Dynabook Environmental Report 2023

Dynabook Inc.

Contents

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1. About Dynabook Environmental Report 2023

Approach to Information Disclosure

Dynabook uses the "Dynabook Environmental Report2023" as a tool to disclose information about our environmental initiatives.

Reporting Period

From April 2022 to March 2023

Scope of Reporting

Two sites of Dynabook Inc. in Japan and manufacturing site in China.

*Referenced guideline

"Environmental Reporting Guidelines 2018" - Ministry of the Environment

Schedule for Next Issue

September 2024

Contact

Environmental Promotion: Env_Gr@list.dynabook.com

Dynabook Inc. Corporate Information
https://dynabook.com/global/en/index.html

Company Profile	Company Outline	https://dynabook.com/global/en/about-us/outline.html
	Top message	https://dynabook.com/global/en/about-us/message.html
	Business Philosophy	https://dynabook.com/global/en/about-us/philosophy.html
Sustainability	Policy	https://dynabook.com/global/en/csr/csr.html
	Procurement	https://dynabook.com/global/en/csr/purchasing.html
	Quality	https://dynabook.com/global/en/csr/quality.html
	Environment	https://dynabook.com/global/en/csr/eco.html ■ Policy, Main Initiatives, Environmental Report https://dynabook.com/pc/env/eng/index.html ■ Environmental Activity • Environmental management • Environmental efforts in the products • Environmental efforts in the factories • Green procurement
	Governance	https://dynabook.com/global/en/csr/governance.html

2. President's message

In 1985 Dynabook Inc. launched the T1100, the world's first laptop computer. This was followed by the release of the world's first[*1] notebook PC, the DynaBook J-3100 SS001, in 1989. These two products represent the origin of the modern-day notebook computer. Dynabook has continued to develop products and services that reflect people's needs, offering enhanced functionality supported by our technological expertise and commitment to quality and outstanding products. As a member of the Sharp Group, Dynabook will continue to provide value through "evolution," "integration," and "proposals." Starting from January 1, 2019, we are embarking on a new journey under the name Dynabook Inc., reflecting our past achievements while exploring future possibilities.

Dynabook not only has a new name but a new vision under the banner (dynabook as a Computing × dynabook as a Service). Our focus will be "The fusion of hardware (dynabook as a Computing) and services (dynabook as a Service)" together with "True computing that reflects real needs and that supports communities" and "New added value and services developed from the user's standpoint" as a new strategy underpinning further technological enhancement and the global development of the business. With this new commitment, Dynabook Inc. will contribute to the realization of a sustainable society by offering proposals for a comfortable society and lifestyle.

[*1] An A4-sized notebook PC based on Dynabook research

In the midst of a mountain of issues that the international community must unite to solve, such as global warming and resource depletion, we have prioritized addressing these environmental issues as a key management focus. We are actively exploring ways to achieve net-zero greenhouse gas emissions from our operations and contribute to the realization of a resource-recycling society.

Through our business activities, we aim to contribute to the overall continuous development of society by addressing various issues including global environment concerns, respect for human rights, employee health and well-being, fair treatment of employees, fair and ethical dealings with business partners, and risk management in response to natural disasters.

We recognize that sustainability issues are not only risk reduction but also present opportunities for profit. Therefore, we are committed to addressing these issues to increase our corporate value in the medium to long term.

We look forward to and appreciate your continued support.

Kiyofumi Kakudo,

Representative Director,

President & CEO

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3. Philosophy and Policies

3-1. Dynabook Inc. Business Philosophy

◆ Business Philosophy

With "Sincerity and Creativity", we aim to provide enhanced value and contribute to the development of society

◆ Vision

Changing the world through computing and services

Contribute to society and improve the quality of life by delivering "True computing that supports communities" and creating "new added value that reflects real customer needs"
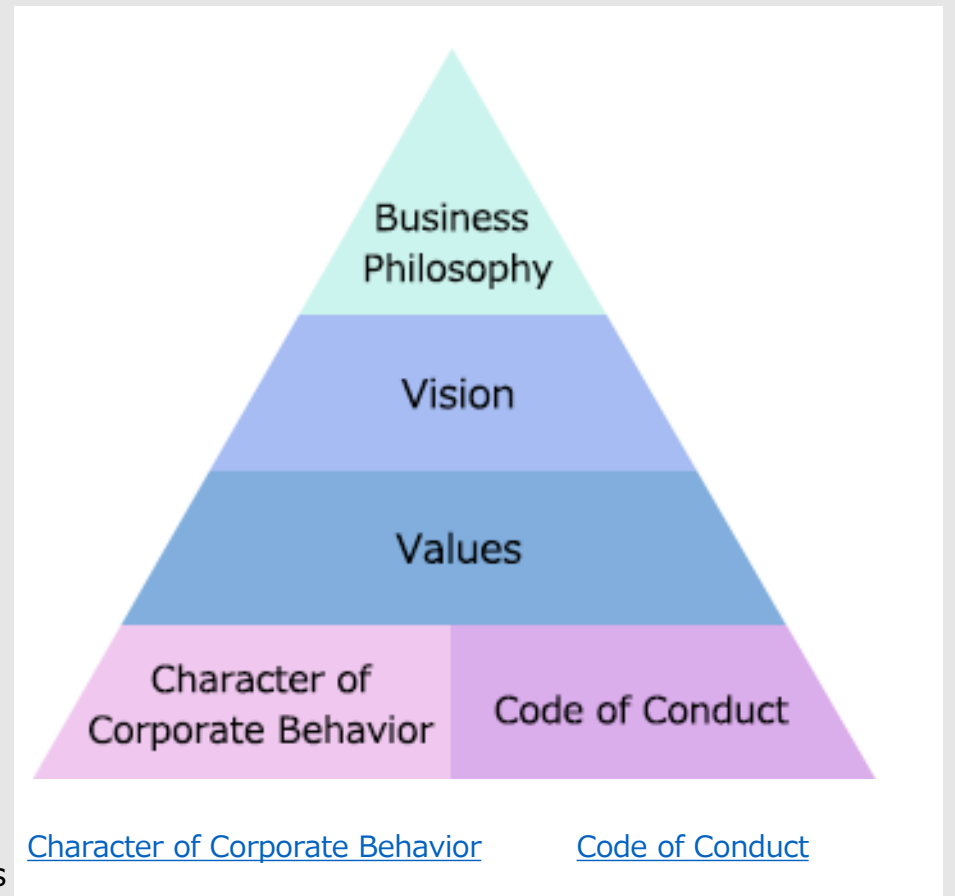
◆ Value

We, together with all members of Dynabook, are committed to:

Explore: Giving shape to thoughts and ideas
Create: Realizing those ideas
Collaborate: Listening to and continuously working with our customers
Transform: Looking ahead to the future

Character of Corporate Behavior   Code of Conduct

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3-2. Dynabook Inc. Basic Environment Policy

Dynabook Inc. considers the environment as one of the most important management issues and has established a basic environment policy.

Basic Environment Policy

Dynabook Inc. uses advanced digital technology to establish a leading and trusted position with future generations. We treat development, design, production and sales of notebook PCs, Tablets and System Solution Business as critical stages in delivering products that are remarkable for innovation and contribute to a more productive lifestyle for our customers. We deliver these cutting-edge products and services with a strong concern for environmental stewardship by balancing new rich values delivered by our products with environmental impacts. By promoting product and service planning in different parts of the world, we make the best use of the characteristic in each region. And based firmly on the recognition that it is our responsibility to maintain the health of the planet as an irreplaceable asset for future generations, we contribute to the development of a sustainable society by promoting activities designed to realize a world that is low in carbon emissions, recycling based, cautious in use of chemical substances, conservative in use of resources and environmentally harmonious.

Promotion of Environmental Management

1. We consider environmental stewardship to be one of management's primary responsibilities, promoting environmental activities in harmony with economic activities.

2. We have a global environmental management system covering all regions where we carry out business activities, and we provide direction and support to domestic and overseas group companies: We promote environmental management throughout Dynabook Inc. group.

3. We comply with all applicable laws and regulations, industry guidelines that we have endorsed, and our own standards concerning the environment.

4. We assess the impacts of our business operations, products and services on the environment, including impact to biodiversity, and we specify objectives and targets with respect to the reduction of environmental impacts, including the prevention of pollution.

5. We strive to continuously improve environmental management through internal audits and reviews of activities.

6. We enhance the environmental awareness of all our business associates and employees through environmental activities and their participation in environmental training and educational activities.

Providing environmentally conscious products and services and reducing their environmental impact through business activities

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**As a corporate citizen of planet Earth**

1. We contribute to society through our environmental activities, which include the development and provision of excellent, environmentally conscious technologies, processes and products in cooperation with society at large and with our local communities.
2. To facilitate mutual understanding with stakeholders, we deliver our environmental messages and disclose our information by environmental publications, promotional or advertising activities and through environmental events and volunteer activities.

4. Environmental Governance
4-1. Promotion of Environmental Management

Dynabook Inc. addresses various environmental issues and promotes the dissemination and sharing of environmental information through an environmental management promotion system. This system consists of an environmental management officer (President) and an environmental promotion officer (General Manager of the General Affairs Department). In the event of significant risk events, important policies and decisions are reported to the Company's Corporate Strategy Committee and the Board of Directors in cooperation with the Business Risk Management Committee (BRM) and other relevant internal committees.

We will continue to strengthen our environmental management promotion system and contribute to the realization of a sustainable society.
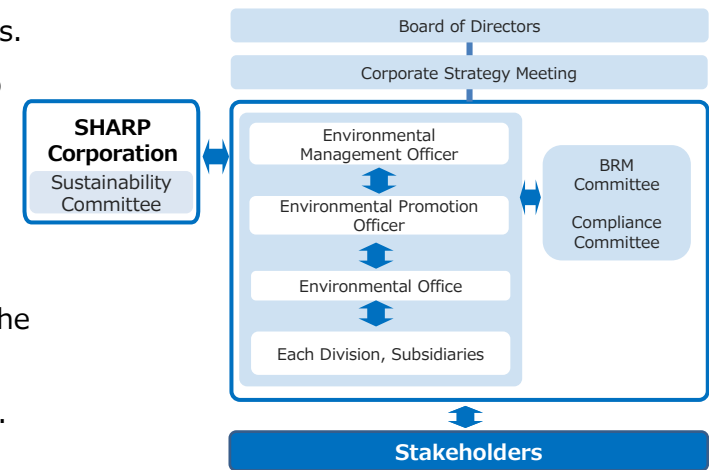
Environmental Management Promotion Organization

4-2. Environmental Management System

To promote environmental management, we have established an environmental management system in accordance with ISO 14001. Through continuous improvement, we are striving to enhance our environmental performance and reduce our environmental impact.

Dynabook Inc.
ISO14001 Certificate
※ Scope of Certification: Development, design, sales and maintenance service of PC and System Solution.

Dynabook Technology
(Hangzhou) Inc.
ISO14001 Certificate

5. Stakeholder Engagement

We appropriately disclose information to our various stakeholders, including customers, suppliers, employees, and local communities. Through various communication channels, we incorporate their perspectives into our operations and product development.

Customers
- Product information
- Customer service center
- Customer surveys
- Aftercare services
- etc.

Suppliers
- Procurement activities
- Development and communication of basic purchasing policies
- Implementation of supply chain CSR
- CSR surveys
- Chemical substance content surveys
- etc.

Glob. Environ.
- Compliance with environmental laws and regulations in procurement activities
- Promotion of environmentally conscious design
- Biodiversity promotion
- etc.

Employees
- Intranet, and hotline
- President's message
- In-house training
- Labor-management comm.
- Safety and Health comm.
- Workplace activation survey
- etc.

Local Communities
- Dialogue with local communities
- Cleaning and greening of neighborhoods
- etc.

6．Sustainable Development Goals （SDGs）

Dynabook plans, develops, manufactures, sells, supports, and services personal computers and system solutions. We are pursuing the fusion of hardware ("dynabook as a Computing") and services ("dynabook as a Service") and strengthening the technology that supports this endeavor.

Activity Status

Since developing the world's first laptop computer in 1985, Dynabook has leveraged its innovative technologies and expertise to plan, develop, manufacture, and sell PCs that people turn to in their everyday lives and to provide after-sales support. In recent years, we have worked actively in building the foundation for industrial and technological innovation to realize a sustainable society. Efforts include manufacturing PCs that accommodate today's diversifying work styles and providing solutions that help resolve labor shortages and streamline work at manufacturing plants.

Specifically, Dynabook is applying its proprietary "empower" technology to work towards SDGs 8 (decent work and economic growth) and 9 (industry, innovation and infrastructure) by offering mobile notebook PCs that deliver high performance.

We are also contributing to SDGs 12 (responsible consumption and production) and 13 (climate action) by, for example, achieving year-on-year reductions in greenhouse gas emissions during the manufacturing process, lowering the amount of waste from factories sent to landfills, increasing use of recycled materials, and reducing use of plastic materials.

In its solutions business, Dynabook proposes AI solutions, an area in which it has extensive experience at its own computer manufacturing plants, to bring the digital transformation (DX) to manufacturing with a focus on AI technology and edge computing devices. In addition, its life cycle management (LCM) service is contributing to SDGs 7 (affordable and clean energy) and 12 (responsible consumption and production) by, for example, proposing an economical, effective approach to computer management.

In the area of culture and education, we help with the development of, and services for, ICT-driven school education environments, thereby working toward SDG 4 (quality education).

Major SDGs Contribution Examples

● Personal computers

We launched the dynabook R9 and R8, a pair of high-end 14-inch mobile notebook PCs featuring the latest 13th-generation Intel® CPUs and Dynabook's proprietary "empower" technology. These models boast light weight, fast processing speeds, robust enclosures, and exceptional ease of use. They allow processor-intensive creative work and concurrent use of multiple applications while facilitating lifestyles that aren't bound by restrictions of place or time.

● Solution Business

• Providing the manufacturing industry with solutions that use image recognition AI to improve work quality

Dynabook is helping companies boost production efficiency while maintaining product quality by providing an AI defect inspection system that automatically detects defects in about half the time as can be accomplished with visual inspections (based on Dynabook results) and an AI worker movement detection system that helps reduce forgotten steps and backtracking.

dynabook R9・R8
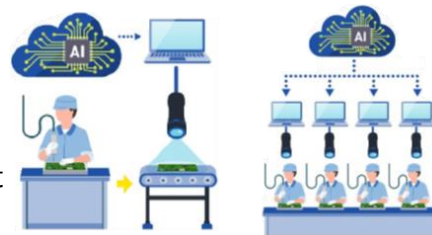
• Strengthening and expanding an LCM service

Dynabook launched a new portal website as part of its LCM service, by means of which it manages companies' computer fleets across the entire equipment life cycle, from deployment to disposal, to aggregate information for centralized management.

LCM service
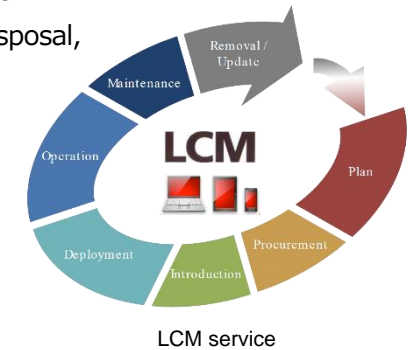
● Culture and education

Dynabook goes beyond supplying highly capable computers by supporting initiatives to bring ICT to education by leveraging proprietary functionality and services by, for example, supplying learning apps and account management tools.

7. Policy for Environmental Initiatives and Environmental Indicators

We have established targets in three crucial areas: addressing climate change, promoting resource recycling, and managing chemical substances effectively to minimize our environmental footprint.

Climate Change

The Paris Agreement, adopted in 2015 to address the global issue of climate change, calls for efforts to keep the average temperature increase to below 2℃ above pre-industrial levels, with a long-term goal of limiting the increase to 1.5℃. Recognizing climate change mitigation as a critical management issue, we are studying ways to achieve net-zero greenhouse gas (GHG) emissions from our operations.

Resource Recycling

Natural resources are limited, and there is growing concern about resource depletion. Furthermore, issues such as waste, the rise in marine plastics and garbage, have become significant environmental concerns. To tackle these resource-related challenges, it is crucial to establish a recycling-based society that promotes the efficient use of resources.

We are actively working to understand the environmental impact of waste and water, and exploring methods to realize a resource-recycling society.

Chemical Substance Management

Various regulations worldwide govern the use, management, reporting, and disclosure of chemical substances that can impact human health and the environment.

Our products utilize various chemical substances in their components and materials, and we ensure compliance with these regulations. In addition to complying with regulations, we strive to reduce our environmental footprint by identifying and reducing substances of concern that may have an impact on human health and the Earth's environment.

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● **Key Environmental Assessment Indicators**

Indicators		Unit	FY2022			FY2023
			Target	Result	Assessment[*2]	Target
Climate Change	Total GHG emission at sites	t-CO_2	8,207	7,459	○	7,200
	Per-unit GHG emissions from product transportation[*3]	kg-CO_2eq／t-km	0.60	0.60	○	0.60
Resource Recycling	Total amount of waste generated	t	1,748	1,254	○	1,167
	Water receiving	m3	59,100	55,884	○	52,404
Chemical Substance Management	Chemical substance emissions	kg	105	70	○	110

*2   Assessment: Achieved ○ / Not-Achieved ●
*3   Destinations for GHG calculations from product logistics are the U.S.A., Canada, and Europe.

![dynabook logo]

8. Climate Change

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8-1. Greenhouse Gas (GHG) Emissions

Since FY2020, we have been monitoring our Scope 1-3 GHG emissions in accordance with the GHG Protocol[*4] and striving to comprehend and manage our emissions.
Emissions data for FY2020 through FY2022 are shown below. (GHG emissions for FY2021 and FY2022 are undergoing third-party verification.)

[*4] The GHG Protocol is an international standard established by WRI (World Resources Institute) and WBCSD (World Business Council for Sustainable Development) to calculate an organization's GHG emissions across its entire supply chain
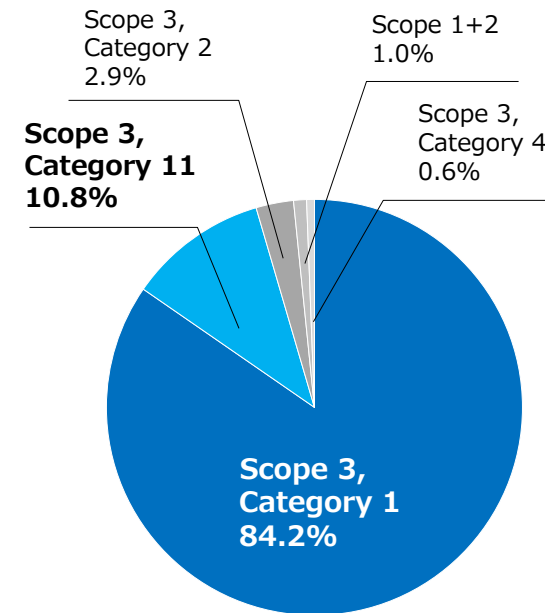
Category		Emissions (t-CO$_2$eq)			Notes
		FY2020	FY2021	FY2022	
Scope 1 (Direct GHG emissions from business activities)		151	147	140	Direct emissions from the use of fuel and other resources at the facility (including company vehicles)
Scope 2 (Indirect GHG emissions from energy use in business activities)		8,296	9,076	8,071	Emissions from generating electricity and other energy used at the facility
Scope 1 + 2 total		8,447	9,223	8,211	
Scope 3 (Indirect GHG emissions beyond scope of business activities)	Category1 Purchased goods and services	665,952	938,975	704,278	Emissions from the manufacture of materials procured for the main products[5] that are sold in the reporting year
	Category2 Capital goods	31,444	23,774	24,027	Emissions from the construction, manufacture, and transportation
	Category3 Fuel- and energy-related activities (not included in Scope 1 or 2)	1,242	1,199	1,095	Emissions from fuel procurement (including natural resource extraction, manufacturing, and transportation) for generating electricity and heat obtained from other firms.
	Category4 Upstream transportation and distribution	14,489	13,335	5,075	Emissions generated by transporting parts, materials, and manufactured main products[5]
	Category5 Waste generated in operations	-	-	-	Not applicable
	Category6 Business travel	664	644	803	Emissions from business travel by all employees
	Category7 Employee commuting	482	598	568	Emissions from commuting by all employees
	Category8 Upstream leased assets	1,564	1,564	1,564	Emissions linked to leased asset operation (e.g. offices, warehouses, etc.)
	Category9 Downstream transportation and distribution	-	-	-	Not applicable
	Category10 Processing of sold products	-	-	-	Not applicable
	Category11 Use of sold products	168,860	121,770	90,274	Emissions from the use of the main products[5] sold in the reporting year
	Category12 End-of-life treatment of sold products	950	685	508	Emissions from recycling main products[5] sold in the reporting year
	Category13 Downstream leased assets	-	-	-	Not applicable
	Category14 Franchises	-	-	-	Not applicable
	Category15 Investments	-	-	-	Not applicable
Scope 3 total		885,647	1,102,544	828,192	
Scope 1 + 2 + 3 total		894,094	1,111,767	836,403	

[5] notebook PC, desktop PC, tablet

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The GHG emissions for FY2022 are displayed on the previous page. Our business activities contributed 8,211t-CO2eq to Scope 1 + 2 emissions. Additionally, Scope 3 GHG emissions totaled 828,192t-CO2eq, resulting in a total GHG emissions of 836,403t-CO2eq. Emissions from "Purchased goods and services" accounted for the majority share, comprising approximately 84.2% of the total, followed by emissions resulting from the "Use of sold products", which accounted for approximately 10.8% of the total". These two types of emissions make up more than 90% of our total emissions. To promote the reduction of GHG emissions related to our company, we believe that it is necessary not only to address the GHG emissions associated with our own business activities but also to decrease the environmental impact of our products throughout their life cycles.

Scope 3, Category 2
2.9%

Scope 1+2
1.0%

Scope 3, Category 11 10.8%

Scope 3, Category 4
0.6%

Scope 3, Category 1 84.2%

| Category	Note
Scope 3, Category 1	Purchased goods and services
Scope 3, Category 11	Use of sold products
Scope 3, Category 2	Capital goods
Sccope 1+2	Business activities
Scope 3, Category 4	Upstream transportation and distribution

GHG emissions by Scope/Category

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● Reduction of GHG emissions at site

In response to climate change, we are actively identifying and reducing GHG emissions from our operations. Scope 1 and 2 GHG emissions at our sites from 2020 onwards are shown in the table below.

Scope 1 and 2 GHG emissions from our business activities (unit: t-CO_2eq)

	FY2020	FY2021	FY2022
Scope1	151	147	140
Scope2	8,296	9,076	8,071
Total	8,447	9,223	8,211

As shown in the chart below, which illustrates Scope 1+2 GHG emissions from our operations by fuel type, electricity represents over 80% of these emissions. To reduce GHG emissions, we are prioritizing measures such as reducing energy consumption, installing high-efficiency air conditioning and lighting systems, transitioning to LED lighting, using motion sensors, and installing solar panels.

Industrial steam 13.2%   Gas 1.2%

Electricity
85.6%
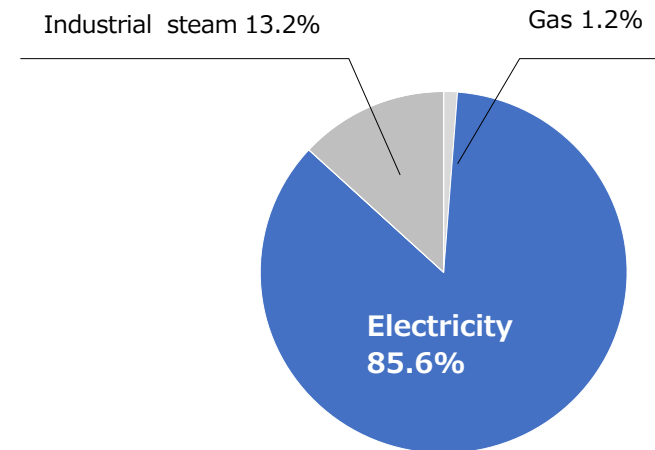
GHG percentage (by energy source)

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In addition, our manufacturing site in China, Dynabook Technology (Hangzhou) Inc., has obtained ISO 50001 certification for its energy management system, aiming to enhance energy performance.

ISO50001 Energy Management System Certificate

● **Identify GHG emissions from product transportation**

To understand the environmental impact of product transportation, we calculate and undergo third-party verification of GHG emissions from product transportation using the Global Logistics Emissions Council (GLEC) Framework, which provides a standardized approach for calculating and reporting logistics emissions.

	GHG emissions from product transportation (t-CO_2eq)		
	FY2020	FY2021	FY2022
To U.S.A.	7,180	6,522	1,434
To Canada	1,499	639	657
To Europe	6,025	6,183	2,984
Total	14,704	13,344	5,075

*GHG emissions from product transportation in FY2022 are currently undergoing third-party verification.

![dynabook logo]

● Product Life Cycle Assessment (LCA)

To efficiently reduce the environmental impact of our products throughout their life cycles and develop environmentally conscious products, we have implemented life cycle assessment (LCA) and product carbon footprint (PCF)[6] methodologies to visualize the environmental impact.

We conduct LCA assessments on representative products every three years and PCF assessments on major products annually. The findings of these assessments are disclose on our environmental website.

- Portégé X40-J
- Tecra A40-K
- Tecra A50-K
- Portégé X30W-K
- Portégé X40-K
- Portégé X40L-K

Link to LCA/PCF report website

https://dynabook.com/pc/env/eng/products/pc/product_environmental_reports.html

[6] LCA/PCF is a method to quantitatively calculate the environmental impact of a product throughout its entire life cycle, from the procurement of raw materials to disposal and recycling.

**PCF report of Portege X40L-K (excerpt)**

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8-2. Effective use of energy

● Examples in Products

Our products are equipped with an "eco utility" that comprehensively supports the PC's contribution to power saving. The "eco utility" has three functions: "eco mode", "eco charge mode", and "Peak Shift".

- **eco mode**

"eco mode" is designed to reduce power consumption during product use by switching to an optimized power-saving mode. It automatically adjusts power plans, display brightness, and other settings to reduce power consumption.
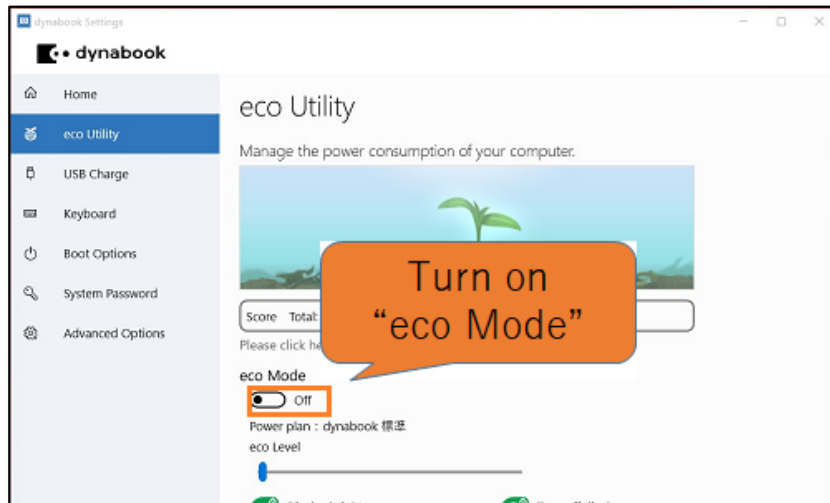
- **eco charge mode**

"eco charge mode" provides charging options from Auto/80%/70% to extend the battery pack life.

- **Peak Shift**

To effectively utilize electricity, the battery power is utilized during the day, when energy demand is high, and the PC is charged during the night, when demand is relatively low. This approach helps achieve an averaged power demand.

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![dynabook logo]
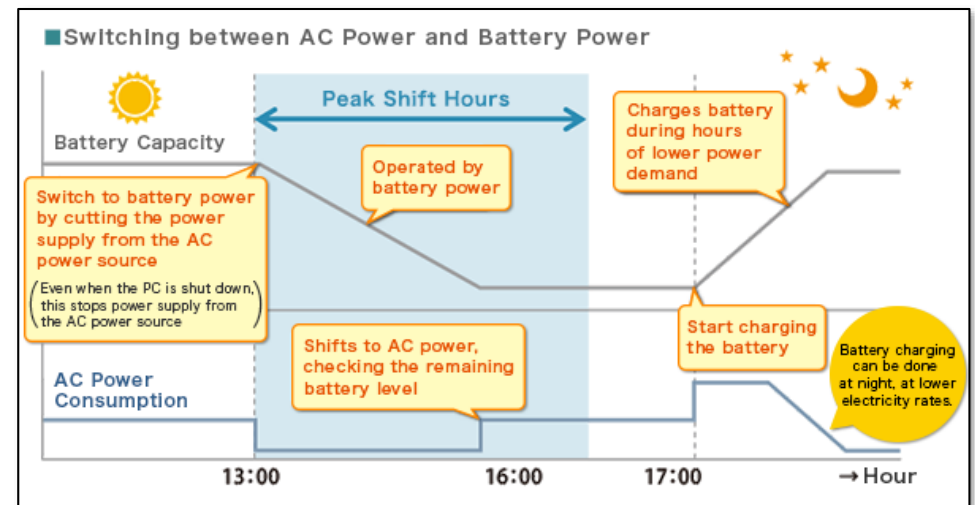
● Example at our Site

In FY2022, our manufacturing site in China introduced an "Intelligent Energy Management System" to visualize energy usage. This in-house developed system enables efficient energy management by automatically collecting data and monitoring, diagnosing, and analyzing energy-consuming equipment. Additionally, we are actively working towards reducing GHG emissions in our business activities by utilizing renewable energy sources[7]. As part of these efforts, we are installing solar power generation systems consisting of solar panels, using solar LED lights, and adopting high-efficiency air conditioning and lighting equipment to reduce power consumption.
For other initiatives at our manufacturing sites in China, please refer to the CSR Report below.

Intelligent Energy Management Systems

https://dynabook.com/pc/env/eng/management/csr_reports.html

[7] Renewable energy is energy obtained from natural sources such as hydroelectric power, wind power, and solar power.

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9. Resource Recycling

Natural resources are limited, and there is growing concern about resource depletion. Simultaneously, issues related to waste, such as the rise in marine plastics and garbage, are recognized as significant environmental issues. To address these resource-related problems, it is crucial to establish a resource-recycling society that includes the efficient use of resources.

To realize a resource-recycling society, our company is actively striving to reduce waste emissions, assess environmental impacts with regard to water resource efficiency, and promote the use of recycled materials.

9-1. Waste

The graph on the right shows the total waste generated at our major sites and the final disposal rate at our manufacturing sites. In FY2022, the total amount of waste generated was remarkably lower, it was due to a decrease in the number of units produced. We closely monitor waste generation while actively promoting zero emissions through waste material recycling. Zero emissions, defined as a final waste disposal target rate of less than 0.5%, have been consistently achieved since FY2007. In FY2022, we successfully achieved an actual final disposal rate of 0.07%, surpassing our target.

*8 Major sites are, Dynabook Technology (Hangzhou) Inc., Toyosu office, Tachikawa office.
     Tachikawa office was closed at the end of March, 2023.
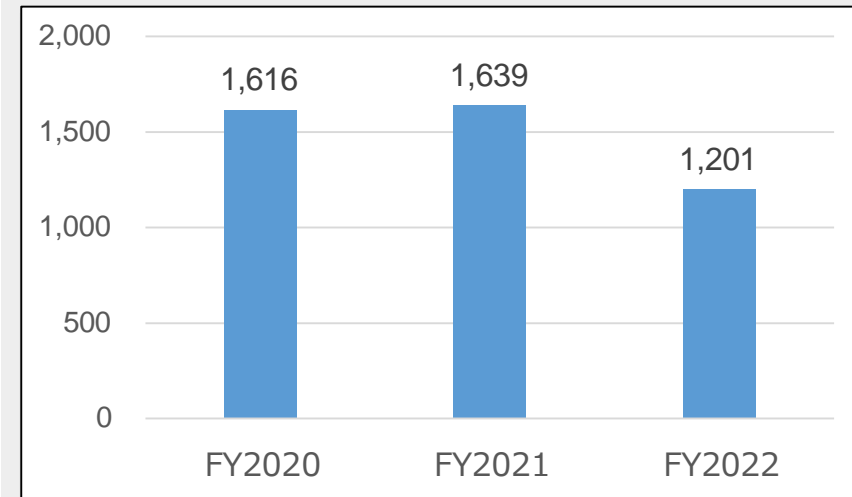
Trends in total waste generated at major site[8](unit: t)
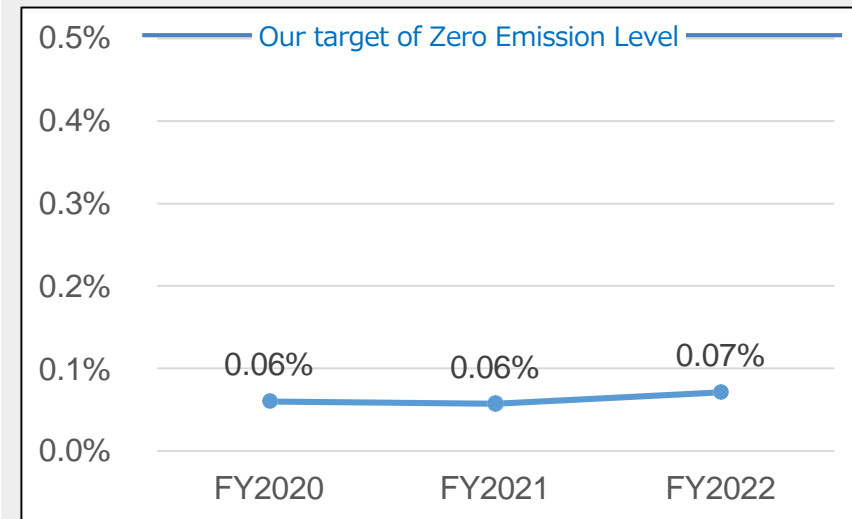
Trends in final waste disposal rate at manufacturing site

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9-2. Water resources

Water resource problems are arising on a worldwide scale with the increase in the world's population, the economic growth of developing countries, climate change, and other factors.

We have been studying the efficient use of water resources by monitoring their consumption at our major sites*8. The graph below shows the actual amount of water received.

Water is used for air conditioning at our manufacturing sites in China, and although the amount of water received increased in FY2020 due to the impact of the COVID-19 infection prevention response, it has been on a downward trend since FY2021, achieving the target. We will continue to study the effective use of water resources.
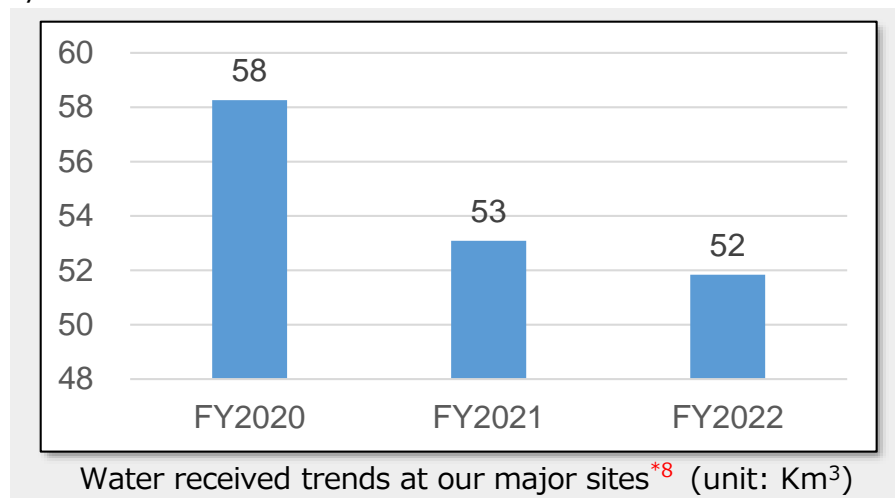
Water received trends at our major sites*8 (unit: Km^3)

*8   Major sites are, Dynabook Technology (Hangzhou) Inc., Toyosu office, Tachikawa office.
     Tachikawa office was closed at the end of March, 2023.

9-3. Products recycling

We promote the recycling of used products in accordance with the laws of each respective destination country. In addition to waste reduction through product recycling, we strive to conserve limited resources and reduce environmental impact by using recycled materials produced through product recycling. To encourage product recycling, we prioritize designs that facilitate recycling in product design. This includes reducing the number of parts, selecting easily recyclable materials, clearly indicating resin materials, and incorporating recycled materials.

Information on product recycling initiatives at each destination is available on the website below.

Japan: https://dynabook.com/pc/env/products/recycle.html
U.S.A: https://support.dynabook.com/support/navShell?cf=su_epeat
Canada: https://ca.dynabook.com/DBC/company/environmental-
        commitment

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9-4. Utilize Sustainable Materials

We promote the use of sustainable materials, including recycled content and plant-based plastics, in both our products and packaging.

● Example of sustainable materials in product

Our products incorporate plastics that contain recycled materials for the plastic housing of PCs, AC Adaptors, and other components. Additionally, we utilize plant-based plastic for the rubber feet of PCs.

Internal plastic parts for metal chassis models

Rubber feet of products

Where sustainable materials are used	usage conditions
Plastic chassis	Contains up to 30% recycled material
Magnesium Chassis	Contains 70% recycled materials including pre-consumer materials
Chassis of AC adapter	Contains up to 30% recycled material
Internal plastic parts for metal chassis models	Contains up to 30% recycled material
Rubber feet of products	Biomass plastic containing 38% plant-derived materials used in some models
Double sided tape for fixing LCD display for some product	Contains up to 46% plant-based plastic

Note: Recycled content is expressed as a percentage by weight.

● Example of sustainable materials in Packing

We actively employ recycled materials for packing, such as cardboard for boxes, cushioning materials, and plastic bags.

Cardboard (Contains 90~100% recycled material)

PE bag (Contains 35% recycled material)

Cushioning material (Contains 50% recycled material)
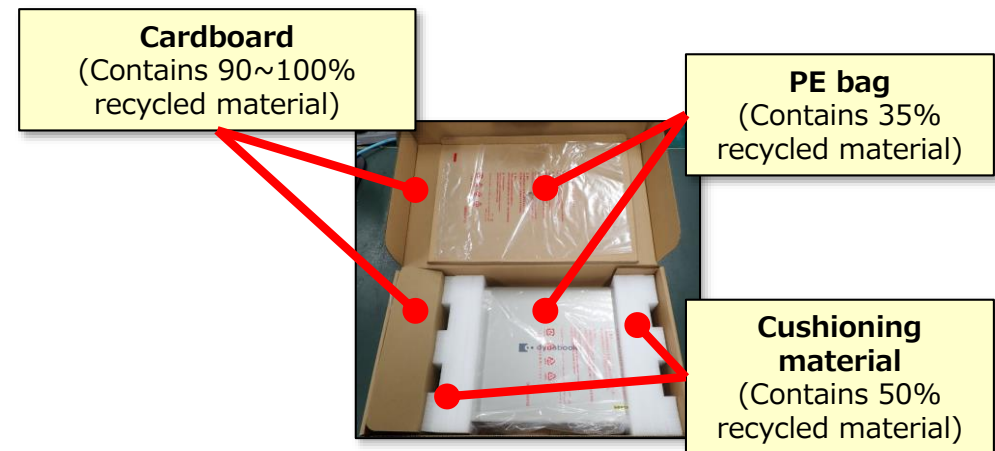
Sustainable materials in packing
(Recycled content is expressed as a percentage by weight)

10. Management of chemical substances

Chemical substances that may affect the human body and the global environment are subject to various regulations around the world, including restrictions on use, management of content information, and reporting and disclosure of content status.

To properly manage these substances, we strive to reduce our environmental impact through management in compliance with laws and regulations and by identifying and reducing substances that may have an impact on the human body and the global environment.

10-1. Chemical substance management at manufacturing sites

We have promoted the identification and reduction of chemical substances used at our manufacturing sites. The table at right shows the amount of chemicals handled and discharged at these sites.

In FY2021, our manufacturing sites in China achieved a significant reduction in the amount of alcohol handled by replacing it with a water-based cleaning agent for cleaning purpose. As a result, the amount of chemical substances handled was greatly reduced.
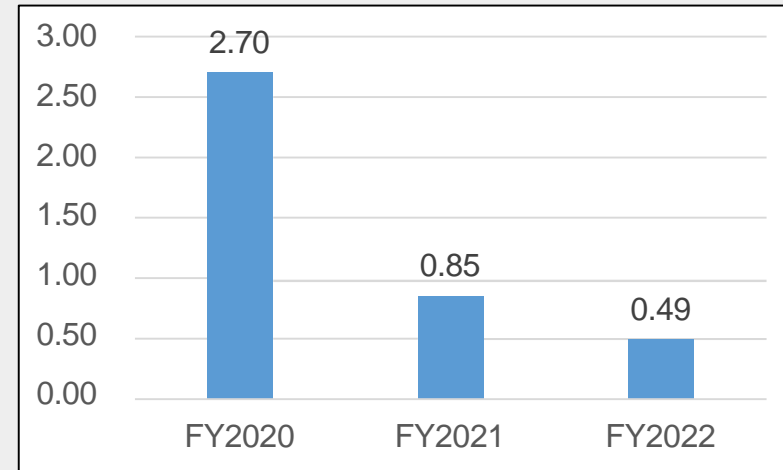
Amount of chemical substances handled at manufacturing site
(unit: t)
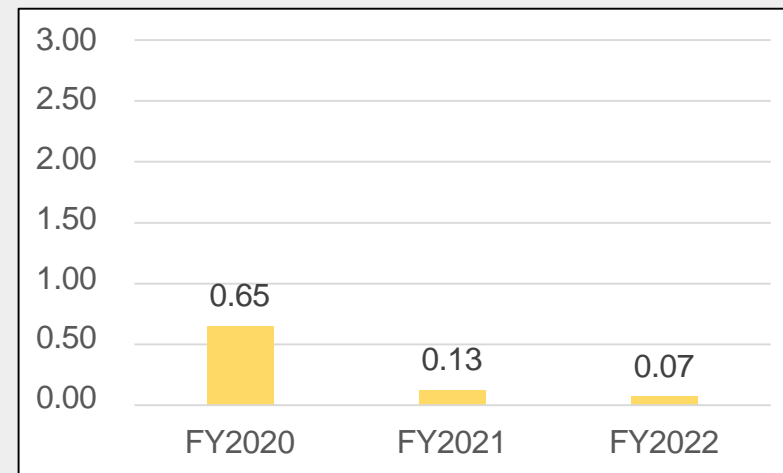
Chemical substance emissions at manufacturing site
(unit: t)

![dynabook logo]

10-2. Management chemical substance contained in products

To reduce the environmental impact of our products and ensure compliance with global chemical substance regulations, we have established and published our Green Procurement Guidelines. These guidelines outline the chemical substances that need to be controlled, including those prohibited in our products and substances that should be reduced and monitored. We consider existing laws, regulations, voluntary industry standards, and the possibility of future regulations when formulating these guidelines. When adopting procured parts and materials, we utilize the "Declaration of Non-Use of Hazardous Substances" to assess the presence of prohibited substances in our products. Specifically, we conduct sampling analysis to ensure compliance management for substances such as DEHP, BBP, DBP, and DIBP. Furthermore, we regularly conduct "green audits" of our suppliers to assess their chemical management practices and encourage improvements. Additionally, we conduct surveys to understand the chemical substances contained in our products. This includes surveys on Substances of Very High Concern (SVHC), as defined by the EU REACH Regulation, which are substances suspected of adversely affecting human health and the environment. We also conduct surveys on chemical substances contained in the parts used in our products, known as the Chemical Substance Inventory Survey.

Guidelines for Green Procurement

https://dynabook.com/pc/env/eng/green/index.html

11. Biodiversity conservation

We are actively engaged in promoting biodiversity conservation initiatives at our manufacturing sites with high environment impact.

Biodiversity Conservation Activities at Manufacturing Sites in China

[Bird conservation]

The Hangzhou Eastern Wetland Park serves as a habitat for wetlands and unique aquatic life, playing a crucial role as a stopover for migratory birds from East Asia to Australia. Our manufacturing site in China is located a mere 3.8 km from the Eastern Hangzhou Wetland Park, we are actively developing it to serve as a green corridor for migratory birds.

[Invasive plant control and planting]

To mitigate the damage caused by invasive alien species, we carry out annual eradication of Canadian goldenrod in the wetlands along the Qiantang River. Additionally, we conduct tree planting activities within our company premises to conserve biodiversity. In FY2022, we planted 412 trees, creating a "Friendship Forest" within our company grounds.

Installation of birdhouses

Invasive plant control and planting

12. EPEAT

EPEAT stands for Electronic Product Environmental Assessment Tool. It is a comprehensive labeling system operated by the Global Electronics Council in the United States, which evaluates electronic products based on their environmental considerations. EPEAT provides a third-party verification process that covers a wide range of evaluation criteria, including "product design," "recycling system," and "corporate social responsibility." The certification is registered in three levels: Bronze, Silver, and Gold, based on the level of compliance with optional criteria. We actively strive to obtain EPEAT certification.

URL: https://epeat.net/

Section No.	Criterion
4.1	Substance Management
4.2	Materials Selection
4.3	Design for end of life
4.4	Product longevity/life-cycle extension
4.5	Energy conservation
4.6	End-of-life management
4.7	Packaging
4.8	Life cycle assessment and carbon footprint
4.9	Corporate environmental performance
4.10	Corporate social responsibility

● **dynabook products listed on EPEAT (Silver and above)**

Gold

Portege X30L-K	Portege X30W-J/K
Portege X40-K	Portege X40L-K
Satellite Pro A40-J/K	Satellite Pro A50-J/K
Satellite Pro R40-J/K	Satellite Pro R50-J/K
Tecra A40-J/K	Tecra A50-J/K

Silver

dynabook E10-S	dynabook E40-K
Portege X30L-J	Portege X30W-J
Portege X40-J	Portege X40L-K
Satellite C30-K	Satellite C40-G/J/K
Satellite C50-G/J/K	Satellite Pro C30-K
Satellite Pro C40-G/J/K	Satellite Pro C50-G/J/K
Satellite Pro E10-S	

dynabook

13. Company Outline

13-1. Company Outline

Trade Name	Dynabook Inc.
Head Office	NBF Toyosu Garden Front Bldg. Toyosu 5-6-15, Koto-ku, Tokyo
Representatives	Kiyofumi Kakudo, Representative Director, President & CEO
Business Description	The development, manufacture, sales, support and servicing of personal computers and system solutions products in Japan and overseas
Established	September 9, 1954
Capital	8.55 billion yen
Annual sales	179 billion yen (as at fiscal 2022, consolidated base)
Number of employees	1,867 (as at April 1, 2023, consolidated base)

13-2. Third-Party Verification

To ensure the accuracy of our GHG emissions, we undergo third-party verification by THRIVE ESG.

THRIVE ESG

Limited Assurance Verification Statement

This limited assurance verification was prepared for Dynabook on behalf of UL Japan Inc.

Company Name: Dynabook
Company Address: Toyosu 5-6-15, Koto-ku Tokyo, Japan (NBF Toyosu Garden Front Bldg. 8F)

This verification was performed in accordance with the specification and guidance of ISO 14064-3.

Introduction

The verification of Dynabook's corporate greenhouse gas (GHG) emissions was carried out by Thrive ESG, on behalf of UL Japan Inc., for Dynabook who holds corporate responsibility for Dynabook's GHG inventory and reporting and is responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria. Thrive ESG is responsible for expressing an opinion on the GHG statement based on the verification.

Verification Scope and Objectives

The limited assurance verification was carried out on Dynabook's declared GHG inventory for the period April 2020 through March 2021. Activities within Dynabook's organizational boundaries is limited to facilities responsible for the design and manufacture of laptop computers and scope 3 activities related to the production of laptop computers to align with the requirements of the IEEE 1680.1 EPEAT standard. This includes two locations in Japan and one location in China where Dynabook has the management authority to introduce and implement directives and policies, including:

- Head office – Toyosu 5-6-15, Koto-ku Tokyo, Japan (NBF Toyosu Garden Front Bldg. 8F)
- Tachikawa office – Sakae-cho 6-1-3, Tachikawa City, Japan (Tachihi Bldg No.2 3F)
- Hangzhou – 2nd Floor, Building 2, No. 3 East Gate, Hangzhou, Zhejiang, China

The GHG inventory included scope 1 stationary sources (LPG and city gas), scope 2 market-based electricity emissions and industrial steam, and scope 3 purchased goods and services; capital goods; fuel- and energy-related activities not included in scope 1 or scope 2; upstream transportation and distribution; business travel; employee commuting; upstream leased assets; and use of sold products.

The main objectives of the verification were as follows:

- To conduct limited assurance verification of Dynabook's scope 1, scope 2, and scope 3 GHG emission inventory estimates for the period April 2020 through March 2021, detailed above.
- To evaluate how the collation and management of the GHG inventory conforms to the criteria, principals, and requirements of the World Resources Institute and the World Business Council for Sustainable Development GHG Protocol, 2004 (hereafter "GHG Protocol") and International Standard for the Validation and Verification of Greenhouse Gas Assertions (ISO 14064-3).
- To use this verification process to support Dynabook's continuous improvement of voluntary GHG accounting data, procedures, and management.

The criteria for this verification are defined by the GHG Protocol and detailed in ISO 14064-3.

THRIVE ESG

Verification Process

Thrive ESG conducted the verification as follows:

- Reviewed Dynabook's GHG inventory approach in terms of boundary setting, calculation methods, and data collection;
- Developed a risk-based verification plan and evidence-gathering plan that focused on documentation of the source data, emission factors, and calculations to estimate GHGs;
- Guided the site visit to Dynabook headquarters, conducted by UL Japan, with objectives to observe and confirm operational activities, observe and confirm data management and control systems, and confirm quality control and quality assurance procedures; and
- Corresponded by e-mail, with UL Japan as liaison, with key stakeholders to review the information systems and controls in place and to assess the accuracy and robustness of the systems and to verify boundaries, documentation, and methods.

Verification Findings

The verification resulted in various observations. The following is a summary of our findings:

- Thrive ESG reviewed the emission factors, global warming potentials, and conversion factors used in the Dynabook inventory calculations. Dynabook used appropriate emission factors provided by the governments of Japan and China for scope 1-2, and published extended economic input/output factors for Scope 3.
- Thrive ESG reviewed corporate documentation of scope 1 and scope 2 emission sources and did not find material or systematic errors.
- Thrive ESG reviewed corporate documentation supporting the reported activity amounts used to estimate scope 3 emissions. We did not find material or systematic errors in scope 3 emissions estimates.
- Dynabook reported that no refrigerant refills occurred during the reporting period. Upon further discussion, we recommended Dynabook standardize the tracking and reporting of fugitive refrigerant emissions in the future. Since these sources are only relevant to office areas and not manufacturing, it may not be a material source of emissions.
- Dynabook's largest source of reported emissions (74%) is from purchased goods and services related to laptop computers. Actual spend amounts were used in combination with emission factors from environmentally extended input-output economic statistics of Japan to estimate these emissions. We initially found that emission factors for materials and components purchased for manufacturing in the China facility might be materially undercounting emissions. Dynabook accepted this feedback and updated the factors to more appropriate values. After this update, we did not find material or systematic errors in these calculations.
- Dynabook's second largest source of reported emissions (19%) is from the use of its sold laptop computer products. Though the use of the products is outside of Dynabook's operational control, reasonable assumptions were used to represent active use, inactive use, and product lifetime to estimate electricity consumption and resulting emissions. We did not find material or systematic errors in these calculations.
- Though enterprise GHG emissions are commonly conducted for a whole enterprise, this calculation is limited to activities for laptop computer products, a subset of Dynabook products,

THRIVE ESG

to be consistent with EPEAT requirements. Organizations may set boundaries based on various factors. Dynabook should transparently communicate this as a subset of its complete enterprise emissions in any public or stakeholder communications.

Conclusion

The Dynabook GHG inventory was prepared according to the requirements defined by the GHG Protocol. Table 1 summarizes the Dynabook GHG inventory subject to this review.

Table 1. Summary of Dynabook GHG Inventory

Emission Scope	Emission Source	April 2020 – March 2021 Emissions (MT CO$_2$e)
Scope 1	Fuel in stationary equipment	117
Scope 1	Fuel in mobile equipment	34
Scope 2	Electricity	8,296
Scope 2	Industrial steam	1,274
Scope 3	Category 1: Purchased goods and services	665,952
Scope 3	Category 2: Capital goods	31,444
Scope 3	Category 3: Fuel- and energy-related activities not included in scope 1 or scope 2	1,242
Scope 3	Category 4: Upstream transportation and distribution	14,489
Scope 3	Category 6: Business travel	664
Scope 3	Category 7: Employee commuting	482
Scope 3	Category 8: Upstream leased assets	1,564
Scope 3	Category 11: Use of sold products	168,860
Scope 3	Category 12: End-of-life treatment of sold products	950

Based on the process and procedures conducted, there is no evidence that the Dynabook GHG statement for April 2020 through March 2021;

- is not materially correct and is not a fair representation of GHG data and information;
- has not been prepared in accordance with related International Standards on GHG quantification, monitoring and reporting, or to relevant national standards or practices.

Verifier: James Mellentine
               Thrive ESG
               Golden, Colorado USA
               E-mail: jim@thriveesg.com

Signature:

James N. Mellentine

Completed: February 2, 2023

GHG Emissions Verification Report

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