TEL

TOKYO ELECTRON

SUSTAINABILITY REPORT 2022

Plum blossom (Taiwan)
The cover photo shows flowers of the countries and regions in which we do business

Editorial Policy

The sustainability report aims to communicate to all stakeholders the responsibilities and roles that Tokyo Electron has in society and the various activities it implements toward value creation. The report describes global initiatives aimed at developing and resolving issues for the industry and society by clarifying priority themes, short- and medium-term goals, and SDGs initiatives in the four material issues of Product Competitiveness, Customer Responsiveness, Higher Productivity and Management Foundation that supports these areas. Data sets are included at the end of the report, with an accompanying third-party assurance report attached for those items that are considered to be of particularly high importance.

We remain committed to understanding all of our stakeholders' demands and disclosing information timely and transparently. For more detailed information, please consult our official website.

⧉ Website

Scope

This report and related data cover the Tokyo Electron Group (27 consolidated companies, including the Group companies).
* Some data is for the entire Group in Japan.

Scope of Disclosure

Update Rate ↑

⧉ **Website**

Sustainability Report

Information Volume →

Reference Guidelines

Global Reporting Initiative (GRI): GRI Standards
Environmental Reporting Guideline 2018, Ministry of the Environment, Government of Japan
Recommendations of the Task Force on Climate-related Financial Disclosures

Published Date

July 2022 (Next report: July 2023)

Period Covered

Fiscal year 2022 (April 1, 2021 to March 31, 2022), some content also covers fiscal year 2023

Contact

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Tokyo Electron Limited

⧉ Contact to Tokyo Electron Limited

Details on the "Sustainability Initiatives in the Value Chain" included in the Integrated Report are presented in this report.

⧉ Integrated Report | Sustainability Report

Tokyo Electron's Logo

TEL

Tokyo Electron's logo was created as a symbol for our next stage of growth, based on our Corporate Philosophy and vision in 2015. This simple design represents our reliability and the engaging presence we bring to a competitive industry. The green square at the center of the logo signifies the core of innovation supporting development in the industry; the translucent blue expresses our leading-edge advanced technology.
We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support.

TOKYO ELECTRON SUSTAINABILITY REPORT 2022

Contents

Company Overview

Tokyo Electron operates worldwide as a leading company in semiconductor production equipment Industry. By providing the Best Products and Best Technical Service, we are aiming for medium- to long-term profit expansion and continuous corporate value enhancement. We are also the practicing our Corporate Philosophy by contributing to the development of a sustainable society through our business.

Number of Sites (As of April 1, 2022)

■ Head Office
■ Branch, Office (including Field Service), Sales Office

TEL Magnetic Solutions
Tokyo Electron Europe
TEL Solar Services
Tokyo Electron Israel

Tokyo Electron Korea

Tokyo Electron (Shanghai)
Tokyo Electron (Shanghai) Logistic Center
Tokyo Electron (Kunshan)

Tokyo Electron India
Tokyo Electron Taiwan

Tokyo Electron (Malaysia)
Tokyo Electron Singapore

TEL Manufacturing and Engineering of America
TEL Technology Center, America
TEL Venture Capital
Tokyo Electron U.S. Holdings
Tokyo Electron America

Tokyo Electron Technology Solutions
Tokyo Electron Miyagi
Tokyo Electron (World Headquarters)
Tokyo Electron Kyushu
Tokyo Electron FE
Tokyo Electron BP
Tokyo Electron Agency

Japan: **7** companies at **25** sites

Overseas: **20** companies at **52** sites in **17** countries and regions

Worldwide total: **27** companies* at **77** sites in **18** countries and regions (consolidated)

* Group companies in the process of being wound up are not shown on the map.

History

1960s–1970s

Transition of Typical Applications of Semiconductors

Mainframe Computer

1980s–1990s

Single Chip Microprocessor

Personal Computer

2000s–2010s

Mobile Phone

Digital Consumer Electronics

2020s–

Big Data

Founded as a technical specialized trading company ▸ **Shifting to a full-scale manufacturer** ▸ **Accelerating globalization** ▸ **Aspiration toward innovation and new growth**

1963
Tokyo Electron Laboratories, Inc. is established with capital from Tokyo Broadcasting System, Inc.

1964
Tokyo Electron Laboratories acquires importing and selling rights for diffusion furnace manufactured by Thermco Products Corp. (U.S.) and begins sales

1968
TEL-Thermco Engineering Co., Ltd. began domestic production of diffusion furnaces

1978
Tokyo Electron Laboratories, Inc. renamed Tokyo Electron Ltd.

1980
Listed on the Second Section of the Tokyo Stock Exchange

1984
Listed on the First Section of the Tokyo Stock Exchange

1986
Export of semiconductor production equipment begins

1990s
Enhanced the Group structure in Japan by, for example, establishing service and manufacturing companies, and set up overseas subsidiaries throughout the world to globalize operations

1990
Tokyo Electron (TEL) marks a major move into development and marketing of FPD production equipment

1994
Started direct sales and support systems overseas

1999
Category of industry on the Tokyo Stock Exchange First Section changed from "Wholesale Trade" to "Electric Appliances"

2006
"TEL Values" formulated as code of conduct

2007
Established "TEL UNIVERSITY" to strengthen human resource development

2015
Establishment of Tokyo Electron Corporate Governance Guidelines

Re-emergence as the New TEL (Vision, Medium-term Management Plan formulated and new Corporate Logo created)

2019
Formulation of the Medium-term Management Plan to further enhance corporate value

2021
Began publishing integrated reports

2022
Listed on the Prime Market of the Tokyo Stock Exchange

Formulated the new Vision and Medium-term Management Plan

"Technology Enabling Life" formulated as corporate message

Technology Enabling Life

Sales by Region (Consolidated)

(Unit: Billions of yen)

2,003.8 billion yen (FY2022)

- China **566.2** (28.3%)
- Korea **381.1** (19.0%)
- Taiwan **361.5** (18.0%)
- North America **268.0** (13.4%)
- Japan **230.3** (11.5%)
- Europe **107.9** (5.4%)
- Southeast Asia, and Others **88.4** (4.4%)

Number of Employees by Region (Consolidated)

(Unit: People)

15,634 people (FY2022)

- Japan **8,661** (55.4%)
- Asia **4,365** (27.9%)
- North America **2,002** (12.8%)
- Europe **606** (3.9%)
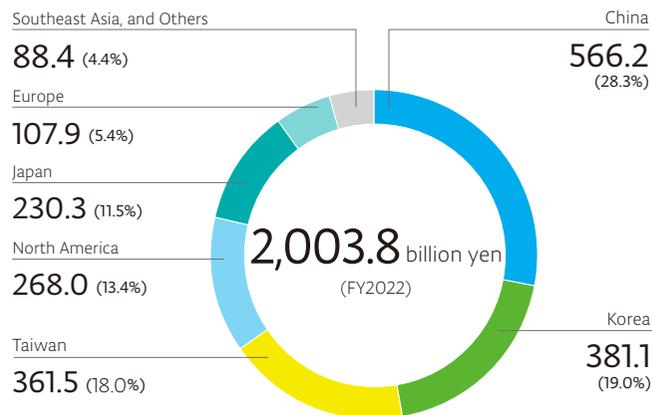
Fractions smaller than 100 million yen are truncated.
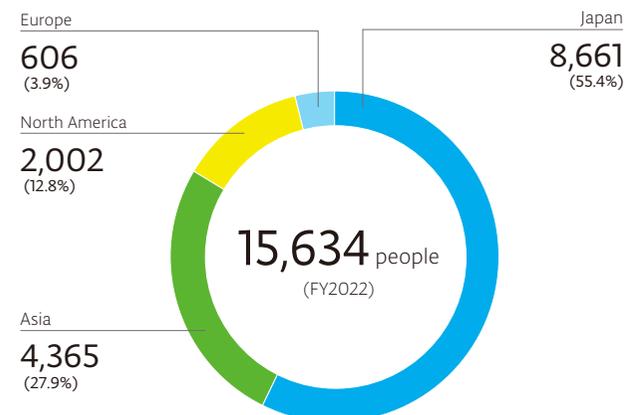
Semiconductor Manufacturing Process and Our Main Products

- Wafer Process (Front-end)
- Assembly and Test Process (Back-end)

Deposition

Lithography
(Photoresist coating, Development)

Etching

Cleaning

Thermal Processing System
TELINDY PLUS™

Single Wafer Deposition System
Trias*e*+™

Atomic Layer Deposition System
NT333™

Coater/Developer
CLEAN TRACK™ LITHIUS Pro™ Z

Plasma Etch System
Tactras™

Plasma Etch System
Episode™ UL

Single Wafer Cleaning System
CELLESTA™ - *i*

Completed Transistor before Wiring

Silicon dioxide film / Silicon nitride film / Wafer

Photoresist

Repetition | Oxide/Nitride film deposition | Photoresist coating | Exposure | Development | Etching | Ashing/Cleaning

Isolation Formation/Gate Formation

Gate Electrode

Interconnect formation

Inspection

Packaging/Inspection

Single Wafer Deposition System
Trias*e*+™

Plasma Etch System
Tactras™/Episode™ UL

Wafer Prober
Precio™ XL

Wafer Bonder/Debonder
Synapse™ V/ Synapse™ Z Plus

Wafer/Dicing Frame Prober
WDF™ 12 DP+

Completed Semiconductor Packaging

Metal film / Intermetal dielectric film

Metal film

DRAM | Logic | 3D NAND | CMOS image sensor

Completed Integrated Circuit

| Contact Formation | Interconnect Formation | Wafer Probe Testing | | Wafer Bonding/Debonding | Inspection | Packaging/Assembly |

Flat Panel Display (FPD) Production Equipment

FPD Coater/Developer
Exceliner™

FPD Plasma Etch/Ash System
Impressio™

FPD Plasma Etch/Ash System
Betelex™

Inkjet Printing System for manufacturing OLED display
Elius™

CEO's Message

I would like to express my sincere gratitude to all stakeholders for your continued support and patronage.

Society has faced a series of increasingly serious challenges in recent years, including the prolonged spread of COVID-19, abnormal weather and natural disasters due to climate change, human rights issues and conflicts between nations as well as supply chain disruptions and cyber-attacks. These challenges affect industry, society and the lives of people.

Meanwhile, the transition to a data-driven society is progressing at an unprecedented speed, including the spread of IoT, AI and 5G, smarter industries, evolution of autonomous driving and use of metaverse that has been gathering attention. For semiconductors, which are supporting the core of this shift, expectations for technological innovations such as larger capacity, higher speed, higher reliability and lower power consumption are limitless. The semiconductor market exceeded US$500 billion for the first time in 2021 and is expected to exceed US$1 trillion by 2030, more than double the current market. Along with this, the semiconductor production equipment market in which we operate is also expected to expand even further.

Under such circumstances, we will apply our expertise as an equipment manufacturer developed through being an industry leader and pursue technological innovation in semiconductors to contribute to the development of a dream-inspiring society.

Tokyo Electron established a new Vision in June 2022 and formulated its new Medium-term Management Plan that includes new financial targets as it strives for further growth. Under this plan, we will continue striving for the Best

Products and Best Technical Service, and will strive to achieve short-, medium- and long-term profit expansion and continuous corporate value enhancement.

Our pursuit of sustainability is the realization of this Vision and the practice of our Corporate Philosophy of "We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support." We undertake a diverse range of company-wide measures through our business. As the importance of semiconductors increases in society, we strive to strengthen our material issues, which are "Product Competitiveness" by continuously creating next-generation products with overwhelming added value, "Customer Responsiveness" to be the sole strategic partner using solid relationships of trust with customers, "Higher Productivity" to continually improve operational efficiency, in addition to "Management Foundation" which supports our business activities at the foundational level.

With regard to the environment, we launched the E-COMPASS (Environmental Co-Creation by Material, Process and Subcomponent Solutions) environment-focused initiative in June 2021. We will work together with our customers and partner companies to promote technological innovation and reduce the environmental impact of semiconductors throughout the entire supply chain from the following three main perspectives.

- Pursuing higher performance and lower consumption in semiconductors
- Achieving both the process performance and environmental performance of equipment
- Reducing CO_2 emissions in all business activities

In June 2022, in addition to our medium-term environmental goals for 2030, we have established the long-term environmental goal of reducing greenhouse gas emissions to net zero by 2050 toward the realization of net zero. As a leading company in environmental management, we will contribute to the preservation of the global environment by actively promoting the reduction of the environmental impact of our products, plants and offices.

We also value the concept of human rights based on a strong sense of integrity. We are working to identify and correct human rights risks through the implementation of human rights due diligence within our Group as well as suppliers. We will incorporate the concept of respect for human rights into every aspect of our business activities, and strive to nurture a dynamic corporate culture where each person can realize their full potential.

To promote sustainability management in line with international frameworks, we signed the United Nations Global Compact and are taking on the SDGs. We also joined the Responsible Business Alliance (RBA) and strive to comply with its code of conduct in our supply chain.

We will continue to promote sustainability-focused management and contribute to addressing issues of industry and society as well as their development to fulfill our mission and responsibilities, aiming to remain a company that is loved and trusted by all stakeholders.

Your continued support and patronage are very much appreciated by all of us at Tokyo Electron.

Toshiki Kawai
Representative Director, President & CEO
Tokyo Electron Limited

New Vision

"A company filled with dreams and vitality that contributes to technological innovation in semiconductors"

Tokyo Electron pursues technological innovation in semiconductors that supports the sustainable development of the world.

We aim for medium- to long-term profit expansion and continuous corporate value enhancement by utilizing our expertise to continuously create high value-added leading-edge equipment and technical services.

Our corporate growth is enabled by people, and our employees both create and fulfill company values. We work to realize this vision through engagement with our stakeholders.

Tokyo Electron's Sustainability

Sustainability and Framework of Corporate Principles

Tokyo Electron's sustainability initiatives are the practice of its Corporate Philosophy through achieving its Vision. We make clear the material issues in our growth and promote these initiatives. Together with the building of a resilient management foundation, by providing high-value-added products and services, we contribute to the resolution of issues and development of industry and society as well as the achievement of the SDGs.

To be a company that is highly trusted and loved by society, we work on medium- to long-term profit expansion and continuous corporate value enhancement.

Framework of Corporate Principles

Mission ·········· **Corporate Philosophy: Purpose of Tokyo Electron's existence and its mission in society**
We strive to contribute to the development of a dream-inspiring society through our leading-edge technologies and reliable service and support.

Vision ·········· **Vision: Top priorities to be addressed to realize the Corporate Philosophy**
A company filled with dreams and vitality that contributes to technological innovation in semiconductors

Value ·········· **TEL Values: Attitudes, codes of conduct, and values to be observed by each employee**
Pride/Challenge/Ownership/Teamwork/Awareness

Sustainability Promotion Framework

We promote sustainability activities throughout the entire Group through the following committees.

Conference Name	Participants	Function	Meeting Frequency
Sustainability Committee	▪ Corporate officers and General Managers ▪ Presidents of the Group companies in Japan and overseas companies	▪ Set and manage progress of sustainability goals (short-, medium- and long-term) ▪ Promote company-wide projects[1]	Twice annually
Sustainability Global Committee	▪ The executive officer in charge of the sustainability promotion ▪ Heads of related departments ▪ Sustainability managers of the Group companies in Japan and overseas companies[2]	▪ Promote activities for achieving annual sustainability goals (short- and medium-term) ▪ Implement global projects	Twice annually
Sustainability Monthly Meeting	▪ Person in charge of sustainability at related divisions	▪ Share information on sustainability activities ▪ Discuss cross-division sustainability initiatives	Monthly

1   Report and discuss important issues at the Corporate Officers Meeting, the highest decision-making body on the executive side
📖 Corporate Officers' Meeting: Refer to the Corporate Governance System on p. 31
2   Sustainability manager: Person responsible for coordinating all aspects of sustainability at the Group companies in Japan and overseas companies

In addition to these committees, we invite all employees to submit examples of sustainability in the workplace, toward issue resolution and advancement of industry and society, and practice of our Corporate Philosophy. Outstanding initiatives are awarded the TEL Sustainability Award by the CEO and shared throughout the entire Group as best practices.

Initiatives for the Sustainable Development Goals (SDGs)

The SDGs are a universal set of goals to achieve by 2030, which were unanimously adopted by the United Nations Sustainable Development Summit in 2015. For each priority theme of our material issues, we clarified the SDGs it is working toward through business and conduct activities for the entire Group.

Additionally, we regularly hold SDGs workshops where employees working in a variety of fields come together autonomously to share activities through business and discuss issues such as future prospects toward the achievement of the SDGs.

In fiscal year 2022, we reaffirmed the 17 goals and 169 targets* being undertaken by the priority themes of our material issues.

* 169 targets reaffirmed: Our initiatives toward the 17 goals and 169 targets that make up the SDGs   📖 Refer to 169 Targets of the SDGs on p. 13

SUSTAINABLE DEVELOPMENT GOALS
Tokyo Electron Supports the SDGs.

New Medium-term Management Plan

In addition to pursuing sustainable operations in line with our approach to sustainability, we also strive to generate medium- to long-term profit expansion and continuous corporate value enhancement by creating new value through our business and contributing to the resolution of industrial and social issues and to the development of industry and society. In June 2022, we revised our Vision and set new financial targets in the new Medium-term Management Plan and also announced our main initiatives for the future to achieve the new Medium-term Management Plan as well as our capital policy, shareholder return policy and other measures.

Financial Model Targets in the New Medium-term Management Plan

	Financial Model (Through FY2024)			FY2022 Results	Financial Targets (by FY2027)
Net Sales	¥1.5 trillion	¥1.7 trillion	¥2 trillion	¥2.0038 trillion	≥¥3 trillion
Operating Margin	26.5%	28%	>30%	29.9%	≥35%
ROE*	>30%			37.2%	≥30%

We formulated the Medium-term Management Plan in May of 2019 and have been engaged in efforts to achieve a financial model, as the Plan's core target, with net sales of 2 trillion yen, an operating margin of 30% or more, and ROE of 30% or more by fiscal year 2024. As the semiconductor production equipment market has expanded significantly, our business developments in our focal fields have been progressing smoothly, and performance has outperformed the growth of the market. As a result, we have nearly reached our targets two years ahead of schedule.

We seek to achieve world-class operating margins and ROE and have set new financial targets under the new Medium-term Management Plan of net sales of at least 3 trillion yen, an operating margin of at least 35%, and ROE of at least 30% by fiscal year 2027.

* ROE: Return On Equity

Participation in Global Initiatives

We participate in a variety of global initiatives and promote sustainability in our business activities.

United Nations Global Compact

The United Nations Global Compact (UNGC) is a global initiative that promotes sustainability, proposed by ex-UN Secretary-General Kofi Annan at the 1999 World Economic Forum. We signed onto the UNGC in 2013 and are working to contribute to the realization of sound globalization and a sustainable society in accordance with its Ten Principles in the areas of Human Rights, Labor, Environment and Anti-Corruption.

Responsible Business Alliance

The Responsible Business Alliance (RBA) is a global initiative promoting supply chain sustainability focused on the electronics industry. We joined the RBA in 2015, and as a member company, we work together with suppliers to ensure compliance with the RBA Code of Conduct comprised of five sections: Labor, Environment, Health and Safety, Ethics and Management Systems.

Task Force on Climate-related Financial Disclosures

In 2020, we expressed our approval of the recommendations offered by the Task Force on Climate-related Financial Disclosures (TCFD*). We are conducting ongoing disclosures and discussions based on the framework of governance, strategy, risk management, metrics and targets relating to the risks and opportunities that climate change presents to our overall business.

* 📖 TCFD: Refer to p. 48

Evaluation from Third-party Institutions

Our sustainability initiatives have allowed us to continue to be selected as a constituent stock under leading global ESG investment indices, including the DJSI[1] Asia Pacific Index, FTSE4Good Index[2], MSCI World ESG Leaders Indexes[3], Euronext Vigeo World 120 Index[4] and STOXX Global ESG Leaders indices[5]. At the same time, we were evaluated as a low-risk company in Sustainalytics' ESG Risk Ratings[6].

In 2021, we were selected as a prestigious A List company in the water security category of a survey conducted by the CDP[7], and won recognition as the "Grand Prize Company," an award given to the most outstanding company, in the Corporate Governance of the Year®[8] 2021 program sponsored by the Japan Association of Corporate Directors.

Additionally, the entire Group in Japan received recognition as top 500 companies under the 2022 Certified Health & Productivity Management Outstanding Organizations Recognition Program[9].

Regarding our IR[10] activities, we were selected as the "Most Honored Company" by U.S. magazine Institutional Investor, and received the Best IR Award from the Japan Investor Relations Association.
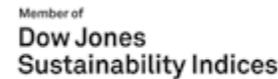
DJSI Asia Pacific   FTSE4Good Index   MSCI World ESG Leaders Indexes

Euronext Vigeo World 120 Index   STOXX Global ESG Leaders indices   Sustainalytics' ESG Risk Ratings

CDP   Corporation Governance of The Year®   Institutional Investor

1   DJSI: Dow Jones Sustainability Indices. An ESG (environmental, social and governance) investment index of S&P Dow Jones Indices LLC. The DJSI Asia Pacific covers companies in that region.
2   FTSE4Good Index: An index related to environmental performance and corporate social responsibility developed by FTSE Russell.
3   MSCI World ESG Leaders Indexes: Companies that have high ESG performance are selected from the MSCI Global Sustainability Index, an ESG investment index developed by Morgan Stanley Capital International (MSCI).
    ↗ Please refer to the link for the logo's disclaimer.
4   Euronext Vigeo World 120 Index: An index selected by NYSE Euronext and Vigeo Eiris composed of 120 companies that excel from an ESG perspective.
5   STOXX Global ESG Leaders indices: STOXX, a subsidiary of Deutsche Börse, selects companies that meet its evaluation standards based on the results of research from the ESG research company Sustainalytics.
6   Sustainalytics' ESG Risk Ratings: An ESG risk measured for institutional investors by Sustainalytics in the Netherlands. The rating is based on a company's exposure to industry-specific material ESG risks and how well a company is managing those risks. Copyright ©2022 Sustainalytics. All rights reserved. This article contains information developed by Sustainalytics (www.sustainalytics.com). Such information and data are proprietary of Sustainalytics and/or its third party suppliers (Third Party Data) and are provided for informational purposes only. They do not constitute an endorsement of any product or project, nor an investment advice and are not warranted to be complete, timely, accurate or suitable for a particular purpose. Their use is subject to conditions available at https://www.sustainalytics.com/legal-disclaimers.
7   CDP: An international environmental non-profit organization (NPO) established in the U.K. that conducts surveys on climate change and water security measures taken by private corporations and local governments, and the results are made public.
8   Corporate Governance of The Year®: Carried out by the Japan Association of Corporate Directors since 2015 with the endorsement of the Ministry of Economy, Trade and Industry and other organizations to encourage companies that practice sound corporate governance to attain medium- to long-term growth.
9   Certified Health & Productivity Management Outstanding Organizations Recognition Program: The program publicly recognizes particularly outstanding organizations that are practicing health-oriented business management, based on initiatives attuned to local health-related challenges and toward health promotion initiatives led by the Nippon Kenko Kaigi.
10   IR: Investor Relations

Identifying Material Issues

Tokyo Electron identifies important and priority material issues to be addressed for medium- to long-term profit expansion and continuous corporate value enhancement by examining both social and business environments, evaluating risks and opportunities and through active engagement and such with stakeholders.

Issues Awareness

Social Issues

With the state of society being affected by things such as the spread of COVID-19, the invasion of the conflict in Ukraine and also due to climate change causing abnormal climate conditions and natural disasters, along with human rights issues, conflicts between nations, supply chains disruptions, cyberattacks and so forth, we are currently facing many issues. Mitigating climate change and eliminating inequality in human rights in particular are pressing issues for the global community, and there are strong calls for further action, not just by international organizations and national governments, but also by the private sector.

While participating in global initiatives such as the United Nations Global Compact and RBA and keeping an eye on societal trends, and considering recommendations from third party organizations, we also examine social issues that may impact our business activities.

Business Environment

The spread of IoT, AI and 5G, smarter industries, autonomous driving, use of the highly anticipated metaverse, and other technologies, are moving us toward a data-driven society at an unprecedented speed. Semiconductors are a core part of this shift, and their market size is expected to more than double in the next ten years with technological innovations in larger capacity, higher speed, higher reliability, lower power consumption, etc. Alongside this, the semiconductor production equipment market in which we operate is expected to expand even further.

New evolutions are also required in Flat Panel Display, which act as the interface between people and ICT, and further technical innovations are occurring. In the future, as organic EL displays become widespread, panel size increases, and design improvements that take advantage of enhanced characteristics such as high-definition, lower power consumption, thinner profile and flexibility, are expected to further expand the application fields.

Taking actions to preserve the global environment has become an urgent issue, and under international frameworks such as SDGs and the Paris Agreement in which initiatives toward decarbonization are essential, the role which technological innovations in semiconductors and displays will play in society will be more prominent in the future.

At the same time, in step with the increasing importance of corporate governance, which fundamentally supports the medium- to long-term growth of corporations, further strengthening of measures is essential to ensure safety and quality, as well as compliance and risk management.

Social Themes of Risks and Opportunities

We examined the risks and opportunities closely related to sustainable business development in consideration of the SDGs and other initiatives, social issues and social/business environments.

Social Trends	Main Potential Risks	Opportunities
Environment	▪ If we fail to comply with laws and regulations, industry codes of conduct, in-house policies and so forth, product competitiveness and social credibility will decline, and the cost of correcting the problem will increase business costs.	Create business opportunities by providing technologies, products and services that contribute to the reduction of environmental impact
Human rights	▪ If we fail to comply with laws and regulations, industry codes of conduct and so forth, social credibility and employee engagement will decline.	Create a workplace environment that respects employee diversity and enables all employees to demonstrate their full capabilities, improve employee turnover rate and promote health management
Supply chain management	▪ If a natural disaster occurs, or it becomes impossible to continue business transactions with suppliers, events such as delivery delays and contractual non-performance will harm business continuity. ▪ If sustainability-related issues such as the environment and human rights become more serious, operations will stagnate.	Establish a sustainable production system, further increase business operations efficiency, improve business continuity through enhanced business continuity plans (BCPs), strengthen competitiveness in the supply chain and build trusted relationships with customers and suppliers
Governance	▪ If management's monitoring or supervising function declines, management risk will increase, and business activities will stagnate.	Enhance corporate value on a medium- to long-term basis, gain stakeholders' trust and increase social credibility
Compliance	▪ If an ethical or compliance violation occurs, we will lose social credibility and suffer economic loss.	Operate healthy corporate activities by complying with laws and regulations, industry codes of conduct, corporate ethics and other rules
Evolution of technology	▪ If the development of leading-edge technologies is delayed, we will lose business opportunities.	Create ground-breaking innovations, strengthen competitive superiority and contribute to industry and social issue resolution and growth
Information security	▪ If confidential information is leaked, social credibility will decline, and compensation for damages will be required. ▪ If a cyberattack or natural disaster occurs, our business will stagnate.	Build a rock-solid information infrastructure by strengthening information security, and improve information literacy

Stakeholder Engagement

We examined the opinions and requests obtained through engagement opportunities with stakeholders.

Stakeholders	Main Engagement Opportunities	Key Opinions and Requests
Shareholders/investors	▪ Earnings release conference, Medium-term Management Plan briefing, IR Day ▪ IR conference, IR road show[1], individual IR interview ▪ Shareholders' Meeting	▪ Medium- to long-term enhancement of corporate value and measures for such enhancement ▪ Initiatives for highly effective governance ▪ Capital policy, including shareholder return
Customers	▪ Technology conference ▪ Joint development ▪ Customer satisfaction survey	▪ Provision of innovative technologies for the future ▪ Maximization of productivity using high-value-added service ▪ Proposal of comprehensive and optimal solutions
Suppliers	▪ Production update briefing ▪ TEL Partners Day ▪ Sustainability assessment (including E-COMPASS) ▪ STQA[2] audit	▪ Sharing aspects such as market and technology trends and information on production plans in a timely manner ▪ Encouraging understanding regarding expected quality standards, compliance with industry code of conduct, etc. ▪ Further improving added value of products and service through collaboration with us
Employees	▪ Employee meeting ▪ Global engagement survey ▪ Individual workshops	▪ Sharing of initiatives for corporate policy and Medium-term Management Plan ▪ Opportunities for career development and skill improvement ▪ Creation of work environments in which diverse human resources can thrive
Local communities	▪ TEL FOR GOOD (social contribution activities) ▪ Tours of plants and offices ▪ Environmental debriefing	▪ Cooperation with companies regarding regional revitalization and development ▪ Promotion of environmental conservation ▪ Human resource development and generation of innovation
Governments/associations	▪ Cooperation with the government and administrative agencies ▪ Collaboration with global initiatives ▪ Industry group activities	▪ Collaboration toward solving common issues ▪ Create new value through innovation ▪ Building of sustainable supply chains

1   IR road show: IR activities presented directly to shareholders and investors
2   STQA: Supplier Total Quality Assessment

Identified Material Issues

We have come to understand social issues and business environments, considered risks and opportunities, examined the opinions and requests of all stakeholders and identified our material issues. The CEO and those related to sustainability, such as the corporate directors and the executive officers, approved "Product Competitiveness," "Customer Responsiveness," "Higher Productivity," and "Management Foundation" as material issues.

    Based on a strong "Management Foundation" of safety, quality, compliance, governance, and risk management that underpin our business activities, we will be the first to grasp leading-edge technological trends and changing needs, and continuously create next-generation products with overwhelming added value and performance to increase "Product Competitiveness." With our extensive track record in "Customer Responsiveness," we will build absolute trust with our customers and be the sole strategic partner. Furthermore, through "Higher Productivity," which arises from continually pursuing operational efficiency, we will work toward medium- to long-term profit expansion and continuous corporate value enhancement.

Identified Material Issues

Material Issues

Importance to society

Importance to business

Material Issues		Priority Themes
Product Competitiveness	▪ Continuously create high value-added next-generation products	▪ Tackling technological innovation
Customer Responsiveness	▪ Strong relationship based on trust/Sole strategic partner	▪ Solutions that create value for customers ▪ Improvement of customer satisfaction
Higher Productivity	▪ Pursuit of operational efficiency	▪ Continuous of business operations ▪ Quality management ▪ Improvement of customer productivity/yield
Management Foundation	▪ Build a strong management foundation that underpins our business activities	▪ Diversity and inclusion ▪ Career development ▪ Work-life balance ▪ Health and safety ▪ Governance ▪ Risk management ▪ Compliance ▪ Environmental contribution of products ▪ Environmental management ▪ Supply chain management

Annual Sustainability Goals for Each Material Issues

We are identifying the priority themes for each material issue, setting annual sustainability goals for each fiscal year, and understanding and verifying the progress of results.

    We have also clearly identified the persons responsible for each goal, and by conducting various activities to achieve said goals, we are in turn contributing to the SDGs and further enhancing our corporate value.

Annual Sustainability Goals and Results
Fiscal Year 2022

Material Issues	Priority Themes	Annual Sustainability Goals	Results
Product Competitiveness	Tackling technological innovation	▪ Ensure that 20% or more (three-year moving average) of all equipment models are new products for next-generation technologies	▪ 24.1%
		▪ Maintain the previous year's global patent application rate[1] (±10 percentage points)	▪ Maintained the previous year's rate (Achieved 74.3% in fiscal year 2021 and 74.6% in fiscal year 2022)
Customer Responsiveness	Solutions that create value for customers	▪ Increase Tokyo Electron's value to customers	▪ Both orders and sales increased significantly due to higher demand for semiconductors
		▪ Increase sales-in-field solutions business by 5% or more from the fiscal year 2021 level	▪ Increased by 33% from previous fiscal year
	Improvement of customer satisfaction	▪ Achieve evaluations of "Very Satisfied" or "Satisfied" for 100% of customer satisfaction survey responses[2]	▪ 100% (All 30 questions)
Higher Productivity	Continuous improvement of business operations	▪ Target a 10% improvement in operational efficiency as a medium- to long-term goal, achieve centralized data management through adoption of a new enterprise resource planning (ERP) system, and build a business foundation where employees can focus even more on higher value work (1) Adopt ERP at headquarters (2) Prepare to adopt ERP at manufacturing sites in Japan and overseas subsidiaries	(1) Completed adoption of ERP at headquarters (2) Implemented preparations to adopt ERP at manufacturing sites in Japan and overseas subsidiaries
	Quality management	▪ Check the impact of important common issues and thoroughly implement measures to prevent recurrence of similar faults	▪ Continued and thoroughly operated QA-BOX[3] ▪ Held regular monthly meetings to decide how to respond to issues posted on the QA-BOX and ensure that the entire Group is involved
		▪ Verify the effects of strengthening the quality information environment	▪ Continued to regularly update and operate the Quality Dashboard[4] ▪ Conducted surveys and set KPIs for effectiveness verification
	Improvement of customer productivity/yield	▪ Promote Shift Left[5] (front-loading) activities for quality	▪ Reported at the Quality Council on measures[6] and issues due to rework after defects occur ▪ The Quality Domain Subcommittee has been working to improve the environment for strengthening analytical capabilities and promoting the improvement of equipment and parts quality
		▪ Identify risks and thoroughly implement countermeasures from the initial development stage (thorough prevention)	▪ Examine and define what the quality domain aims to be
Management Foundation	Diversity and inclusion	▪ Conduct a diversity-conscious talent pipeline (plan for developing human resources for the succession planning) and achieve the goal of increasing the ratio of female in management positions	▪ Identified the talent pipeline in each organization ▪ Identified the gap between the medium-term target and the actual status of the ratio of female managers
		▪ Implement initiatives to make the ratio of female recruits equal to or greater than the general ratio of females[7] in each region	▪ Increased ratio of female engineers hired in April 2022 to 12% from 6% in the previous year (Japan)
		▪ Create an organizational system where even those from outside of Japan can take on corporate roles through the use of technology and shared global human resources systems	▪ Implemented a reporting system mechanism that operates globally for some functions
	Career development	▪ Foster a culture of learning and development in the workplace through (1) Leader development programs (2) Provision of personalized global learning opportunities (3) Support for career development throughout working life	(1) Conducted leader training (e.g., management skills training) Total: 425 participants (Japan) (2) Conducted external web-based education Total: 988 participants (Japan) (3) Conducted generation-specific career training Total: 371 participants (Japan) Number of Career Counseling Room users: 98 (Japan)
	Work-life balance	▪ Reach at least 70% take-up rate of annual paid leave	▪ 64.6% (Japan)
	Health and safety	▪ Increase the percentage of employees receiving specific health guidance to 60% (figures based on the results of medical checkups up to the end of fiscal year 2024)	▪ Strengthened promotion of specific health guidance to eligible persons to improve the implementation rate by increasing opportunities for interviews by enhancing online interviews
		▪ Reduce the number of workplace injuries per 200,000 work hours Target: the total case incident rate (TCIR) is less than 0.50	▪ 0.30
	Governance	▪ Continue to improve on issues identified in evaluations of the effectiveness of the Board of Directors	▪ Reported to and discussed with the Board of Directors on the status of sustainability, human capital, intellectual property, and internal audit ▪ Conducted external evaluation to strengthen internal audit system ▪ Developed Shareholder Relations (SR) activities with institutional investors with an awareness of general shareholders' meeting proposals and sustainability-related issues ▪ Increased off-site meetings from once to twice a year to discuss medium- to long-term strategies and the governance system.
	Risk management	▪ Promote an integrated risk management system throughout our Group (1) Ongoing rollout of Control Self-Assessment (CSA) (2) Unified classification and response to risks to the entire Group (3) Launch of internal education program Roll out in Japan in fiscal year 2022 and overseas in fiscal year 2023	(1) Continued operation of the PDCA cycle throughout the entire Group (quarterly monitoring of risk catalog, semi-annual meetings of the Risk Management Committee (2) Conducted assessments by external organizations on the risk catalogs that centralize risks for the entire group (3) Conducted workshops for management class and elementary web-based education for employees
	Compliance	▪ Continuous cultivation of a compliance culture (1) Provide Code of Ethics training and achieve a pledge rate of 100% (2) Implement and improve a compliance survey (3) Achieve 100% recognition of the internal hotline among employees	(1) 91.6% (2) Reviewed the objectives and details of the survey based on the results of the third-party assessment to implement the survey (3) 91.6%
	Environmental contribution of products	▪ Reduce per-wafer emissions of CO_2 by 30% (by fiscal year 2031, compared with fiscal year 2019)	▪ Reduced by 10.7% (compared with fiscal year 2019)
		▪ Reduce the amount of the use of wooden packaging materials by 50% (packaging for semiconductor production equipment, by fiscal year 2024)	▪ Reduced by 8.6% (switchover percentage to reinforced cardboard)
	Environmental management	▪ Reduce total CO_2 emissions at plants and offices by 70% (by fiscal year 2031, compared with fiscal year 2019)	▪ Reduced by 48.5% (compared with fiscal year 2019)
		▪ Rate of 100% renewable energy usage at plants and offices (by fiscal year 2031)	▪ 60.3% adopted (electricity switchover percentage)
		▪ Reduce energy consumption by 1% YoY at each plant and office (per-unit basis[8])	▪ Achieved goal at 7 of 11 plants or offices
		▪ Maintain water consumption (per-unit basis[9]) at each plant and office at the fiscal year 2012 level in Japan and at individual base year levels overseas	▪ Achieved 7 of 14 goals
	Supply chain management	▪ Implement supply chain sustainability assessments for the following percentages of suppliers Material suppliers: Covering at least 80% of our procurement spend Logistics suppliers: 100% of customs-related operators Staffing suppliers: 100% of employment agencies and contracting companies (internal contractors)	▪ Material suppliers: Achieved 80% or more of our procurement spend ▪ Logistics suppliers: Achieved 100% of customs-related operators ▪ Staffing suppliers: Achieved 100% of employment agencies and contracting companies (internal contractors)
		▪ Implement supply chain BCP[10] assessments for the following percentages of suppliers Material suppliers: Covering at least 80% of our procurement spend	▪ Material suppliers: Achieved 80% or more of our procurement spend

1 Global patent filing rate: Percentage of inventions filed as a patent application in multiple countries 2 For each question, average score is calculated for all customers who responded 3 📖 QA-BOX: Refer to Measures to Prevent Quality Problems from Occurring and Recurring on p. 29
4 Collected, analyzed, processed and concisely summarized data and summarized in tables, graphs, etc. 5 📖 Shift Left: Refer to p. 16 and Ensuring Self-process Assurance Systems and Promoting Shift Left on p. 28
6 📖 Self-process Assurance: Refer to Ensuring Self-process Assurance Systems and Promoting Shift Left on p. 28 7 The ratio of females majoring in science or engineering in the case of engineers
8 Per-unit basis: Calculated using complex weighting of the number of developed evaluation machines, units produced, floor area and labor-hours for each district 9 Per-unit basis: Calculated based on floor area and labor-hours, etc., for each district 10 BCP: Business Continuity Plan

Fiscal Year 2023

Material Issues	Priority Themes	Annual Sustainability Goals	Initiatives to the SDGs
Product Competitiveness Continuously create high value-added next-generation products	Tackling technological innovation	▪ Increase research and development (R&D) investment to be 1 trillion yen or more over 5 years (fiscal year 2023 to 2027) ▪ Maintain the previous year's global patent application rate (±10 percentage points)	
Customer Responsiveness Strong relationship based on trust/Sole strategic partner	Solutions that create value for customers	▪ Increase Tokyo Electron's value to customers ▪ Increase sales-in-field solutions business by 5% or more from the fiscal year 2022 level	
	Improvement of customer satisfaction	▪ Achieve evaluations of "Very Satisfied" or "Satisfied" for 100% of customer satisfaction survey responses	
Higher Productivity Pursuit of operational efficiency	Continuous improvement of business operations	▪ Target a 10% improvement in operational efficiency as a medium- to long-term goal, achieve centralized data management through adoption of a new ERP system and build a business foundation where employees can focus even more on high-value work (1) Launch ERP introduction to overseas subsidiaries (2) Prepare for ERP introduction to domestic manufacturing sites	
	Quality management	▪ Check the impact of important common issues and thoroughly implement measures to prevent recurrence of similar faults ▪ Strengthen the information environment for more accurate quality status and promote improvement activities	
	Improvement of customer productivity/yield	▪ Identify root causes of market failures and promote and strengthen Shift Left (front-loading) initiatives by thoroughly implementing countermeasure activities ▪ Identify risks and thoroughly implement countermeasures from the initial development stage (thorough prevention)	
Management Foundation Build a strong management foundation that underpins our business activities	Diversity and inclusion	▪ Recruit and develop world-class human resources regardless of nationality, age, gender, etc., in order to realize an optimal organization and optimal placement of the appropriate personnel to execute our business strategy ▪ Conduct a diversity-conscious talent pipeline (plan for developing human resources) for succession planning and achieve the goal of increasing the ratio of female managers[1] to 8% globally and 5% in Japan (by fiscal year 2027) ▪ Implement initiatives to make the ratio of female recruits equal to or greater than the general ratio of females in each region ▪ Create an organizational structure where even those from outside of Japan can take on corporate roles through the use of technology and shared global human resources systems ▪ Implement a personnel exchange program for engineers at overseas subsidiaries and domestic manufacturing sites ▪ Share the message of top management's commitment to promoting diversity and inclusion and its continued dissemination	
	Career development	▪ Foster a culture of learning and development in the workplace through (1) Leader development a culture of business ethics and compliance (2) Provision of personalized global learning opportunities (3) Support for career development throughout working life	
	Work-life balance	▪ Reach at least 70% take-up rate of annual paid leave	
	Health and safety	▪ Increase the percentage of employees receiving specific health guidance to 60% (figures based on the results of medical checkups up to the end of fiscal year 2024) ▪ Reduce the number of workplace injuries per 200,000 work hours Target: TCIR is less than 0.50	
	Governance	▪ Continue to improve on issues identified in evaluations of the effectiveness of the Board of Directors	
	Risk management	▪ Further strengthen the PDCA cycle ▪ Continue to implement internal education programs ▪ Implement company-wide risk management tools	
	Compliance	▪ Continue to foster a culture of business ethics and compliance (1) Strengthen efforts to continuously communicate the CEO message and foster a culture of business ethics and compliance (2) Continue to improve and implement a compliance program[2] based on compliance risk assessments (3) Systematic implementation and effective review of various compliance training programs	
	Environmental contribution of products	▪ Reduce per-wafer emissions of CO_2 by 30% (by fiscal year 2031, compared with fiscal year 2019) ▪ Reduce the amount of the use of wooden packaging materials by 50% (packaging for semiconductor production equipment, fiscal year 2024) ▪ Reduce CO_2 emissions of overall logistics (own delivery) by 10% (by fiscal year 2027)	
	Environmental management	▪ Reduce total CO_2 emissions at plants and offices by 70% (by fiscal year 2031, compared with fiscal year 2019) ▪ Rate of 100% renewable energy usage at plants and offices (by fiscal year 2031) ▪ Reduce energy consumption by 1% YoY at each plant and office (per-unit basis) ▪ Maintain water consumption (per-unit basis) at each plant and office at the fiscal year 2012 level in Japan and at individual base year levels overseas	
	Supply chain management	▪ Implement supply chain sustainability assessments for the following percentages of suppliers Material suppliers: Covering at least 85% of our procurement spend Logistics suppliers: 100% of customs-related operators Staffing suppliers: 100% of employment agencies and contracting companies (internal contractors) ▪ Implement supply chain BCP assessments for the following percentages of suppliers Material suppliers: Covering at least 85% of our procurement spend	

1 Include experts in the number of managers 2 Compliance program: 📖 Refer to Compliance System on p. 39

169 Targets of the SDGs

Material Issues	Relationship with the SDGs / Priority Issues	3 GOOD HEALTH AND WELL-BEING	5 GENDER EQUALITY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS	Actions under 169 Targets	Listed Pages
Product Competitiveness	Tackling technological innovation				9.2/9.4/9.5			13.1			■ Promote inclusive and sustainable industrialization ■ Enhance resource use efficiency and expand the introduction of clean technologies and environmentally sound technologies ■ Support scientific research in the industrial sectors of all countries and enhance technological capabilities	📖 P. 18
Customer Responsiveness	Solutions that create value for customers				9.4/9.b		12.5				■ Diversify industries and create added value in products ■ Enhance resource use efficiency and expand the introduction of clean technologies and environmentally sound technologies ■ Prevent and reduce the generation of waste and reduce waste through recycling and reuse	📖 P. 21
	Improvement of customer satisfaction				9.4							📖 P. 24
Higher Productivity	Continuous improvement of business operations			8.2							■ Raise economic efficiency through diversification, technological enhancement and innovation ■ Reduce environmentally sound chemical substances and waste ■ Prevent and reduce the generation of waste and reduce waste through recycling and reuse	📖 P. 26
	Quality management			8.2			12.2/12.4/12.5					📖 P. 28
	Improvement of customer productivity/yield			8.2			12.2/12.4/12.5					📖 P. 28
Management Foundation	Diversity and inclusion		5.1/5.5/5.b/5.c						16.2/16.7	17.16	■ Promote gender equality and ensure equal opportunity and equalities of outcome ■ Ensure equal opportunity and equalities of outcome by encouraging suitable legislation and taking other measures ■ Reduce organic chemical substances and air, water, soil and other pollution ■ Reduce corruption and bribery in all forms ■ Reinforce resilience and adaptive capacity to climate change-related hazards and natural disasters ■ Reinforce global partnerships to achieve sustainable development	📖 P. 42
	Career development		5.5	8.2		10.2/10.3						📖 P. 42
	Work-life balance	3.9										📖 P. 44
	Health and safety	3.9										📖 P. 45
	Governance											📖 P. 31
	Risk management											📖 P. 36
	Compliance								16.5			📖 P. 39
	Environmental contribution of products	3.9						13.1				📖 P. 53
	Environmental management							13.1				📖 P. 47
	Supply chain management		5.1						16.2			📖 P. 55

Value Creation Model

We will make the most of the capital we own and continue to provide new value that contributes to the resolution of issues and development of industry and society through the development of a value chain in our business activities in R&D, procurement and manufacturing, sales and installation and maintenance services.

INPUT (investment capital) FY2022

Financial capital
Net assets **1,347.0** billion yen
Equity ratio **70.5**%
Total assets **1,894.4** billion yen

Manufactured capital
Manufacturing sites **9** total (6 in Japan and 3 overseas)
Manufacturing-related capital investment, such as new plant buildings and manufacturing equipment
Increasing of production capacity and leveling
Many years of know-how and proven performance in manufacturing operations

Intellectual capital
R&D sites **12** total (6 in Japan and 6 overseas)
R&D investment **158.2** billion yen
Broad-ranging knowledge and technological capabilities in semiconductor and flat panel display (FPD) manufacturing processes
Customer requests and technology trends
Equipment-related data accumulated through AI and knowledge management
Systems and know-how for promoting digital transformation

Human capital
Number of employees **15,634**
Proportion of engineers **67.1**%
Personnel able to perform globally
Human resource development through TEL UNIVERSITY

Social and relationship capital
Relationship of mutual trust with customers built through many years of performance records
Solid cooperative working relationships with suppliers
Foundation for business activities in local communities

Natural capital
Energy consumption **100,265** kL
Water consumption **1,417,000** m³

The driving forces behind our Company

Abundant technological capabilities cultivated as an industry leader
Absolute trust from customers based on our reliable technical services
Challenging spirit of our employees who are capable of flexibly and rapidly adapting to changes in the environment

Installation and Maintenance Services
Support the stable operation of equipment and provide prompt and accurate high-value-added service

Research and Development
Continuously strengthening R&D to create innovative and unique technologies in a timely manner

TEL

Procurement and Manufacturing
Efficiently manufacturing high-quality products backed by a sustainable supply chain

Sales
Propose optimal solutions as the sole strategic partner

OUTPUT

Semiconductor Production Equipment/ FPD Production Equipment Field Solutions

OUTCOME (created value) FY2022

Financial capital
Net sales **2,003.8** billion yen
Operating margin **29.9**%
Net income **437.0** billion yen
ROE **37.2**%
Total annual dividend **219.3** billion yen (payout ratio: 50%)

Manufactured capital
Cumulative number of equipment installations Approximately **82,000** units (annual shipment volume of approximately 6,000 units)
High-quality and high-reliability products incorporating leading-edge technologies
Safety-first operation (TCIR) **0.30**
Optimized and efficient production system
Observing equipment delivery and installation schedules

Intellectual capital
Innovative, high-value-added unique technologies
Product lineup with No. **1** or No. **2** semiconductor production equipment market share and proposals that leverage this
Number of patents owned **19,572**
Highly efficient and high-quality service

Human capital
Retention rate[1] **96**%
Improvement in desire for growth and demonstration of the challenge spirit in employees, who both create and fulfill Company value
Building of relationships of trust with stakeholders by employees with a high level of engagement
Ratio of female managers **5.5**%

Social and relationship capital
Percentage of respondents who selected "Very Satisfied" or "Satisfied" in the customer satisfaction survey[2] **100**%
Rate of improvement after supply chain sustainability assessment **31.5**% (compared to FY2021)
Number of TEL FOR GOOD programs **155**
Creating employment opportunities in and paying taxes to local municipalities and nations where we carry out business activities

Natural capital
Per-wafer CO_2 emissions **10.7**% reduction (compared to FY2019)
Renewable energy consumption **230,218** MWh
Energy consumption at plants and offices per net sales **26**% reduction (compared to FY2021)
Waste material recycling rate **98.1**%

IMPACT (impact on industry and society)

Financial capital
- Returning generated profit to stakeholders
- Continuing proactive investment for growth by building a solid financial foundation

Manufactured capital
- Contributing to improved productivity in customer product manufacturing (utilization rate and yield)
- Contributing to the growth of the semiconductor and FPD markets

Intellectual capital
- Contributing to the further development of industry and society through semiconductor and FPD technological innovation
- Contributing to the building of fair and sound markets that respect intellectual property

Human capital
- Creating a workplace environment replete with dreams and vitality that enables employees to realize their full potential
- Improving value provided to stakeholders

Social and relationship capital
- Contributing to the value creation and continuous growth of customers
- Maintaining soundness and strengthening competitiveness throughout the entire supply chain
- Contributing to the revitalization of and sustainable development in local communities

Natural capital
- Contributing to the preservation of the global environment through environmentally friendly products and business activities as well as collaboration with suppliers
- Contributing to customer manufacturing of semiconductors and FPDs that have a low environmental impact as well as customer business activities

Realization of Vision and Practice of Corporate Philosophy

1 Calculated using data on turnover rate 2 For each question, average score is calculated for all customers who responded

Product Competitiveness

Research and Development   P. 16

Tackling Technological Innovation   P. 18

SDGs Initiatives

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- Create innovative technologies and contribute to the development of a sustainable society through the promotion of innovation
- Promote inclusive and sustainable industrialization
- Promote scientific research and improve technological capacity in the industrial sector of every country

13 CLIMATE ACTION
- Contribute to the reduction of environmental impact company-wide by providing products and services that are conscious of the environment
- Improve resource use efficiency and expand the introduction of clean and environmentally-friendly technologies

17 PARTNERSHIPS FOR THE GOALS
- Strengthen global partnerships for sustainable development

- Create the best, high-value-added equipment with innovative technology in a timely manner through the development of product marketing and the global promotion of R&D with an eye on future generations
- Boost competitiveness by assigning personnel at research, development and production sites worldwide, including corporate headquarters, to promote intellectual property (IP) management, and by building IP portfolios aligned with technology and product strategies
- Continuously strive to reduce the environmental impact of equipment and provide technology that contributes to the development of devices with even lower power consumption, to preserve the global environment
- Strengthen product competitiveness by deploying digital transformation, through the use of digital technology as "leverage" to improve added value and efficiency

Research and Development

Research and Development for the Future

With the evolution of ICT, electronics are more and more indispensable to people's lives. In addition, there is an increasing need to realize both the development of a data-driven society and preservation of the global environment, with the growing demand for semiconductors and displays, which is the base of ICT and increasing global awareness of the environment. The performance required of semiconductors and displays is also becoming more diversified.

In order to contribute to the development of a dream-inspiring society, Tokyo Electron is engaged in R&D with an eye on the future to capture changes in society, including innovations in manufacturing technology and the pursuit of ultra-efficient productivity.

Market Heading toward Diversification
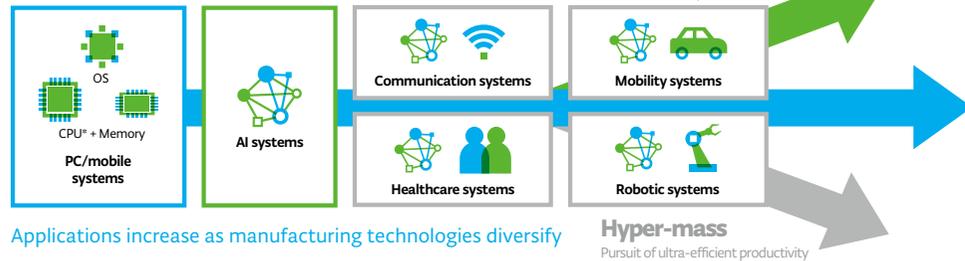
* CPU: Central Processing Unit. A semiconductor chip that serves as the brain of a computer.

Development System

As semiconductor production technology grows more diverse and in order to bring high-value-added products to the market in a timely fashion, we have built a system that promotes R&D and technological innovation for the next generations with collaboration between the Development & Production Group and the Business Group.

In addition, we share technology roadmaps spanning multiple generations for the future with our customers, and by working with relevant divisions across the Company we accelerate the development of equipment with solutions that anticipate market needs.

Specifically, the Corporate Innovation Division, which is headed by the CEO, along with the development divisions of the manufacturing sites in Japan and the marketing departments of business units, are leading efforts to enhance process integration capabilities and promote digital transformation* (DX) using AI technology. In addition, in January 2022 we established the Digital Transformation Promotion Department to further strengthen the promotion of DX.

Furthermore, as demands from society escalate with regard to the environment, health and safety, the Global Environment and Safety Council is playing a central role in promoting the review and formulation of basic policies, and each of our manufacturing sites in Japan are also building a development system that takes into account the environment and health and safety.

* Digital transformation: 📖 Refer to Strengthening of Product Competitiveness through Digital Transformation (DX) on p.18 and 📖 refer to Higher Productivity through Digital Transformation (DX) on p.26
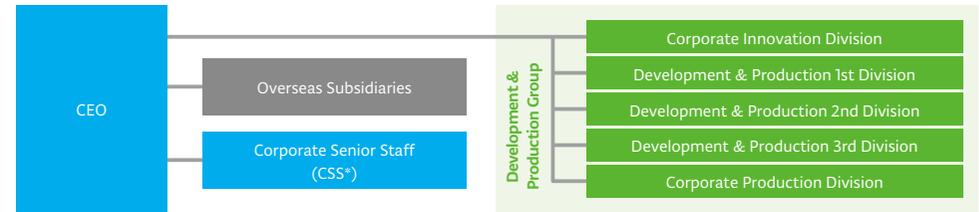
* CSS: Composed of the Vice President and General Managers of Tokyo Electron, Presidents from overseas subsidiaries

Shift Left

We are focused on using the Shift Left approach, investing resources such as technology, personnel and expense into the early processes of product development. Through this approach, we are endeavoring to develop various technologies and conducting research for multiple future generations in order to realize the technology roadmaps we have created with customers.

In fiscal year 2022, we continued working on using less space for equipment, which is one thing our customers require. By optimizing the layout of equipment in cleanrooms, we enhanced the productivity per unit area of equipment, and also contributed to reducing environmental impact. Furthermore, through activities for E-COMPASS*, an initiative for building sustainable supply chains, we are also pursuing more efficient product development from an environmental perspective in partnership with our suppliers.

Through promoting the Shift Left approach we gain an understanding of customer needs at an earlier stage, and by reflecting the information obtained from feedback into our R&D and proposing superior products, we are contributing to maximizing yield for customer devices and capacity utilization of their mass production line equipment.

We are also promoting on-site collaboration for early delivery of evaluation equipment to customers' fabs and development and research laboratories, and are working to accelerate the process in which R&D is reflected in mass production equipment as well as to optimize development efficiency.

- Joint development of technology roadmaps spanning multiple generations
- Promotion of early engagement
- Maximization of yield for customer devices and equipment operating rate from early stages of mass production, and also reduction of environmental impact
- Promotion of improvement in work efficiency and per person productivity, and further increase in investments into human resources and development
- Increase in equipment efficiency per unit area by achieving higher productivity and using less space

* 📖 E-COMPASS: Refer to E-COMPASS Initiative on p.46

Product Marketing

We are endeavoring to further enhance the productivity of product development by having our sales departments and product marketing departments appropriately fulfill their respective roles.

Our sales departments are responsible for ensuring that products and services are provided based on solid relationships of trust with customers.

Meanwhile, our product marketing departments work to plan and realize products that meet the future needs of customers in target markets, such as development planning to increase the value of products and services, and the examination of value-adding mechanisms. In conducting these initiatives, in addition to considering new products and functions based on the seeds of our development divisions, they also formulate plans for optimal collaboration including tie-ups with partner companies and consortiums.

Our sales departments and product marketing departments work together in developing product marketing activities that anticipate market needs and contribute to customers' products, and in doing so, help improve our product competitiveness and promote our Shift Left approach.

Roles of Sales Departments and Product Marketing for Product Development
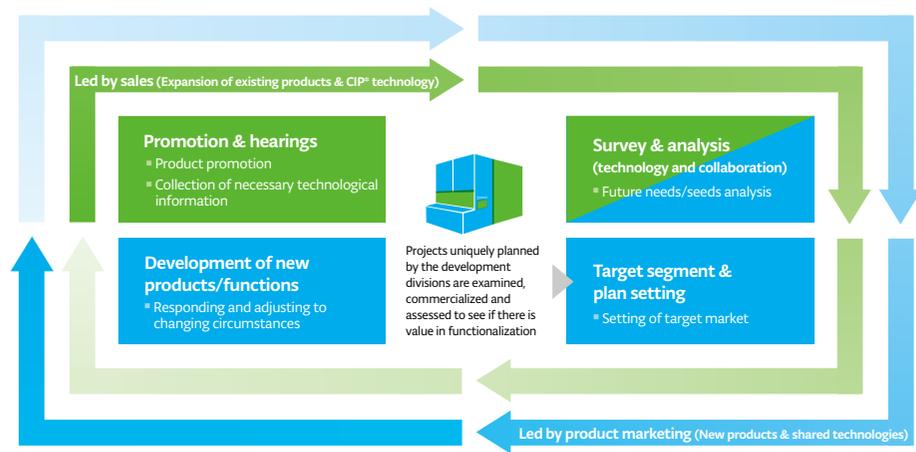
* CIP: Continuous Improvement Program

Collaboration with Consortiums and Academia

We have focused on collaborative efforts with domestic and international consortiums and academic institutions (universities) to enhance our R&D capabilities and to create leading-edge technologies for a very long time.

Today, we continue our engagement in a wide range of areas from applications to product development. In the area of EUV and high-NA EUV[1] lithography processes[2], this is achieved through collaboration with imec located in Belgium. Furthermore, we participate in a global research hub for hardware development of next-generation AI in the U.S. state of New York, and have formed a partnership with BRIDG[3], which is a non-profit public-private partnership located in the U.S. state of Florida, as well. At our research center in TEL Technology Center, America[4], advanced R&D in the areas of front-end, back-end[5], and advanced packaging process areas are being carried out daily.

Additionally, we collaborate with the National Institute of Advanced Industrial Science and Technology (AIST), one of

1 EUV and high-NA EUV: Extreme Ultraviolet. Ultraviolet radiation (ultraviolet rays) in the wavelength range of 1 to 100 nm. High-NA EUV refers to next-generation EUV.
2 📖 Refer to Lithography Process on p. 5
3 BRIDG: Bridging the Innovation Development Gap (BRIDG) provides the physical foundry infrastructure and collaborative process to connect challenges and opportunities with solutions making commercialization possible.
4 TEL Technology Center, America: Our R&D center in the U.S.
5 Front-end/Back-end: In semiconductor device production, the beginning section of the manufacturing process where the device element is formed is called the front-end (FEOL), and the latter section is called the back-end (BEOL) where the wiring is traditionally accomplished.

Japan's largest public research institutions. There we leverage AIST's world-class research environment and personnel to enhance our own development by conducting MRAM[1] and 2D material-related research. We do this to address the needs in the field of semiconductor technology development, which is becoming increasingly diverse.

From fiscal year 2022, we are also participating in iSyMs[2], an open consortium led by the Tokyo Institute of Technology and the University of Tokyo, to broaden the scope of our collaboration. We have also been working with SRC[3], a globally known U.S. consortium, and contributed to the production of the Decadal Plan for Semiconductors[4] published in October 2020.
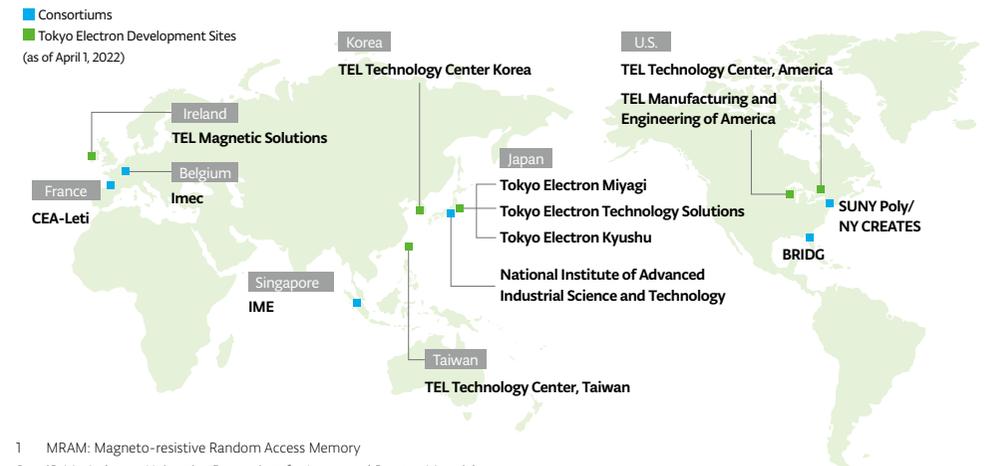
1 MRAM: Magneto-resistive Random Access Memory
2 iSyMs: Industry-University Consortium for Integrated System-Materials
3 SRC: Semiconductor Research Corporation. An advanced research and technology consortium active in the semiconductor industry.
4 The report that explains the potential of semiconductors over the next 10 years and the challenges that must be overcome to realize the vision.

■ Joint Research Selection Program with Academic Institutions

Since 2018, we have been conducting a joint research selection program with academic institutions. The aim is to discover and collaborate on advanced elemental technology research pertaining to semiconductors. Under this program, 23 themes have been selected over the past four years, and a variety of joint research projects are currently underway.

Although applicants are free to propose any research topic, we adopt proposals that (1) meet our technological needs and show original perspectives and ideas only possible in academia and (2) are expected to improve our technical and planning capabilities and contribute to the expansion of our business domain in the future.

Technical advisors selected from our development divisions, business units (BUs) and manufacturing sites in Japan are responsible for selecting the topics, with subsequent joint research activities managed by the administrative staff. The research period is up to three years but is extendable if valid results are confirmed during the regular term.

We will continue to promote the selection program in order to contribute to the development of semiconductor-related technologies and devices, as well as to the advancement of science and technologies by revitalizing research activities in academia.

Intellectual Property Management

We are promoting intellectual property (IP) management based on the fundamental principles that IP protection supports business activities and leads to an increase of corporate profits.

In order to achieve sustainable growth in the semiconductor industry, where the growth is driven by technological innovation, we are globally expanding our R&D activity including industry-academia collaborations. As well as at corporate headquarters, we have allocated IP professionals at R&D and production sites around the world to evaluate projects from various angles such as R&D and marketing perspectives, and we are striving to enhance our competitiveness through building IP portfolios aligned with our technology and product strategies.

In 2021, the number of inventions created in Japan was 1,269 and 225 in other countries. The global patent filing rate has been approximately 70% for 10 consecutive years, and the approval rate of the filed patents has reached 79% in Japan and 83% in the United States. As proven by these statistics, we maintain our competitive advantage in the IP domain at the global level. Over the last two years, we have collaborated with partner companies and research institutes such as universities around the world and have succeeded in filing 43 joint patent applications together with 15 companies and 16 organizations.

As a result of these activities, we were selected as one of the "Clarivate Top 100 Global Innovators 2022." In this award, Clarivate, a global information service company, makes an original evaluation based on patent data, and once a year selects "companies or institutions providing new value to the world with capabilities, consistency, incredible creativity, and new thinking."

Tackling Technological Innovation

Research and Development for Next-Generation Computing

Demand for semiconductors is increasing on a global scale and production is expected to grow even further in the future. Under such conditions, an unchecked increase in power consumption due to the growing use of semiconductors may lead to an energy supply risk in the market. In modern-day computing, focus for edge devices is placed on lower power consumption, but for the server-side the focus is more on performance rather than power consumption. This is in response to the market needs. Therefore in the future, we may need to rethink the balance of Power usage, Performance, Area of silicon, Cost and Environmental impact (PPACE) of our devices in order to address this energy issue. At Tokyo Electron, we recognize these and other issues and are working to resolve them through our semiconductor production equipment business.

One solution to the power efficiency problem is to place memory devices closer to logic devices (computational circuits). By shortening the electrical pathway, one can reduce the electrical resistance and thereby reduce power consumption during information transfer between the devices. Optimization of device architecture using this technique is effective, and development in this area has been gaining momentum in recent years.

Additionally, for logic devices, SoCs[1] that take advantage of the computing characteristics of CPUs, GPUs[2] and NPUs[3] and distribute computational tasks to the most efficient circuits are increasingly popular. This SoC architecture can be built by a monolithic process that does not use bonding technology, but can also be built

using 3D system integration techniques which leverage bonding technology. Also called "heterogeneous integration[4]", 3D system integration technology combines and packages a variety of different materials such as silicon and non-silicon elements, CPUs and DRAMs[5], analog and other electronic components.

In AI technology, development of analog neural devices[6] and nonvolatile resistive random access memories[7] which mimic the energy-efficient human brain function is well underway. Our film deposition technology contributes to this development.

By combining and applying these technologies, we will be able to further reduce power consumption and improve computing efficiencies in a variety of devices.

Realizing next-generation computing requires the development of AI chipsets with an even higher processing speed and greater energy efficiency. By taking maximum advantage of a wide range of technologies and techniques from semiconductor production, we are working to create high-value-added equipment that can help meet one of the next-generation computing needs of bringing computer performance closer to that of the human brain. We are expanding the technological areas in which we can contribute by developing new materials and boosting the performance of chipsets through 3D system integration equipment offerings, which in turn optimize the power efficiency of semiconductors by realizing next-generation computing requirements.

We are also working on the development and application of quantum computing technology for the next generation and beyond.

1 SoC: System on a Chip, a design technique in which many or all of the functions required for system operation are mounted on a single semiconductor chip, or a chip built using this technique.
2 GPU: Graphics Processing Unit, a dedicated electronic circuit designed to manipulate and modify memory to speed up the generation of images used for displays.
3 NPU: Neural network Processing Unit, a processor dedicated to AI that incorporates a neural network that is modeled after the human cranial nervous system.
4 Heterogeneous Integration: Packaging that unites different kinds of chips
5 DRAM: Dynamic Random Access Memory. A type of semiconductor memory used in the main storage unit (or other electronic devices) of a computer as a large-capacity working memory
6 Analog neural devices: Electronic devices capable of continuously changing resistance
7 Nonvolatile Resistive random access memory: Random access memory that uses nonvolatile resistive memory elements.

Strengthening of Product Competitiveness through Digital Transformation (DX)

DX, which is expanding globally across all industries, is accelerating in the semiconductor and flat panel display production equipment industries as a method to resolve a variety of issues that are becoming more complex every year.
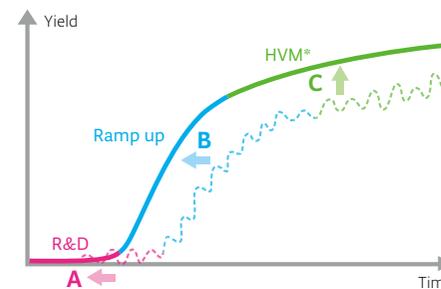
* HVM: High Volume Manufacturing

Data application and Use Opportunities	Examples
A Shortening business processes for research and development	Accelerating the customer proposal process based on accurate simulations
B Shortening the time to mass production	Reduced mechanical error difference, automatic adjustment functions
C Improving productivity/ product yield	Predictive maintenance, fault detection, process adjustment functions via monitoring and analysis functions

Having positioned DX as an important part of the solution for the demand for further miniaturization and multi-layering of semiconductors, we formulated the TEL DX Vision in January 2021 to become "a global company where all employees drive enterprise value creation sustainably through activities such as value addition and efficiency improvements by leveraging digital technology." We will make full use of a variety of digital enablers*, aim to resolve high-level problems via a cycle of 1) monitoring, 2) analysis and prediction, 3) control and 4) autonomy, and further strengthen the competitiveness of our production equipment.

* Enablers: People, organizations, factors and means that enable success and achievement of objectives

Digital Enablers	Added Value Creation / Improved Capital Efficiency	Achieving Goals

Digital Enablers
- High-performance computing
- Cloud infrastructure
- AI technology, IoT, xR*

Surrounding Environment
- Progress in data sharing and collaboration in supply chains
- High expectations of robots and AI and support of humans

Added Value Creation / Improved Capital Efficiency

❸ **Control**
Feedback to the real world

❶ **Monitoring**
Visualization

❹ **Autonomy**
Autonomous learning and decision-making

❷ **Analysis and Prediction**
Analysis and prediction with digitalized data

Achieving Goals
- Issues of a higher dimension

Issues of a higher dimension
- Quality
- Cost
- Speed
- Productivity
- Energy consumption

* xR: Extended Reality. Collective name for Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and Substitutional Reality (SR).

■ **Example Initiative**

We use AI-based machine learning to adjust film coverage by plasma-enhanced atomic layer deposition (PE-ALD)* in order to ensure film deposition with even thickness around the nanosheet structure. As a result of using AI to collect experimental data and optimize the analysis and process, we have established an optimal process for film deposition with high coverage in a short time without damage such as pattern collapse or deformation. Through the use of AI, the amount of wafers and energy used in development is minimized, and engineers are able to engage in high-value-added work without being bound by conventional ideas and practices.

*Plasma-enhanced atomic layer deposition (PE-ALD): Atomic layer deposition is a thin-film deposition technology that uses continuous vapor-phase chemical reactions. PE-ALD is a method of applying plasma to activate a reaction on the substrate.

Result with engineer-created recipe   **Result using machine learning**

Pattern collapse/deformation

Lack of coverage

Evaluation period 3 weeks

No damage

Excellent coverage

50 nm

Evaluation period 1 day
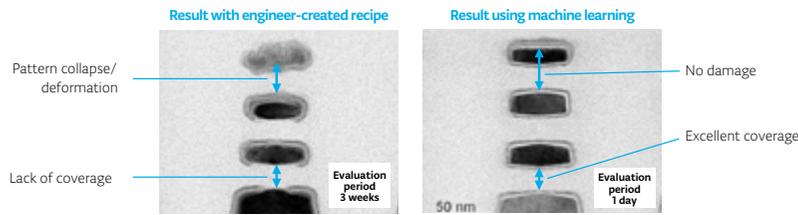
Source: Tokyo Electron Technology Solutions Limited / Tokyo Electron Limited

Comparison of exploration results of a film coverage process in a simulated nanosheet structure using a 300 mm PE-ALD system, conducted by a human engineer and machine learning respectively.

Support for Evolving Displays

In recent years, with the development of ICT, new work options that are not bound by time or place, such as remote work, have expanded. As a result, there have been dramatic changes in areas such as lifestyles and health awareness.

Amid this change, displays are expected to continue to develop and support people's daily lives as an interface between people and data. For example, organic light emitting diode (OLED) displays have evolved to be lighter, thinner and with a higher image quality, and are expected to be used for computers and tablets as well as large screens for televisions and other devices. The key to this widespread use is the establishment of production technology using large substrates, and improving technology to control production defects as well as reducing environmental impact in the manufacturing process are important issues. Larger substrates will contribute to improved production efficiency and reduced manufacturing costs.

Our product lineup in the flat panel display (FPD) market includes the Impressio™ and the Betelex™ FPD etch/ash systems, the Exceliner™ FPD coater/developer and the Elius™ inkjet printing system for manufacturing OLED displays.

Impressio™ and Betelex™ use PICP™[1], a plasma module with improved energy efficiency, reducing power consumption by up to 20% and achieving precise processing and stability during the mass production process. In addition, PICP™ Pro, which was released in 2021 and designed for high-definition displays, enables both yield improvements and mass production stability by reducing the generation of microscopic particles.

The Exceliner™, equipped with our original Air Floating Coater, permits higher throughput[2] while maintaining excellent film uniformity and saving chemical consumption.

We will continue contributing to the further development of diverse display products, tackling effective technological innovation based on market needs such as improving productivity and yield and using energy and materials more efficiently.

1   PICP™: A plasma module that produces extremely uniform high-density plasma on panel substrates
2   Throughput: Processing ability and data transfer amount per unit of time

Customer Responsiveness

Solutions that Create Value for Customers		P. 21
Initiatives for Field Solutions		P. 21
Ensuring Safety for Customers		P. 23
Improvement of Customer Satisfaction		P. 24

SDGs Initiatives

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- Contribute to customer innovation and value creation through the proposal of optimal solutions and innovative technologies
- Diversify industries and create added value for products
- Improve resource use efficiency and expand the introduction of clean and environmentally-friendly technologies

12 RESPONSIBLE CONSUMPTION AND PRODUCTION
- Ensure sustainable forms of production and consumption throughout product life cycles by considering safety and the environment
- Support the stable operation of various generations of equipment while further improving productivity and promoting reuse and recycling
- Prevent waste generation, and reduce waste by reusing and recycling

17 PARTNERSHIPS FOR THE GOALS
- Build strong relationships of trust by strengthening global partnerships with customers

- Contribute to customers that manufacture cutting-edge devices by maintaining an accurate and timely grasp on customer needs and providing innovative technologies for future generations
- Propose optimal solutions that contribute to value creation for customers as a production equipment company with a diverse product range
- Make full use of state-of-the-art AI and digital technologies and provide high-value-added maintenance service that support the stable operation of equipment
- Continuously develop the PDCA cycle to further enhance customer satisfaction, a key management theme since our founding

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Solutions that Create Value for Customers

Systems for Creating Value for Customers

In fiscal year 2022, amid ongoing travel restrictions and other measures due to COVID-19, the transition toward a data-driven society advanced even further and the semiconductor market reached its largest scale ever. As a result, the semiconductor production equipment market, in which Tokyo Electron participates, also grew significantly. In conjunction with this growth, we received more requests and inquiries from customers than ever before.

Our Account Sales Division is promoting new technology development to meet the needs for next-generation leading-edge technology in fields such as memory, logic and foundry. In addition, the Global Sales Division responds to the needs of more than 100 customers in Japan and overseas who deal in communication devices, image sensors, power devices and other products for the rapidly growing Chinese market, and the industrial IoT market.

These two divisions cooperate with business units and global sites that deal in equipment and respond to requests for not only leading-edge devices but also essentially all device applications. As well, they help customers with issue resolution and value creation by providing optimal solutions with an eye to the future.

In addition, we have been working to strengthen the front-line functions that connect our customers' sites and our Company in order to accurately grasp the issues and requirements of our customers in their product development and manufacturing operations, and provide this as feedback to our main development and manufacturing sites in a timely manner. Going forward, we will accelerate R&D by carefully confirming and adjusting long-term technology roadmaps, including key technologies, with customers. Furthermore, we will assign highly skilled customer engineers to our customers' sites and work to improve equipment utilization rates and understanding of the customers' potential needs.

In addition, we are working to improve the technical skills and interpersonal skills of our more than 4,700 field engineers worldwide, install equipment at overseas subsidiaries and enhance information sharing and in-house coordination related to improving work efficiency using the work-time management system in order to further improve product quality and stability in our service and support activities. We aim to provide customers with high-value-added services by utilizing our wealth of knowledge and systems to propose customized solutions for the various challenges they face.

Proposing Customer Solutions Leveraging a Broad Portfolio of Products

We are practicing product development initiated from the customer perspective in order to meet the needs of production sites, such as improved yield and improved equipment efficiency per-unit area through enhanced productivity and smaller footprints. Each division works in close collaboration with one another, such as our Account Sales Division, which identifies customer demands for next-generation technology and beyond, and our Corporate Innovation Division, which reviews the integration of those demands into products.

In addition to developing leading-edge technologies, we are also continuously improving the performance of our mass production equipment, so that we can proactively respond fast and suitably to the needs of our customers spanning multiple generations.

In proposing solutions to customers, we leverage a broad portfolio of products, including those used in the series of each patterning process requiring advanced technological capabilities, such as Deposition, Coater/Developer, Etch and Cleaning. By providing not only manufacturing equipment but also optimal solutions including systems and software, we will support our customers in their pursuit of productivity and quality improvement in semiconductor manufacturing, thereby helping them to optimize their manufacturing processes and enhance their competitiveness.
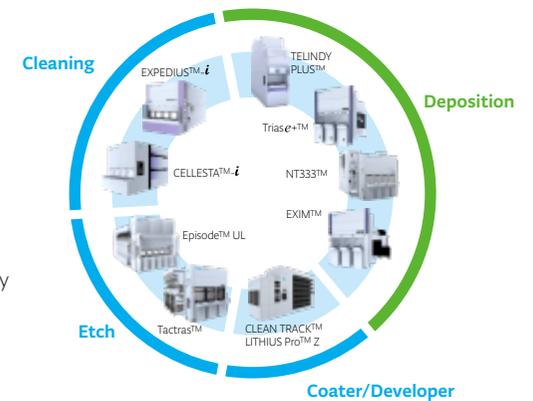
Initiatives for Field Solutions

Field Solutions Business

As demand for semiconductors increases in various fields, such as medicine, finance, transportation and manufacturing, the miniaturization and integration of CPUs and memory devices to achieve higher performance is further advancing. To meet this demand, it is becoming an extremely important issue for our customers to improve the utilization rate of their equipment.

At Tokyo Electron, we are striving to further enhance our field solutions business by promoting knowledge management in field service, continuously improving the skills of field engineers and strengthening our global support system through the Total Support Centers (TSCs)* to ensure that the equipment we ship will operate stably in the market for a long period of time.

Furthermore, in order to comply with various regulations, such as overseas travel restrictions due to COVID-19, we are developing remote maintenance support and educational tools, and are striving to develop a high-value-added field solutions business that contributes to our customers' business operations.

Initiatives to Reduce Environmental Impact

In order to meet the needs of customers producing IoT-related products, etc., we are developing and producing a new reengineered equipment based on the previous generation of 200 mm wafer-compatible equipment. The reengineered equipment replaces old units and components with new ones while maintaining compatibility with existing processes, and achieves the same level of performance as the latest equipment in terms of transfer and other aspects, thereby helping customers improve productivity and reduce their environmental impact.

As part of our efforts to reduce environmental impact, we are also deploying LEAP*, a support service that extends the life cycle of our equipment.

Support for semiconductor production equipment, which consists of tens of thousands of parts, typically ends seven to eight years after discontinuation. The main reason for this is due to the discontinuation of parts or the difficulty in maintaining safety and quality. This has led to the promotion of replacement with newer equipment and the discarding of older equipment. In response to customer needs and in consideration of the SDGs, we began redesigning discontinued parts, and by strengthening and restructuring our support system, including repairs, we are now able to provide extended life cycle support for equipment to more than 15 years after discontinuation. Through these new support services, we are working to reduce equipment disposal and contribute to the continuous use of equipment over a long period of time.

* LEAP: Lifecycle Extension and Availability Program

Total Support Center

We established Total Support Centers (TSCs) in Japan, the United States, China and Europe to support overseas companies through our global network centered around Japan.
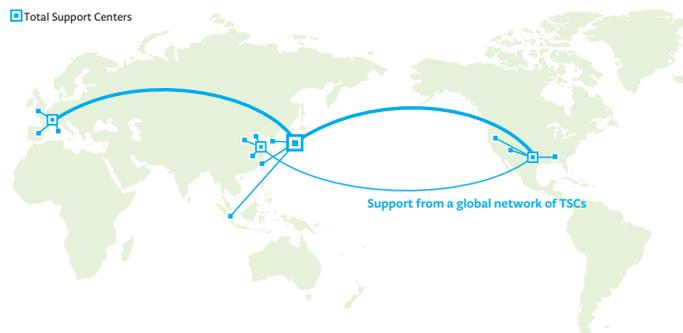
At each TSC, dedicated representatives maintain and utilize a database of information about customers' equipment and examples of similar incidents to strive for better support, and at the same time, conduct remote support service by operating TELeMetrics™ and other systems. In fiscal year 2022, we continued to establish a system where TSCs around the world support each other, taking advantage of time differences in each region, and strove to strengthen our global network. Through these initiatives, we respond to inquiries and problems from customers around the world with even greater speed and precision.

◻ Total Support Centers

Support from a global network of TSCs

Knowledge Management

We promote knowledge management[1] throughout the entire Group so that it can deliver high-quality technical service swiftly. In the area of field service, we have built Service CRM[2] so that we can create a database and centrally manage customer equipment support and trouble histories. Operation of Service CRM has begun in Japan and is currently being rolled out globally.

Our knowledge management tools allow comprehensive searches of equipment history of multiple systems to be performed, thereby contributing toward shortening response time when there are problems. Equipment Records is a tool that allows batch searches of information such as equipment work histories and parts replacement histories based on equipment serial numbers, while Knowledge Search enables users to enter keywords of equipment-related problems to carry out batch searches of files and documents saved in the database based on past trouble information.

In fiscal year 2022, we worked on making the equipment database multilingual to support Korean and Chinese in addition to Japanese and English. This enables our global active field engineers to utilize the knowledge management tools with greater effectiveness. We will continue to promote efforts to manage the various systems throughout the entire Group using One Platform[3] to increase work efficiency and strive to further improve our customer responsiveness.

Knowledge Management Tools

Equipment Records

Comprehensive Search of Equipment History Serial Number Axis

Multi-equipment Database
- Trouble Information
- Wisdom
- Service CRM
- Parts Order History
- Overseas Report
- Serial Number Search
- Symptom Search

Knowledge Search

Comprehensive Search of Equipment History Trouble Axis

BKM
Best Known Method Trouble Shooting Manual
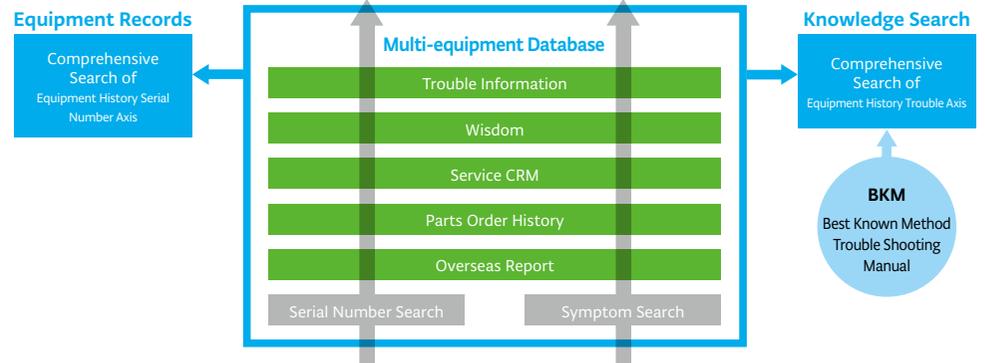
1　Knowledge management: Management approach to promote internal company sharing of tacit knowledge held by individuals, in order to encourage innovation and to improve overall productivity
2　Service CRM: Service Customer Relationship Management
3　One Platform: An initiative to manage information using a standardized database and system.

Remote Support System

We promote remote support service using TELeMetrics™ to minimize any downtime of production equipment, to detect abnormal operation before any major defect occurs and to support the stable operation of equipment.

In addition, with the growing need to support on-site field engineers remotely due to travel restrictions and various regulations around the world arising from the COVID-19 pandemic, we are developing an advanced remote support system. This system not only allows audio and video from a customer's manufacturing site to be shared in real time but also enhances the confidentiality of information.

In fiscal year 2022, we added unique functions such as information protection, restricted image transmission and phone translation to our existing smart glasses* system to make remote support more convenient. At the same time, we are striving to further improve support quality, such as adding the option of tablet devices according to the environment of our customers.

Using smart glasses (image)

Unique Features Added by Tokyo Electron

Information Protection	Restricted Image Transmission	Phone Translation	Dangerous Area Function
Security feature for protecting information in case of loss or theft	Information security feature whereby only necessary images are sent	Feature that converts voice to text and displays a translation (multilingual support)	Function that warns the wearer when approaching a preset dangerous area

* Smart glasses: Worn like an ordinary pair of glasses, smart glasses can display images and digital information through the glasses

Engineer's Skill Up

In fiscal year 2019, we established our training operations center to enhance the training structure and promote globalization of field engineers. The center establishes a company-wide common skills management system that meets the standards of SEMATECH (a U.S. consortium for the joint development of semiconductors). The system helps us to deploy the most suitable human resources to provide customers with service based on an objective measurement of the skills of our engineers.

In fiscal year 2021, we began providing education for expert engineers to improve the skills of engineers at our overseas subsidiaries. The education includes training programs that enable technical support engineers from overseas to learn not only technical support but also acquire advanced skills related to development in a practical manner at our manufacturing sites in Japan. Furthermore, we also conduct training for field engineers

of our Global Data Engineering Team, established in fiscal year 2021, to develop data analysts specializing in digital transformation (DX)*.

In fiscal year 2022, field engineers who have acquired DX skills developed a program for the continuous improvement of business operations and are rolling it out globally. By linking this program to the field information database, it became possible to automatically update, analyze and visualize field information.

* Digital transformation: 📖 Refer to Strengthening of Product Competitiveness through Digital Transformation (DX) on p.18 and 📖 refer to Higher Productivity through Digital Transformation (DX) on p.26

Ensuring Safety for Customers

Providing Information to Customers

Tokyo Electron is committed to providing sufficient safety information on its products so that customers can safely use them.

All products purchased by customers come with a TEL Safety and Environmental Guidelines manual. The manual describes examples of potential risks associated with using our products together with the methods for averting those risks, as well as safety measures applied to products and recommended methods for product disposal. It is divided into such categories as chemical, electrical, mechanical and ergonomic, and is available in 12 languages* to ensure that customers around the world can understand the content accurately.

In addition to this manual, customers are also provided product-specific manuals tailored to the relevant product specifications.

If new safety warnings are identified after the product ships, we promptly report to the affected customers. In addition, we also strive to ensure that necessary information is communicated, particularly for customers to whom we deliver products that involve the use of hazardous chemicals or high-voltage electricity.

TEL Safety and Environmental Guidelines

* 12 languages: Japanese, English, German, French, Italian, Dutch, Russian, Portuguese, Korean, Traditional Chinese, Simplified Chinese and Finnish

Global Expansion of Training for Customers

We establish training centers all over the world, mainly at our development and production sites, and provide customers with training on equipment operation and maintenance so that products can be used safely. In fiscal year 2022, demand for web-based training (WBT) and remote training* increased as a result of continuing difficulty in holding equipment training on-site because of COVID-19. Under such a situation, we provide remote training for much of our equipment and strive to further enhance training content, such as by filming footage from easy-to-see angles beforehand and using some of them as video content. In addition, we are working to

* Remote training: A training course, although remote, where trainees interact with the instructor in real time while viewing actual equipment through their monitors

improve the content and quality of not only remote training but also WBT by sharing the equipment and methods we introduced with each training center.

Furthermore, taking into consideration the difficulty in overseas travel, we are also expanding our equipment lineup at the training centers of our overseas companies.

Going forward, we will continue to give priority to customer safety as we promote further development of our training environment.

Safe Design of Equipment

Taking the entire product life cycle into consideration, we carry out product risk assessments as early as possible in the development phase. We implement safe equipment design[1] to reduce the risks posed to humans by incorporating the assessment results in the design.

We conduct global surveys of increasingly strict laws and regulations and conduct compliance checks through third-party assessment bodies to ensure conformity with international safety standards, SEMI S2[2] and CE marking[3] on the equipment we ship.

We have also established a system to comply with safety regulations of the regions where our equipment is delivered while working with overseas companies.

1   Safe equipment design: A design concept that eliminates the cause of the machine's harm to humans through the safe design of the machine
2   SEMI S2: A set of environmental, health and safety guidelines for semiconductor production equipment. It is used mainly by the leading manufacturers of semiconductor equipment in the United States and Europe, not only for semiconductors but also as safe procurement guidelines for electric and electronic device manufacturing equipment around the world.
3   CE marking: When exporting into the European Union (EU), CE marking defines rules for displaying a CE mark as proof that the equipment is safe and complies with EU-defined rules (directives)

Improvement of Customer Satisfaction

Customer Satisfaction Survey

Tokyo Electron conducts its own Customer Satisfaction Survey (TEL CS Survey) every year with the goal of making continual improvements based on customer feedbacks. The survey started in fiscal year 2004, aimed at just a limited number of divisions. It was expanded to include all semiconductor production equipment divisions in fiscal year 2014, and later the flat panel display production equipment division and overseas subsidiaries in fiscal year 2016. Currently, it is implemented company-wide as a part of the Customer Satisfaction Survey Program (CSSP).

In the CSSP, a survey with specific questions is conducted at the same time each year, and the information obtained from the survey is analyzed by business unit (product), account (customer) and function (software, development, etc.), and the results are shared with relevant divisions, such as sales, equipment/plants and

service, for improvement at the level of practical business operations.

Improvements are also made continuously to all aspects of the survey method, including the questions asked, the analytical methods used and the overall operation of the survey activities.

In fiscal year 2022, two additional questions were added to the existing TEL CS Survey, and the survey was conducted as Advanced CS Survey in order to analyze the results from a new perspective. Approximately 1,400 individual customers (76.1% response rate) responded to the survey, giving an average score of three or higher ("Very Satisfied" or "Satisfied") for all survey questions*. The percentage of respondents who gave evaluations of "Very Satisfied" or "Satisfied," which is our annual sustainability goal, improved by 3.3 points from 96.7% in fiscal year 2021 to 100%. On the other hand, we are promoting Shift Left, which is an early-stage improvement initiative, such as promptly responding to customers who gave a score of 1 "Very Dissatisfied."

We will continue to work as one company-wide on activities through the CSSP so that we can continue to achieve our annual sustainability goals.

* For each question, average score is calculated for all customers who responded

Improvement Example

In the TEL CS Survey conducted in fiscal year 2018, many requests for improvements to the software were made. Since then, the System Software Innovation Division has focused on surveying and analyzing related questions and sharing the results with related parties in an ongoing effort to resolve issues for each product. PDCA activities are conducted to exchange opinions across products, study improvement measures, and report on progress.

As a result of our sincere efforts to incorporate customer feedback by introducing development support tools, improving development simulators, setting various KPIs related to business progress and implementing improvement plans such as measurement, we were able to achieve over three points on all software-related questions in the fiscal year 2022 survey, which is our annual sustainability goal.

Percentage of responses that indicated Satisfied or Very Satisfied

100%

PDCA Cycle

- CS Survey activity preparation — **Plan**
- Conduct survey of customers — **Do**
- Analyze and report survey results / Investigate improvement plan — **Check**
- Feedback to customers / Implement improvement activities in each division / Confirm progress of improvement activities — **Act**

Higher Productivity

Promotion of Improved Productivity   P. 26

Productivity Improvement in the Value Chain   P. 27

SDGs Initiatives

8 DECENT WORK AND ECONOMIC GROWTH

- Promote productivity, continuously increase management efficiency, contribute to the development of the industry and society and contribute to sustainable economic growth
- Increase economic productivity through diversification, technological improvement and innovation

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

- Promote streamlined business operations and quality management throughout the value chain, ensuring sustainable forms of production and consumption
- Use environmentally appropriate chemical substances and reduce waste

17 PARTNERSHIPS FOR THE GOALS

- Continuously increase productivity throughout the entire supply chain by strengthening global partnerships with suppliers

- Promote the standardization and automation of operations and improve productivity along the entire value chain, such as through the development of an enterprise resource planning system and the integration of business systems in each division and the unification of databases
- Recognize the importance of quality management and strive to further improve business efficiency by implementing quality focus operations
- Implement quality improvement activities and continuously increase productivity throughout the entire supply chain through collaboration with suppliers

Promotion of Improved Productivity

Continuous Improvement of Business Operations

Tokyo Electron is introducing a new enterprise system (ERP[1]) to further improve productivity and quality. The new ERP, being operated across operational and national boundaries, is aimed at creating the following five benefits: (1) compliance with the new revenue recognition standards[2] in Japan; (2) management decision-making with quick response to change; (3) large improvements in business operation efficiency; (4) utilization of globally integrated information with an eye toward digital transformation[3]; and (5) realization of ultimate work style reform.

In fiscal year 2022, we started with introduction of the new ERP at headquarters, and we completed (1) compliance with the new revenue recognition standards. From fiscal year 2023 onward, we will take full advantage of the knowledge gained in the process of introducing the system at headquarters, and gradually introduce the system at manufacturing sites in Japan and at overseas subsidiaries. In addition, with the aim of realizing a globally integrated system, we will work with our partner companies to improve operations, increase efficiency, and develop functions to further enhance system performance.

Overview of the New Enterprise System

■ IT System ■ Key Processes

ERP (Sales, Inventory, Accounting)

1 ERP: Enterprise Resource Planning. A system that integrates the core business operations of an enterprise, such as accounting, personnel, production, logistics and sales, for better efficiency and centralized information.
2 New revenue recognition standards: New Accounting Standard for Revenue Recognition that establishes rules for calculating sales in financial statements, and which became applicable to listed companies, etc. from April 2021
3 Digital transformation: 📖 Refer to Strengthening of Product Competitiveness through Digital Transformation (DX) on p.18 and 📖 refer to Higher Productivity through Digital Transformation (DX) on p.26

Initiatives for Higher Productivity

As a manufacturer of semiconductors and flat panel display production equipment, we are committed to continuously improving productivity while remaining focused on safety and quality in operations along the entire value chain.

Specifically, under the slogan "Safety First[1]," we are striving to improve the safety and work environments of every person connected with our business activities, and at the same time, we are building quality management systems and pursuing quality improvement throughout the value chain in order to understand the true needs of our customers and to achieve the world's best quality. We are also conducting company-wide activities for compliance with safety and environmental laws and regulations and to make software development more efficient and smarter.

In manufacturing operations, our current initiatives include labor saving in production through a system that links BOM[2] to MES[3], and transforming production performance into a Digital Twin[4].

Furthermore, to respond swiftly to customer requests and market fluctuations, we have built a production system that centralizes all information related to production, and have developed an IT infrastructure with manufacturing execution system (MES) and a supply chain management (SCM)[5] system.

By utilizing the wide range of data aggregated through these systems in each business operation, we are working on optimizing and streamlining production planning as well as visualizing delivery dates of parts by strengthening information coordination with our suppliers. We are also promoting comprehensive improvement of business productivity by achieving stronger coordination between sales planning and production/procurement/inventory planning.

Additionally, in our manufacturing and logistics operations, where we deal with a wide variety of components, we are also working on labor savings and efficiency improvements by establishing automated warehouses, introducing a warehousing navigation system and promoting automated inspections.

1 Safety First: Company slogan that prioritizes the safety of every person connected with our business activities
2 BOM: Bill Of Materials. This shows the hierarchical structure of the product and includes basic information of each part, including which parts are used to assemble the product.
3 MES: Manufacturing Execution System. A system for understanding and managing production processes and for providing instructions and support to workers.
4 Digital Twin: A "Twin in digital space" refers to a technology that copies and replicates various data collected from physical objects in the real world onto a digital space.
5 📖 Manufacturing execution system (MES) and a supply chain management (SCM): Refer to Continuous Improvement of Business Operations on p.26

Higher Productivity through Digital Transformation (DX)

We aim to enhance product competitiveness and improve capital efficiency in various operational processes—from the product planning stage to maintenance—by promoting DX.

Image of DX Usage
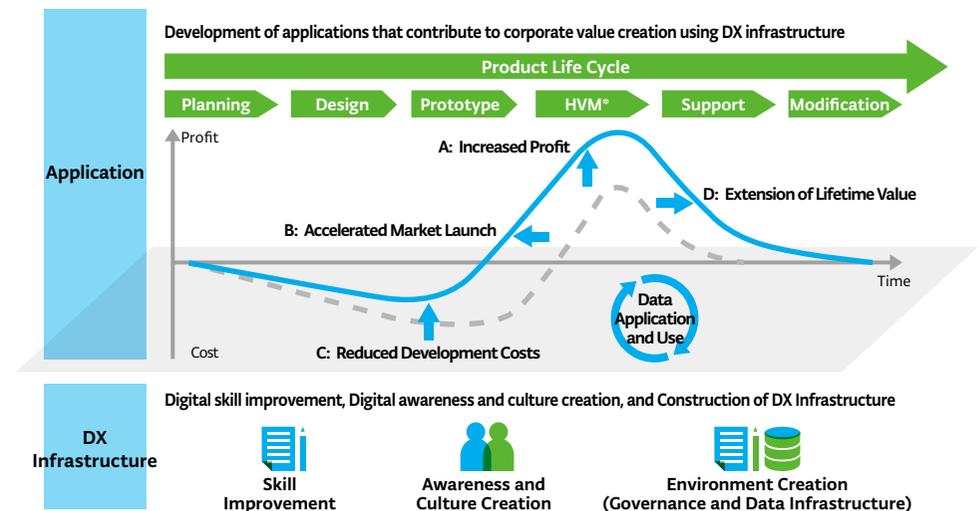
* HVM: High Volume Manufacturing

In our DX activities, regarding the 13 risks*, we implement a risk management PDCA cycle that includes formulating and executing measures to minimize these risks, monitoring the state of management and supporting and promoting risk management activities of the various departments.

We are building a system that allows appropriate risk management at the right time through real-time monitoring of risks, control measures and implementation state across the entire Group while collaborating with the overseeing organizations in our headquarters. The purpose is to conduct fast risk detection and decision-making from the perspectives of data and digital technology utilization.

Furthermore, we are also making clear the human resources necessary for the promotion of DX and are formulating and training plans to develop the respective skills needed. In parallel, we are also carrying out human resource development to provide all employees with a minimum level of DX knowledge.

Skill Training Plan for DX Promotion

Data science	Ability to understand and utilize data science, such as data processing, AI and statistics
Data engineering	Ability to give meaningful shape to data science for our efforts to create corporate value, and to implement and operate in line with targets
Business planning	Ability to evaluate issues and their context, implement measures to resolve them and link this to business (earnings)

Systematically train human resources to utilize data science in our business

We will continue to focus on the promotion of DX and utilize digital technology to improve productivity in everything from accelerating the speed of development, improving productivity and quality and enhancing business efficiency to reforming work styles.

* 📖 13 risks: Risk Management Initiatives on p.37

Productivity Improvement in the Value Chain
Approach to Quality

We define our approach to quality in the following way: "The Tokyo Electron Group seeks to provide the highest-quality products and services. This pursuit of quality begins at development and continues through all manufacturing, installation, maintenance, sales and support processes. Our employees must work to deliver quality products, quality services and innovative solutions that enable customer success." We strive to implement this policy.

Quality Policy

1. Quality Focus
   Focusing on quality to satisfy customers, meet production schedules and reduce required maintenance even with temporary cost increases.

2. Quality Design and Assurance
   Building quality into products and assuring in-process quality control, from the design and development phase throughout every process.

3. Quality and Trust
   When a quality-related problem occurs, working as a team to perform thorough root cause analyses and resolve problems as quickly as possible.

4. Continual Improvement
   Ensuring customer satisfaction and trust by establishing quality goals and performance indicators and by implementing continual improvement using the PDCA cycle.

5. Stakeholder Communication
   Listening to stakeholder expectations, providing timely product quality information and making adjustments as needed.

We strive to implement self-process assurance systems[1] by carrying out strict quality-related risk management and development/design inspections beginning at the development stage, and also by ensuring thorough verification of customers' operations using simulations. We have also built an important component traceability system to strengthen our information environment.

Specifically, to prevent various types of non-conformances, we built a system that allows One Platform[2] to view information such as past problems, adjustment values used during manufacturing and assembly and important component inspection information from suppliers, and have successfully strengthened our risk management (FMEA[3]).

By thoroughly implementing these self-process assurance system and prevention measures, it creates time for employees to focus on high-value-added business operations and promotes initiatives for Shift Left[4] (front-loading).

1   📖 Self-process assurance systems: Refer to Ensuring Self-process Assurance Systems and Promoting Shift Left on p.28
2   One Platform: A platform that makes it possible to easily view multiple different systems as seamless information sources, in order to effectively and efficiently achieve traceability. 📖 Refer to Initiatives for Higher Productivity on p. 26
3   FMEA: Failure mode and effects analysis. A method to identify, prevent and mitigate risks in advance.
4   Shift Left: 📖 Refer to Shift Left on p.16 and 📖 refer to Ensuring Self-process Assurance Systems and Promoting Shift Left on p.28

Management System

To provide consistent, high-quality products, we have built and are implementing quality assurance systems under the leadership of the CEO. All manufacturing companies in the entire Group have attained certification in the latest quality management system, ISO 9001. In addition, we conduct regular internal audits as well as neutral and fair audits by third parties for each manufacturing company of the Group to contribute toward maintaining and improving our quality management systems.

ISO 9001 Certified Plants and Offices

Company Name	Plant/Office Name	Certification Date
Tokyo Electron Technology Solutions	Fujii Office/Hosaka Office	September 1994
	Tohoku Office	December 1994
Tokyo Electron Kyushu	Koshi Office	March 1997
TEL Magnetic Solutions	—	November 2009
Tokyo Electron Miyagi	Taiwa Office	September 2012
Tokyo Electron Korea	Balan Plant	September 2011
TEL Manufacturing and Engineering of America	Chaska Office	March 2013
Tokyo Electron (Kunshan)	—	May 2018

Process Improvement Activities

The production sites of our customers require limited variations in quality between equipment, accurate process repeatability and high productivity. To provide products that match such customer needs, we focus on process improvement activities (PCS[1]) using a statistical method.

We create control diagrams for the information of various types of critical components (components directly in contact with wafers and components that directly affect the process of systems, such as components that transfer mechanical, thermal, electrical or electromagnetic energy to wafers) and analyze variations to quickly detect and respond to changes in manufacturing processes. By undertaking such PCS activities together with suppliers handling specific critical components, we work on the suppression of component quality variability and maintenance/improvement of manufacturing processes that produce quality products to help provide products surpassing customer expectations.

In addition, manufacturing processes handling new critical components need constant review and improvement. Our products comprise several tens of thousands of components, and the task to select specific components from these and carry out regular aggregation and analysis require many man-hours.

To optimize and streamline this task, we reexamine our operational flow, including the adoption of automation, and improve our systems by collecting information from customers, holding discussions among

our manufacturing sites in Japan and interviewing our suppliers. By continuously carrying out these activities that are based on the concept of Shift Left, we are striving to improve our productivity further.

■ Example Initiatives

At Tokyo Electron Technology Solutions (Tohoku), design of experiments[2] based on statistics is used to establish quality metrics for critical components and the level of quality activities is being improved together with suppliers.

The best quality metrics established using the designs of experiments are set as the targets. Conditions that give rise to variations in inspection, adjustment and other values in the manufacturing processes of critical components are strictly managed using PCS activities to seek accuracy and stability in the manufacturing processes.

In the future, we will promote the automation of processing—from collection to assessment—of suppliers' data regarding quality and detect the state of quality in real time to further improve the manufacturing processes of critical components.

1   PCS: Process Control System
2   Design of experiments: A branch of applied statistics that aims to design efficient experimental methods and properly analyze the results

Ensuring Self-process Assurance Systems and Promoting Shift Left

In order to improve the quality of products, it is important to prevent non-conformance from occurring in upstream processes and to ensure thorough quality control in each process so that nonconforming products—if they occur—are not allowed to flow into later processes. From this perspective, we promote activities focused on self-process assurance systems. In particular, we aim to further improve quality by implementing thorough risk detection and mitigation measures (FMEA[1]) from the initial stages of product design, as well as carrying out thorough inspections in each process and conducting verification using simulation.

These activities for in-process quality control make it possible to create high-value-added technologies and products in the upstream processes by improving the precision of each process and reducing reworking costs[2], and at the same time, lead to the promotion of the Shift Left[3] concept.

We are also promoting Product Lifecycle Management (PLM) by using in-process quality control to comprehensively manage and analyze all processes from product planning, development, design and production through to service in an effort to facilitate the earlier release of products, enhance operational efficiency, improve quality and reduce costs.

1   📖 FMEA: Refer to Approach to Quality on p.27
2   Reworking costs: Costs incurred by going up the chain of processes and reworking when there is non-conformance
3   📖 Shift Left: Refer to p. 16

Measures to Prevent Quality Problems from Occurring and Recurring

To comply with ISO and EN[1] safety standards and achieve higher safety levels, we have established its own design rules for each product. At the same time, we have developed systems for manufacturing products, which include safety considerations. We also have other systems in place for responding to issues such as equipment design and production non-conformance and any occupational incidents.

In the event of an incident, we use our TIRS[2] incident reporting system to distribute information to safety and quality personnel in each division and officers and management, including senior management. An incident investigation is also conducted immediately to identify the cause and plan preventive measures.

We use a proprietary system called QA-BOX[3] to share information on equipment quality and any major non-conformance across all quality departments in accordance with our operating rules. Measures obtained from the results of an incident investigation are promptly applied, not only to the problem equipment but also to relevant equipment operated by other customers. At the same time, after finding the root cause, revisions are also made to the current design standards and processes to perpetually prevent the occurrence of major non-conformances.

For departments that become subjects of incident investigations, we validate repercussions to other equipment and commonalities and share the issues and countermeasures at regularly scheduled QA-BOX meetings together with the heads of quality assurance divisions. This allows us to examine various approaches to prevent similar non-conformances. The common policies determined at the regular meetings are quickly deployed across the entire Group and reflected in the respective equipment. This helps to reduce non-conformances caused by equipment.

Incident Information: ······▶   Information Sharing: ──▶   Operations and Information Flow: ──▶

Tokyo Electron Group

Customer — Fire Department Police Department — Customer Contact Point — Incident Reporting System (TIRS) — Defective Quality Reporting System (Q-VICS[4]) — Operations Divisions Safety Division Quality Assurance Division — Service Division

Management — Relevant Divisions Investigation of causes and development of recurrence prevention measures: Investigate and Identify Causes → Confirm Spread → Determine Measures → Establish Implementation Plan; Issue FCN[5]; Share with Group Companies (QA-BOX); Reflect in Design Standards • Revise Standards • Notify Revision

Report and Workplace Recovery
Permanent Measures

1　EN: European Norm. Uniform standard for the European Union complimenting parts of technical standards not stated in European Commission directives ("New Approach" directives)
2　TIRS: TEL Incident Report System
3　QA-BOX: Tool for the sharing and horizontal deployment of important quality-related information within our Group companies
4　Q-VICS: Quality Valuable Information Chain System
5　FCN: Field change notice. Refers to the general recall notice

Initiatives with Suppliers

Continuously improving quality based on strong partnerships with suppliers is essential for providing high-quality products quickly to the market. Since fiscal year 2001, we have conducted our unique Supplier Total Quality Assessments (STQA) in an effort to ensure our suppliers properly understand the level of quality expected from them.

Before starting a new business with suppliers, we conduct an STQA via self-assessment to evaluate their product quality, costs and information security. The assessment also includes their corporate social responsibility initiatives, including human rights, ethics, safety, and the environment. If a risk is identified in this assessment, we visit the supplier and confirm the area of non-conformance on-site. Once our approaches to quality and other important related issues have been shared with the supplier, we request that they plan and implement improvement measures and provide continuous support until all of them have been completed. In addition, we also conduct audits once every three years for suppliers who handle important components and for suppliers where quality issues have been found.

We also hold regular meetings with the leaders of various manufacturing sites in Japan who use STQA to share supplier-related information and discuss measures to resolve issues.

■ Example Initiatives

The quality assurance division of Tokyo Electron Technology Solutions is strengthening the acceptance inspection process to allow signs of component non-conformance to be discovered early. Component appearance defects from scratches and dents make up approximately 40% of all non-conformances discovered during acceptance inspection. As a result of efforts to improve and strengthen component appearance, such as working with suppliers to find the causes and selecting appropriate packaging materials, the target value of 130 ppm (130 nonconforming products in every one million products) was achieved in fiscal year 2022 even though the number of shipments increased. Going forward, we will continue to strengthen cooperation with suppliers and undertake continuous improvement activities.

Component Appearance Defect Rate

(%)
40 — 38 (Before)
22 (After)
20
0

Before   After

Management Foundation

Corporate Governance P.31

Risk Management P.36

Compliance P.39

Respect for Human Rights P.40

Human Resources P.42

Diversity and Inclusion P.42

TEL Values P.43

Employee Growth P.43

Work-life Balance P.44

Health and Safety P.45

Environment P.46

Supply Chain Management P.55
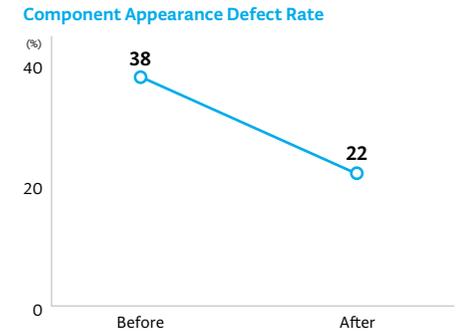
- Build a highly effective corporate governance system to realize medium- to long-term growth, strengthen risk management and thoroughly enforce compliance to ensure that operational decision-making and supervisory functions are exercised sufficiently
- Maintain high ethical standards and expand human rights due diligence (impact assessment and remediation) and grievance processes based on the Group-wide Human Rights Policy to practice respect for human rights
- Strive to create new value by respecting the individuality and values of each employee and cultivating their individual capabilities, and encourage work styles in sync with their respective lifestyles
- Strive to achieve medium- and long-term environmental goals for products, plants and offices and promote E-COMPASS through partnerships with suppliers to reduce environmental impact throughout the value chain
- Develop sustainable operations in accordance with global standards throughout the entire supply chain

SDGs Initiatives

3 GOOD HEALTH AND WELL-BEING
- Create a work environment where employees can work in good health and with peace of mind

5 GENDER EQUALITY
- Promote gender equality and ensure equal opportunity and fairness of outcomes
- Enhance engagement and build a work environment that respects human rights and diversity while maximizing individual abilities

8 DECENT WORK AND ECONOMIC GROWTH
- Practice motivation-oriented management based on the idea that "Our corporate growth is enabled by people, and our employees both create and fulfill company values."

10 REDUCED INEQUALITIES
- Ensure equal opportunity and fairness of outcomes through the appropriate promotion of relevant laws and regulations, etc.

13 CLIMATE ACTION
- Promote activities to reduce environmental impact through our business and contribute to the preservation of the global environment
- Reduce toxic chemicals and air, water and soil pollution
- Strengthen resilience and adaptability to climate-related and natural disasters

16 PEACE, JUSTICE AND STRONG INSTITUTIONS
- Build a highly effective corporate governance system while strengthening risk management and thoroughly enforcing compliance in order to build a strong and sound management foundation
- Prevent all forms of bribery and corruption

17 PARTNERSHIPS FOR THE GOALS
- Build a management foundation that underpins business activities by strengthening global partnerships

Corporate Governance

Corporate Governance System

Basic Stance

Tokyo Electron regards building corporate governance structures as important for achieving success in global competition, realizing sustainable growth. To that end, we have built a structure for utilizing to the maximum the worldwide resources we possess and have worked to incorporate a wide range of opinions to strengthen our management foundation and technology base, establishing a governance structure capable of ensuring that we attain global-level earnings power. We established the Corporate Governance Guidelines* and outlined the corporate governance structures that we have developed and reinforced ahead of other companies.

* [↗] Corporate Governance Guidelines

Further Development of Corporate Governance

We use the Audit & Supervisory Board System, which consists of a Board of Directors and an Audit & Supervisory Board, and have achieved effective governance based on the supervision of management by the Audit & Supervisory Board.

In April 2022, we transited to the Prime Market of the Tokyo Stock Exchange and took the following actions

reinforcing corporate governance to respond to the expectations of capital markets including compliance with the Corporate Governance Code and to enhance corporate value even further.

(1) Changed the composition of the Board of Directors to three inside directors and three outside directors
(2) Appointed a majority of outside directors to the Nomination Committee and Compensation Committee, including their respective chairpersons
(3) Introduced a Corporate Officers system, under which corporate officers, as the highest decision-making body on the executive side of the Group, are responsible for the entire Group management and business execution
(4) Established the Corporate Officers Meeting and appropriately delegated authority from the Board of Directors to the executive side to conduct prompt decision-making and agile operational execution
(5) Corporate officers attend Board of Directors meetings and apply the details of Board deliberations to business execution in an appropriate and speedy manner

By establishing a Board of Directors that performs its supervisory functions and a robust business execution system in the semiconductor production equipment industry, where technological innovation is rapid and market changes are active, we will further promote growth-oriented group management on a global basis, expand short-, medium- and long-term profit and achieve continuous corporate value enhancement.

Changes in Corporate Governance (Since CY1998)
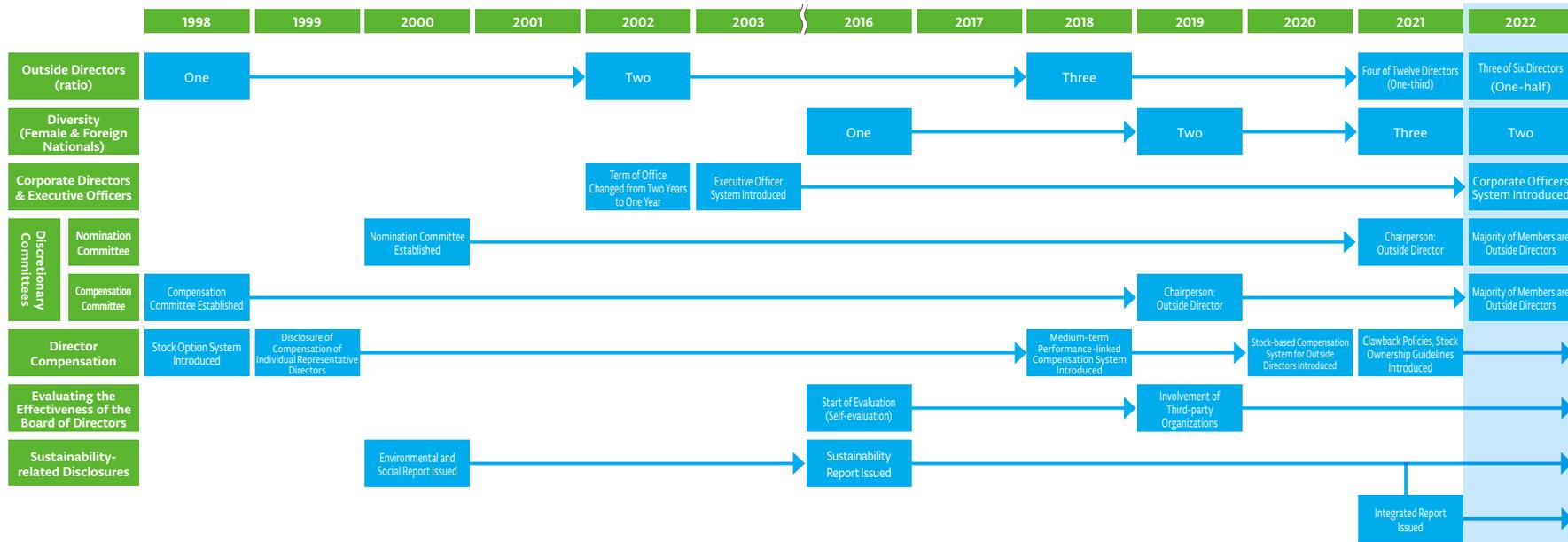
Corporate Governance Framework

Shareholders' Meeting

Appointment or Dismissal of Corporate Directors

Appointment or Dismissal of Audit & Supervisory Board Members

Appointment or Dismissal

Management & Supervision

- Nomination Committee — Report
- Compensation Committee — Report

Board of Directors

Audit

Audit

Audit & Supervisory Board ↔ Cooperate ↔ **Independent Auditors**

Proposal & Report — Supervision

Audit — Report — Cooperate — Cooperate

Business Execution

Corporate Senior Staff (CSS)

Representative Director, President & CEO

Corporate Officers Meeting

Report

Global Audit Center

Audit

- Business Ethics Committee
- Sustainability Committee
- Risk Management Committee
  - Information Security Committee
  - Export Trade Control Committee

Audit

Business Execution Organization (All Divisions/All TEL Group companies)

Audit

Nomination Committee

Composition: One inside director and two outside directors
Chairperson: Outside director
Number of Meetings: 12 in FY2022
Deliberation Topics: Appointment and dismissal of corporate directors and the CEO, candidates of independent outside directors, status of successor development, other topics

Compensation Committee

Composition: One inside director and two outside directors
Chairperson: Outside director
Number of Meetings: 10 in FY2022
Deliberation Topics: Policies concerning determination of individual compensation for corporate directors and others and the details of compensation, compensation of individual remuneration, etc. of representative directors, other topics

Board of Directors

Composition: Three inside directors and three outside directors
Corporate officers also attend meetings to give explanations and reports, etc.
Chairperson: Inside director (non-executive)
Number of Meetings: 12 in FY2022

Audit & Supervisory Board

Composition: Two full-time Audit & Supervisory Board Members and three outside Audit & Supervisory Board members
Chairperson: Full-time Audit & Supervisory Board member
Number of Meeting: 9 in FY2022

Corporate Officers Meeting

The highest decision-making body on the executive side; established in June 2022
Composition: Six corporate officers
Inside directors who are not corporate officers and inside Audit & Supervisory Board members also participate
Chairperson: CEO
Meeting Frequency: Once a month in principle

Corporate Senior Staff (CSS)

Reviews progress management and implementation of management plans from a global perspective
Composition: Executive officers, management executives of overseas subsidiaries and others
Meeting Frequency: Once a quarterly

Committees on the Executive Side

Business Ethics Committee
- Investigates the revision and revocation of the Code of Ethics and verifies the status of practice in accordance with the Code of Ethics
- Proposes and supports training and educational programs relating to business ethics

Sustainability Committee
- Sets sustainability goals (short-, medium-, and long-term) and implements measures to achieve them
- Implements company-wide projects (the environment, human rights, RBA, etc.)

Risk Management Committee
- Performs and shares information on company-wide risk management
- Promotes initiatives to address individual risk items in collaboration with risk owners

Establishment of the Director Compensation System

Basic Policy on Director Compensation

The entire Group emphasizes the following points in its basic policies on compensation for corporate directors and Audit & Supervisory Board members.

1. Levels and plans for compensation to secure highly competent management personnel with global competitiveness
2. High linkage with business performance in the short term and medium-and-long term increase of corporate value aimed at sustainable growth
3. Securement of transparency and fairness in the decision process of compensation and appropriateness of compensation

Role of the Compensation Committee

To secure transparency and fairness in management and the appropriateness of compensation, the Compensation Committee, which is chaired by an independent outside director, utilizes advice from an external expert who attends all meetings, compares compensation levels with companies in Japan and overseas and analyzes the latest trends and best practices in Japan and overseas (such as reflecting ESG in compensation). The committee then proposes to the Board of Directors a compensation system that is the most appropriate for the Group and individual compensation amounts for the representative directors based on the basic policies on compensation.

Overview of Compensation

The table below provides an overview of the composition of compensation and policies and decision-making for each type of compensation.

Advanced Initiatives Relating to Director Compensation

■ Shareholding Guidelines

We have established the Shareholding Guidelines (effective July 1, 2021) to further ensure that management's interests align with those of stakeholders in pursuit of sustainable enhancement of corporate value. We have set targets for management to hold Company shares equal to the following within five years after the effective date of the guidelines or appointment.

Directors	Goals	
CEO	Fixed basic compensation (annual amount)	3 times
Inside Directors, Corporate Officers		2 times
Outside Directors		1 time
Executive Officers		1 time

■ Clawback Policy

We have enacted a clawback policy (effective July 1, 2021) whereby we can demand a refund of annual performance-linked compensation and medium-term performance-linked compensation if financial figures are found to be in need of major correction due primarily to the willful misconduct of an executive director or corporate officer.

The amount of compensation subject to refund is the excess portion of the performance-linked compensation received in the fiscal year in which such misconduct was found as well as the three preceding fiscal years.

Type of Compensation		Recipient			Overview of Compensation
		Inside Directors	Outside Directors	Audit & Supervisory Board Members	
Fixed Basic Compensation		●	●	●	■ Determine within the limit of total fixed basic compensation, which has been resolved at the Meeting of Shareholders ■ For executive directors, amounts are determined according to the scale of job responsibilities by making reference to the job grade frameworks of external expert organizations
Annual Performance-linked Compensation	Cash Bonuses	●	—	—	■ Amount is linked to business performance in the relevant fiscal year to raise awareness of enhancing performance in each fiscal year ■ Consists of cash bonuses and stock compensation-based stock options; the composition ratio is approximately 1:1 ■ Specific amounts and the number of stock options granted are commensurate with the corporate business performance and the results of individual performance evaluations in the relevant fiscal year (Indicators of the corporate business performance) Net income attributable to owners of parent and consolidated ROE are adopted, and the results of comparisons of operating margin and operating margin growth ratio with competitors are reflected on the amount of payment (Individual performance evaluation items) Contribution to short- and medium-term management strategy targets including ESG
	Stock Compensation-based Stock Options	●	—	—	■ Profit-sharing type compensation paid commensurate with business performance in each fiscal year, therefore no policy is in place for the payout proportion of fixed basic compensation ■ Stock compensation-based stock options are subject to a three-year exercise restriction period to motivate recipients to share a shareholder perspective while contributing to increasing corporate value over the medium to long term
Medium-term Performance-linked Compensation	Performance Share (stock-based compensation)	●	—	—	■ Paid to motivate recipients to contribute to medium- to long-term business performance improvement ■ If the payout rate is 100%, the payment amount is set at about 30% to 100% of the fixed basic compensation, commensurate with the scale of job responsibilities ■ The number of shares delivered is determined depending on the level of achievement of performance goals for the covered period (three fiscal years) ■ Consolidated operating margin and consolidated ROE have been adopted as the indicators for evaluating business performance
Non-performance-linked Compensation	Restricted Stock Units (stock-based compensation)	—	●	—	■ The remuneration system is designed to be more consistent with the expected role of giving advice to management from the perspective for increasing corporate value over the medium to long term ■ Standard amounts are set at about 50% to 60% of the fixed basic compensation to ensure an adequate balance between cash compensation and stock-based compensation ■ Provided in the form of share delivery after the covered period (three fiscal years) has passed

Evaluating the Effectiveness of the Board of Directors

Overview of Evaluations of Effectiveness

To further enhance our governance and the effectiveness of the Board of Directors, we have conducted annual evaluations of the effectiveness of the Board since fiscal year 2016 and have disclosed summaries of the results. Since fiscal year 2019, we have used external experts as a third-party organization to verify the status of initiatives relating to issues identified in the preceding fiscal year, identify future issues and work toward continuous improvement.

■ **Evaluation of the Effectiveness of the Board of Directors for FY2022**

Scope of Evaluation Board of Directors Overall (including details of the activities of the Nomination Committee and Compensation Committee)

Process

| Survey administered to all corporate directors and Audit & Supervisory Board members / Interviews of all corporate directors and Audit & Supervisory Board members by external experts | ▶ | Report by external experts | ▶ | Deliberations at internal meetings / Meetings for exchanges of opinions by outside directors and outside Audit & Supervisory Board members | ▶ | Discussion and self-evaluation by the Board of Directors |

Evaluation Items

The main evaluation items for evaluating effectiveness are as follows.

- Overall effectiveness of Governance System and the Board of Directors
  - Roles and functions of the Board of Directors
  - Size and composition of the Board of Directors
  - Operational status of the Board of Directors
- Composition, roles and operational status of the Nomination Committee
- Composition, roles and operational status of the Compensation Committee
- Further support to outside directors
- Roles of Audit & Supervisory Board members
- Relationship with investors and shareholders

■ **FY2022 Initiatives**

- Reinforcement of continuous deliberation concerning medium- to long-term management strategies

  Two off-site meetings were held for in-depth discussions on growth strategies, Medium-term Management Plan, the future governance system and other issues.
- Promoting diversity and developing and appointing global human resources

  Initiatives and the status of disclosure regarding human capital are reported to the Board of Directors, and with respect to diversity, the Board discusses, sets and discloses targets for the ratio of female managers and implement specific measures.
- Reinforcement of the internal audit system and collaboration between the Internal Audit Department and the Board of Directors

  The status of implementation of internal audits is reported to the Board of Directors. Also, risk-based audits are conducted pursuant to the audit map.
- Enhancement of information sharing by the Nomination Committee and the Compensation Committee with the Board of Directors

The status of activities of the Compensation Committee, discussion points concerning review of compensation systems, the status of progress of successor development plan and other matters are reported to the Board of Directors.

■ **Overview of FY2022 Evaluation Results**

We recognize that the Board of Directors appropriately performs its roles and obligations, generally with a high level of effectiveness, and the Board, including the Nomination Committee and the Compensation Committee, functions effectively (the analysis and evaluation by external experts resulted in a similarly high evaluation).

■ **Future Initiatives**

Based on the results of the most recent evaluation, we will continuously take action regarding the following items and work to enhance effectiveness even further.

(1) Measures to enhance the effectiveness of the Board of Directors in the 60th fiscal year
- Clarify the division of roles and decision-making authority and ensure appropriate checks and balances between the executive side and the Board of Directors
- Conduct appropriate operations of the newly established Corporate Officers Meeting to ensure effectiveness

(2) Continuous deliberation by the Board of Directors to achieve growth over the medium to long term and continuously enhance corporate value
- After clarifying specific timeframes (short-, medium- and long-term), organize targets and strategic themes and risk issues (deepen discussion relating to medium- to long-term growth strategies)
- Continuously address diversity and inclusion

(3) Investigate optimal information sharing among members of the Board of Directors and with the voluntary committees
- Ideal state of information sharing on the activities of the Nomination Committee with the Board of Directors
- Establish venues for exchanges of opinions among outside directors and outside Audit & Supervisory Board members

Main Topics for the Board of Directors and Off-site Meetings in FY2022

CEO	■ Reports on status of business execution by CEO (each meeting)	■ Sharing of CEO missions
Medium- to long-term growth strategies	■ Market environments over the medium to long term and our growth plans ■ New Medium-term Management Plan and future growth strategies	■ Expansion and reinforcement of development and production facilities in Japan and overseas ■ Business innovation projects
Risks	■ Improvement of risk management processes ■ Legal affairs and compliance	■ Procurement risks
Governance	■ Future governance system and decision-making processes ■ Action policies concerning sustainability and diversity ■ Reports on investment in human capital and intellectual property activities ■ Reports on internal audits	■ Status of investment targets and cross-shareholdings and status of IR activities ■ Status of the activities of the Compensation Committee ■ Status of progress of successor development plan ■ Closed session on evaluation of representative directors (corporate directors, excluding representative directors, and Audit & Supervisory Board members; once a year)

Skills Matrix

We define Product Competitiveness, Customer Responsiveness, Higher Productivity and Management Foundation, which supports our overall business activities, as material issues.

We will address priority themes relating to each material issue and achieve expansion of medium- to long-term profit and continuous corporate value enhancement by each corporate director and Audit & Supervisory Board member demonstrating their skills in global business, governance, sustainability and in particular, the areas listed below.

	Name	Expected Skills					
		Corporate Management	Semiconductor/FPD	Manufacturing/Development	Sales/Marketing	Finance, Accounting/Engagement with Capital Markets	Legal Affairs/Risk Management
Corporate Directors	Toshiki Kawai	●	●	●	●		
	Sadao Sasaki	●	●	●	●		
	Yoshikazu Nunokawa		●	●	●	●	
	Michio Sasaki (Outside)	●		●	●		
	Makiko Eda (Outside)	●	●		●		
	Sachiko Ichikawa (Outside)					●	●
Audit & Supervisory Board Members	Yoshiteru Harada		●			●	●
	Kazushi Tahara	●	●	●	●		
	Kyosuke Wagai (Outside)					●	●
	Masataka Hama (Outside)	●				●	
	Ryota Miura (Outside)						●

Definition of Expected Skills

- **Corporate Management**
  Experience of corporate management (experience serving as a representative director or chairperson/president)
- **Semiconductor/FPD**
  Knowledge of semiconductor/FPD-related industries
- **Manufacturing/Development**
  Knowledge/experience in manufacturing and development at Tokyo Electron and other manufacturers
- **Sales/Marketing**
  Knowledge/experience in sales and marketing at Tokyo Electron and other manufacturers
- **Finance, Accounting/Engagement with Capital Markets**
  Knowledge in financial accounting and M&A, or knowledge/experience in engagement with capital markets
- **Legal Affairs/Risk Management:**
  Knowledge in legal affairs, compliance and risk management

Diversity of Board Members

Expected Skills of Corporate Directors and Audit & Supervisory Board Members
(Unit: persons)

- Corporate Management — 6
- Semiconductor/FPD — 6
- Manufacturing/Development — 5
- Sales/Marketing — 6
- Finance, Accounting/Engagement with Capital Markets — 5
- Legal Affairs/Risk Management — 4

Independence and Diversity of Corporate Directors
(Unit: persons)

Independent Outside Directors: 3/6

Female Corporate Director: 2/6
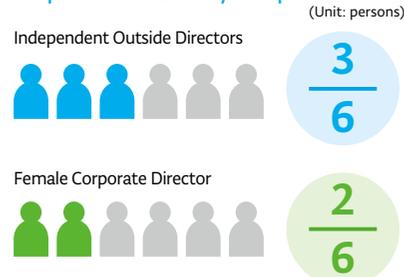
Change in Independent Outside Directors (Unit: persons)

From June 2019: 3/11 (27%) → From June 2021: 4/12 (33%) → From June 2022: 3/6 (50%)

Engagement with Capital Markets

Our management actively engages in investor relations (IR) and shareholder relations (SR) activities to contribute to our sustainable growth and increase corporate value over the medium to long term.

For IR activities, in addition to quarterly earnings conferences, the CEO and each company's executive appear at Medium-term Management Plan announcement and IR Day events to share our business strategies and growth story. Simultaneous interpretation and subtitles are used to broadcast briefings in Japanese and English in an effort to provide fair disclosures to overseas investors. The IR Department, which was established under the direct control of the CEO, also supplements explanations as appropriate through individual interviews and regularly reports opinions from investors to management and the Board of Directors so that feedback can be of use in management. In addition, we actively participate in IR and ESG conferences in Japan and overseas and encourage dialogue with capital markets through the cooperation of company executives and the IR Department to gain a deeper understanding of the Group. In fiscal year 2022, we received a Best IR Award from Japan Investor Relations Association and were selected as a "Most Honored Company" by Institutional Investor magazine in the U.S. for the seventh consecutive years.

As a part of our SR activities, company executives play a central role in constructive dialogue with our major investors and proxy advisory firms. In addition to explaining the Shareholders' Meeting agenda in advance, we engage in repeated dialogue throughout the year on a wide range of topics including corporate governance, our policies about sustainability-related initiatives, the environment, human rights, and diversity and deepen mutual understanding.

To encourage active discussion and facilitate smooth and efficient voting at Shareholders' Meetings, we send convocation notices at an early stage, and also post notices in both Japanese and English on our website prior to sending notices and take other measures to provide information to shareholders in a timely manner. In addition, we analyze the results of the exercise of voting rights, report to the Board of Directors, and use the results to further enhance engagement with investors.

Risk Management

Approach to Risk Management

Tokyo Electron is building and developing a risk management system to respond appropriately and promptly to risks that are growing increasingly complex and diverse as society and the business environment change. We identify cross-division and comprehensive risks across the entire Group to build a solid financial foundation based on the new Medium-term Management Plan that is competitive globally. We make decisions and supervise particularly material risks at the Corporate Officers Meeting and the Board of Directors, and implement countermeasures without fail alongside each of the Group companies and related departments.

We believe accurately understanding the risks and impacts that we may face in our businesses with an eye on the future, viewing them as opportunities for business growth and appropriately addressing them are essential to sustainable growth as a company that is trusted by society.

Risk Management System

We have established the organization to oversee the entire Group at our headquarters and carry out enterprise risk management[1] to promote more effective risk management. This organization, together with the respective departments responsible for each operation, comprehensively identifies a wide range of risks associated with our business activities, such as compliance, human resource, labor and business continuity risks, and classifies those with high impact and probability as our material risks.

In addition to holding management workshops and training for employees and raising awareness company-wide, we are also working to strengthen the PDCA cycle and improve the effectiveness of risk management by formulating and executing measures to mitigate material risks, monitoring the effect of said measures and holding discussions at major internal meetings. Specifically, we review the response status of the Executive Department and each of the Group companies regarding the identified material risks at the BUGM Meeting, quarterly meetings and the CSS, etc., and decide a response policy at the Corporate Officers Meeting. We ensure the operating rhythm of this procedure and also report periodically to the Board of Directors.

Additionally, we are continuing to focus on the revision and operation of our BCP, including responses to COVID-19, and are rapidly executing business continuity measures.

In fiscal year 2021, we introduced CSA[2], with each risk owner of the Group further strengthening risk management in the 13 defined categories. We will continue to implement autonomous and highly effective risk management.

1   Enterprise risk management: Group-wide systems and processes related to risk management activities
2   CSA: Control Self-Assessment. Internal risks and controls are evaluated and monitored by those who are actually performing the duties with the goal of building and maintaining an autonomous risk management system.

Auditing by the Internal Audit Department

The Global Audit Center serves as the internal audit department for the entire Group, conducts audits based on plans, provides instructions and support for making improvements to issues and confirms the progress of these improvements.

The Group's internal control over financial reporting during fiscal year 2022 was evaluated as effective by the independent auditors, the same as in the previous fiscal year.

Risk Management Initiatives

We have begun to address emerging risks from a medium- to long-term perspective, going a step further than its conventional approach of assessing the current risk management state, identifying known and unknown risks that may surround the Company in the future and examining mitigation measures.

In fiscal year 2022, the 13 risks identified to date were reviewed and reevaluated from the perspective of their potential to have a significant impact on our operating results, financial condition and cash flow. We then pushed forward risk management initiatives for each identified risk even further.

Item	Main Potential Risks	Main Risk Management Initiatives
1. Market Fluctuation	▪ A rapid contraction of the semiconductor market could lead to overproduction or an increase in dead inventory ▪ A sharp increase in demand could lead to an inability to supply customers with products in a timely manner, resulting in lost opportunities	▪ Periodically review market conditions and orders received at the Board of Directors and other important meetings, and appropriately adjust capital investments, personnel/inventory planning and other aspects of business ▪ The Account Sales Division and the Global Sales Division strengthen the sales framework and customer base by grasping investment trends of customers and responding to a wide range of customer needs
2. Geopolitics	▪ Geopolitical tensions could undermine the international order and global macroeconomic conditions, affecting national and regional security, foreign, industrial or environmental policy. This could in turn lead to supply chain disruptions or deterioration of the macroeconomic environment, restricting the Company's ability to operate business	▪ Carefully watch the international situation as well as the diplomatic and security measures and industrial policy trends in each country and region ▪ Anticipate the impact of macroeconomic fluctuations and regulations related to product imports/exports or technological development on the Company's business and consider countermeasures in advance
3. Research and Development	▪ Delays in the launch of new products or the mismatch of such products with customer needs could lead to a decline in the competitiveness of products	▪ Establish the Corporate Innovation Division and build a Group-wide development framework that integrates innovative technology development with the technologies of each development division ▪ Provide highly competitive next-generation products ahead of competitors by collaborating with research institutions and sharing a technology roadmap spanning multiple generations with leading-edge customers
4. Procurement, Production and Supply	▪ Interruptions in the Company's production due to a natural disaster or delays in component procurement due to deterioration in the business conditions of a supplier or an increase in demand that exceeds the supplier's supply capacity could lead to delays in the supply of products to customers	▪ Formulate business continuity plans, develop alternate production capabilities, promote the seismic reinforcement of plants, level production, enhance the backup capabilities for information systems, use multiple sources of important parts and maintain appropriate inventory levels ▪ Share forecasts based on demand projections with suppliers and build a system for the stable supply of products
5. Safety	▪ Safety problems with the Company's products could lead to damage to customers, liability for damages and a decline in the Company's credibility	▪ Based on the "Safety First"[1] approach, place the highest priority on the safety and health of all people, implement essential safety design with an awareness of risk reduction at the product development stage, promote safety training and establish a reporting system in the event of an accident, etc.
6. Quality	▪ The occurrence of a product defect could lead to liability for damages, costs for countermeasures and a decline in the Company's credibility	▪ Establish a quality assurance system and a world-class service system ▪ Resolve technical issues from the product development and design stage ▪ Investigate the cause of any defects and implement measures to prevent the same or similar defects from occurring ▪ Monitor the quality status of suppliers, conduct audits and provide support for improvement
7. Laws and Regulations	▪ Violations of the laws and regulations of the countries and regions where the Company operates could lead to diminished public confidence in the Company, fines, liability for damages or restrictions on business activities	▪ Monitor compliance activities at key sites in and outside Japan under the direction of the Chief Compliance Officer ▪ Have assessments conducted by external experts and report identified issues to the CEO, the Board of Directors and the Audit & Supervisory Board for swift and effective action
8. Intellectual Property Rights	▪ The inability to obtain exclusive rights to proprietary technologies could lead to reduced product competitiveness. ▪ Infringement of the intellectual property rights of third parties could lead to restrictions on production and sales as well as liability for damages	▪ Advance the intellectual property strategy, business strategy and R&D strategy in an integrated manner to build an appropriate intellectual property portfolio
9. Information Security	▪ Breaches of information or the suspension of services due to unauthorized access by cyberattack, natural disasters or other factors could lead to diminished public confidence in the Company or liability for damages	▪ Launch a dedicated security organization and establish an information security system that conforms to international standards by having security assessments conducted by external experts, etc. ▪ Establish globally standardized rules and regulations for information management and implement response guidelines
10. Human Resources	▪ The inability to recruit and retain necessary human resources on an ongoing basis or the inability to create an environment where people with diverse values and expertise can play an active role could lead to diminished product development capability or customer support quality	▪ Make continuous improvements to work environments and promote diverse work styles as well as health and productivity management (e.g., sharing our visions by management, establishing training plans for human resource who will lead the future, visualizing career paths for employees and offering attractive remuneration and benefits)
11. Environmental Issues	▪ The inability to respond appropriately to each country's climate change policies, environmental laws and regulations, and customer needs could lead to additional related costs such as for developing new products or changing specifications, as well as to reduced product competitiveness and diminished public confidence in the Company	▪ To achieve industry-leading medium- to long-term environmental goals[2] that include the net zero target, implement measures such as reducing greenhouse gas emissions from the use of our products, increasing the ratio of renewable energy usage at plants and offices, reducing overall power consumption, reviewing packaging materials and promoting modal shift ▪ Provide technologies, etc., that contribute to higher performance and energy efficiency of semiconductor devices through implementation of our E-COMPASS initiative
12. Novel Coronavirus (COVID-19)	▪ The spread of COVID-19 could slow the Company's business activities or lead to a global economic downturn	▪ Establish an Emergency Task Force headed by the CEO ▪ Restrict travel to high infection-risk countries and regions, maintain supply chains and thoroughly implement infection prevention measures at plants and offices
13. Other Risks	▪ Business could be influenced by the global and regional political landscape, economic environment, financial and stock markets, foreign exchange fluctuations and other factors	▪ Take appropriate measures to counter such risks

1 📖 Safety First: Refer to p.45
2 📖 Medium- and Long-term Environmental Goals: Refer to p.50

Information Security

As the data-driven society advances and the importance of information security increases, we aim to achieve both data utilization and information security by promoting digital transformation and other measures, and actively promote measures that protect the entire supply chain from the risk of cyberattacks that target companies.

Main Activities

■ Information Security Systems

The Vice President and General Manager, Information Security, run the Security Committee and implement measures on a global scale. We hold the TEL Group Information Security Committees twice a year, and Information Security Committees at each company more than twice a year.

■ Security at Manufacturing Sites

We implement security measures at each manufacturing site to ensure that the manufacturing systems that support our business activities are operating safely and stably while maintaining QCD*.

* QCD: Quality, Cost, Delivery

■ Information Security Management

We established global information security rules, and conduct security education twice a year and phishing email training every month for all executives and employees. We hold seminars twice a year to share the latest situation to all Group members. In addition, we implement risk assessments and internal audits for each department of the entire Company to identify risks and strengthen technological, human, organizational and physical security measures.

■ Supply Chain Security

We respond to customer requests for security and monitor the security status of our suppliers to ensure that confidential information and information on our customers and suppliers that is shared in the course of business activities can be used safely without a loss of convenience.

■ Responses to Security Threats

We have proactively introduced advanced technology and established a dedicated security organization to build a robust monitoring system in order to respond to security threats such as cyberattacks and information leaks.

■ Increasing Resilience

We operate a system that can detect the occurrence of security incidents. We confirm pre-determined procedures so that we can do the right actions for a swift response and recovery by implementing incident response training. We also implement a penetration test* once a year to verify system vulnerabilities.

* Penetration test: A test method for verifying vulnerabilities in networks, PCs, servers and systems.

Overview of Information Security

Mechanisms that support information security activities

- Vice President and General Manager, Information Security
- TEL Group Information Security Committees
- Information Security Committees at each company

Day-to-day activities implemented globally

Tokyo Electron

Information Security Management

Responses to security threats
- Human/Organizations
- Technology
- Physical

Strengthen/Improve — Plan / Do / Act / Check

Supply Chain Security — Customers / Suppliers

Systems established in preparation for emergencies

Security Monitoring Organization
Early detection of signs of potential attacks

Incident Response Organization
Minimization of damage when an incident occurs

Compliance

Approach to Compliance

To practice Tokyo Electron's Corporate Philosophy, it is vital that each employee performs their daily duties with strong interest in and a deep understanding of compliance. We established "Tokyo Electron's Code of Ethics" as a code of conduct to ensure that our employees are aware of the risks around them and conduct themselves appropriately. We have built a global system that can directly raise questions and concerns about compliance and business ethics to quickly address potential problems.

Compliance System

Representative Director, President & CEO

GM of Legal, Compliance Unit

Chief Compliance Officer

Compliance Department (Headquarters)

| U.S. | Europe/Israel | Korea | Taiwan | China | Singapore/Malaysia |

Regional Compliance Controllers
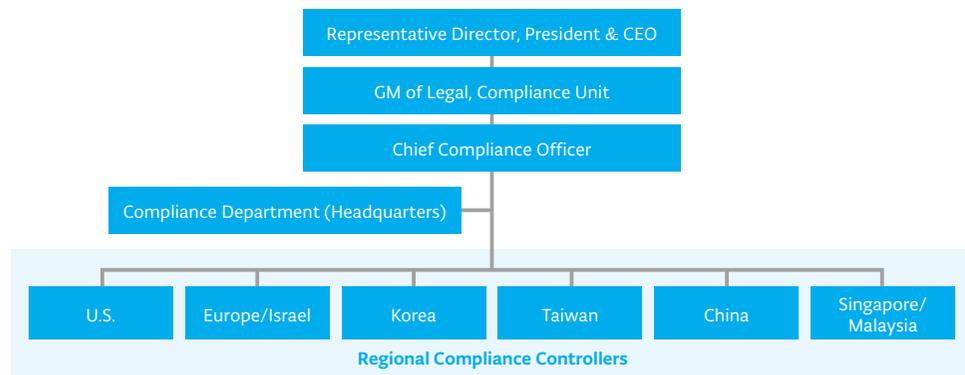
In order to effectively promote a compliance program that is expected of a global company, we have appointed a Chief Compliance Officer (CCO) and established a dedicated Compliance Department at our headquarters. The primary role of the Compliance Department is to formulate and review our practical compliance programs, establish and implement business ethics, plan and implement education and training, establish and operate internal reporting systems, and provide advice and support on compliance to each department. It also cooperates with our Risk Management Department, regularly confirms the observance of laws and regulations in each country as well as internal company rules at each of the Group companies, and assesses compliance risks.

Additionally, the persons responsible for compliance who are called Regional Compliance Controllers have been appointed at key overseas sites, establishing a system for direct reporting to the COO and Compliance Department.

We engage in improvement activities with the relevant departments as appropriate for the items identified in yearly operational audits conducted by the Internal Audit Department.

In fiscal year 2022, a third-party evaluation of our global compliance system was conducted by an external law firm, and we made efforts to further strengthen compliance by identifying items that require improvement.

Compliance Initiatives

Business Ethics

We have established the Business Ethics Committee to promote and raise awareness of compliance and business ethics more effectively together with establishing "Tokyo Electron's Code of Ethics" as the standard of conduct for all executives and employees. In addition, through regular meetings with each of the Group companies, we discuss and implement measures to promote compliance.

Our Code of Ethics, which is available in five languages* including Japanese, is distributed not only in downloadable PDF formats but also in the form of a booklet to all executives and employees to ensure awareness.

In fiscal year 2021, the Code of Ethics was revised and provisions such as personal data protection, information security and money laundering were added. We are also striving to raise awareness of compliance and business ethics by regularly obtaining pledges from all executives and employees that they understand and comply with the content.

We have also set up the Disciplinary Committee as a subordinate organization of the Business Ethics Committee for the purpose of ensuring the implementation of reasonable and appropriate disciplinary action and proper procedures.

* Five languages: Japanese, English, Korean, Traditional Chinese and Simplified Chinese

Implementation rate for training & pledge of Code of Ethics (FY2022)

91.6%

Initiatives for Anti-Bribery and Corruption and for Competition Laws

We have established the Group-wide Basic Policy on the Prevention of Bribery and Corruption and regularly conducts training to promote understanding and awareness. Based on this policy, we have prepared the Guidelines for Gifts, Hospitality, and Entertainment, which stipulate specific, practical procedures and standards on monetary amounts, and we have established a thorough process requiring prior approval for cases where there is a deviation from these standards.

Using questionnaires that we have prepared, we regularly check the status of our suppliers' efforts to prevent corruption and provide them with feedback on the results and areas for improvement.

We have also established the Group-wide Basic Policy on Competition Law Compliance, and have prepared, disseminated and enforced guidelines for executives and employees that summarize different types of violations in an easy-to-understand format, based on applicable laws and regulations in the countries and regions in which we operate.

Compliance Training

We conduct online and face-to-face training adapted to different levels, for all employees*. We will systematically expand our comprehensive training program and multilingual support, and reinforce efforts to foster compliance awareness and practice in the Company.

* Training and seminar topics include basics of business ethics and compliance, anticorruption, export compliance, insider trading prevention, the Act for Subcontracting, and the prevention of harassment. Some training is limited to certain employees such as department managers or new employees.

Internal Reporting System

Preventing problems from occurring and resolving them quickly when they occur requires a system that allows employees to raise questions and concerns about business ethics and compliance without reservation or hesitation and to discuss them fully. We have established an internal reporting system that ensures complete confidentiality, anonymity and the prohibition of retribution, so that employees can safely and reassuringly provide information and seek redress outside the chain of command about behavior that is, or may be, in violation of laws, regulations or business ethics.

Specifically, we have established and are operating the Tokyo Electron Group Ethics & Compliance Hotline—a global common internal point of contact that uses a third-party system that is also accessible to our suppliers—as well as an external point of contact that allows direct consultation with an outside law firm. The internal point of contact can be accessed via phone or a dedicated website 24 hours a day, 365 days a year, and accommodates all languages used by employees.

Global Response to Internal Reports
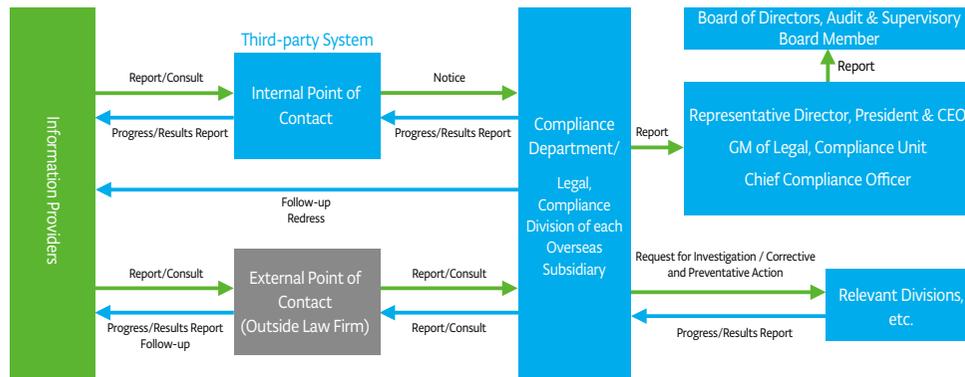
Reports and consultations received via these points of contact are handled with sincerity and investigations are undertaken in accordance with internal regulations. If a compliance violation is found, disciplinary action is taken in accordance with the Rules of Employment*, and preventive measures and corrective measures, such as improvements to the workplace environment, are implemented as necessary.

In fiscal year 2022, a total of 95 cases were received via the internal reporting system, of which 19 were recognized as compliance violations. The reports and requests for advice primarily related to harassment and the workplace environment. Based on this result, we have conducted regular education programs for our employees with the goal of preventing harassment and have provided thorough follow-up with those concerned or involved.

There were no reports or cases of non-compliance that could have had a serious impact on our business or on local communities.

* A leniency system has been introduced whereby any disciplinary action may be reduced or exempted in the event the employee involved in a compliance violation has made a report or sought advice on their own volition.

Breakdown of Consultation/ Report Contents

- Gift/Entertainment 2%
- Other 27%
- Workplace environment 29%
- Abuse of authority 24%
- Safety/Environment 8%
- Information security/Intellectual property 5%
- Sexual harassment 3%
- Company asset 2%
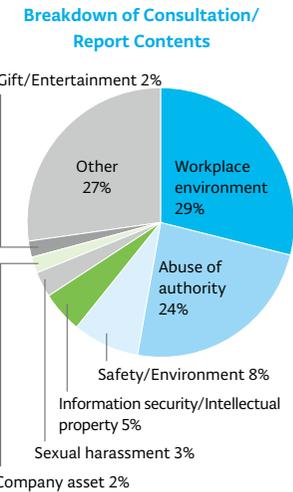
Respect for Human Rights
Approach to Human Rights

We at Tokyo Electron are conscious of our corporate social responsibility, and we recognize that it is important to conduct ourselves with a strong sense of integrity. Based on this recognition, we have firmly upheld human rights since our founding, as reflected in the spirit of our Corporate Philosophy and Management Policies. For us, respecting human rights means a significant undertaking, not only to fulfill our responsibility for eliminating adverse impacts on people caused by business activities but also to respect those people who support our business activities, and contribute to the realization of a sustainable, dream-inspiring society. We incorporate the concept of respect into every aspect of our business activities, and strive to nurture a dynamic corporate culture where each person can realize their full potential.

Human Rights Initiatives

Our Human Rights Policy[1], summarizing our approach to human rights specifies five focus areas: Freedom, Equality & Non-Discrimination; Freely Chosen Employment; Product Safety & Workplace Health and Safety; Freedom of Association; and Appropriate Working Hours & Breaks/Holidays/Vacations.

In preparing the Human Rights Policy, we referred to the United Nations' Guiding Principles on Business and Human Rights and the International Bill of Human Rights and the ILO Declaration on Fundamental Principles and Rights at Work referred to therein, the Ten Principles of the United Nations Global Compact, and the RBA Code of Conduct[2].

1   Learn more about Human Rights Policy
2   RBA Code of Conduct: A set of standards established by the RBA for supply chains in the electronics industry for a safe labor environment, to ensure that workers are treated with respect and dignity, and that companies take responsibility for environmental impact in the manufacturing process

We ensure that our executives and employees, as well as suppliers, are fully aware of this content. Specifically, we publish the Human Rights Policy on our website and also implement online training targeting all of our executives and employees.

We identify human rights risks and conduct human rights due diligence to develop remediation actions every year. In fiscal year 2022, we unified the survey contents with reference to the RBA auditing standards, and surveyed 12 companies out of the entire Group in Japan and overseas, including the head office, and approximately 650 business partners involved in materials, staffing, customs services, packaging, etc.

Initiatives which Align with the United Nations' Guiding Principles on Business and Human Rights

Commitment	Assessment	Remediation	Report
Commitment to respecting human rights	**Assessment of human rights risks in business and supply chains**	**Actions to reduce risks based on assessment results**	**Regular disclosure of information**
▪ Human Rights Policy publication ▪ Awareness and implementation ▪ Education	▪ Human rights risk assessment ▪ Human rights impact assessment	▪ Feedback sheet publication ▪ Program development and review according to issues	▪ Publication of the Integrated Report and Sustainability Report ▪ Postings on the website

Consequently, potential/actual risks (Priority/Major/Minor)[1] turned out to be 17% of our Group companies and 18% of suppliers, with labor- and health and safety-related risks comprising the majority of the risk breakdown.

In the area of labor, items including the formulation of policies and procedures pertaining to thorough management of working hours and the employment of student workers, interns and trainees were identified as risks. In the area of health and safety, items including the implementation of evacuation drills for all workers and deployment of trained emergency response personnel were identified as risks.

With regard to these identified risks and their impact, inside our Group companies we are conducting checks at each of our sites based on feedback sheets, and implementing a remediation program to review the execution of working hours management, formulate various policies and procedures, carry out evacuation drill initiatives, and address ethics and management systems. To our suppliers, using feedback sheets we provide reports on the potential/actual risks identified in the survey and are working on remediation activities to reduce these risks.

In addition, the percentage of companies where no potential/actual risks are considered to exist (conformance) was 80% for our Group companies and 73% for our suppliers.

Percentages of Conformance and Potential/Actual Risks (Priority/Major/Minor)[1]

Internal — Breakdown of potential/actual risks: Ethics 1%, Management Systems 1%, Labor 50%, Health and Safety 48%, Major 6%, Minor 10%; Priority 1%, N/A 3%, Conformance 80%

Suppliers — Breakdown of potential/actual risks: Ethics 1%, Management Systems 4%, Labor 44%, Health and Safety 51%, Major 6%, Minor 11%; Priority 1%, N/A 9%, Conformance 73%
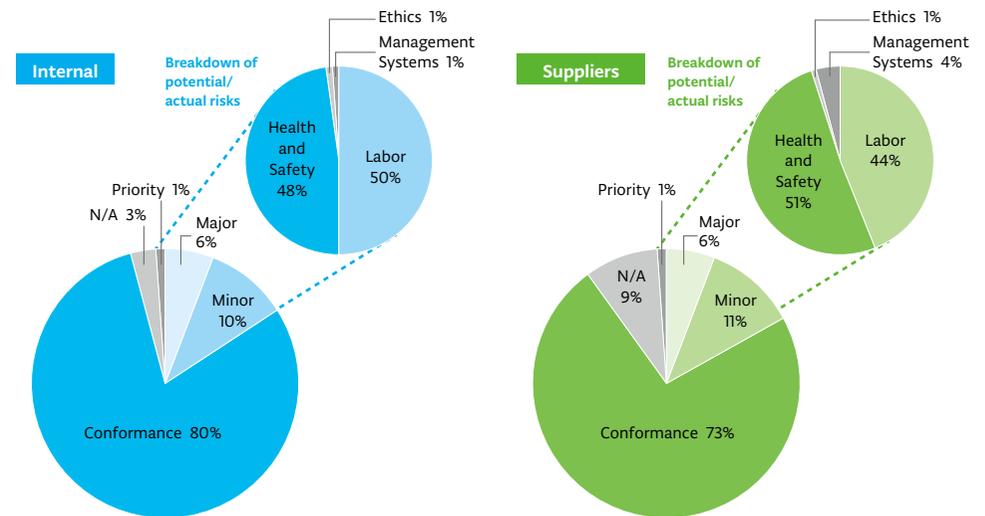
Furthermore, we recognize the importance of having highly effective grievance mechanisms related to human rights and are working to establish reporting systems[2] for employees and suppliers in Japan and abroad, and to further strengthen the operation of those mechanisms. By adopting highly justified and fair grievance mechanisms, we are identifying adverse human rights impacts at an early stage and building mechanisms to help remediate them.

Going forward, in addition to proactively deploying human rights-related initiatives and further enhancing their efficacy and transparency, we will work to reduce human rights risks in our companies and in our supply chain.

1 Our classifications and definitions of conformance as well as potential/actual risks based on RBA auditing standards are as follows.
Priority: Issues considered particularly serious, which are at significant risk and require immediate priority remediation
Major: High-urgency issues which are at significant risk and require immediate remediation
Minor: Minor issues and risks recognized in each area which require remediation
Conformance: No issues were recognized in each area and requirements are being met
N/A: Indicates that "listed options do not resemble actual circumstances, or that the question is not applicable."

Human Resources
Human Resource Management

Tokyo Electron believes that its corporate growth is enabled by people, and its employees its create and fulfill company values. Based on this approach, we practice motivation-oriented management. We actively invest in our employees and implement a variety of measures while also providing many opportunities for employees to challenge themselves to achieve high-level goals by making the most of their individual potential.

These initiatives have led to continuous improvement of employee engagement scores and the maintenance of high retention rates. This has also helped us earn the trust of our customers by ensuring reliable technology.

Our global uniform human resource platform discloses information such as job duties and career opportunities to all employees. Through this, we are implementing autonomous career development and visualizing career paths.

In addition, to promote career development, we are investing in capability development through TEL UNIVERSITY*. Furthermore, we differentiate employee evaluations based on Company performance as well as employee's individual responsibilities and contributions to the Company. Through this, we achieve fair and competitive global level compensation while striving to attract and retain the best human resources.

* TEL UNIVERSITY: Refer to Human Resource Concept at TEL UNIVERSITY on p.43. An in-house education platform that helps employees independently build their careers and realize their personal goals for their growth and development

Employee Engagement

Improving employee engagement is essential to maximize corporate performance and achieve sustainable growth. Recognizing that employees both create and fulfill company values for us, we have been regularly conducting engagement surveys since fiscal year 2016 to assess the current state of employee engagement and identify issues. Based on the results of the surveys, we make improvements to foster a better workplace environment and culture by increasing opportunities for dialogue between management and employees as well as continuously communicating messages that emphasize safety, quality, and compliance. These initiatives resulted in an increase in the overall employee engagement score of 12 points from fiscal year 2016 to fiscal year 2021. In addition, the retention rate* in fiscal year 2022 was 96%, a high level even on a global scale.

* Retention rate is calculated using data on turnover rate.

Regular engagement survey process

We will continue these initiatives, such as clarifying career paths and improving operational efficiency through digital transformation, since we believe that improving employee engagement is important to providing increase value to our stakeholders.

Diversity and Inclusion
Diversity and Inclusion System and Initiatives

At Tokyo Electron, diversity and inclusion are management pillars that lead to the continuous generation of innovation and increased corporate value. We are actively promoting them with the strong commitment of our management. We have taken on gender, nationality and generation as major themes and set the following goals based on the characteristics of each region. We are implementing various initiatives at each Group company.

- In terms of succession planning, we conduct a diversity-conscious talent pipeline (plan for developing human resources), and are implementing initiatives to achieve the goal of increasing the ratio of female in management[1] to 8.0% globally and 5.0% in Japan by fiscal year 2027 (as of March 31, 2022: globally 5.5% and in Japan 2.6%)
- Taking into consideration that many of our employees are engineers, we actively invest in the use of recruiters and branding to hire female engineers at a level that is equal to or greater than the general ratio of female engineers[2] in each region
- We create an organizational structure where even those from outside of Japan can take on corporate roles through the use of technology and shared global human resources systems
- We organize events such as "Diversity and Inclusion Day" and other events with internal promotion leaders and external experts, create networking opportunities for employees with similar characteristics and experience, and hold roundtable discussions regarding careers before and after taking maternity/paternity leave and childcare leave

1   Include experts in the number of managers
2   The ratio of females majoring in science or engineering

Diversity and Inclusion Day

Diversity and Inclusion Day, an online event with simultaneous streaming for Group companies worldwide, was held in February 2022.

In his opening speech, the CEO stated "We need to incorporate all wisdom and diverse ideas to maximize the growth potential of the entire Group. In order to do this, it is essential to promote diversity and inclusion." In addition, members from the U.S. including the president of Tokyo Electron America spoke about the importance of diversity and inclusion at a talk session.

Diversity and Inclusion Day

From Japan, two outside directors participated in a panel discussion regarding the roles of the Company in a rapidly changing global society. Through this event, the importance of embracing and making the most of diversity was once again confirmed.

TEL Values
Systems and Initiatives for TEL Values

A total of 15,634 employees are working at Tokyo Electron, which operates worldwide. We believe that each of them maintaining a high level of engagement and demonstrating their full potential will lead directly to our growth as a company.

By sharing with our employees the direction toward which management is aiming and providing platforms for direct dialogue through the employee meetings and discussions held at each site, we are striving to build mutual trust between the organization and individuals. Furthermore, to realize our Corporate Philosophy, we established TEL Values, which delineate Tokyo Electron's values, the mindset that each employee must possess and the codes of conduct to be passed on to the future. The TEL Values—pride, challenge, ownership, teamwork and awareness—are being put into practice by our employees all over the world.

TEL Values	
Pride	We take pride in providing high-value products and services.
Challenge	We accept the challenge of going beyond what others are doing in pursuing our goal of becoming number one globally.
Ownership	We will keep ownership in mind as we think things through, and engage in thorough implementation in order to achieve our goals.
Teamwork	We respect each other's individuality and we place a high priority on teamwork.
Awareness	We must have awareness and accept responsibility for our behavior as respectful members of society.

Employee Growth
Global Human Resources System

Tokyo Electron operates in 77 sites in 18 countries and regions. We believe it is important for human resources with different cultural backgrounds, experiences and attributes to share values and work together as one toward value creation.

In addition to implementing a common global job-based human resource system (GTC: Global TEL Career-paths) and this system, we are also focusing on global human resource management to promote career advancement under a common platform without biases against any country or the Group companies affiliation. This allows us to respond to changes in business environments and allocate resources in an agile and optimal manner.

Human Resource Development Concept at TEL UNIVERSITY

We have established TEL UNIVERSITY as an in-house educational establishment, helping employees to independently build their careers and realize their personal goals for their growth and development. Our aim is to create a foundation that enables the organization and individuals to trust each other and grow by standing shoulder to shoulder with each employee and supporting their self-growth and fruitful career development throughout their working life.

Karuizawa Training Center

In order to realize our Vision of "A company filled with dreams and vitality that contributes to technological innovation in semiconductors," we are focusing on the development of human resources who are essential to our development and promoting the following initiatives.

Provision of Global and On-demand Learning Opportunities

Since each employee's growth is different, we are implementing on-demand education* that allows employees to learn when they want according to their own needs. In addition to group training, we are proactively utilizing e-learning programs and providing a common platform from learning from any location in the world.

* On-demand education: Education programs that allow employees to learn at their own convenience, anywhere, anytime

Support for Career Development

We are expanding our education programs to help employees quickly acquire basic skills. We also provide information and tools so that employees can gain a more concrete image of their own learning, experience and career development.

Leader Programs

In order to nurture the next generation of leaders to support our future, we identify and systematically nurture staff to take on the role of realizing medium- to long-term corporate value enhancement. We provide next-generation management candidates with opportunities to build networks through participation in events such as external training, to develop a broader perspective, and to receive 360-degree feedback[1]. In addition, management, including outside directors, conduct systematic assignment considerations and reviews.

Corporate Education System (TEL UNIVERSITY)

	Management	Executives	Leaders	Mid-level Employees	Junior Employees New Employees
Level-based Programs		Introductory programs (new graduates, mid-career recruits)			
		OJT[2] programs (new graduates, mid-career recruits)			
		Manager programs		Mid-level employee programs	Junior employee programs
	Leader programs				
Goal-based Programs		Compulsory web-based training			
		Business skills			
		Global communication			
		Employee life support			
		Technical programs (seminars, workshops)			

1   360-degree feedback: Process for collecting feedback from the subordinates, peers and supervisors of employees, as well as self-evaluations by the employees themselves
2   OJT: On the job training

Work-life Balance

Work Styles

Tokyo Electron has established a work system that enables highly flexible work styles that respond to lifestyles and social situations, such as the introduction of a flextime system and teleworking to help employees achieve a better work-life balance.

In addition, we have created a new workplace by expanding and renovating the office space at the headquarters in order to realize more productive work styles. We have created an office environment tailored to each activity, including focus booths for immersing oneself in work by blocking out surrounding lines of sight and sound, spaces dedicated to communication and spaces suitable for online meetings, in order to improve employee productivity and creativity.

Leave System

Based on the belief that taking appropriate leave and properly managing work hours also contributes to better employee productivity, we strive to enhance the leave system and promote taking leave.

Refreshment leave
1,358 employees

Since fiscal year 2019, we have set an annual sustainability goal of 70% annual paid leave use and have been conducting promotional activities for employee awareness for planned use of leave.

We are also promoting regular monitoring of leave use status and urging management to improve leave use rates, ensuring that five days of compulsory annual leave are taken as required by law since April 2019. In fiscal year 2022, the leave use rates were 64.6% in Japan and 73.1% overseas.

Refreshment leave system aims to provide refreshment for employees and thereby boost their motivation to work, granting special (paid) leave from two weeks to one month per five years of service to employees who have worked for more than 10 years. This is our unique leave system, and in fiscal year 2022, 512 employees in Japan and 846 employees overseas took this leave.

In addition to the system made available by existing laws, we have an independently built system that allows employees to adopt a flexible approach to work that accords with diverse life events such as raising children or caring for family members. Regarding the situation in Japan, we have acknowledged the maximum extension of the childcare leave period to the day a child reaches three years of age, as well as expanding our provision of a reduced working-hours program for childcare to include employees rearing children as far as graduation from elementary school. In addition to nationally mandated leave to care for a sick or injured child, we have established our own childcare support leave and nursing care leave to support a better balance between work and childcare/nursing care.

Health and Safety

Health and Productivity Management

For Tokyo Electron to continue to grow, it is important for every employee to lead a fulfilling life and maximize their performance. Based on the understanding that our employees are the driving force of our business, we strive to create a healthy and safe work environment.

Besides conducting various medical checkups in accordance with the law, we offer face-to-face consultations by designated occupational health physicians for employees who work long hours. We also offer counseling opportunities supported by external industrial counselors for those who request them.

Furthermore, we are organizing regular line-care[1] seminars aimed at management, and, where necessary, holding liaison meetings with the health officers and health professionals at each Group company in Japan. Based on the collaborative health[2] concept, in cooperation with the Tokyo Electron Health Insurance Society, we are actively expanding data health[3] initiatives, providing employees health guidance and effective prevention and health promotion according to their individual circumstances while utilizing the examination data from medical checkups.

As a result of these efforts, the percentage of employees receiving specific health guidance[4] remained high in fiscal year 2022.

Furthermore, the entire Group in Japan has collectively received recognition as top 500 companies under the 2022 Certified Health & Productivity Management Outstanding Organizations Recognition Program[5] for the third consecutive year from fiscal year 2020.

We will continue to promote various initiatives at the global level to maintain and improve our employees' health.

1   Line-care: A workplace measure for mental health, in which managers and supervisors take a lead role in responding to requests by workers for advice, with the aim of improving the workplace environment
2   Collaborative health: Situation where a company actively cooperates with an insurer, such as a health insurance society, to effectively and efficiently promote the health of its employees and their families
3   Data health: Refers to a more effective and efficient health care program that is implemented in line with the health status of insured persons, by utilizing and analyzing the health and medical information held electronically by the medical insurer
4   Specific health guidance: Health guidance provided for reducing the number of people with metabolic syndrome (visceral fat syndrome) or at risk of metabolic syndrome, and for the early detection and early treatment of lifestyle diseases and cancer, etc.
5   Certified Health & Productivity Management Outstanding Organizations Recognition Program: The program publicly recognizes particularly outstanding organizations that are practicing health-oriented business management, based on initiatives attuned to local health-related challenges and on health-promotion initiatives led by the Nippon Kenko Kaigi.

Safety Management Framework

Based on a culture of "Safety First[1]," we continuously carry out activities to promote safety. Specifically, we use a management system based on OHSMS[2] to manage safety and occupational health and implement the PDCA cycle to reduce the potential risk of work-related incidents and raise the overall level of safety and occupational health. Moreover, by sharing incident information and information on measures to prevent reoccurrence at the Global Safety Council and the Manufacturing Companies Presidents' Council, we promote safety management as a company-wide initiative.

Safety Management Framework

1   📖 Safety First: Refer to Initiatives for Higher Productivity on p.26
2   Occupational Health and Safety Management System (OHSMS): A management system to improve the overall level of safety and occupational health

Incident Reporting System

In the event of an incident, we operate the TEL Incident Report System (TIRS) to quickly share information with all parties involved and follow up with the relevant department to confirm the incident response as well as to implement measures to prevent reoccurrence. Through the operation of this system, we will continue to strive for speedy information sharing and incident response.

Initiatives to Safety

On-site Safety Patrols

We conduct monthly health and safety committee meetings at each plant and office to discuss measures for any workplace safety or employee health issues and to conduct safety patrols. In addition, at least once a month, a representative from each department conducts safety inspections at manufacturing sites to establish a system to solve problems on their own initiative.

Risk Assessment and Stop Work Authority

Before we start to work , the work details and the risks are shared with all workers involved, and they each increase their safety awareness in an effort to prevent incidents. In addition, effort is also being directed to providing guidance to safety managers as well as making workers stop work and take corrective action in the event of an unforeseen incident while on the job.

Safety Education

To help create a safe workplace, we have put in place two education programs globally.

Basic safety education is basic safety training targeting all employees. It is provided as introductory training for new hires, and thereafter, employees are required to take refresher training once every three years. Advanced safety education is a more specialized type of safety training targeted at workers on production lines and in cleanrooms. Those who are eligible for this training are required to take refresher training every year. For overseas transferees, the laws and regulations in their previous and future places of employment are compared, and additional safety education is added as necessary.

Also, to ensure the concept of safe equipment design permeates from design, manufacture and service operations, we hold a semiannual safe equipment design* seminar at our manufacturing sites in Japan, inviting an external guest to speak. We also promote our initiatives to prevent incidents, by providing our suppliers and customers with safety information as circumstances demand. As a result of having maintained a high priority on creating safe work environments, TCIR has been maintained at less than the goal of 0.50, with 0.30 in fiscal year 2022.

TCIR
0.30

* 📖 Safe equipment design: Refer to Safe Design of Equipment on p.24

Examples of Web-based Education Materials
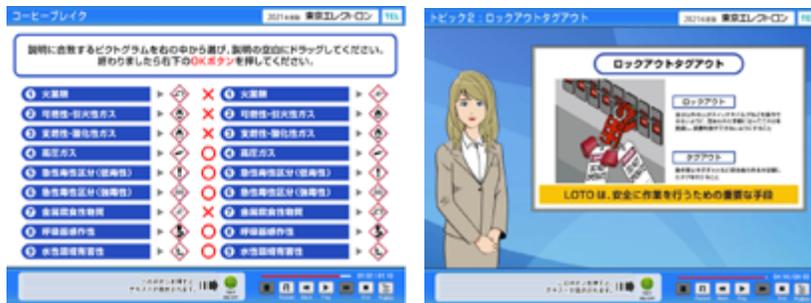
Environment

E-COMPASS Initiative

In June 2021, we introduced E-COMPASS (Environmental Co-Creation by Material, Process and Subcomponent Solutions) as a new initiative for building sustainable supply chains. Under this initiative, we share goals such as reducing the environmental burden of procurement and logistics, eliminating environmentally hazardous materials, and proactive environmental R&D for equipment with our suppliers, developing activities accordingly. Furthermore, we will also openly seek proposals on reducing environmental burden in relation to the environmental performance of our equipment, manufacturing processes and procurement and logistics, by proactively adopting superior technology and initiatives we are promoting to achieve these goals.

In fiscal year 2022, we held the E-COMPASS briefing session for suppliers where, in addition to informing them of the status of our initiatives, we also shared measures for mutual growth through co-creation with our suppliers. We also conducted the "E-COMPASS Survey" to confirm matters including the state of suppliers' environmentally conscious product development and the status of their products' compliance with environmental laws and regulations. Based on these results, we will discuss response measures with our suppliers and aim to further enhance the green performance of the industry as a whole.

We believe that reinforcing partnerships with our suppliers and leadership in the industry are key to the development of a data-driven society and preservation of the global environment. By utilizing every management resource at our disposal to promote E-COMPASS, we will actively endeavor to preserve the global environment throughout the entire supply chain.

Environmental Risks and Opportunities

Various environmental issues affect our daily lives and corporate activities. Physical risks, such as rising average global temperatures, strong winds, disasters and water shortages caused by climate change and abnormal weather, are expected to damage assets, increase operating costs and impact the supply chain. In addition, legal risks including stronger environmental laws and regulations, more stringent regulations on greenhouse gas emissions and the introduction of carbon taxes are expected to lead to higher costs for associated measures.

At the same time, promoting environmental initiatives leads to more opportunities to sell environmentally friendly products and reduce operating costs. We also recognize that providing high-value-added products that contribute to higher performance and lower power consumption of semiconductors and FPDs leads to the building of an energy-saving society that makes the most of information technology, and thus provides an opportunity to improve corporate value.

Based on the requirements of ISO 14001, we identified and analyzed internal and external issues in relation to the environment, namely, our relationship with the climate, air quality and water quality. We also clarified the environmental needs and expectations of customers, suppliers, governments and employees and identified our compliance obligations as an organization. In addition, we define risks and opportunities to address as: (1) environmental management by reducing the environmental impact of our business activities, (2) compliance with applicable laws and (3) enhancing product competitiveness with the environmental contribution of products.

Environmental Management System

Environmental measures are growing even more crucial. We have established the Environment Promotion Department at our headquarters, headed by a corporate director in charge of the environment, which oversees multiple meetings to promote efforts to address medium- to long-term environmental issues across the entire Group. The details are as follows.

Conference Name	Participants	Function	Meeting Frequency
Global Environment Council	Appointed members by the executives at headquarters and the Group companies	Set individual goals related to environmental issues, monitor progress, work to achieve our goals	Twice annually
TEL Corporate Environment Council	The GM in charge of the environment and department heads, etc.	The promotion of environmental activities across the entire Group, set company-wide goals	Appropriately
Council for the Regular Reporting of Environmental Activities (Since FY2022)	CEO, corporate directors in charge of the environment	Report on matters discussed at the Global Environment Council and the TEL Corporate Environment Council and review items for approval	Quarterly
Manufacturing Companies Presidents' Council*	Corporate directors in charge of the environment, etc.	Monitor and supervise progress related to environmental issues	Quarterly

* At the Manufacturing Companies Presidents' Council, information is shared on business affairs and issues regarding environment, safety, quality, supply chain management, etc.

To continuously promote our environmental activities, we began operation of an environmental management system based on ISO 14001 since fiscal year 1998, primarily at our manufacturing subsidiaries. In March 2017, the entire Group obtained ISO 14001 certification together, which had previously been obtained at each plant and office in Japan. In accordance with this certification, we have identified environmental impact assessments and useful environmental aspects and are executing a standardized group format for environmental management programs and internal audit checklists.

In fiscal year 2022, as part of environmental management across the entire Group, we established a total of approximately 100 environmental goals for different levels and carried out these improvement activities. Any issues identified through these activities are reviewed by the Global Environment Council and reported to the Manufacturing Companies Presidents' Council. We were once again free from environmental incidents, accidents, violations and legal proceedings in fiscal year 2022.

ISO 14001 Certified Plants and Offices

Company Name	Plant/Office Name	Certification Date
Tokyo Electron	Environment promotion department (Fuchu technology center)	May 1998
Tokyo Electron Technology Solutions	Fujii Office/Hosaka Office/Tohoku Office	
Tokyo Electron Kyushu	Koshi Office/Ozu Office	
Tokyo Electron Miyagi	Taiwa Office	
Tokyo Electron (Kunshan)	—	March 2013
TEL Manufacturing and Engineering of America	Chaska Office	March 2013
	North Chelmsford Office	May 2018
Tokyo Electron Korea	TEL Technology Center Korea, Balan Plant	July 2014

CO$_2$ Emissions across the Value Chain

Based on our environmental slogan "Technology for Eco Life," we aim to resolve environmental problems through leading technology and reliable services, understand the environmental impact generated throughout our entire value chain and promote business activities to reduce that impact.

Our total CO$_2$ emissions of Scope 1 and Scope 2 is 90 kilotons, while Scope 3 as the sum of upstream and downstream activities accounts for a total of 29,020 kilotons, approximately 99.7% of the total. Of this, CO$_2$ emissions when using products is 28,254 kilotons, about 97% of the total. This is why we consider the development of products with low CO$_2$ emissions during operation to be important.

Upstream	TEL	Downstream
498 kilotons	**90** kilotons	**28,522** kilotons
Scope 3 upstream Not from our Group	Scope 1, 2 Own emissions	Scope 3 downstream Not from our Group

Fuel- and energy-related activities	15 kilotons		End-of-life treatment of sold products	3 kilotons
Capital goods	172 kilotons	**Scope 1** Direct emissions from fuel and gas use		
Purchased goods and services	282 kilotons	16 kilotons		
Employee commuting	12 kilotons	**Scope 2** Indirect emissions from electricity use and heat purchase	Use of sold products	28,254 kilotons
Business travel	1 kiloton			
Waste generated in operations	1 kiloton	74 kilotons	Downstream transportation and distribution	265 kilotons
Upstream transportation and distribution	15 kilotons			

- **Scope 1:** TDirect greenhouse gas (GHG) emissions from use of fuel and gas we owned or controlled
- **Scope 2:** Indirect GHG emissions from use of electricity, steam and heat we purchased
- **Scope 3*:** Emissions from corporate value chains (excluding Scope 1 and 2 emissions), such as product transportation, employee business travel and major outsourced production processes

* Scope 3 is divided into upstream activities, which include emissions associated with purchased or procured products and services, and downstream activities, which include emissions associated with sold products and services.

TCFD

Initiatives Related to Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

Based on the TCFD recommendations, we examine the risks and opportunities that climate change poses to our business and take various response measures as we endeavor to make ongoing disclosures.

In fiscal year 2022 , in addition to the previous fiscal year's study, we examined the 1.5°C scenario, which limits the average global temperature increase to less than 1.5°C above pre-industrial levels.

Status of Initiatives Related to Recommendations of the TCFD

■ Governance

We have established the Environment Promotion Department and the Corporate Sustainability Management Department at our headquarters, and the entire Group is pursuing initiatives for the TCFD recommendations.

Under the supervision of the CEO, the corporate director and executive officer in charge of the environment and sustainability give reports to the Board of Directors on our responses to climate change-related risks and opportunities and progress toward our goals and conduct reviews.

At the Global Environmental Council, comprised of members appointed by executives of headquarters and the Group companies, goals are set, progress is monitored and the achievement of these goals is promoted.

■ Strategy

We are conducting analysis that takes into account the following points in order to identify medium- to long-term risks and opportunities that climate change poses for our business.

- Location of plants and offices
- Occurrence of natural disasters caused by climate change and status of damages
- Demands from customers, industries and investors
- Government policies and regulations and taxation
- Technological trends relating to renewable energy and energy saving
- Climate change scenarios predicted by external agencies and research results

Under the 1.5°C scenario we identified transition risks including rising energy costs associated with fuel and energy taxes, and under the 4°C scenario we identified physical risks such as the impact of abnormal weather. Also, on the opportunity side we identified proactive initiatives to address climate change through R&D. In response to these risks and opportunities, we will implement the findings from our scenario analysis into our business strategies and establish medium- and long-term environmental goals, while also pursuing the adoption of renewable energy and the reduction of greenhouse gas emissions strategies across the entire supply chain.

We will increase our resilience (responsiveness to climate change) as a company by periodically reviewing the identified risks and opportunities and our responses thereto, and ensure that response measures are implemented.

■ Risk Management

We utilize enterprise risk management* to identify a wide range of risks arising in business activities, and classify "Environmental Issues" including climate change as a key risk having high impact and probability of manifestation. We formulate and execute measures to minimize this risk, monitor the effect of said measures and work to understand the status of risk control, and implement the PDCA cycle for management.

Short-, medium- and long-term company-wide risk management initiatives that related divisions and councils recommend are deployed to the facilities and divisions of the Group companies after approval by the Manufacturing Companies Presidents' Council, which includes the corporate director in charge of the environment.

For Scope 1 and 2 CO_2 emissions, in addition to implementing measures to reduce CO_2 emissions at our key manufacturing sites in Japan with high emissions, we are pursuing the adoption of renewable energy on a global scale. For Scope 3 emissions, we recognize the importance of providing products that generate fewer CO_2 emissions because about 97% of the emissions in our entire value chain are generated during use of products after sale, so we are focusing on development of a range of environmental technologies.

We also formulate business continuity plans (BCPs) in anticipation of natural disasters caused by abnormal weather and other factors, and take measures with our suppliers to ensure that business operations can be maintained.

■ Metrics and Targets

We are pursuing the following initiatives for the development of a data-driven society and preservation of the global environment.

- With our semiconductor production equipment technology, we will contribute to enhancing the performance and reducing power consumption for semiconductor devices being used around the world
- Initiatives for our medium- and long-term environmental goals[1]

  In order to achieve our long-term environmental goal of realizing net zero by 2050, we have established the following medium-term environmental goals and are carrying out various activities

  • Reducing our emissions: Reduce total CO_2 emissions at plants and offices by 70% (by fiscal year 2031, compared with fiscal year 2019), a rate of 100% renewable energy usage at plants and offices (by fiscal year 2031), and reduce energy consumption by 1% YoY at each plant and office (per-unit basis)

  • Reducing other emissions: Reduce per-wafer emissions of CO_2 by 30% (by fiscal year 2031, compared with fiscal year 2019)

  • Reducing the volume of water resources used[2] and the environmental burden of logistics[3], etc.

- We launched "E-COMPASS[4]" in June 2021 as an initiative to build sustainable supply chains, and are promoting technological innovations for semiconductors, and reducing environmental impacts

Anticipated Risks and Opportunities of Climate Change Impact and Our Response

▪ Timeline: Short-term = five years or less; Medium-term = 2030; Long-term = 2050

▪ Scenarios used: 1.5°C scenario (1.5°C temperature increase), 4°C scenario (4°C temperature increase)

▪ Scope: The entire Group as well as the entire value chain including upstream and downstream

Type (Scenario)	Timeline of Risk Manifestation	Anticipated Risks and Opportunities	Our Response
Transition Risks (1.5°C scenario)	Short- to medium-term	▪ Increased energy costs due to taxes levied on fuel and energy: Assuming our greenhouse gas (GHG) emissions and use of renewable energy remain at fiscal year 2022 levels, if a carbon tax* were applied, we estimate our energy costs would increase by 700 million yen/year by fiscal year 2026 (assuming a carbon tax of 8,625 yen per ton of CO_2) and 2.1 billion yen/year by fiscal year 2041 (assuming a carbon tax of 23,575 yen per ton of CO_2) ▪ Reduced reputation among investors, NGOs and local communities if a response to climate change and other environmental issues is delayed	▪ Promote energy-saving and adopt renewable energy at plants and offices in order to achieve medium-term environmental goals. Furthermore, as a result of adopting renewable energy, the increased burden from fiscal year 2022 levels due to the introduction of a carbon tax will be reduced by 800 million yen for fiscal year 2026 and 2.2 billion yen for fiscal year 2041 compared to the amounts originally estimated in fiscal year 2021 ▪ Through the activities of our supply chain initiative, "E-COMPASS," we are promoting energy-saving and the adoption of renewable energy in the supply chain ▪ We publish the progress of efforts to achieve the medium-term environmental goals in the Integrated Report and Sustainability Report ▪ By expressing our approval of the TCFD and utilizing its framework, we are conducting risk management and promoting information disclosures
	Medium- to long-term	▪ Decreased net sales if we are unable to meet customers' requirements and demands to address the environment	▪ Develop semiconductor production equipment technology that contributes to enhanced performance of semiconductor devices and lower power consumption ▪ R&D for future technology markets ▪ Product development to achieve the medium-term environmental goals (reduce per-wafer emissions of CO_2 when products are in use)
Physical Risks (4°C scenario)	Short- to long-term	▪ Impacts on us, our suppliers and customers from abnormal weather (net sales decrease as a result of supply chain disruptions, operation stoppages, production/shipping delays, and other factors)	▪ Promote our business continuity plans (BCPs) and business continuity management (BCM) ▪ Deploy procurement BCPs to suppliers, and implement BCP assessments ▪ Periodic implementation of training, drills, etc. ▪ Maintain a database of suppliers' production sites ▪ Enroll in insurance in preparation for disasters resulting from abnormal weather
	Medium- to long-term	▪ Increased costs associated with increased air-conditioner and chiller usage due to higher temperatures	▪ Promote energy saving at plants and offices ▪ Adopt the use of renewable energy from our own power generation
Opportunities (Common)	Short- to long-term	▪ Higher productivity due to environment-related operations streamlining, thus reducing energy costs	▪ Promote energy saving and adopt renewable energy at plants and offices in order to achieve medium-term environmental goals
	Medium- to long-term	▪ Accelerated drive to create new value, including innovation toward development of low-GHG products and services, and equipment and technologies that contribute toward the manufacture of low-power consumption devices ▪ Engaging in proactive initiatives for climate change and creating added-value in products and services supplied to the market to gain superiority and business opportunities ▪ Securing a competitive advantage and contributing to improved corporate value by building resilience (responsiveness to climate change) into global operations	▪ Develop semiconductor production equipment technology that contributes to enhanced performance of semiconductor devices and lower power consumption ▪ Globally promote the latest in R&D with a focus on the future of semiconductors and electronics to continually supply the high-value-added Best Products with innovative technology in a timely manner ▪ Develop technology to achieve reduced per-wafer emissions of CO_2 when products are in use ▪ Through the activities of our supply chain initiative, "E-COMPASS," address climate change as it pertains to supply chains, respond to environmental regulations and innovate environmental technology

* Carbon tax: We referred to the International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario for the increase in tax associated with GHG emissions. 1 U.S. dollar was converted as 115 yen

Medium- and Long-term Environmental Goals

In order to further strengthen its initiatives toward the environment in its products, plants and offices, we have set the following medium-term environmental goals for fiscal year 2031.

Goals and Initiatives to Achieve Net Zero[1]

| CY2018 (Base year) | CY2020 | CY2026 | CY2030 | CY2040 | CY2050 |

Scope 1 & 2[2] Own emissions

Plants and offices **70**% reduction[3]
Rate of **100**% renewable energy usage

Reduce energy consumption by **1**% YoY at each plant and office (per-unit basis)

Net Zero

Main initiatives: Energy saving/creation, recycling, alternative energy, renewable energy use, emissions trading, etc.

Scope 3[2] Emissions other than own

Products **30**% reduction[4]

Products **50**% reduction[4]

Greenhouse gas (GHG) **20**% reduction

Ratio of environmentally-sensitive packaging materials used **50**%

10% reduction[5] through modal shift/joint delivery

Net Zero

Main initiatives: Collaboration with customers and suppliers (improvement of energy efficiency, energy saving in utility equipment and process development with an awareness of GHG emissions reduction)

1 The notation of each calendar year in the figure indicates the fiscal year (e.g., CY2020 is from April 1, 2020 to March 31, 2021)
2 CO_2 Emissions across the Value Chain: Refer to p.47
3 Total CO_2 emissions (compared with fiscal year 2019)
4 CO_2 emissions per wafer (compared with fiscal year 2019)
5 CO_2 emissions

In fiscal year 2022, we identified CO_2 emissions during the use of our reference products and set a roadmap for each product with goals for fiscal year 2031. In addition to the status of electricity, process gases and chemicals, water and other resources used in the production and use of each product, factors such as the effects of plans to reduce their use and the reduction effects of productivity improvements were also considered in setting this roadmap. The CO_2 emissions per wafer for products shipped in fiscal year 2022 were reduced by 11% compared to the base year.

Reduction in CO_2 Emissions and Rate of Renewable Energy (Electricity) Usage through the Introduction of Renewable Energy
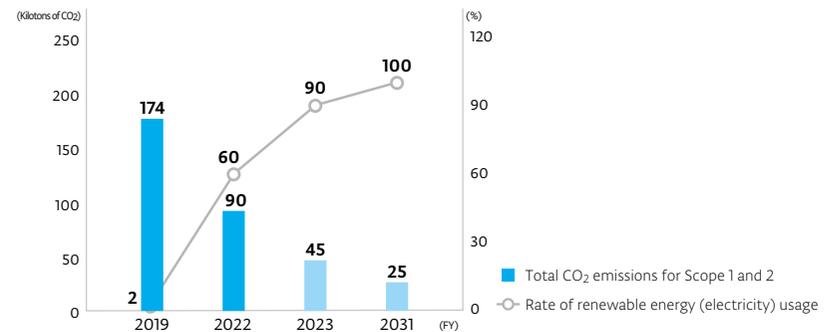
We have started to introduce renewable energy (electricity) at plants and offices in Japan, U.S. and China. As a result, the ratio of company-wide renewable energy use in fiscal year 2022 was 60%, and CO_2 emissions were reduced by 49% from the base year. In fiscal year 2023, we plan to complete the introduction of renewable energy at all of our manufacturing sites in Japan, as well as at other overseas plants and offices. Through these efforts, we expect to achieve a 90% rate of renewable energy usage and a 74% reduction in CO_2 emissions for fiscal year 2023. We will continue to develop activities that contribute to the achievement of our medium-term environmental goals by fiscal year 2031 for our products, plants and offices.

In January 2022, we applied for SBT* certification of our greenhouse gas emission reduction goals, and we plan to receive certification within fiscal year 2023. We are working together as one on initiatives to achieve the following long-term goal by 2050: "As a leading company in environmental management, Tokyo Electron works actively to conserve the global environment. We strive to contribute to the development of a dream-inspiring society by proactively promoting the reduction of environmental burden of both our facilities and products. We strive to contribute to the development of a dream-inspiring society by promoting evolutionary manufacturing technologies that effectively reduce the power consumption of electronic products."

* Science Based Targets (SBT): The Paris Agreement aims to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. SBT is an international initiative to certify greenhouse gas emission reduction targets set by companies for the next five to 15 years, consistent with the levels required by the Paris Agreement.

Plant and Office Initiatives

Renewable Energy Initiatives

We have set a medium-term environmental goal of 100% renewable energy sources at our plants and offices by fiscal year 2031. In fiscal year 2022, we began introducing renewable energy (electricity) at our sites in Japan, U.S. and China, bringing our use of renewable energy company-wide to 60%. As a result, CO_2 emissions dropped by 49% from the base year of fiscal year 2019.

■ Example initiative

At Tokyo Electron Miyagi (Taiwa) and Tokyo Electron Technology Solutions (Fujii, Hosaka), monitors displaying the energy profile of renewable energy generated from solar panels have been set up at the entrances to the plants. At Tokyo Electron Kyushu (Koshi), renewable energy generation initiatives are being promoted, such as the sale of generated energy. In fiscal year 2022, a total of 3,890 MWh of renewable energy was generated in Japan.

Initiatives to Prevent Global Warming and Save Energy

We have brought in a number of initiatives to achieve our medium-term environmental goal at plants and offices, including energy-saving cleanroom operation, setting office air-conditioning at appropriate temperatures, introducing devices that offer superior energy-saving performance and bringing in renewable energy.

In fiscal year 2022, the introduction of renewable energy (electricity) in Japan, U.S. and China made a significant contribution, and the CO_2 emitted by our energy sources[1] was 86 kilotons (49% decrease YoY). In addition, we managed to reduce by 26% YoY the amount of energy used at our plants and offices per net sales. An increase in the amount of energy used to develop and evaluate products and increase production meant that our power consumption was 377 GWh (6% increase YoY).

In fiscal year 2019, we revised[2] and shared the per-unit basis for plants and offices in Japan to more appropriate levels based on the correlation between business operations and energy. As a result, the annual sustainability goal has been achieved at 7 of the 11 total plants and offices in Japan and overseas.

1   The emission coefficient for power consumption in Japan in fiscal year 2022 uses the post-adjustment emission coefficient on a per-electricity supplier basis, while the emission coefficients for power consumption overseas uses the emission coefficients in Emissions Factors 2019 edition issued by the International Energy Agency (IEA).
2   The per-unit basis is calculated by compound weighting using data on the number of development and evaluation machines, production volume, floor space, and man-hours in each region.

Energy Consumption and Energy Consumption per Net Sales
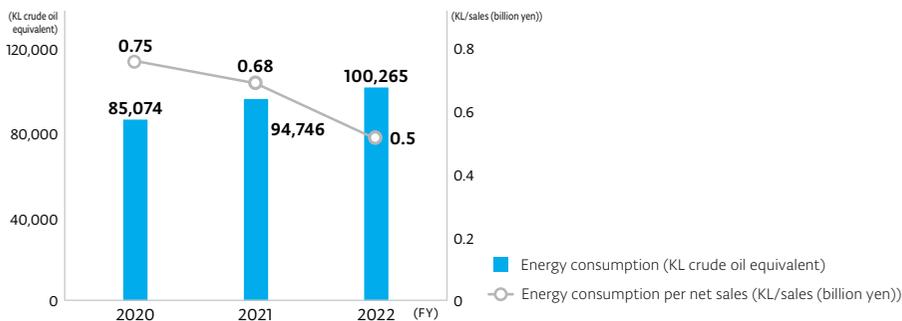
Total Reduction Effect
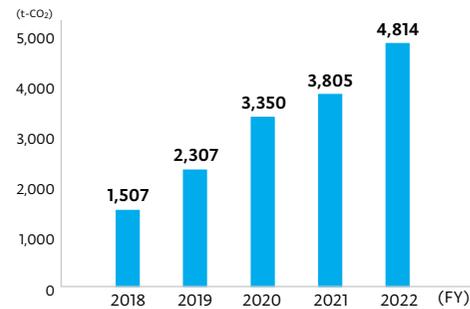
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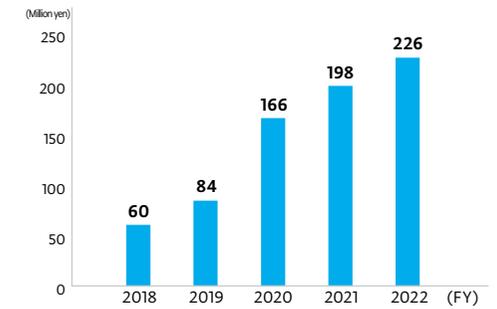
■ Example initiative 1

The introduction of a system to visualize clearly how much energy is saved at our plants and offices was completed at our major manufacturing sites in Japan in fiscal year 2022. Previously, energy consumption data had to be manually extracted and changes graphed by hand, but integrated management on the cloud has made it possible to check changes at any time. This has made it easier to check the deployment and effects of BKM* at each plant as well as study or implement measures.

* BKM: Best Known Method

■ Example initiative 2

Tokyo Electron Technology Solutions (Fujii) has installed equipment to reduce electrical resistance in the substation equipment of some production buildings and saved energy by reducing current loss. As a result, the power consumption of the production buildings where this equipment is installed is expected to be reduced by approximately 7% per year, and the energy-saving effect for the office as a whole is expected to be equivalent to approximately 1%.

Changes in Power Consumption
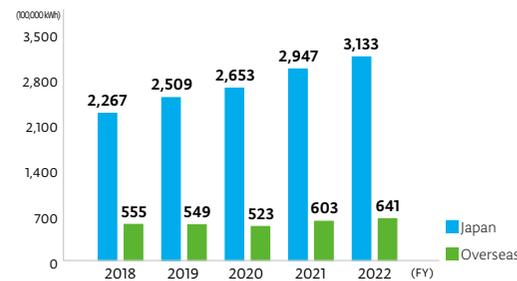
Initiatives to Reduce Water Consumption

With the growing importance of water resource preservation, we use WRI Aqueduct[1] and freshwater resource quantity indicators to conduct water risk assessments in Japan and overseas. In addition, we confirm the status of water resource use in the supply chain, rainwater and wastewater management and goal setting with suppliers once a year.

We have established an annual sustainability goal of maintaining the same water consumption level of the base year (fiscal year 2012 for plants and offices in Japan and a fiscal year of their choosing for each overseas operation). Our ongoing efforts to achieve these goals include reusing pure water from our manufacturing operations, installing water-saving devices, watering lawns with rainwater and implementing the intermittent operation of cafeteria faucets.

During fiscal year 2022, as a consequence of the operation of new buildings and an increase in water consumption associated with product development and evaluation, water consumption amounted to 1,417,000 m^3, up 1% YoY. However, water consumption per net sales was down 29% YoY. Moreover, in terms of our goals at each plant and office in Japan and overseas, we achieved 7 of the 14 goals.

In recognition of these efforts, we were selected as a prestigious A List company in the CDP[2] Water Security Category of the survey in December 2021.

1   WRI Aqueduct: A water risk assessment tool developed by the World Resources Institute
2   CDP: An international environmental non-profit organization (NPO) founded in the United Kingdom that conducts surveys on climate change and water security measures on private companies and municipalities and publishes the results

Water Consumption and Water Consumption per Net Sales
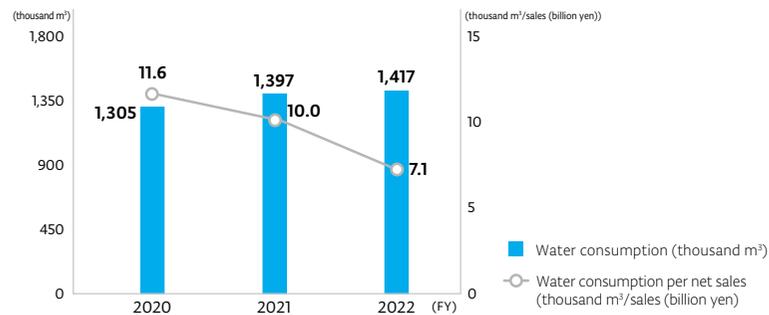
■ Example initiative

Tokyo Electron Taiwan has been actively implementing water conservation activities as a countermeasure against droughts in Taiwan in fiscal year 2022. We reduced the amount of water consumption at faucets on each floor (toilets and office kitchenettes) and for watering lawns, as well as setting air-conditioners in offices at higher temperatures and using automatic on/off functions to reduce the amount of water used for cooling. As a result, we managed to reduce the amount of water consumption by an estimated 20 m^3/day. These activities resulted in an 11% reduction in water consumption in fiscal year 2022 compared to fiscal year 2021.

Initiatives to Reduce Waste

As part of its initiatives to reduce waste, we are striving to limit the amount of waste generated and recycle. In addition to participating in the electronic manifest system[1] to ensure proper waste management, we promote maintaining an appropriate amount of parts inventory, reusing cushioning material and waste separation activities. Furthermore, we are working to reduce waste processing costs by modifying space used for storing waste to increase storage capacity and reduce the frequency of collection.

As a result of these initiatives, in fiscal year 2022, we generated 270 tons of incinerated and landfill waste, and the recycling rate[2] was 98.1%, achieving our goal of maintaining a recycling rate of 97% or higher for the 16th consecutive year since fiscal year 2007. In addition, we have also maintained a high level of recycling of 91.0% at our overseas plants and offices.

1   Electronic manifest system: A system for electronically tracking the flow of industrial waste instead of using paper-based manifests (i.e., paper forms for tracking industrial waste). The system uses a communications network of data processing centers, businesses that generate waste, and waste collection/disposal companies.
2   Recycling rate: (Recycled amount / Amount of waste generated) × 100

■ Example initiative

Tokyo Electron Technology Solutions (Tohoku) is working to recycle materials from resin pallets used during the transportation as cargo as well as reduce the CO_2 emissions associated with the processing of these pallets.

Previously, damaged resin pallets were crushed and recycled as the heat energy generated during the processing. However, in fiscal year 2022, the material from 20 tons of waste resin pallets was recycled by outsourcing to a processing company capable of recycling the resin pallets as raw materials. In addition, by outsourcing the recycling to a processing company closer to the office, the CO_2 emissions used to transport these materials were limited.

Product Initiatives

Products that Contribute to a Sustainable Society

Of the CO_2 emissions from our value chain, emissions during product use account for about 97%. We believe that the low energy consumption of products is important as part of our social responsibility as a semiconductor production equipment manufacturer and are working on environmentally friendly product design. In fiscal year 2022, we promoted activities based on guidelines for calculating CO_2 emissions* and a roadmap for key models to reach our annual sustainability goal of reducing per-wafer CO_2 emissions by 30% by fiscal year 2031 (compared with fiscal year 2019) for the key models of each business unit. As a result, the CO_2 emissions of equipment shipped were reduced by 10.7% compared to baseline equipment.

In addition, we use the Green Transformation (GX) Monitor, which captures information on energy use including electricity, water and nitrogen, as well as equipment operating status, and turns it into a database, to visualize energy consumption information during product use. Specifically, we have introduced a system that allows us to check equipment operating status and energy consumption information in chronological order through our intranet, and are planning to expand the scope of this system going forward.

We will continue to work to further raise environmental awareness and incorporate environmental technologies as important added value in our technological strategies, thus contributing to the reduction of the environmental impact of society as a whole.

* In addition to energy and water, the amounts of process gases and chemical substances to use, as well as footprint, volume and weight of products, are now included.

■ Example initiative

At the TFF Engineering Division of Tokyo Electron Technology Solutions, development is conducted with the life cycle perspective in mind. Specifically, we define product life cycle costs and clarify relationships with the effects of development elements. Additionally, we share an environmental technology roadmap with related divisions and monitor progress while developing environmental products based on this roadmap.

Product CO₂ Emission Reduction

FY2031 goal
30%

(%)
- 30
- 20
- 10
- 0

4.6 (2021)   10.7 (2022)   **2031** (FY)
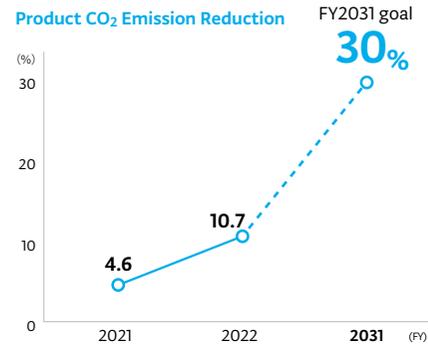
Initiatives for Product Environmental Laws and Regulations

In order to comply with each country's environmental laws and regulations pertaining to products, we promptly collect information and promote proactive responses. An example of our response to EU REACH[1] is that we conduct surveys with our suppliers as appropriate on the presence of any chemical substances in articles and disclose that information to customers. In addition, we have been introducing the chemSHERPA[2] format since fiscal year 2021 and collected information from suppliers on chemical substances in concentrations in the parts per billion (ppb[3]). As a response toward GHS[4] requirements, we provide the necessary safety data sheets (SDS[5]) and labels when supplying chemical products to customers, in addition to promoting the local procurement of chemical products.

To comply with the frequently revised environmental laws and regulations, we continue to offer "Product Environment Compliance" training to all employees, and provide suppliers with information related to the relevant environmental laws and regulations.

We will continue to grasp each country's environmental laws and regulations rapidly and strive to respond appropriately.

1   EU REACH: An EU regulation pertaining to the Registration, Evaluation, Authorisation and restriction of Chemicals
2   chemSHERPA: A data entry support tool for appropriately communicating information on chemical substances in products across the entire supply chain, and a common system for communicating information on chemical substances contained in products
3   ppb: parts per billion (1×10^{-9})
4   GHS: Globally Harmonized System of Classification and Labelling of Chemicals
5   SDS: Safety Data Sheet. Refers to the document containing hazard information about chemical substances that is issued when a company transfers or provides chemical substances, or products containing chemical substances, to another company

Biodiversity

Our business activities are supported by the benefits yielded from biodiversity. We recognize that our business activities have not an insignificant impact on biodiversity and thus carry out initiatives to conserve biodiversity. We set a single fiscal year goal of conducting ecosystem tours or conservation activities at our plants and offices in Japan at least twice a year. Results in fiscal year 2022 show that events were held a total of 16 times, attracting a total of 87 participants.

■ Example initiative

Tokyo Electron Technology Solutions (Tohoku) conducts surveys of the natural environment in the area surrounding the office. In fiscal year 2022, we conducted a survey to determine the impact on the growth and habitats of plants and animals caused by factors such as changes in the surrounding environment due to the construction of a new building, as well as tree-planting activities and other activities conducted by plants and offices. As a result, we confirmed that a mountain foothill-like environment with a mixture of trees, grasslands and ponds is expanding. We also confirmed that many species of plants, mammals and birds are present, and that there have been no major changes since the previous survey (2016−2017).

We will continue to maintain the rich natural environment that is home to a diverse range of organisms as well as contribute to the preservation of plants and animals throughout the entire region.

Management of Chemical Substances

We constantly monitor and manage our use and release of any chemical substances used in product development and manufacturing subject to the Japanese PRTR* law. Whenever we introduce a new chemical substance or change the way an existing substance is used, we check for environmental, health and safety risks beforehand and conduct appropriate processing after use such as by contracting expert vendors and using in-house processing facilities. In response to the Fluorocarbons Recovery and Destruction Law, we conduct simple checks, regular inspections and so on based on law in an effort to monitor the amounts of fluorocarbons filled and recovered. In fiscal year 2022, none of our plants or offices had fluorocarbon leakages requiring notification.

* PRTR: Pollutant Release and Transfer Register. A framework for tracking, tabulating and disclosing quantitative data on chemical substances that may be hazardous to human health and the ecosystem, including the amounts used and discharged into the environment and the amounts transferred (as part of waste) from the plants and offices

Environmental Communication

Our environmental policy requires that we respond appropriately to the expectations of society. We promote initiatives for the environment while engaging in ongoing communication with all of our stakeholders.

In addition, to better promote environmental communication internally, we provide an environmental program for new employees and mid-career recruits, plus a refresher program for existing employees. In fiscal year 2022, approximately 11,000 employees in Japan participated in the refresher program for existing employees. We plan to expand this program overseas in fiscal year 2023.

Green Procurement

We began implementing our Green Procurement Guidelines in January 2001 and have since promoted green procurement, prioritizing the purchase of environmentally friendly parts, products and materials, while updating the content of the guidelines as appropriate. Through these guidelines, we strive to gain the understanding and cooperation of our suppliers with respect to building environmental management systems, monitoring, reducing and disclosing information on the environmental impacts of business activities, and developing environmentally friendly products.

Logistics Initiatives

As logistics regulations are tightened from the perspective of preventing global warming and addressing climate change, there is a growing demand to reduce the environmental impact of business activities. We have been actively implementing measures such as a modal shift* in transportation in Japan and overseas and the adoption of packaging methods that reduce environmental impact, as well as promoting activities designed to reduce the environmental impact of its logistics.

Reduction Rate of Wood Use

For logistics in Japan, we calculate and clarify CO_2 emissions within the scope defined by the Act on the Rational Use of Energy. For logistics overseas, we calculate and clarify CO_2 emissions for both our Group companies and also for logistics in which our customers are serving as the shippers.

In fiscal year 2022, CO_2 emissions increased relatively both in Japan and overseas due to an increase in production and shipments. However, in logistics in Japan, we actively deployed a modal shift which resulted in a CO_2 emissions reduction of approximately 317 tons.

In fiscal year 2022, we promoted the use of reinforced corrugated cardboard packaging to achieve our annual sustainability goal set in fiscal year 2021. Reinforced corrugated cardboard is lighter in weight, which is expected to reduce CO_2 emissions during transportation. It is also recyclable and has a lower environmental impact than wood. The rate of reduction of wood use was 9% in fiscal year 2022, and 13% for the quarter from January to March 2022.

In fiscal year 2023, we set a new annual sustainability goal to further promote modal shifts and joint delivery and reduce CO_2 emissions of overall logistics (own delivery) by 10% (by fiscal year 2027) and are developing activities that contribute to the achievement of this goal.

* Modal shift: Efforts to transform the means of transportation. Refers to the shift of transportation from car and air to rail and ship, which have lower environmental impacts.

Supply Chain Management
Principles and System of Supply Chain Management

To build a supply chain that is sound and sustainable, Tokyo Electron has formulated a procurement policy based on the laws, regulations and social norms of each country, as well as the RBA Code of Conduct, and together with its suppliers, is implementing activities based on this policy.

To identify issues in the supply chain from a variety of perspectives, we also value ongoing communication with diverse suppliers, including materials suppliers that handle parts and raw materials, staffing suppliers that provide services and logistics suppliers that handle physical distribution operations. Under the leadership of the CEO, any identified issues are shared with relevant divisions and efforts are made to implement concrete measures for improvement.

We will continue to strive to create value in the supply chain by working to build relationships of trust with our suppliers, who support our business as partners, and by working together to conduct operations in compliance with global standards.

Initiatives in the Supply Chain
Sustainability Operations

To keep track of our suppliers' engagement in sustainability, we have conducted a sustainability assessment in areas such as labor, health and safety, the environment and ethics since fiscal year 2014. We analyze the assessment results, provide feedback to suppliers and together, promote initiatives for improvement as required. In fiscal year 2019, we completely revised the content of the survey based on audit standards stipulated by the RBA, and in addition to materials[1] suppliers, included staffing[2] and logistics[3] suppliers in the scope of surveys.

In fiscal year 2022, we confirmed surveys and conducted that suppliers had implemented measures to prevent any reoccurrence of cases of false reporting that were identified in the previous year's assessment and making efforts for improvement, including establishing committees to oversee these measures.

To ensure that all people in our supply chain can work of their own free will, we have expressly stipulated our zero-tolerance policy for forced labor and bonded labor, and have communicated this to our major suppliers.

Supply Chain Sustainability Process

Plan	Do	Check	Act
Formulation of supply chain policies	Notification of requests to our suppliers and appeal for sustainability activities	Implementation of supply chain sustainability assessment and analysis of response	Provision of feedback based on the results and requests for improvements to suppliers

1   Materials suppliers: Surveys have been conducted since fiscal year 2014 for suppliers accounting for more than 80% of our procurement spend.
2   Staffing suppliers: Surveys have been conducted since fiscal year 2019 on 100% of employment agencies and contracting companies (internal contractors).
3   Logistics suppliers: Surveys have been conducted since fiscal year 2019 on 100% of customs-related operators.

Responsible Procurement of Minerals (Conflict Minerals)

We see taking action against conflict minerals (3TG[1]) obtained through illegal exploitation, which lead to human rights violations and poor working conditions, as our corporate social responsibility. Our resolute goal is to eliminate the use of raw materials made from these conflict minerals, as well as any parts or components containing them.

In alignment with this way of thinking, we conduct surveys on potential conflict materials using the CMRT[2] and referring to the OECD[3] Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In fiscal year 2022, we conducted our eighth annual survey on potential conflict minerals. As a result, we were able to identify 243 RMAP[4] conformant smelters, providing us confidence that 3TG sourced from these smelters were conflict-free. In addition, none of the materials we procured were found to contain 3TG involved in conflict.

1   3TG: Tantalum, tin, tungsten and gold
2   CMRT: Conflict Minerals Reporting Template. Survey format for reporting conflict materials, provided by the Responsible Minerals Initiative (RMI), which has established international guidelines on conflict minerals.
3   OECD: Organisation for Economic Co-operation and Development
4   RMAP: Responsible Minerals Assurance Process. A program promoted and led by the RMI for auditing smelters/refiners to validate that they do not use conflict minerals

Procurement BCP

As part of our business continuity plans (BCPs), we collaborate with suppliers on ongoing disaster preparation.

We maintain a database of suppliers' production sites so that if a crisis arises, we can promptly identify impacted suppliers and quickly collaborate in recovery efforts. During fiscal year 2022, approximately 24,000 supplier sites were registered, and we conducted 11 post-disaster impact surveys.

In addition, we conduct BCP assessments* on our suppliers and analyze their responses to provide them with feedback so that they can promote improvements in areas of concern. The fiscal year 2022 assessment identified a 24% improvement in the overall rating level and a 51% improvement in the overall raw score compared to the previous year.

* BCP assessment: Surveys have been conducted since fiscal year 2013 on suppliers accounting for more than 80% of our procurement spend.

Percentage of Supplier Sites by Country (FY2022)

- Taiwan 1.3%
- Malaysia 1.2%
- U.S. 1.9%
- Others 4.8%
- China 3.9%
- Japan 86.9%
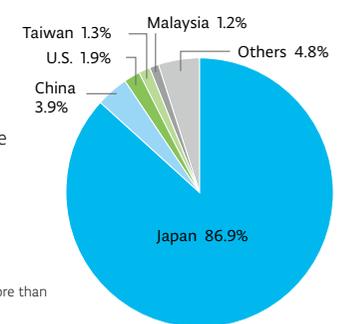
TEL FOR GOOD™

Expanding TEL FOR GOOD Activities

TEL FOR GOOD is the brand name for Tokyo Electron's social contribution activities. We use it as a collective term for social contribution events and various programs, donations and volunteer activities organized around the world by the entire Group.

In fiscal year 2022, taking importance to society and relevance to our business into consideration, we have redefined our focus areas as "Technology and innovation," "Conserving the global environment," and "Co-creation with communities."

With the global implementation of TEL FOR GOOD, we aim to contribute to the resolution of industrial and social issues, the development of industry and society and the achievement of the SDGs. We put our Corporate Philosophy into practice by deepening relationships of trust with stakeholders and contributing to the development of a sustainable society full of dreams and vitality.

Technology and innovation

Fostering innovation through cutting-edge technologies is essential to the evolution of semiconductors and displays. Through TEL FOR GOOD, we create learning opportunities that foster creativity and support highly original R&D on a global scale.

Conserving the global environment

As climate change becomes more serious, we strive to build a decarbonized society through TEL FOR GOOD and our business activities. We also make efforts to conserve water resources and maintain biodiversity. In addition, we contribute to the conservation of the global environment by promoting a circular economy.

Co-creation with communities

In addition to contributing to the development and revitalization of the communities where we conduct business through employment opportunities and fostering local industries, we strive for co-creation with communities through TEL FOR GOOD, which is rooted in our communities. We also fulfill our role as a corporate citizen by participating in international humanitarian aid disaster recovery initiatives.

Number of TEL FOR GOOD Activities (FY2022)

By focus area

- Conserving the global environment 20
- Technology and innovation 29
- Co-creation with communities 106

By region

- Singapore 5
- China 3
- South Korea 10
- United States 13
- Europe 16
- Taiwan 19
- Japan 89
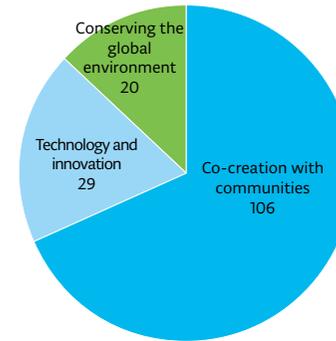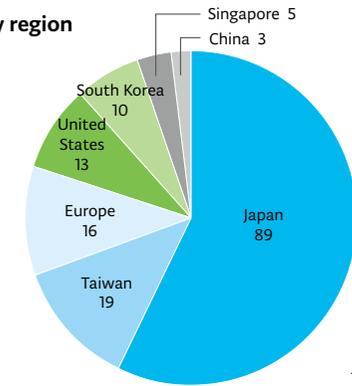
Total 155

About TEL FOR GOOD Global Program

In addition to individual TEL FOR GOOD programs, we also conduct the TEL FOR GOOD Global Program based on common themes across the entire Group.

In fiscal year 2021, the environment and human rights were established as the themes for the global program and initiatives are being undertaken based on these themes. By soliciting ideas and opinions from employees and promoting a program that involves all employees, we strive to help solve social issues while developing a sense of unity among employees and increasing awareness regarding social contribution activities.

Activities around the World

Environment

Human Rights

Examples of Initiatives around the World ⬀ Learn more

💡 Technology and innovation

TEL Robot Combat **Robot contest for science and technology students** `Taiwan`

Since fiscal year 2017, Tokyo Electron Taiwan has been conducting a robot contest for university students and graduate students specializing in science and technology, undertaking the entire process from planning to judging and operation. This event, conducted through industry-academia collaborative initiatives, provides opportunities for students to improve their skills and exchange ideas with companies and organizations. In fiscal year 2022, approximately 180 students from 22 universities took part in the contest, which also saw the participation of 20 employees as event staff.

Tohoku Forum for Creativity **Industry-academia collaboration program for resolving social issues** `Japan`

We have been providing support to the Tohoku Forum for Creativity (TFC) ever since it was established in fiscal year 2014. In fiscal year 2022, the three-year program theme jointly undertaken by us and Tohoku University was concluded. At the program's workshop, under the theme of "Designing the IoT society to realize 'Living the Real Me,'" 18 Tohoku University students and eight employees participated in the program to discuss how information technology can contribute to human well-being and other issues such as expected social issues.

🌿 Conserving the global environment

Tokyo Electron Forest **Tree-planting activities to cultivate forests and preserve the environment** `Japan`

As part of its efforts to cultivate forests and preserve the environment, Tokyo Electron Miyagi has established the Tokyo Electron Forest, which is an area of about 4.2 hectares of prefectural woodland within Taiwa-cho, where it has been conducting tree-planting activities since 2017. In the past five years, a cumulative total of 239 employees and their families have participated in these activities, creating walking trails and planting approximately 300 saplings. Trees are removed while planting, and some of them are used as teaching materials at nearby elementary and junior high schools. Aimed at rejuvenating forests with many withering trees, these activities help to preserve regional ecosystems.

Honey Farm Sponsor **Support for honey farms to maintain ecosystems** `Europe`

In recent years, pollinators such as honeybees have reduced significantly, causing major impact to agricultural production. Tokyo Electron Europe started supporting honey farms in France and Italy in fiscal year 2022 to increase awareness about the importance of honeybees as pollinators and to improve this situation. To deepen knowledge about this support, eight employees from the Grenoble office in France visited a honey farm, saw the honey production process, and experienced tasks such as cleaning beehives and extracting honey.

🏢 Co-creation with communities

Club Rainbow **Support for children with chronic illnesses** `Singapore`

In fiscal year 2022, Tokyo Electron Singapore gave support to the charity organization Club Rainbow. Aimed at the social independence of children, this organization provides opportunities for children to acquire artistic skills through the creation of charity goods. Besides the purchase of charity goods and cash donations by 58 employees, 87 sets of stationery were also donated.

　Support will continue to be given in the future so that children with chronic illnesses can have opportunities to apply their potential without being affected by the state of health or family situations.

Habitat for Humanity **Housing support for the poor** `U.S.`

Tokyo Electron U.S. Holdings agrees with the purpose of Habitat for Humanity and provides support to secure housing, which serves as the foundation for a wholesome life, to break the chain of poverty. A support activity related to housing construction was conducted in Austin in fiscal year 2022, in which approximately 60 employees took part and used the provided drawings and materials to complete the framework for housing. The completed framework was delivered to the location of planned construction.

Performance Summary

Environment

Scope for Calculating

The scope for calculating environmental data is the Tokyo Electron Group (27 consolidated companies), and the calculating period is fiscal year 2022 (April 1, 2021 to March 31, 2022).

Japan:Tokyo Electron Ltd. and six consolidated subsidiaries (including Tokyo Electron Technology Solutions Ltd., Tokyo Electron Kyushu Ltd., Tokyo Electron Miyagi Ltd. and Tokyo Electron FE Ltd.)

Overseas: 20 consolidated subsidiaries (including Tokyo Electron America, Inc., Tokyo Electron Europe Ltd., Tokyo Electron Korea Ltd., Tokyo Electron Taiwan Ltd., Tokyo Electron (Shanghai) Ltd. and Tokyo Electron Singapore Pte. Ltd.)

Greenhouse Gas Consumption/Emissions

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022	
CO_2 from energy consumption	Emissions metric (sales) (t-CO_2/billion yen)	1.34	1.24	1.38	1.21	0.43	
	Emissions (kt-CO_2)	152	159	155	169	86	
	Japan	119	127	127	138	65	☑
	Overseas	33	32	28	31	21	
CO_2 by scope	Scope 1[1] emissions (kt-CO_2)	9	9	11	12	12	
	Japan, energy-derived	7	7	10	10	10	☑
	Overseas, energy-derived	2	2	2	2	2	
	Scope 2[2] emissions (kt-CO_2)	143	150	144	157	74	
	Japan	112	120	118	128	55	☑
	Overseas	31	30	26	29	19	
	Scope 3[3] emissions (kt-CO_2)	23,163	25,354	22,691	24,453	29,020	
Non-energy-derived greenhouse gas	Consumption (kt-CO_2e) (Japan)	26	47	59	70	66	
	Japan - HFCs	3	3	6	5	5	
	Japan - PFCs	11	18	24	30	30	
	Japan - SF_6	4	11	11	7	11	
	Japan - Other	8	15	18	28	20	
	Consumption (kt-CO_2e) (Overseas)	—	—	—	—	6	
	Overseas - HFCs	—	—	—	—	0	
	Overseas - PFCs	—	—	—	—	1	
	Overseas - SF_6	—	—	—	—	1	
	Overseas - Other	—	—	—	—	4	
	Scope 1[4] emissions (kt-CO_2e)	8	15	16	17	4	

[1] Scope 1: Direct GHG emissions from use of fuel and gas we owned or controlled
　　Calculation method: Emissions = Σ (fuel consumed × CO_2 emission factor)
　　Emission factor based on Japan's Act on Promotion of Global Warming Countermeasures
[2] Scope 2: Indirect GHG emissions from use of electricity we purchased
　　Calculation method: Emissions = Σ (purchased electricity × CO_2 emission factor)
　　Adjusted emission factors for the electrical power providers concerned based on Japan's Act on Promotion of Global Warming Countermeasures were used as the emission factor for Japan
　　Emission factors based on values from the Emissions Factors 2019 edition published by the International Energy Agency (IEA) were used as the emission factor for overseas electricity consumption
[3] Scope 3: Emissions from corporate value chains (excluding scope 1 and 2 emissions), such as product transportation, employee business travel and major outsourced production processes. Past category 11 was reviewed.
　　The entire scope is divided into 15 categories, of which calculations were made for categories 1, 2, 3, 4, 5, 6, 7, 9, 11 and 12. Calculations for categories 8, 10, 13, 14 and 15 were not made as they are either not included in our activities or have already been included in other categories.
[4] Scope 1: Non-energy-derived CO_2 and greenhouse gases other than CO_2
　　Calculation method: Emissions = Σ (consumption × emission per unit consumption – amount recovered and properly treated) × global warming factor
　　Global warming factor is based on Japan's Act on Promotion of Global Warming Countermeasures.
　　From fiscal year 2022, the value for the amount recovered and properly treated have been reviewed to match actual conditions.

Resource Consumption

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022	
Water	Consumption (thousand m3)	1,143	1,240	1,305	1,397	1,417	
	Japan	966	1,054	1,098	1,183	1,204	☑
	Groundwater	359	363	390	430	440	
	Tap water	387	422	411	450	479	
	Industrial water	220	269	297	303	285	
	Overseas	177	186	207	214	213	
Copier paper	Use (t) (Japan)	194	165	132	38	32	

Energy Consumption/Generation

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022	
Energy	Consumption metric (sales) (kL/billion yen)	0.67	0.63	0.75	0.68	0.50	
	Consumption (crude oil equivalent) (kL)[1,2]	75,199	81,074	85,074	94,746	100,265	
	Japan	59,765	65,897	70,642	78,126	82,703	☑
	Overseas	15,434	15,177	14,432	16,620	17,562	
Electricity	Consumption (MWh)	282,274	305,795	317,614	354,961	377,432	
	Japan	226,747	250,911	265,293	294,652	313,322	☑
	Overseas	55,527	54,884	52,321	60,309	64,110	
Gas (city gas, LPG)	Consumption (crude oil equivalent) (kL)[1]	3,083	2,991	3,565	3,820	3,796	
	Japan	1,947	1,948	2,611	2,728	2,738	☑
	Overseas	1,136	1,043	954	1,092	1,058	
Fuel (heavy oil A, diesel oil, kerosene, gasoline)	Consumption (crude oil equivalent) (kL)[1,2]	1,040	1,072	1,624	1,667	1,625	
	Japan	1,026	1,055	1,603	1,651	1,612	☑
	Overseas	14	17	21	16	13	
Renewable energy (electricity)	Purchase (MWh)	3,458	3,834	3,334	4,980	227,523	
	Japan	0	0	0	0	197,137	
	Overseas	3,458	3,834	3,334	4,980	30,386	
PV power generation system	Power generation (MWh)	4,414	4,392	3,804	4,068	3,890	
	Japan	4,414	4,392	3,804	4,068	3,890	
	Overseas	0	0	0	0	0	
Power sales	Power sales (MWh)[3]	1,386	1,382	1,225	1,285	1,195	
	Japan	1,386	1,382	1,225	1,285	1,195	
	Overseas	0	0	0	0	0	
Renewable energy (electricity) use rate	Power use percentage	2	2	2	2	60	
	Japan	1	1	1	1	63	
	Overseas	6	7	6	8	47	

[1]　Calculated using the conversion factors for fuel, gas and electricity in relation to the "Act on Rationalizing Energy Use"
[2]　Past energy consumption and fuel consumption were reviewed
[3]　Heat and steam not sold

Environmental Impact of Logistics

		FY2018	FY2019	FY2020	FY2021	FY2022
CO_2	Emissions (kt-CO_2)	122	146	186	152	251
	Japan	12	9	9	9	15
	Overseas	110	137	177	143	236
Proportion of marine transportation (international)		36.4	35.9	31.9	34.3	33.2

Amount of Waste Generated

		FY2018	FY2019	FY2020	FY2021	FY2022
Waste	Amount generated (t)	14,435	14,960	13,989	14,997	14,465
	Japan	13,694	14,208	12,973	13,705	12,927
	Overseas	741	752	1,016	1,292	1,538
Dangerous/ Hazardous waste	Amount generated (t)	5,158	6,951	6,228	7,227	5,232
	Japan (Specially controlled industrial waste)	4,904	6,619	5,911	6,718	4,706
	Overseas (Dangerous/Hazardous waste per country)	254	332	317	509	526
Recycling	Recycled amount (t)	14,211	14,770	13,748	14,814	14,195
	Japan	13,561	14,092	12,831	13,587	12,795
	Overseas	650	678	917	1,227	1,400
Incinerated and landfill waste	Amount of waste (t)	224	190	241	183	270
	Japan	133	116	142	118	132
	Overseas	91	74	99	65	138
Water discharges	Water discharge volume (thousand m³)	905	1,006	1,078	1,195	1,194
	Japan	759	850	900	1,006	1,009
	Overseas	146	156	178	189	185
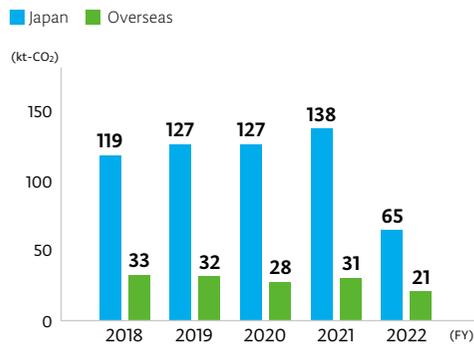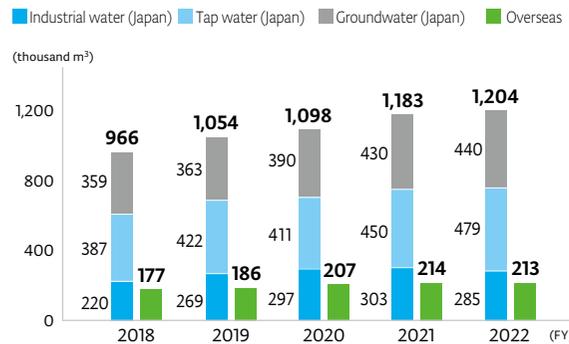
Chemical Substances Consumption/Emissions (Japan)

		FY2018	FY2019	FY2020	FY2021	FY2022
PRTR Class I designated chemical substances	Volume handled (t)	100	101	121	144	119
	Ferric chloride	82	84	98	106	85
	Hydrogen fluoride and its water-soluble salts	12	11	12	24	22
	Methylnaphthalene	5	5	10	13	11
	VOCs*	0.0	0.0	0.1	0.1	0.1
	Other	1	1	1	1	1
	Amount transported (waste amount) (t)	95	96	111	131	108
	Consumption (t)	5	5	10	13	11
NOx	Emissions (t)	11.5	9.6	11.9	13.0	13.1
SOx	Emissions (t)	2.7	2.8	4.0	4.9	4.8

* VOCs: Volatile Organic Compounds

Other

		FY2018	FY2019	FY2020	FY2021	FY2022
ISO 14001	Number of certified offices	9	9	9	11	11
	Japan	5	5	5	5	5
	Overseas	4	4	4	6	6
Biodiversity	Number of ecosystem tours*	22	17	18	18	16
	Number of ecosystem tour participants*	718	595	368	52	87
Environmental laws and regulations	Number of breaches of environmental laws and regulations	0	0	0	0	0
	Amount of fines for breaches of laws and regulations	0	0	0	0	0
Total product shipment (t)*		34,110	32,715	31,184	28,862	41,352

* Scope: Japan

CO₂ from Energy Consumption

■ Japan ■ Overseas

(kt-CO_2)

Water Consumption

■ Industrial water (Japan) ■ Tap water (Japan) ■ Groundwater (Japan) ■ Overseas

(thousand m³)

Recycling Rate/Generation of Incinerated and Landfill Waste in Japan

■ Incinerated and landfill waste
─○─ Recycling rate (%): (Recycled amount/Amount of waste generated) × 100

(t)   (%)

Target: Maintain recycling rate of 97% or more

Volume of PRTR Class I Designated Chemical Substances Handled in Japan

■ Ferric chloride ■ Hydrogen fluoride and its water-soluble salts
■ Methylnaphthalene ■ Other

(t)
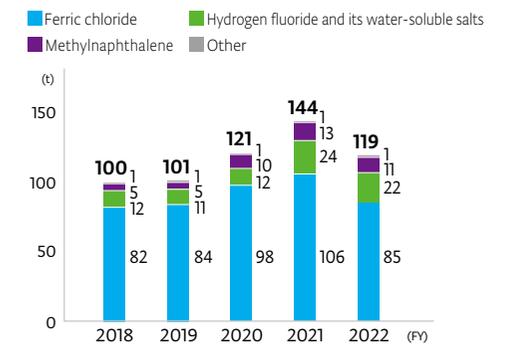
Social

Scope for calculating

The scope for calculating social data is the Tokyo Electron Group (27 consolidated companies), and the calculating period is fiscal year 2022 (April 1, 2021 to March 31, 2022).

Japan: Tokyo Electron Ltd. and six consolidated subsidiaries (including Tokyo Electron Technology Solutions Ltd., Tokyo Electron Kyushu Ltd., Tokyo Electron Miyagi Ltd. and Tokyo Electron FE Ltd.)

Overseas: 20 consolidated subsidiaries (including Tokyo Electron America, Inc., Tokyo Electron Europe Ltd., Tokyo Electron Korea Ltd., Tokyo Electron Taiwan Ltd., Tokyo Electron (Shanghai) Ltd. and Tokyo Electron Singapore Pte. Ltd.)

Composition of Employees (Japan and entire Group)

		FY2018	FY2019	FY2020	FY2021	FY2022
Regular employees (Region/Entire Group)	Number of regular employees	11,696	12,469	13,542	14,022	15,140
	Japan	7,268	7,526	7,806	7,921	8,234
	Rest of Asia	2,218	2,832	3,494	3,796	4,328
	Europe and Middle East	492	513	528	509	578
	North America	1,718	1,598	1,714	1,796	2,000

		FY2018	FY2019	FY2020	FY2021	FY2022
Employees (Employment type/ Japan)	Number of employees	7,516	7,797	8,100	8,296	8,661
	Regular employees	7,268	7,526	7,806	7,921	8,234
	Men	6,292	6,479	6,681	6,722	6,944
	Women	976	1,047	1,125	1,199	1,290
	Non-regular employees	248	271	294	375	427
	Men	181	220	263	348	403
	Women	67	51	31	27	24

Recruitment/Employment (Japan and part of entire Group included)

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022
New graduates hired	Number hired	167	199	281	253	209
	Under 30 yrs. old	163	198	280	252	208
	Men	131	166	233	207	177
	Women	32	32	47	45	31
	30–49 yrs. old	4	1	1	1	1
	Men	4	1	1	1	0
	Women	0	0	0	0	1

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022	
New graduates hired	50 yrs. old and over	0	0	0	0	0	
	Men	0	0	0	0	0	
	Women	0	0	0	0	0	
	Percentage of women	19.2	16.1	16.7	17.8	15.3	
Career-track recruits	Number hired	262	239	150	191	400	
	Under 30 yrs. old	102	85	42	56	131	
	Men	85	67	35	49	96	
	Women	17	18	7	7	35	
	30–49 yrs. old	156	145	96	123	250	
	Men	135	119	82	92	202	
	Women	21	26	14	31	48	
	50 yrs. old and over	4	9	12	12	19	
	Men	3	5	10	11	17	
	Women	1	4	2	1	2	
	Percentage of women	14.9	20.1	15.3	20.4	21.3	
Employees with disabilities	Percentage hired (TEL)	2.22	2.18	2.06	2.43	2.32	
	Percentage hired (Group in Japan)	1.91	2.04	2.01	2.3	2.37	
Female managers[1,2] (Entire Group)	Number of people	—	—	—	—	163	
	Percentage	—	—	—	—	5.5	
	Number of people (senior directors and above[3])	—	—	—	—	10	
	Percentage (senior directors and above[3])	—	—	—	—	2.2	
	Number of people (Japan)	20	22	23	26	46	
	Percentage (Japan)	1.8	2.0	2.0	2.2	2.6	☑
Reemployment system	Number of users	156	201	242	313	389	
	Men	155	196	235	305	376	
	Women	1	5	7	8	13	
Second career support system	Number of users	31	30	23	23	18	
	Men	30	28	18	20	15	
	Women	1	2	5	3	3	
Percentage of regular employees who received regular performance and career evaluations		100.0	100.0	100.0	100.0	100.0	

1 Percentage of female managers, calculation method: (Number of female managers/Number of managers) × 100
   Include experts in the number of managers from fiscal year 2022
2 As of March 31
3 Employees of a certain level or position based on the global human resources system

Employee Retention (Japan and part of entire Group included)

		FY2018	FY2019	FY2020	FY2021	FY2022
Employee retention	Retention after three years of joining TEL[1]	93.4	93.0	93.8	94.1	94.7
	Men	94.3	93.5	94.6	94.8	95.0
	Women	87.1	88.0	88.6	89.3	93.5
	Average service years	17 yrs. 1 mo.	17 yrs. 2 mos.	17 yrs. 2 mos.	17 yrs. 4 mos.	17 yrs. 2 mos.
	Men	17 yrs. 4 mos.	17 yrs. 5 mos.	17 yrs. 5 mos.	17 yrs. 7 mos.	17 yrs. 6 mos.
	Women	15 yrs. 7 mos.	15 yrs. 8 mos.	15 yrs. 11 mos.	15 yrs. 10 mos.	15 yrs. 8 mos.
Turnover[2]	Employee turnover	103	108	82	87	87
	Men	82	88	54	75	69
	Women	21	20	28	12	18
	Turnover percentage	1.4	1.4	1.0	1.0	1.0
	Employee turnover (Entire Group)	—	—	—	—	589
	Men	—	—	—	—	507
	Women	—	—	—	—	82
	Turnover percentage (Entire Group)	—	—	—	—	4.2

1 Average in recent five years
2 Turnover due to personal circumstances

Work-life Balance (Japan)

☑ denotes data with third-party assurance

		FY2018	FY2019	FY2020	FY2021	FY2022
Annual paid leave	Take-up rate*	64.3	67.2	72.6	62.5	64.6 ☑
Refreshment leave	Number of those who took leave	639	605	901	688	512
	Men	556	507	773	610	435
	Women	83	98	128	78	77
Paternity leave	Number of those who took leave	180	155	184	148	137
Childcare leave	Number of those who took leave	41	56	46	41	70
	Men	4	8	12	16	36
	Women (percentage who took leave)	37 (92.5)	48 (100.0)	34 (97.1)	25 (92.6)	34 (97.1)
	Number of those who returned to work after leave	44	43	48	54	60
	Men	6	6	8	15	32
	Women	38	37	40	39	28
	Percentage reinstated	93.6	93.5	94.1	96.4	95.2
	Retention rate	90.0	88.9	93.3	95.0	90.0
Shorter working hour system	Number of those who used	176	153	149	132	110
	Men	24	8	11	9	7
	Women	152	145	138	123	103
Leave to care for sick/ injured child	Number of those who took leave	455	517	625	510	547
	Men	281	334	428	353	373
	Women	174	183	197	157	174
Childcare support leave	Number of those who took leave	120	129	125	86	80
	Men	19	26	26	29	23
	Women	101	103	99	57	57
Extended nursing care leave	Number of those who took leave	3	5	2	2	1
	Men	2	2	2	0	0
	Women	1	3	0	2	1
Short nursing care leave	Number of those who took leave	47	63	95	110	87
	Men	25	38	56	69	57
	Women	22	25	39	41	30
Shorter working hour system for nursing care	Number of those who used	0	2	2	0	4
	Men	0	0	1	0	2
	Women	0	2	1	0	2

* Take-up rate of annual paid leave Calculation method: (Days of paid leave taken by employees*) / (Days of paid leave provided to employees*) × 100 * Incl. non-regular employees

Social (Other)

Products/Innovation

		FY2018	FY2019	FY2020	FY2021	FY2022
Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services		0	0	0	0	0
Active issued patents (Region/ Country)	Number of active issued patents	16,767	17,473	18,137	18,692	19,572
	Japan	5,091	5,304	5,348	5,484	5,703
	U.S.	4,321	4,415	4,606	4,822	4,988
	Europe	185	179	191	206	167
	Korea	2,864	3,076	3,223	3,363	3,731
	Taiwan	2,675	2,817	2,948	2,925	3,014
	China	1,631	1,682	1,821	1,892	1,969

		CY2016*	CY2017*	CY2018*	CY2019*	CY2020*
Global patent application rate		76.1	81.2	79.8	74.3	74.6
Patent application success rate	Japan	71.5	82.9	83.1	84.9	79.8
	U.S.	78.0	85.1	85.5	87.3	83.9

* Calendar year when patents were filed/granted

Customers

	FY2018	FY2019	FY2020	FY2021	FY2022
Percentage of respondents who selected "Very Satisfied" or "Satisfied" in the customer satisfaction survey	59.4	84.4	93.3	96.7	100.0

Safety

	FY2018	FY2019	FY2020	FY2021	FY2022
Percentage of employees who received training on basic safety	100	100	100	100	100
Percentage of employees who received training on advanced safety	100	100	100	100	100
Lost time incident rate (LTIR)	0.77	0.40	0.51	0.63	0.66
Number of workplace injuries per 200,000 work hours (TCIR)	0.38	0.20	0.23	0.27	0.30

Procurement

	FY2018	FY2019	FY2020	FY2021	FY2022
Percentage of new important suppliers screened using social criteria	100	100	100	100	100
Rate of improvement after supply chain sustainability assessment	20.7	—*	35.8	23.1	31.5
Rate of improvement after supply chain BCP assessment	21.2	19.4	16.0	20.3	24.4
Number of identified RMAP conformant smelters (rate of identification)	249 (100)	253 (100)	261 (100)	236 (100)	243 (100)

* Unable to compare with previous fiscal year due to comprehensive revisions, including the survey

Governance

	FY2018	FY2019	FY2020	FY2021	FY2022
Total number of critical incidents notified to the Board of Directors	0	0	0	0	0
Total number of incidents subject to legal action on the basis of anti-competitive conduct, antitrust activity or monopolistic practices where the governance body's involvement was revealed	0	0	0	0	0
Number of executive officers who received training on anti-corruption[1]	13	0	0	15	20
Total number (percentage) of directors who provided instructions on the body's policies and procedures in relation to anti-corruption[1]	12 (100)	12 (100)	11 (100)	11 (100)	12 (100)
Total number (percentage) of directors who received training on anti-corruption[1]	9 (75.0)	0 (0)	11 (100)	0 (0)	0 (0)
Payment to industry groups, etc. (thousand yen)[2]	20,543	21,093	29,927	32,036	56,374
Payment to politically affiliated organizations (yen)	0	0	0	0	0
Average tenure of directors	8.04	7.36	4.84	6.09	6.58
Average rate of attendance for Board meetings	99.46	98.24	99.39	98.96	99.50

1   Scope: Japan
2   Industry groups were reviewed from FY2022

Compliance

	FY2018	FY2019	FY2020	FY2021	FY2022
Education on TEL's Code of Ethics/pledge rate*	—	—	—	98.8	91.6
Percentage of employees who have consented to the information security agreement	99.9	100.0	100.0	99.4	99.9
Significant fines and non-monetary sanctions for non-compliance with laws and regulations in the social and economic area	0	0	0	0	0

* Scope: Entire Group

Social Contribution

		FY2018	FY2019	FY2020	FY2021	FY2022
Spending on social contribution (million yen)*		238	281	250	244	170
Cash donations breakdown	Charity donations (providing donations/relief supplies to charity organizations)	13	11	4	13	15
	Community investment (charitable expenses for long-term cause for community)	49	55	68	62	75
	Commercial initiatives (charitable expenses with anticipated effects on business growth)	38	34	28	25	10

* Spending on social contribution activities excluding disaster relief contributions

Independent Practitioner's Assurance

Deloitte.
デロイト トーマツ

（TRANSLATION）

Independent Practitioner's Assurance Report

July 26, 2022

Mr. Toshiki Kawai,
Representative Director, President & CEO,
Tokyo Electron Ltd.

Masahiko Sugiyama
Representative Director
Deloitte Tohmatsu Sustainability Co., Ltd.
3-2-3, Marunouchi, Chiyoda-ku, Tokyo

We have undertaken a limited assurance engagement of the CO_2 Emissions from energy consumption in Japan, CO_2 Emissions by scope in Japan, Energy consumption in Japan, Electricity consumption in Japan, Gas consumption in Japan, Fuel consumption in Japan, Water consumption in Japan, Female managers percentage in Japan and Annual paid leave take-up rate in Japan indicated with ☑ for the year ended March 31, 2022 (the "Sustainability Information") included in the "TOKYO ELECTRON SUSTAINABILITY REPORT 2022" (the "Report") of Tokyo Electron Ltd. (the "Company").

The Company's Responsibility
The Company is responsible for the preparation of the Sustainability Information in accordance with the calculation and reporting standard adopted by the Company (indicated with the Sustainability Information included in the Report). CO_2 quantification is subject to inherent uncertainty for reasons such as incomplete scientific knowledge used to determine emissions factors and numerical data.

Our Independence and Quality Control
We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility
Our responsibility is to express a limited assurance conclusion on the Sustainability Information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements ("ISAE") 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board ("IAASB"), ISAE 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the IAASB and *the Practical Guideline for the Assurance of Sustainability Information*, issued by the Japanese Association of Assurance Organizations for Sustainability Information.
The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. These procedures also included the following:
· Evaluating whether the Company's methods for estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or reperforming the estimates.
· Performing interviews of responsible persons and inspecting documentary evidence to assess the completeness of the data, data collection methods, source data and relevant assumptions applicable to the sites.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

Limited Assurance Conclusion
Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Sustainability Information is not prepared, in all material respects, in accordance with the calculation and reporting standard adopted by the Company.

The above represents a translation, for convenience only, of the original Independent Practitioner's Assurance report issued in the Japanese language.

Member of
Deloitte Touche Tohmatsu Limited

Corporate Profile

Corporate Profile

Company Name:

Tokyo Electron Limited

Address:

Akasaka Biz Tower

3-1 Akasaka 5-chome, Minato-ku, Tokyo 107-6325, Japan

Established:

November 11, 1963

Representative:

Toshiki Kawai

Representative Director, President & CEO

Main Business:

Semiconductor Production Equipment Business,

Flat Panel Display (FPD) Production Equipment Business

Capital:

54,961 million yen

Number of Employees:

15,883 (consolidated)

1,821 (non-consolidated)

Number of Sites:

Japan: 7 companies at 25 sites

Overseas: 20 companies at 52 sites

in 17 countries and regions

Worldwide total: 27 companies at 77 sites

in 18 countries and regions (consolidated)

(as of April 1, 2022)

Financial Data

🡵 Earnings Release

🡵 Security Release