Environmental Initiatives

Various environmental issues, including climate change, resource depletion and water shortages, are becoming increasingly serious. Panasonic conducts business activities that consider the environment and works to solve environmental issues through its products and services with the aim of fulfilling its corporate social responsibilities and reducing management risk.

Basic Policy

Principles and Plans

On the basis of a management philosophy of contributing to society as a public entity of society, Panasonic has established policies and plans related to the environment and carries out corresponding initiatives. It issued its Environmental Statement in fiscal 1992 to communicate its stance to society of addressing not only the pollution problem but also global environmental problems like climate change and resource recycling. In addition, in fiscal 2014, the Company established its new Environmental Action Guideline along with a new brand slogan, “A Better Life, A Better World,” and clarified its stance of addressing five environmental issues, CO2 reduction and resource recycling, primarily, and also water, chemical substances and biodiversity. Specific initiatives are being carried out on the basis of the Green Plan 2018, which has a target year of fiscal 2019. The plan has been revised to address internal and external changes since it was established in fiscal 2011. Most recently, it was revised in fiscal 2017 in light of increasing societal demand for CO2 reductions against the backdrop of the Paris Agreement, which was adopted at the 21st Conference of the United Nations Framework Convention on Climate Change (COP21) in December 2015, and of changes in Panasonic’s business composition with expanding automotive and B2B-related businesses.

Long-Term Vision

The high level of interest in the Paris Agreement and Sustainable Development Goals (SDGs) is indicative of a deepening of environmental and energy problems around the globe. Even at the World Economic Forum held in January 2018, a gathering of world political and economic leaders, abnormal weather, natural disasters and global warming were the risks cited with the greatest potential impact, and activities are starting around the world to develop thoroughgoing countermeasures.

Amid these developments, Panasonic in fiscal 2018 established the Panasonic Environment Vision 2050. The vision calls for the Company to endeavor toward the achievement of both “a better life” and “a sustainable global environment” and to create more energy than it uses by 2050. At present, the total amount of energy Panasonic creates is less than one-tenth of the total amount it uses. Going forward, the Company will reduce energy used through technology development that raises the energy-saving performance of products and through innovations to manufacturing processes, while expanding energy creation and storage businesses and contributing to the construction of new social infrastructure, including the hydrogen society, to increase opportunities for utilizing clean energies and thereby further increase energy created.

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.

Panasonic Environment Vision 2050

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

Energy used < Energy created

Energy used in Panasonic business activities like production and energy used by Panasonic products through its customers

Clean energy created and/or made available by Panasonic products and services such as photovoltaic power generation systems, storage batteries and energy solutions

Panasonic Annual Report 2018
Organizational Structure

### Promotion System of Environmental Sustainability Management

Panasonic formulates its annual environmental management policy in accordance with the Group management policy, Panasonic 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 authority delegated from the president. Divisional 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 Group Strategy Meeting, whose members include the president and Divisional Company presidents, checks progress and makes decisions on important policies in connection with the Green Plan 2018 and Environment Vision 2050. In addition, the Environmental Compliance Administrators Meeting is held twice a year by the executive officer in charge of environmental affairs and environmental compliance administrators at the four Divisional Companies, which make expeditious decisions on Group-wide environmental management. Further, at the Global Environmental Working Committee Meeting, environmental compliance administrators and environmental operation administrators of the four Divisional Companies and regional headquarters share and discuss their successful initiatives and issues they have faced, and other related matters. A PDCA management cycle is implemented to further raise the overall level of Group-wide environmental management.

### Promotion System for Environmental Sustainability Management in Fiscal 2019

#### Board of Directors Meeting
- President
- Corporate Strategy Head Office
- President

#### Group Strategy Meeting
- Office of the President
- Business Division
- Business Division
- Business Division
- Business Division

#### Related job function
- Quality
- Procurement
- Logistics
- Human resources
- Public relations

#### Cooperating
- Environmental Conference Administrators Meeting
- Global Environmental Working Committee Meeting
- Risk and Governance Management Division
- Global Procurement Company
- Innovation Promotion Sector
- Production Engineering Division
- Technology Innovation Division

### Eco-conscious Products

#### Green Products

Panasonic conducts product environmental assessments to evaluate in advance, from the stage of planning and design, the impact of products on the environment, and works to raise their environmental performance. Among products and services with enhanced environmental performance, Panasonic has specifically defined as “Strategic GPs” 1) products and services that reduce environmental impact with top-level environmental performance, 2) products and services whose promotion and dissemination lead to reducing environmental impact, and 3) products and services that reduce environmental impact in a specific region, and is working to increase sales of them. In fiscal 2018, sales of Strategic GPs constituted approximately 21% of consolidated net sales.

Among Strategic GPs, products that particularly create new trends are certified as “Super GPs.” In fiscal 2018, the following three products earned the certification.

#### Examples of Super GPs

##### FA Servo with Substantially Less Metal
The MINAS A6 family of FA servos offers high basic performance, including the industry’s smallest motor size, and is produced with a substantially lower amount of metal materials, including magnets, iron and copper wire, while also achieving cost reductions.

##### “freeze-ray” Low Energy Consumption Data Archiver
Along with high capacity, high reliability and high-speed data transfer, freeze-ray uses optical discs made of a material with a long, 100-year lifespan, which reduces use of resources at replacement. It also features low energy consumption, reducing the cost to the customer and CO₂ emissions.

##### Air Quality Improvement Products with PM2.5 Purification Function
These products have achieved a PM2.5 removal rate of 98%, among the highest levels of purification performance in the industry, to address the problem of PM2.5, one of the causes of air pollution in China. Over a short two-year period, 25 different models have been developed and sold and are helping to improve the indoor environment in China.
Environmental Initiatives

Initiatives to Address Environmental Challenges

CO₂ Reduction

Basic Approach and Targets
The Paris Agreement sets out a target of limiting global temperature increases to less than 2°C above pre-industrial levels and a more ambitious target of keeping global temperature increases to less than 1.5°C above pre-industrial levels, as well as sets a goal of virtually zero for CO₂ and other greenhouse gas emission levels for the second half of this century. To achieve these targets, companies are required to make further contributions to reducing CO₂ emissions.

Along with its Environment Vision 2050, in fiscal 2018 Panasonic established new long-term CO₂ reduction targets in line with the Paris Agreement, and in October 2017 they were certified as SBT*.

Reductions to CO₂ Emissions from Product Use
Panasonic has instituted a unique indicator, “size of contribution in reducing CO₂ emissions,” to maximize its contribution to CO₂ reduction through its products.

There are two types of CO₂ reduction contributions, direct and indirect. The former refers to CO₂ reductions through energy conservation and energy creation with Panasonic products, including its energy-saving appliances, solar cells and fuel cells. The latter is CO₂ reductions from the products of other companies that are supported by Panasonic products. This includes specifically 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 and motors, and improved fuel economy effects from electric vehicles equipped with Panasonic automotive batteries. In fiscal 2019, combining these direct and indirect contributions, the Company is targeting contributions to CO₂ reduction of 55.0 million tons.

Reductions to CO₂ Emissions in Business Activities
The Green Plan 2018 establishes CO₂ emissions per basic unit (CO₂ emissions per unit of production volume) as a target indicator for CO₂ reductions in production activities and sets a target for fiscal 2019 of a reduction of 5% or more compared to fiscal 2014 (reduction of 1% or more on average per year).

Panasonic is working to reduce CO₂ emissions and achieve the target through measures such as individual initiatives at the factory level, horizontal development of exceptional initiatives throughout the Company, and training of specialized personnel. Panasonic is also promoting introduction of renewable energies such as solar cells. As a result of these activities, CO₂ emissions per basic unit in fiscal 2018 was 14% lower than in fiscal 2014. The amount of energy consumption itself has also been steadily reduced, which has contributed to cost reductions as well.

One example of a progressive initiative to create a zero-CO₂ factory is Panasonic do Brasil Limitada’s use of renewable energy sources for 100% of the power it consumes.

* SBT stands for Science Based Targets, which are company greenhouse gas reduction targets consistent with scientific knowledge.

Panasonic Annual Report 2018
Societal concern about resources has been rising as economies grow rapidly around the globe. New mining of resources not only places a substantial impact on the environment, problems also occur like the depletion of mineral resources and sharp increases in resource prices. Against this backdrop, Panasonic has made recycling-oriented manufacturing one of its key tasks alongside CO2 reduction, regarding this as the responsibility of a manufacturer that uses large amounts of resources. This task has three aspects: minimizing total resources used while maximizing recycled resources, eliminating landfill disposal of waste from production activities, and recycling used products.

The Green Plan 2018 sets a target for use of recycled plastics to further promote realization of recycling-oriented manufacturing, and the Company is working to increase its use. Specifically, in recycling used home appliances, resin recycling is being promoted through coordination between Panasonic Eco Technology Center Co., Ltd. (PETEC), which is the Company’s appliance recycling facility, and the Appliances Company’s Kato Plastic Recycling Factory, in order to effectively utilize plastics in addition to iron, copper, aluminum and other metals.

Going forward, Panasonic will continue to promote utilization of recycled plastics as an initiative to both help reduce environmental impact and stabilize raw material procurement.

Water Conservation

The amount of usable fresh water on the earth is just 0.01% of its total water resources. In the Global Risks Report published each year by the World Economic Forum, the water crisis is cited as one of the global risks having the most impact on the world. Panasonic is working to protect water resources through both its products and its production activities in order to fulfill its corporate social responsibilities and reduce management risk.

Under the Green Plan 2018, Panasonic is striving to increase sales of products that contribute to water conservation and water recycling. In production activities, it is working to reduce water usage and increase use of recycling. Water used at factories in fiscal 2018 was 25.84 million m³, a reduction of 5.4% compared to the previous fiscal year.

In addition, in fiscal 2018, water risk assessment being conducted from a risk management standpoint was completed. Water risk was assessed in its diverse aspects at all of Panasonic’s manufacturing sites, including physical risks like water shortages and water-related regulatory risks.

As a result, though water risk that could impact the Company’s business activities has not emerged, in regions where the impact of water risk was determined to be significant, Panasonic intends to continue to monitor trends and work to reduce management risk.

Chemical Substance Management and Reduction

With concern over the negative impact on human health and the environment, regulations and societal demands are mounting with respect to the management and reduction of harmful substances, examples being the EU’s RoHS Directive¹ and REACH².

Panasonic actively acquires information on chemical substances contained in the parts and raw materials it uses. For substances that products are not allowed to contain by law in major developed countries, the Company conducts management to ensure they are not used or included on a global basis, except in certain unavoidable cases when using an alternative would not be feasible. In addition, Panasonic is currently conducting impact assessments on managed substances based on the application and amount used and is planning to reduce or prohibit use of substances whose impact on people and the environment cannot be ignored.

For example, four types of phthalic esters, which are often contained in PVC materials, will be regulated by the RoHS Directive starting in July 2019. The Company is developing a system for switching to alternative substances and preventing admixture in order to prohibit their delivery starting in July 2018, before the regulation goes into effect. It is also switching to alternatives for other phthalic esters as well in anticipation of the possibility of future regulations.

¹ The Restriction of Hazardous Substances (RoHS) Directive is a directive established by the EU related to the restricted use of certain hazardous substances included in electrical and electronic equipment.
² Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) is a regulation established by the EU on the registration, assessment, approval and restriction of chemical substances.