Sony has pursued environmental initiatives since the 1970s, and began setting environmental principles and targets in the early 1990s. In April 2010, Sony established the "Road to Zero," a plan to realize a sustainable society by achieving a zero environmental footprint throughout the life cycle of its products and business activities by 2050. In May 2022, Sony made the decision to bring forward the target year of achieving a zero environmental footprint in the climate change area by ten years from 2050 to 2040.

Working toward a zero environmental footprint, once every five years Sony sets concrete medium-term environmental targets for each stage of the life cycle for its products with respect to climate change, resources, chemical substances, and biodiversity.

Organizational Structure

Sony is implementing and continually improving its globally integrated environmental management system with the aim of realizing the Sony Group Environmental Vision, achieving its medium-term environmental targets and complying fully with legal requirements, regulatory demands and internal policies established for the Group.

In addition, Sony has set up specialized functions to handle individual areas of activity within headquarters environmental functions. Corporate Executive Officers oversee these functions as Sony Group Corporation senior management.

Looking to the Future

Under the targets set to achieve from fiscal year 2021 to 2025 in Green Management 2025, Sony prioritizes both encouraging business partners, consumers, and other stakeholders to take action and work together to build a sustainable world, as well as its own environmental activities. By 2030, we also intend to switch to 100% renewable energy for electricity used at our business sites and achieve net-zero direct and indirect emissions (scopes 1 and 2) in our operations. Then, by 2035, we are aiming to reduce scope 3 greenhouse gas (GHG) emissions during product use by 45%, achieving net-zero targets in all scopes by 2040. Moving forward, Sony will continue to strengthen our efforts to achieve a zero environmental footprint.

Milestones

- 1976: Company-wide Sony Environmental Conference established
- 1993: Sony Global Environmental Policy and Environmental Action Program developed
- 1995: Began to acquire ISO14001 certification at manufacturing sites in Japan
- 2002: Green Partner Environmental Quality Approval Program introduced
- 2006: Integration of environmental management systems at sites around the world completed
- 2009: 100% renewable electricity use achieved at all European sites
- 2010: "Road to Zero," Sony’s Global Environmental Plan announced
- 2015: Approved as Science Based Targets (SBT)
- 2018: Sony joins RE100 global initiative
- 2022: Sony announced the bringing forward of the target year of achieving a zero environmental footprint in the climate change area and "RE100" Approved as a Science Based Targets (SBT) net zero target
Sony Group Environmental Vision

The Sony Group Environmental Vision presents a philosophy and principles for environmental management activities throughout the global Sony Group with the aim of contributing to the realization of a sustainable society. Since enacting the Sony Global Environmental Policy which is a predecessor of the Sony Group Environmental Vision and the Environmental Action Program, in 1993, Sony has pursued a broad range of environmental initiatives. In 2010, we updated our Environmental Vision along with the formulation of the Road to Zero environmental plan.

Philosophy

Sony recognizes the importance of preserving the natural environment that sustains all life on the earth for future generations and thereby ensuring that all humanity can attain a healthy and enriched life. In order to realize such a sustainable society, Sony strives to achieve a zero environmental footprint throughout the lifecycle of our products and business activities.

Basic Policy

Sony reduces our environmental footprint and prevents environmental pollution throughout the lifecycle of our products and business activities by complying with all applicable environmental regulations and also by continually improving our global environmental management systems. Sony formulates the following goals in four key environmental perspectives and takes proactive actions to achieve those goals.

Climate Change

Sony reduces energy consumption and strives to achieve zero GHG* emissions throughout the lifecycle of our products, service and business activities.

* Gases that raise the temperature of the earth’s surface by absorbing infrared radiation from reflected sunlight. Carbon dioxide (CO2), methane, nitrous oxide, hydrofluorocarbon (HFC), perfluorocarbon (PFC), sulfur hexafluoride (SF6) and nitrogen trifluoride (NF3) are seven typical examples.

Resources

In order to minimize resource inputs for our business activities, Sony identifies “Key Resources” and strives to achieve zero usage of those virgin materials. Sony also uses water efficiently, minimizes wastes from sites and maximizes our effort for take back and recycling products from markets.

Chemical Substances

Sony minimizes the risk of chemical substances that we use causing serious harm to human health and the environment. Sony maintains strict control over the chemical substances we use, while, in line with the precautionary approach, taking steps whenever possible to reduce, substitute and eliminate the use of substances that have potentially significant impacts on the environment even in the cases where scientific evidence is not fully proven.

Biodiversity

Sony protects and utilizes ecosystem services in a sustainable manner, while actively promoting maintenance and recovery of biodiversity through our business and local contribution activities.

In order to realize the Environmental Vision, Sony formulates targets and concrete plans and initiates actions to implement, while contributing to a better society through partnerships and communications with internal and external stakeholders.

Environmental Plan

“Road to Zero,” Sony’s Global Environmental Plan

As stated in the Sony Group Environmental Vision, Sony strives to realize a sustainable society by achieving a zero environmental footprint throughout the life cycle of its products and business activities. It is this long-term goal that prompted Sony to name its new global environmental plan, Road to Zero. Under this plan, Sony aims to bring its environmental footprint to zero by 2050 and works to achieve medium-term environmental targets toward this end. In May 2022, Sony made the decision to bring forward the target year of achieving a zero environmental footprint in the climate change area by ten years from 2050 to 2040.

Four Focus Points for a Zero Environmental Footprint

Sony efforts to achieve a zero environmental footprint focus on four important environmental perspectives: climate change, resources, chemical substances, and biodiversity.
Focus on Climate Change
Sony aims to achieve zero GHG emissions in its business activities, as well as throughout the entire life cycle of its products and services. In order to reduce emissions, we conduct scenario analysis* in accordance with TCFD Recommendations, analyze and ascertain climate-related risks and opportunities, and review the countermeasures. To achieve zero GHG emissions, Sony works to minimize energy-saving measures and introduce as much renewable energy as possible.

In addition to such measures as reducing the amount of electricity used at business sites, promoting the installation of solar power generation equipment, and maximizing energy efficiency in Sony products and services, Sony also encourages similar measures in the supply chain, including at contract manufacturers and suppliers of raw materials and components, to reduce direct and indirect GHG emissions. Sony also investigates ways to offset any emissions that might remain through efforts such as carbon removal.

* See below for more information on scenario analysis in accordance with TCFD Recommendations.

Disclosure of Climate-related Information in Accordance with the TCFD Recommendations

Focus on Water Use
Although water circulates around the earth continuously through the water cycle, the amount of water available for use by the planet’s inhabitants is limited. With population growth and other issues putting further pressure on water supplies, the importance of conserving this resource will increase in the years ahead. Taking into account the locations of its sites, as well as regional differences, Sony will continue taking steps to minimize its withdrawal of water and to ensure the water it returns to water sources is of a quality that does not negatively impact the environment.

Focus on Paper Resources
Sony seeks to minimize the consumption of resources and maximize resource recycling in order to use resources effectively in its business activities and throughout the life cycle of its products and services, based on the globally prescribed promotion of a circular economy. Sony minimizes resource consumption by reducing the weight of products, minimizing the use of packaging materials, and utilizing resources more efficiently in its internal operations. Concurrently, Sony also works to extend the life of products through quality and durability improvements, while undertaking environmentally conscious design, such as making products easier to repair, in order to indirectly reduce resource consumption. Additionally, as part of its efforts to respond to the growing global problem of plastic pollution in the ocean, Sony continues to work toward reducing the amount of single-use plastic product packaging. Sony aims to reduce the number of parts derived from virgin resources to zero by identifying certain key resources* in terms of environmental impact due to the depletion, uneven distribution and mining of resources, loss of biodiversity due to mining, and the effects of these impacts on local communities.

* At Sony, “key resources” are designated by taking the following factors into account: resource depletion, resource availability, environment impact of resource extraction, and loss of biodiversity and community impacts from resource extraction.

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* At Sony, “key resources” are designated by taking the following factors into account: resource depletion, resource availability, environment impact of resource extraction, and loss of biodiversity and community impacts from resource extraction.
Medium-Term Environmental Targets

Sony is working toward its goal of having a “zero environmental footprint”, setting medium-term (5-year) environmental targets progressively backcasted from targets based on current achievement levels. This approach will enable Sony to work steadily toward achieving the zero environmental footprint goal, while making ongoing adjustments based on current progress. In 2011, Sony established the Green Management 2015 medium-term environmental targets (fiscal year 2011–2015), which was the first step on the road to a zero environmental footprint, and took the second step in 2016 with the Green Management 2020 medium-term environmental targets (fiscal year 2016–2020). Sony is currently implementing initiatives to achieve the goals it has set under the Green Management 2025 medium-term environmental targets (fiscal year 2021–2025).

Green Management 2025

Sony Moves Even Closer to Zero with 2025 Targets

Since April 2021, Sony has been working to achieve the goals it has set under the Green Management 2025 medium-term environmental targets (fiscal year 2021–2025). Sony continues to accelerate its environmental activities in order to move even closer to a zero environmental footprint.

Green Management 2025 in Context

In light of the urgent environmental issue of climate change, GHG emissions must be reduced to virtually zero by 2050 in order to keep the global average temperature increase below 1.5°C as recommended in the Special Report on Global Warming of 1.5°C approved by the Intergovernmental Panel on Climate Change (IPCC)* in 2018. In order to realize a decarbonized world with virtually zero GHG emissions, companies will need to develop energy saving products, introduce renewable energy, and reduce emissions throughout their supply chains. At the same time, in order to achieve sustainable use of resources, economic growth must be balanced with environmental impact; societies must shift to circular economies; and the recent problem of ocean plastic pollution must be addressed.

Formulating Green Management 2025

Sony believes that encouraging business partners, consumers, and other stakeholders to take action and work together to build a sustainable world is equally as important as its own environmental activities. When formulating Green Management 2025, Sony examined its past environmental activities and conducted a group-wide materiality analysis focused on what is important to Sony, its stakeholders and society at large. Based on these results and the wider social context, Sony reaffirmed the importance of the four environmental perspectives that it has been working to address: climate change, resources, chemical substances, and biodiversity. The following three areas are particular key priorities.

Focus Point 1: Improve Energy- and Resource-Efficiency of Products

Sony continues to pursue energy efficiency during product use, which accounts for the majority of GHG emissions throughout the life cycle of its products. In addition to minimizing the consumption of resources, Sony takes action to reduce the amount of plastic used in products and packaging in order to address the growing problem of ocean plastic pollution.

Focus Point 2: Expand Renewable Energy Use

Sony is a member of RE100 and aims to achieve 100% renewable electricity utilization at all Sony Group sites by 2030.* Sony will further accelerate efforts to achieve this goal by expanding the use of renewable electricity to at least 35%* of the total amount of electricity used at all Sony sites around the world.

Focus Point 3: Enhance Supply Chain Engagement to Reduce Environment Impact

Sony has been working to reduce the environmental impact of the entire supply chain by working even more closely with raw material and component suppliers and contractors to which it outsources manufacturing. Sony endeavors to further enhance its engagement with these partners, encouraging them to set targets for reducing GHG emissions and water consumption and managing their progress.

In addition, Sony has helped raise awareness of the Sustainable Development Goals (SDGs), including those in relation to the environment, through its entertainment content reaching more than 2 billion people around the world. Green Management 2025 also focuses on promoting these activities and encouraging engagement in environmental activities with the aim of getting over 2.5 million people to take action.

Specific Green Management 2025 Targets

For a list of Green Management 2025 targets, see the following website.

Green Management 2025

*1 The natural assets include elements of the natural environment such as forests, rivers, the atmosphere and soil, as well as living organisms. Natural capital is the source of ecosystem services, fossil fuels and minerals.

*2 Services produced by natural capital and received by humans from nature include groundwater, lumber, and climate regulation.

*IPCC: Intergovernmental Panel on Climate Change

* Revised May 2022

* RE100 Membership
Green Management 2025 Targets and Progress

Under the Green Management 2025 (GM2025) medium-term environmental targets, which spanned from fiscal year 2021 through fiscal year 2025, Sony set targets for each stage of the product lifecycle and took action accordingly. The targets and fiscal year 2022 progress of activities for each stage are outlined below.

Product/Service Planning and Design

Sony provides products and services with low environmental impact in all business areas. We are promoting electronic products with designs that reduce environmental burden throughout their lifecycle, and promoting the use of recycled plastics in our products alongside the reduction of plastic packaging. Particularly in its entertainment business, Sony also makes the most of the content it creates to develop and implement environmental campaigns.

Operations

Sony has adopted renewable energy at worksites throughout the Sony Group as part of its focus on reducing its environmental impact. Sony has been accelerating the adoption of renewable energy since 2021. In May 2022, we moved our target year for using 100% renewable energy up from 2040 to 2030. Our GM2025 goal for renewable energy-derived electricity in 2025 was also increased from 15% to 35%.

<table>
<thead>
<tr>
<th>Items</th>
<th>Targets (base year: 2018)</th>
<th>Fiscal year 2022 Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Centering around the entertainment business, raise the awareness of more than 2 billion people on sustainability issues and engage more than 2.5 million people by the end of the fiscal year</td>
<td>Utilized entertainment content to raise the awareness of more than 0.48 billion people across the entire group, and promote participation to a total of 29 million people through events and social media</td>
</tr>
<tr>
<td>Climate change</td>
<td>Reduce annual energy consumption per product unit by 5%</td>
<td>Approx. 3.9% increase</td>
</tr>
<tr>
<td>Resources</td>
<td>Reduce the amount of virgin oil-based plastics per product unit (excluding packaging materials) by 10%</td>
<td>Approx. 3.4% decrease</td>
</tr>
<tr>
<td>Chemical substances</td>
<td>Eliminate plastic packaging for newly-designed small products</td>
<td>Released in 2022, the WH-1000XM5 headphones, Xperia 1 V and 5 V smartphone, Vlog camera ZV-1F, etc., realize zero plastic in individual packaging.*1</td>
</tr>
<tr>
<td>Resources</td>
<td>Reduce the amount of plastics packaging per product unit by 10%</td>
<td>Approx. 22.2% decrease</td>
</tr>
</tbody>
</table>
| Chemical substances | Eliminate high-risk applications of “Controlled Substances***” that are of high concern and use alternative substances | Promoted use of alternative substances based on Sony standards for management of chemical substances. For more information on alternatives for polyvinyl chloride (PVC) and Brominated flame retardants (BFRs), please see below.  

- Polyvinyl Chloride (PVC)  
- Brominated Flame Retardants (BFRs) |

*1 Individual packaging refers to the individual product box and packaging inside the box.
*2 Coating and adhesive materials excluded.
*3 “Controlled Substances” is an abbreviation for “Environment-related Substances to be Controlled,” and it refers to substances contained in parts and devices that the Sony Group considers to have significant environmental impact on both humans and the global environment.

Data Section

Corporate Governance

Ethics and Compliance

Community Engagement

Quality and Customer Service

Responsible Supply Chain

Data Section

GRI Standards Content Index
Supply Chain

Sony requests its raw materials and component suppliers as well as subcontractors to strengthen their efforts to reduce environmental burden, set targets, manage progress and achieve results in order to meet reduction targets across the entire product lifecycle.

<table>
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<th>Fiscal year 2022 Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change</td>
<td>Request suppliers of raw materials and components to monitor their GHG emissions, set medium- and long-term targets for emissions reduction, and perform progress management.</td>
<td>Requested relevant suppliers to calculate actual emissions, set medium and long-term reduction targets and implement reduction measures. Surveyed supplier progress. Valid response rate: approx. 80% (transaction amount basis). Valid response rate: approx. 80% (transaction amount basis).</td>
</tr>
<tr>
<td>Resources</td>
<td>Request suppliers of raw materials and components to set water consumption reduction targets and perform progress management, while taking into consideration the water depletion risk in the areas where each site is located.</td>
<td>Requested relevant suppliers to calculate actual emissions and water risk, set reduction targets and implement reduction measures. Surveyed supplier progress. Valid response rate: approx. 80% (transaction amount basis).</td>
</tr>
<tr>
<td>Chemical substances</td>
<td>Request and manage the response of suppliers of raw materials and components to Sony Group’s unified standard for law materials, components and products supplied to Sony Group, as well as products / semi-products to be delivered from an outsourcing contractor.</td>
<td>Requested response based on Sony standards for the management of chemical substances.</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Request suppliers of raw materials and components and contract manufacturers to take initiatives giving consideration to biodiversity.</td>
<td>Requested relevant major suppliers take biodiversity into consideration. Surveyed supplier biodiversity activities.</td>
</tr>
</tbody>
</table>

Logistics

Sony is taking steps to reduce shipping weight by making products smaller and lighter, and pursuing alternative shipping methods (modal shift, etc.) by identifying and employing methods that are most efficient and have less impact on the environment in order to reduce CO₂ emissions due to distribution.

<table>
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<th>Fiscal year 2022 Progress</th>
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<tbody>
<tr>
<td>Climate change</td>
<td>Reduce absolute CO₂ emissions related to logistics between nations and within regions by 10%</td>
<td>Approx. 10% decrease</td>
</tr>
</tbody>
</table>

Take Back and Recycling

Sony focuses on recycling-oriented product design and promotes take-back and recycling processing for end-of-life products. Meanwhile, Sony seeks to ensure that even items which the company itself is unable to recycle at the present time are recycled, and is collaborating with recyclers to clarify the extent to which key resources are being recycled.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>Establish and maintain recycling schemes suitable for the needs of local communities.</td>
<td>Complied with all legal requirements in all areas where laws and regulations on take-back and recycling are established. Implemented voluntary collection and recycling activities in areas where laws and regulations are not yet established.</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>When recycling a key mineral resource (tantalum), improve sorting efficiency by 15 times (vs fiscal year 2020)</td>
<td>At specific recycling plants in Japan, we adjusted our sorting process for the recovery of parts from used products containing tantalum, improving the efficiency of the process by about 44 times that of fiscal 2020, when the equipment was first introduced.</td>
</tr>
</tbody>
</table>
Global Environmental Initiatives

Approval for 1.5°C Science Based Targets

When formulating Green Management 2025 Medium-Term Environmental Targets, we took a longer-term perspective and set its climate change targets to be achieved by fiscal year 2035. These targets are listed below and have been approved by the Science Based Targets (SBT)* initiative as consistent with a 1.5°C goal. In May 2022, the target year was moved up to 2040, and our goal of achieving net zero targets in scopes 1 to 3 across the entire value chain was approved as an SBT net-zero target in August 2022. Sony has already switched to 100% renewable electricity in Europe and China. In Pan-Asia, North America and Japan, we are increasing renewable energy use using various strategies including deploying solar energy systems. In Pan Asia, our manufacturing sites are now 100% renewable energy. Particularly, to address its energy-intensive operations in Japan, Sony has installed solar power generation equipment, is engaging in Japan’s first virtual PPA (power purchase agreement) based on a feed-in premium (FIP) scheme, and is implementing intracompany transfers of surplus power generated by off-site solar power systems to supply power to group sites. In 2018, Sony joined RE100* and itself is working toward sourcing 100% renewable electricity for its worldwide operations of the Sony Group by 2040. This target was moved up to 2030 in May 2022. Sony has already switched to 100% renewable electricity in Europe and China. In Pan-Asia, North America and Japan, we are increasing renewable energy use using various strategies including deploying solar energy systems. In Pan Asia, our manufacturing sites are now 100% renewable energy. Particularly, to address its energy-intensive operations in Japan, Sony has installed solar power generation equipment, is engaging in Japan’s first virtual PPA (power purchase agreement) based on a feed-in premium (FIP) scheme, and is implementing intracompany transfers of surplus power generated by off-site solar power systems to supply power to group sites.

* SBT is an international initiative to encourage companies to set science-based GHG reduction targets in order to limit the increase in the average global temperature due to climate change to 1.5 degrees Celsius above preindustrial levels.

- Set SBT-consistent reduction targets for raw material and component suppliers and outsourced manufacturers equivalent to 10% of supply chain GHG emissions by fiscal year 2025
- Reduce GHG emissions at Sony sites globally by 72% relative to fiscal year 2018 levels by fiscal year 2035
- Reduce GHG emissions during product use by 45% relative to fiscal year 2018 levels by fiscal year 2035

Reducing Plastic and Utilizing Recycled Materials

For a wide range of products, Sony is reducing the size and weight of plastic parts, minimizing plastic packaging, and expanding the use of recycled plastic. See below for fiscal 2022 results.

- Reducing Use of Virgin Plastics Product Bodies
- Reducing Plastic Packaging
- Reducing Plastic Use in Production

Sony is further reducing the amount of plastic used at production sites. The amount of plastic waste generated from Sony production sites in fiscal year 2022 was reduced by 1,206 metric tons over fiscal year 2021. This represents a 2,082 metric tons reduction over plastic waste generated in fiscal year 2018.

Reducing or Eliminating Single-use Plastics in Conference Rooms and Shops

Sony aims to eliminate the use of single-use plastics such as plastic bottles, straws, and cups in conference rooms and reception rooms. In addition, plastic bags will no longer be provided at in-company shops and cafes, and the use of single-use plastics such as straws and cups will be reduced and gradually phased out. At the same time, Sony is working to cultivate awareness among employees about the use of reusable shopping bags and personal cups.

In fiscal year 2022, we stopped providing bottles and other single-use plastics in conference rooms at 32 sites. We also stopped providing plastic bags at shops and convenience stores at 23 sites, as well as plastic straws at 18 sites.
Expanding Local Cleanup of Riverbanks and Shorelines

Sony employees at certain sites and group companies all over the world have been carrying out community cleanup activities along rivers and seashores, and these activities are being steadily expanded to even more sites. Employee awareness of measures to combat ocean plastic pollution will also be further enhanced.

In fiscal 2022, 7,847 Sony Group employees and their families worked together to clean up 608,45-liter trash bags and 13 metric tons of trash during a total of 127 cleanup activities at 44 sites.

One Blue Ocean Project

Environmental Management Structure

Sony is implementing and continually improving its globally integrated environmental management system with the aim of realizing the Sony Group Environmental Vision, achieving its medium-term environmental targets and complying fully with legal requirements, and a Sony Group Corporation corporate executive officer assumes ultimate responsibility. The president of Sony Group Corporation and other executives share information on environmental issues of importance to the Sony Group in regularly-held executive meetings.

Specialized Functions for Environmental Management

In order to promote a wide range of measures, such as manufacturing and sales of environmentally conscious products, recycling of its products and environmental management at its sites, Sony has a dedicated headquarters that oversees environmental management for the entire Group based on the Sony Group Environmental Vision. It sets goals and rules and monitors performance. There are also specialized functions at this environmental headquarters, specifically in the areas related to energy consumed at sites and by products; resource conservation, including recycling; chemical substance management; biodiversity conservation; procurement; logistics; and communications. Each specialized function is integrated and linked with related fields and internal organizations such as quality assurance, customer service, occupational health and safety, and disaster prevention, to create an even more effective management system. The environmental headquarters is overseen by senior management, and a Sony Group Corporation corporate executive officer assumes responsibility. The president of Sony Group Corporation and other executives share information on environmental issues of importance to the Sony Group in regularly-held executive meetings.

Integrated ISO 14001 Certification for the Entire Sony Group

Since the 1990s, Sony sites*1 throughout the world have sought certification under ISO 14001, the international standard for environmental management systems. Acquisition of ISO 14001 certification at all sites was completed in fiscal year 2000. Since then, Sony has expanded this effort, establishing a group-wide environmental management system integrating its headquarters with environmental departments, business units and sites globally, while taking advantage of the management systems already operational at each business site, and acquiring integrated ISO 14001 certification for the entire Sony Group in fiscal year 2005. As of March 31, 2023, integrated ISO 14001 certification had been obtained by 91 of the Sony Group’s business units and sites around the world.*2

### Specialized Functions for Environmental Management

**The Sony Group Global Environmental Management System (As of Friday, March 31, 2023)**

**Headquarters**

**Management**

**Headquarters Environmental Functions**

**Supervise the Group’s overall environmental management**

**Regional environmental offices**: Clarify rules and regulations and conduct corporate audits in each region

- **North America**: 7 bases
- **Latin America**: N/A
- **Europe**: 5 bases
- **Japan/East Asia**: 59 bases
- **China**: 13 bases
- **Pan Asia**: 7 bases

**Business divisions and sites**: Practice environmental management and conduct internal audits

- **Integrated ISO 14001 certification for 91 Sony Group sites worldwide**

Additionally, to promote integrated environmental management globally, Sony has established six regional environmental offices to facilitate region-wide environmental management activities, such as better understanding of local legal and regulatory trends, effective communication of standards and instructions set forth by headquarters to the regional divisions and sites, and effective performance of audits at all regional business divisions and sites. These are the North America environmental office, Latin America environmental office, Europe environmental office,*4 Japan/East Asia environmental office,*2 China environmental office,*3 and Pan Asia environmental office.*4

*1 The Europe environmental office supervises divisions/sites in the nations of Europe, Israel, Turkey, Russia, and former Soviet Union (except for Azerbaijan, Tajikistan, Turkmenistan, and Uzbekistan).

*2 The Japan/East Asia environmental office supervises divisions/sites in Japan, South Korea and the Taiwan Region.

*3 The China environmental office supervises divisions/sites in the mainland China and Hong Kong Region.

*4 The Pan Asia environmental office supervises divisions/sites in Mongolia and other Asia (except for divisions/sites supervised by the Europe environmental office, the Japan/East Asia environmental office, and the China environmental office), Africa, Middle East, Oceania, Azerbaijan, Tajikistan, Turkmenistan, and Uzbekistan.

*3 The China environmental office supervises divisions/sites in Mongolia and other Asia (except for divisions/sites supervised by the Europe environmental office, the Japan/East Asia environmental office, and the China environmental office), Africa, Middle East, Oceania, Azerbaijan, Tajikistan, Turkmenistan, and Uzbekistan.

*4 *The scope of integrated ISO 14001 certification is all manufacturing, distribution centers with 100 or more employees and non-manufacturing sites with 1,000 or more employees.

*1 "Sites" refers to manufacturing and non-manufacturing sites.

*2 "Sites" refers to manufacturing and non-manufacturing sites.
Continual Improvement by Using the PDCA Cycle

In compliance with ISO 14001, the global standard for environmental management systems that is based on the rationale of the Plan-Do-Check-Act (PDCA) cycle, Sony’s corporate headquarters conducts annual assessments of the environmental impact of the entire Sony Group and, after identifying risks and opportunities, incorporates its findings into medium-term environmental targets and annual plans. In line with these plans, individual business units and sites establish and implement their own annual plans, incorporating essential elements of guiding principles established by the headquarters. Progress on the implementation of these business plans is reviewed regularly by a committee that is headed by the officer in charge of environmental affairs, contributing to ongoing improvement efforts.

The Sony Group Environmental Management System PDCA Cycle

- **Plan**
  - Sony Group Environmental Vision
  - Medium-Term Environmental Targets
  - Formulation of Sony Group environmental rules and annual business plans
  - Implementation of environmental management based on the annual business plan
- **Do**
  - Audit and review of annual business plan and Medium-Term Environmental Targets, as well as performance assessments and decisions regarding awards
- **Check**
  - Review by top management, continual improvements
- **Act**
  - Basic policy regarding Senior Executive remuneration

To gauge the progress of these environmental activities, Sony has developed an online data system for periodically collecting energy used by sites, and volume of waste generated. To ensure the performance for, among others, energy consumption by products, Sony has developed an online data system for periodically collecting energy used by sites, and volume of waste generated. To ensure the effectiveness of their own organization’s environmental management system, corporate headquarters, headquarters or regional environmental offices audit business units and sites in order to verify compliance with corporate rules. In external audits, an external certification body confirms the effectiveness of environmental management systems throughout the Sony Group.

Connecting Environmental Initiatives with Remuneration

For all businesses of the Sony Group (except for certain operations such as the financial services), the results of environmental initiatives are assessed as part of the annual review of business results, and the assessment is used to determine bonuses for employees of Sony’s main business units. Additionally, environment-related matters are taken into account as a factor in evaluating the remuneration linked to business results of Senior Executives and Senior Vice Presidents in charge of each business unit. Awards are given annually at the global level to recognize outstanding achievements in raising awareness and expanding initiatives.

Another means by which the Sony Group facilitates environmental action is to provide broad environmental education for employees that is tailored to specific objectives or the type of work they perform.

Environmental Audits

Sony has established an integrated environmental audit system that combines three kinds of audits—internal, corporate and external—and aims to facilitate continual improvements to the Sony Group’s environmental management system, prevent environmental accidents at sites, and ensure the reliability of environmental data. In internal audits, business units and sites independently confirm the effectiveness of their own organization’s environmental management system. In corporate audits, headquarters or regional environmental offices conduct audits of business units and sites in order to verify compliance with corporate rules. In external audits, an external certification body conducts audits to determine the effectiveness of environmental management systems throughout the Sony Group.

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Overview of Sony’s Environmental Impact

Assessing GHG Emissions over the Entire Value Chain

The recent escalation of climate change issues has prompted corporations to broaden the scope of efforts to ascertain the GHG emissions not just of their own operations but also those throughout their entire value chain. Sony has determined emissions from its major component suppliers and manufacturing contractors. Furthermore, based on the level of emissions identified, Sony has calculated emissions for its entire value chain. The amount of emissions from Sony’s overall value chain in fiscal year 2022 is estimated to be approximately 21.420 million metric tons. The largest volume of emissions, approximately 11.795 million metric tons, was from “energy consumed during product use.” The next largest category was “goods and services procured,” which includes raw materials and components, at approximately 6.208 million metric tons. Sony will continue to strive to identify and manage emissions over the entire value chain.

*1 Value chain refers to the entire product life cycle process, from procurement of materials through to manufacturing, use and disposal. It includes upstream and downstream manufacturing processes.

*2 GHG emissions are calculated in accordance with the GHG Protocol’s scope 3 accounting and reporting standard and guidelines published by Japan’s Ministry of the Environment.
Overview of Sony's Environmental Impact

The chart below shows Sony's impact on the environment over the entire life cycle of its business activities, including energy and resources used in business activities, energy consumed by Sony products when used by customers, and the recycling and disposal of products after use. The chart shows the principal environmental impact during fiscal year 2022 for items that Sony can recognize and manage directly.

Environmental Data Collection Methods and Rationale

*1 Total volume of reused/recycled materials used in products
*2 Relevant primarily to Sony Group companies in Japan, Europe and North America
*3 Volume of Class 1-4 chemical substances handled

Note: Business processes other than those shown in this chart—including the production of purchased materials used and the recycling of products—may also have an impact on the environment.

<table>
<thead>
<tr>
<th>Waste discharged</th>
<th>15,000 metric tons</th>
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</thead>
<tbody>
<tr>
<td>Paper</td>
<td>6,000 metric tons</td>
</tr>
<tr>
<td>Plastics</td>
<td>5,000 metric tons</td>
</tr>
<tr>
<td>Wood</td>
<td>1,000 metric tons</td>
</tr>
<tr>
<td>Others</td>
<td>4,000 metric tons</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical substances released/transferred 301,000 metric tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporized at waste 30,000 metric tons</td>
</tr>
<tr>
<td>Released into the atmosphere 25,000 metric tons</td>
</tr>
<tr>
<td>Released into the bodies of water 6,870 metric tons</td>
</tr>
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<table>
<thead>
<tr>
<th>Greenhouse gas emission from sites 965 thousand mt-CO2</th>
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</thead>
<tbody>
<tr>
<td>Energy (944 thousand mt-CO2)</td>
</tr>
<tr>
<td>SH (20 thousand mt-CO2)</td>
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<tr>
<td>TV (100 thousand mt-CO2)</td>
</tr>
<tr>
<td>Others (35 thousand mt-CO2)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Water discharge 10.87 million m3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewersage 9.72 million m3</td>
</tr>
<tr>
<td>River 7.36 million m3</td>
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<table>
<thead>
<tr>
<th>Water withdrawn 20.03 million m3</th>
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</thead>
<tbody>
<tr>
<td>Well water 5.05 million m3</td>
</tr>
<tr>
<td>Municipal water 7.11 million m3</td>
</tr>
<tr>
<td>Industrial water 6.21 million m3</td>
</tr>
<tr>
<td>Rainwater 0.92 billion m3</td>
</tr>
<tr>
<td>External/other water 0.02 million m3</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Introduction of renewable energy certificates and credits 7,000 Tt</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Energy consumption by sites 27,000 Tt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity 22,000 Tt</td>
</tr>
<tr>
<td>Gas 5,000 Tt</td>
</tr>
<tr>
<td>Renewable Energy 3,000 Tt</td>
</tr>
<tr>
<td>Others 500 Tt</td>
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<table>
<thead>
<tr>
<th>Greenhouse gas emission from employee business trips 400,000 metric tons</th>
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<table>
<thead>
<tr>
<th>Energy used on employee business trips 680 TJ</th>
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<tbody>
<tr>
<td>Jet fuel 580 TJ</td>
</tr>
<tr>
<td>Others 100 TJ</td>
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<thead>
<tr>
<th>Handling volume of chemical substances 40,000 metric tons</th>
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<thead>
<tr>
<th>Energy used in logistics 2,150 TJ</th>
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<tbody>
<tr>
<td>Jet fuel 900 TJ</td>
</tr>
<tr>
<td>Others 1,250 TJ</td>
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</table>

<table>
<thead>
<tr>
<th>Energy during product use 297,000 TJ</th>
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<tbody>
<tr>
<td>Television 115,000 TJ</td>
</tr>
<tr>
<td>Game 111,000 TJ</td>
</tr>
<tr>
<td>Audio and Video 6,000 TJ</td>
</tr>
<tr>
<td>Others 5,000 TJ</td>
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<table>
<thead>
<tr>
<th>CO2 emissions from product transport 170,000 metric tons</th>
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<tbody>
<tr>
<td>Television (200,000 metric tons)</td>
</tr>
<tr>
<td>Game (100,000 metric tons)</td>
</tr>
<tr>
<td>Audio and Video (50,000 metric tons)</td>
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<tr>
<td>Others (30,000 metric tons)</td>
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<table>
<thead>
<tr>
<th>CO2 emissions from product use 11.80 million mt-CO2</th>
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<tbody>
<tr>
<td>Television 5.16 million mt-CO2</td>
</tr>
<tr>
<td>Game 0.57 million mt-CO2</td>
</tr>
<tr>
<td>Audio and Video 0.32 million mt-CO2</td>
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<tr>
<td>Others 0.70 million mt-CO2</td>
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<table>
<thead>
<tr>
<th>Recycling and disposal of products after use 7,100 metric tons</th>
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<tbody>
<tr>
<td>Product (unit body and accessories) 3,400 metric tons</td>
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<tr>
<td>Packaging 1,000 metric tons</td>
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<table>
<thead>
<tr>
<th>Greenhouse gases</th>
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<tbody>
<tr>
<td>Nox 84.9 metric tons</td>
</tr>
<tr>
<td>Sox 3.3 metric tons</td>
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<table>
<thead>
<tr>
<th>Resources</th>
<th>Water</th>
<th>Chemical substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 75,000 metric tons</td>
<td></td>
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<tr>
<td>Plastics 8,000 metric tons</td>
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<table>
<thead>
<tr>
<th>Greenhouse gases</th>
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<tbody>
<tr>
<td>BOD 406.2 metric tons</td>
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<tr>
<td>COD 103.7 metric tons</td>
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<thead>
<tr>
<th>Sony’s Purpose &amp; Values</th>
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<th>Products and Services</th>
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<th>Customer</th>
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<tr>
<td>Market</td>
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<tr>
<td>Supplier</td>
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<tr>
<td>Extraction of resources</td>
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<tr>
<th>Materials used 152,000 metric tons</th>
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<table>
<thead>
<tr>
<th>Reused/recycled materials used 83,000 metric tons</th>
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<tbody>
<tr>
<td>Paper 75,000 metric tons</td>
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<tr>
<td>Plastics 8,000 metric tons</td>
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<th>Sustainable Products and Services</th>
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<th>Sony’s Purpose &amp; Values</th>
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<th>Ethics and Compliance</th>
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<th>Quality and Customer Service</th>
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<th>Respect for Human Rights</th>
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<th>Supply Chain</th>
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<th>Quality and Customer Service</th>
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<th>Community Engagement</th>
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<th>Materiality</th>
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<th>Corporate Governance</th>
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<th>GRI Standards Content Index</th>
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Disclosure of Climate-related Information in Accordance with the TCFD Recommendations

Sony recognizes that its business depends upon the sustainability of the global environment and societies where people can live in security. Based on this understanding, Sony is constantly moving forward with environmental and social initiatives throughout the value chain. In particular, Sony is tackling climate change as one of its priority issues. In May 2019, Sony Group Corporation announced its endorsement of the final report published by the Task Force on Climate-related Financial Disclosures (the “TCFD Recommendations”) established by the Financial Stability Board. Sony Group Corporation also participates in the TCFD Consortium, which was established to facilitate implementation and discussion among companies and financial institutions that endorse the TCFD Recommendations in Japan. Sony Group Corporation will continue its climate-related information disclosure in accordance with the TCFD Recommendations.

Policy on Climate Change

Sony reduces energy consumption and is striving to achieve zero GHG emissions throughout the lifecycle of its products, services and business activities. Specifically, Sony has designated the following initiatives to achieve its medium-term environmental targets, and is working to reduce direct and indirect emissions.

On-Site
• Promoting efficient energy use
• Switching to energy sources that are lower in GHG emissions
• Promoting use of renewable energy
• Reducing GHG emissions from non-energy related sources

Off-Site
• Developing and providing energy-efficient, environmentally conscious products and services
• Working with manufacturing subcontractors and suppliers of raw materials and components

→ Sony Group Environmental Vision
→ Environmental Plan
→ Medium-Term Environmental Targets

Governance

Under the Companies Act of Japan, Sony Group Corporation has adopted the “Company with Three Committees” corporate governance system as the most appropriate system for the company. Under this system, the Board of Directors (the “Board”) determines Sony’s fundamental management policies and other material matters, while broadly delegating the decision-making authority to the CEO and Corporate Executive Officers in line with their respective responsibilities as defined by the Board, with a view to promoting timely and efficient decision-making within Sony.

The Board regularly deliberates and decides upon the mid-term management plan and annual business plan, taking into account various risks and opportunities, including climate change, in its deliberations and decisions. Senior Executives implement strategies according to the management plans and the business plan while carrying out business execution, and the Board receives and discusses reports on the status of business execution as needed.

With authority delegated by the Board, the CEO of Sony Group Corporation, who is a member of the Board has responsibility and authority to establish and determine the Sony Group Environmental Vision, which stipulates the corporate philosophy on the global environment and corporate principles including on climate change matters and medium-term environmental targets (Green Management 20XX) both are applicable to entire Sony. The Corporate Executive Officer in charge of sustainability including environmental matters is appointed by the Board, then established the Sony Group Environmental Management Structure, which consists of internal regulations that stipulate the basic framework for global environmental management at Sony. Through the environmental department, this Corporate Executive Officer supervises the initiatives implemented by each business unit and business site to achieve the Sony Group Environmental Vision, and also supervises their operation of and adherence to the Sony Group Environmental Management Structure. In order to address the TCFD Recommendations, environmental department leads the analysis and identification of climate related risks and opportunities through scenario analysis and review the countermeasures. (For more details, see the following “Strategies” section.) The progress on initiatives implemented under this environmental execution framework are regularly reported to and reviewed by the Board.

The Compensation Committee has the authority to determine the compensation policy on the content of individual compensation for Senior Executives and other officers, including the CEO, and to determine or oversee the amount of individual compensation paid to Senior Executives. Sustainability including environmental matters is taken into account as a factor in evaluating remuneration linked to business results of Senior Executives. Furthermore, KPIs for initiatives to address sustainability issues that each business emphasizes are set and incorporated into the performance evaluation of each business.

→ Sony Group Environmental Vision
→ Environmental Management Structure
Strategy
Identifying and Addressing Business Risks
Tackling environmental issues is consistent with Sony’s commitment to build a sustainable world and is important in terms of ensuring business continuity. Sony seeks to identify various environment-related risks and address foreseeable risks. This applies to transition risks such as adoption of carbon taxes, regional expansion of emissions trading schemes, stronger regulation of energy efficiency standards for products, and market changes driven by shifting consumer attitudes. It also applies to physical risks such as abnormal weather events and sea level rise due to climate change.

Creating and Expanding Business Opportunities
Sony believes that tackling environmental issues also leads to business opportunities. For example, the Paris Agreement*1 that emerged from the COP 21*2 meeting in December 2015 addressed climate change issues, and with increasing public awareness, consumer demand is shifting toward energy-efficient products. Sony has already increased the energy efficiency of many of its products. In light of these social trends, demand for energy-efficient products may continue to grow. One example of this is the development of IMX500, an intelligent vision sensor with AI processing functionality in its image sensor logic chip. We expect it to be used in IoT fields. Processing information through the sensor on its edge enables the transmission of metadata only (semantic information). This reduces the amount of data transmitted to the cloud as well as the amount of data to be processed, which we believe will reduce energy consumption. The Paris Agreement was adopted at COP 21 held in Paris, France and serves as an international framework for climate change action starting from 2020. In the second analysis from November 2021 to March 2022 we targeted the Financial Services segment, a key sector in TCFD Recommendations. In order to evaluate impact across the entire Financial Services segment, we conducted scenario analysis*1 on Sony Life Insurance, Sony Assurance and Sony Bank based on individual business segment, we conducted scenario analysis*1 on Sony Life Insurance, Sony Assurance and Sony Bank based on individual business characteristics and the exposure of assets held. As prerequisite scenarios, we used the 1.5°C*3 scenario, the 2°C*4 scenario and the 4°C scenario.*5 In the third analysis from October 2022 to March 2023, we focused on scenario analysis*1 of the television business, which has high environmental impact within the ET&S segment. As prerequisite scenarios, we used the 1.5°C*3 scenario, the 2°C*4 scenario and the 4°C scenario.*5

Scenario Analysis
Analysis Methodology and Assumptions
In accordance with the requirements of the TCFD Recommendations and advice from external experts, we have conducted Scenario Analysis*6 three times. The first analysis is on climate change impact for the Sony Group conducted from September 2019 to July 2020 (excluding financial business. The same applies after in the first analysis). To assess the impact of climate change across the Sony Group, each business segment assessed the degree to which climate change impacts its industry on a four-point scale of "Very Significant," "Significant," "Moderate," and "Minor." The rating was based on how often climate change impacts were mentioned in the guidelines and assessment methodologies for investors, ESG assessment institutions, and investor initiatives. Based on the analyses, climate change was found to have a moderate impact on the Imaging & Sensing Solutions (I&SS), Electronics Products & Solutions (Entertainment, Technology and Services from April 1, 2022), and Game & Network Services segments, while having a minor impact on the Music and Pictures segments. Of the three business areas that are moderately impacted by climate change, the I&SS segment generates the most GHG emissions. For example, the Paris Agreement*1 that emerged from the COP 21*2 meeting in December 2015 addressed climate change issues, and with increasing public awareness, consumer demand is shifting toward energy-efficient products. Sony has already increased the energy efficiency of many of its products. In light of these social trends, demand for energy-efficient products may continue to grow. One example of this is the development of IMX500, an intelligent vision sensor with AI processing functionality in its image sensor logic chip. We expect it to be used in IoT fields. Processing information through the sensor on its edge enables the transmission of metadata only (semantic information). This reduces the amount of data transmitted to the cloud as well as the amount of data to be processed, which we believe will reduce energy consumption. The Paris Agreement was adopted at COP 21 held in Paris, France and serves as an international framework for climate change action starting from 2020. In the second analysis from November 2021 to March 2022 we targeted the Financial Services segment, a key sector in TCFD Recommendations. In order to evaluate impact across the entire Financial Services segment, we conducted scenario analysis*1 on Sony Life Insurance, Sony Assurance and Sony Bank based on individual business characteristics and the exposure of assets held. As prerequisite scenarios, we used the 1.5°C*3 scenario, the 2°C*4 scenario and the 4°C scenario.*5 In the third analysis from October 2022 to March 2023, we focused on scenario analysis*1 of the television business, which has high environmental impact within the ET&S segment. As prerequisite scenarios, we used the 1.5°C*3 scenario, the 2°C*4 scenario and the 4°C scenario.*5

Analysis Results and Countermeasures
As a result of three analyses based on the above prerequisites, recognized risks and opportunities and countermeasures which are unique to the I&SS segment, Financial Services segment and ET&S segment television business are as shown in the table below. Based on the results of the above scenario analysis, the entire Sony Group is working toward using 100% renewable electricity in its own operations by 2030 to achieve its Re100*6 target. Specifically, Sony Group Corporation is examining measures such as directly purchasing renewable electricity from power utilities and purchasing renewable electricity certificates. Along with these efforts, in each business segment, Sony develops and enhances risk management and business continuity plans (BCPs) from the perspective of improving risk management across supply chains, through the identification, analysis, and assessment of business continuity risks. Flood damage has grown in recent years due to the impact of climate change, prompting Sony to reassess the flood risk at its manufacturing sites in Japan and implement preventative measures that will mitigate flood damage and facilitate rapid recovery. Sony is collaborating with relevant companies and organizations, and conducts hands-on drills to address foreseeable risks, in an effort to enhance business continuity and accelerate flood recovery. Sony will continue to increase its resilience to climate change, based on its analyses and initiatives. A global initiative in which participating corporations aim to operate on 100% renewable electricity. It is headed by an international non-governmental organization, the Climate Group, in partnership with the COP.
**ET&S segment television business**

<table>
<thead>
<tr>
<th>Assumed scenario</th>
<th>Recognized risks and opportunities</th>
<th>Countermeasures</th>
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</thead>
<tbody>
<tr>
<td>1.5°C, 2°C and 4°C scenarios</td>
<td>• Stricter regulations due to national decarbonization policies worldwide and the introduction of carbon pricing will lead to an increase in crude oil and fossil fuel prices. As a result, manufacturing costs for semiconductors, which require large amounts of electricity to produce, will increase.</td>
<td>• Manufacturing sites outside Japan: Achieved 100% renewable electricity in fiscal year 2021.</td>
</tr>
<tr>
<td></td>
<td>• Progressive temperature rise increases the severity and frequency of abnormal weather, damaging Sony’s manufacturing sites and suppliers and reducing demand due to the disruption of the supply chain.</td>
<td>• Manufacturing sites in Japan: Promote achieving 100% renewable electricity in the medium to long-term, including installing solar panels, procuring environmental value from off-site renewable energy power equipment, and purchasing renewable electricity certificates.</td>
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</table>

**Financial Services segment**

<table>
<thead>
<tr>
<th>Assumed scenario</th>
<th>Recognized risks and opportunities</th>
<th>Countermeasures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5°C and 2°C scenarios</td>
<td>• Increasing demands for loans to purchase the low-carbon vehicles and housing that contribute to creating a low carbon society increase profit opportunities.</td>
<td>• Development of products/services and procurement of funds in consideration of climate change.</td>
</tr>
<tr>
<td></td>
<td>• Value of securities issued by companies taking insufficient low-carbon action declines, increasing investment opportunities for companies that contribute to a transition to a low carbon society.</td>
<td>• Establishment of a system for ESG investment at Sony Financial Group companies based on Sony Financial Group’s ESG investment policy.</td>
</tr>
<tr>
<td>4°C scenario</td>
<td>• Increase in insurance and benefits payments due to climate change-related disasters such as typhoons and floods, and increase in infectious disease and heat stroke due to rising average temperatures.</td>
<td>• Continued collecting information on climate change-related disasters, infectious diseases and heat stroke (including impact on collateral value).</td>
</tr>
<tr>
<td></td>
<td>• Increase in credit costs due to the loss of value of security real estate granted to home loans due to the effects of climate change-related disasters.</td>
<td>• Continued risk segmentation and setting of appropriate insurance premium rates in consideration of the impact of climate change-related disasters.</td>
</tr>
<tr>
<td></td>
<td>• Impact on operations and increase in costs due to climate change-related disasters affecting our offices and human resources.</td>
<td>• Continued utilization of reinsurance.</td>
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**I&SS segment**

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<thead>
<tr>
<th>Assumed scenario</th>
<th>Recognized risks and opportunities</th>
<th>Countermeasures</th>
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<tbody>
<tr>
<td>2°C scenario</td>
<td>Stricter regulations due to national decarbonization policies worldwide and the introduction of carbon pricing will lead to an increase in crude oil and fossil fuel prices. As a result, manufacturing costs for semiconductors, which require large amounts of electricity to produce, will increase.</td>
<td>• Self-checks conducted annually at manufacturing sites, and regularly undergo on-site surveys dispatched from headquarters to establish a Plan-Do-Check-Act cycle to identify issues and establish improvement plans to reduce risk.</td>
</tr>
<tr>
<td>2°C and 4°C scenarios</td>
<td>Progressive temperature rise increases the severity and frequency of abnormal weather, damaging Sony’s manufacturing sites and suppliers and reducing demand due to the disruption of the supply chain.</td>
<td></td>
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</table>
Risk Management

Each business unit, subsidiary/affiliated company and corporate division of Sony periodically reviews and assesses risks for the area of which it is in charge and works on finding, reporting, reviewing and responding to the risks. In addition, Senior Executives have established and maintain a system to identify and control risks that may cause losses to Sony, in the areas of which they are in charge. The Corporate Executive Officer in charge of group risk control comprehensively promotes and manages the establishment and maintenance of the systems as stated above through the activities with related departments. The Board of Directors receives regular reports on the framework and its operational status, to confirm the validity of the framework. Under the framework, each business unit, subsidiary/affiliated company and corporate division also assesses and analyzes climate-related risks, when assembling business strategies and business plans.

Metrics and Targets

In 2010, the Sony Group formulated the Road to Zero global environmental plan, which aims to reduce its environmental footprint to zero by 2050. The target year for our goal of achieving carbon net zero group-wide was moved up from 2050 to 2040 in May 2022. For climate change action, Sony is developing and supplying environmentally conscious products and services in order to reduce GHG emissions not only from manufacturing at its sites, but also throughout the life cycle of its products. Sony is also making energy-efficiency improvements at its business sites and shifting to renewable energy, while encouraging contract manufacturers and component suppliers to reduce their emissions.

In September 2020, Sony Group Corporation announced its Green Management 2025 medium-term environmental targets to achieve by the end of fiscal year ending on March 31, 2026 and has been implementing initiatives to meet these targets since April 2021. In GM2025, the life cycle of products has been divided into five stages: product/service planning and design, operations, supply chain, logistics, take back and recycling. At each stage, Sony has set specific targets from the four perspectives of climate change, resources, chemical substances, and biodiversity, and implemented initiatives to achieve these targets. Climate change targets include a 5% reduction in annual energy consumption per Sony product (compared to fiscal year 2018). Along with moving up the year to meet our climate change targets, we have also changed the target rate for renewable electricity used in our facilities from 15% or more to 35% or more. Both our 1.5°C target to be achieved by 2035 and our net zero target to be achieved by 2040 are approved by the Science Based Targets (SBT)* initiative as climate change targets based on scientific grounds. In the Financial Services segment, we invest in green bonds, social bonds, sustainability bonds and other ESG-related investments. We established the Sony Financial Group ESG Investment Policy in April 2022, and our financial group companies are now proceeding to establish systems for ESG investment in accordance with this policy.

* An international initiative to encourage companies to set science-based GHG reduction targets in order to limit the increase in the average global temperature due to climate change to 1.5 degrees Celsius above preindustrial levels.

→ Green Management 2025
→ Green Management 2025 Targets and Progress
→ Sony Financial Group ESG Investment Policy
Environmental Technologies

Sony regards working to realize a sustainable society as a key theme and is conducting technological development to solve both environmental and social issues, not only in our business's technology development departments, but also in our R&D Center, Sony Computer Science Laboratories, Inc. (Sony CSL), and other R&D organizations. This includes the promotion of next-generation development in projects like Sony's Earth MIMAMORI platform, which utilizes sensing on a global scale to help prevent environmental destruction, and Synecoculture™*, which creates a rich ecosystem through new farming methods.

* Synecoculture is a trademark of Sony Group Corporation.

There are a variety of departments responsible for the development and utilization of technologies that contribute to sustainability. Among these, we established the Sustainability Technology Liaison Meeting, which meets regularly to identify issues, search for, and share solutions. At meetings, information is actively exchanged by mapping activities pursued by each business as well as by sharing the issues faced and initiatives pursued by each department.

Sony works to create products, services and systems that solve environmental and social issues through electronic equipment and a wide range of business areas.

In our materials business area, Sony provides licenses for Triporous™, an absorbent material that purifies water we developed in-house, and also supply SORPLAS™, which enables up to 99% of recycled materials to be utilized.

In services and systems, we have made the Autonomous Power Interchange System that lies at the core of our Open Energy Systems™ open source and free of charge. This energy system facilitates the storage of renewable energy-derived power for flexible community interchange. In video production, we provide digital cinema systems that reduce environmental impact of movie productions and screenings, and virtual production technology that enables shooting on a virtual set in studio instead of on location. The Sony Group's Aerosense Inc. utilizes drones both in Japan and overseas to support mountain and ecosystem surveys as well as other environmental conservation projects. Further, in Bangladesh where traffic issues have become a massive issues, we provide an IC card-based boarding system equipped with FeliCa™ to promote the use of the state-run buses.

Further details on these products and services can be found in Technology for Sustainability.

Examples of products and services that contribute to the resolution of environmental and social issues (from top left): Logo for Triporous, a new material made from rice husks; Two types of recycled flame-retardant plastic SORPLAS pellets and a sulfur-based flame retardant; Demonstration test for our Open Energy Systems; VENICE 2 digital cinema camera; Virtual production shooting; Aerosense drone.
Reducing Greenhouse Gas Emissions

Sony products consume electrical power while used by their owners, resulting in indirect emissions of CO₂. Sony has adopted the target of reducing annual energy consumption per product*1 from product use by 5% by fiscal year 2025 compared to the fiscal year 2018 level. Sony sets specific fiscal year targets in every product category and is implementing diverse measures to reduce energy consumption. For example, BRAVIA™ television models include Auto Power Saving Mode*2, *3 that detects user movement to automatically reduce screen brightness, reducing power consumption when no one is in front of the TV. This reduces energy consumption by 52%.*3 PlayStation®VR2 (PS VR2) has improved power management compared to its predecessor. By default, the PS VR2 display turns off immediately when not being worn. In addition, the headset automatically shuts off after 30 minutes after you exit a game if it isn’t being worn. Our VPL-XW5000 video projector also boasts an energy-saving design that reduces power consumption by 30% per lumen (a unit for measuring the amount of light) compared to the previous model, VPL-WX75S, while maintaining the same performance. For professional grade equipment, we harnessed the latest surface treatment technology to equip our BH/CH Crystal LED series, often used for design review in corporate show rooms, with high luminosity-efficient LEDs and Sony’s proprietary power supply design to reduce energy consumption more than 20% over our B/C series.

However, due to larger products, higher levels of performance and additional functions, fiscal year 2022 power consumption Sony-wide increased approximately 3.9% over 2018. Total CO₂ emissions in product use over the lifetime of all products sold in fiscal year 2022 were approximately 11.8 million metric tons.*4

*1 Energy-using products which operate the intended main function with energy input from a commercial power supply.
*2 The BRAVIA CAM accessory automatically detects movement.
*3 Depending on model, BRAVIA CAM is either included or sold separately.
*4 Figures may vary by model and region.

Conserving Resources

Total Volume of Resources Used in Products

Sony is working to reduce the average mass of products in order to minimize resource inputs. In fiscal year 2022, the total volume of resources used in products was approximately 459 thousand metric tons, which was 10% lower than in fiscal year 2018. This is due to continuous efforts to reduce the size and weight of both products and packaging in a wide range of product categories, as well as a decrease in the number of units sold.

In fiscal year 2022, the Sony Group used approximately 9.5 thousand metric tons of recycled plastic in its products. This amount consisted of approximately 78% recycled plastic content from scraps and other waste materials generated from manufacturing by the Sony Group and other companies, and approximately 22% post-consumer recycled plastic content from used products, containers, and other sources. We have used approximately 59 thousand metric tons of recycled plastic from fiscal year 2014 through fiscal year 2022.

Total volume of recycled plastics used in products

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric Tons</td>
<td>9,210</td>
<td>6,094</td>
<td>7,319</td>
<td>8,471</td>
<td></td>
</tr>
</tbody>
</table>

Reducing Use of Virgin Plastics Product Bodies

With the target of reducing virgin oil-based plastic used per product by 10% from the fiscal year 2018 level, by fiscal year 2025 (excluding packaging), Sony is working to expand its use of recycled plastics and make its product chassis more lightweight and compact while also minimizing plastic packaging. In fiscal year 2022, virgin oil-based plastic used per product was down approximately 3.4% from the fiscal year 2018 level. This is mainly due to the advancement of recycled plastics across a wide range of product categories, such as televisions.
Incorporating Recycled Plastic

To reduce the consumption of virgin plastic, Sony has expanded the use of recycled plastics in a broad range of product categories by developing recycled plastics while elevating quality and reducing manufacturing costs. Sony is using its original recycled plastic SORPLAS™ in the rear cover of select BRAVIA™ televisions, which is one of the largest plastic parts used in the product. In 2022, Sony also employed our in-house developed recycled plastic in LinkBuds headphones for the first time. Many of these recycled plastics have been previously painted or colored, which presents a challenge in terms of design. We overcame this issue by focusing on industrial waste materials from automobile parts before coloring, and painstakingly separating plastics by color before applying additional color. This minimizes the amount of additives required in the coloring process, enabling us to use plastics that are over 85% recycled, and up to 98% for black pellets. These plastics can be found in LinkBuds S, released in 2022, and the WH-1000XM5.

For our LinkBuds S “Earth Blue” model, released as part of our environmental efforts, we also incorporated recycled plastic obtained from reclaimed water server jugs. The unique design of the housing varies per product, featuring a marbled texture obtained by separating plastics by color before applying additional color. This minimizes the amount of additives required in the coloring process, enabling us to use plastics that are over 85% recycled, and up to 98% for black pellets. These plastics can be found in LinkBuds S, released in 2022, and the WH-1000XM5.

SORPLAS™, Sony’s Original Flame-Retardant Recycled Plastic

Sony commenced external sales of SORPLAS (Sustainable Oriented Recycled Plastic), a flame-retardant recycled plastic, in 2011. This plastic is made possible by a proprietary compounding technology that combines an original, non-halogen and non-phosphorus flame retardant—initially produced using a Sony-developed process—and waste plastics (polycarbonate resin) from various sources in an optimal blend. Thanks to Sony’s novel flame-retardant, which makes it possible to impart flame-retardancy by the addition of a very small amount of less than 1% of total content while conventional flame retardants require an addition amount of around 10%, SORPLAS not only surpasses conventional flame retardant plastics in terms of durability, heat resistance and recyclability, but also achieves an outstanding utilization rate of up to 99% waste plastics. The effective utilization of SORPLAS has been shown to reduce CO₂ emissions in product manufacturing by up to 72%.* Moreover, Sony’s versatile waste-plastic compounding technology makes it possible to tailor SORPLAS to the needs of a variety of products.

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Reducing Plastic Packaging

Sony has adopted the targets of reducing plastic packaging used per product by 10% and eliminating plastic packaging from newly-designed small products, and is actively working to reduce the amount of single-use plastic packaging used in a range of product categories. In fiscal year 2022, plastic packaging used per product was 22.2% lower than in fiscal year 2018. This was mainly due to the reduction in the amount of Styrofoam used in televisions and the shift from plastic to paper packaging materials in audio and other product categories. Individual packaging* uses zero plastic* for the WH-1000XM5 headphones, the Xperia 1 IV and 5 IV Smartphone and the Vlog camera ZV-1F released in 2022. Sony’s Original Blended Material paper was used for individual product boxes for the WH-1000XM5, Xperia 1 IV and Xperia 5 IV.

* Comparison of the CO₂ emitted from the production of SORPLAS to that of flame-retardant virgin plastics for the same application. Based on Sony calculations.

External Sales of SORPLAS™ Recycled Plastic

Leading the development of recycled plastics

Reduction in Packaging

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* Comparison of the CO₂ emitted from the production of SORPLAS to that of flame-retardant virgin plastics for the same application. Based on Sony calculations.
Reducing Plastic inside Product Boxes
By minimizing packaging materials using packaging drop simulation technology, Sony reduced the amount of plastic packaging used for the 4K LCD TV KJ-55X85K, launched in 2022, by approximately 35%.* Our recently released PlayStation®VR2 (PS VR2) headset uses 98% fiber-based packaging and cushioning materials, an improvement compared to 96% for PS VR. This year, we will also be replacing the plastic hanger tabs in selected PlayStation®5 peripherals worldwide with a fiber-based solution. The plastic film to protect the display and the plastic bag to protect the body of the Xperia™ Smartphone were replaced with paper starting with the Xperia PRO-I released in 2021. Furthermore, our α7 IV - Full-frame Mirrorless Interchangeable Lens Camera uses pulp moulds and other recyclable** materials.

* Compared to 2018 model (KJ-55X9000F)
** Only possible in regions with a recycling system.

Extending Product Life to Save Resources
Sony indirectly reduces resource consumption by extending product life. The Xperia™ Smartphone, released in fiscal year 2022, features unique charging optimization technology that adjusts the amount of charge according to a user’s individual usage habits, and a “careful charging” function that reduces load on the battery during charging. These features promote long-lasting batteries that don’t deteriorate, even after three years* of use. This allows for a product to be used long-term, reducing battery and product waste.

Going Paperless
Sony is working to reduce paper use across a wide range of its businesses. For our electronics products, we continue to prioritize ease of customer understanding for instruction manuals, while moving online in a variety of product categories to reduce paper use. We had previously included instructions for multiple languages for overseas models of audio products such as Walkman® or headphones, but have now unified these after-purchase instructions by introducing the Textless Quick Start Guide (QSG), which uses illustrations that users can easily understand regardless of language since 2015. For our LinkBuds, released in 2022, we removed after-purchase paper instructions entirely, instead providing a QR code on the packaging to enable users to use their smartphone to access the online Help Guide. Further, we revised the precautions and specifications that must be provided in paper manuals to reduce paper included in packaging by 85%.* We also expanded these measures to include headphones such as LinkBuds S, the WH-1000XM5 and the INZONE H7/H9 gaming headset. The Sony Financial Group has been reducing the use of paper for contracts and transactions, employing digital technology to both conserve paper resources and reduce mailing, which produces carbon emissions.

* Compared to WF-SP800N headphones

Resource Conservation in Sales and Repairs
Sony is working to reduce resource consumption in products and packaging as well as during sales and product repairs. In-store promotional materials in Japan have shifted to build-to-order and direct delivery to shopfronts, which eliminates excess inventory, and now have a long-life design to last for multiple years. From 2022, we are promoting resource conservation in the promotion materials themselves by using packaging materials usually discarded after delivery as a part of the materials, such as for part of the structure of signboards. In TV repair, we are working to reuse LCD panel packaging materials. Though the growing size of TV screens in recent years has required more packaging materials, we have reduced waste generated during repairs and reduced the use of new packaging materials.

*1 Camera uses pulp molds and other recyclable materials.
*2 Only possible in regions with a recycling system.
Management of Chemical Substances

Sony’s Proprietary Global Standards for the Management of Chemical Substances

Many of Sony’s electronics products are made of between a few hundred and a few thousand parts and contain a variety of chemical substances, some of which may be classified as hazardous and may harm the environment if they are not properly treated prior to product disposal. Many countries and regions have introduced various laws and directives to prevent such environmental harm. In the European Union, certain chemical substances in products are restricted by RoHS Directive1 and REACH2 Regulation. In Japan, products that contain certain chemical substances are required to carry the J-Moss mark, while in China it is required to disclose information on chemical substances contained in products in line with the Management Methods on the Pollution Control of Electronic Information Products, often referred to as China RoHS.3

In light of the global nature of its markets and supply chains, Sony has established its own global standards for the management of chemical substances, titled “Management Regulations for the Environment-related Substances to be Controlled which are Included in Parts and Materials (SS-00259),”4 taking into account the related laws and regulations around the world and simultaneously the opinions of various stakeholders. In line with these standards, Sony ensures globally consistent management of chemical substances in parts and materials that make up its products.

Complying with Regulations Governing Chemical Substances in Products

Sony has set up necessary procedures to ensure compliance with the EU’s REACH Regulation requirements and RoHS Directive. In response to its obligation under REACH to provide information to customers and to submit notification, as well as to the CE marking requirement under RoHS Directive, Sony has adopted the chemSHERPA5 scheme based on IEC 62474.6 This enables Sony to collect data on specified chemical substances in parts and materials purchased from suppliers for management in an internal database.

1 J-Moss refers to Japanese Industrial Standards (JIS) for marking the presence of certain chemical substances in electrical and electronic equipment.
2 REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) is a regulation for managing chemical substances introduced in Europe, whereby companies are required to, among others, register, apply for authorization, notify, restrict and communicate information on certain chemical substances.
3 IEC 62474 is a set of international standards regulating the procedures, content, format and other aspects of reporting within the supply chain regarding the presence of chemical substances and constituent materials in electrical and electronic goods.

System for Managing Chemical Substances in Products

Three Core Principles for Managing Chemical Substances in Products

To guide its efforts to manage chemical substances in products in compliance with Sony’s own global standards for management of chemical substances, titled “Management Regulations for Environment-related Substances to be Controlled which are Included in Parts and Materials (SS-00259),” Sony has established three core principles:

Upstream Management

Sony introduced the Green Partner Environmental Quality Approval Program in 2002. This program outlines Sony’s Green Partner Standards for chemical substance management. Sony audits suppliers based on these standards. Sony purchases parts only from suppliers who have passed this audit and have been certified as Green Partners. Sony also applies the Green Partner Environmental Quality Approval Program to manufacturing partners. To further enhance the efficiency of the system to manage chemical substances, Sony also supplies our primary suppliers with a List of Specified Raw Material Suppliers (a list of recycled resin and coated wire suppliers list) through our electronic procurement system.

Sony’s Sustainability

Materiality

Environment

Overview
Environmental Policies and Targets
Contributions to Solving Environmental Issues
Products and Services
Supply Chain
Manufacturing Sites
Logistics
Product Recycling
Environmental Communication

Technology

Employees
Respect for Human Rights
Responsible Supply Chain
Quality and Customer Service
Community Engagement
Ethics and Compliance
Corporate Governance
Data Section
GRI Standards Content Index
Management in Quality Control/Quality Assurance Processes

New parts and materials are tested to confirm whether they comply with SS-00259 based on collected chemSHERPA data, in addition to conventional quality control standards. By implementing these strict management procedures worldwide, incompliant products are prevented from entering the market.

Utilization of Chemical Analysis

To prevent prohibited substances from accidentally entering products, Sony requires suppliers to conduct precision analysis (10 substances) on the specific parts and raw materials. For some high-risk substances Sony has also implemented internal control systems that involve using, for example, X-ray fluorescence (XRF) and other measurement devices, to Sony sites worldwide, to help confirm that prohibited substances are kept out of products.

Substance Management in Xperia™ Smartphones

In the smartphone category, Sony began phasing out brominated flame retardants (BFRs) in circuit boards, casings, and cables starting in 2002, making it one of the first companies in the industry to phase out BFRs. Since then Sony has continued the journey and phased out BFRs in all parts, and also phased out chlorinated flame retardants (CFRs), polyvinyl chloride (PVC), as well as phthalates, beryllium, and antimony trioxide in plastic and resin.

Management Regulations for Environment-related Substances to be Controlled which are Included in Parts and Materials (SS-00259)

Sony either prohibits the use of these substances in parts or phases them out wherever a viable alternative that meets all product quality requirements and are technically and economically available. In addition, Sony specifies high-risk applications from collected application- and content-related information, considering the hazardous nature and extent of exposure (volume) as risk factors, and proceeds to prohibit the “Controlled Substances” in the specified use.

Polyvinyl Chloride (PVC)

Improper disposal of PVCs poses a risk of generating hazardous substances. For example, Sony is concerned about the possibility that its small electronic products, in particular, could be collected to obtain valuable materials, and then the unwanted parts could be improperly incinerated and disposed of in landfills, thus causing adverse environmental impacts. In addition, there are also concerns about the environmental and health impact of some of the substances used as plasticizers and stabilizers in PVCs. Although PVCs are not currently regulated by any laws that apply to chemical substances used in electronic products, Sony works to reduce PVC content in individual components.

As a result, Sony does not use PVCs in product packaging materials (with the exception of some packing materials for devices, semiconductors, batteries, and similar items) or in sheets/laminates used for product housings, contactless IC cards, and carrying bags/cases for products (excluding those for professional use).

Reduction and Replacement of Chemical Substances of Very High Concern

Sony defines “Environment-related Substances to be Controlled” (hereafter “Controlled Substances”) as certain chemicals that it has determined to have significant impact on both humans and the global environment, including substances that may not be controlled by laws (please refer to Management Regulations for Environment-related Substances to be Controlled which are Included in Parts and Materials (SS-00259)). Sony also specifies high-risk applications from collected application- and content-related information, considering the hazardous nature and extent of exposure (volume) as risk factors, and proceeds to prohibit the “Controlled Substances” in the specified use.

Management Regulations for Environment-related Substances to be Controlled which are Included in Parts and Materials (SS-00259)

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Sony has also successfully replaced PVCs by substitute materials for internal components that are difficult to remove prior to recycling, such as flexible flat cables, insulation plates, and heat-shrink tubes (excluding those for batteries). Also, Sony is working to end the use of PVCs in the housings and internal wiring of small electronic devices (the adoption of alternatives is subject to the ability to resolve issues relating to quality, technology, and supply).

As of the end of July 2023, Sony has replaced PVCs in new products and new models in the following products with alternative substances.

**PVC-Free Product Categories**

<table>
<thead>
<tr>
<th>PVC-Free Product Categories*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xperia™ Smartphone</td>
</tr>
<tr>
<td>WALKMAN® memory-type portable audio players</td>
</tr>
<tr>
<td>IC recorder / Sound Monitoring Receiver</td>
</tr>
<tr>
<td>Video Camera Handycam®</td>
</tr>
<tr>
<td>Digital Still Camera Cyber-shot™</td>
</tr>
<tr>
<td>Interchangeable lens camera α™</td>
</tr>
<tr>
<td>Memory Stick™</td>
</tr>
<tr>
<td>SxS™ memory card</td>
</tr>
</tbody>
</table>

* Parts in which PVC is eliminated are as below (excluding bundled/standalone accessories):
  - Xperia Smartphones: in all plastic components,
  - Products other than Xperia Smartphones: in casings and internal wiring.

Examples of Polyvinyl Chloride (PVC)-Free Products and Brominated Flame Retardant (BFR)-Free Products

- **Memory Stick™**: used for product housings, contactless IC cards, and carrying bags/cases for products.
- **Xperia™ Smartphone**: in parts and materials and ensure that hazardous substances, including heavy metals, are not mixed into packaging materials by managing materials in line with its proprietary “Management Regulations for Environment-related Substances to be Controlled which are Included in Parts and Materials” (SS-00259). The packaging section of SS-00259 is based on, among others, EU Directive on packaging and packaging waste.
Brominated Flame Retardants (BFRs)

Some BFRs are harmful to human health and tend to remain in the environment and accumulate in living organisms. As is the case with PVC, improper incineration of BFRs carries a risk of releasing harmful substances into the environment. Sony has banned the use of components and materials containing any of three specified BFRs—polybrominated diphenyl ethers, polybrominated biphenyls, or hexabromocyclododecanes—and is working to phase out BFRs (the adoption of which is subject to the resolution of issues relating to quality, technology, and supply).

Also, Sony is working to use Sony developed environmentally sound, bromine-free flame retardant for the manufacture of a polycarbonate plastic flame retardant in some product categories such as LCD TV. As of the end of July 2023, Sony has replaced BFRs in new products and new models in the following products with alternative substances.

Creating Environmentally Conscious Products

Promoting Environmentally Conscious Design

Sony has set medium-term environmental targets for products, including reducing annual power consumption, promoting resource conservation and managing chemical substances. Business units set areas of focus based on Sony medium-term environmental targets and targets based on the specific characteristics of the environmental impact throughout the lifecycle of targeted product categories. In the course of product design, environmental targets are set for each product according to business unit targets and feedback about previous models to execute an environmentally conscious design. Environmental assessments are conducted and progress toward these targets is reviewed before mass-production of a product begins. Business units receive feedback on the results of this review, conduct their own review of progress with their medium-term environmental targets for each product, and report results to the department in charge of environmental functions at headquarters. In turn, this department evaluates the targets and progress of each business unit and conducts an overall review of the Sony Group’s progress on achieving its medium-term environmental targets. Based on the results of this review, Sony determines areas of focus for the subsequent fiscal year. This method enables Sony to execute ongoing environmentally conscious processes for the department in charge of environmental functions at headquarters, as well as each business unit and product, which in turn ensures the development of environmentally conscious products.

BFR-Free Product Categories*

- Xperia™ Smartphone
- WALKMAN® memory-type portable audio players
- IC recorder / Linear PCM Recorder / Sound Monitoring Receiver
- Video Camera Handycam®
- Digital Still Camera Cyber-shot™
- Interchangeable lens camera α™
- Memory Stick™
- SxS™ memory card
- Xperia™ SmartBand

* Parts in which BFR is eliminated are as below (excluding bundled/standalone accessories).
- Xperia Smartphones: in all plastic components.
- Products other than Xperia Smartphones: in casings and main PCBs.

Examples of Polyvinyl Chloride (PVC) -Free Products and Brominated Flame Retardant (BFR) -Free Products

Sony has banned the use of tris (2-chloro ethyl) phosphate, a chlorinated flame retardant identified as carrying risks similar to those associated with brominated flame retardants, as well as phosphoric acid tris [2-chloro-1-methylethyl] ester (TCP) and tris [1,3-dichloro-2-propyl] phosphate (TDCPP).

Management Structure for Environmentally Conscious Product Development

<table>
<thead>
<tr>
<th>Environmental Conscious Product Development</th>
<th>Xperia™ Smartphone</th>
<th>WALKMAN® memory-type portable audio players</th>
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<td>BFR-Free Product Categories*</td>
<td></td>
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Designing Environmentally Conscious Products: Key Considerations

<table>
<thead>
<tr>
<th>Observe relevant laws in individual countries</th>
<th>• Product energy efficiency regulations</th>
<th>• Regulations concerning chemical substances in products</th>
<th>• Product recycling regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of energy consumption</td>
<td>• Aim for zero energy use in standby mode</td>
<td>• Reduce power use in all modes</td>
<td>• Enhance the efficiency of external power supply</td>
</tr>
<tr>
<td>Resource conservation</td>
<td>• Ease of disassembly/repairability</td>
<td>• Use recyclable materials</td>
<td>• Reduce product weight</td>
</tr>
<tr>
<td>Management of chemical substances</td>
<td>• Controlled substances</td>
<td>• Compliance with technical standards</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>• Improve shipping efficiency by limiting weight of packaged products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Management Structure for Environmentally Conscious Product Development

<table>
<thead>
<tr>
<th>Headquarters (Department in charge of environmental functions)</th>
<th>Determine areas of focus based on medium-term environmental targets</th>
<th>Review progress of business unit targets</th>
<th>Review progress of business unit targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Unit</td>
<td>Formulate business unit targets</td>
<td>Plan</td>
<td>Set environmental targets for each product</td>
</tr>
<tr>
<td>Product design</td>
<td>Execute environmentally conscious design</td>
<td>Do</td>
<td>Feedback on results of review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Act</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Review progress toward targets before mass-production begins</td>
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<td>Check</td>
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</table>

Business Overview

Sony has set medium-term environmental targets for products, including reducing annual power consumption, promoting resource conservation and managing chemical substances. Business units set areas of focus based on Sony medium-term environmental targets and targets based on the specific characteristics of the environmental impact throughout the lifecycle of targeted product categories. In the course of product design, environmental targets are set for each product according to business unit targets and feedback about previous models to execute an environmentally conscious design. Environmental assessments are conducted and progress toward these targets is reviewed before mass-production of a product begins. Business units receive feedback on the results of this review, conduct their own review of progress with their medium-term environmental targets for each product, and report results to the department in charge of environmental functions at headquarters. In turn, this department evaluates the targets and progress of each business unit and conducts an overall review of the Sony Group’s progress on achieving its medium-term environmental targets. Based on the results of this review, Sony determines areas of focus for the subsequent fiscal year. This method enables Sony to execute ongoing environmentally conscious processes for the department in charge of environmental functions at headquarters, as well as each business unit and product, which in turn ensures the development of environmentally conscious products.
Examples of Environmental Features in Sony Products

Sony is working on environmentally conscious and recycling-friendly designs and is improving environmental performance in terms of energy and resource conservation in a wide range of product categories. Signature products for these efforts are introduced on the Sony Group Portal Website “Environment.”

Designing Recyclability and Reparability into Products

One initiative Sony is taking is to ensure that its products are environmentally conscious involves designing with recyclability and reparability in mind. This means, for example, labeling the material type of plastic used in parts to make it easier to extract resources from used products during recycling, and reducing the number of screws to make it easier to dismantle and repair the product. These specific environmental considerations are compiled and incorporated into the design of each product. For example, Sony has issued Environmental Design Standards and Guidelines for TVs and Serviceability Standards, which are used when planning and designing new products, and monitors progress on meeting these standards. Design standards and guidelines reflect the trends in regulations inside and outside of Japan as well as Sony’s medium-term environmental targets. Sony conducts an annual review and revision of these guidelines based on industry trends and the latest recycling information, which is gathered via regular sharing of information and opinions with the Green Cycle Corporation, an affiliate of Sony engaged in the recycling business. Additionally, in order to ensure compliance with the laws and regulations regarding circular economy in Europe, Sony provides information on repair and disassembly of the display products such as TVs and commercial monitors on the support page of the website.

Utilizing Life Cycle Assessment (LCA)

Product life cycle assessment (LCA) is a means of identifying and quantifying the environmental impact of products at all stages of their life cycles, which include the manufacture of materials and parts used in products, the assembly and transport of products, product use and standby mode, and end of life (i.e., disposal and recycling). LCA of major products helps us to clarify priorities for product improvement for all product categories and reduce the environmental impact of Sony products. As shown in the graph to the right titled “Breakdown of CO2 Emissions Over the Life Cycle of Signature Sony Products,” we see that the life cycle stage responsible for generating a large portion of a product’s CO2 emissions differ depending on the product category. For example, for product categories such as LCD televisions, and Blu-ray Disc™/DVD players, emissions during product use account for a large proportion of total emissions. For this reason, reducing the power consumption of these products during use is particularly important. Among product categories such as headphones, smartphones, and interchangeable lens cameras α™, a large portion of CO2 emissions occur in the production of materials and parts, rather than during use. For these products, such measures as reducing product weight and reparability in mind. This means, for example, labeling the material type of plastic used in parts to make it easier to extract resources from used products during recycling, and reducing the number of screws to make it easier to dismantle and repair the product. These specific environmental considerations are compiled and incorporated into the design of each product. For example, Sony has issued Environmental Design Standards and Guidelines for TVs and Serviceability Standards, which are used when planning and designing new products, and monitors progress on meeting these standards. Design standards and guidelines reflect the trends in regulations inside and outside of Japan as well as Sony’s medium-term environmental targets. Sony conducts an annual review and revision of these guidelines based on industry trends and the latest recycling information, which is gathered via regular sharing of information and opinions with the Green Cycle Corporation, an affiliate of Sony engaged in the recycling business. Additionally, in order to ensure compliance with the laws and regulations regarding circular economy in Europe, Sony provides information on repair and disassembly of the display products such as TVs and commercial monitors on the support page of the website.

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Sony calculated the emissions based on the following assumptions:

- Place of sale: Japan
- Product transportation: 500 kilometers by truck in Japan; by ship or by air for international transport
- Years of use: BRAVIA™ LCD televisions, 10 years; Blu-ray Disc™ / DVD players, 7 years; Headphones, 4 years; Interchangeable lens camera α™, 6 years; Xperia™ Smartphone, 3 years
- Notes: This chart shows the proportion of CO2 emissions at each stage of the life cycle. It does not indicate the degree of environmental impact of these products.
Supply Chain

Reducing Environmental Impact Across the Supply Chain

Working with Materials/Parts Suppliers and Subcontractors to Reduce Environmental Impact

As a part of its efforts to reduce environmental impact across the supply chain, we request that our materials and parts suppliers and subcontractors handle both greenhouse gas and water depletion issues. For GHG emissions, Sony requests them to monitor emission levels, set medium- and long-term targets for emissions reduction and perform progress management. For water depletion, Sony requests them to set targets for water consumption reduction in consideration of water depletion risk in the areas where the site is located. Sony conducts surveys on efforts to reduce environmental burden in order to understand the impact greenhouse gas emissions and water consumption, etc., by sites on manufacturing materials, components and products, delivered to Sony.

In fiscal year 2022, Sony obtained answers about a variety of data from materials and parts suppliers which account for approximately 80% of the total transaction value and from subcontractors which account for approximately 90% of the total transaction value. We provided both tools and guidance to support GHG emissions calculation as well as instructional videos on how to use those tools. This enabled all suppliers surveyed to be able to calculate and monitor their emissions.

Our 1.5°C Science Based Target (SBT) stipulates materials and parts suppliers and subcontractors will set SBT-consistent reduction targets equivalent to 10% of supply chain GHG emissions by fiscal year 2025. To this end, Sony provides SBT guidance during surveys to them and supports target setting and certification acquisition of SBT-consistent targets for some suppliers.

With regard to chemical substances, Sony requires its materials and parts suppliers and subcontractors to comply with laws and regulations in each country restricting or banning the use of chemical substances in materials, parts, semi-finished goods and finished products delivered to Sony based on Sony’s own chemical substance management standards. Sony requests that substances restricted under international frameworks and separately designated by Sony not be used in the manufacturing process and continues to investigate the use of these substances.

Promoting Green Purchasing

Having set internal standards for green purchasing, Sony chooses environmentally conscious products when procuring nonproduction materials such as printing paper, stationery and office equipment in Japan. At the same time, principle, Sony carefully examines needs, amounts to be used and stock levels to purchase appropriate quantities. In addition, when choosing products to be purchased, Sony prioritizes select recommended products in consideration of environmental impact at all stages of a product’s life, from resource extraction through to production, distribution, use and disposal.

For renewable energy, Sony sets medium- and long-term targets for emissions reduction, and energy utilization as implemented at Sony sites globally. In this program, personnel who are familiar with environmental initiatives and energy management visit suppliers, identify areas for improvement at manufacturing sites and provide Sony expertise. Using this as a starting point, employees at supplier manufacturing sites proactively develop initiatives for improvement and verify the results of these initiatives during the half-year period set for the program. During this period, Sony regularly checks progress and provides support for initiatives by visiting the site, while also holding seminars on basic energy conservation and other endeavors that raise awareness throughout the site. Through this program, Sony accelerates the use of renewable energy as fits power usage on the supplier site, setting goals equivalent to SBT and providing ongoing support for the acquisition of target certification.

In fiscal 2022, participating suppliers said that this helped them recognize areas where there was still room for improvement.

Sharing Expertise on Reduction of Energy Consumption and Promoting Renewable Energy Utilization

In fiscal year 2022, Sony began promoting the Partner Eco Challenge Program, which provides suppliers with expertise on the reduction of energy consumption as implemented at Sony sites globally. In this program, personnel who are familiar with environmental initiatives and energy management visit suppliers, identify areas for improvement at manufacturing sites and provide Sony expertise. Using this as a starting point, employees at supplier manufacturing sites proactively develop initiatives for improvement and verify the results of these initiatives during the half-year period set for the program. During this period, Sony regularly checks progress and provides support for initiatives by visiting the site, while also holding seminars on basic energy conservation and other endeavors that raise awareness throughout the site. Through this program, Sony accelerates the use of renewable energy as fits power usage on the supplier site, setting goals equivalent to SBT and providing ongoing support for the acquisition of target certification.

In fiscal 2022, participating suppliers said that this helped them recognize areas where there was still room for improvement.
Development and Introduction Support for Low VOC Paint

Sony has long supported the development and introduction of water-based paints and other low VOC paints in order for manufacturers to reduce the volatile organic compounds (VOC) generated in the product painting process. It’s technically more difficult to ensure the coating performance and aesthetic beauty used to evaluate overall performance with water-based paints than with conventional paints. To remedy these points, Sony worked with paint manufacturers to learn how to optimize paint components, repeatedly undergoing a verification process at our in-house laboratory that was used to improve coating performance and aesthetic appearance.

Through this, we succeeded in developing a low environmental impact water-based paint that more than halves the VOC generated*1 while still maintaining the same performance as conventional paint. We also provided support for introducing coating equipment that is optimal for using water-based paint at coating manufacturers. Once we had ensured the paints met the high quality standards required of Sony products, we began using them for some products in 2020, then for Vlog camera ZV-1F*2 in 2022.

*1 Compared with individual parts.
*2 Water-based paint is used for the resin parts of the black model. Type of paint may be changed as needed for production time.
CO₂ Emissions from Energy Use at Sites
In fiscal year 2022, emissions of CO₂ from energy use at Sony sites accounted for approximately 0.844 million metric tons, out of the approximately 0.965 million metric tons, of total greenhouse gas emissions at Sony, down by approximately 0.161 metric tons from fiscal year 2020. The above CO₂ emissions resulting from energy use at Sony sites include emissions from fuel used by Sony-owned business vehicles. In fiscal year 2022, CO₂ emissions resulting from fuel used in vehicles amounted to approximately 7,000 metric tons. Going forward, Sony will take efforts to restrict greenhouse gas emissions through infrastructure-related measures, including the installation of high-efficiency equipment and the promotion of energy recycling, and to enhance nonstructural measures, notably the introduction of training programs designed to foster energy-saving leaders.

Emissions of PFCs and Other Greenhouse Gases
PFCs and other greenhouse gases with high global warming potential are used in cleaning and etching processes during the manufacturing of semiconductors. Emissions of PFCs and other greenhouse gases in fiscal year 2022 (calculated in terms of CO₂) totaled approximately 121,000 metric tons, up about 24,000 metric tons from fiscal year 2020. Despite the introduction of PFC abatement equipment and other reduction initiatives, total emissions increased due to the growth in semiconductor device production.

Promoting Efficient Energy Use
To achieve its fiscal year 2025 reduction targets, Sony is working on various energy conservation activities at its sites around the world.

High Efficiency Energy Systems for Plants
Sony Semiconductor Manufacturing Corporation’s Nagasaki Technology Center (Nagasaki TEC) aimed to be the most energy efficient plant in the semiconductor industry upon construction of the Fab 5 building. In the chillers and boilers that control the temperature and humidity of clean rooms used for semiconductor manufacturing, AI is utilized, and advanced control technology operates the chillers at minimum power, while another system reuses the production equipment exhaust heat to power the boiler. These innovations improved clean room energy efficiency by approximately 30% compared to fiscal year 2015. Sony Device Technology (Thailand) Co., Ltd (SDT) installed an energy-efficient air condition system when it reconstructed its clean room for semiconductor production. The system requires less airflow than conventional air-conditioning systems to keep the work area clean, enabling it to reduce its annual CO₂ emissions by approximately 4,608 metric tons, a 88% reduction compared to the previous system.

* Renewable energy includes solar, wind, water, geothermal, and biomass. This is energy that comes from sustainable sources.

Greenhouse Gas Emissions at Sony Sites:
(Million Metric Tons-CO₂)

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<thead>
<tr>
<th>Region</th>
<th>2020 (Target)</th>
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<th>2022</th>
<th>2025</th>
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<td>Japan/East Asia</td>
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<td>1.20</td>
<td>0.97</td>
<td>1.00</td>
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<td>North America</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Europe</td>
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Sony’s Purpose & Values
The Sony Group Code of Conduct
Approach to Sustainability
At a Glance 2022
Editorial Policy
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Sony’s Sustainability
Materiality

Environment
Overview
Environmental Policies and Targets
Contributions to Solving Environmental Issues
Products and Services
Supply Chain

Manufacturing Sites
Logistics
Product Recycling
Environmental Communication

Technology
Employees
Respect for Human Rights
Responsible Supply Chain
Quality and Customer Service
Community Engagement

Ethics and Compliance
Employees

Sustainability Report 2023

At a Glance 2022
Energy Conservation: Initiatives Driven by Plant Employees

Sony promotes a broad range of energy-saving efforts at its sites around the world. In addition to increasing the energy efficiency of buildings and equipment, in recent years Sony has actively implemented activities for reducing energy consumption suggested by manufacturing site employees. These efforts led to an approximately 10% reduction in energy consumption condition operation according to production planning needs. Such division, for example, employees took the lead in fine tuning air consumption based on their own perspectives. In the manufacturing world.

One main example of this is at Shanghai Suoguang Visual Products Co., Ltd. (SSVE) in China, where employees from various departments are now being implemented at Sony manufacturing sites around the world.

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RE100 Membership
In 2018, Sony joined RE100,* a global initiative to use 100% renewable energy, in addition to internally set targets. Our goal of working toward sourcing 100% renewable electricity was originally 2040, but was moved up to 2030 in May 2022.

* RE100 is a global initiative led by the non-profit The Climate Group in partnership with CDP in which participating companies set a goal of procuring 100% renewable electricity for power used in their global business operations.

Sony accelerates target to achieve a zero environmental footprint by ten years

Regional Initiatives
Even before joining RE100, Sony had been taking action on renewable energy at sites around the world. It has already achieved 100% use of renewable energy in many regions. In fiscal year 2008, it was one of the first enterprises in Europe to make the switch to 100% renewable energy for the electricity consumed at its sites. Since then, it has also achieved 100% renewable energy in China (in fiscal year 2020) and at all manufacturing sites in the Pan Asia region (in fiscal year 2022). This success in the Pan Asia region is due to the installation of solar power systems at its sites and the active use of renewable energy certificates. Sony is systematically increasing the amount of renewable energy it sources in North America, with the aim of achieving 100% in fiscal year 2030.

Similarly, introduction through a variety of initiatives is underway in Japan, as well. As the first such initiative in Japan, we began operating a virtual PPA using the feed-in premium (FIP) system in fiscal 2022. With virtual PPA, power generated is then sold on the market, which means that market price fluctuations may cause a financial loss to Sony as the consumer, which we are then responsible for compensation for. Through the FIP system, government subsidies reduce risk associated with price fluctuations, making it possible to procure renewable energy that’s sustainable from a management perspective. Through these endeavors, we expect the Sony Global Manufacturing & Operations Kohda Site, a production base of the Sony Group, to introduce environmental value of approximately 2.4 million kWh of electricity derived from renewable energy annually.

Virtual PPA mechanism (figure redrawn with permission from Renewable Energy Institute)

Reducing Waste Generation

Amount of Waste Generated at Sites
With the target of reducing waste amount intensity value from Sony sites by 5% relative to fiscal year 2020 levels by fiscal year 2025, Sony has implemented a variety of measures to reduce waste and use resources more effectively. In fiscal year 2022, the amount of waste generated at sites worsened approximately 31.6% in waste intensity compared to fiscal year 2020. Sites generated approximately 55,000 metric tons of waste, which is up approximately 6.8% from fiscal year 2020. Although Sony is promoting reduction by continuously improving production site processes and reducing waste generated, the volume of waste increased, mainly due to the expansion of semiconductor plants and increased production. Furthermore, about 6,000 metric tons of industrial waste generated was plastic waste.

Amount of Waste Generated at Sites
(Thousand Metric Tons)

Landfilled Waste Rate for Sony Sites
In fiscal year 2022, the landfilled waste rate for all Sony Group sites was approximately 2.5%. The rate for sites in Japan was 0.2%. However, the landfilled waste rate for Sony sites became approximately 3.0% when the calculation includes waste that Sony is required by law or ordinance to dispose of by landfills. Sony strives to reduce the rate of waste disposed in landfills by recycling wastes generated by sites.
Management of Industrial Waste

Sony takes precautions to ensure waste from its sites is not inappropriately disposed of. For example, in Japan Sony has set consistent internal standards for selecting waste disposal contractors and inspecting disposal sites on an ongoing basis. It has also established an internal system of accreditation for disposal site inspectors, and is stepping up efforts to minimize risks associated with contracting out waste disposal. To reinforce this system, Sony implements periodic on-site inspections in the waste disposal contractors, thereby ensuring rigorous management procedures.

Example of Waste Reduction

Sony is reducing waste at all its business sites. Sony Semiconductor Manufacturing Corporation changed the flocculant used in the treatment of wastewater generated from production machinery to a biobased polymer flocculant that offers improved setting and flocculating performance. This led to a reduction of sludge, which accounts for the majority of waste. This led to a reduction of both conventional primary flocculant (inorganic flocculant) and inorganic flocculant-derived sludge. Sludge was further reduced by processing excess sludge in a dehydrator. These, in addition to other measures, have reduced waste by about 1,300 metric tons annually. In 2021, the Kagoshima Technology Center, in cooperation with a subcontractor company, recycled sludge from on premises into a block for reuse. A signboard describes this recycled block, giving customers and locals an opportunity to learn about environmental activities while also raising the awareness of people on premises.

Improving Component Packaging

At all of its sites, Sony works to reduce the amount of waste through overall reviews of the packaging used in components and the optimization of this packaging. For example, a range of measures are employed to reduce the amount of materials used in component packaging materials and hence curb the amount of waste. These include the complete elimination of protective bags for components, modifications to increase the capacity of containers used to store components, and the switch from disposable containers to multi-use returnable boxes. In particular, Sony is working to standardize the sizes of, and materials used in, returnable containers while aiming to expand the range of items for which such containers are used.

Proper Water Management to Protect the Local Environment

Water Usage and Risk at Sony Sites

Water is a constantly circulating and unevenly distributed resource, which makes water issues very regional in nature. To tackle this issue, Sony set the goals of improving water usage intensity value on sites that use high volumes of water by 5% relative to fiscal year 2020 and implementing risk reduction measures at sites located in water risk areas. In fiscal year 2022, water usage at Sony sites worsened approximately 11.7% in waste intensity relative to fiscal year 2020. Water usage was approximately 19.97 million m³, an increase of 6.8% relative to fiscal year 2020. Sony is making efforts to recycle water and save water on production sites, but the amount of water used has increased, mainly due to the expansion of semiconductor plants and increased production.

Sony also takes steps to ensure the quality of wastewater at its sites. In addition to observing related laws and regulations in each of the countries and territories in which it operates, Sony manages wastewater quality criteria further than is required. For example, the introduction of sophisticated water treatment facilities has enabled it to reduce BOD and COD levels in wastewater.

*Biochemical oxygen demand (BOD) and chemical oxygen demand (COD) are indicators of water pollution.*

Environmental Data (Environmental Data file: Water Pollutants)
Available water resources vary greatly in terms of quantity and quality, depending upon the region. In business, it is necessary to consider water resources from the perspective of securing enough water for production while maintaining good stakeholder relations. Sony uses water risk assessment tools provided by the World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) to perform water risk assessments for the regions where Sony sites are located. Sony is working with local stakeholders to ensure proper use of water by promoting activities that reflect the water risks in each region.

**Efforts in Water Usage and Local Water Risk**

- Sony’s semiconductor manufacturing sites use the largest volumes of water and are located in areas where water risk is high, but we continue to promote wastewater recycling to reduce usage.
- We have set voluntary standards for environmental pollutants in wastewater, and are working to reduce the risk of wastewater pollution at Sony sites where wastewater pollution risk is high.
- We have non-manufacturing sites located in areas with a high risk of water depletion and drought. The volume of water consumed at these sites is low, but we continue to work to reduce water usage.

**Reducing Water Use at Manufacturing Sites**

For semiconductors and electronic devices, vast amounts of water are needed not only in the manufacturing process but also in the recycling process. At its plants all over the world, Sony is taking a variety of measures to preserve local water resources, including wastewater, recycling and initiatives for reducing water usage.

**Increasing Semiconductor Production while Reducing Water Usage**

Sony Semiconductor Manufacturing Corporation (SCK) is working toward reducing the amount of water it uses for the semiconductor production while increasing the production capacities. Nagasaki Technology Center is working to reuse wastewater from gas detoxifying equipment used in the semiconductor manufacturing process, and is using about 80% of the wastewater. Kumamoto Technology Center (Kumamoto TEC) is aiming to reduce water use for combustion treatment to remove exhaust gas emitted from the semiconductor production lines. To do this, they have enhanced the equipment to increase the proportion of recycled water, thereby lowering the amount of fresh water needed by about 50%. In addition, in order to help preserve the abundant aquifer in the Kumamoto region, Kumamoto TEC has for many years been conducting “groundwater recharge” efforts. This involves flooding fields with river water that slowly permeates into the water table during times before planting or when no crops are being grown. In fiscal year 2022, approximately 3.39 million m³ water intake was recharged, a volume that exceeds that used by Kumamoto TEC. Kumamoto TEC has been recognized externally for its groundwater recharge efforts through a variety of awards. In 2022, they received the 3rd Kumamoto Environmental Conservation Awards Special Award and the 2022 Local Environmental Conservation Merit Award.

**Reducing Water Usage in Various Ways**

Green Cycle Corporation, an affiliate of Sony that engages in the recycling of home appliances, began harvesting rainwater in fiscal year 2014. Green Cycle Corporation was able to harvest 1,472.3 m³ of rainwater in fiscal year 2022, which covered 42% of the plant’s total water usage. The Sony headquarters building uses treated wastewater to cool its heating equipment. By using water treated at the nearby Shibaura Water Reclamation Center to cool heating equipment, the amount of clean water normally used to replenish the water in the cooling towers has been reduced by approximately 30,000 m³ per year. Sony Technology (Thailand) (STT) focuses on wastewater recycling as a means to reduce tap water usage. It has installed an on-site wastewater treatment plant to supply make-up water to air-conditioning cooling towers, which normally use large amounts of tap water. By using recycled water for the cooling towers, STT reduced its tap water consumption in fiscal year 2022 by 49,331 m³.
Environmentally Preferable Paper Purchasing

Recognizing that paper resources are finite, Sony strives to use paper in an environmentally responsible manner, and it has established a related purchasing policy for paper and printed materials. We consistently strive to reduce paper use by purchasing paper that is environmentally friendly in terms of bleaching and printing, paper where the main raw material is recycled paper and paper that is sourced from properly managed forests as certified by relevant third party organizations. Particularly, we promote the use of FSC-certified paper*, which is evaluated for both its legality and for forest sustainability.

In fiscal year 2022, Sony used a total of approximately 279 metric tons of FSC-certified paper* for such items as corporation publications, including company brochures and notices of general meetings of shareholders, product catalogs, calendars, business cards, and envelopes.

* Paper certified as being produced from wood in consideration of conservation by the Forest Stewardship Council (FSC).

Focus on Paper Resources

Management of Chemical Substances

The Sony Group has developed a group-wide approach to the management of chemical substances used at sites where the use of these chemicals is controlled by legislation, designated as having a potentially harmful impact on the environment, or used in large quantities.

Reinforcing Standards for Managing Chemical Substances

Sony categorizes chemical substances into four classes and carefully manages and reduces the amounts of these chemical substances used, as well as the amount transferred as air, water, or soil emissions and waste. In countries where no legal reporting requirements exist for chemical management, Sony sites apply standards based on Japan’s Pollutant Release and Transfer Register (PRTR) as internal rules. Chemical substances are classified as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Regulations and Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1: Prohibit use</td>
<td>The substances regarded as having a serious impact on the human body or environment (carcinogenicity, mutagenicity, toxicity for reproduction, acute toxicity, ecotoxicity, etc.) which are prohibited to be produced or used under international treaties or individual countries’ regulations.</td>
<td>Comply with the relevant laws and regulations and use under appropriate control.</td>
</tr>
<tr>
<td>Class 2: Prohibit use (Exemptions given for certain applications)</td>
<td>The substances regarded as having a serious impact on the human body or environment (carcinogenicity, mutagenicity, toxicity for reproduction, acute toxicity, ecotoxicity, etc.), which are subject to regulations that require their registration or to monitor the amounts released and transferred because they are of high risk.</td>
<td>Comply with the relevant laws and regulations and use under appropriate control.</td>
</tr>
<tr>
<td>Class 3: Reduce the amounts released and transferred</td>
<td>The substances having a serious impact on the human body or environment, which are subject to regulations requiring monitoring of the amounts released and transferred.</td>
<td>Comply with the relevant laws and regulations and use under appropriate control.</td>
</tr>
<tr>
<td>Class 4: Comply with the relevant laws and regulations and use under appropriate control</td>
<td>The substances not classified as Class 1, 2, or 3. Note that water and air are not required to be managed as chemical substances.</td>
<td></td>
</tr>
</tbody>
</table>

Efforts to Reduce VOC Emissions to Air

With the target of reducing volatile organic compounds (VOCs) released into the air to fiscal year 2010 levels or lower, Sony is working on a variety of initiatives, such as transitioning to VOC alternatives and reducing the amount of VOCs used in the manufacturing process. In fiscal year 2022, VOC emissions into the air were approximately 506 metric tons, down approximately 57% relative to fiscal year 2010. The decline was the result of a series of measures that include replacing VOCs with alternative substances and reducing VOC use in manufacturing processes.

Example of Reduction in Chemical Substance Usage

Sony Semiconductor Manufacturing Corporation (SCK) collaborated with an equipment manufacturer to develop a proprietary volatile organic compound (VOC) treatment system as part of ongoing efforts to reduce the amount of VOCs released. Conventional VOC treatment systems are installed near ventilation duct outlets. Since such equipment is designed to treat extremely rarefied organic substances, it is very large, making space and cost constraints an issue for semiconductor plants that want to install these types of systems. SCK responded by focusing on production equipment for highly concentrated organic substance and developed a small, fixed condensing-type VOC treatment system in conjunction with an equipment manufacturer. The newly developed system can be installed near production equipment and is able to treat VOCs efficiently.
Ozone-Depleting Substances

Sony succeeded in completely eliminating first-generation chlorofluorocarbons (CFCs) from its manufacturing processes in 1993 and banned the use of second-generation hydrochlorofluorocarbons (HCFCs) at the end of fiscal year 2000. Sony business sites currently prohibit the use of ozone depleting substances stipulated under the Montreal Protocol. Sony uses CFCs as a refrigerant in some air-conditioning units only. Compliance with laws and regulations in each country is ensured, and strict care is taken to prevent leakage of CFCs from these units during maintenance.

Environmental Risk Management at Sony Sites

To carry out effective risk management of chemical substances and emergency responses, the Sony Group has enacted the Sony Group Standards for Site Environmental Risk Management, which set the management standard and give examples of improvement measures. Based on these standards, at each site Sony has implemented accident prevention measures, including prohibiting the burial of tanks for chemical substances and pipes, and various leak prevention measures. In addition, Sony rigorously works to prevent environmental accidents through ongoing improvements to its systems based on regular audits at each site, information sharing among sites and other initiatives. Sony has established a system whereby its sites are required to promptly report environmental accidents to the authorities and to take appropriate countermeasures. No accidents falling within the scope of ISO 14001 certification were reported at any of Sony’s sites in fiscal year 2022.

Response to Soil and Groundwater Contamination

In the event that an incident of soil or groundwater contamination is identified at a Sony site in a voluntary check or other assessment, remediation processes are implemented in compliance with pertinent local laws and ordinances. For example, Sony Group companies in Japan deal with the occurrence of contamination of soil and groundwater at Group sites by taking steps in line with the Sony’s Group Standard for Assessing Soil and Groundwater, an internal document that sets out procedures that comply with Japanese laws and ordinances. This manual stipulates that issues be addressed through the following three phases:

Phase 1
Investigate past and present chemical use and confirm the existence or otherwise of used or unused underground tanks, buried piping, other similar equipment, or previous incidents, at the site. Perform an inspection of the site to ascertain whether there is any residual soil or groundwater contamination.

Phase 2
Based on the investigations undertaken in Phase 1, carry out an assessment of the areas that are potentially contaminated. Undertake measurements at these locations in line with the Soil Contamination Countermeasures Act.

Phase 3
If any contamination is identified based on these results, carry out prevention and remediation procedures. Incidents of soil and groundwater contamination resulting from operations have been confirmed at Sony Group sites as follows. In response, Sony has been remediating the contamination and submitting regular reports to authorities.

Progress of Soil and Groundwater Remediation (as of August 2023)

<table>
<thead>
<tr>
<th>Site</th>
<th>Date Contamination Confirmed</th>
<th>Substance(s) Detected</th>
<th>Cause</th>
<th>Response / Current Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sony Global Manufacturing &amp; Operations Corporation’s Inazawa Site (Japan)</td>
<td>June 2001 (Result of voluntary assessment)</td>
<td>Fluorine</td>
<td>Leak from crack in drainage pipe</td>
<td>The site has discontinued use of the equipment that caused the contamination and is remediating and monitoring groundwater. Analysis conducted in fiscal year 2022 found a groundwater concentration of 0.82mg per liter.</td>
</tr>
<tr>
<td>Atsugi Technology Center, Sony Group Corporation (Japan)</td>
<td>March 2022 (Result of voluntary assessment)</td>
<td>Fluorine and its compounds</td>
<td>Leak from loose drainage pipe fitting</td>
<td>An administrative report indicated there was soil and groundwater pollution on site, but because there is no possibility of this pollution flowing outside the site, it was designated as an area without health risk in June 2022. Contaminated soil was removed from the site as of September 2022. We will continue to monitor groundwater contamination.</td>
</tr>
<tr>
<td>Atsugi Technology Center, Sony Group Corporation (Japan)</td>
<td>February 2023 (Investigation in accordance with the Soil Contamination Countermeasures Act)</td>
<td>Fluorine and its compounds, Lead and its compounds, Arsenic and its compounds</td>
<td>Assumed to be the result of past business activities</td>
<td>The administrative report in March 2023 indicated that the area presents no risk of health hazards, though there is soil contamination. Contaminated soil is scheduled to be replaced in November 2023.</td>
</tr>
</tbody>
</table>

Please see below for the latest information on site status.

Progress of Soil and Groundwater Remediation
Examples of Biodiversity Conservation Initiatives

Guiding Principles for Biodiversity Conservation Initiatives
Recognizing the importance of natural capital, as the very foundation of human life, and the ecosystem services it supplies, Sony endeavors to maintain and recover biodiversity, both in its business activities and through regional biodiversity conservation initiatives. Changes in land usage have been indicated as one of the causes of loss and deterioration of biodiversity. From a land use perspective on the site, we consider the impact of our business activities on neighboring ecosystems, carrying out biodiversity conservation and restoration initiatives in the green areas of our manufacturing sites, as well as in the ecosystems of the surrounding area according to the region’s specific needs.

Conservation Initiatives

Conservation Activities in Sony Forest to Promote a Richer Ecosystem
Since its inception in 1972, the Kohda Site of Sony Global Manufacturing & Operations Corporation, a producer of products such as digital still cameras, has protected a natural woodland on its site, naming it Sony Forest. Sony Forest was designated as a wildlife sanctuary*1 (Kohda Site of Sony Global Manufacturing & Operations Corporation, a producer of products such as digital still cameras, has protected a natural woodland on its site, naming it Sony Forest. Sony Forest was designated as a wildlife sanctuary*1 (Kohda Northern Wildlife Sanctuary, Aichi Prefecture, Japan), and is vital to the neighboring ecosystem. Owls are at the top of the ecosystem pyramid, so in order to build a rich ecosystem inhabited by wildlife of all species, we continue activities at the Kohda Site such as building spaces for owls to fly and feed, as well as installing nest boxes. As a result of these efforts, inhabitation of endangered owls has been confirmed every year since 2016.

Then, in 2011, the Kohda Site began carrying out activities to secure and share seedlings of native species, necessary for regeneration of the local ecosystem. It has been promoting this through collaboration with local government, residents, and companies. In recognition of these activities, Sony Forest was certified by the Japan Committee for the United Nations Decade on Biodiversity as the sixth exemplary project in 2015. In 2022 it was judged to be equivalent to an area that is certified for the promotion of biodiversity in the Promoting Biodiversity certification test project aimed at achieving 30by30*2 spearheaded by the Ministry of the Environment.

*1 An area considered important for the protection of wild birds and mammals.
*2 Awarded by the Ministry of the Environment to sites considered to be in harmony with nature through private sector biodiversity conservation efforts. In fiscal year 2022, we conducted trials and tests of this system as certification demonstration testing, and plan to start formal certification in fiscal year 2023.
*3 The name for the goal to effectively conserve at least 30% of the land and sea as a healthy ecosystem by 2030 in order to halt biodiversity loss (nature positive). Sony is also participating in the 30by30 Alliance for promoting biodiversity that is spearheaded by the Ministry of the Environment.

Coral Conservation Efforts in Nagasaki Prefecture
Sony Semiconductor Manufacturing Corporation works to conserve the wild coral that grows around the beaches of Takashima off the southern coast of Nagasaki Prefecture and is important to the area’s rich ecosystem. In 2019, we worked with the Yattaro de Takashima local preservation group, Associate Professor Yuki Koibuchi of the University of Tokyo, who develops coral cultivation devices*, MM Bridge Co., Ltd., Nippon Corrosion Engineering Co., Ltd., and CP Farm Co. Ltd. to build two coral cultivation devices, and have continued to monitor their effects since installing them on the seabed of the area. Coral grew significantly in 2022, helping conserve the biodiversity of the sea area as a habitat, breeding ground and source of nutrition for wildlife.

* Currently affiliated with the National Institute of Standards and Technology (USA) and a professor of the Chuo University Research and Development Initiative.

Monitoring Survey of the Recovering Gamo Tidal Flats
Sony Group Corporation’s Sendai Technology Center (SendaTEC) and Sony Storage Media Manufacturing Corporation’s Tagajo site are conducting a biological monitoring survey of the Gamo Tidal Flats (Sendai City, Miyagi Prefecture, Japan), which is about 4 km from the manufacturing site. The Gamo Tidal Flats were damaged by the tsunami caused by the Great East Japan Earthquake, devastating the surrounding pine forest and reed fields, leading to a critical situation for the area’s flora and fauna. This rich natural area was originally inhabited by a variety of worms and gobies, is a breeding ground for little terns and Kentish plovers, and is also the wintering ground for the brant goose, a natural monument of Japan, and has been designated as a national wildlife sanctuary special protection area. Since 2014, SendaTEC and the Tagajo Site have been tracking the recovery of the Gamo Tidal Flats in collaboration with the Gamo Conservation Society environmental NGO. A decade has passed since the earthquake, and the environment of the Gamo Tidal Flats continues to recover. A 2020 survey confirmed 12 species of benthic life including sand blubber crabs, 21 species of birds including the red-necked stilt and other plovers and sandpipers, 11 species of plants including okahijiki and hamanigana, and 4 species of insects including earwigs. Three rare species, osprey and dunlin (birds) and herbaceous seepweed (salt-tolerant plant) were also observed.

* Currently affiliated with the National Institute of Standards and Technology (USA) and a professor of the Chuo University Research and Development Initiative.
Biodiversity Conservation Activities in Austria

The Sony DADC Thalgau plant in Austria is actively promoting activities to conserve biodiversity in the nature-rich region of the Fuschlsee Nature Reserve, located 10 km away. In recent years, the habitat of the wild bee, which plays an important role in the ecosystem as a pollinator in this area, has been deteriorating due to climate change and housing development. Sony DADC Austria is implementing activities to protect the bee, such as installing beehives on the plant grounds, housing approximately 400,000 bees. In addition, to protect the ecosystem that lives in the grassland on the plant grounds and as a way of landscape management, employees let sheep of local farmers graze the land instead of using tractors that strain the soil.

Promoting Biodiversity through Syneccoculture™*

Sony is promoting biodiversity and extending the reach of such efforts on its sites through Syneccoculture. Syneccoculture is a farming method advocated by Masatoshi Funabashi, senior researcher at Sony Computer Science Laboratories, in which a wide variety of plants are mixed and densely grown on a single area of farmland to create an augmented ecosystem, thereby maximizing the circulation inherent in an ecosystem, and by doing so, help overcome the trade-off between productivity and environmental degradation. Sony Group Entertis in China have been widely deploying this technique since fiscal year 2020 at sites across the country with coordinated efforts both internally and externally. Five Syneccoculture farms have now been established on a total of 6,000 m² of land, with over 2,000 kg of vegetables harvested in the last three years. These initiatives were recognized through an award from the Shanghai Municipal Commission of Commerce (led by Shanghai Government) in fiscal 2022. Sony/Taiyo Corporation started a Syneccoculture farm in fiscal 2022 with the support of SynoCo Co., Ltd., which operates a business centered on Syneccoculture, planting more than 100 species of plants. Plants on the farm have continued to grow steadily, creating a health ecosystem that provides radishes, potatoes and other vegetables served in the employee cafeteria.

Other Initiatives

- Volunteering to Protect Nature Reserves in the UK
- Old Growth Conservation Efforts in Kunooaki City, Oita Prefecture
- Promoting Forest Management Activity at So-net Forest (in Japanese)
- Protecting Spawning Grounds of the Endangered Loggerhead Turtle in Japan
- Environmental Protection Activity in New York City
- Coral Conservation Efforts in Nagasaki Prefecture
- Participating in the Forest Conservation Project in Sumatra
- Participating in Panama’s Biodiversity Event Festi Harpia 2019

Environmental Initiatives for Food

Sony has been working on environmental issues related to food in our Food for the Future project since 2021. We engage every employee in activities that encourage them to be aware of use of environmentally conscious food and take action in their daily lives through a variety of efforts, including distribution of a guidebook detailing environmentally conscious food, internal seminars and educational events, and providing meals that use environmentally conscious food in our employee cafeterias worldwide. October 2022 was Food for the Future Month. During the month, on-site cafeterias provide information about environmentally conscious food, provide meals that use them, and hold seminars featuring expert keynote speakers from outside the company.

Biodiversity Conservation Activities in China

Sony Precision Devices (Huizhou) Co., Ltd. (SPDH) is located in a natural area close to a mangrove forest, and is actively working to remove alien species and promoting biodiversity conservation efforts in the region. Mangrove Forest Park is home to a wide variety of flora and fauna that inhabit the intertidal zone and brackish water, including storks, black-faced spoonbills (nationally protected species in China) and other endangered species. SPDH has been pursuing efforts to remove water hyacinth, a non-native species to the area, since 2010, in cooperation with the Huizhou Aquatic Environmental Center.

Promoting Biodiversity through Syneccoculture™*

Sony/Taiyo Corporation started a Syneccoculture farm in fiscal 2022 with the support of SynoCo Co., Ltd., which operates a business centered on Syneccoculture, planting more than 100 species of plants. Plants on the farm have continued to grow steadily, creating a health ecosystem that provides radishes, potatoes and other vegetables served in the employee cafeteria.

* Syneccoculture is a trademark of Sony Group Corporation.

Guidebook of environmentally conscious food distributed to employees
Worldwide Cleanup Activities Catered to Regional Characteristics
Sony continues to conduct cleanup activities at its manufacturing sites around the world that are catered to the specific characteristics of the region. Even in locations where it is difficult for people to gather due to the COVID-19 pandemic, we are conducting cleanup activities after ensuring thorough infection control measures at many of our sites. For example, Sony Device Technology (Thailand) Co., Ltd. (SDT) has been planting mangroves since 1999 and is also engaged in cleanup activities to conserve these forests. In fiscal year 2022, SDT arranged the Forest Planting Project at Khlong Tamru Environmental Education, Chonburi, Thailand, planted 2,000 mangrove trees, released 500 fish and 500 crabs, and collected about 115 kg of plastic and other waste. SDT also conducted the One Blue Ocean Project to tackle the issue of marine pollution by collecting plastic waste and reducing the use of single-use plastic at its business sites.

Other Initiatives
Cleaning Up Marine Plastic Waste Across China

Wow! Wow! Biodiversity Project
Together with the Nature Conservation Society of Japan, Sony launched the Wow! Wow! Biodiversity Project in fiscal year 2015, as a platform for organizing nature appreciation events, holding photo contests for the general public and spreading awareness of biodiversity through social media. In fiscal year 2016, Sony China joined this project and is conducting similar awareness-raising activities in various cities across China. The annual photo contests have become popular in both Japan and China. Through the submission of photos, the splendor of nature and the importance of biodiversity are conveyed to more and more people. About 10,000 entries were submitted to the Chinese photo contests from 2016 to 2022, and they were shared through social media with approximately 993,000 people, including Sony Group employees in China and their friends. In addition to holding exhibitions of the winning photo entries in Japan and China, the project has been providing other opportunities for the public to think about the importance of biodiversity, through activities such as biodiversity lectures and nature photographing workshops using Sony cameras.

Distributing fruits and vegetables on Ugly Food Day
SDT employees conduct cleanup activities
Winning works from the Chinese photo contest
Wow! Wow! Biodiversity Project (in Japanese)
Reducing the Environmental Impact of Logistics

Promoting Modal Shift
As a part of its efforts to reduce environmental impact from the transport of finished goods, Sony promotes modal shift, switching the modes of transport it uses from air to sea and from truck to rail.

Modal Shift for Tape Media
From fiscal year 2020, Sony Storage Media Solutions Corporation switched from air to sea transport for storage tape media that is manufactured in Japan and destined for distribution centers in the US, Belgium, and Singapore. This led to a reduction of approximately 695 metric tons of CO₂ emissions in fiscal year 2022 compared to fiscal year 2020.

Modal Shift in Japan
In Japan, Sony has promoted modal shift from truck to rail transport, which boasts lower CO₂ emissions. Recognizing our efforts to use rail transport, particularly for consumer electronics, Sony has been certified by the Japanese Ministry of Land, Infrastructure, Transport and Tourism as a certified company in the "Eco Rail Mark" system since 2011. Sony also promotes domestic sea transport. In fiscal year 2022, CO₂ emissions attributable to the transport of products in Japan were approximately 167 metric tons lower than would have been the case if products had been transported by truck.

Modal Shift in the US
Sony Electronics Inc. (SEL) in the United States has optimized the use of rail transport for product shipments from the West Coast to reduce CO₂ emissions generated during transport. SEL has also increased loading efficiency reducing number of shipments; focused on minimizing outbound air shipments; reducing small load shipments and working with carriers for shipment consolidation. Annually, SEL
Improving Transport Efficiency with Milk Runs

Efficient transport realized by maximizing loading volume per truck reduces environmental impact. Sony seeks to improve transport efficiency by utilizing milk runs.* In China, Sony has been improving transport efficiency, which helps to reduce CO2 emissions, using a combination of transport solutions such as milk runs and round trips.

* In a milk run, a truck follows a route to collect parts from several suppliers, thereby improving transport efficiency compared with the routing method of separate runs to each supplier.

Promoting the Use of Reusable Bands for Products and Parts Transport in Manufacturing Sites and Warehouses

To keep stacked cartons from collapsing during transport of products and parts in manufacturing sites and warehouses, Sony employs reusable bands as one of its materials. This has contributed to the reduction of use and disposal of packaging materials such as stretch films.

Raising Transport Efficiency by Improving Shipping Boxes

At Sony DADC US Inc., warehousing, packaging, returns processing and distribution of assorted media had previously used regulation size boxes. Space inside the boxes was often left unused depending on the shipment size and number of orders. Cushioning material was also needed inside the empty spaces to protect the goods during transport, which resulted in additional expenditures for materials. In response to these circumstances, improvements to the boxes at the Terre Haute plant have been made through redesign into a shape optimally suited for the size and amount of products to be shipped, expanding choice of boxes available and utilizing mailer envelopes for very small orders. Ultimately, the plant eliminated the wasted space in the boxes, increased the rate of products shipped, and substantially improved transport efficiency. The initiative also helped to reduce the amount of cushioning material used.
Sony’s Product Recycling Policy

Sony subscribes to the principle of individual producer responsibility (IPR), that is, the idea that a producer bears responsibility for its products over their entire life cycle. Accordingly, Sony is focused on recycling-oriented product design, collection and recycling used products, and building global recycling systems that suit the needs of individual countries and regions. Sony recognizes its social responsibility as a manufacturer to deal with its used products and actively promotes product collection and recycling, and complies with recycling laws and regulations in countries and regions around the world.

Product Recycling Initiatives

In the treatment of used products, Sony complies with recycling laws and regulations in countries and regions around the world, including Japan’s Home Appliance Recycling Law, the EU’s Waste Electrical and Electronic Equipment Directive (WEEE Directive), state recycling laws on waste electrical and electronic equipment in the US, China’s Management Regulations for Recycling and Disposing of Consumer Electronics and Electronic Waste, and India’s E-Waste Management Rules, 2016 and amendments.

Sony’s Recycling Targets and Record

Sony promotes the collection of end-of-life products worldwide with our goal to establish and maintain recycling schemes suitable for the needs of local communities. In fiscal year 2022, Sony’s Take-Back of End-of-Life Products Record was approximately 50 thousand metric tons of end-of-life products. The figures for fiscal year 2022 are aggregate figures current as of July 2023, and do not include some countries, namely Portugal, France and Poland.

Sony has also been working on advanced recycling since 2021 with the goal to improve collection efficiency 1.5 times over fiscal year 2020 in regards to the recycling of key mineral resources (tantalum). We worked with specific recycling plants in Japan to adjust sorting equipment and improve the operation process used to collect parts containing tantalum from end-of-life products. These efforts led to 55% of the total weight of parts in end-of-life products containing tantalum being recoverable, approximately 44 times the efficiency of fiscal year 2020.

Take-back of End-of-Life Products Record (Thousand Metric Tons)

<table>
<thead>
<tr>
<th>Region</th>
<th>2019</th>
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<th>2021</th>
<th>2022</th>
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</thead>
<tbody>
<tr>
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<td>76</td>
<td>64</td>
<td>75</td>
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- End-of-life products collected and counted may vary by region.

Improving Product Recyclability

Working with the Sony Group’s Specialized Recycling Company

As one of its strategies for resource efficiency, Sony works to increase the recyclability of its products. When examining various related measures, Sony receives feedback from Green Cycle Corporation, an affiliate of Sony specializing in the recycling business. Highly effective, practical measures incorporating these ideas and suggestions for easier disassembly and separation of materials obtained during the recycling process are then drawn up and submitted to design departments for each product category. Meanwhile, Sony supports the efforts of Green Cycle Corporation to improve its recycling technologies by sharing the latest information on product dismantling.

The amount of home electronics waste, including flat-screen TVs, has been rising in recent years, and boosting waste processing capacity has become an issue. In fiscal year 2020, Green Cycle Corporation built a second recycling building and introduced a new process for flat-screen TV processing based on Sony product information and other data. The new building has improved the efficiency of the disassembly process and significantly boosted processing capacity.

Recycling at Green Cycle Corporation’s facilities in Nagoya, Aichi Prefecture

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Recycling Activities in Japan

Sony recycles televisions and personal computers in line with applicable recycling-related laws in Japan. Sony also bears the cost of recycling lithium-ion batteries and other small rechargeable batteries, as well as packaging materials, as required by law.

Recycling of Television Sets

Japan’s Home Appliance Recycling Law, which came into effect in April 2001, initially covered four major home appliances: televisions, refrigerators, washing machines and air conditioners. In April 2009, the law was revised to also cover LCD and plasma televisions and clothes dryers. Among applicable products, Sony manufactures television* (CRT, LCD and plasma models). The Home Appliance Recycling Law requires consumers to pay collection, transport and recycling fees when disposing of applicable home appliances, retailers to take back such appliances and return them to manufacturers, and manufacturers to recycle these appliances. Sony has established a nationwide cooperative recycling network with four other manufacturers. As a consequence, Sony-manufactured televisions are now recycled at 15 recycling plants across Japan. At these recycling plants, TVs are manually disassembled, and the parts are crushed and sorted using various equipment.

Recycling of Personal Computers

Although Sony sold off its personal computer business in July 2014, it is collecting and recycling its PC products in Japan that are no longer used by households and businesses, including long-time corporate users, in accordance with Japan’s Act on the Promotion of Effective Utilization of Resources. Items being recycled are desktop PCs, notebook PCs, CRT displays, and LCDs.

Sony is a member of the PC3R Promotion Association and collects and recycles used PC products under the industrywide collection and recycling scheme operated by the association. The results of the association’s collection and recycling efforts are published on the association’s website (link below). In fiscal year 2022, Sony collected and recycled a total of approximately 15 thousand units, for a total weight of approximately 80.2 metric tons. From these items, about 58.7 metric tons of materials were reused, including metal, plastic, and glass parts.

Recycling Activities in Europe

Take-back legislation in Europe—in particular, the European Union (EU) Directives on Waste Electrical and Electronic Equipment (WEEE) batteries and packaging*—requires manufacturers to organize and finance the collection and recycling of end-of-life products and packaging. Sony takes full responsibility for its take-back obligations in all applicable European countries. With the aim of building a recycling market where the principle of competition works in Europe, Sony formed the European Recycling Platform (ERP) in cooperation with other companies in 2002, building efficient and cost-effective systems for the collection and recycling of end-of-life products that enable member companies to fulfill their obligations as manufacturers. Sony continuously strives to find the best recycling partners.

1 Directive 2012/18/EU on waste electrical and electronic equipment (WEEE)
2 Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators
3 Directive 94/62/EC on packaging and packaging waste

Sony’s Recycling Compliance Systems

Sony utilizes authorized collection schemes for the collection and recycling of WEEE, batteries and packaging across Europe. These conduct regular on-site audits of all contracted recyclers to ensure compliance and prevent illegal shipments outside the EU. Sony engages authorized partners that undertake recycling on behalf of manufacturers to ensure our products are recycled in a compliant manner, in accordance with European Directives and country specific regulations. In 2022, Sony financed the costs of recycling approximately 20,396 metric tons* of end-of-life products and packaging in Europe. In collaboration with other manufacturers, Sony discloses relevant information on components that require special treatment for product categories placed on the market in Europe for recyclers to facilitate safe recycling.

* End-of-life products and packaging in fiscal year 2022 does not include certain countries, such as Portugal, France, and Poland.
Recycling Activities in North America

Sony Electronics Inc. in the United States and Sony of Canada Ltd. continue to contribute to the development of the recycling infrastructure in North America. All recycling and support activities are committed to a responsible recycling process that support state and provincial legislation and voluntary initiatives.

United States: Promoting of the Sony Take Back Recycling Program

Sony Electronics Inc. (SEL) continues to promote the Sony Take Back Recycling Program, which was put in place to increase recycling rates for used electronics in compliance with individual state laws and regulations. Through this program, SEL works with recycling companies across the United States to allow consumers to drop off Sony products at designated collection centers free of charge. In fiscal year 2022, these collection centers and through compliance channels collected approximately 7,771 metric tons (17.13 million pounds) of used consumer electronics. This equates to recycling 0.23 kg for every 1 kg of electronics sold.

SEL also manages a website that provides consumers with information about the program and the importance of recycling. The website promotes and implements sustainable solutions for end-of-life electronics.

Recycling Responsibly

In addition to conducting its own independent audits of recyclers and the downstream processing firms to which they subcontract, SEL has set forth a recycling policy whereby all recyclers it does business with must obtain Responsible Recycling (R2) or e-Stewards certification. R2 and e-Stewards are certification systems for recyclers organized in part by the U.S. Environmental Protection Agency (EPA) that evaluate such factors as environmental management performance and workplace environment.

Canada: Working with Provincial Governments to Support Electronics Recycling Programs

Since the first provincial program was launched in 2004, Sony of Canada Ltd. (Sony Canada) has worked with provincial governments to set up recycling programs for end-of-life products. From 2008 through 2015, Sony Canada operated an expanded recycling program for small electronics equipment across Canada by enabling consumers to take such products to its retail partners across the country. More recently, compliance obligations with provincial programs matured to set up appropriate collection opportunities for consumers through the Electronic Products Recycling Association (EPRA). Consumers and businesses can drop off their end-of-life electronics free of charge for responsible recycling at an EPRA-authorized drop-off location in nine provinces. In addition, Sony Canada is a founding and current active member of Electronics Product Stewardship Canada (EPSC). EPSC is comprised of leading electronics manufacturers who work to design, promote and implement sustainable solutions for end-of-life electronics.

India: Working with a Local Partner to Collect and Recycle E-Waste

In order to ensure compliance with E-Waste Management Rules, 2016 and amendments, Sony India has partnered with a leading third party company for channelization of e-waste which includes collection and recycling of e-waste. In fiscal year 2022, Sony India collected and recycled approximately 5,179 metric tons of e-waste internally and through the third party partner. Additionally, Sony India focused on raising awareness regarding environmentally safe disposal of E-waste and encouraged end-consumers to submit their end of life Sony Products to the broad network of e-waste collection points established by Sony India for their safe disposal. In fiscal year 2022, Sony India launched the awareness campaigns through newspapers and social media. Pan India circulation of newspapers reached more than 4.2 million readers and awareness video on social media received more than 7.5 million views in total. Sony India continues to review results and formulate future plans accordingly.

Recycling Activities in Pan Asia

The operations of Sony in the Pan Asia region stretch from Middle East to New Zealand. Throughout the region, Sony offices and manufacturing locations continually work to ensure that the recycling needs of the local community are met. In terms of national electronic waste recycling legislation, Sony actively works with local partners to ensure that local requirements are met.
Australia: Participating in the “National Television and Computer Recycling Scheme” (NTCRS)
Since 2012, Sony Australia has been taking part in a recycling scheme with partners accredited by the Australian federal government under new home appliance recycling legislation, specifically the “National Television and Computer Recycling Scheme”. Under the recycling system, Sony Australia has been making a concerted recycling effort over this period of time. From July 2022 through June 2023, approximately 4,415 metric tons of discarded televisions, computers, printers and computer peripherals had been recycled as Sony’s share of the total amount recycled.

Korea: “ART” (Action Really Together) Campaign
In Korea, the recycling law has been in place since 2003 and covers electronics, battery as well as packaging. Sony Korea has been working with related associations to collect the specific volume assigned by the government annually. In addition, to educate and encourage employees and local community to play their parts in e-waste recycling, Sony Korea has initiated the "Zero Waste Campaign" in Korea since 2012. This initiative has since been extended to Sony Group companies, neighbors and friends of Sony employees as well as other organizations. Hence, the campaign was renamed "Action Really Together (ART)" in 2016 to emphasize the importance of taking actions together for a good cause, regardless of brands. Besides collecting end-of-life products for recycling, Sony Korea also collects unwanted used products in good working condition and donates them to a local NGO.

Korea: “ART” (Action Really Together) Campaign in Korea

Recycling Activities in Latin America
Sony has offices in a number of Central and South American countries, including Argentina, Bolivia, Chile, Colombia, Ecuador, Mexico, Panama and Peru. These offices operate recycling programs designed to meet the needs of their particular areas. Here we introduce a joint project operated throughout Latin America as well as representative examples of Sony commitment to recycling initiatives.

Sony Joint Project: Green Service Program
Since 2010, Sony sales companies in Latin America—including Sony Inter-American, Sony Chile, Sony Argentina and Sony Bolivia gradually launched the Green Service Program. Under this initiative, using participating companies’ service networks, products and components that are under warranty but discarded during repair are appropriately treated. Also the e-waste generated by Sony sales companies facilities in Latin America are appropriately treated under this program as well. This program marks a shift in focus from simple disposal to the proper management and repair of products, helping Sony fulfill its responsibility to reduce the environmental impact of its products after they are sold and respond to the expectations of customers. In fiscal year 2022, approximately 33 metric tons of e-waste was collected and processed appropriately. Going forward, the companies will continue to implement the Green Service Program.

Recycling Programs in Latin America
Sony encourages the customers to recycle their products under each recycling program in countries existing the takeback and recycling regulations. In Mexico, Sony handles the individual WEEE take-back and recycling scheme through 6 collection points, and complies with the recycling regulation based on producer responsibility. In Colombia, Ecuador and Peru, Sony belongs to a collective scheme promoting WEEE take-back and recycling, and complies with the recycling regulation. Further, in Chile, Sony belongs to a voluntary WEEE take-back program.

Also, in Colombia and Chile, Sony is participating in the collective take back program for containers and packaging. These collective programs seek to continue the path to the recycling of containers and packaging within the framework of the existing regulation.

Recycling Activities in China
Compliance with Regulations on Recovery Processing of Waste Electrical and Electronic Products (China WEEE)
In 2011, China enacted the Regulations on Recovery Processing Waste Electrical and Electronic Products. The regulation mandates the recycling of five types of products: televisions, refrigerators, washing machines, air conditioners and PCs, and obliges manufacturers and importers to contribute to a fund that is used to cover the cost of processing of waste electrical and electronic products. In compliance with the regulations, Sony (China) Limited makes regular contributions to the fund.

Recycling Programs in China
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Environmental Communication

Worldwide Environmental Communication

Through hosting special events and supplying special content, Sony is helping to raise the environmental awareness of society. Sony provides a wide variety of stakeholders with environmental information in an accurate, timely and continuous manner.

Taking Advantage of Sony Events to Raise Environmental Awareness

Sony presented at CEATEC 2022, a technology trade show held in Japan, where we introduced a diverse array of technologies that contribute to the environment under the theme, “To Continue to Share Kando (Emotion) on the Earth.” from the three perspectives of “The Planet,” “Society,” and “People.” For “The Planet,” we showcased our experimental space photography simulator and other highlights of Sony’s Original Blended Material, a paper material developed to create opportunities to consider the ways to reduce environmental impact, and that material was used to construct our booth and display fixtures. Since 2015, Sony Electronics Inc. (SEL) in the United States has worked with partners to conduct the Sony Open in Hawaii, a PGA Tour event with an environmental focus. In 2023, we continued sustainability initiatives at the tournament to reduce the overall environmental footprint of the event—reusing structural material, diverting waste through recycling, and encourage energy and water conservation.

SEL provided reusable water bottles to the large number of volunteers that support event functions, reduced plastic waste, and provided bike valet service to facilitate attendees making use of environmentally conscious transportation. In conjunction with the Sony Open, a recycling event was held for local residents, providing a convenient way to responsibly recycle unwanted consumer electronics.

* PGA Tour is the US man’s professional golf tour.

Environmental Activities Leveraging Entertainment Business

Sony capitalizes on its influential entertainment business to promote environmental activities.

As part of the United Nations Playing for the Planet alliance, Sony Interactive Entertainment (SIE) partners with environmental organizations on reforestation and restoration projects as part of activities supporting the launch of its action-adventure game Horizon Forbidden West, created by Guerrilla. In addition, around 270 gamers designed their own environment games in Horizon Forbidden West as part of activities supporting the launch of its action-adventure game Horizon Forbidden West.

In 2018, Sony Pictures Television (SPT) and the United Nations Foundation launched the “Picture This” short film competition in order to raise awareness of the Sustainable Development Goals (SDGs). For the fiscal year 2022 competition, the World Photography Organisation joined SPT and the United Nations Foundation, seeking entries that encouraged viewers to take action to achieve the SDGs. The competition received a total of 487 submissions from video creators across the globe. The official website has been accessed by over 50,000 people, with more than 3 million impressions on social media and engagement in excess of 150,000, which indicates that a vast number of people have taken this opportunity to learn more about the SDGs.

On behalf of Sony Music Entertainment (UK), the Sony Music Group has joined the Music Climate Pact in 2021 to share insights on combating climate change and promote decarbonization efforts across the music industry. In 2022, together with other smaller indie labels, Sony Music Entertainment (UK) participated in a study conducted by the British Phonographic Industry to establish a foundation to obtain the most accurate benchmark for music’s carbon footprint.

* Playing for the Planet is an international initiative launched by the United Nations Environment Programme (UNEP) to rally the game industry to combat climate change.

SIE planted over 600,000 trees and supported ecological restoration projects, such as planting wildflower meadows and coastal seagrass, through cooperation with partners worldwide.

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Environmental Communication
Through the Corporate Websites

Sony regularly shares environmental information on the websites and social media of our group companies. To celebrate Earth Day on April 22, we introduced a limited time Earth Day home screen for the website of our group headquarters, the Sony Group Corporation, along with a message from the CEO and information summarizing environmental measures taken by group companies. During that time, other group company websites and social media accounts also focused on sharing environmentally conscious products and initiatives.

Management of Risks Related to Chemical Substances

As a company that uses chemical substances, Sony discloses information on emissions of such substances and exchanges views on safety and environmental issues with residents in the vicinity of its sites, as well as with local authorities, with the aim of reinforcing mutual understanding.

For instance, Sony Semiconductor Manufacturing Corporation actively participates in local community events and organizes its own interactive events at all of its plants. The company also holds tours of its manufacturing plants, during which it explains to visitors how wastewater is processed by environmental-related equipment.

Stakeholder Engagement

Sony is active in a wide range of fields, and its stakeholders have diverse expectations. In order to promote a healthy, spiritually abundant, sustainable society, Sony is deeply committed to stakeholder engagement, a process whereby it seeks to earn greater trust from stakeholders and cooperate with them to achieve common aims.

Raising the Environmental Awareness of Employees

Sony shares information on environmental issues with employees of the global Sony Group. All Group employees in Japan are required to take an environmental e-learning course, and the teaching materials from the course are being used to conduct environmental education at business sites outside of Japan. Sony is raising the environmental awareness of Group employees worldwide, using channels such as the corporate intranet to provide timely environmental information. Sony conducts events and educational activities for employees at its business sites around the world, to introduce environmental issues and Sony’s environmental initiatives. For example, in 2022, Sony conducted online seminars on the issues of environmentally conscious food for all employees in Japan.

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Environmental Communication

Sony promotes environmental communication by sharing environmental information with consumers through product websites, stores, displays and other marketing activities. For example, we introduce environmental considerations taken for products as well as the group’s environmental targets in new product announcement videos. Additionally, in 2022, we held an event for the LinkBuds wireless headphones series in Shanghai, China that was organized around environmental themes. At the event, visitors tried out LinkBuds to take part in a new auditory experience called “Always On” as they made a reusable shopping bag or participated in an exhibition about Synecoculture™, which creates a rich ecosystem through new farming methods. Through these, we were able to communicate the intrinsic appeal of our products while also helping people understand Sony’s environmental initiatives.

* Synecoculture is a trademark of Sony Group Corporation.

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Visitors making reusable bags while wearing LinkBuds at the event in Shanghai, China

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