7 billion yen

FY2018 Financial Result

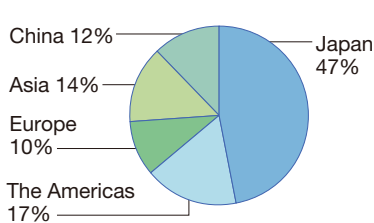
Net sales 7,982.2 billion yen **Operating profit** 380.5 billion yen **Profit before income taxes** 378.6 billion yen

Net profit attributable to Panasonic Corporation stockholders 236.0 billion yen **Number of Employees** 274,143

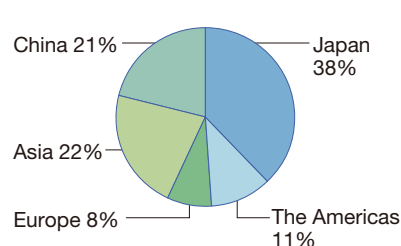
Sales by Segment (FY2018)



Sales by Region (FY2018)



Employees by Region (End of FY2018)



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, vacuums 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, bicycles, nursing care service

Connected 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, automotive-use batteries, Lithium-ion batteries, dry batteries, automation controls, electric motors, semiconductors, electronic components, electronic materials, LCD panels

Other

Detached housing, rental apartment housing, land and buildings for sale, home remodeling, raw materials

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>

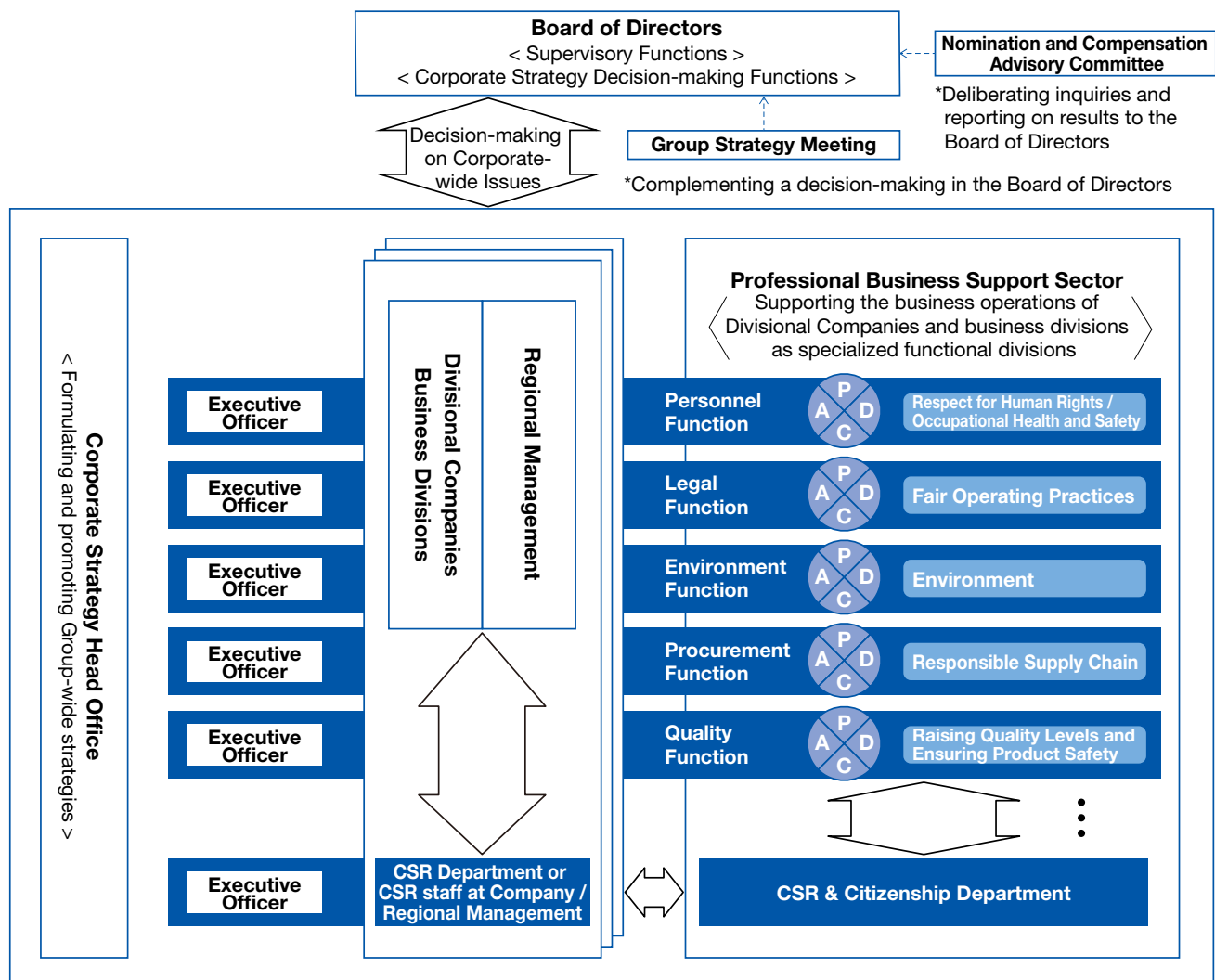
System for the Promotion of CSR Activities

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



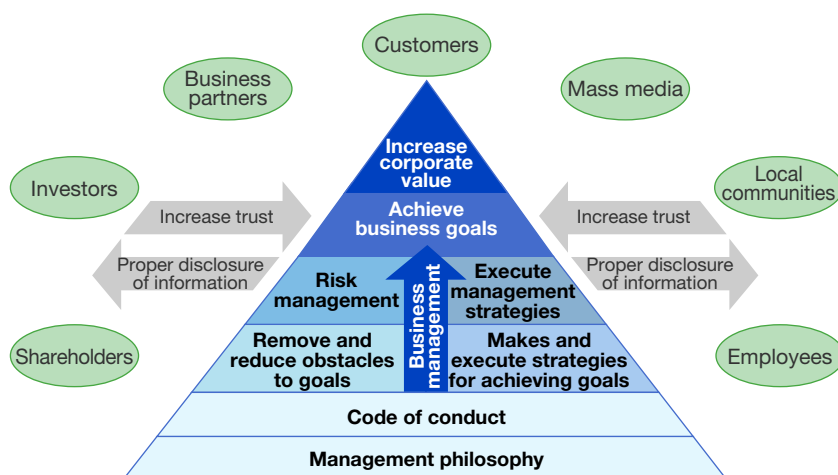
Risk Management

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

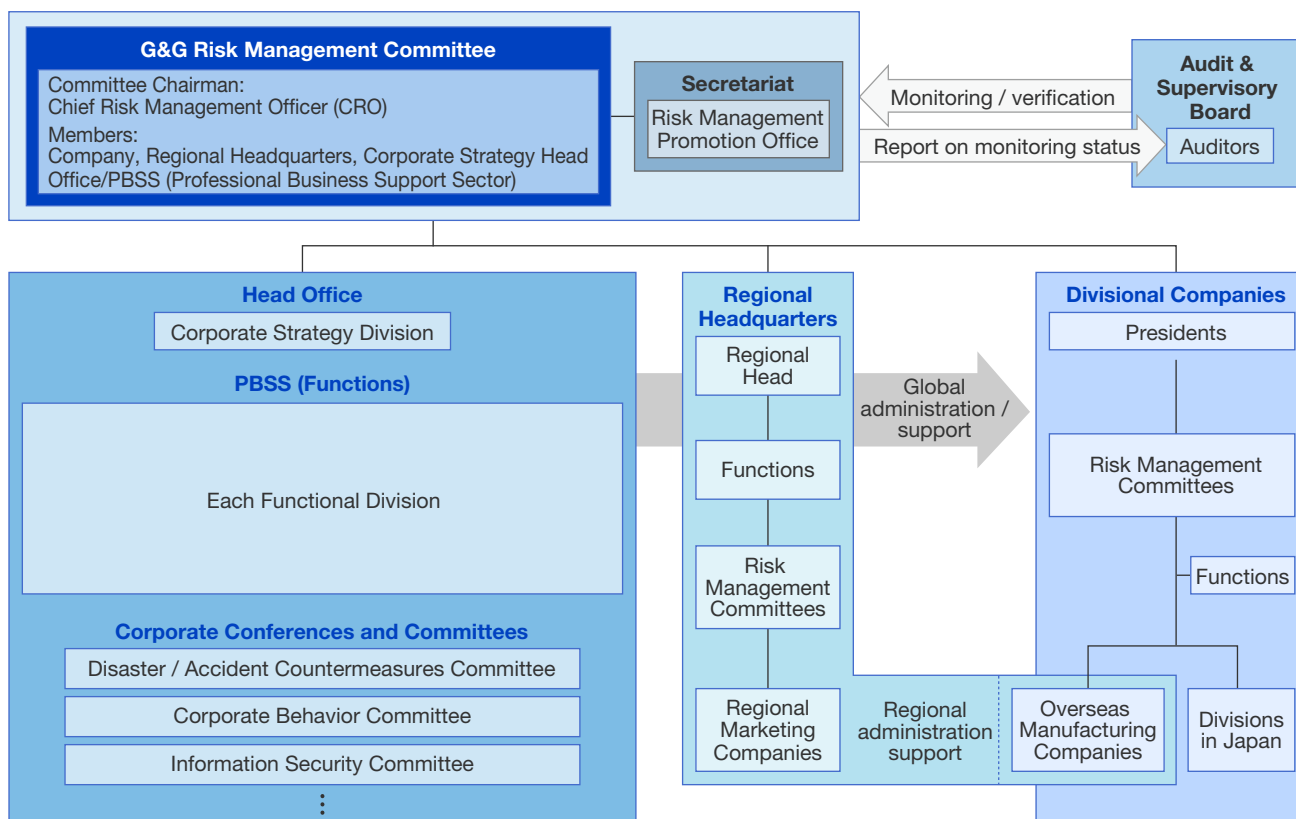


Organizational System

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 Risk Management Promotion Office 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.

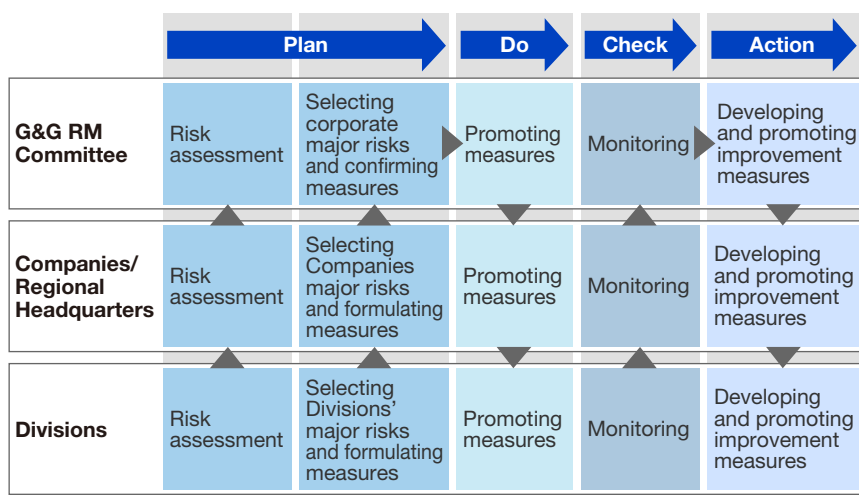
Panasonic Global and Group Risk Management Promotion Framework



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



•Corporate Major Risks for FY2018

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

Quality problem

Cartels

Cyberattacks

Work related accidents

•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

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 2018 Page 13 Panasonic Environment Vision 2050 Page 36 CO₂ Reduction</p> <p>Website Panasonic Environment Vision 2050 CO₂ Reduction</p>
       	<p>Website Tsunashima 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 2018 Page 48 Resources Recycling</p> <p>Website Resources Recycling</p>
	<p>Sustainability Data Book 2018 Page 82 Respect for Human Rights Page 110 Responsible Supply Chain</p> <p>Website Respect for Human Rights</p>
 	<p>Sustainability Data Book 2018 Pages 93 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: 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.

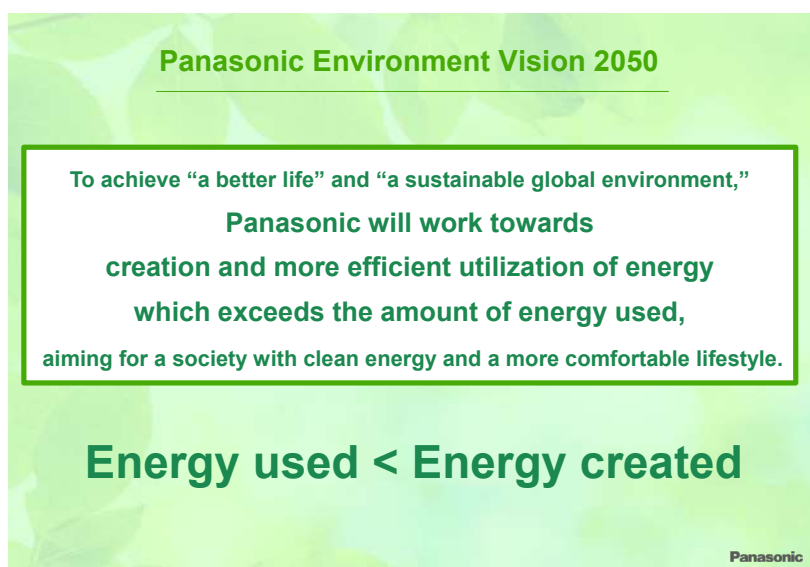
Also, in the World Economic Forum held in January 2018, where political and economic leaders from across the world gathered, the issues concerning the environment and energy, such as climate change and natural disasters, occupied the major part of the list of the most significant risks. Based upon the 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.



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.

In June 2018, we started a demonstration experiment concerning pure hydrogen fuel cells in the “Yume Solar Kan Yamanashi” in Komekurayama, Kofu City, Yamanashi Prefecture. In this experiment, hydrogen is produced by the electrolysis of water with clean electricity generated from photovoltaic cells, which is then used to run three 5kW pure hydrogen fuel cell batteries. The aim of this experiment is to verify reliability and efficient operational control under variable power demands. Through this demonstration experiment, we aim to improve the pure hydrogen fuel cell functions, contributing to the creation of a society where people can live safely with clean energy.



Pure hydrogen fuel cell batteries

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 are switching the lighting to LED, and plan to complete this transition by the end of fiscal 2019^{*1}. We will also expand the utilization of advanced energy-management systems such as FEMS^{*2} and smart manufacturing. In addition, we will complete the adoption of photovoltaic power generation systems in all our business sites by the end of fiscal 2021^{*1} as an initiative to increase energy creation.

As a prior example of our efforts for creating a zero CO₂ factory, Panasonic do Brazil (PANABRAS) has started using 100% renewable energy-guaranteed electricity.

Specifically, in 2016, all three factories under PANABRAS (Extrema, San Jose, and Manaus) shifted to power companies that can supply 100% renewable energy-guaranteed electricity. Through this, the factories have become the first factories in Panasonic to achieve manufacturing with 100% renewable energy-guaranteed electricity. Taking this effort by PANABRAS as a prior example toward realizing a zero CO₂ factory under the Environment Vision, we will sequentially expand the use of renewable energy.

*1 Installable sites

*2 Factory Energy Management System



Extrema factory in PANABRAS

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 36-37), 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.

In the area of eco-conscious products and businesses, we have expanded the scope of our activities to products, services, and solutions in our B2B business, while applying our strengths in home appliances. The concrete numerical targets established in line with the revisions to the Green Plan 2018 are aimed at creating environmental value for our customers. Panasonic will deepen the collaboration with various partners across the supply chain and accelerate environmental initiatives to extend better impacts on the society.

We will steadily execute this Environmental Action Plan towards achieving our fiscal 2019 targets.

Environmental Action Plan “Green Plan 2018”

Priority issues	Targets for 2018
(1)Initiatives to address environmental challenges	
CO ₂ Reduction	<ul style="list-style-type: none"> Maximize the size of contribution in reducing CO₂ emissions through products and services^{*1} (Size of contribution in reducing CO₂ emissions through products and services: 55million tons)
	<ul style="list-style-type: none"> Reduce CO₂ emissions per basic unit in factories (Basic unit: -5% or more compared with 2013)
	<ul style="list-style-type: none"> Expand the use of renewable energy (In-house renewable energy adoption: 10,000 MWh or more)
	<ul style="list-style-type: none"> Reduce CO₂ emissions per basic unit in logistics (Basic unit of weight^{*2}: -5% or more compared to 2013 [in Japan])
	<ul style="list-style-type: none"> Increase the Business of Energy Conservation Support Service for the Entire Factory
Resources Recycling	<ul style="list-style-type: none"> Reduce total resources used and increase recycled resources used (Recycled resin consumption: 45,000 tons or more (2014-2018 total))
	<ul style="list-style-type: none"> Achieve “zero waste emission” from production activities at sites both in and outside Japan (Factory waste recycling rate^{*3}: 99% or more)
	<ul style="list-style-type: none"> Expand the creation of Resources Recycling-oriented Products
Water	<ul style="list-style-type: none"> Increase products to save water and contribute to water recycling
	<ul style="list-style-type: none"> Reduce water consumption in production activities and increase the use of recycled water
	<ul style="list-style-type: none"> Water risk assessment of factories: Complete 100%
Chemical Substances	<ul style="list-style-type: none"> Develop alternative technologies for environmentally hazardous substances
	<ul style="list-style-type: none"> Discontinue the use of substitutable environmentally hazardous substances in products
	<ul style="list-style-type: none"> Minimize the release of environmentally hazardous substances from factories
Biodiversity	<ul style="list-style-type: none"> Increase products contributing to biodiversity conservation
	<ul style="list-style-type: none"> Use green areas in business divisions to contribute to biodiversity conservation
	<ul style="list-style-type: none"> Promote green procurement for wood toward sustainable utilization of forest resources
Compliance	<ul style="list-style-type: none"> Compliance with laws and regulations (Factories and products); Zero violations

(2) Initiatives based on collaboration with stakeholders

Customers	<ul style="list-style-type: none"> 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)
	Dissemination of household fuel cells	Total power generation: 440,000 MWh (2010-2018)
	Dissemination of LED lighting (Residential and non-residential buildings)	LED lighting sales ratio: 75%
	Dissemination of photovoltaic power generation systems	Total power generation: 5.0 million MWh (2012-2018)
	Air quality improvement in living environment (air purification)	Amount of air with improved quality: equivalent to 14 million rooms (2015-2018)
	Dissemination of Net Zero Energy Houses (ZEH)	ZEH ^{*5} ratio to all detached houses: 22%
	Development of smart cities	Start construction/sales: 3 sites (870 lots) (2015-2018)
	Increasing automotive battery supply	Battery supply meeting the demand: 200% (compared to 2014)
	Dissemination of eco-conscious B2B equipment ^{*6}	Expansion of sales in Strategic GPs: 120% (compared to 2015)
<ul style="list-style-type: none"> Promote 'eco' marketing firmly rooted in each region and country 		
Supply Chain	<ul style="list-style-type: none"> Increase environmental contributions through the promotion of Green Procurement with suppliers (Establish environmental management systems and address five major environmental challenges) 	
	<ul style="list-style-type: none"> Promote the ECO-VC (Value Creation) Activity aimed at simultaneously achieving environmental contributions and cost reductions 	
Local Communities	<ul style="list-style-type: none"> Participate in presenting proposals for environmental policies by the government, aimed at the creation of a sustainable society 	
	<ul style="list-style-type: none"> 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) 	

Note: 2005, 2010, 2012, 2013, 2014, 2015 and 2018 here refer to fiscal 2006 (April 1, 2005 - March 31, 2006), fiscal 2011 (April 1, 2010 - March 31, 2011), fiscal 2013 (April 1, 2012 - March 31, 2013), fiscal 2014 (April 1, 2013 - March 31, 2014), fiscal 2015 (April 1, 2014 - March 31, 2015), fiscal 2016 (April 1, 2015 - March 31, 2016), and fiscal 2019 (April 1, 2018 - March 31, 2019), respectively.

*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.

Our performance in fiscal 2018 compared with the numerical targets in the Green Plan 2018 is shown below.

Numerical Targets and Performance Levels under Green Plan 2018

Priority issues	Numerical targets	Results in 2017	Pages
(1) Initiatives to address environmental challenges			
CO ₂ Reduction	Size of contribution in reducing CO ₂ emissions through products and services: 55million tons	60.97 million tons	p.37
	Reduction in CO ₂ emissions per basic unit in factories: -5% or more compared with 2013	14%	p.42
	In-house renewable energy adoption: 10,000 MWh or more	21,000MWh	p.44
	Reduction in CO ₂ emissions per basic unit in logistics: -5% or more compared to 2013 (in Japan)	4.6%	p.46
Resources Recycling	Recycled resin consumption: 45,000 tons or more (2014-2018 total)	64,900 tons	p.49
	Factory waste recycling rate: 99% or more	99.1%	p.53
Water	Water risk assessment of factories: Complete 100%	100%	p.59
Compliance	Compliance with laws and regulations (Factories and products); Zero violations	5 violations	p.24
(2) Initiatives based on collaboration with stakeholders			
Customers	Energy-saving performance improvement of products: 35% (compared to 2005)	44%	p.38
	Total power generation of household fuel cells: 440,000 MWh (2010-2018)	382,000 MWh	p.39
	LED lighting sales ratio: 75%	77%	p.38
	Total power generation of photovoltaic power generation systems: 5.0 million MWh (2012-2018)	4.51 million MWh	p.39
	Amount of air with improved quality: equivalent to 14 million rooms (2015-2018)	10.90 million rooms	p.33
	ZEH ratio to all detached houses: 22%	28%	p.40
	Start construction/sales of smart cities:3 sites (870 lots) (2015-2018) ^{*7}	3 sites (531 lots)	p.40
	Automotive battery supply meeting the demand: 200% (compared to 2014)	178%	p.39
	Sales expansion of eco-conscious B2B equipment (Strategic GPs): 120% (compared to 2015)	120%	p.32
Local Communities	Provide environmental education to 3 million children or more around the world	2.885 million children ^{*8}	website ^{*9}

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

*8 Cumulative total from 2009 to 2017. Results for 2017 alone is 85,500.

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

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

Note: 2005, 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2017 and 2018 here refer to fiscal 2006 (April 1, 2005 - March 31, 2006), fiscal 2010 (April 1, 2009 - March 31, 2010), fiscal 2011 (April 1, 2010 - March 31, 2011), fiscal 2013 (April 1, 2012 - March 31, 2013), fiscal 2014 (April 1, 2013 - March 31, 2014), fiscal 2015 (April 1, 2014 - March 31, 2015), fiscal 2016 (April 1, 2015 - March 31, 2016), fiscal 2017 (April 1, 2016 - March 31, 2017), fiscal 2018 (April 1, 2017 - March 31, 2018), and fiscal 2019 (April 1, 2018 - March 31, 2019), respectively.



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 executive officer in charge of environmental affairs (Yoshiyuki Miyabe Senior Managing Executive Officer as of August 2018) and working to fulfill our corporate social responsibility through eco-conscious business activities as well as to resolve environmental issues such as climate change, resources, water, etc.

Panasonic Group formulates its annual environmental management policy in accordance with the Group management policy, the Environment Vision 2050, Environmental Action Guideline, and the environmental action plan, "Green Plan 2018." The annual environmental policy is shared across the entire organization through the Operation Policy Meeting led by the executive officer in charge of environmental affairs, who has the authority delegated from the president. Companies, business divisions, and Regional Headquarters outside Japan 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 achieving to society under the Green Plan 2018, as well as Environment Vision 2050 are examined in the Group Strategy Meeting. This meeting is attended by the presidents of Panasonic Corporation and the four Companies as well as other members of senior management, for reviews of policy directions, issues, and, particularly important measures to be adopted.

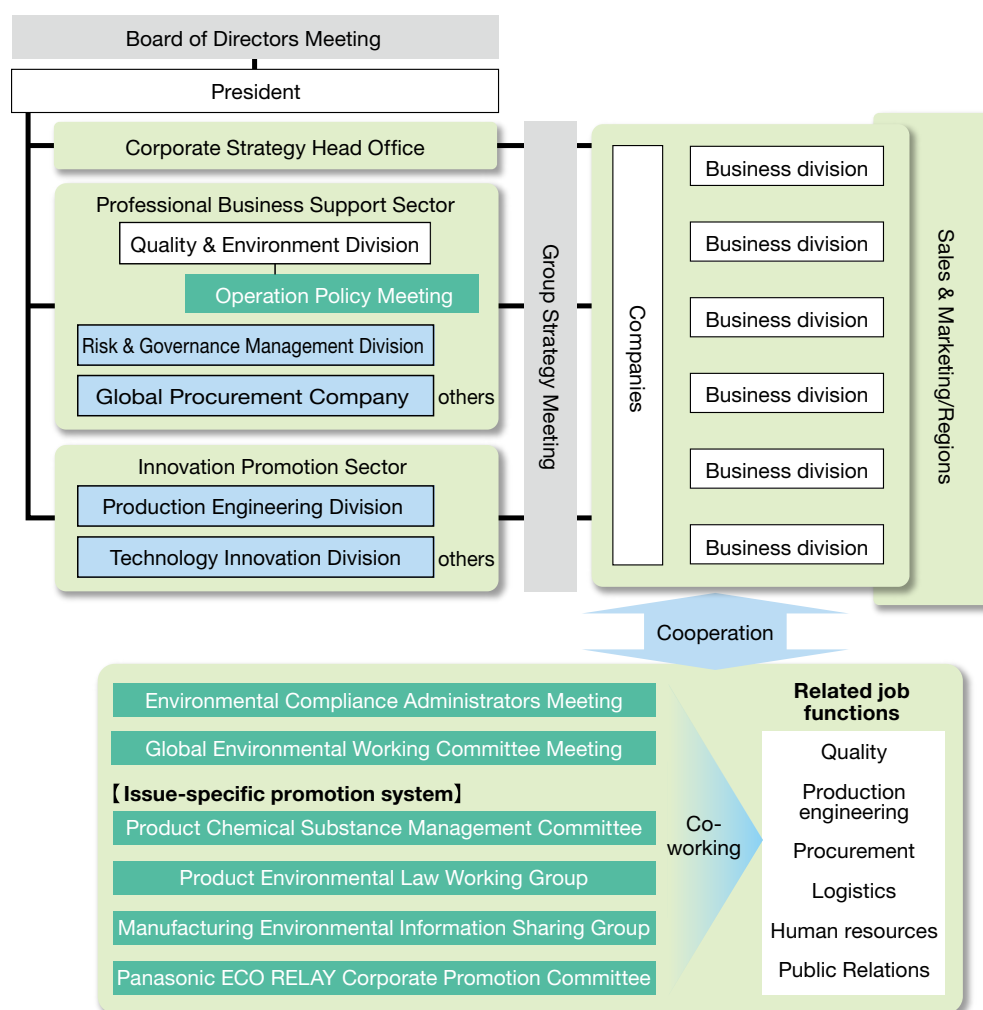
In fiscal 2017, the Environmental Compliance Administrators Meeting (held twice a year) attended by the executive officer in charge of environmental affairs and environmental compliance administrators at the four Companies was newly established to accelerate decision-making for corporate-wide action 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 legislation and reviews the actions to be taken.

Promotion System of Environmental Sustainability Management in Fiscal 2019



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, Group-wide action is underway to achieve the goals set out in the Green Plan 2018.

The revisions to ISO 14001 in 2015 called for consolidation of environmental and business activities as well as for actions from a wider perspective. In response to the revision, activities are underway to gain deeper understanding, including in-house seminars on the transition held at each Company and business division, training sessions for internal auditors, information-sharing with divisions that have already made the transition, and materials exclusively prepared for top management aimed at promoting awareness. We will work to complete compliance with the new standards during the transition period until September 2018.



Training session for internal auditors

Obtainment of ISO 14001 Certification (as of end of March 2018)

Region	Number of certifications obtained*1		Total
	Manufacturing	Non-manufacturing	
Japan	14	14	28
North America & Latin America	16	0	16
Europe & CIS	12	2	14
Southeast Asia, & Oceania	41	9	50
China & Northeast Asia	52	0	52
India, South Asia, Middle East & Africa	6	3	9
Total	141	28	169

*1 Including multi-site certifications. Depending on the consolidation and closure of sites and promotion of multi-site certifications, the number of certifications obtained varies each year.

► Obtaining of ISO 14001 Certification

http://www.panasonic.com/jp/corporate/sustainability/pdf/eco_isolist2017.pdf

Environment: Environmental Risk Management



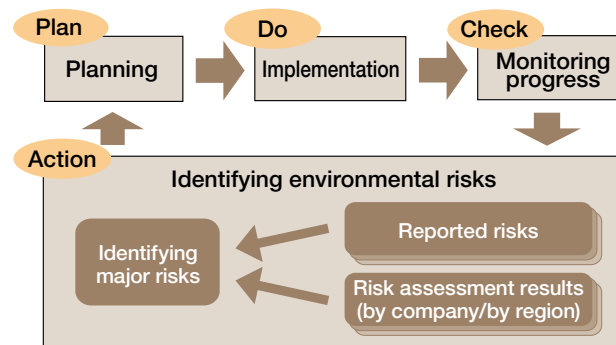
Group-wide Systems to Manage Environmental Risks

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 2018

Region	Environmental pollution					Other	Total
	Air	Water quality	Noise	Odor	Waste	Permission / Approval	
Global (including Japan)	2	1	0	0	1	1	5
(Japan)	(1)	(0)	(0)	(0)	(0)	(0)	(1)

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) establish general 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, acceptance 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 61 “Chemical Substances Management”).

In fiscal 2018, no violations concerning chemical substance management were discovered. We continue our efforts for thorough legal compliance.

Measures Against Soil and Groundwater Contamination

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 2018

Region	Number of sites that completed remedial measures	Number of sites currently taking remedial measures
Global (including Japan)	0	39
Japan	(0)	(33)

Initiatives for PCB Pollution

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

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

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 environmental performance data on energy, waste, chemical substances, and 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 our 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.

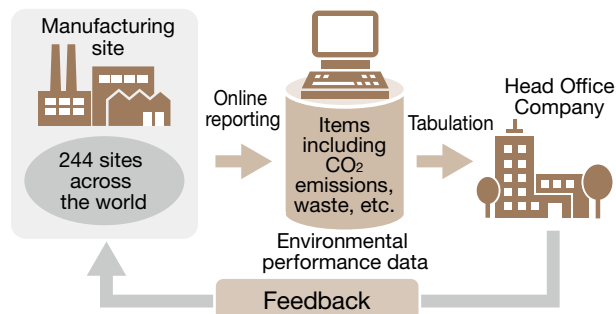
The Eco System (Factory) is also functioning as a scheme for sharing information on the status of compliance among sites across the world. In the event of complaints from local community residents or when a specific value exceeds ordinance-regulated levels, the person in charge at the business site enters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

As for products, legislation relating to chemical substances in products is becoming more stringent, and communication and disclosure of information in the supply chain are mandatory under the REACH Regulations.

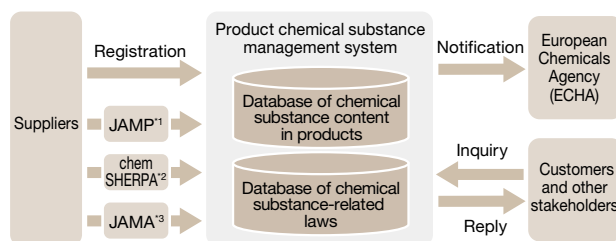
Panasonic has developed its own product chemical substance management system based on industry-standard information handling method in order to respond to a wide range of regulations and requirements. In January 2017, we renewed the system to adopt the chemSHERPA, the new format for information handling of chemical substances in products developed by the Ministry of Economy, Trade and Industry. With the expansion of our business, we also adopted JAMA/IMOS, the standard material data system for automotive industry, in order to respond to increasingly complicated and expanding product regulations.

Also, we aim to cut down CO₂ emissions during product use by improving the energy-saving performance of our 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

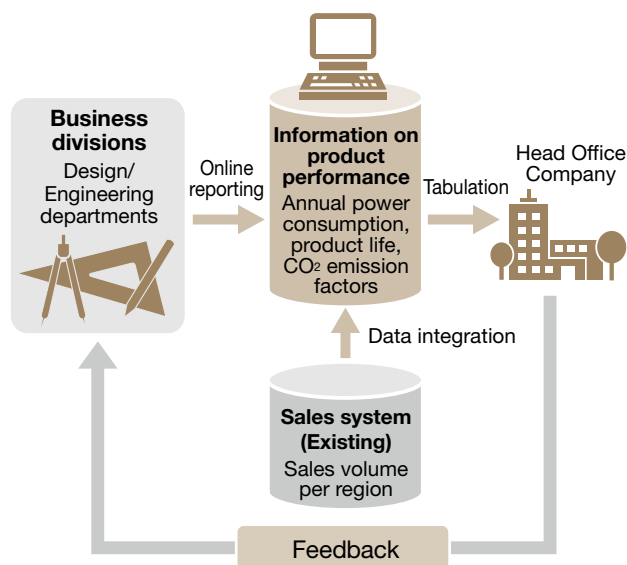


*1 Flow of information handling recommended by the Joint Article Management Promotion Consortium.

*2 New format for information handling of chemical substances in products developed by the Ministry of Economy, Trade and Industry

*3 Standard survey format for the automotive industry

Mechanism of the Eco System (Product)

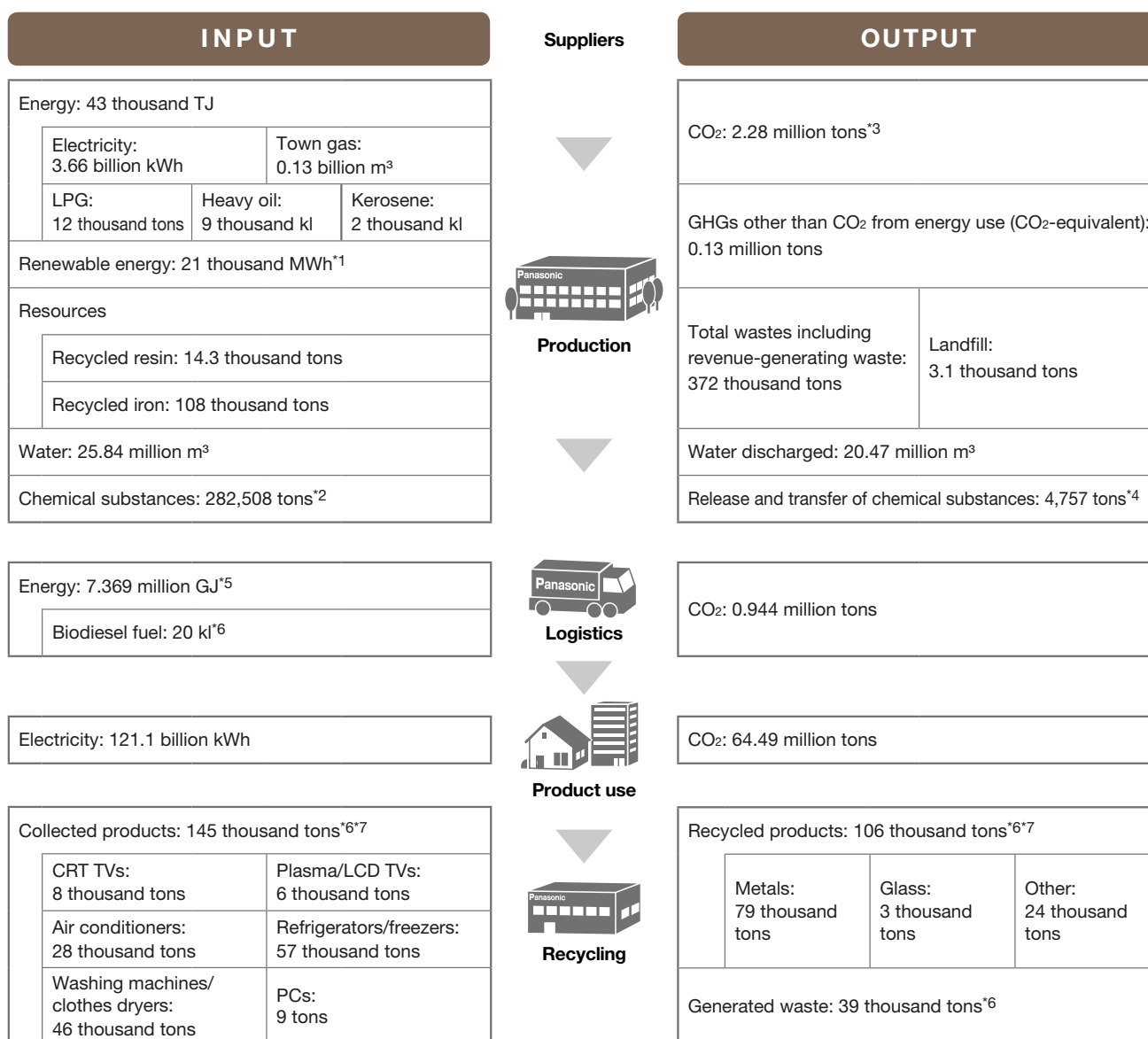


Environment: Overview of Environmental Impact and Environmental Accounting

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: 244 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)	
		FY2017	FY2018
Scope 1 *12		44	46
Scope 2 *13		197	195
Scope 3 *14	1. Purchased goods and services	1,291	1,294
	2. Capital goods	89	112
	3. Fuel- and energy-related activities	13	13
	4. Upstream transportation and distribution	81.7	94.4
	5. Waste generated in operations	1.8	1.8
	6. Business travel	2.3*15	2.6*15
	7. Employee commuting	3.6*15	3.6*15
	8. Upstream leased assets	1.0*15	0.8*15
	9. Downstream transportation and distribution	2.2*15	2.1*15
	10. Processing of sold products	–	–
	11. Use of sold products	6,350	6,449
	12. End-of-life treatment of sold products	122	127
	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 2018

Environmental conservation in factories	
Investments*16	3,990 million yen
Expenses*16,*17	112 million yen
Economic benefit	2,084 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 2018 (in physical terms)

Categories	Emission reduction	Reference indicator: environmental impact	
		Fiscal 2017	Fiscal 2018
CO ₂ emissions from production activities	0.02 million tons	2.30 million tons	2.28 million tons
Human Environmental Impact	4 thousand counts	526 thousand counts	522 thousand counts
Landfill of waste	0.0 thousand tons	3.1 thousand tons	3.1 thousand tons
Water consumption	1.48 million m ³	27.32 million m ³	25.84 million m ³

Fiscal 2018 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 2018

Electricity cost reduction from product usage (global)	
Reduced amount of electricity*18	84.8 billion kWh
Reduced electricity costs*19	1,727 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 36).

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

We are also engaged in R&D of new products that create environmental value. The R&D expenses related to environmental management were approx. 9.5 billion yen in fiscal 2018.

Environment: Eco-conscious Products and Factories

Initiatives for Eco-conscious Products (Green Products)

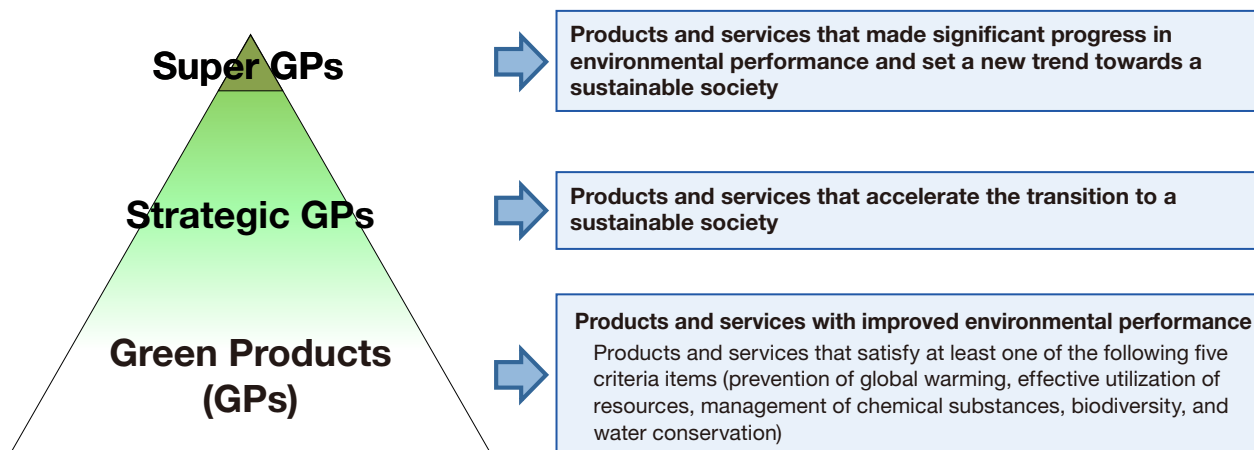
Panasonic uses a product assessment system that evaluates the environmental impacts of our products and services starting at the planning and design stages. Based on our criteria, we accredit our products and services that achieved high environmental performance as Green Products (GPs).

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 not only among our own products but also with competitors' products. In fiscal 2012, we took steps 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.

Starting in fiscal 2014, the existing Superior GPs^{*1} have been enhanced to designate products and services that accelerate the transition to a sustainable society as Strategic GPs. Of these products, products that particularly create new trends are certified as Super GPs.

^{*1} Products and services that showed superior 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.)

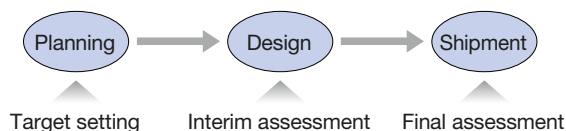
(2) Products and services whose promotion and dissemination lead to reducing environmental impact

(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.

Expanding the Scope of Strategic GPs

Panasonic has been devoting much of its energies into the creation of No. 1 eco-conscious products (Superior GPs) until fiscal 2013. In the course of business reorganizations such as expansion of B2B businesses, Panasonic has decided not only to pursue environmental performance of consumer products but also to work on further expansion of products and services that lead to the mitigation of environmental impact. Starting in fiscal 2014, the concept of Strategic GPs has been introduced for the creation of such products and services. In addition to alleviating impact on the global environment with top-level environmental performance, we aim to accelerate the drive to shift to a sustainable society through a variety of business operations, including those that are expected to reduce impacts through wider dissemination and those directly cutting impact in specified regions.

The sales ratio of Strategic GPs in fiscal 2018 accounted for approx. 21% 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 120% compared to fiscal 2016. Panasonic will work to further push up the ratio of Strategic GPs in the future.

The following three were named Super GPs for fiscal 2018: FA servo “MINAS A6” family; Data archiver “freeze-ray”; and Air quality improvement products with PM2.5 purification function.

FA Servo “MINAS A6” Family:

Optimized magnetic circuit and the adoption of unique motor structure to increase heat dissipation shortened the length of the body by 30% and lightened the weight by 20% compared with the conventional one, realizing reduction in size and weight at the industry’s highest level. In addition, Panasonic’s own control software algorithm technology and the application of a high-performance CPU drastically enhanced the responsiveness of a servo motor, which contributes to increase the production of machine and equipment that require high-speed positioning. Further, the industry-first wireless servo amplifier enabled remote adjustment.



FA Servo Motor and Servo Amplifier with wireless dongle

Data Archiver “freeze-ray”:

The “freeze-ray” data archiving system was developed in order to meet customers’ needs for long-term storage of large data in response to the development and application of IoT and AI technologies. Newly developed optical discs with triple in capacity compared with conventional discs and sophisticated robotics technology realized high-reliable and large data storage capacity of 1.9 PB at a maximum. There is no need for air conditioning costs of data storage, making it possible to consume less electricity. In addition, this optical discs made from long-lasting materials with environmental stress resistance enable to drastically reduce constant migration, contributing to saving resources.

<https://panasonic.net/cns/archiver/>



Data Archiver “freeze-ray”

Air quality improvement products with PM2.5 purification function:

This range of products improves indoor air quality by purifying outdoor air through filters with high dust collecting capacity during airing. In order to mitigate the effects of worsening PM2.5 in China, Panasonic developed ventilation products with a top-class purifying capacity with PM2.5 removal rate of 98%. The PM2.5 sensor in the products measures a condition of air release, air supply, and air circulation. Amid growing attention to air quality in response to an environmental policy in China, the sensor enables customers to easily see indoor and outdoor air environment by showing the condition on the liquid-crystal display. Additionally, the products are designed for low noise not to disturb a living environment.

<http://pesesgd.panasonic.cn/products/> (Chinese)



Wall-mounted energy recovery ventilator (ERV) unit

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 2018 is equivalent to 10.90 million rooms.

Examples of air purifiers are introduced in the following website.

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

Initiatives for Eco-conscious Factories (Green Factories)

Panasonic is working on Green Factories (GF) activities in its efforts to cut down environmental impact caused by manufacturing. Specifically, based on legal compliance, each factory develops a variety of plans for reducing environmental impact in production activities, focusing on CO₂ emissions, total waste generation, water consumption, and chemical substance releases and transfers. Progress control is implemented and improved through total emissions reduction and specific unit management to achieve both environmental impact reduction and business management.

The GF assessment system was introduced in fiscal 2011, aiming for further advancement by visualizing the activity levels at factories. Under the system, the factories evaluate themselves on a one-to-five 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. Comparing the progress with other sites and implementing relative assessment enables the factory to identify issues and voluntarily review/promote measures for improvement. In fiscal 2014, the system was upgraded to enable the addition of further assessment items to the existing 19, based on the Company's needs. For example, at Companies where additional items have been introduced in the area of compliance with environmental regulations and management methods, assessment questions such as whether voluntary standards on air and water quality of the facilities/air conditioners have been set at a level higher than what is required by law have been included to strengthen risk management at respective factories.

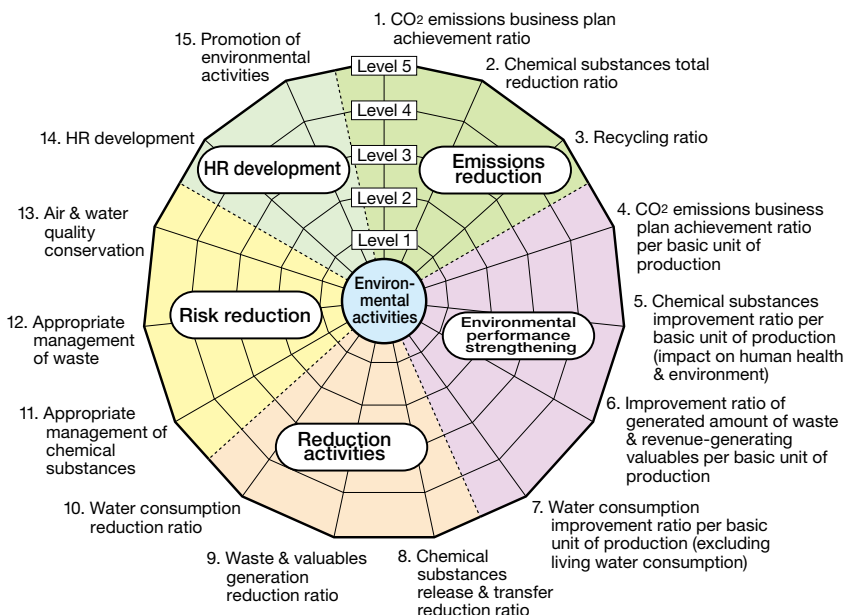
Additionally, information on global activities for environmental impact reduction, legislation, and social trends are shared through the Manufacturing Environmental Information Sharing Group. In Europe, Southeast Asia, China, and Latin America where our factories are located, regional information exchanges and competitions on best practices to reduce environmental impact (presentation of awards for best practices and activities for group-wide expansion) are held as needed. We are promoting GF activities suited to the issues of each region to boost and accelerate efforts and actions.

Furthermore, the best practices regarding CO₂ emissions, waste, chemical substances, water, etc. at respective factories are registered and shared in the Before/After (BA) chart search system accessible on a global scale, to enable utilization in other factories. In fiscal 2018, in order to assess and revise the existing support tools and manuals for energy saving, we have prepared a check sheet for energy-saving potential to visualize and evaluate the efforts for energy saving as well as to find efficient approaches, expanding this activity to our business sites worldwide to reinforce and improve our energy-saving practices. Also, as a new activity to ensure our compliance with local environmental laws in China and Southeast Asia where a lot of our business sites incased, introduced a cross-company mutual audit, through which the Panasonic factories operated in the same area conduct an environmental audit mutually beyond the companies. We are further improving our eco-conscious approach utilizing know-how accumulated across the Group.



Cross-company mutual environmental audit

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

We are working on optimal management of SOx (sulfuric oxide) and NOx (nitric oxide), the principal causes of air pollution, as well as the indicators of water contaminant concentration BOD (biochemical oxygen demand) and COD (chemical oxygen demand).

SOx/NOx management example: Panasonic Eco Solutions Interior Building Products Co., Ltd. Gunma factory

	FY	Facility name	Average measured	Maximum measured
SOx(Nm ³ /h)	2016	Boiler No. 1	0.091	0.110
		Boiler No. 3	0.067	0.067
		Boiler No. 5	0.062	0.062
	2017	Boiler No. 1	0.047	0.073
		Boiler No. 3	0.042	0.042
		Boiler No. 5	0.023	0.023
	2018	Boiler No. 1	0.038	0.054
		Boiler No. 3	0.029	0.029
		Boiler No. 5	0.032	0.032

Boiler No. 1: Legal limit: 23.44, Voluntary limit: 4.00, Measuring frequency: Twice a year

Boiler No. 3: Legal limit: 1.12, Voluntary limit: 0.50, Measuring frequency: Once a year

Boiler No. 5: Legal limit: 0.61, Voluntary limit: 0.50, Measuring frequency: Once a year

The three boilers indicated above are those that resulted in high measured values in the respective fiscal year

	FY	Facility name	Average measured	Maximum measured
NOx(ppm)	2016	Boiler No. 1	295	320
		Boiler No. 3	100	100
		Boiler No. 5	100	100
	2017	Boiler No. 1	270	310
		Boiler No. 3	100	100
		Boiler No. 5	79	79
	2018	Boiler No. 1	210	240
		Boiler No. 3	94	94
		Boiler No. 5	83	83

Boiler No. 1: Legal limit: 350, Voluntary limit: 320, Measuring frequency: Twice a year

Other boilers: Legal limit: 250, Voluntary limit: 180, Measuring frequency: Once a year

The three boilers indicated above are those that resulted in high measured values in the respective fiscal year

BOD/COD management example: Panasonic Ecology Systems Co., Ltd. Head Quarter factory

	FY	Facility name	Average measured	Maximum measured
BOD(mg/l)	2016	Wastewater treatment facility/Integrated wastewater outlet	2.2	4.3
	2017	Wastewater treatment facility/Integrated wastewater outlet	1.7	4.5
	2018	Wastewater treatment facility/Integrated wastewater outlet	2.1	3.0

Legal limit: 25.0, Voluntary limit: 16.0, Measuring frequency: Once a month

	FY	Facility name	Average measured	Maximum measured
COD(mg/l)	2016	Wastewater treatment facility/Integrated wastewater outlet	3.8	7.6
	2017	Wastewater treatment facility/Integrated wastewater outlet	3.5	8.0
	2018	Wastewater treatment facility/Integrated wastewater outlet	4.0	6.7

Legal limit: 25.0, Voluntary limit: 16.0, Measuring frequency: Once 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. To achieve these targets, it is essential to cut CO₂ emissions to the greatest extent possible, and companies are required to make further contributions to reducing CO₂ emissions.

In association with the announcement of the Environment Vision 2050 (see page 13) focusing on energy, we have set the reduction targets for CO₂ emissions to be achieved by 2030 and 2050 : reducing CO₂ emissions from our business activities by 30% by 2030 compared to that of fiscal 2014, achieving zero emission by 2050, and reducing CO₂ emissions from our product use by 30% by 2030 compared to that of fiscal 2014, in line with the goal set by the Paris Agreement. The targets have been approved as Science Based Targets (SBT^{*1}) by the SBT initiative in October 2017. We are currently working towards CO₂ emissions reduction from our business activities and product use in order to achieve these targets.

^{*1} SBT is science-based reduction targets for greenhouse gas emissions set to achieve the goal which keeps global temperature increase below 2°C compared to pre-industrial temperatures.

Size of Contribution in Reducing CO₂ Emissions through products and services

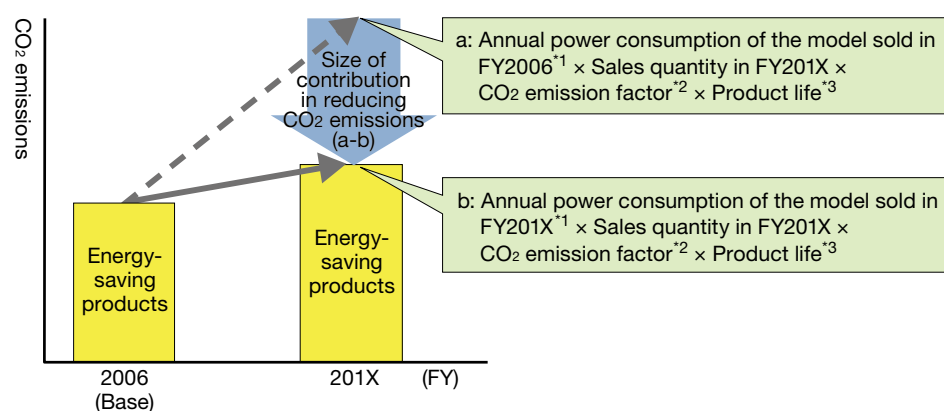
Panasonic has introduced a unique indicator “size of contribution in reducing CO₂ emissions” to accelerate emissions reduction, targeting our products (for energy saving and energy creation). The size of contribution in reducing CO₂ emissions is defined as the amount achieved by deducting the actual 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



^{*1} For each product category, the model that was sold in the largest quantity in the region was selected.

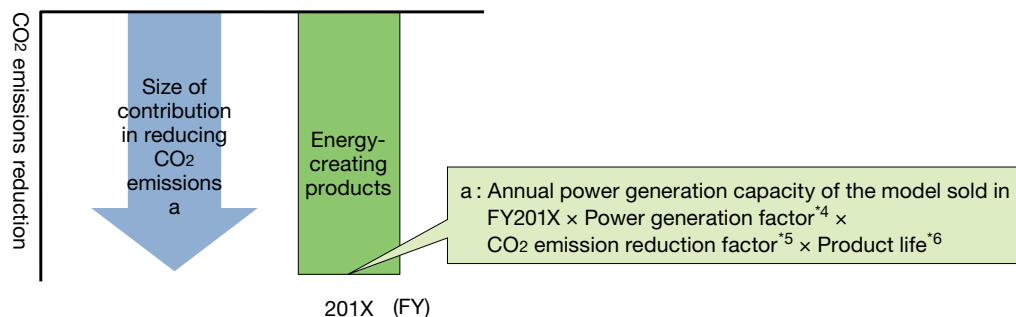
^{*2} Regional CO₂ emission factors (kg-CO₂/kWh) used: 0.410 (Japan); 0.487 (Europe); 0.579 (North America); 0.740 (China & Northeast Asia); 0.927 (India & South Asia); 0.527 (Southeast Asia & Oceania); 0.332 (Latin America); and 0.599 (Middle East & Africa).

^{*3} 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



^{*4} 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.

^{*5} For photovoltaic power generation: 0.360kg-CO₂/kWh (Source: Voluntary Rules on Indication (2010) by the Japan Photovoltaic Energy Association).

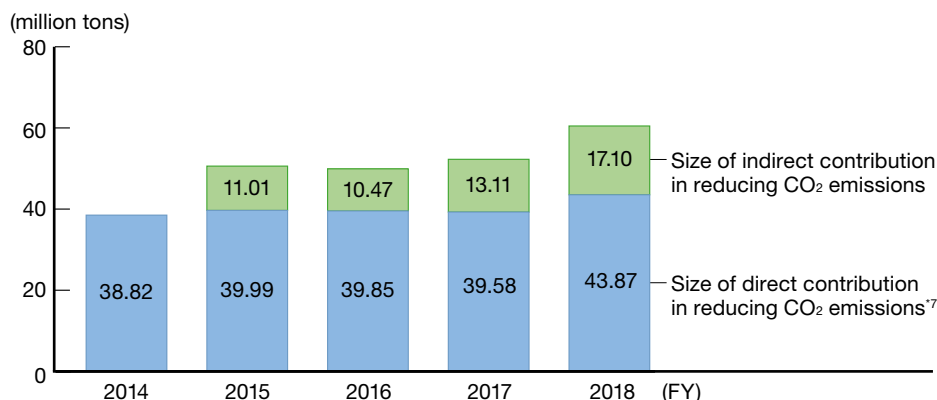
^{*6} For photovoltaic power generation: 20 years.

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 60.97 million tons in fiscal 2018. Of this, direct contributions amounted to 43.87 million tons, and indirect contributions to 17.10 million tons.

Size of Contribution in Reducing CO₂ Emissions through Products and Services



^{*7} 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 2018 was 38.65 million tons due to steady sales of home appliances in overseas, especially air conditioners in China. In the breakdown of the size of contribution in reducing CO₂ emissions by global product category, 84% was from air conditioners, lighting equipment, 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 2018 is estimated to be approx. 64.49 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 2018 marked 44% due to 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 2018 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}

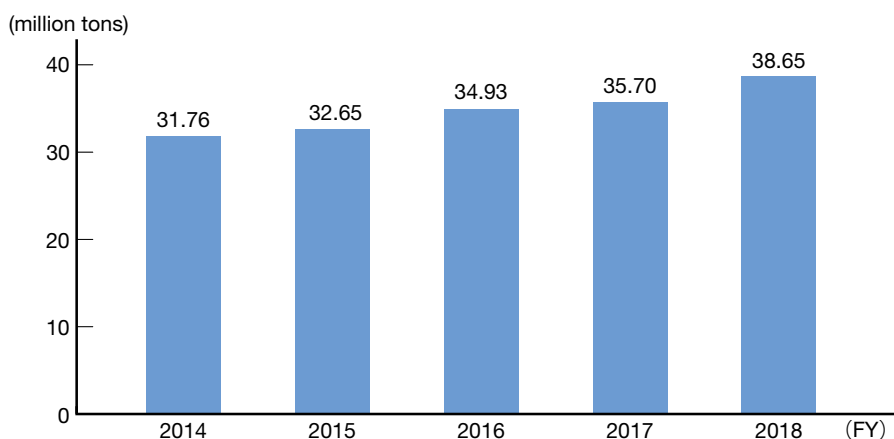
^{*2} Household air conditioners, commercial air conditioners, fluorescent lamps, LED lamps, household refrigerators, commercial refrigerators, LCD TVs, washing/drying machines, fully-automatic washing machines, clothes dryers, dish washer and dryers, IH cooking heaters, EcoCute, bathroom ventilator-driers, humidifiers, dehumidifiers, air purifiers, extractor fans, vending machines, 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.

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

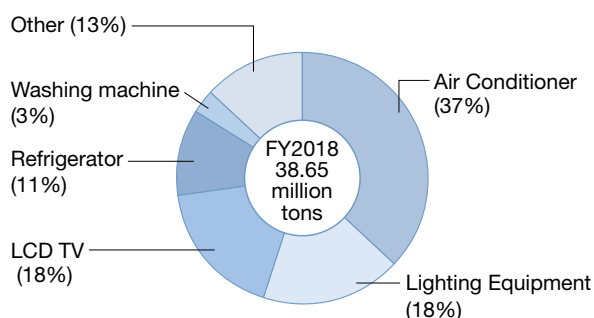
^{*4} Number of years during which spare parts for the product are available (defined by Panasonic).

^{*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).

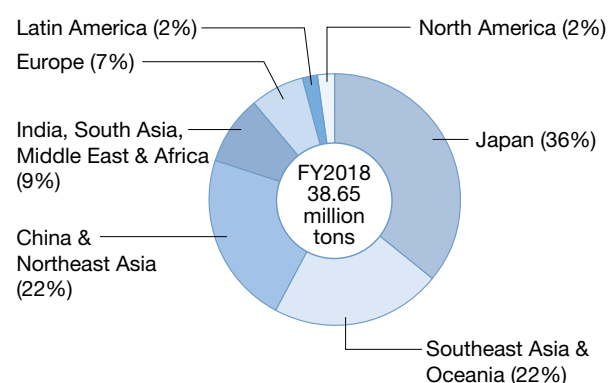
Size of Contribution in Reducing CO₂ Emissions through Energy-saving Products



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)



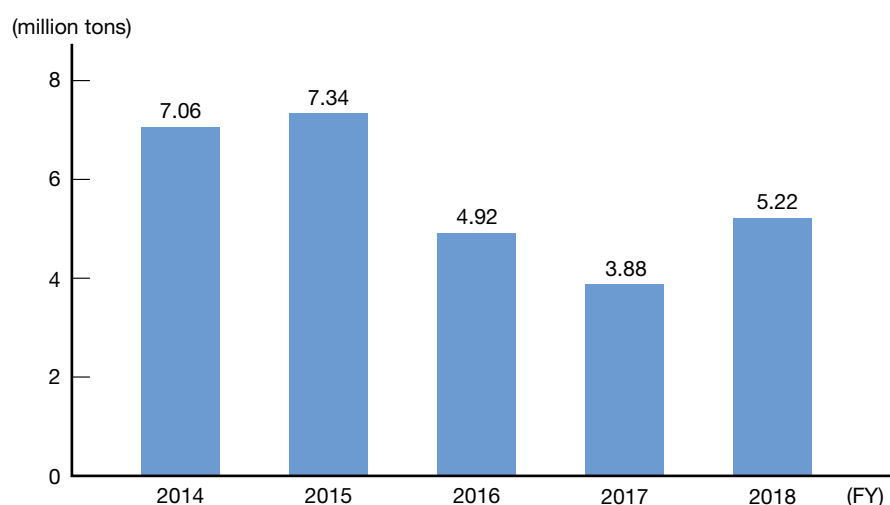
Energy-creating Products

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 2018 was 5.22 million tons due to the expansion of global demand for photovoltaic power generation solar panels. By region, Japan accounts for approx. 45%.

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 2018 were 382,000 MWh from household fuel cells and 4.51 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 CO₂ reduction through installation in offices, homes, etc. In addition, our automotive lithium-ion batteries are one of the key devices that help promote the popularization of eco-conscious cars. Panasonic is actively engaged in the development of energy-storing products.

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 2018 were 178%.

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

<http://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 2018 was 28%.

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 2018 were three locations (531 lots).

More details on reducing CO₂ emissions at our factories can be found on pages 46-47. For details on reducing CO₂ emissions in logistics, see pages 42-45.

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

<http://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 characteristics, as impacts of climate change vary according to the region.

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

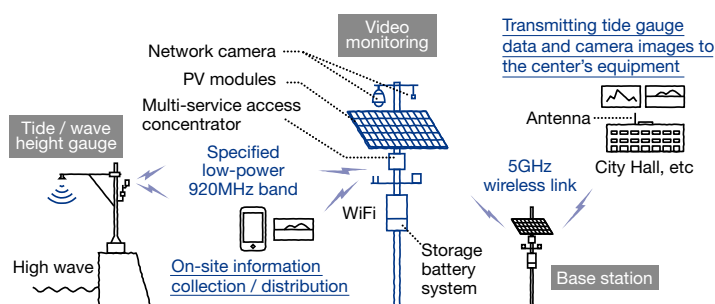
- (1) Efforts to reduce the impact of climate change through our products, services, and solutions; and
- (2) Efforts to reduce the impact on our corporate activities

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 continuously 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.

Development of Green Air-Conditioners is underway in cooperation with other companies in time for the 2020 Olympic and Paralympic Games in Tokyo. 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 cool 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)

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

► Demonstration experiment of Green Air-Conditioner at a bus stop to be a cool spot (Japanese)

<https://news.panasonic.com/jp/press/data/2017/07/jn170721-1/jn170721-1.html>

As for (2), the importance lies in first identifying 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. We are currently working on assessing water-related risks, and we plan to examine necessary measures based on the assessment results. For more details, see the chapter on Water Resource Conservation (pages 59-60).



Demonstration experiment of Green Air-Conditioner at Shimbashi Station in Tokyo from August to September 2016.

Environment: Global Warming Prevention at Factories



Reducing CO₂ Emissions through Production Activities

Panasonic has been working to reduce CO₂ emissions in factories with the aim to contribute to climate change mitigation and reinforce our environmental management, such as by improving production efficiency in factories and reducing energy costs.

Since fiscal 2011, we have been using our unique indicator, the size of contribution in reducing CO₂ emissions, to improve our energy management capabilities and reduce the CO₂ emissions per basic unit, working to maximize the size of contribution in reducing CO₂ emissions in production activities. In revising Green Plan 2018, our Environmental Action Plan, we changed the indicator for CO₂ reductions in our production activities to "CO₂ basic unit," with the target for fiscal 2019 to exceed the fiscal 2014 level by at least 5% (more than 1% annual reduction on average).

In addition to individual efforts implemented in each factory, energy-saving and CO₂ emission reduction measures including horizontal introduction of good examples across the company, specialist training, and CO₂ ITAKONA initiatives^{*1} are promoted. We are also promoting the introduction of photovoltaic power generation to achieve our fiscal 2019 target of "at least 10,000 MWh of in-house renewable energy adoption." Our investment in CO₂ emissions reduction in fiscal 2018 was 3.5 billion yen^{*2}.

As a result, the CO₂ basic unit in fiscal 2018 reduced by 14% compared to fiscal 2014. Not only the basic unit but also the total amount of energy consumption is reducing steadily.

Furthermore, we are shifting the lighting to LED at our factories, offices, showrooms, and other buildings. We plan to complete this transition on a global scale by the end of fiscal 2019^{*3}.

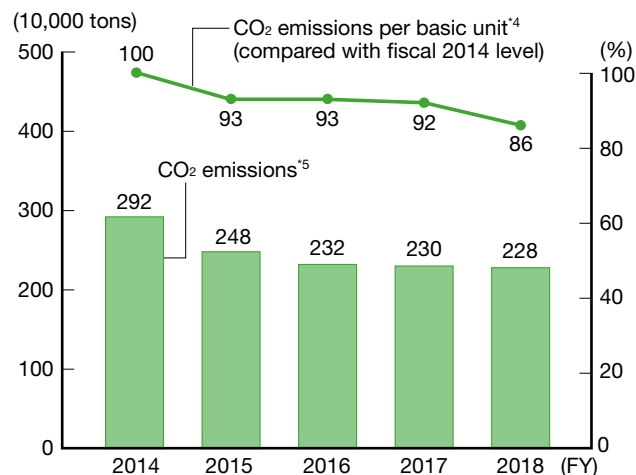
Panasonic is a member of Keidanren's Commitment to a Low Carbon Society, a voluntary action program for global warming prevention across the entire electric and electronic industry, with the targets set aiming at 2030. Specifically, we are steadily implementing energy-saving measures in factories and offices in order to achieve the goals set by the industry in Japan, aiming improvement in energy consumption rate in factories and large offices at an annual rate of 1% on average towards 2030.

^{*1} ITAKONA is a term unique to Panasonic which refers to a process by which we review stages prior to production to study raw materials to ensure waste is minimized and quality is maintained. We apply a similar review process for our CO₂ emissions reduction efforts and call these our CO₂ ITAKONA initiatives. The activity is aimed at discovering energy conservation measures from a new viewpoint through continuous display of energy consumption levels (energy consumption per basic unit), and analyzing the factors that influence the variables in each basic unit.

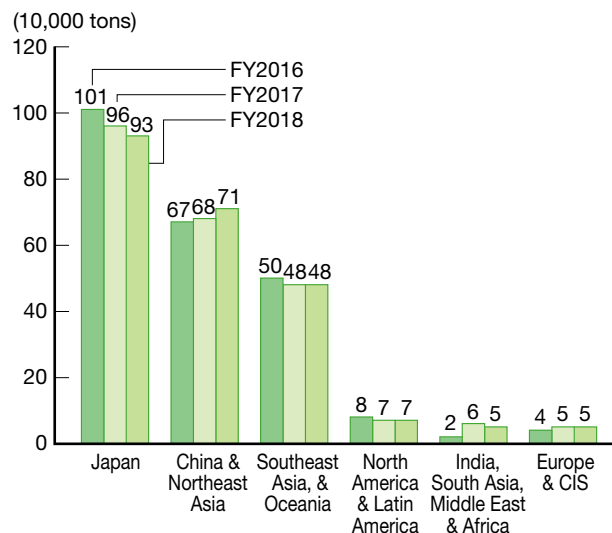
^{*2} Includes all investments concerning CO₂ emissions reduction. Differences or appropriate portions are not calculated.

^{*3} Installable sites

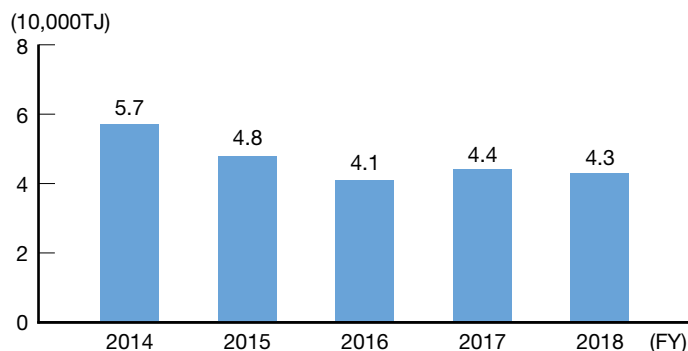
CO₂ Emission in Production Activities and CO₂ Emission Per Basic Unit



CO₂ Emission in Production Activities (by region)



Energy Consumption in Production Activities



*4 Calculated using the weighted average 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. Basic unit of fiscal 2014 was converted into an index as 100.

*5 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 (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 and 2018), total CO₂ emissions will be 3.19 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, and 2.47 million tons for fiscal 2018. 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 the reduction of CO₂ emissions at our factories, it is important to track the energy consumption of each factory and the effects of specific emissions reduction measures to visualize reduction effects. To date, we have introduced more than 40,000 measurement systems and Factory Energy Management System (FEMS) at all of our global manufacturing sites. This CO₂ reduction was based upon promotion of the METAGEJI (Meter and Gauge)^{*6} initiative, which visualizes and analyzes energy consumption.

Based on this scheme, the CO₂ ITAKONA initiative has been implemented since fiscal 2011. The activity is aimed at discovering energy conservation measures from a new viewpoint through continuous display of energy consumption per basic unit of production, and analyzing the factors that influence the variables in each basic unit.

In order to accelerate action under the CO₂ ITAKONA initiative, we developed the SE-Navi software that displays energy and production data simultaneously and analyze energy consumption per basic unit. The “energy-saving navigation function” of this software quantitatively extracts energy loss per device as well as loss per factor, based on the automatic energy loss analysis results through CO₂ ITAKONA analysis. With this function, energy-saving efforts prioritizing processes with large energy loss have been made easier.

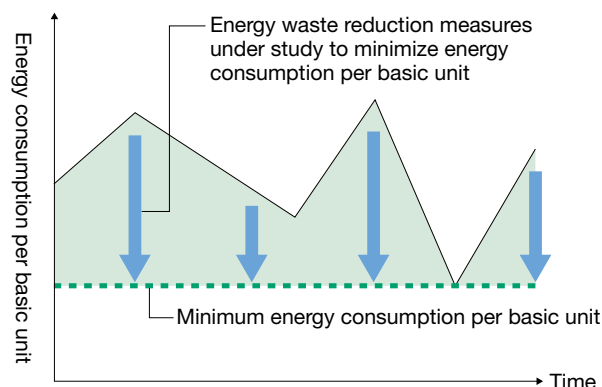
Conventionally, energy consumption and other data had been analyzed manually by specialists in order to develop energy conservation measures. This function automatically analyzes data and enables users to consider energy conservation measures based on the energy-saving measure database. Not only did this contribute to a reduction in working time but also to the identification of energy-saving measures without the assistance of specialists.

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

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

*6 METAGEJI is a term unique to Panasonic which refers to visualizing energy consumption and implementing measurable reduction initiatives by introducing measurement instruments, such as meters and gauges.

Concept of the CO₂ ITAKONA Initiative



To continuously study mechanisms for CO₂ reduction, the Factory CO₂ Reduction Working Group was set up in fiscal 2017 as a corporate-wide program and has continued its activities in fiscal 2018. One of the working group's activities is the exhaustive use of measuring instruments and FEMS previously introduced to bring greater results of CO₂ reduction. The working group introduces and promotes advanced CO₂ emissions reduction technologies and measures as model trials in order to accumulate knowledge and results for taking further CO₂ reduction measures. In model plants, measurement of physical data of main processes such as temperature, humidity, and differential pressure, was added to enable multifaceted data analysis and to bring further depth to our energy saving efforts in major manufacturing process, as well as pressure difference and other aspects. In fiscal 2017, Uji factory of Automotive & Industrial Systems Company in Kyoto, analyzed differences in temperature, humidity, and differential pressure between the outside and inside of manufacturing processes using the existing FEMS, leading to change the air supply system from intake of external air to inner air circulation. As a result of this improvement, they successfully reduced the annual CO₂ emissions by 80 tons. In order to enhance the mechanism and efficiency of this system, the factory focused on improving the processes that require fine temperature and humidity control to ensure product quality in fiscal 2018. They gained the prospect of reducing CO₂ emissions while retaining quality by building a new algorithm into the FEMS to control the dew point and electricity consumption. Activities to assess the effects of these energy -saving measures and expand its application will take place from fiscal 2019 onwards.

Factory CO₂ Reduction Working Group

Utilization of Renewable Energy

In order to reduce CO₂ emissions, Panasonic actively and globally promotes the adoption of renewable energy suitable to the characteristics of the region, such as photovoltaic power generation. The large scale installation of a photovoltaic power generation system took place in China in fiscal 2018. In February 2017, Panasonic Appliances (China) Co., Ltd (PAPCN), located in the Panasonic Industrial Park in Suzhou, installed 3.5 MW photovoltaic power generation system, which is one of the largest in scale for a single manufacturing company in our Group. The photovoltaic power generation modules were set up on the rooftop of the two factory buildings and bicycle parking garages. These modules can generate renewable energy that covers approximately 20% of the total annual power demand of PAPCN, and electricity produced by the system is supplied to our other manufacturing companies in the Suzhou Industrial Park.

Panasonic Manufacturing (Beijing) Co., Ltd. (PMFBJ) installed 0.6 MW photovoltaic power generation system in July 2017. This system has been installed through the solution business with the Panasonic HIT™ photovoltaic modules offered by Panasonic Solution Service China Company, which delivers Panasonic product solution business in China. In addition to the production of photovoltaic modules, we offer the solution business utilizing the modules to promote the utilization of renewable energy.

As a result of such efforts, our in-house renewable energy adoption across the entire company*7 reached 21,000 MWh*8 in fiscal 2018, and we have exceeded our target under the Green Plan 2018, our environmental action plan, revised in fiscal 2017, which was to reach 10,000 MWh in the use of in-house renewable energy by fiscal 2019.

Adoption of photovoltaic power generation system is also underway at respective sites on a global scale in addition to those mentioned above, and we aim for completion at all sites considered feasible for adoption by the end of fiscal 2021.

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.

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

*7 Includes renewable energy utilization at non-production sites.

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



Photovoltaic power generation system in PAPCN



Photovoltaic power generation system in PMFBJ

Approach towards the CO₂ Emissions Trading Scheme in China

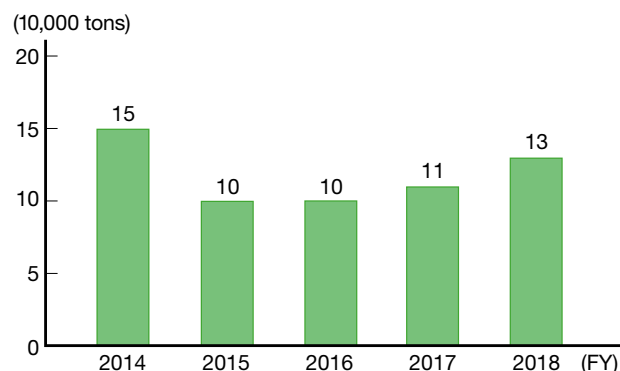
In China, the Emissions Trading Scheme (ETS) for more than 1,700 companies in the power industry has been conducted from December 2017. Although Panasonic is not included in the list of these companies as of April 2018, we have a lot of business sites in China. By taking advantage of our ongoing initiatives for the reduction of CO₂ emissions in manufacturing, we continue to take measures for effects of the ETS on our business and our potential inclusion in the light of risks and opportunities.

Reducing the Emissions of GHGs Other than CO₂ from Energy Use

GHGs other than CO₂ from energy use emitted by Panasonic include hydrofluorocarbons (HFCs) used in air conditioner factories as refrigerants for products and nitrogen trifluoride (NF₃) used as a cleaning gas in LCD factories. To reduce these gases, we implement a variety of measures, such as preventing leakage of refrigerants, recovering waste refrigerants, decomposing at external parties, and installing removal devices.

GHG emissions other than CO₂ from energy use (CO₂-equivalent; hereinafter the same) in fiscal 2018 amounted to 130,000 tons, which was 20,000 tons more than the previous fiscal year.

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

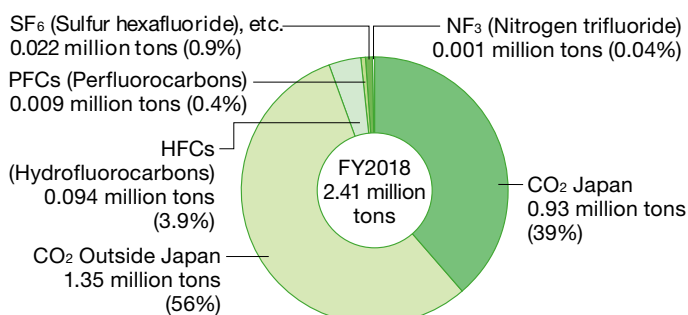


Breakdown of Total GHG Emissions (by gas and by scope)

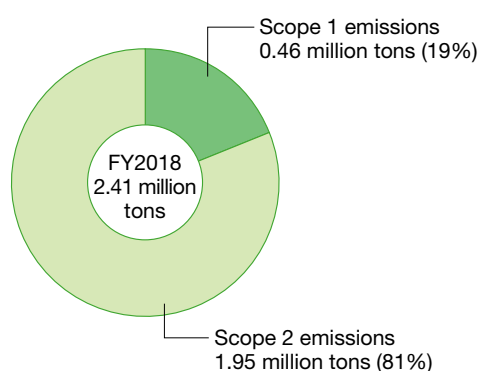
Our GHG emissions, including emissions from energy sources and other sources, reached 2.41 million tons in fiscal 2018, the breakdown being 19% for Scope 1 emissions^{*9} and 81% for Scope 2 emissions^{*9} (see page 29 for Scope 3 emissions).

^{*9} 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



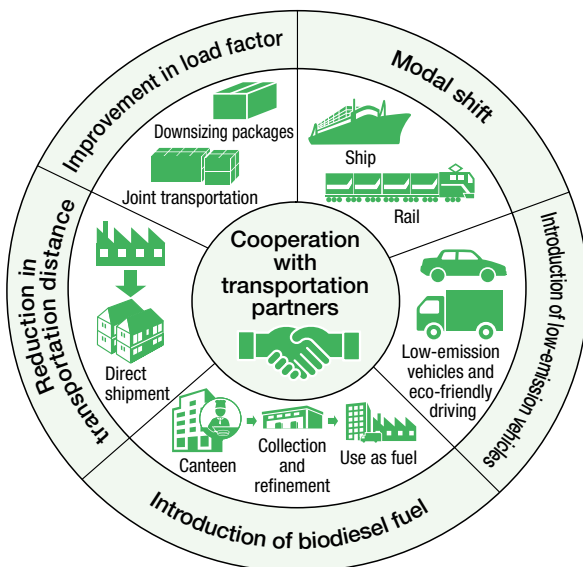
Reducing CO₂ Emissions in Logistics

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. When we revised Green Plan 2018, our Environmental Action Plan, in 2016, we set the targets of reducing CO₂ emissions per basic unit^{*1} by at least 1% year-on-year, and by 5% from the fiscal 2014 level by fiscal 2019, focusing on modal shift, introduction of low-emission vehicles and biodiesel fuel, reduction in transportation distances, and improvement in load factor.

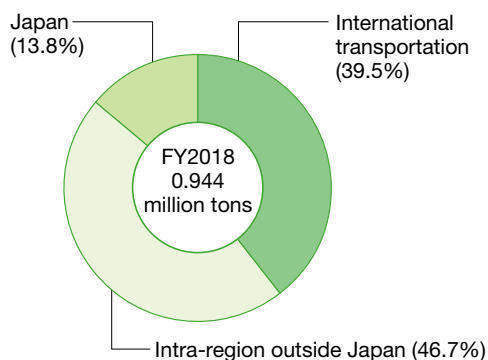
In fiscal 2018, our global CO₂ emissions from logistics activities came to 0.944 million tons across the world, of which international transportation was 0.373 million tons, and domestic transportation within Japan was 0.131 million tons. CO₂ emissions per basic unit of transportation within Japan reduced by 4.6% from the fiscal 2014 level.

^{*1} CO₂ emissions per transportation weight.

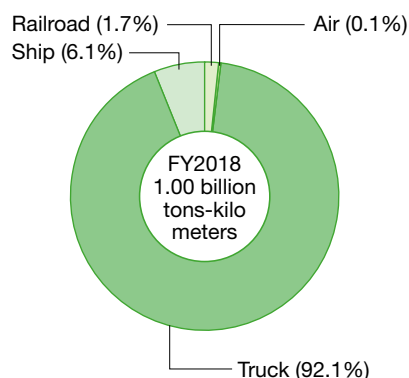
Major Initiatives Taken for Green Logistics



CO₂ Emissions from Logistics



Transportation Amount by Transportation Method (Japan)



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 81 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)

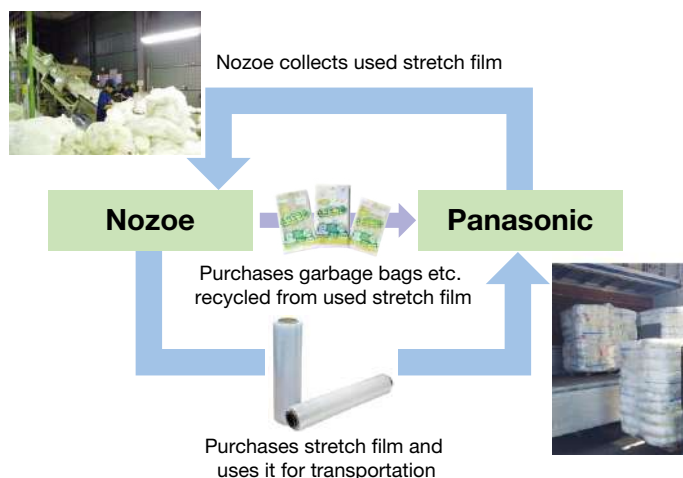
Panasonic promotes transforming waste cooking oil collected from its business sites into biodiesel fuel and utilizing it for vehicles used in production, procurement, and marketing activities. Since fiscal 2010, we have been using 100% biodiesel fuel for the joint transportation with the Asahi Shimbun Company in the Tokai and Tokyo Metropolitan areas to enhance further usage of biodiesel fuel. Biodiesel fuel usage in fiscal 2018 was 19,664 liters. We aim to increase the biodiesel fuel usage in vehicles that run only in private premises, such as forklift trucks.

Recycling of Stretching Film Used in Transportation

As an effort to reduce logistics waste, we jointly entered into a full recycling scheme for used stretch film with Nozoe Industry INC. (Nozoe) in fiscal 2015, and are continuing the initiative in fiscal 2017. The stretch film used for our transport was previously discarded, but is now recycled by Nozoe as a material for plastic garbage bags, which we then purchase.

In fiscal 2018, in response to the prohibition of imports of waste plastic by China in the end of 2017, our operation sites which have not collaborated with Nozoe started working with the firm. The beginning of full-scale operation of Nozoe's recycling factory in Saitama Prefecture led to expand our recycling scheme for used stretch film in Kanto region, and a total of 360 tons of stretch film was recycled, which is increased by 198% over the previous year. We plan to increase the purchase of Nozoe's recycled products in fiscal 2019. We continue to make effective use of used stretch film and reduce logistics waste.

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 926 tons per year in fiscal 2018.

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



Recycling-oriented Manufacturing

With swift economic growth advancing worldwide and bringing heightened attention to concerns over resources, the sourcing of new resources and materials not only significantly impact the environment, but mineral resource depletion and material pricing run-up have also become issues.

To address these concerns, and as a responsibility of a manufacturer that uses a large volume of resources, Panasonic has been propelling Recycling-oriented Manufacturing under the theme of recycling resources since 2010, placing it as an important issue along with CO₂ emissions reduction. Under the Green Plan 2018, which was revised in 2016, increase in the usage amount of recycled resin and higher factory waste recycling rates continue to be promoted, and realization of recycling-oriented manufacturing is being further implemented through efforts such as expanding the creation of recycling-oriented products. Recycled resin, in particular, is being promoted with a target figure to ensure increase in usage.

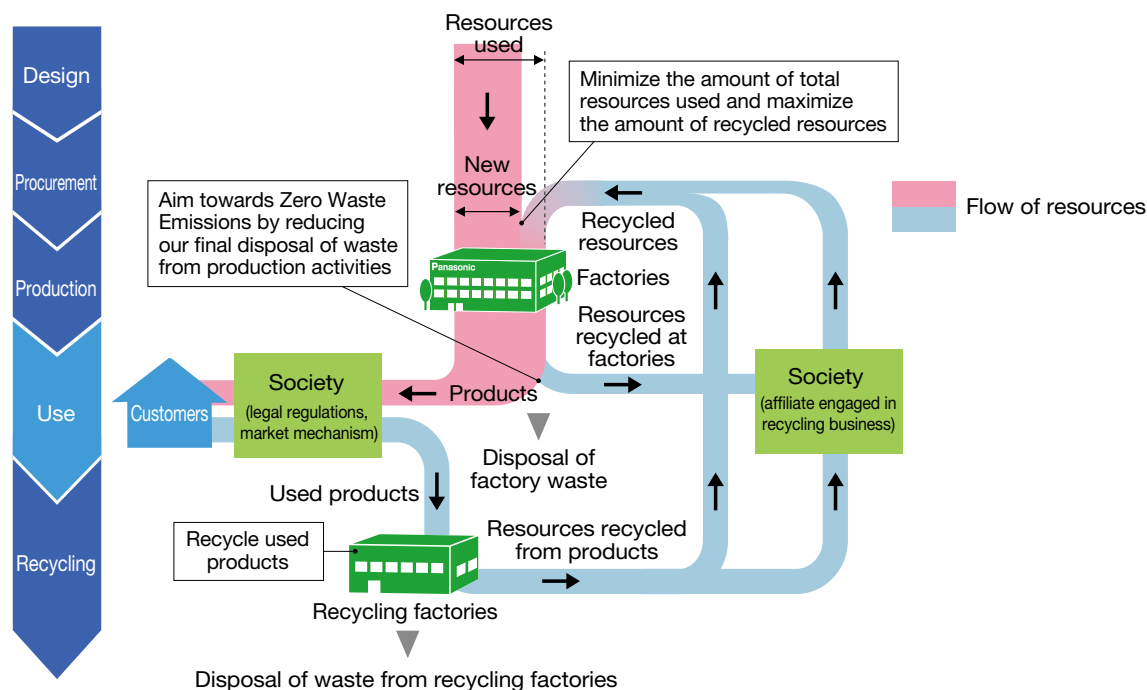
Recycling-oriented Manufacturing has three aspects under this concept, which are to minimize the amount of total resources used and maximize the amount of recycled resources, aim towards Zero Waste Emissions by reducing our landfill disposal of waste from production activities, and recycle used products.

We have been working on the weight reduction and downsizing of products to minimize the total resources used, and are continuing to increase resource collection through introduction of new recycling technologies and systems to expand the usage of recycled resources.

Furthermore, by reducing the amount of factory waste and thoroughly recycling resources from waste, we are working to eliminate the amount of waste treated in landfills to as close to zero.

In addition to utilizing the resources that were previously wasted across the entire production process, we have established a process where resources are recovered from used products, recycled into products, and further delivered to customers, to realize sustainable business activities throughout the product life cycle.

Goal of Recycling-oriented Manufacturing



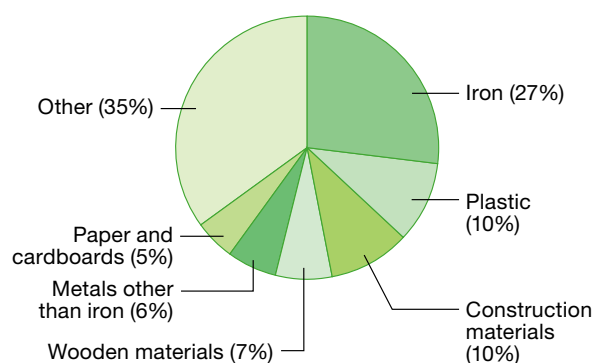
We use many kinds of resources, including iron (27% of total resources used) and plastic (10% of total resources used), due to our wide range of products and businesses, from home appliances, components such as semiconductors and batteries, to housing. In Recycling-oriented Manufacturing, it is important to promote the reduction of total resources used, and at the same time develop a recycling process according to the specific characteristics of each resource for expansion of our usage of recycled resources.

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. 14,300 tons of recycled resin in our products in fiscal 2018 by identifying the characteristics required in the materials to be used, securing a stable supply, researching how to recycle it in production, and developing new recycling technologies. Total usage of recycled resin since fiscal 2015 has reached approx. 64,900 tons. Although we have achieved the target under the Green Plan 2018, we will continue to work on further reducing total resources used and maximizing utilization of recycled resources, to maintain and improve our recycled resource utilization ratio.

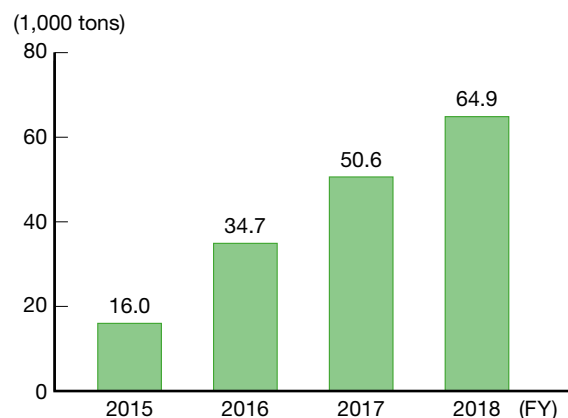
In addition, as for the recycling rate of waste at factories, we had traditionally set different targets for Japan and countries outside Japan according to the relevant local infrastructures. However, with the awareness of the importance of zero waste emission activities, we have set a globally standardized 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} was 99.1% for fiscal 2018 against the target of 99% or more in fiscal 2019. (see page 53)

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

**Breakdown of Total Resources Used in Fiscal 2018
(by category)**



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



Environment: Reduction in Resources Use 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 32), 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.

<http://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

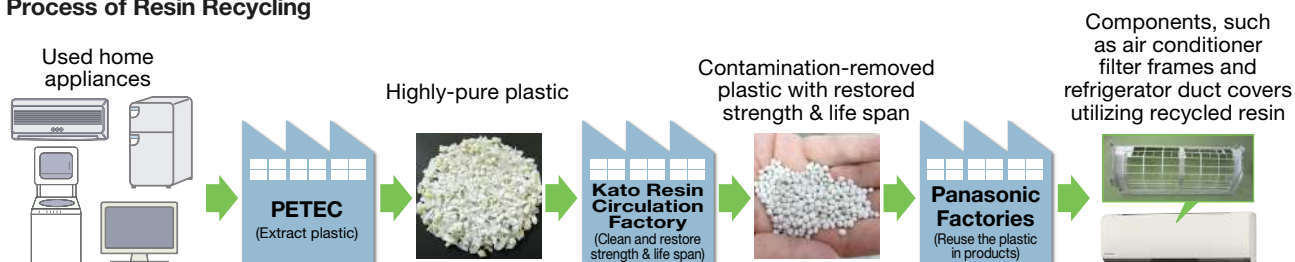
http://www.panasonic.com/global/corporate/sustainability/eco/resource_sp.html



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

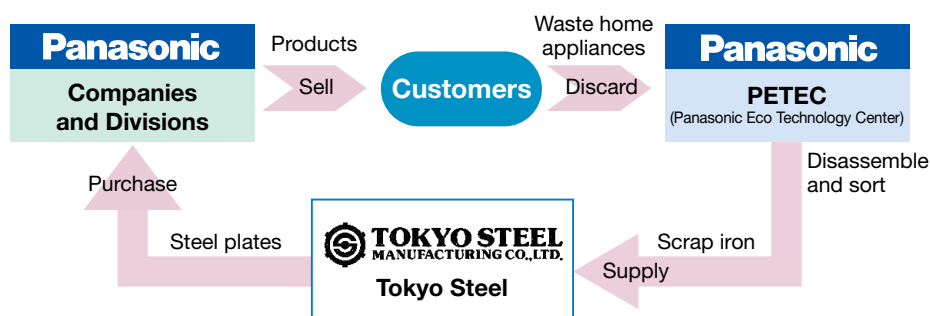
In fiscal 2018, development of high-performance materials was focused, including the recycling of flame retardant PS from the back covers of TV sets and flame retardant PP from nonwoven fabric. A recycling method was also developed for PPGF (PP containing short glass fibers) from drum-type washing machines that had not been recycled in the past into talc-filled PP with high rigidity.

Recycled resin quality-assured by Kato Plastic Recycling Factory are being used in our manufacturing factories, and depending on the resin type, reborn as internal parts of air conditioners, IH cooking heaters and refrigerators.

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 2018, 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. We will continue our initiatives to achieve the factory waste recycling rate target of 99% by fiscal 2019.

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.

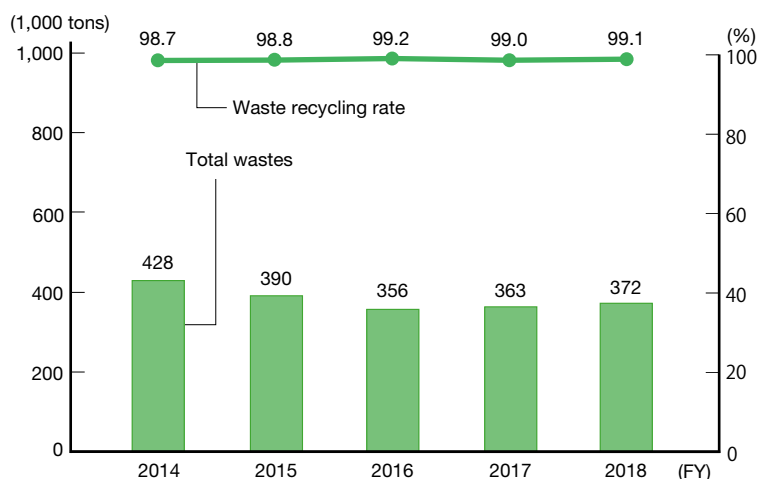
As measures to reduce the amount of landfill of waste and revenue-generating waste, we constrain the amount of waste materials that are particularly difficult to recycle, such as thermosetting resin. We are also strictly adhering to waste sorting practices in production processes to further expand the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

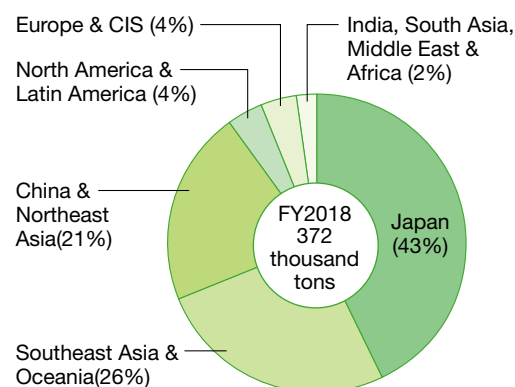
^{*1} Definition by Panasonic: Recycling rate of 99% or higher. Recycling rate = Amount of resources recycled/(amount of resources recycled + amount of landfill).

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

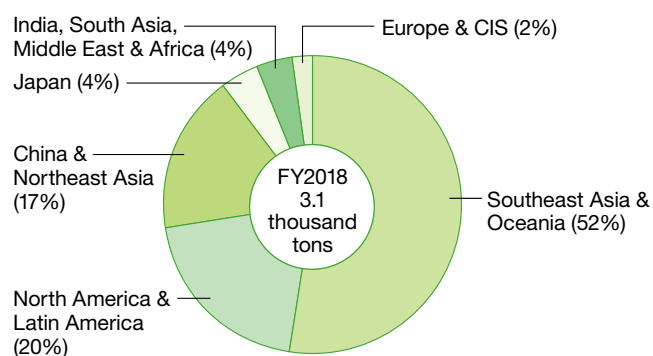
Amount and Recycling Rate of Total Wastes Including Revenue-generating Waste



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 2018 (by category)

(1,000 tons)

Items	Total wastes	Recycled	Landfill
Metal scrap	154	153	0.4
Paper scrap	39	39	0.09
Plastics	44	41	0.5
Acids	32	21	0.1
Sludge	15	10	0.8
Wood	27	26	0.004
Glass/ceramics	6	6	0.05
Oil	19	18	0.08
Alkalies	19	16	0.005
Other *3	17	15	1.0
Total	372	345	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.

<http://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 the 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 2018 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.

FY2018 Results

Japan	Processed approx. 145,260 tons of four kinds of used home appliances
Europe	Collected approx. 28,000 tons of used electronic products
USA	Collected approx. 583 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 (19 companies including Panasonic), and supervises 340 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 appliances² and for the recovery and supply of many resources. In fiscal 2018, we processed approx. 145,260 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 rate⁴ 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%.

In addition, PETEC has introduced crushing and sorting lines for copper pipes and mixed metals. In these lines, copper pipes cut and recovered from the air conditioner line, as well as mixed metals (mixture of copper and aluminum) obtained after removing iron and plastic from crushed refrigerators, are re-crushed and re-sorted to increase the resource values of copper and aluminum.



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)

<http://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

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

Recycling Efforts in the Europe / CIS Region

In 2017, we collected approx. 28,000 tons*⁵ of used products covered by the WEEE Directive across Europe.

Article 15 of Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) requires producers of electrical and electronic equipment (EEE) to provide information free of charge about preparation for re-use and treatment for each type of EEE placed on the market.

To fulfil the WEEE Article 15 requirements for providing specific recycling related information to recycling organizations in a much more efficient and beneficial way than in the past, producers and producer responsibility organizations have teamed up to create “Information for Recyclers – I4R”, a unique one-stop source platform aimed at providing a whole range of information and guidance on how to handle WEEE: <http://www.i4r-platform.eu>. This new platform will allow recyclers to access information about the presence and location of materials and components that need separate treatment. Panasonic was very active in providing information for I4R.

The Russian Waste Law has been amended several times. The most recent amendment came into force in December 2017. It sets environmental collection targets and fee rates for WEEE, packaging, and batteries for 2018 until 2020. 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 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. MRM has collected approximately 395,144 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. 6,300 tons of primary and rechargeable batteries in the U.S. and Canada, across more than 10,000 public and 13,000 private collection sites.

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 3,200 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 132,417 tons were collected and resulted in an average of 3.58 kg per capita in Canada.

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 anticipated that future collection weights will also decrease.

In 2017, New Brunswick was the last province to launch the end-of-life recycling program leaving the territories of the Yukon, with a delayed program, and Nunavut working to legislate e-waste.

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 2017, 4 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 our obligation under the national scheme. Below are the recycling-related data for televisions and computers from 2012-2018:

Period	Collection Volume
July 2013 – June 2014	1,052 tons
July 2014 – June 2015	1,166 tons
July 2015 – June 2016	1,108 tons
July 2016 – June 2017	1,027 tons
July 2017 – June 2018	1,221 tons

Panasonic Australia is also a member of the Battery Industry Working Group (BIWG). In 2017, BIWG together with the Queensland Government and other stakeholders, conducted two successful pilot collection and recycling programs for handheld batteries.

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, jointly with industry groups and retailers, 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 Asociación Peruana de Actores para la Gestión de Residuos (ASPAGER) as a leading member, and started a used-product recovery program through discussions with the government.

In Costa Rica, we commenced collecting used products through Unidad de Cumplimiento para la Gestión Integral de Residuos Electrónicos (ASEGIRE), a compliance organization for integrated management of waste electronics. A similar program is also in progress in Mexico under the government-approved recycling and management plan. In Colombia, leading manufacturers including Panasonic formed a recycling management organization in cooperation with governmental organizations and industry groups to address the issue of ozone depletion. As part of its activities, the organization has been collecting refrigerators from 2014 and other consumer electronics products such as washing machines and microwave ovens from 2016.

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 17) stipulates that we make efforts to conserve water resources by using water efficiently and preventing pollution. In Green Plan 2018, our Environmental Action Plan toward fiscal 2019, we aim to expand the range of products that contribute to saving and recycling water. At the same time, we will work on reducing the volume of water we consume and using more recycled water in our production processes, in order to conserve water resources throughout our business activities. In risk management, we are aiming to complete our water risk assessments for all our production sites by fiscal 2019.

Concrete action that we have taken for this includes an evaluation of the scale of water risks in all regions where our production sites are located, in order to identify and mitigate the impact of our production activities on our use of water.

In the evaluation, we employ evaluation tools such as the mapping tool Aqueeduct by the World Resources Institute (WRI) and the Water Risk Filter by the World Wide Fund for Nature (WWF), which can not only assess the physical risks of water shortages but also examine the risks in water-related regulations as well as reputation risks in each region. We are also making use of public databases available from respective national governments. Furthermore, in areas with higher water risks, we are working to collect information through public local information as well as through interviews with relevant organizations, etc. By conducting detailed analyses and close examination of such local information and production site data including water use volume, we will specifically identify the impacts on our production activities. We have steadily continued such water risk assessment towards fiscal 2019, and as a result, we completed the water risk assessment in all of our production sites a year ahead of our target. At present, no water risks which could affect our business operation have been reported. We will work to conserve water resources and reduce business risks in regions where water risks are determined to be high, by focusing on promotions to reduce water consumption and expand water recycling.

To promote such activities, we have established an Environmental Sustainability Management System (page 21) for these activities including water management, under the executive officer in charge of environmental affairs (Yoshiyuki Miyabe, Senior Managing Executive Officer as of August 2018), and are aiming to raise the environmental management level by implementing the PDCA cycle.

In addition, we have established an Environmental Risk Management System to continuously reduce 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 24). We will continue to manage our environmental risks through these activities.

We are also a member of the Water Project, a public-private collaborative project aimed at boosting awareness, organized under the initiative of Japan's Ministry of the Environment in 2014. Its objective is to maintain a sound water cycle and promote its recovery, and presents water-related activities by business corporations as well as communicates information on the importance of water as its activities. 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 31), and are speeding up the development of industry-leading products that contribute to water saving.

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

<http://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.

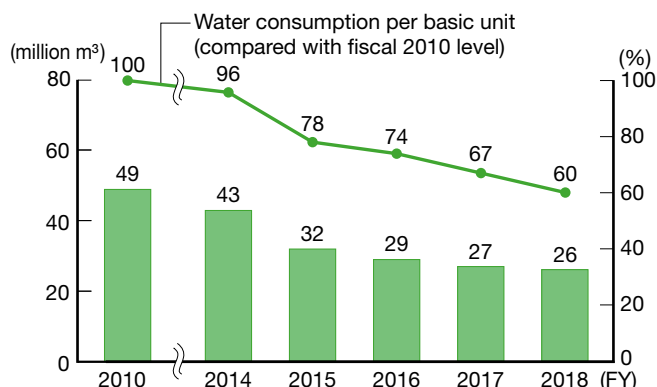
Water used at factories in fiscal 2018 resulted in 25.84 million m³, reduced by 5.4% compared to fiscal 2017. The water used at our factories per basic unit of production^{*1} improved year-on-year through impacts of structural reform, promotion of reuse, etc.

Our use of recycled water^{*2} in fiscal 2018 amounted to 5.77 million m³, accounting for 22.3% of our total water consumption. Discharged water in fiscal 2016, 2017, and 2018 resulted in 22.46 million m³, 21.84 million m³, and 20.47 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.

FY2018 Breakdown of Water Consumption (by region)

(10,000 m³)

Region	Consumed	Municipal water/ industrial water	Groundwater	Rivers/lakes	Discharged	Sewer systems	Waterways
Japan	1,578	499	1,080	0	1,354	195	1,159
China & Northeast Asia	495	492	3	0	328	241	87
South East Asia, & Oceania	426	374	48	4	317	174	143
North America & Latin America	34	23	11	0	19	19	0
Europe & CIS	22	11	11	0	18	8	10
India, South Asia, Middle East & Africa	29	4	25	0	11	11	1
Total	2,584	1,401	1,179	4	2,047	648	1,399

In the Automotive & Industrial Systems Company under the Panasonic Group, water used at factories in fiscal 2017 resulted in 15.05 million m³, against a target of 15.38 million m³.

Panasonic Industrial Devices (Qingdao) Co., Ltd. is located in Qingdao, China, where water shortage is a concern. In the factory, water is used to treat hydrochloric gas produced during manufacturing processes of electrostatic capacitance-type touch panels. Corresponding to an increase in the usage of water due to production expansion, they introduced a system in which alkaline drainage water generated during processes except that of manufacturing can be utilized to neutralize acid drainage water efficiently, resulting in a decrease in the usage of water in the whole factory by 7.4%. Panasonic continue our efforts to conserve water resources.



Panasonic Industrial Devices (Qingdao) Co., Ltd.

Environment: Chemical Substance Management



Initiatives to Reduce the Environmental Impact of Chemical Substances

In order to prevent content of hazardous substances prohibited under the EU RoHS Directive^{*1}, published in 2002 and recast in 2011, and the like to Panasonic products, it is important not only to be aware during the product design stage but also to be aware that certain substances are not contained in purchased components.

To ensure compliance with the Directive, Panasonic has been promoting the “Do not accept! Do not use! Do not ship!” campaign throughout the various production stages from designing to shipment inspection in business sites across the world since October 2005. Specifically, we employ a range of mechanisms using screening devices to search for and exclude specific chemical substances.

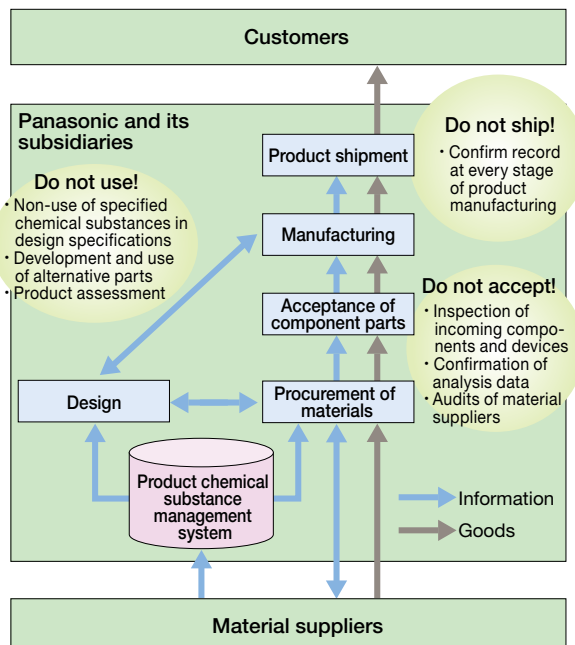
We also conduct environmental audits on suppliers of parts and materials with high risk of content of specified hazardous chemical substances to support them in building a sound chemical substance management system.

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, we have been 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 specific initiatives, we aim 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.

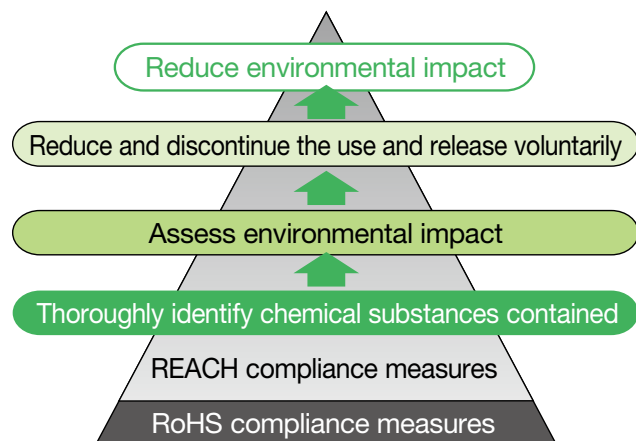
*1 Directive on the Restriction of the use of certain Hazardous Substances in electrical equipment

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

Specified chemical substance management system



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))

<http://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 (planned): Use of four types of phthalates specified by the RoHS Directive to be discontinued 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 due to legislation such as the European RoHS Directive, we specify prohibited substances to globally ensure that they are not used or contained in our products, except in certain cases where substitution of the substances is infeasible. We will also conduct environmental impact assessments for managed substances contained in our products, take steps to reduce the use of substances where the impact on human health and the environment cannot be ignored, and plan to eventually prohibit the use.

Identifying Chemical Substances in Products

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. We are a member of the Joint Article Management Promotion consortium (JAMP) together with about 440 major companies from various industries, such as chemical, component, and equipment manufacturers. We are proactively formulating, utilizing, and disseminating chemical substance management standards and systems through this organization. Since fiscal 2005, we have been using a product chemical substance management system to gather data concerning the chemical substances contained in the components and materials for our products from our suppliers. In July 2009 we asked our suppliers to submit the data in a common format by JAMP, and approx. 10,000 suppliers are currently using this format.

Meanwhile, in Japan alone, burden on companies grew, as a number of hazardous substance inspections were carried out throughout the supply chain using formats unique to each company that were not standardized such as the JAMP format for information handling. The Ministry of Economy, Trade and Industry recognized this issue and presented a new scheme, “chemSHERPA,” for sharing and exchanging information about chemicals contained in components and products throughout the supply chain. Because chemSHERPA follows the standardized JAMP format to handle information, Panasonic has joined the scheme and adopted the use as the information-gathering format in its system. We plan to replace the current JAMP mechanism with chemSHERPA by June 2018 when the JAMP support and maintenance period will discontinue (excluding communication of information on automotive equipment for the automobile sector for which the industry’s standard information sharing system is already established).

In addition, 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. We have carried out education programs for persons in charge of chemical substance management and suppliers in more than 100 our business sites in nine countries including China and other Asian countries, and completed the conversion of the existing system into chemSHERPA by June 2018, when the JAMP format becomes fully obsolete.

► JAMP <http://www.jamp-info.com/english>

► Chemicals in Products (Ministry of Economy, Trade and Industry) http://www.meti.go.jp/policy/chemical_management/english/cip-e_index.html

► ChemSHERPA <https://chemsherpa.net/chemSHERPA/english/>

Companies that procure electronic components may need to have a full understanding of the substances contained in the components at the point of selection or usage in order to adhere to the EU RoHS Directive and REACH regulation. Particularly, as the REACH Substances of Very High Concern (SVHC) List is updated every six months, those companies expect their suppliers to provide the latest substance data to demonstrate compliance with the list.

Also, as a company supplying electronic components to other companies, we have published a table of RoHS and REACH compliance status on our website since November 2012 so that our clients can obtain relevant chemical substance information from us quickly and efficiently. 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

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

For products covered by the Act on the Promotion of Effective Utilization of Resources, the Panasonic Group does not manufacture, import, or sell products that contain certain chemical substances beyond specified standards, other than in exempted parts. For more details, see Information on the Content of Certain Chemical Substances in Covered Products below.

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

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

In June 2015, the Act on Preventing Environmental Pollution of Mercury was established 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. We have established a new webpage, Information Based on the Act on the Preventing Environmental Pollution of Mercury, in May 2017 to communicate information concerning the mercury used in our products to customers.

► Act on Preventing Environmental Pollution of Mercury

https://members.wto.org/crnattachments/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)

<http://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 at the time of product use.

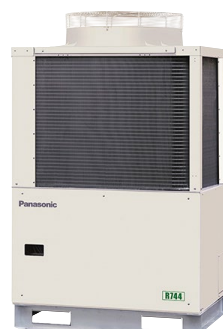
To date, we have undertaken assessments on the impact of ceramic fibers used in certain models of commercial microwave ovens. As part of our efforts to comply with the EU REACH regulation which requires preparing information for the safe use of products containing a certain amount of SVHC, we have created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

► Management of Chemical Substances in Products

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

Reduction in Usage and Emissions of Chemical Substances

Fluorocarbons used as a heat insulator and a refrigerant for freezers and air conditioners can damage the 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 problems. However, with support from the New Energy and Industrial 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. By the end of March 2017, we delivered roughly 5,800 units to approx. 2,200 stores.



OCU-CR2001MV, a fluorocarbon-free freezer using CO₂ refrigerant



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

Making the best use of our expertise in the Japanese market, in May 2017 we also started sales of fluorocarbon-free CO₂ freezers designed for small stores and prefabricated refrigerator/freezers for the European market, where F-gas regulations and other environmental regulations are in place. We released the product in Norway, Denmark, Sweden, and Belgium, aiming to sell more than 300 units in the first year. We plan to expand the market to other countries, including Germany and Holland. We also commenced the trial release in the Asian market, to expand its sales in China, Taiwan, Malaysia, and Indonesia.

In addition, as measures against ozone depletion caused by HCFCs, a refrigerant called R410 that does not deplete the ozone layer was used in compact air conditioners, but this substance has a very high Global Warming Potential (GWP). Panasonic then developed a model that uses a new refrigerant R32, which has a lower GWP and introduced it to the market in 2013. Furthermore, PT. Panasonic Manufacturing Indonesia, which owns the factory for manufacturing compact air conditioners in Indonesia, redesigned its production facility that used an ozone-depleting HCFC refrigerant R22 to one using R32 in fiscal 2015, and commenced supplying new R32-based air conditioners. 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 casing material does not use halogenated flame retardant, making the projector an eco-conscious product that contributes to reducing the use of hazardous substances.



PT-RZ31K Series, a laser projector for professional use

Reducing the 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 http://www.panasonic.com/jp/corporate/sustainability/pdf/eco_pvclist2016.pdf

Restriction on the 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.

We specified these substances as Level 2 Prohibited Substances in our Chemical Substances Management Rank Guidelines Ver. 10 (for products) issued in June 2016, and delivery of such substances will be prohibited from July 22, 2018. We have specified other phthalates as Level 3 Prohibited Substances, and are promoting substitution.

As for the four phthalates, we are currently working on creating an analysis and assessment system to ensure substitution.

Since phthalates have a migration characteristic (where a substance from another article migrates through contact), materials may be contaminated by migration from production equipment as well as process equipment containing the four phthalates specified as Level 2 Prohibited Substances. Accordingly, we are also discussing management of preventive measures against contamination through contact.

To build an inspection system for purchased components, we revised the acceptance inspection standards and determined to conduct inspections on the supplied components with a high chance of containing phthalates, such as PVCs, elastomers, and glues. We have already assessed and selected a phthalate analyzer to use for these inspections, and commenced installation in our procurement sites. Phthalates contained in our products exported to the Europe used to be as high as 10 tons. This figure was reduced to less than one ton as of March 2018, and we aim at completing phthalate substitution by July 2018.

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

Management of Chemical Substances 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 cutbacks in the use, release, and transfer of 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 chemical substance use and a 62% reduction in 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))

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

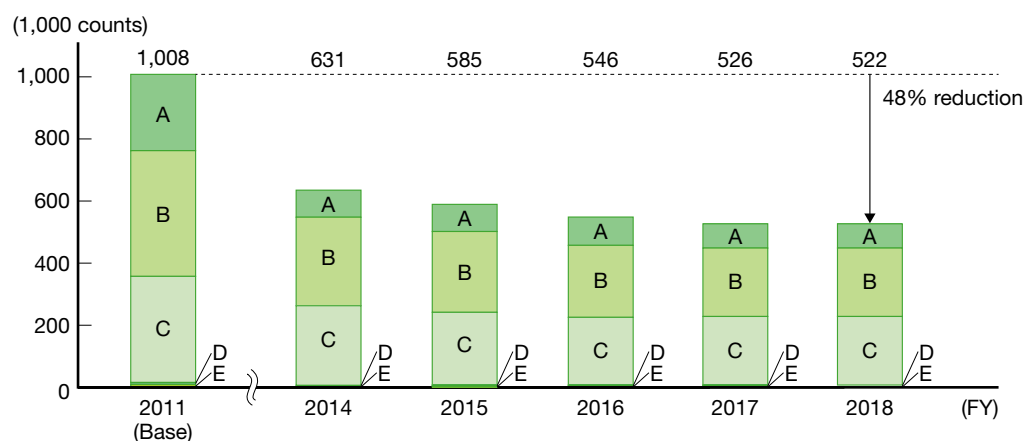
*6 Human Environmental Impact = Hazardousness factor x Release and transfer amount.

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.

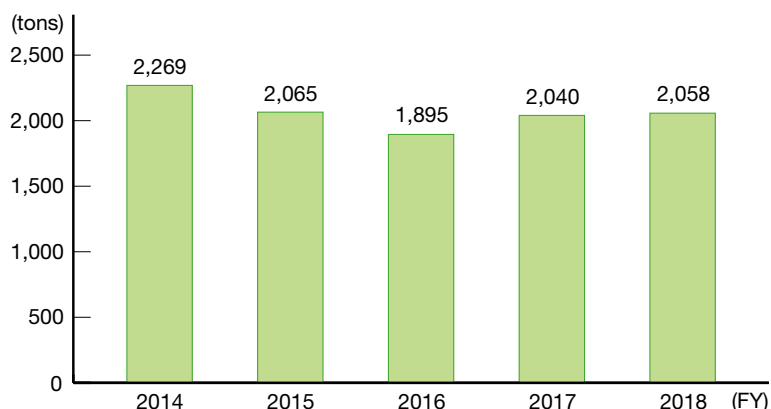
Human Environmental Impact



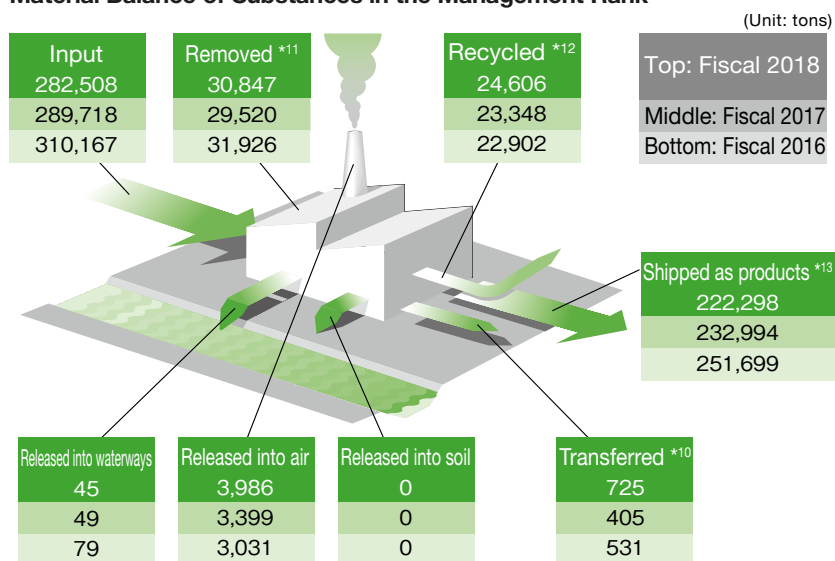
Note: Overseas sites of former SANYO Electric not included in fiscal 2011.

In fiscal 2018, 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

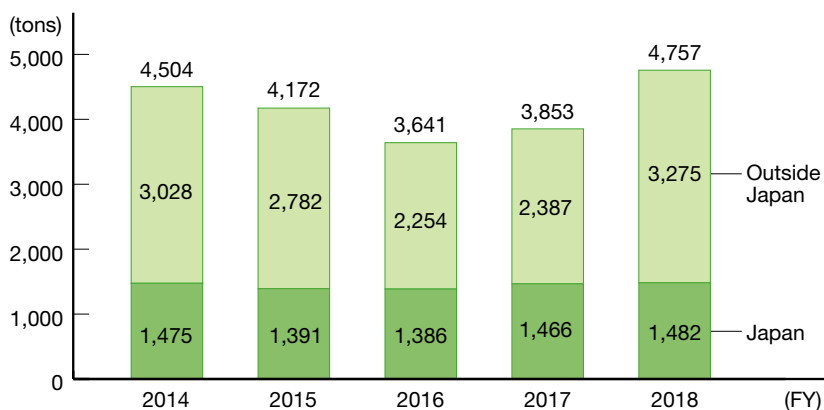
*⁹ Based on the Chemical Substances Management Rank Guidelines (for factories). Includes all the substances specified in the Pollutant Release and Transfer Register Act.

*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 sustain the benefits derived from this natural capital towards the future; however, this biodiversity is experiencing significant damage at an unprecedented speed.

We are committed to properly understanding the impact of our business activities on biodiversity and contributing to conservation. To this end, we are promoting initiatives in cooperation with local governments, environmental conservation NGOs, and specialized agencies. We focus on the three key areas of land use, procurement, and products, in order to promote biodiversity conservation as an initiative 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.

Contribution to the Aichi Biodiversity Targets adopted by the 10th Conference of the Parties (COP 10) and the Sustainable Development Goals (SDGs) set by the United Nations is also expected of private corporations. We are expanding our biodiversity conservation activities by collaborating with external organizations.

Initiatives in Land Use

Green areas in our business sites can potentially 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 environment for a variety of living organisms if they retain indigenous vegetation and a watery environment.

Preservation of Biotopes in Collaboration with Governments and Experts

Forming an ecological network that connects greenery in our business sites and neighboring woodlands and parks enables birds and insects such as butterflies and dragonflies to move across the areas for flowers and water, expanding their living space. In addition, protecting rare plants and living creatures in local areas is an activity in collaboration with governments and with help and advice of experts to preserve endangered species designated by the Ministry of the Environment or local government that are deemed to be disappearing from that area. Other examples include the Biotope at the Eco Solutions Company in Kadoma City, Osaka Prefecture that concluded the Osaka Biodiversity Partnership Agreement with the government of Osaka Prefecture, Osaka Prefecture University, and the Research Institute of Environment, Agriculture and Fisheries, as well as Tsunagari no Hiroba at Panasonic Homes Co., Ltd. that was set up with the participation as part of Osaka Prefecture's project to create green wind streets and conclusion of the aforementioned agreement with Osaka Prefecture, Toyonaka City, Osaka Prefecture University, and the Research Institute of Environment, Agriculture and Fisheries.

Examples of activities are introduced in the following website.

<http://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. The ABINC certifies a corporation's manner of organization and management of greenery in their business site as a third party by assessing it based on the ABINC guidelines and the Land Usage Assessment Sheet (a quantitative biodiversity and environmental assessment tool) developed by Japan Business Initiative for Biodiversity (JBIB) and partner companies. In the course of assessment, we received positive remarks concerning how we are building greenery to suit diverse living creatures by appropriately preserving the natural environment, keeping invasive



Entire view of the water front

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 pupils. The monitoring survey conducted since 2011 recognized 838 species of plants and living creatures, and found that our greenery is an important biotope in the urbanizing area, which contributes to the formation of local ecological networks.

The Matsumoto Factory of the Automotive & Industrial Systems Company obtained rank A in the JHEP Certification^{*1} in September 2015. The certification is updated annually through assessment and our biodiversity preservation activities in our greeneries are maintained continuously.

^{*1} 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.



Rare striated heron juveniles being reared in the factory premises

Efforts in Procurement

In an effort to address biodiversity conservation and sustainability, we consulted extensively with World Wide Fund for Nature (WWF) Japan and formulated Panasonic Group Green Procurement Guidelines for Wood.

Exclusion of illegally logged timber and wood materials (Category 3)

In fiscal 2018, the total procurement of timber and wood materials was measured at approx. 350,000 m³. By category, this breaks down to 77.3% meeting Category 1 “Priority” procurement standards (a 0.3-point year-on-year decrease), 22.7% in Category 2 “Acceptable” (a 0.3+point year-on-year increase), and 0% in Category 3 “Avoiding” (same as previous year). Ever since the establishment of our Procurement Guidelines, we efforts to achieve zero procurement for Category 3, have been implemented with zero procurement continuing since fiscal 2015. We will continue our efforts and maintain zero procurement for Category 3.

In green procurement for wood, we implement the PDCA cycle based on development of the annual plan, and confirm the progress status at the end of the fiscal year as well as review the measures for the subsequent fiscal year.

We are also engaged in the reduction of the use of natural raw materials, from the perspective of preserving timber resources. Flooring materials (woody flooring material) Fit Floor Natural Wood Type (heat resistant & non-heat resistant) and Fit Floor (heat resistant & non-heat resistant) use “Fit Board,” our unique new material made of 100% recycled wood material (excluding adhesives).

The Act on Promoting the Distribution and Use of Legally Harvested Wood (the Clean Wood Law) came into effect on May 20, 2017. Panasonic provides information concerning the legality of our wooden products based on the Clean Wood Law at the following URL.

► Compliance with the Clean Wood Law (Japanese)
<http://www2.panasonic.biz/es/sumai/law/cleanwood/>

Green Procurement Guidelines for Wood Consulted and Formulated with WWF



Fit Board
 Fit Floor Natural Wood Type (heat resistant & non-heat resistant) & Fit Floor (heat resistant & non-heat resistant)

Initiatives in Products

Together with the NGO BirdLife International, we have established a third-party assessment system to provide customers with information about product contributions to biodiversity. Through this system, we have assessed products which are closely linked to biodiversity.

We have also enhanced our Green Product accreditation criteria (see pages 31) by adding biodiversity to the existing items. We define products that contribute to biodiversity conservation as those that use biodiversity-conscious 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 reduce disturbance from maritime transportation of the marine ecology of local sea areas. Ballast water is sea water used to retain the balance of a freight vessel at sea when it is not carrying shipment. Because the ship travels across the sea taking sea water from one port and then draining the water into another port, the impact of foreign organisms such as plankton and bacteria on the local ecology, environment, and resources is becoming an increasingly serious problem. ATPS-BLUEsys treats microorganisms in the water with inline electrolysis without using filters, which is the first in Japan. The system can treat the water to a level lower than the standards by the International Maritime Organization (IMO), and successfully acquired the IMO G9 Basic Approval (G9BA). Marketing of this system has been launched in fiscal 2018 as it acquired equivalent designation by System, ATPS-BLUEsys received type approval from the Japanese Ministry of Land, Infrastructure, Transport and Tourism in March 2017.

► [Press Release] Ballast Water Management System ATPS-BLUEsys
<http://news.panasonic.com/global/press/data/2014/01/en140128-2/en140128-2.html>

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 emissions so as to establish sustainable towns by growing indigenous trees and plants and forming ecological networks that exist with communities.

Biodiversity Conservation Through Collaboration with and Support by NGOs and NPOs

We collaborate with NGOs and NPOs through the Keidanren Committee on Nature Conservation, in an effort to promote biodiversity conservation on a global scale as well as in coordination with the industrial sector.

The Keidanren Committee on Nature Conservation is an organization consisting of more than 110 Keidanren member enterprises that are actively involved in nature protection and biodiversity conservation. Since its establishment in 1992, it has been engaged in supporting NGO efforts in nature conservation, promoting exchanges between business enterprises and NGOs, promoting awareness of nature protection and biodiversity among businesses, and supporting the efforts in the Tohoku region to recover from the earthquake disaster through the restoration of nature.

Through corporate and private donations to the Keidanren Nature Conservation Fund, including donations from Panasonic, support worth a cumulative total of approx. 3.9 billion yen has been donated as of fiscal 2018 to 1,345 NGO projects in Japan and other countries.

In fiscal 2018, we visited the Bukit Barisan Selatan National Park, Sumatra, Indonesia, where World Wide Fund for Nature (WWF) Japan operates, and Gunung Halimun Salak National Park in Java, where Japan Environmental Education Forum runs a project, to monitor their progress. In addition, we talked directly with local residents about their activities for environmental preservation in these parts and their lives, leading to the re-recognition of the importance of the compatibility between long-lasting nature preservation activities and living an independent. Panasonic has also been involved in marine protection activities² for some 20 years through collaboration with WWF Japan. In March 2018, we introduced MSC- and



Tree planting activity at the Bukit Barisan Selatan National Park

ASC-certified^{*3} sustainable seafood^{*4} in canteens in two business sites including the head office, with the help of WWF Japan and supplier companies. This is the first fine in Japan that a corporation continuously provides sustainable seafood in its canteens.^{*5} We plan to increase the serving frequency and the number of canteens offering sustainable seafood, aiming to provide it for all of our canteens across Japan by 2020. By familiarizing of sustainable seafood and MSC- and ASC-certification, we promote a change in our employees' consumer behavior while contributing to SDG 14, "Conserve and sustainably use the oceans, seas and marine resources," and bringing biodiversity preservation into the main stream.



Sustainable seafood menu



ASC certification mark

^{*2} Including supports for the preservation of the tidal flats in Ariake Sea (2001 to 2006) and the Yellow Sea Ecoregion (2007 to 2015).

^{*3} MSC certification is the Marine Stewardship Council's certification for sustainably managed fisheries. ASC certification is the Aquaculture Stewardship Council's certification for responsible fish farming with the minimum impact on the environment and society. Both certifications are given after strict assessment by an external certification body.

^{*4} Seafood certified for sustainable production (catching or farming), as well as management and traceability of processing, distribution, and sales.

^{*5} As MSC- and ASC-certified seafood.

Participation in the Japan Business Initiative for Biodiversity

Panasonic is a member corporation of the Japan Business Initiative for Biodiversity (JBIB), through which we understand the global biodiversity trends and risks, and reflect the insight gained to our business operations.

We also participate in the Biodiversity Working group formed by four electrical and electronic industry associations.^{*6} The working group has developed a database of the associations' member companies' biodiversity conservation activities linked with the Aichi Targets. This database, including our activities, was then linked with the Nijumaru Declaration operated under the Aichi Target achievement promotion project^{*7} to further disseminate biodiversity activities.

^{*6} 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).

^{*7} Refers to the Nijumaru (double circle) Project sponsored by the Japan Committee for International Union for Conservation of Nature and Natural Resources (UCIN) to achieve the Aichi Targets.

Revitalization of Satoyama* in Coordination with Citizens Groups

We carry at various activities for environmental preservation through the Panasonic ECO RELAY JAPAN (PERJ) together with our domestic business sites, labor union, and retiree group.

Unitopia Sasayama Satoyama Revitalization led by PERJ is an initiative aiming at cyclical use of Satoyama as it used to be in the 26.4 ha of premises in the Unitopia Sasayama Resort owned by the Panasonic Group Workers Unions Association. This activity was certified as a partner project of the Japan Committee for United Nations Decade on Biodiversity in recognition of our unique initiatives such as utilizing a private company's resort facility as a trial field for biodiversity preservation and environmental education, as well as organizing nature conservation activities and related education programs in collaboration with various stakeholders including as local authorities, corporations, universities, NPOs, and local farmers.

* 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)

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

▶ Unitopia Sasayama Satoyama Revitalization Project (Japanese)

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



Certification Ceremony



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 2018, we assessed the environmental quality assurance systems of some 1,400 suppliers and have supported their efforts to upgrade their management levels.

► Green Procurement Standards

<http://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 2017 data is 12.94 million tons, roughly five 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.

ECO-VC activities are stored in a database for effective use within the Panasonic Group. Furthermore, exemplary activities are recognized through awards at the ECO VC Presentation of awards/Reception Meeting. These activity presentations are also shown at the meeting venue to be shared with suppliers for use and application in future activities.

The number of activities reported in fiscal 2018 was rather low at 354 compared to previous years, nevertheless the quality remained high as usual. The case selected as the best practice was submitted by ROHM Co., Ltd. In this case, they reduced power consumption in the washing machine power supply system by 67% by adopting a newly-developed power circuit based on their exclusive analog technology and a compact coil, while reducing the standby power consumption by 49% and the component footprint by 70%. Based on the Environment Vision 2050 announced in June 2017 (see page 13), we add the value of energy in addition to Value Engineering to reinforce our partnership with suppliers in the future.

^{*2} VC: Value Creation

Environmental Achievements Made through Proposals

Items	FY2015	FY2016	FY2017	FY2018
Number of proposals	1,445	933	622	354
CO ₂ reductions derived from proposals	512,675 tons	484,532 tons	253,265 tons	58,448 tons
Use of recycled resources derived from proposals	21,323 tons	19,153 tons	18,421 tons	2,671 tons
Reduction in resources used derived from proposals	24,311 tons	21,243 tons	20,224 tons	1,090 tons

Collaboration with Environmental NGOs

Panasonic has more than 50 manufacturing sites in China. With environmental issues in China becoming more serious due to its economic development, we are working to improve the environmental challenges through coordination and continuous communication with environmental NGOs.

In fiscal 2018, we have visited the Institute of Public & Environmental Affairs (IPE), a non-governmental environmental research organization in China, in order to discuss our activities to deal with environmental risks. In the discussion, we reported our deepened understanding on the significance of an environmental audit and environmental laws and regulations in China gained through study sessions for our business sites about the audit, which was held in Guangzhou, Dalian, and Shanghai in June 2017, and also exchanged opinions in relation to an internal environmental audit for our factories. Additionally, we informed them that we post the list of environment-related information of our factories in China and some suppliers of indirect materials on our website. Stricter environmental regulations are expected in China. We work towards the reinforcement of our activities concerning green supply chain so as to further improve our brand value.

►The list of environment-related information of our factories in China and some suppliers of indirect materials

http://panasonic.cn/csr/green_innovation/annual_infomation



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 2017, twelve 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 139 people took the courses.

The programs are not limited to employees in environment-related job functions, and allow attendance of those in related divisions to expand the scope of practitioners of environmental activities.

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, 917 people participated in the Competition.

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 Diagnosis Skills Competition, 59 employees participated in fiscal 2018 and competed in various fields such as air-conditioning, furnace & heat, etc. 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



Eco Mind Skills Competition



Energy Conservation Diagnosis Skills Competition

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.

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



Environmental training via e-learning



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.

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.

► Sustainability Data Book 2018

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

In the efforts to foster greater awareness of the five major areas of our Environmental Action Plan "Green Plan 2018" (CO₂ reduction, resource recycling, water, chemical substances, and biodiversity) among general consumers worldwide, we offer an overview of our activities on Panasonic websites in 59 countries and regions (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)

<http://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)

<http://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)

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

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

<http://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

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

<http://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.

Responsible Executive and Framework

The Chief Human Resources Officer (CHRO) is Senior Managing Executive Officer Mototsugu Sato (as of August, 2018).

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 four Panasonic Companies (Appliances, Eco Solutions, Connected Solutions, and Automotive & Industrial Systems), and all business divisions and affiliated companies under the Panasonic umbrella.

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 its overseas subsidiaries as well, Panasonic is acting with all due attention to the privacy of those who seek consultation or report misdeeds, including by establishing consultation offices and suggestion boxes similar to those in Japan.

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

Participation in International and Industrial Partnerships

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 Japan Business Federation, and various industry organizations, including the Japan Electronics and Information Technology Industries Association.

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

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

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.

In fiscal 2018, assessments were conducted at a total of three sites, consisting of one site in Africa and two sites in Latin America. Panasonic will continue to promote improvements in labor-management levels through close partnerships between its Japanese and overseas locations, and the creation of a corporate culture and environment in which human rights are respected.

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. In fiscal 2018, we engaged in efforts toward self-assessments as well as corrections and improvements at 91 sites worldwide.

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

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

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 2018, 32 employee representatives and 14 company representatives assembled in Mallorca, 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.

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"

http://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"

http://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 of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers"

http://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"

http://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 four key business segments:

- Appliances;
- Eco Solutions;
- Connected Solutions; and
- Automotive & Industrial Systems.

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”

<http://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 2018 we requested CSR self-assessments from roughly 2,000 suppliers, mostly in Japan. 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

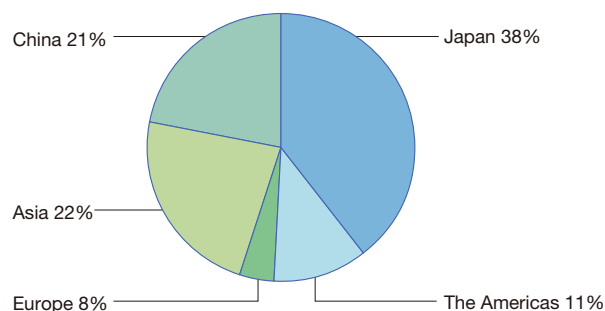
▶ "Managing Wages"

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: 274,143 (as of the end of March 2018)



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 Senior Managing Executive Officer Mototsugu Sato. (As of August 2018) 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 four Panasonic Companies (Appliances, Eco Solutions, Connected Solutions, and Automotive & Industrial Systems) and in all business divisions and affiliated companies under the Panasonic umbrella.

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

For management candidate selection and management human resources development, Panasonic has unified its standards, systems, processes, and IT on a global basis. The company discovers and nurtures the most suited candidates irrespective of age, gender, or nationality. The company is undertaking efforts for planned career development and promotion for its employees.

For example, the company has established its “Panasonic Global Competencies” (PGC)—global common guidelines for action that are based on the company’s management philosophy—to clarify the leadership competencies needed for its leaders and the core competencies of all employees. Thus, the company is promoting behavioral change and improved practical initiatives among its leaders worldwide.

The company has also indicated on a global basis that experience such as managing multiple businesses, or working in a country other than one’s own, are prerequisites to being selected as an executive officer or being promoted as a member

of senior management. Panasonic fosters talented individuals, who are likely to become management candidates, from an early stage of their careers by clearly identifying the requirements and career paths required of senior managers. Implementing strategic human resources rotation is one means toward this goal, and overall this accelerates the pace of career development.

Furthermore, the company is implementing 360 degree evaluation—as well as assessments by external organizations— of managerial candidates. This allows the company to learn objectively of the strengths and weaknesses of candidates— in terms of leadership, capabilities, and other aspects. Thus, both the company and the prospective manager on the path to managerial promotion are able to understand which negative issues must be addressed or overcome, as well as which skill developments to focus on. This encourages future senior managers to develop their talent with high levels of selfawareness and drive.

Selection and Administrative Mechanisms for Managerial Positions

Panasonic has established mechanisms with clear quantitative criteria to evaluate candidates for major group posts using a common global standard. All positions of a certain level or above are considered “managerial,” and there are mechanisms in place that are meant to elucidate the expected roles and responsibilities of managerial positions, while also evaluating medium- to long-term contributions to operations. The Corporate Division manages current position holders and succession candidates, and it has established a “Talent-Management Committee” as a place to objectively, transparently, and openly debate and consider the career development and promotion of succession candidates for major posts. The committee includes the presidents of Panasonic Corporation and the four Companies and the executive officer in charge of human resources. It discusses the search for and selection of the best global senior managers, as well as career development plans. The company will continue to enhance its process 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 longterm 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, and CCM*. 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.

* Stands for “capital cost management,” Panasonic’s proprietary management indicator based on the return on capital.

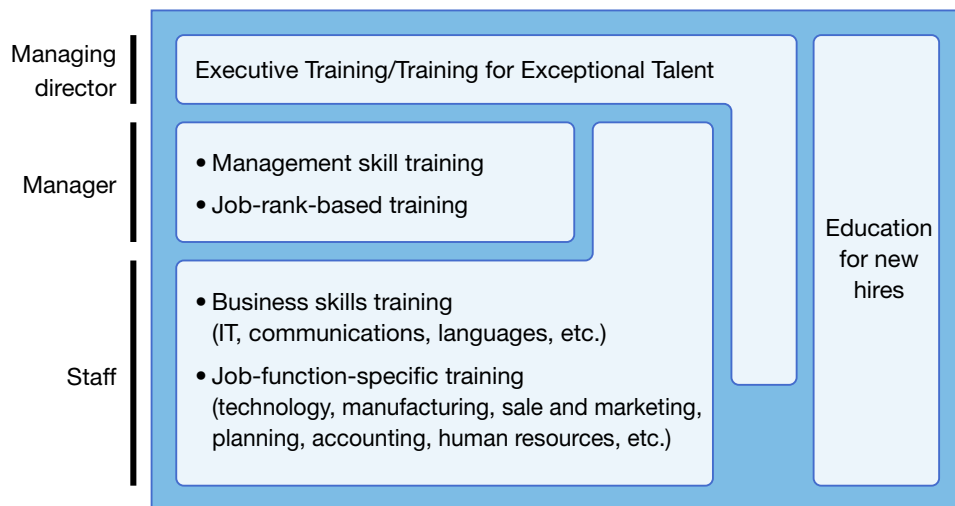
HR Development and Diversity: Human Resources Development

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.

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

Supporting Skills Development for Flexible Change in the Organization

In a business environment constantly subject to turbulent upheaval and to maintain competitiveness through flexible change, we find it important to support employees' efforts to keep their skills up to date in a flexible fashion. For this, we offer training opportunities to develop new skills. For example, when we implemented structural reforms in recent years, we offered training to some of our engineers so that they could be redeployed in new business areas that we have earmarked as future focus points.

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

In these seminars, Panasonic educates the individuals who work for it so that they may be more employable throughout all of society and so that they may continue to challenge themselves for the future.

- Employees take stock of their careers up to that point, verify their core values and make an inventory of the skills that they possess. They ask questions about the issues faced in creating careers according to their generation, and engage in other activities designed to promote understanding of the importance of independent careers. And employees clarify their career visions for the next 5 and 10 years.
- Employees receive guidance concerning economic planning and self-discipline as regards their mind and body to increase their understanding of the importance of economic planning and healthy lifestyles in realizing their career visions.

Building Total Rewards Systems That Treat Both Our Organization and Our Ambitious Employees the Way They Deserve

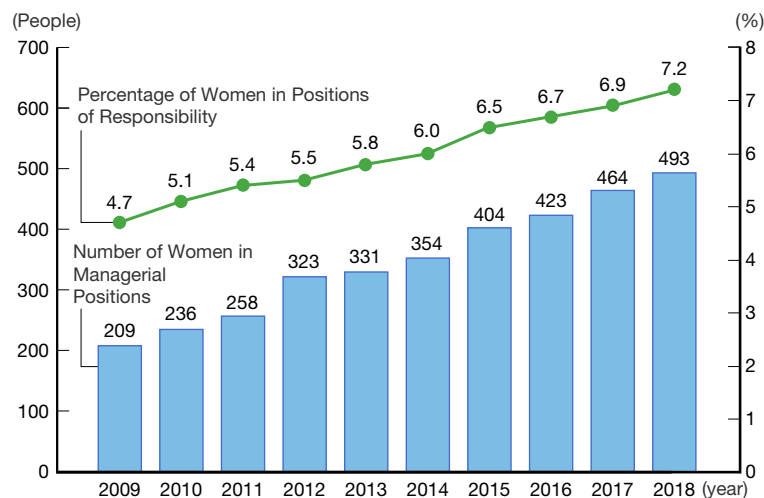
At Panasonic Corporation and some Japanese affiliates, a "Role/Grade System" has been implemented. This system determines work/role grades for employees according to the size of the work or role they currently perform to form the basis for employee benefits. The aim of this system is to treat the wide 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

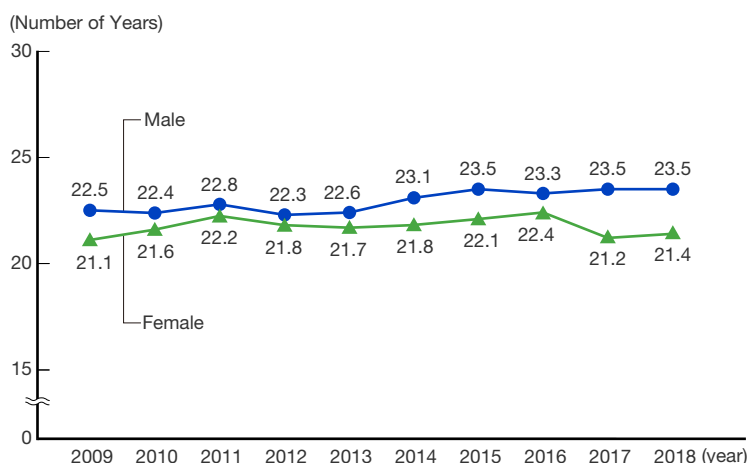
To exploit the knowledge capital of society to the greatest extent possible, Panasonic believes that it is crucial to take advantage of all forms of diversity in the workplace whether in terms gender, age, nationality, or any other cohort. The company has implemented a “Role / Grade System” that determines 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.

Number of Women in Managerial Positions, Percentage of Women in Positions of Responsibility



Average Number of Years of Service



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. A new BIG targeted at our younger workforce is also in the plan for 2018-2019. 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, 25% of our employees within underrepresented groups hold leadership positions throughout North America, and that number is improving every year. In addition, 29% of our workforce 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 17 locations groupwide (16 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, family 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 family 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 2017, employees with disabilities represented 2.15% of our workforce in Japan. For our group as a whole, the figure was 2.16%. These figures exceed both the legal employment rate (2.0%) and the national average employment rate (1.97%).

Employment of Workers with Disabilities (Japan)

	2011 June	2012 June	2013 June	2014 June	2015 June	2016 June	2017 June
Panasonic Corporation	2.07%	2.04%	2.15%	2.16%	2.15%	2.18%	2.15%
Key Group Companies	2.08%	2.11%	2.21%	2.24%	2.46%	2.50%	2.24%
Group (whole)	2.08%	2.06%	2.17%	2.18%	2.21%	2.23%	2.16%

In cooperation with local communities and governments and other authorities, we as a group manage seven special subsidiaries to promote the employment of workers with severe disabilities.

At these subsidiaries, special measures are taken to create an appropriate workplace, with specially designed workbenches and materials arrayed at heights 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. Special training sessions are offered in sign language, sign-language interpreters are provided for skills development sessions, and educational materials have been created to improve employee understanding of people with disabilities.

Special Subsidiaries (employee figures are as of June 2017)

Company Name	Year of Establishment	Number of Employees (Number of Persons with Disabilities)	Description of Business
Panasonic Kibi, Co., Ltd.	1980	82 (36)	Assembly of video camera LCD units, video accessories
Panasonic Katano Co., Ltd.	1981	40 (32)	Assembly of avionics products, inspection and packaging of AV accessories
Panasonic Associates Shiga Co., Ltd.	1994	57 (33)	Assembly of electronic circuits (for massage chairs, shavers, etc.)
Panasonic Ecology Systems Kyoei Co., Ltd.	1980	40 (24)	Assembly of ventilating fan parts, printing of user manuals
Sanyo Heart Ecology Co., Ltd.	1998	75 (33)	Growing / selling orchids, distribution of company-internal mail
Harima Sanyo Industry Co., Ltd.	1982	43 (21)	Assembly of vacuum cleaner parts, maintenance of internal environment
Sendai Sanyo Industry Co., Ltd.	1992	42 (18)	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

<http://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 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 equality. 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 efforts regarding occupational health and safety—and to improve on them continuously—Panasonic has implemented an occupational health and safety management system at nearly all its manufacturing locations globally (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 OHSAS18001 standard, supplemented with the company's unique perspective. Panasonic also acquires and updates external OHSAS18001 certifications for locations outside Japan where it has been requested to do so by customers. At present, Panasonic is preparing to shift from OHSAS18001 to ISO45001, as the latter has been published.

► List of Workplaces that Have Acquired OSHMS Certification (PDF)

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 2018)

Name of Training	Period/Time	Number of Trainees
Occupational Health and Safety Staff Training (Introduction)	Three days	30
Human Resources Basic Roles Course	Two hours, 30 minutes	13
OSHMS Internal Auditor Training	Two days	19
Machinery and Equipment Safety Standards Lectures	Two days	43
Training Before Sales Praxis	55 minutes	481
Career Hires Introductory Training	60 minutes	597
Managing Director and HR Manager Occupational Health and Safety Seminar	Two days	35
Production Engineering Manager Occupational Health and Safety Seminar	Two days	17

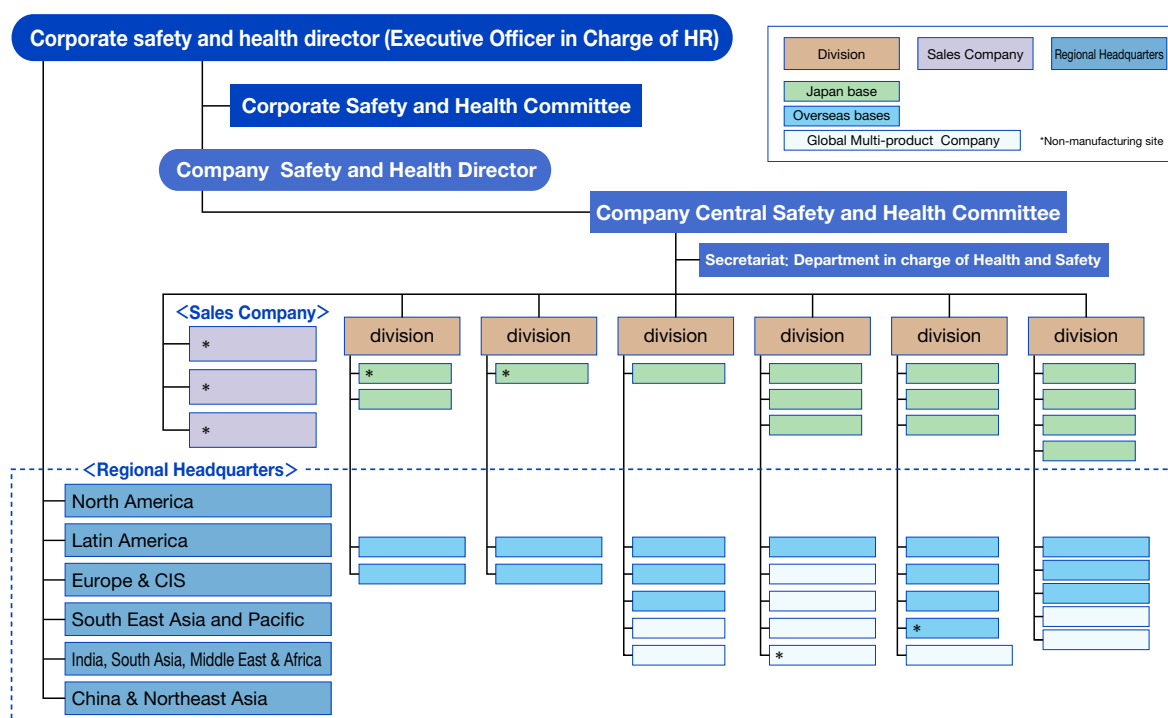
Moreover, in September of each year, Panasonic holds its Employee Personal Health and Occupational Health and Safety Forum—a place where employees from all business sites can learn good examples of personal health and occupational health and safety promotion activities from each other, and where Panasonic 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

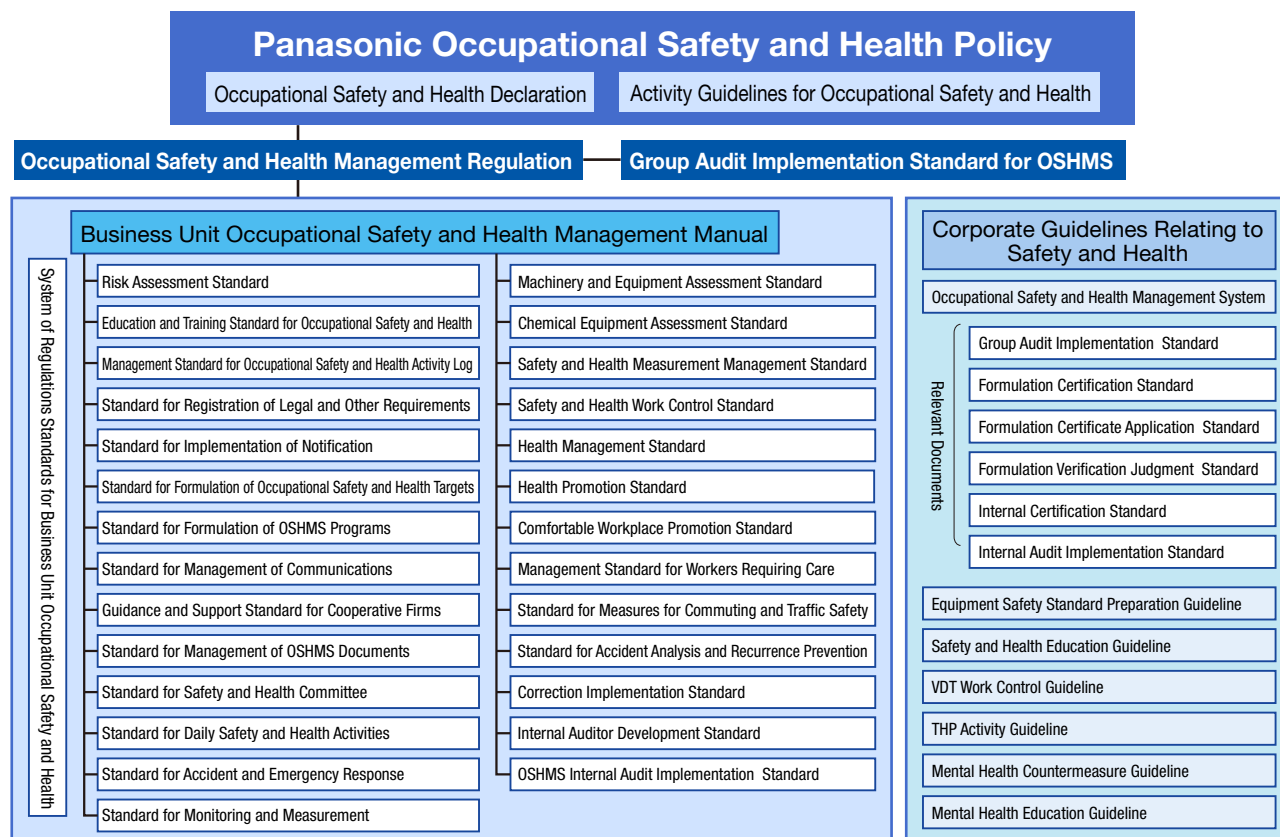
The Chief Human Resources Officer (CHRO) is Senior Managing Executive Officer Mototsugu Sato (As of August 2018)

In accordance with its Occupational Safety and Health Management Regulation, which were established for occupational health and safety management throughout the group, Panasonic has the following management structure:

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

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.

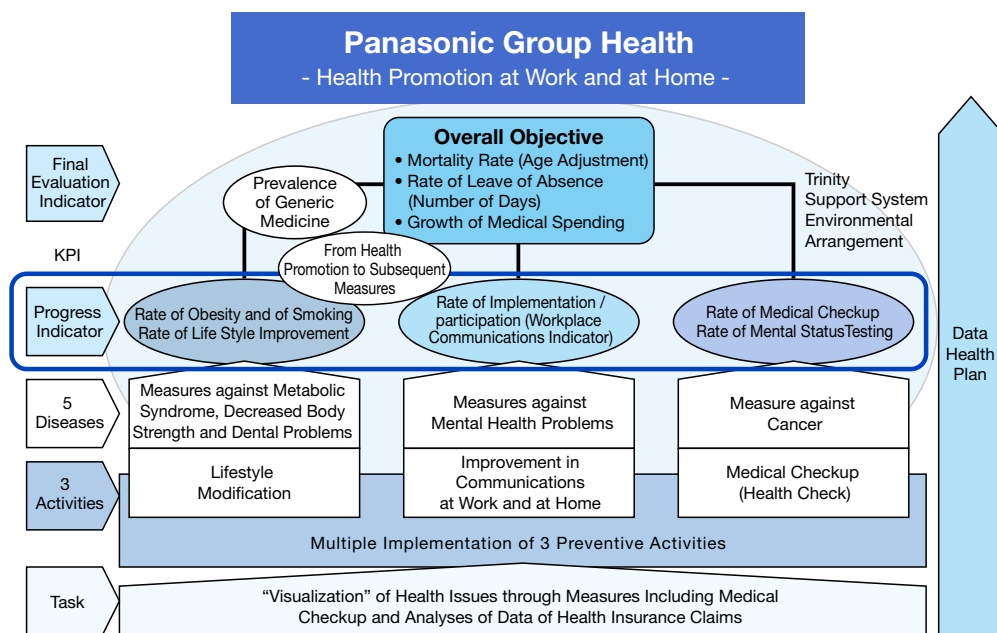
Panasonic Group is working to ensure that all Panasonic Group employees at all business units take the Stress Check Test—part of the Stress Check System—through efforts such as combining the Stress Check Test with regular health checkups. In addition to providing employees an opportunity to notice their 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 Toyo, a 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 and improving ways of working and of taking rest, etc.

Personal Health

Panasonic promotes Healthy Panasonic 2018, a campaign for healthy lifestyles in the workplace and at home, for all members of its companies, the labor union, and the health insurance association. Specifically, it integrates three types of preventative activities—lifestyle habit improvements, communication improvements, and health checkups—for five serious ailments—metabolic syndrome (for strokes and heart disease), physical deterioration (for musculoskeletal diseases), dental problems (periodontal disease), mental health disorders, and cancer. Panasonic establishes progress metrics for these activities and aims to control mortality rates, health leave rates, and additional medical expenses across the entire group.

Health Promotion Movement at Work and at Home “Healthy Panasonic 2018”



As part of Healthy Panasonic 2018, in 2011, Panasonic began participating in AJTA, a competitive taira association, with the aims of helping employees become aware of their physical capabilities and of creating opportunities for communication among employees and other competitors. In 2017, over half of the group business sites have formed teams, with a total of roughly 35,000 participants. A company from outside Japan has also competed in the groupwide tournament, demonstrating the global reach of Panasonic's personal health initiatives.

As part of its efforts to fight smoking, Panasonic has taken many steps to help support a non-smoking workplace: eliminating all smoking rooms from which smoke emanates; considering making all indoor areas non-smoking starting April 2020; working to prevent second-hand smoke through efforts that include Panasonic Group's No Smoking Day, together with the international No Smoking Day; and providing support for quitting smoking through web-based no-smoking challenges and instruction from industry physicians and nurses.

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, from an HR management perspective, Panasonic takes protecting the human rights of those infected with HIV/AIDS as the first principle of its educational and awareness-raising activities, while its other three basic principles are maintaining the confidentiality of personal information, prohibiting discrimination in HR-related matters, and forbidding HIV testing without consent.

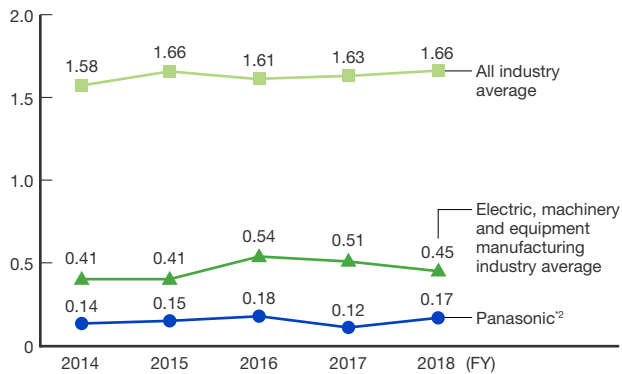
Occupational Health and Safety : Performance Evaluation

Incidence of Occupational Accidents and Responses*1

Disabling Injury Frequency Rate

(Number of accidents that require time off from work per one million working hours)

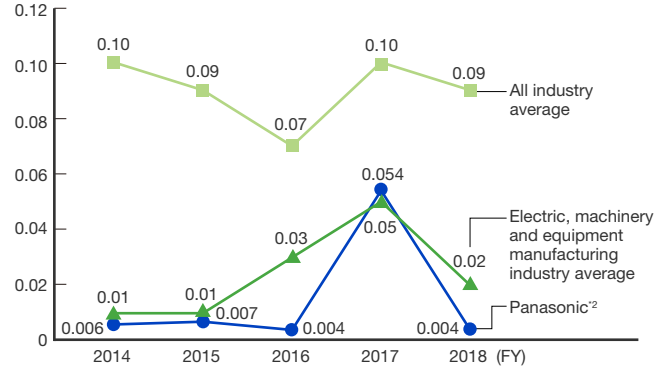
(Number of accidents / one million working hours)



Severity Rate

(Proportion of time lost per 1,000 hours of total working hours)

(Number of accidents / one million working hours)



Source: Reserch on Trend of Occupational Accidents (Ministry of Health, Labour and Welfare)

Number of Fatal Accidents (Global*3)

2013	2014	2015	2016	2017
0	0	0	1 (Japan: An employee)	0

*1 The disabling injury frequency rate and the severity rate are based on data only from Japan.

*2 This excludes PanaHome.

*3 Occupational illness and accidents during travel to and from work are excluded; In-house contractors are included.

Panasonic's disabling injury frequency rate annually falls below the machinery and electronics manufacturing industry benchmarks, and the same can be said for the degree of disabling injuries, as no accidents leading to death occurred, except in 2016. (In 2016, there was one case of a death from an employee getting caught in equipment in Japan.) Occupational illness and accidents during travel to and from work are excluded In-hours Subcontractors are included.

Responsible Supply Chain

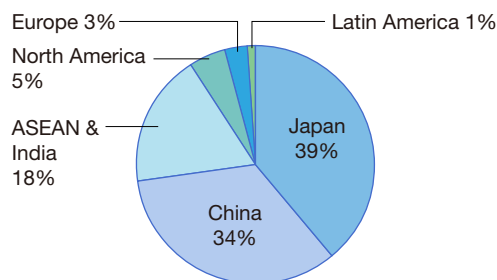
Overview of Supply Chain

Panasonic does business with approximately 10,000 companies worldwide.

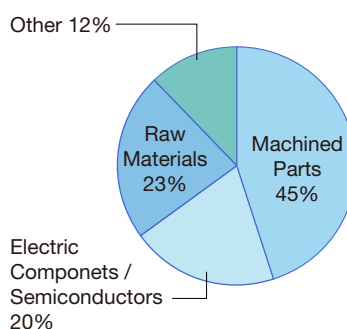
Roughly 70% of these business partners are in Japan and China. And 45% of them supply machined parts.

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.

Ensuring Fair 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. Regretfully, in fiscal 2017, there were cases of employees working in procurement for Panasonic in China who violated these principles. Panasonic considers this a serious issue. To prevent a reoccurrence, Panasonic has instituted thorough measures to remind all employees in charge of procurement of their responsibilities.

• 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 of a Purchasing Ombudsperson Fair Business Hotline

Panasonic promotes fair and equal procurement activities based on our Clean Procurement Declaration.

We have created the Fair Business Hotline, a fair and objective organization, as a means for reporting in the event that any of our procurement staff have violated any laws or regulations, agreements with suppliers, the Panasonic Code of Conduct, or other procurement rules, or is suspected to be about to do so in the near future.

► Our Company (Clean Procurement Declaration)

<http://www.panasonic.com/jp/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
Number of CSR First Classes	One	Two	Two
Number of students	10	12	11
Number of CSR Second Classes	Two	Four	Five
Number of students	99	174	248

The purposes of this training are to make employees able to gain a basic knowledge of our approach to CSR and procurement compliance 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 2018)

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, the Panasonic Group issued the CSR requirements we have created in order to convey our stance on CSR procurement that we want our suppliers to adhere to known as the Panasonic Supply Chain CSR Promotion Guidelines (hereafter, "Procurement Guidelines"), with reference to international standards and standard approaches in industry.

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.

<http://www.panasonic.com/jp/corporate/management/procurement/for-suppliers.html>

Related Links

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

http://panasonic.net/sustainability/jp/human_rights/approach.html#freedom

► Initiatives for the Prevention of Slavery and Human Trafficking

http://panasonic.net/sustainability/jp/human_rights/global_standards#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 from roughly 5,000 suppliers, mostly in China, Southeast Asia, and India, while in fiscal 2018, we did the same from roughly 2,000 suppliers primarily in Japan.

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

<http://www.panasonic.com/jp/corporate/sustainability/eco/supplychain.html>

► FY2017 ECO-VC Activity -Proposal and Application Guidelines

<http://www.panasonic.com/jp/corporate/management/procurement/partner/context.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. Examples of such work include; developing the 'conflict free' system of upstream companies (through to mines) and 'conflict free' certification of refining / smelting companies (including refiner / smelter information transmission downstream).

To help achieve this, Panasonic is requiring all related suppliers to provide relevant information through the supply chain, and 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 partners with them, in order to meet its social responsibilities, to promote responsible minerals procurement throughout the entire supply chain.

The investigations of conflict minerals, in which Panasonic has long been involved, require the cooperation of all suppliers, and all the refineries/smelters they work with. 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) issued by the Responsible Minerals Initiative (RMI). We are also active participants at investigative briefings held by JEITA (Japan Electronics and Information Technology Industries Association's) Responsible Minerals Trade Working Group, where we work as a presenter. We make active use of manuals and other handbooks jointly prepared by Japanese automobile makers and the Japan Auto Parts Industries Association for conducting investigations.

Status of Investigations

In fiscal 2018, the Panasonic Group as a whole surveyed around 1,700 suppliers on conflict materials and had responses from 99% of those (as of the end of February 2018). Based on the data from the CMRTs that we have collected, we have already conducted a risk analysis and assessment, and have requested further investigations from suppliers according to risks. A total of 322 smelters have been identified by the Panasonic Group for all the minerals. Among these, 80% of all smelters have been certified as CFS.

At the present time, we have not confirmed any minerals that have served to finance military power either directly or indirectly for the metals that have been reported in the survey as being sourced from covered countries, but we will continue our work of closely examining and identifying smelter information.

Furthermore, through our industry activities, we have urged smelters to acquire CFS certification. Our suppliers continue to perform due diligence, but in the rare event minerals are discovered to have been supportive of conflict, we are asking that these suppliers strive to change their suppliers, or take other steps toward non-use.

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 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 conflict 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 conflict 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 toward getting smelters that have not yet received CFS certification to do so.

Furthermore, Panasonic joined the Responsible Minerals Initiative (RMI) in July 2017, with the aims of learning the latest industry trends and promoting appropriate procurement activities. Panasonic will continue the responsible procurement of minerals while watching 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. This is our way of supporting organizations working to resolve issues in African nations. Included among the organizations that Panasonic has supported so far are the NPO Terra Renaissance (2011 to 2013), which works on issues including landmines, small arms, and child soldiers in countries including Uganda and the Democratic Republic of the Congo, and Reborn Kyoto (2014 to 2016), an NPO that provides opportunities for women in Rwanda to take part in vocational training in order to support their economic independence. 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.

Each year, we designate September to be “Compliance Awareness Month,” marked by efforts to strengthen our awareness of the need to observe ethical and legal requirements. We conduct a “Compliance Awareness Survey” to check the degree of compliance awareness dissemination among our employees around the world. Once each year, we check the status of observance and practice of the “Panasonic Code of Conduct” in our business locations around the world and undergo an Internal Control Audit conducted by an auditing firm.

In addition, to prevent improprieties and achieve quick resolutions, we have established hotlines for whistleblowers in our domestic and foreign business locations, and for our business partners.

In addition to 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 activities under the themes of “preventing cartels” and “preventing bribery of government officials.”

Also, Panasonic has been a member of the Business Ethics Research Center (BERC) since BERC was founded in 1997. Together with BERC and other member companies, we have engaged in research, practice, education, and promotional activities for management ethics through panels, study groups, information-exchange activities, and so on.

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

<http://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

<http://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. Specifically, we share the compliance policies for the fiscal year with the Companies and regional headquarters at the beginning of each fiscal year at our Global Legal Conference, and September is designated as Compliance Month (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.

Each year, we designate September as "Compliance Awareness Month" to check up on our efforts to ensure that the mental attitude of strict adherence to ethics and the law has taken hold globally and to respond to risks. 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.

In this interval, 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.

During this period, we also conduct a "Compliance Awareness Survey" among our employees.

In fiscal 2018, compliance training through e-learning was held in nine languages, with 48,000 employees from 20 regional offices taking part.

Additionally, priority education aimed at preventing cartels and preventing bribery of government officials is being conducted. (For more detail, refer to the chapter on "Fair Operating Practices: Fair Trade.")

Responsible Executive and Framework

The General Counsel (GC) in charge is Director Laurence Bates (as of August 2018).

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.

In fiscal 2016, Panasonic established a centralized organization with functions for handling compliance, risk, and governance issues that span multiple functional divisions. This move has accelerated the pace of support for fair operating practices in Panasonic's business divisions.

Whistleblowing Systems

Within our company, we have established the following whistleblower hotlines as systems for receiving a variety of internal reports regarding compliance:

- “Business Ethics Global Hotline” for general information on compliance in Japan and abroad.
- “Equal Employment Opportunity Office” for consultations regarding sexual harassment, equitable treatment, and the like.
- “Fair Trade Hotline” for the reporting of legal violations concerning cartels, bribery, the Subcontract Act, and so on.
- “Internal Control Promotion Office Hotline” for accounting irregularities.
- “Fair Business Hotline” for receiving reports from our business partners.
- “Auditor Report System” for reports concerning our accounting and audits.

The Panasonic Code of Conduct stipulates that “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.” At all the hotlines above, mistreatment of whistleblowers is strictly forbidden and confidentiality is assured. In addition, reports can be made anonymously if there is no need to contact the whistleblower for additional information (some hotlines are excluded).

In fiscal 2018, roughly 200 reports and consultations were handled through these whistleblowing systems. These systems respond to all reports and consultations by investigating and verifying facts with the cooperation of the relevant divisions.

Outside Japan, in addition to the “Global Hotline,” region-specific reporting systems have been set up in North America, Europe, Asia, and Latin America.

After working on efforts to integrate and reorganize all these hotlines except for “Equal Employment Opportunity Office” and “Auditor Report System,” we centralized them into one new global hotline in August 2018.

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.

Once each year, employees fill out “Compliance Awareness Surveys.” These surveys include topics that are common globally, such as compliance, and information security, and also other topics that are specific to particular Companies, places of business, and regions. There were around 130,000 respondents globally in fiscal 2018. The survey results are analyzed from a variety of perspectives – region, company, employee rank, and so on – and are used in a wide variety of functions, such as the formulation of policies and measures regarding compliance and responses to specific issues.

For example, there are uneven levels of legislation, depending on the country, within Asia—which Panasonic considers a strategic overseas region. This region poses considerable risks in regard to Panasonic’s efforts to combat corruption. In this business environment, in order to develop fair and powerful solution business – including BtoB and BtoG – we were able to identify issues through this survey such as: (1) the need for ongoing efforts to instill compliance awareness, (2) the need for repetition of compliance education, and (3) the national differences in compliance awareness. Based on these results, various elements were incorporated in the mid-term action plan to practice in the daily business activities, including (1) the formulation of action guidelines and education campaigns at the level of the regional headquarters, (2) the strengthening of e-learning and training programs in each national language, and (3) the fortification of alliances involving legal departments in each region and the raising of the level of compliance through auditing.

Grave Violations and Corrective Measures

Panasonic subsidiary MT Picture Display (hereafter, MTPD) and three of its subsidiaries argued their case before the Tokyo High Court for the dismissal of an order to pay fines imposed by the Fair Trade Commission, but when a decision was reached to deny their claim on April 2016, the companies appealed to the Supreme Court. The Supreme Court announced its decision to deny the appeal in December 2017, making the Tokyo High Court’s decision on the matter final. Panasonic has taken this development seriously and continues to work to ensure that, through complete and thorough management, such issues do not arise again. For information about Panasonic’s policies for preventing cartels, refer to the chapter on “Fair Operating Practices: Fair Trade.”

In the rare event that Panasonic becomes aware of any serious ethical or legal violations, 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: Fair Trade

Panasonic believes that cartels and the bribery of government officials can have critical effects on management throughout the entire group, and it acts to combat these phenomena as a group. In more specific terms, within the “control environment, prevention, detection, and response” framework discussed below, each Company and regional headquarters establishes an annual compliance program (such as the one shown below), based on an understanding of the risks that it faces with its business and in its region. At the end of the fiscal year, the Company President or regional Head is required to certify the effective functioning of the program to the Panasonic President. Supervisory organizations relating to these practices have been established in departments at the Panasonic headquarters, and these organizations provide oversight and support for initiatives in Companies and regional headquarters.

- **Control Environment:** Particularly during Compliance Awareness Month, the President, Company Presidents, and regional Heads issue compliance messages targeting employees. In each Company, a compliance workshop among the business division directors is held, helping to foster a culture of compliance in all business divisions.
- **Prevention:** E-learning is provided in eight languages for the people responsible within the organizations of relevant departments. In fiscal 2018, around 40,800 people underwent this training. Between fiscal 2016 and 2018, group study sessions were conducted with management from overseas companies. In total, around 8,600 people attended. To improve the effectiveness of Panasonic’s anti-cartel and anti-bribery of government officials’ regimes, each location conducts self-checks to examine the operational status of cartel prevention measures, including the functioning of company rules and offering of education, and each Company or regional headquarters reviews or audits these self-checks, especially in places where we conduct BtoB and BtoG business and in countries and regions where the Corruption Perception Index established by Transparency International indicates high risk. We implement improvements immediately when internal rules are found to be less than fully observed.
- **Detection:** Hotlines have been established at the group headquarters, in Companies, and at regional headquarters. These hotlines are publicized through educational activities.
- **Internal investigations** are conducted immediately when behavior suspected of constituting a violation is discovered through auditing or a hotline tip-off.
- **Response:** If internal investigations confirm that violations have occurred, the violation is immediately halted, the true cause is uncovered, measures to prevent re-offense are implemented, and the people involved are disciplined.

Preventing Cartels

We at Panasonic are taking the fact that our company has been implicated in multiple international cartel incidents seriously, and we have positioned the prevention of cartels as a critical groupwide issue. 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 of cartels 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 cartel audits, and speeding up personnel rotations.

Preventing Corruption

Prevention of Bribery of Government Officials

Even as the authorities in different countries continue to bear down harder on corruption, along with the expansion of business in developing countries and solutions business comes a higher risk of bribery of public officials. Panasonic continues to engage in efforts to prevent bribery of government officials through means such as issuing bribery prevention policies from senior executives, establishing standards and approval processes for spending on dinners and the like with public officials, managing business partners, and ensuring that training and awareness-raising activities for executives and employees are thoroughly carried out, especially for business sites located in countries and regions that rank high in the Corruption Perceptions Index.

Rules on Dealing with Government Officials

In 2010, we established the Rules on Dealing with Government Officials for the purpose of preventing bribery of government officials or actions that may raise suspicions of such unlawful behavior.

These rules stipulate that no employee may offer, give, pay for, promise to pay for or authorize the payment or the grant of any benefit to any government officials in connection with obtaining or retaining business.

An approval process and specific standards were established such as for meals with government officials. These are intended to prevent the direct offering of benefit to government officials and also the indirect offering of benefit through consultants, distributors, lobbyists, or other business partners. Careful screening and designation of business partners must be conducted, and contracts must include provisions prohibiting bribery.

In cases of violations of these rules, swift steps must be taken to redress the situation, and strict measures must be taken against the violation.

In addition, regarding expenses for social interactions or gifts, prior approval is required, and detailed reports must be filed. There is also a process for ensuring that no government officials are involved, in an effort to preclude corrupt acts.

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

Prevention of Other Corruption

Needless to say the prohibition of bribery of government officials, as provided in the Code of Conduct, it is prohibited to offer benefits of any kind, including gifts, meals and entertainment, and to receive personal benefits from any of our stakeholders, which would go contrary to laws and regulations and social ethics. Concretely, the Panasonic Group has its anti-corruption policies region by region, so that such policies would meet the laws and custom of trade of that country/region.

For instance, the companies in European region have their own guidelines in place on “Entertainment, Gifts and Hospitality” in line with their national laws for public officials and non-public officials, which contain specific limits and examples of what is and is not considered acceptable. Further, each person is obligated to speak out against suspected acts of bribery or corrupt practices.

In emerging countries and regions including China and Asia, it is prohibited to offer directly or indirectly any benefit to business partners including government officials, in connection with obtaining or retaining business. Additionally, each director and employee is required to sign an undertaking letter committing never offering/accepting a bribe, to raise the awareness of bribery.

Fair Operating Practices: Measures Taken Against Counterfeit Goods

It is estimated that around 80% 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

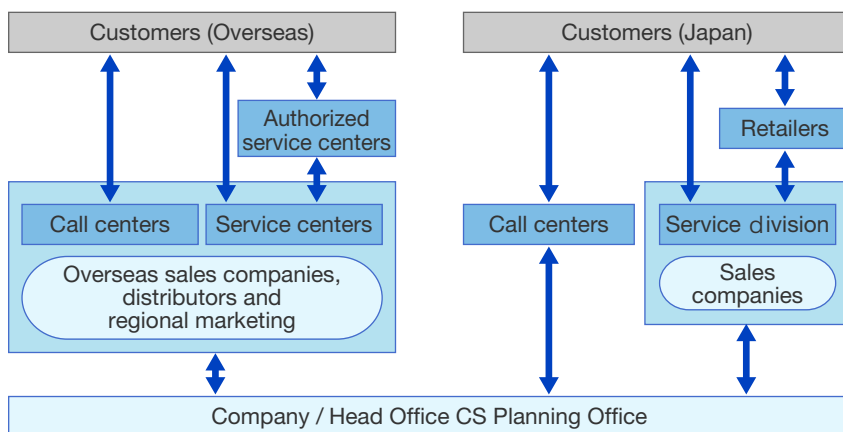
Responsible Executive and Framework

The executive officer in charge of CS is Managing Executive Officer Yukio Nakashima (as of August, 2018).

The CS Planning Office at the Panasonic Head Office and the CS departments at each of the four Panasonic Companies (Appliances, Eco Solutions, Connected Solutions, and Automotive & Industrial Systems) 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.

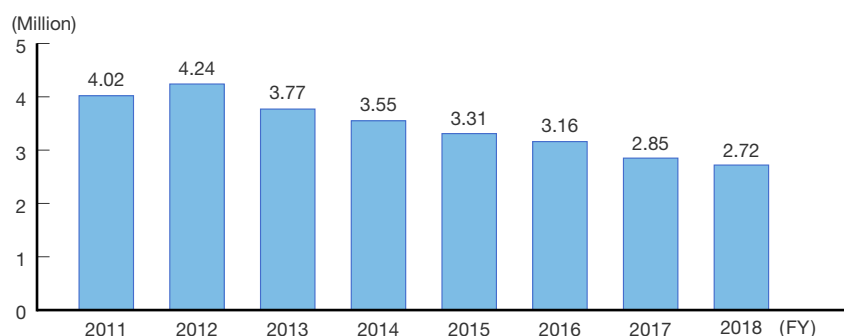
In recent years, the company has also been undertaking initiatives to use Facebook and other social media outlets to post various types of useful information in a timely manner, such as when the seasons change, and to entice customers to visit relevant FAQ pages using LINE's autoreply service.

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 Eco Solutions 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 2018)

Number of Service Locations of Panasonic Eco Solutions Techno Service Co., Ltd.:
46 locations (as of April 2018)

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. The company has also established repair service windows at its Repair Factory in Tokyo's Akihabara for its LUMIX digital cameras and Let's note notebook PCs, which offer same-day repair service. The

company currently provides its LUMIX Concierge Service that provides product and repair consulting, as well as cleaning services at the Repair Factory and the Panasonic Center Osaka. Panasonic is working to provide service offerings that mesh with customer lifestyles and life stages, including one-stop service.



LUMIX and Let's note Repair Factory in Akihabara



LUMIX Concierge Service in Osaka

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 (FY2018)

Region	Number of Repair Service Centers
Japan	151
North America	1,450
Latin America	1,150
Europe & CIS	490
Southeast Asia & Pacific	1,650
India, South Asia, Middle East & Africa	990
China & Northeast Asia	700

*Japan: CS Company, Panasonic Consumer Marketing Co., Ltd. and affiliates,
Panasonic Eco Solutions 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 B2B Systems Solutions Business

Once every year, Panasonic conducts a survey of customer satisfaction in solutions business from sales proposals to maintenance and service to check for gaps between customer expectations and customer evaluations of Panasonic, and connects those results to improvements of services to our customers. The survey is given to roughly 400 companies from among Panasonic's partners that resell systems products to other businesses within Japan and our direct sales customers. The company has been conducting these surveys continuously since 2008. The survey consists of 46 questions concerning five major items: sales proposals, products and SE, repairs and maintenance, construction, and CSR. In addition to asking that respondents answer those questions, Panasonic also provides respondents with spaces to freely write their opinions of and requests to the company. The company also follows a cycle of improvement based on analyses of the results of the survey as follows: Plan: Draft plans for improvement initiatives → Do: Execute improvement activities → Check: Verify improvement progress → Act: Survey 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>

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, as a leader in global trends, engages in manufacturing while continuously improving its various systems and mechanisms to raise quality levels and ensure product safety, setting unique targets for itself as a company that are even more demanding than the generally accepted standards and regulations.

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

<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/jp/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 Quality Management System (P-QMS) Guidelines in 2004. These Guidelines complement the requirements of the ISO9001 standard with Panasonic’s own quality assurance methods and experience to create a quality management system that aims to deliver the level of quality that the company demands.

Quality management systems are also established within each Company and workplace based on those guidelines and tailored to their specific business specialties, and then quality assessment and internal audits to verify the progress of those systems are conducted at every level (group, company, workplace, etc.), all as part of the company’s commitment to continuous improvement in quality.

Panasonic has established standards for each of its business areas—including consumer electronics, automotive, housing, devices, BtoB solutions, and pharmaceuticals—specifying which portions apply groupwide and which portions apply to specific businesses, with the aim of moving toward compliance in all its diversifying 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). Panasonic also holds its Quality Control Circles World Conference to improve the quality control skills of on-site employees through horizontal expansion of QC activities where employees learn methods for solving problems in the workplace in November every year. At the 25th conference, held in fiscal 2018, 28 quality control circles were picked from a total of 4,813 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 2018, 7,000 employees ranging from new hires to management-level employees took part in the Comprehensive Product Safety Course where they renewed their resolution to never allow another accident to happen after learning about accidents from the customer's perspective.

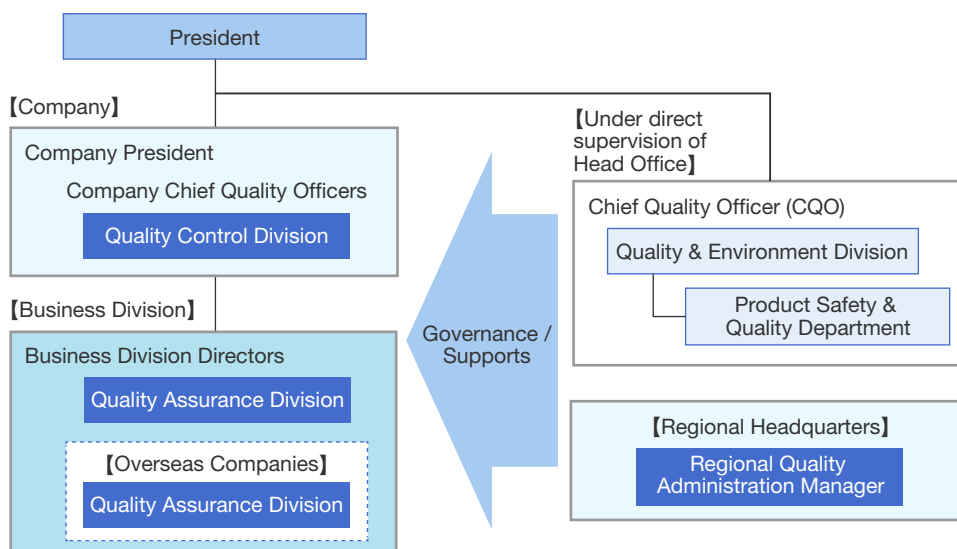
In order to further spread and establish P-QMS to all quality associates in the group, Panasonic also provided e-learning to roughly 90% of the nearly 4,000 employees at the manager level at all divisions under Companies in Japan.

Responsible Executive and Framework

As of August 2018, the Chief Quality Officer (CQO) is Senior Managing Executive Officer Yoshiyuki Miyabe.

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 within the group and the state of product quality at its CQO Meetings. These meetings are attended by the CQOs from each company and related function persons. 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 quality policies. These meetings both enhance cooperation within the group and promote quality improvement efforts. Since fiscal 2016, Panasonic has held a 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.

Because of the growth of various types of robotics products and increases in product safety-related accidents among the elderly, as well as products that use lithium-ion batteries and products that are connected to the Internet, Panasonic is investigating new policies to pursue in regard to these matters, including both safety and preventive measures.

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 2018, the

working group shifted its product safety activities from accident response to accident prevention and considered ideas for future Panasonic businesses, including the idea of reflecting considerations for children and the elderly during product design stages.

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 2018, it prioritized preventing lithium-ion batteries from catching fire by filling out and strengthening its unique Panasonic standards to be applied to all products that use such batteries.

The working group is also making efforts to expand the scope of its product safety standards to actively prevent risks that it anticipates could occur because of the expanded areas in which the company does business. For example, the working group revised internal standards for each business, such as the Panasonic System Safety Standards (PSSS), which cover energy management and other systems. To ensure the safety of Panasonic's personal care robots, the working group also revised the Panasonic Personal care Robot Safety Standards (PRSS).

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/>

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

^{*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.

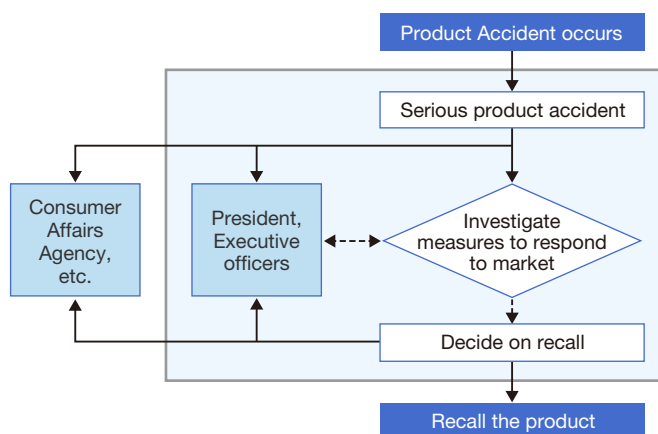
^{*3}: Safety achieved through the working (functioning) of electric or electronic devices, such as microcomputers. Functions include the detection of malfunctions, safe stop controls, and user warnings.

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 at the 11th Best Contributors to Product Safety Awards

(Details: http://www.meti.go.jp/product_safety/ps-award/)

The Laundry and Cleaner division at Panasonic Appliance received the Excellence Award (the judges panel prize) in the Large Manufacturer and Importer Category at the METI's Best Contributors to Product Safety Awards. The company was awarded this prize due to its high ratings in the following criteria, among others:

- 1) "The company's solid record of product safety and the ample human resources that have allowed it to do that";
- 2) "The company's record of measured manufacturing";
- 3) "The company's continued initiatives toward making its product manuals easy to understand"

This honor came for the third consecutive year, following PanaHome receiving the Director-General for Commerce, Distribution, and Industrial Safety Policy Award in 2015 and Eco Solutions Company receiving the METI Minister's Award in 2016.

* 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 six 2017 IAUD Awards: Grand Award, Gold Awards, and Silver Awards

Panasonic received a Grand Award at the 2017 IAUD Awards, sponsored by the International Association for Universal Design (IAUD), for its "Panasonic's Universal Design Communication" (for details, see: <https://www.panasonic.com/jp/corporate/technology-design/ud.html>), and two Gold Awards, for "R4 Series, Rechargeable Receiver-In-Canal Hearing Aid" and "Panasonic Let's Remo-con AD/ST PN-L90102, PN-L90101." This is the sixth consecutive year that the company has received gold awards.

Panasonic also received three Silver Awards for "Bone Conduction Head Set," "Bagged Canister Vacuum Cleaner / Panasonic MC-JP800G/SJP800G Series," and "Robotic Vacuum Cleaner RULO / Panasonic MC-RS800 Series," making the company the recipient of the most awards out of all recipients. (For details, see: <https://www.iaud.net/award/9631/>)

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

Policy

Panasonic Code of Conduct

Chapter 2: Implementing the Code in Business Operations; II-4. Use and Control of Information

<http://www.panasonic.com/global/corporate/management/code-of-conduct/chapter-2.html#section2-4>

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.

Information Security Management System

Panasonic is well aware of the importance of protecting personal information and other information with which it has been entrusted by its customers. The company has created a system for the management of information security and endeavors to manage information appropriately on a groupwide basis through the establishment and enforcement of global rules and regulations.

Panasonic works to raise the levels of knowledge and awareness of all employees and to enable them to handle information properly through training. This includes training on new forms of risk for all group employees, for staff according to their position in the organization, and for those who handle personal information and other information entrusted to Panasonic.

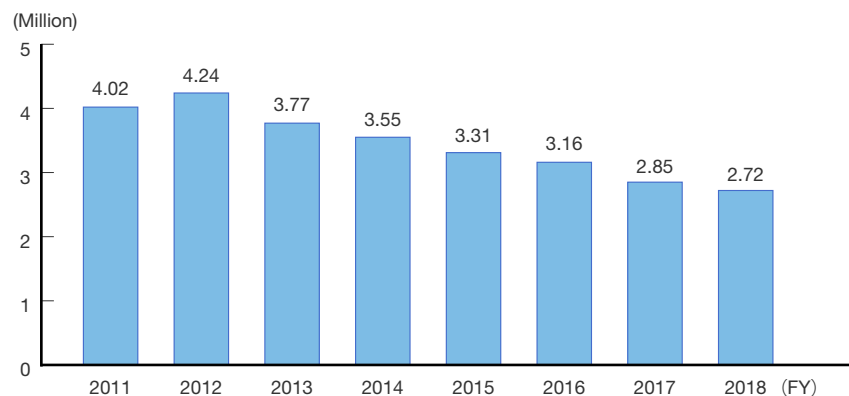
In considering the expected growth of its IoT business, Panasonic is undertaking initiatives in its responsibility to society by managing data in a way that protects privacy, on the chance that it will increasingly handle personal data, such as lifelogs.

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 2018)

Number of Service Locations of Panasonic Eco Solutions Techno Service Co., Ltd.:
46 locations throughout Japan (as of April 2018)

Numbers of Repair Service Centers (Overseas Numbers for FY2018)

Region	Number of Repair Service Centers
Japan	151
North America	1,450
Latin America	1,150
Europe & CIS	490
Southeast Asia & Pacific	1,650
India, South Asia, Middle East & Africa	990
China & Northeast Asia	700

*Japan: CS Company, Panasonic Consumer Marketing Co., Ltd. and affiliates,
Panasonic Eco Solution Techno Service Co., Ltd.

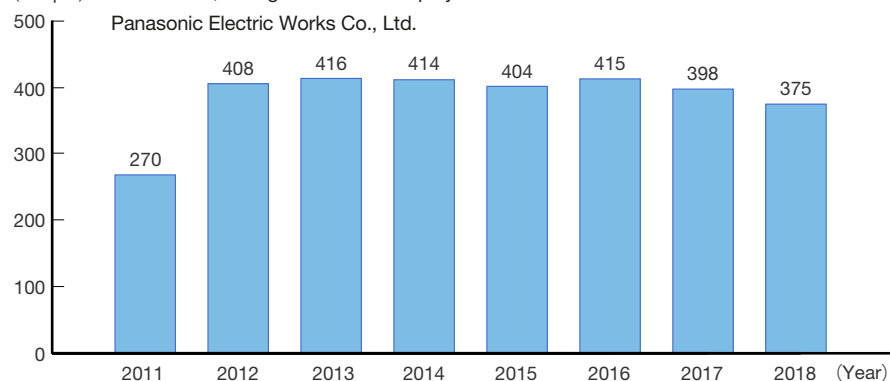


Initiatives Related to Improving Customer Satisfaction

Promoting the Acquisition of Consumer Affairs Advisor Credentials

Number of Employees Certified over Time (as of April 2017)

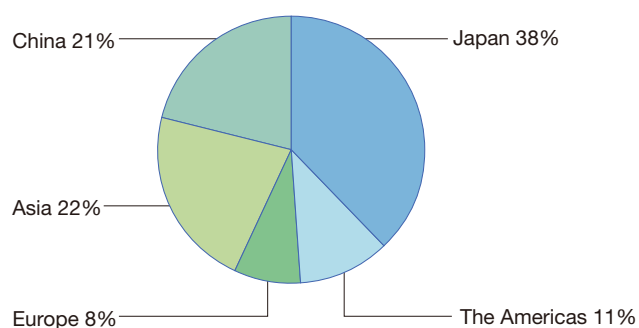
(People) *From 2012, the figures include employees from the former
Panasonic Electric Works Co., Ltd.



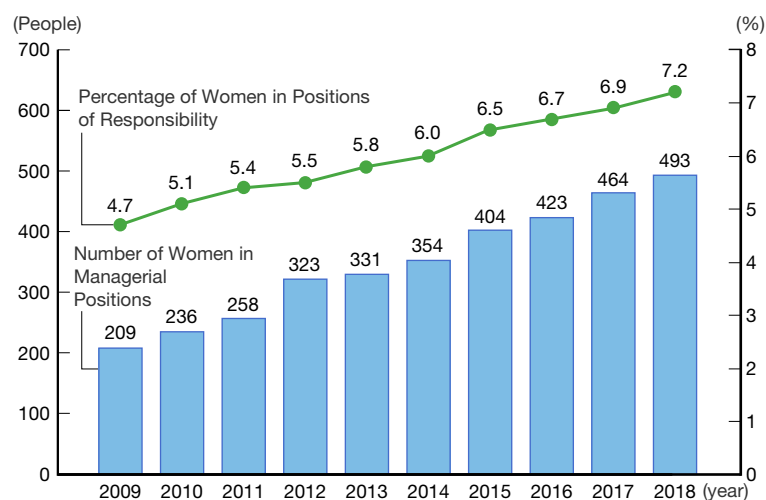
Employees

Proportions of Employees by Region

Total Number of Employees on a Global Consolidated Basis: 274,143 (as of the end of March 2018)



Number of Women in Managerial Positions, Percentage of Women in Positions of Responsibility

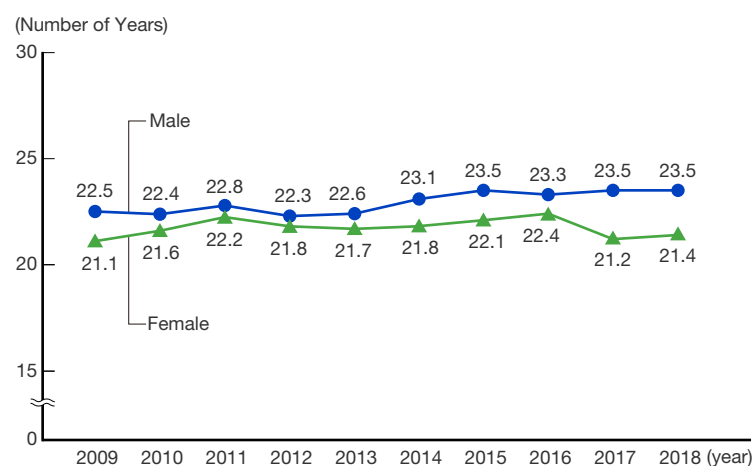


Note: Figures as of April in each year

*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 2009	June 2010	June 2011	June 2012	June 2013	June 2014	June 2015	June 2016
Panasonic Corporation	1.93%	2.01%	2.07%	2.04%	2.15%	2.16%	2.15%	2.18%
Key Group Member Companies	2.16%	2.10%	2.08%	2.11%	2.21%	2.24%	2.46%	2.50%
Group (whole)	2.00%	2.07%	2.08%	2.06%	2.17%	2.18%	2.21%	2.23%

Special Subsidiaries (employee figures are as of June 2018)

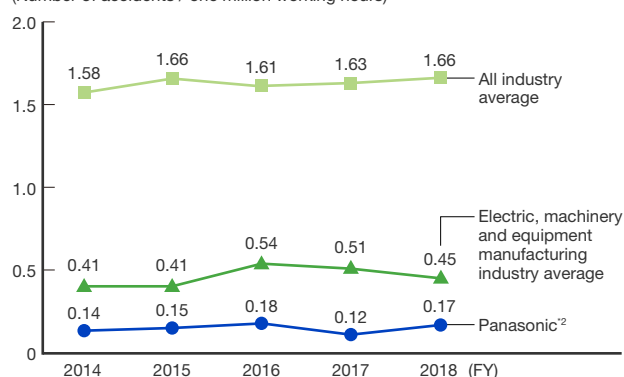
Company Name	Year of Establishment	Number of Employees (Number of Persons with Disabilities)	Description of Business
Panasonic Kibi Co., Ltd.	1980	82 (36)	Assembly of video camera LCD units, video accessories
Panasonic Katano Co., Ltd.	1981	40 (32)	Assembly of avionics products, inspection and packaging of AV accessories
Panasonic Associates Shiga Co., Ltd.	1994	57 (33)	Assembly of electronic circuits (for massage chairs, shavers, etc.)
Panasonic Ecology Systems Kyoei Co., Ltd.	1980	40 (24)	Assembly of ventilating fan parts, printing of user manuals
Sanyo Heart Ecology Co., Ltd.	1998	75 (33)	Growing/selling orchids, distribution of company-internal mail
Harima Sanyo Industry Co., Ltd.	1982	42 (21)	Assembly of vacuum cleaner parts, maintenance of internal environment
Sendai Sanyo Industry Co., Ltd.	1992	42 (18)	Manufacture of LED products, light sensors

Work-related Accidents*1

Incident Rate of Work-related Accidents

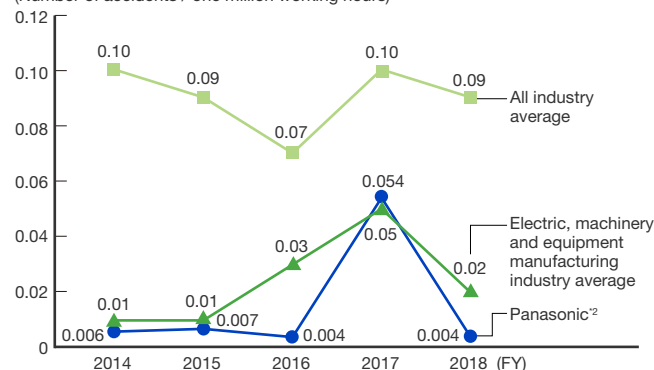
Disabling Injury Frequency Rate (The number of incidents of leave taken due to disabling injury per one million total working hours)

(Number of accidents / one million working hours)



Disabling Injury Severity Rate (The number of days not worked per 1,000 total working hours)

(Number of accidents / one million working hours)



Source: Survey on Industrial Accidents (Ministry of Health, Labour and Welfare)

Number of Fatal Accidents (Globally)

2013	2014	2015	2016	2017
0	0	0	1 (Japan: An employee)	0

*1 The disabling injury frequency rate and the severity rate are based on data only from Japan.

*2 This excludes Panasonic Homes.

(*3 Please note if adding a bar graph for the number of days missed due to occupational injury)

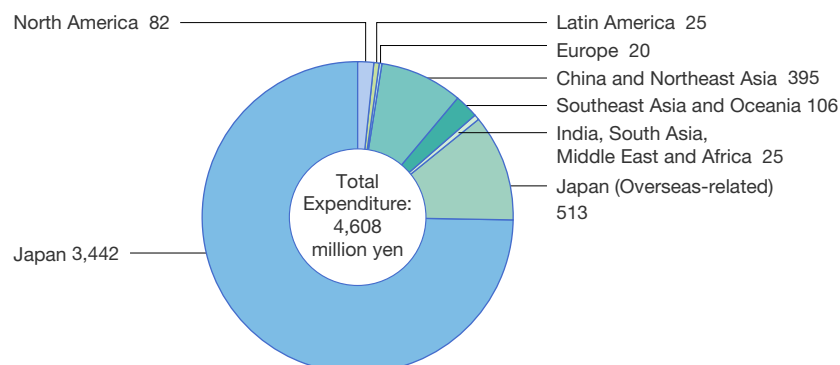
Panasonic's disabling injury frequency rate annually falls below the machinery and electronics manufacturing industry benchmarks, and the same can be said for the degree of disabling injuries, as no accidents leading to death occurred, except in 2016. (In 2016, there was one case of a death from an employee getting caught in equipment in Japan.)



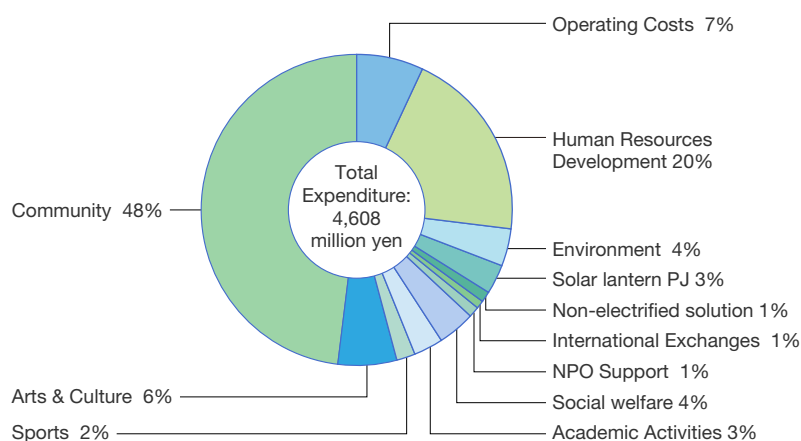
Spending on Corporate Citizenship Activities

Spending on Activities by Region (FY2018)

(Million Yen)



Spending on Activities by Area of Activity (FY2018)



Types of Donations

(million yen)

Type of Donation and amount		Percentage of Total Costs
Charitable Donations	639	14%
Community Investments	3,690	80%
Commercial Initiatives	279	6%
Total	4,608	100%

Methods of Donation

(million yen)

Method of Contribution	Amount
Cash contributions	509
Expense relating to employees volunteering	32
Product on service donations each support for programs	3,730
Management overhead	336
Total	4,608

External Recognition

Major Recognition in the CSR and Environmental Fields

FTSE4Good Index Series

Panasonic Corporation has again been selected for the FTSE4Good Index, 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 18 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 8 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.

EcoVadis

Panasonic has again been awarded a Gold Recognition Level in sustainability performance in a survey conducted by EcoVadis for a 3rd 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 2017

The results of the 15th 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 fall of 2017. Panasonic earned a Leadership score (A-), the second highest among eight grades.

Nikkei Environmental Management Survey

Panasonic was ranked 15th in the manufacturer category of the 21st Nikkei Environmental Management Survey announced in January 2018. The company scored high marks in the product solutions category.

Environmental Brand Survey by Nikkei BP Eco Management Forum

Panasonic was ranked 3rd in the ranking of the 18th Environmental Brand Survey conducted in 2017 by Nikkei BP Eco Management Forum for 3 consecutive years. The company received high evaluations in the areas such as energy saving, creation, and storage; resources recycling; as well as environmental communication.

Environment-related Awards

Environmental activities by Panasonic gained recognition again in fiscal 2018, with various awards received globally.

Major Awards in the Environmental Field (Fiscal 2018)

Category	Presenter and awards	Specific prize	Recipient companies and details (URL)
Products & Services	Ministry of Education, Culture, Sports, Science and Technology (Japan) The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology 2017	Prize for Science and Technology (Development Category)	Panasonic Corporation, Electronic Materials Business Division, Automotive & Industrial Systems Company Development of base material for a high temperature resistant and high multilayer high-speed PCB https://news.panasonic.com/jp/press/data/2017/04/jn170411-4/jn170411-4.html
	Monozukuri Nippon Conference & Nikkan Kogyo Shimbun, Ltd. (Japan) "CHO" MONODZUKURI Innovative Parts and Components Award 2017	Daily Goods Parts and Component Prize	Panasonic Corporation, Appliances Company Nanoe X device that generates 10 times more OH radicals http://iweb.mei.co.jp/gp/company/ap/ja/report/140506.html
	Energy Conservation Center (Japan) Energy Conservation Grand Prize 2017	Chairman's Prize of ECCJ	Panasonic Corporation, Appliances Company Commercial and office use air conditioner XEPHY6 Series, that pursues energy-saving performance, comfort, and usability https://news.panasonic.com/jp/topics/158850.html
		Chairman's Prize of ECCJ	Panasonic Corporation, Appliances Company Absorption chiller system, Energy-Saving Absorption Chiller PR Type (Jointly awarded with Tokyo Gas Engineering Solutions Corporation) https://news.panasonic.com/jp/topics/158850.html
		Chairman's Prize of ECCJ	Panasonic Corporation, Eco Solutions Company Energy-saving support service by providing cloud-based analysis tool (Jointly awarded with Takasago Thermal Engineering Co., Ltd.) https://news.panasonic.com/jp/topics/158850.html
	Advanced Cogeneration and Energy Utilization Center Japan (Japan) Co-Gen Award 2017	Technological Development Category Special Prize	Panasonic Corporation Development of ENE FARM with improved added value—Reinforcement of resilience function and support for IoT (Jointly awarded with Tokyo Gas Co., Ltd., etc.) http://iweb.mei.co.jp/tec-lib/award/other/list/2018.html http://www.ace.or.jp/web/gp/gp_0010.html
	Toyota Motor Corporation Toyota Global Suppliers Conference 2018	Technological Development Award	Panasonic Corporation, Automotive & Industrial Systems Company High I/O Lithium Ion Battery for HVs http://iweb.mei.co.jp/gp/company/ais/ja/report/141928.html
	Japan Automotive Daily (Japan) Car Accessory Award 2017	Best Battery Prize	Panasonic Corporation, Automotive & Industrial Systems Company CAOS battery series http://iweb.mei.co.jp/gp/company/ais/ja/report/138088.html
	United States Environmental Protection Agency (U.S.) ENERGY STAR Awards	Sustained Excellence Award	Panasonic Eco Solutions North America Leadership in protecting the environment through greater energy efficiency https://bdmag.com/epa-recognizes-panasonic-eco-solutions-north-america-2017-energy-star-partner-year-sustained-excellence-award/
	Japan Institute of Design Promotion (Japan) Good Design Award 2016	Good Design Award & others	Panasonic Corporation Hybrid power conditioner, demonstration experiment of home delivery box, etc. http://www.g-mark.org/award/describe/45229?token=TnQiQojD9S http://www.g-mark.org/award/describe/46043?token=TnQiQojD9S
	Kids Design Association (Japan) Kids Design Award 2017	Designs that Develop Children's Creativity and Shape Their Future Category Kids Design Award, and others	Panasonic Corporation Smart HEMS, and others http://www.kidsdesignaward.jp/search/detail_170951
Production Activities	Japan Management Association (Japan) GOOD FACTORY Award 2017	Factory Management Award	Panasonic Corporation, Eco Solutions Company Lighting Business Division, Niigata Factory https://news.panasonic.com/jp/topics/155382.html
Environmental Education	Ministry of Natural Resources and Environment (Vietnam) National Environment Award 2017		Panasonic Vietnam Significant contribution to environmental protection http://iweb.mei.co.jp/gp/region/apmea/news/en/report/137633.html
Environmental Communication	The Nikkan Kogyo Shimbun, Ltd. (Japan) 52nd Japan Industry Advertisement Award	Nikkan Kogyo Shimbun Advertising Grand Award	Panasonic Corporation Photovoltaic Power Generation Solution Series
	Japan Magazine Advertising Association 60th Japan Magazine Advertising Award	Gold Prize	Panasonic Corporation Panasonic Solar Lanterns, and others http://www.zakko.or.jp/prize/work/index.html
	Dentsu Advertising Awards Screening Committee (Japan) 70th Dentsu Advertising Awards	Prize for Excellence in Newspaper Planning	Panasonic Corporation Technology to repaint the world (Repaint the world.) https://adawards.dentsu.jp/prize/list70/ https://adawards.dentsu.jp/prize/detail/6625
	East Japan Marketing & Communications, Inc. (Japan) Transportation Advertisement Grand Prize 2017	Planning Category Prize of Excellence	Panasonic Corporation Panasonic LED Ceiling Light AIR PANEL LED is lighting. http://awards.jeki.co.jp/archive/
	BtoB Advertisement Association Japan (Japan) 2017 BtoB Advertising Awards	Silver Award in the Magazine Advertisements Category	Panasonic Corporation, Eco Solutions Company, and others LED usage example series http://www.bbba.or.jp/jigygo/sogo/2017sogof.html

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	Prohibition of Forced Labor, Effective Abolition of Child Labor, and Attention to Young Workers http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#labor	1) Company Commitment	Respect for Human Rights - Policy http://www.panasonic.com/global/corporate/sustainability/human_rights.html#policy
	2) Young Workers	Employing Foreign Workers http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#foreign		
	3) Working Hours	Managing Working Hours http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#hours	2) Management Accountability and Responsibility	Respect for Human Rights - Responsible Executive and Framework http://www.panasonic.com/global/corporate/sustainability/human_rights.html#structure
	4) Wages and Benefits	Managing Wages http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#wages	3) Legal and Customer Requirements	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights - Initiatives Relating to Global Standards, Legislation, Regulations, and So Forth http://www.panasonic.com/global/corporate/sustainability/human_rights/global_standards
	5) Humane Treatment	Prohibition of Discrimination http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#discrimination	4) Risk Assessment and Risk Management	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
	6) Non-Discrimination	Prohibition of Discrimination http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#discrimination	5) Improvement Objectives	Respect for Human Rights: Performance Evaluation http://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 http://www.panasonic.com/global/corporate/sustainability/human_rights/approach#freedom	6) Training	Respect for Human Rights - Education http://www.panasonic.com/global/corporate/sustainability/human_rights.html#education
				Respect for Human Rights - Management System (to employees) http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management
			7) Communication	Respect for Human Rights - Policy (to employees) http://www.panasonic.com/global/corporate/sustainability/human_rights.html#policy
			8) Worker Feedback and Participation	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			9) Audits and Assessments	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			10) Corrective Action Process	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management Respect for Human Rights: Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/human_rights/performance.html
			11) Documentation and Records	Respect for Human Rights - Management System http://www.panasonic.com/global/corporate/sustainability/human_rights.html#management
			12) Supplier Responsibility	Responsible Supply Chain: Enforcement of CSR for Suppliers http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Policy - Panasonic Occupational Safety and Health Policy http://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 http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
	4) Industrial Hygiene	Occupational Health and Safety Occupational Health and Safety : Performance Evaluation http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Management System http://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
	5) Physically Demanding Work	http://www.panasonic.com/global/corporate/sustainability/health_safety.html http://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 http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy Occupational Health and Safety - Management System http://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) http://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
				Occupational Health and Safety - Policy - Panasonic Code of Conduct (to employees) http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
	8) Health and Safety Communication			Occupational Health and Safety - Policy - Panasonic Occupational Safety and Health Policy (to employees) http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
				Occupational Health and Safety - Responsible Executive and Framework http://www.panasonic.com/global/corporate/sustainability/health_safety.html#structure
				Occupational Health and Safety: Performance Evaluation http://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 http://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 http://www.panasonic.com/global/corporate/sustainability/health_safety.html#policy
			11) Documentation and Records	Occupational Health and Safety - Management System http://www.panasonic.com/global/corporate/sustainability/health_safety.html#management
			12) Supplier Responsibility	Responsible Supply Chain: Enforcement of CSR for Suppliers http://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
C Environmental	1) Environmental Permits and Reporting	Panasonic Environment Vision 2050 http://www.panasonic.com/global/corporate/sustainability/eco.html Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html	1) Company Commitment	Environmental Policy http://www.panasonic.com/global/corporate/sustainability/eco/policy.html
	2) Pollution Prevention and Resource Reduction	Eco-conscious Products and Factories http://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	2) Management Accountability and Responsibility	Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Global Warming Prevention at Factories http://www.panasonic.com/global/corporate/sustainability/eco/co2/site.html		Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Business of Factory Energy Conservation Support Service http://www.panasonic.com/global/corporate/sustainability/eco/co2/service.html		Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Green Logistics http://www.panasonic.com/global/corporate/sustainability/eco/co2/logistics.html	3) Legal and Customer Requirements	Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Resources Recycling http://www.panasonic.com/global/corporate/sustainability/eco/resource.html		Environmental Risk Management http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Reduction in Resources Used and Use of Recycled Resources http://www.panasonic.com/global/corporate/sustainability/eco/resource/reduce.html		Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Product Recycling http://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery.html		Water Resource Conservation http://www.panasonic.com/global/corporate/sustainability/eco/water.html
		Factory Waste Management – Zero Waste Emissions http://www.panasonic.com/global/corporate/sustainability/eco/resource/zero.html	4) Risk Assessment and Risk Management	Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Water Resource Conservation http://www.panasonic.com/global/corporate/sustainability/eco/water.html		Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
	3) Hazardous Substances	Chemical Substance Management http://www.panasonic.com/global/corporate/sustainability/eco/chemical.html		Environmental Risk Management http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
	4) Solid Waste	Eco-conscious Products and Factories http://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	5) Improvement Objectives	Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Resources Recycling http://www.panasonic.com/global/corporate/sustainability/eco/resource.html		Environmental Policy http://www.panasonic.com/global/corporate/sustainability/eco/policy.html
		Reduction in Resources Used and Use of Recycled Resources http://www.panasonic.com/global/corporate/sustainability/eco/resource/reduce.html	6) Training	Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Product Recycling http://www.panasonic.com/global/corporate/sustainability/eco/resource/recovery.html		Environmental Risk Management http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
	5) Air Emissions	Factory Waste Management – Zero Waste Emissions http://www.panasonic.com/global/corporate/sustainability/eco/resource/zero.html		Human Resource Development http://www.panasonic.com/global/corporate/sustainability/eco/hr.html
		Eco-conscious Products and Factories http://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html	7) Communication	Environmental Policy (to employees, suppliers, and customers) http://www.panasonic.com/global/corporate/sustainability/eco/policy.html
	6) Materials Restrictions	Chemical Substance Management http://www.panasonic.com/global/corporate/sustainability/eco/chemical.html		Collaboration Across the Supply Chain (to suppliers) http://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html
		Biodiversity Conservation http://www.panasonic.com/global/corporate/sustainability/eco/biodiversity.html		Environmental Communication (to customers, and suppliers) http://www.panasonic.com/global/corporate/sustainability/eco/communication.html
		Collaboration Across the Supply Chain http://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html	8) Worker Feedback and Participation	Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
	7) Water Management			Environmental Management Systems http://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 http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
				Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html

	8) Energy Consumption and Greenhouse Gas Emissions	Panasonic Environment Vision 2050 http://www.panasonic.com/global/corporate/sustainability/eco.html	9) Audits and Assessments	Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Eco-conscious Products and Factories http://www.panasonic.com/global/corporate/sustainability/eco/gp_gf.html		Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Energy-saving/creating/storing Products http://www.panasonic.com/global/corporate/sustainability/eco/co2/product.html		Environmental Risk Management http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Global Warming Prevention at Factories http://www.panasonic.com/global/corporate/sustainability/eco/co2/site.html		Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
		Global Warming Mitigation and Adaptation http://www.panasonic.com/global/corporate/sustainability/eco/co2/solution.html	10) Corrective Action Process	Environmental Governance http://www.panasonic.com/global/corporate/sustainability/eco/governance.html
		Business of Factory Energy Conservation Support Service http://www.panasonic.com/global/corporate/sustainability/eco/co2/service.html		Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
		Green Logistics http://www.panasonic.com/global/corporate/sustainability/eco/co2/logistics.html		Environmental Risk Management http://www.panasonic.com/global/corporate/sustainability/eco/governance/risk.html
		Collaboration Across the Supply Chain http://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html		Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
			11) Documentation and Records	Environmental Management Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/ems.html
				Environmental Information Systems http://www.panasonic.com/global/corporate/sustainability/eco/governance/it.html
				Environmental Policy http://www.panasonic.com/global/corporate/sustainability/eco/policy.html
				Collaboration Across the Supply Chain http://www.panasonic.com/global/corporate/sustainability/eco/supplychain.html
D Ethics	1) Business Integrity	Preventing Corruption http://www.panasonic.com/global/corporate/sustainability/fair_practices/fairtrade#decrease	1) Company Commitment	Fair Operating Practices - Policy http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy
	2) No Improper Advantage	Policy http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy Preventing Corruption http://www.panasonic.com/global/corporate/sustainability/fair_practices/fairtrade#decrease	2) Management Accountability and Responsibility	Fair Operating Practices - Responsible Executive and Framework http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#structure
	3) Disclosure of Information	Panasonic Code of Conduct Chapter 2. II-5. Information Disclosure http://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 http://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 http://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 http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
	5) Fair Business, Advertising and Competition	Responsible Publicity and Advertising http://www.panasonic.com/global/corporate/sustainability/communication.html	5) Improvement Objectives	Fair Operating Practices - Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
	6) Protection of Identity and Non-Retaliation	Whistleblowing Systems http://www.panasonic.com/global/corporate/sustainability/fair_practices/whistleblowing.html	6) Training	Fair Operating Practices - Compliance Training http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#education
	7) Responsible Sourcing of Minerals	Responsible Supply Chain: Response Regarding Conflict Minerals http://www.panasonic.com/global/corporate/sustainability/supply_chain/minerals.html	7) Communication	Fair Operating Practices - Management System (to employees) http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management Fair Operating Practices - Policy (to employees) http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#policy
	8) Privacy	Information Security and Protection of Personal Information http://www.panasonic.com/global/corporate/sustainability/security	8) Worker Feedback and Participation	Fair Operating Practices - Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html Fair Operating Practices - Whistleblowing Systems http://www.panasonic.com/global/corporate/sustainability/fair_practices/whistleblowing.html
			9) Audits and Assessments	Fair Operating Practices - Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
			10) Corrective Action Process	Fair Operating Practices - Performance Evaluation http://www.panasonic.com/global/corporate/sustainability/fair_practices/performance.html
			11) Documentation and Records	Fair Operating Practices - Management System http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#management
			12) Supplier Responsibility	Responsible Supply Chain: Enforcement of CSR for Suppliers http://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers
E Management Systems	1) Company Commitment	Our Unchanging Management Philosophy and Sustainability http://www.panasonic.com/global/corporate/sustainability/management/philosophy.html Panasonic Code of Conduct http://www.panasonic.com/global/corporate/management/code-of-conduct/list.html		
	2) Management Accountability and Responsibility	System for the Promotion of CSR Activities http://www.panasonic.com/global/corporate/sustainability/management/structure.html		
	3) Legal and Customer Requirements	System for the Promotion of CSR Activities - Respecting Global Standards, Norms, Guidelines, and Initiatives http://www.panasonic.com/global/corporate/sustainability/management/structure.html		
	4) Risk Assessment and Risk Management	Risk Management http://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) http://www.panasonic.com/global/corporate/sustainability/fair_practices.html#education		

	7) Communication	Our Unchanging Management Philosophy and Sustainability (to employees) http://www.panasonic.com/global/corporate/sustainability/management/philosophy.html	
		Panasonic Code of Conduct (to employees) http://www.panasonic.com/global/corporate/management/code-of-conduct/list.html	
		Sustainability Initiatives website (to customers) http://www.panasonic.com/global/corporate/sustainability.html	
		Responsible Supply Chain - Policy (to suppliers) http://www.panasonic.com/global/corporate/sustainability/supply_chain.html#policy	
		Responsible Supply Chain: Enforcement of CSR for Suppliers (to suppliers) http://www.panasonic.com/global/corporate/sustainability/supply_chain/suppliers	
	8) Worker Feedback, Participation and Grievance	Risk Management - Organizational System http://www.panasonic.com/global/corporate/sustainability/management/riskmanagement.html#structure	
		Risk Management - Increasing Risk Sensitivity http://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) http://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) http://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) http://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) http://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 http://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 indicators listed in the table below (the “Indicators”) for the period from April 1, 2017 to March 31, 2018 included in its Sustainability Data Book 2018 (the “Data Book”) for the fiscal year ended March 31, 2018.

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	37	Emissions (CO ₂ -equivalent) of GHGs Other than CO ₂ from Energy Use in Production Activities	45
Size of direct contribution in reducing CO ₂ emissions	37	Total GHG Emissions (CO ₂ -equivalent) in Production Activities (Scope 1 emissions)	45
CO ₂ emissions from the use of our major products	38	Total GHG Emissions (CO ₂ -equivalent) in Production Activities (Scope 2 emissions)	45
Size of Contribution in Reducing CO ₂ Emissions through Energy-saving Products	38	CO ₂ emissions from domestic transportation within Japan	46
Size of Contribution in Reducing CO ₂ Emissions through Energy-creating Products	39	Amount of Total Wastes Including Revenue-generating Waste	53
CO ₂ Emissions in Production Activities and CO ₂ Emission Per Basic Unit	42	Water Consumption in Production Activities	60
Energy Consumption in Production Activities	43	Release/Transfer of Substances Requiring Management (Total)	68
In-house renewable energy adoption	44		

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 6, 2018

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

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

Sustainability Data Book [PDF] is also available on this website



IR Information website

<http://www.panasonic.com/global/corporate/ir.html>

Annual Report [PDF], covering business strategy; financial situation; and ESG (initiatives relating to the environment, society, and governance) among others, is also available on this website





Inquiries

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