YOKOGAWA ◆

Co-innovating tomorrow™

2023 Yokogawa Sustainability Report

Utilizing our ability to measure and connect, we fulfill our responsibilities for the future of our planet.

(Yokogawa's Purpose established in 2021)

Aspiring to address social issues by leveraging Yokogawa's ability to measure and connect, we adopted Yokogawa's Purpose. No single organization or system alone can solve the serious issues the world faces, such as climate change, plastic and waste, and COVID-19.

We need to look for ways to address issues by assessing situations, sharing various information, and organically connecting organizations and systems.

It is also important to respect the human rights of all people and build a world without discrimination as our basic premise. Yokogawa will continue to seek reform together with stakeholders around the world, striving to make the world a better place for future generations.

Statement on Yokogawa's Aspiration for Sustainability

Yokogawa will work to achieve net-zero emissions, ensure the well-being of all, and make a transition to a circular economy by 2050, thus making the world a better place for future generations.

We will undergo the necessary transformation to achieve these goals by 1. becoming more adaptable and resilient, 2. evolving our businesses to engage in regenerative value creation, and 3. promoting co-innovation with our stakeholders.

(Formulated in 2017)

The Yokogawa Philosophy

As a company, our goal is to contribute to the realization of a sustainable society through broad-ranging activities in the areas of measurement, control, and information

Individually, we aim to combine good citizenship with the courage to innovate..

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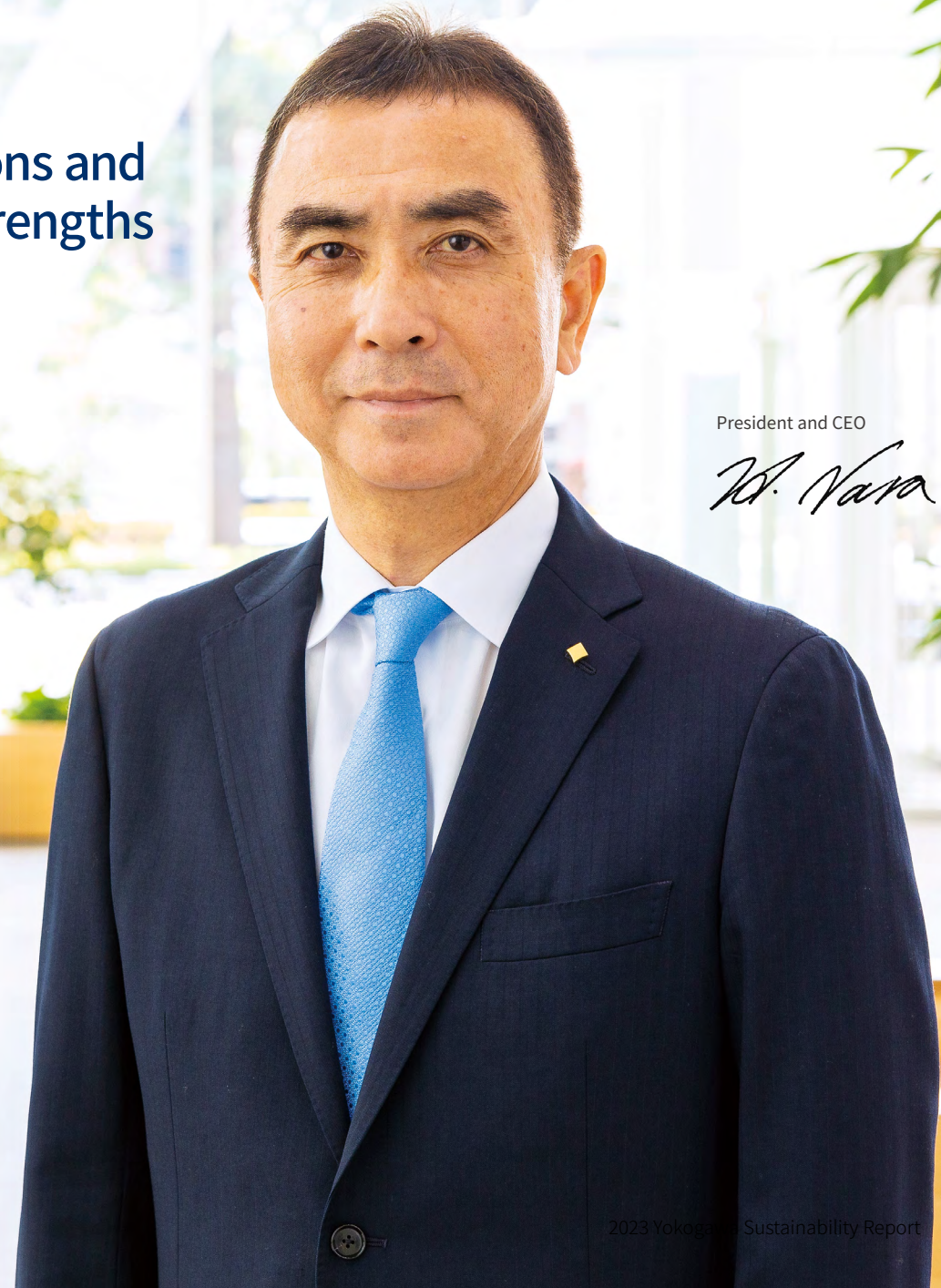
Message from the President

We are moving forward with our contributions and growth while refining Yokogawa's unique strengths

Understanding changes in our business environment to enhance our ESG management

Based on Yokogawa's Purpose, which reads, "Utilizing our ability to measure and connect, we fulfill our responsibilities for the future of our planet," we focus on the environment, society, and governance (ESG) in our management.

Environmental and social issues grow increasingly serious year by year, and we have witnessed a variety of events over the past year. At the COP27 international climate change conference, which was held in November 2022 in Egypt, the participants reaffirmed the importance of limiting the global temperature increase to no more than 1.5°C above pre-industrial levels (the 1.5°C goal). And the COP15 international biodiversity conference, which was held in Canada in December 2022, saw the adoption of the Kunming-Montreal Global Biodiversity Framework, which includes nature-positive goals. Amid the heated debate on measures to address environmental issues at international conferences such as these, it has become clear that any delay in their implementation will result in an even more serious environmental crisis, as seen in developments such as the average global temperature for July 2023 being the highest on record for any month.

In light of such changes, at Yokogawa we are working to further enhance our ESG management. So far, we have defined "Three goals" for sustainability as our vision for society in the year 2050, and in the Accelerate Growth 2023 (AG2023) mid-term business plan that was formulated in fiscal year 2021, we employed a materiality analysis process to select six areas where we will contribute toward their achievement. In line with these six contribution areas, we perceive the task of resolving the social issues faced by our customers as business opportunities, and we will make contributions and achieve growth in each of our businesses. In last year's Yokogawa Sustainability Report, the article "Story of growing our businesses and contributing to society" summarized this process. This year, we have expanded on this and are presenting stories on all our focus areas. Also, we have worked for some time to strengthen governance, the foundation for our contributions and growth, focusing on the Board of Directors, which engages in vigorous discussions on various ESG issues. The Sustainability Committee, which was established in 2022 as an advisory body to the Management Board, has engaged in discussions on a broad range of topics, such as materiality analysis and the formulation of the above-mentioned "Story of growing our businesses and contributing to society." Committee meetings are chaired by myself and attended by all executive officers. This fiscal year, we are promoting ESG management with the intention to further integrate our contributions and business growth, and are pushing ahead with deeper discussions of matters such as Scope 3 GHG emissions reduction strategies and product resource recycling.
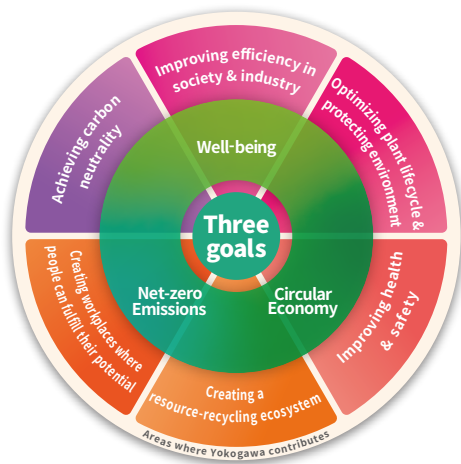
President and CEO

(signature)

Message from the President

Expanding business opportunities by contributing to sustainability

Over the past year, I have visited our customers in various regions and industries. With society facing ever more serious issues, I have gained a first-hand appreciation of the challenges that industries are taking on. In Europe, for example, the shift to a hydrogen economy is accelerating, amidst the energy transition trend.

Under AG2023, we have established three industry business subsegments under our main control business that match up with our customers' industry sectors: Energy & Sustainability, Materials, and Life. This structure enables us to provide our products and solutions to customers in diverse industries and contribute to a wider range of areas. With our customers facing increasingly diverse and complex issues, I sense that they are responding positively to the solutions we are providing that leverage Yokogawa's strengths, such as the ability to integrate information technology (IT) and operational technology (OT), based on our extensive project track record. For example, Yokogawa is in charge of optimizing operations as the main automation contractor for a green hydrogen project at the Port of Rotterdam in the Netherlands. Also, at a chemical plant in Japan, we have successfully field-tested an AI solution that autonomously controlled a distillation column that previously has been controlled manually. In addition to maintaining quality and reducing workload, the system reduced both steam consumption and CO_2 emissions by 40%.

These are only a couple of our many initiatives. We will continue to work with our customers to zresolve the various issues arising from social and environmental changes.

The growth of our employees creates Yokogawa's future

I believe that Yokogawa's strength lies in its resilience and its capacity to transform itself to adapt to changing circumstances. At the same time, the business environment continues to change at an ever greater speed, and it is vital that we boldly step ahead and take on the challenge to transform. To achieve this, the growth of each employee is ever more important.

Yokogawa is a global company, with approximately 70% of our net sales generated overseas. Our organization brings together personnel with a wide range of experience, perspectives, and cultural backgrounds, and so initiatives for diversity, equity, and inclusion are extremely important to us. When diverse people are gathered together, it gives rise to something like a chemical reaction, generating new perspectives and methods that go beyond conventional ways of thinking and doing things. Along with this diversity in perspectives and methods, collaboration with other companies also fuels transformation. The cumulative results of this transformation will mold Yokogawa's future.

In addition to accelerating this transformation, we are promoting various initiatives to cultivate a corporate culture and organizational environment that encourages employees to make proposals and take on challenges. We will link together the growth of each of our employees to create Yokogawa's future.

Three goals and six contribution areas

Six contribution areas	Priority issues
Achieving carbon neutrality	Reducing GHG emissions and enabling the transition to affordable, reliable, and sustainable forms of energy
Improving efficiency in society & industry	Optimizing production, enabling autonomy, and facilitating the efficient use of resources and energy through DX
Optimizing plant lifecycle & protecting environment	Supporting both the long-term optimal operation of plant assets and the reduction of their environmental footprint
Improving health & safety	Promoting life-related innovation and improving safety in plants and communities
Creating a resource-recycling ecosystem	Fostering the development of the bioeconomy and a circular economy
Creating workplaces where people can fulfill their potential	Establishing an equal opportunity workplace where employees can be treated with dignity and fulfill their potential

Yokogawa Business Overview

Business

Yokogawa contributes to solving social issues, utilizing its ability to measure and connect.

 We have divided the control business, our main business, into three industry subsegments: Energy & Sustainability, Materials, and Life. That allows us to provide products and solution services that can solve issues of customers in various industries and social issues.

Energy & Sustainability	Materials	Life	Measuring Instruments, New Businesses and Other
The energy & sustainability business segment protects the environment by supporting the effective use of energy and contributing to the realization of a sustainable society. Capitalizing on its expertise and strong customer relationships in the oil & gas, petrochemical, renewable energy, power, energy management, and energy storage fields, Yokogawa supports safe and optimal operations throughout the increasingly diversified energy supply chain, from production and supply through to use, disposal, and recycling.	The materials business segment is helping to bring about a circular economy that offers comfort and convenience and is in harmony with the environment. For our customers in the specialty chemicals, biomass materials, pulp & paper, textiles, steel, non-ferrous metals, mining, mobility, and electrical/electronics fields, we provide solutions that improve productivity, reduce environmental impact, and save energy.	The life business segment provides solutions that support people's lives and protect health and safety. In addition to our activities in the pharmaceuticals and healthcare fields, we are engaged in businesses that ensure everyone has access to safe water and food. To improve productivity throughout the pharmaceutical and food value chains, we utilize the sensing and control technologies that Yokogawa has developed over the years to support innovations in product and production processes. In the water field, we aim to create new value by using the measurement technologies that have been acquired through our activities in such fields as genome analysis and scientific instrumentation.	The measuring instruments business helps our customers achieve technological innovation. We provide total solutions, including software and services to customers in three industrial fields (decarbonization, telecommunication, and well-being), making full use of high-precision measuring technology. Our new businesses include bio-related businesses.
• Oil & gas • Petrochemical • Renewable energy • Power • Energy management • Energy storage	• Specialty chemicals • Biomass materials • Pulp & paper • Textiles • Steel • Non-ferrous metals • Mining • Mobility • Electrical/electronics	• Pharmaceuticals • Healthcare • Food • Water	**Measuring instruments** • Energy • Info-comm • Healthcare **New businesses and other** • amnimo Inc. • Bio-related businesses

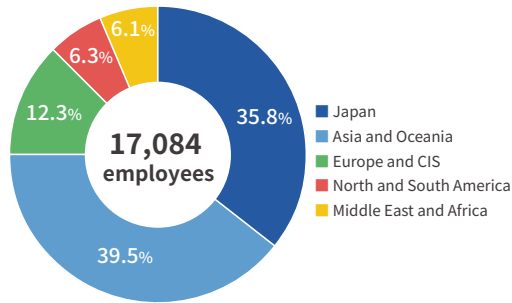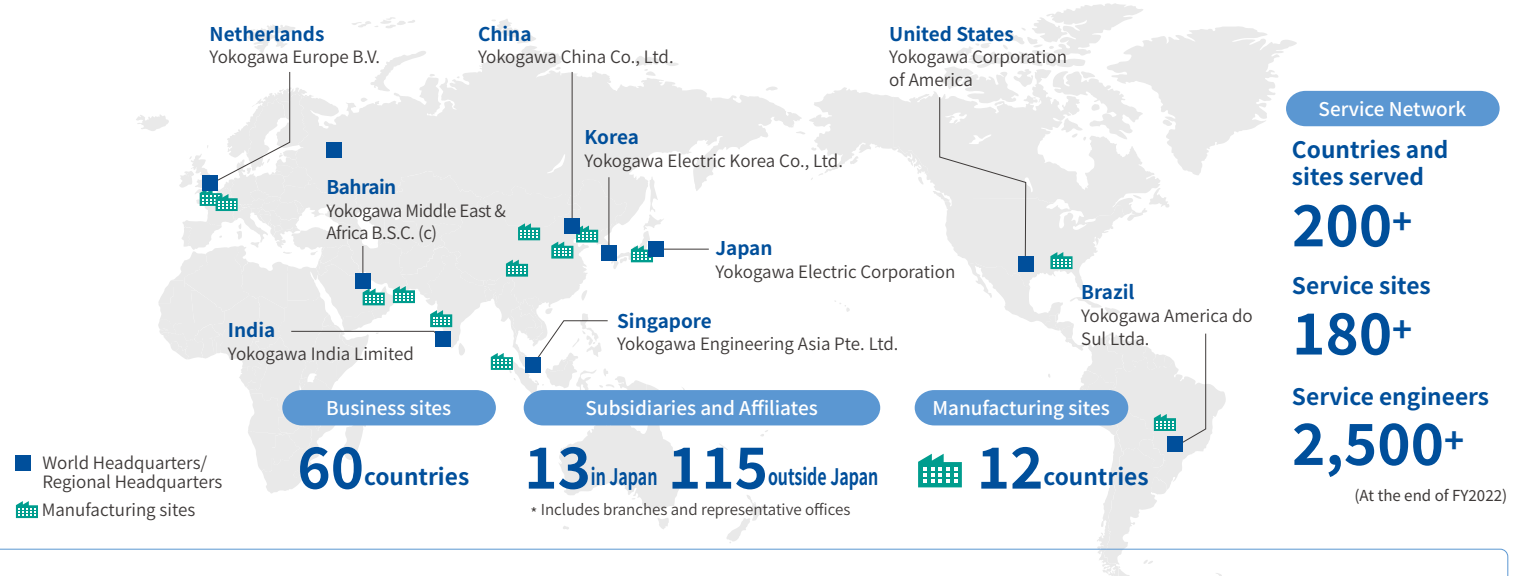| Areas for exploration	Disaster prevention, space, and ocean

Yokogawa Business Overview

Network

Yokogawa conducts business in more than 80 countries around the world. We are actively recruiting local human resources at each location and have built trust with customers and local communities over many years. Moreover, based on our corporate philosophy, we are engaged in businesses for the realization of a sustainable society as good citizens.

Employees by Region
(At the end of FY2022)

17,084 employees

- Japan — 35.8%
- Asia and Oceania — 39.5%
- Europe and CIS — 12.3%
- North and South America — 6.3%
- Middle East and Africa — 6.1%

Global Network Supporting Business Growth

Netherlands
Yokogawa Europe B.V.

China
Yokogawa China Co., Ltd.

United States
Yokogawa Corporation of America

Korea
Yokogawa Electric Korea Co., Ltd.

Bahrain
Yokogawa Middle East & Africa B.S.C. (c)

Japan
Yokogawa Electric Corporation

India
Yokogawa India Limited

Singapore
Yokogawa Engineering Asia Pte. Ltd.

Brazil
Yokogawa America do Sul Ltda.

- ■ World Headquarters/ Regional Headquarters
- 🏭 Manufacturing sites

Business sites
60 countries

Subsidiaries and Affiliates
13 in Japan **115** outside Japan
* Includes branches and representative offices

Manufacturing sites
🏭 **12** countries

Service Network

Countries and sites served
200+

Service sites
180+

Service engineers
2,500+

(At the end of FY2022)

Activities with External Organizations

2009
Joined the Global Compact (United Nations)

WE SUPPORT
UN GLOBAL COMPACT

This report covers initiatives for addressing the Compact's ten principles for four areas (human rights, labor, the environment, and anti-corruption).

2017
Joined the WBCSD*
* World Business Council for Sustainable Development

WBC
World Business Council
for Sustainable Development

We are participating in projects for sustainable development.

2019
Expressed support of the TCFD* recommendations
* Task Force on Climate-related Financial Disclosures

TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

We disclose information in accordance with TCFD recommendations. For more details, see the Climate Risks and Opportunities (Response to TCFD) page.

Yokogawa Business Overview

Technology

Yokogawa contributes to solving social issues through its ability to measure and connect, which has developed throughout its history.

The Ability to Measure

The origins and starting point for Yokogawa's business lie in measurement. We seek value in the information that is derived by measuring things, grasping their current state, and making predictions.

Based on its ability to measure things, Yokogawa continues to provide value and support industries by offering oscilloscopes, power analyzers, optical test equipment, and other high-precision measuring instruments that are commonly referred to as "the mother tools of industry." For use in plant facilities, the company also provides a full range of field instruments, including flowmeters, pressure and temperature transmitters, and process analyzers.
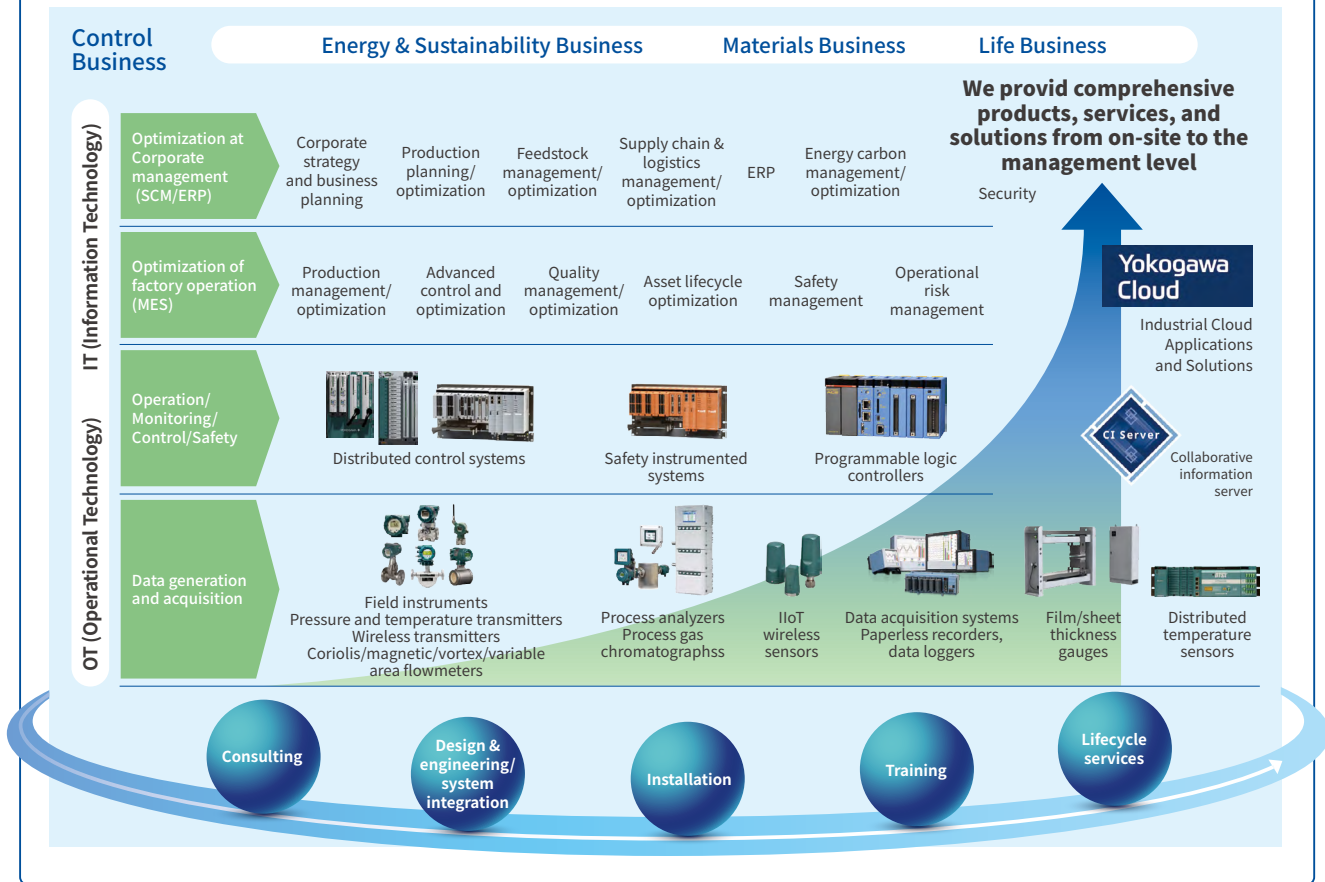
The Ability to Connect

By connecting, Yokogawa not only combines valuable information, but also builds trusted relationships with customers from multiple industries and brings together companies and industries, giving resonance to the value that the company creates.

Yokogawa has cultivated its ability to connect by offering control systems and solutions that provide a solid footing for highly efficient and safe plant operations and the production of high-quality products. The company has broadened its offering of solutions to cover entire value chains and supply chains, and aims to expand its collaboration to take the creation of value even further.

Main Product and Solution Portfolio in the Control Business

At Yokogawa, we integrate our high-quality, highly reliable products and solutions, from the measurement and control technologies we have developed over many years to leading-edge technologies such as digital twins and AI, to solve the issues faced by our customers and contribute to resolving social issues.

Control Business

Energy & Sustainability Business   Materials Business   Life Business

We provid comprehensive products, services, and solutions from on-site to the management level

IT (Information Technology)

Optimization at Corporate management (SCM/ERP): Corporate strategy and business planning · Production planning/optimization · Feedstock management/optimization · Supply chain & logistics management/optimization · ERP · Energy carbon management/optimization · Security

Optimization of factory operation (MES): Production management/optimization · Advanced control and optimization · Quality management/optimization · Asset lifecycle optimization · Safety management · Operational risk management

OT (Operational Technology)

Operation/Monitoring/Control/Safety: Distributed control systems · Safety instrumented systems · Programmable logic controllers

Data generation and acquisition: Field instruments · Pressure and temperature transmitters · Wireless transmitters · Coriolis/magnetic/vortex/variable area flowmeters · Process analyzers · Process gas chromatographss · IIoT wireless sensors · Data acquisition systems · Paperless recorders, data loggers · Film/sheet thickness gauges · Distributed temperature sensors

Yokogawa Cloud — Industrial Cloud Applications and Solutions

CI Server — Collaborative information server

Consulting · Design & engineering/system integration · Installation · Training · Lifecycle services
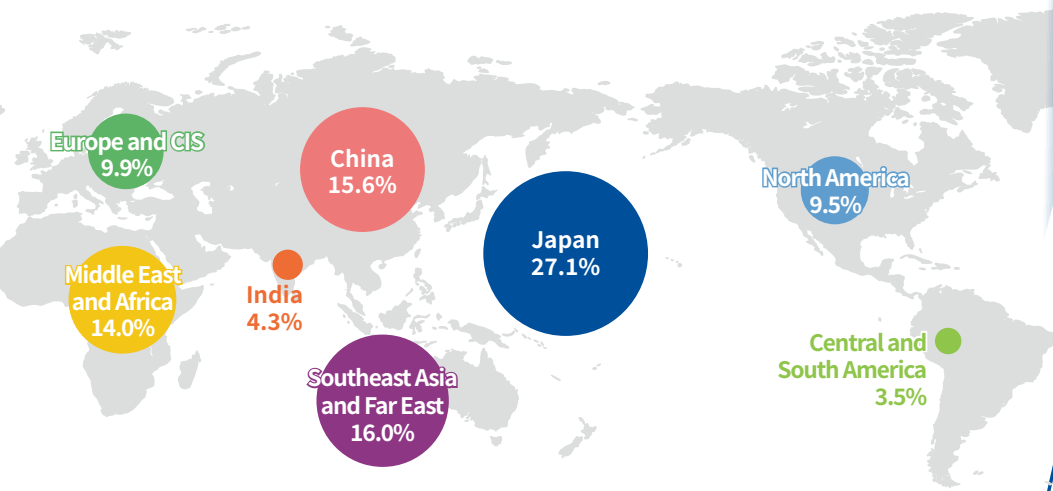
Yokogawa Business Overview

Extensive Achievements and Transformation

Yokogawa has contributed to solving the issues faced by its customers and society around the world. We will build on our extensive achievements as we continue to transform ourselves to further expand our contribution and growth.

Building on Yokogawa's Extensive Delivery Track Record to Achieve Contribution and Growth

Since its foundation in 1915, Yokogawa has been contributing to social development by providing innovative products and solutions to industries based on its measurement, control, and information technologies. Over the six decades since we began our global business development rooted in local communities, Yokogawa has undertaken over 40,000 projects worldwide. By expanding into diverse industries, we boast a high market share not only in Japan, but also in the Middle East, China, ASEAN, and other resource-rich regions and emerging countries.

    This extensive track record of deliveries testifies to the relationships of trust we have built with customers over many years. It is the foundation for Yokogawa's sustainable growth and contribution to solving social issues.

Europe and CIS 9.9%

China 15.6%

North America 9.5%

Japan 27.1%

Middle East and Africa 14.0%

India 4.3%

Southeast Asia and Far East 16.0%

Central and South America 3.5%

Fiscal year 2022 control business net sales by region

Transforming to Further Expand Contribution and Growth

Amid dramatic changes in the business environment, companies are expected to take an ever greater part in solving social issues. Yokogawa perceives these changes as a business opportunity. We will strengthen our ability to measure and connect, transforming into a company that continues to create value. Under our mid-term business plan, Accelerate Growth 2023 (AG2023), we are expanding our contribution and growth capabilities, including through the utilization of M&A and alliances, to widen the range of solutions we provide and strengthen industry responsiveness.

Main Topics in Fiscal Year 2022 (New Companies, M&A, and Alliances)

Expanding the range of solutions we provide

- Established Yokogawa Digital Corporation to support DX in the manufacturing industry
- Invested in Waylay NV, a leading enterprise software company in Belgium
- Acquired Votiva Singapore Pte. Ltd. to accelerate the growth of our ERP business in Southeast Asia
- Acquired Fluence Analytics, Inc., a pioneer in the digitalization of polymerization reaction process measurement

Strengthening industry responsiveness

- Acquired Dublix Technology ApS, a Danish company with efficiency improvement technology for waste and biomass power plants
- Formed a capital and business alliance with Ideation3X Pte. Ltd., a company engaged in the recycling-based waste disposal business in India
- Established SynCrest Inc., a joint venture with Otsuka Chemical Co., Ltd., and commenced a full-scale entry into the contracted research, development, and manufacturing business for middle-molecule pharmaceuticals

Stakeholder Engagement

Yokogawa is engaging with diverse stakeholders on a wide range of themes.

Customers	Shareholders and investors	Employees	Suppliers	Local communities and society
Objectives and themes				
• Solve social issues faced by customers • Establish a support system	• Disclose information in a timely and appropriate manner • Have active and continuous dialogue • Feedback to management	• Employees' engagement • Human resource development and capability development • Establish a comfortable working environment • Respect workers' rights	• Equal and fair business relationships • Promote supply chain sustainability	• Contribute to the sustainable development of an international society • Protect the Earth's environment • Contribute to local communities
Key Initiatives				
• Provide consulting services to identify and solve issues • Develop and provide products and services utilizing cutting-edge technologies and DX • Establish a global service structure	• Financial results briefings (quarterly) and general shareholders meetings (annually) • IR events including business strategy briefings • Individual meetings with investors and analysts	• Conduct engagement surveys to identify the status and respond to it • Leverage Yokogawa University (an in-house institution) to promote learning • Establishing the occupational health and safety committees • Consultation between labor and management	• Implement sustainable procurement based on self-assessment questionnaires (SAQ) • Promote green procurement with less environmental burdens	• Participate in international projects to help emerging and developing countries develop further • Reduce greenhouse gas and preserve water resources • Cooperate with NGOs and NPOs • Engage in volunteer activities in local communities

Related information

Network (P.06) Our Stories (P.17)	"Investor Relations" on our website https://www.yokogawa.com/about/ir/	Improvement of Employee Engagement (P.42) Human Resources Development (P.44) Safe and Comfortable Work Environment (P.45)	Supply Chain Management (P.72)	Our Stories (P.17) Community Engagement (P.52) Greenhouse Gas (GHG) Emissions Reduction (P.57) Environmental Initiatives at Business Facilities (P.61)

External Ratings

Yokogawa's ESG (environment, social, governance) management has received high external ratings.

Global

Member of Dow Jones Sustainability Indices Powered by the S&P Global CSA

2023 MSCI ESG Leaders Indexes Constituent

FTSE4Good

MSCI ESG RATINGS AA | CCC B BB BBB A AA AAA

GOLD 2023 ecovadis Sustainability Rating

Corporate ESG Performance RATED BY ISS ESG▷ | Prime

CDP SUPPLIER ENGAGEMENT LEADER 2022

CDP DISCLOSURE INSIGHT ACTION A LIST 2022 WATER

Japan

2023 CONSTITUENT MSCI JAPAN ESG SELECT LEADERS INDEX

2023 CONSTITUENT MSCI JAPAN EMPOWERING WOMEN INDEX (WIN)

FTSE Blossom Japan

FTSE Blossom Japan Sector Relative Index

2023 Sompo Sustainability Index»

S&P/JPX Carbon Efficient Index

MORNINGSTAR GenDi J Japan ex-REIT Gender Diversity Tilt Index TOP CONSTITUENT 2023

🖥 See Yokogawa's website for more details on external ratings：https://www.yokogawa.com/about/ir/

Stakeholder Engagement Initiatives

Open Innovation for Control Systems
Customers

Innovating through co-creation with our customers

Control systems have evolved in many ways together with advances in digital technology, but in general, each company still builds its own closed system.

Our customers' needs for control systems are changing amid the transformation of their business environment. One of these changes is the utilization of open technologies for control systems. Because systems using open technologies share common mechanisms for transmitting data, such as communication protocols based on various standards, it is easy to integrate equipment and applications produced by other companies, promoting integration with the latest information technology.

The Open Process Automation Forum (OPAF) was established in 2016 with the aim of introducing open technologies into the control systems industry. Yokogawa is a member of OPAF, and we are pursuing research and field tests in cooperation with our customers, aiming for the implementation of systems utilizing open technologies.

Internal Workshop on Biodiversity
Employees
Local communities and society

Bottom-up activities by our employees

To create ideas for solving social issues, it is important for employees to have active discussions from diverse perspectives and transform their mindsets.

In fiscal year 2022, Yokogawa held an internal workshop on the theme of biodiversity and corporate action. Twenty motivated employees participated voluntarily from various countries and regions. We invited Professor Junko Edahiro, Department of Leadership and Innovation, Graduate School of Leadership and Innovation, Shizenkan University as an advisor to the workshop, and the participants engaged in learning and active discussions over several months. The discussions at the workshop is Yokogawa's first step to understand and capture nature-related risks and opportunities.

Yokogawa Festival
Customers **Employees**
Suppliers **Local communities and society**

A forum to foster closer relationships with our diverse stakeholders

The Yokogawa Festival has been held since 1965 at the Yokogawa Electric Corporation headquarters. The festival had been suspended since 2019, and July 2023 marked the first time it was held in four years, attended by approximately 12,000 participants.

The Yokogawa Festival began as an opportunity for supervisors to show their appreciation for the work of their team members. Today, it is not only a forum for workplace amity but also entertainment for overseas employees, employees' families, customers, suppliers, and members of the local community.

Yokogawa's employees welcome visitors with stalls and on-stage events, conveying their gratitude to the people they work with every day and engaging in communications beyond the limits of business interaction.

Sustainable Procurement Activities
Suppliers

Promoting sustainability in cooperation with our suppliers

At Yokogawa, we ask our suppliers to observe the Yokogawa Group Sustainable Procurement Guidelines. In accordance with these guidelines, we are working with our suppliers to identify risks that impede sustainable procurement and make improvements for any risks that emerge.

We also hold regular Supplier Policy Presentation Meeting where we provide explanations of Yokogawa's strategies and other matters. These events also serve as educational platforms where we promote the understanding of environmental policies, and legal regulations related to the supply chain, using a booklet explaining the Yokogawa Group Sustainable Procurement Guidelines.

Our Goals

Yokogawa pursues the "Three goals" to fulfill our responsibility to the Earth's future and the people of the future.

CONTENTS

for 2050

Sustainability Goals "Three goals"

In 2017, following the adoption of the Sustainable Development Goals (SDGs) and the Paris Agreement in 2015, we formulated the "Three goals" sustainability goals for the society we want to see by 2050.

Three goals diagram: Three goals — Well-being, Net-zero Emissions, Circular Economy. Outer ring: Achieving carbon neutrality; Improving efficiency in society & industry; Optimizing plant lifecycle & protecting environment; Improving health & safety; Creating a resource-recycling ecosystem; Creating workplaces where people can fulfill their potential. Areas where Yokogawa contributes.

Three goals

Vision for society toward 2050

Achieve net-zero emissions; stopping climate change

We aim for net-zero emissions, which means that greenhouse gas concentrations in the atmosphere do not rise due to the balance of emissions and the absorption of greenhouse gases, which can be accomplished through the introduction of renewable energy and the efficient use of energy.

Ensure well-being; quality life for all

We support people's health and prosperity through the achievement of safe and comfortable workplaces and our pursuits in such areas as the life sciences and drug discovery. We promote human resource development and employment creation in local communities, as well as diversity, equity, and inclusion.

Make the transition to a circular economy; circulation of resources and efficiency
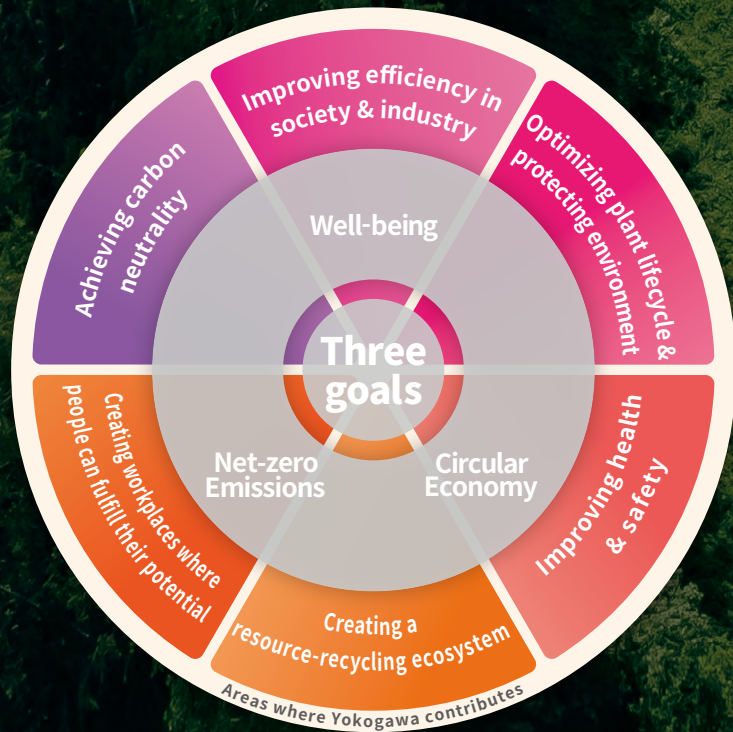
We aim to realize a social framework and ecosystem in which resources are circulated without waste and assets are utilized effectively. We are also contributing to the efficient use of water resources and the supply of safe drinking water.

for **2030**

Six Contribution Areas

We conducted a materiality analysis for clarifying priority issues toward achieving the Three goals and business growth. Based on the results, we identified the six contribution areas.

Areas where Yokogawa contributes

- Achieving carbon neutrality
- Improving efficiency in society & industry
- Optimizing plant lifecycle & protecting environment
- Improving health & safety
- Creating a resource-recycling ecosystem
- Creating workplaces where people can fulfill their potential

Inner ring: Well-being, Circular Economy, Net-zero Emissions

Center: **Three goals**

Six contribution areas for accelerating contribution and growth toward 2030

Achieving carbon neutrality
Reducing GHG emissions and enabling the transition to affordable, reliable, and sustainable forms of energy

Optimizing plant lifecycle & protecting environment
Supporting both the long-term optimal operation of plant assets and the reduction of their environmental footprint

Creating a resource-recycling ecosystem
Fostering the development of the bioeconomy and a circular economy

Improving efficiency in society & industry
Optimizing production, enabling autonomy, and facilitating the efficient use of resources and energy through DX

Improving health & safety
Promoting life-related innovation and improving safety in plants and communities

Creating workplaces where people can fulfill their potential
Establishing an equal opportunity workplace where employees can be treated with dignity and fulfill their potential

We have set the Social Impact Indicators as long-term indicators for measuring the degree of social contribution
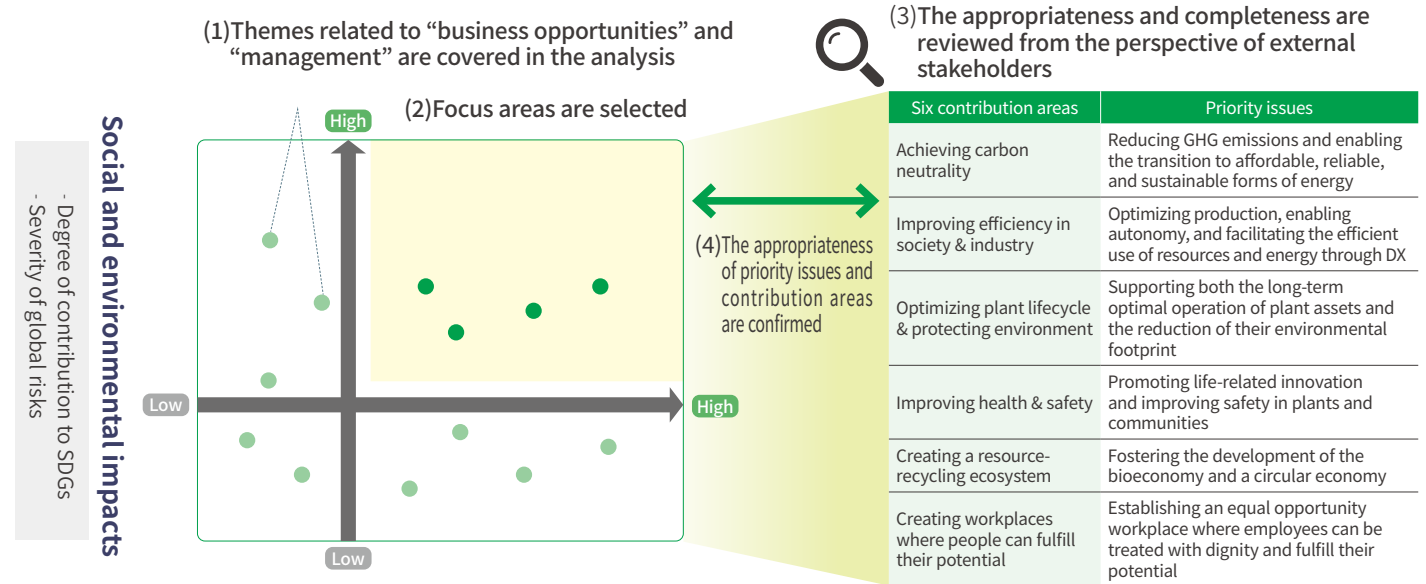
2022

Setting Contribution Areas Based on Materiality Analysis

Yokogawa is having a major positive impact on society and the environment by resolving the challenges of customers in the energy & sustainability, materials, and life areas. Expanding Yokogawa's contributions to society and the environment is closely connected to increasing Yokogawa's corporate value. We defined "materiality" as importance for both "social and environmental impact" and "impact on the company's value creation and business model." In AG2023 formulated in 2021, based on surveys to persons connected to each business area, we selected issues that are highly important and to be resolved by the company (priority issues) and themes of contribution (contribution areas). Furthermore, in July 2022, we conducted a materiality analysis at the Sustainability Committee and confirmed that the priority issues and the contribution areas would not need to be changed from the time AG2023 was established.

📖 P.65 for Sustainability Committee

Process of Materiality Analysis

(1) Conducted analysis covering all business activities which aimed at creating corporate value (and preventing damage), with themes related to business opportunities and management respectively.
- Business opportunities:
  Theme for accelerating contributions and growth through business areas such as energy & sustainability, materials, life, and measuring instruments
  (for example, support for renewable energy generation, specialty chemicals, biochemicals, and life science)
- Management:
  Theme based on ESG requests from society and for a foundation supporting business
  (for example, GHG reduction, respect for human rights, DE&I, etc.)
(2) Evaluated the materiality of individual themes from two aspects; social and environmental impact (vertical axis) and impact on corporate value creation and business model (horizontal axis). Then we selected focus areas.
(3) Reviewed the appropriateness and completeness of focus areas from the perspective of external stakeholders.
(4) Confirmed the appropriateness of the issues to be solved (priority issues) and themes of contribution (contribution areas) based on the selected focus areas.

(1)Themes related to "business opportunities" and "management" are covered in the analysis

(2)Focus areas are selected

(3)The appropriateness and completeness are reviewed from the perspective of external stakeholders

Social and environmental impacts
- Degree of contribution to SDGs
- Severity of global risks

(4)The appropriateness of priority issues and contribution areas are confirmed

Impact on corporate value creation and the business model
- Mid-term revenue projection and contribution to revenue growth
- Industry wise weight and our maturity in ESG assessment

Six contribution areas	Priority issues
Achieving carbon neutrality	Reducing GHG emissions and enabling the transition to affordable, reliable, and sustainable forms of energy
Improving efficiency in society & industry	Optimizing production, enabling autonomy, and facilitating the efficient use of resources and energy through DX
Optimizing plant lifecycle & protecting environment	Supporting both the long-term optimal operation of plant assets and the reduction of their environmental footprint
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Three goals and six contribution areas

Indicators for Six Contribution Areas (Social Impact Indicators)

The Social Impact Indicators are long-term indicators for measuring the degree of social contribution. Based on these indicators, we will expand our social and environmental contributions in the six areas to achieve the "Three goals" and SDGs. In fiscal year 2022, we overall progressed steadily toward the achievement of the targets for fiscal year 2030 (fiscal year 2040).

Six contribution area	Indicator	FY2030 (FY2040) target	FY2022 result	Progress
Achieving carbon neutrality	CO_2 emissions control amount through customers	1 billion t-CO_2 (50% or more from renewable energy and new technologies)	380 million t-CO_2 (including 270 million t-CO_2 from renewable energy)	Mainly contributions to wind power generation increased.
	GHG emissions (Scope 1, 2) (base year: FY2019)	50% reduction by FY2030 100% reduction by FY2040	14.8% reduction	Procurement of renewable energy increased.
	GHG emissions (Scope3[1]) (base year: FY2019)	30% reduction	4.4% reduction	Emissions were controlled due to a decrease in the sales volume of hardware products.
Improving efficiency in society & industry	Economic value created by improving customer productivity efficiency	2 trillion yen	204.8 billion yen	We are expanding the production and energy efficiency businesses.
Optimizing plant lifecycle & protecting environment	Number of plants/factories where Yokogawa has contributed to sustainable operations	20,000 plants	6,280 plants	We are contributing to sustainable operations with life cycle support.
Improving health & safety	Total number of people whose health & safety have been enhanced through solutions provided by Yokogawa's customers	100 million people	49.78 million people	We are expanding the water environment solution business overseas.
Creating a resource-recycling ecosystem	Status of the new businesses launched that contribute to the resource recycling system	Establishment of two or more new resource recycling system business		We are developing resource recycling systems. Among such efforts is the biomass materials business of Yokogawa Bio Frontier Inc.
Creating workplaces where people can fulfill their potential	Engagement to enhance employee well-being	At a level comparable to other leading companies	Engagement survey score: 76%	We are striving to improve the scores by taking measures based on the survey results.
	Achievements in human resource development and capacity development for transformation	Advancing employee's future skill set[2]		We are developing human resources leading to business growth. For example, we are developing DX human resources.
	Achievement level of diversity and inclusion	Proportion of women in managerial positions: 20%	13.3%	We are striving to increase the rate, considering local conditions.
		Enhanced diversity at senior decision-making levels		We are considering defining diversity needed for business growth and setting targets.

*1 Emissions from purchased products/services (Category1) and emissions from use of sold products (Category11)
*2 Employee's future skill set: Skills to play active role in new businesses and new areas

Indicators for Six Contribution Areas (Business Activity Indicators)

for 2023

The Business Activity Indicators are mid-term indicators for measuring the growth of businesses that contribute to society toward fiscal year 2023. Based on these indicators, we will expand our businesses that contribute to SDGs (focus areas) to accelerate growth.

In fiscal year 2022, our order intake increased in the production and energy efficiency businesses, as well as for the specialty and fine chemical industry. We also reduced GHG emissions (Scope1,2). On the other hand, there remains challenges in increasing orders for wireless asset health monitoring sensor units and increasing sales in drug discovery development support products. As business opportunities in these fields are steadily increasing, we will continue to work to achieve our goals.

■ : Energy & Sustainability ■ : Materials ■ : Life ◆ : Measuring Instrument ★ : New businesses and other ◎ : Foundation for Business

Six contribution area	Focus area	Business	Indicator	FY2023 target	FY2022 result
Achieving carbon neutrality	Supporting power generation by renewable energy	■ ◆	CO_2 emissions control amount through customers (accum. from FY2018)	500 million t-CO_2	380 million t-CO_2
	Supporting distribution, storage, and utilization of renewable energy	■ ■ ◆	Sales growth rate of measurement instruments to renewable energy customers (base year: FY2020)	2.2 times	2.5 times
			Growth rate of number of units shipped of battery electrode thickness gauges (base year: FY2020)	1.7 times	3.2 times
	(within Yokogawa) GHG reduction at Yokogawa sites and in supply chain	◎	GHG emissions (Scope1,2) (base year: FY2019)	10% reduction	14.8% reduction
			GHG emissions (Scope3[1]) (base year: FY2019)	10% reduction	4.4% reduction
Improving efficiency in society & industry	Smart manufacturing, consultation, ERP, MES, EMS	■ ■ ■	Order intake growth rate of production/energy efficiency business (base year: FY2020)	1.3 times	1.2 times
	Value chain optimization for pharmaceutical and food & beverage customers (ERP, MES, LIMS, EQMS)	■	Order intake growth rate of pharmaceutical and food value chain optimization business (base year: FY2020)	1.3 times	1.1 times
	(within Yokogawa) Operational optimization	◎	Reduction of business operation hours by automation (base year: FY2018)	300,000 hours reduction	329,066 hours reduction
			Ratio of digitized internal business processes	63%	63%
Optimizing plant lifecycle & protecting environment	Supporting long-term optimal operation of the plant	■ ■	Number of life cycle support contracted plants	6,000 plants	6,280 plants
			Order growth rate of number of wireless asset health monitoring sensor units (base year: FY2020)	3.2 times	1.4 times
			Number of equipment maintenance management system contract licenses	8,500 licenses	7,683 licenses
	Supporting reduction of environmental footprint of the plant	■ ■ ■	Order intake growth rate of process analyzer (base year: FY2020)	1.3 times	1.2 times
	(within Yokogawa) Reduction of Yokogawa's environmental footprint (water and biodiversity)	◎	Water withdrawal amount at Yokogawa sites (base year FY2019)	4% reduction	2% reduction
Improving health & safety	Supporting safety and security of plant and workers	■ ■	Number of safety instrumented systems provided	157 systems	157 systems
			Number of plant operator training systems provided	30 systems	21 systems
	Life science business	■	Sales growth rate of drug discovery development support products (base year: FY2020)	2.5 times	1.2 times
	Supporting lifeline, water and sewage businesses	■	Number of solutions provided for water environment improvement (excluding Japan)	90 solutions	87solutions
	(within Yokogawa) Occupational health and safety of workers at Yokogawa, respect for human rights	◎	ISO45001 certification acquisition	Principal locations certified (12 companies)	Principal locations certified (10 companies)
Creating a resource-recycling ecosystem	Contributing to specialty chemical and biochemical industries, supporting efficiency improvement of the recycling businesses	■ ★	Order intake growth rate for specialty & fine chemical industry (base year: FY2020)	1.6 times	2.6 times
Creating workplaces where people can fulfill their potential	(within Yokogawa) Employee well-being & engagement	◎	Engagement survey score	81%	76%
	(within Yokogawa) People capability development for change	◎	Training hour per person	40 hour per year per person	41.3 hours
	(within Yokogawa) Promotion of diversity, equity & inclusion	◎	Proportion of women in managerial positions	12.5%	13.3%
			Employment rate of disabled persons (Japan)	2.5%	2.52%

[1] Emissions from purchased products/services (Category1) and emissions from use of sold products (Category11) 💻 For more details, see our website at   https://www.yokogawa.com/about/sustainability/

Our Stories

Increasing Yokogawa's contributions to society and the environment is closely connected to increasing Yokogawa's corporate value. This chapter introduces stories of contribution and growth in the six contribution areas. Examples of our latest initiatives are also included.

CONTENTS

Our Stories of Growing Our Businesses and Contributing to Society

Increasing Yokogawa's contributions to society and the environment is directly connected to increasing Yokogawa's corporate value.

Beginning in fiscal year 2022, we have summarized our initiatives for each of the business focus areas linked to our contribution areas as a "story of growing our businesses and contributing to society," covering the social issues we face, our approach to solving these issues, and the business, social, and environmental value generated as a result.

We present each story and examples of our contribution from P.20 onwards. Parts of these stories were presented in the 2022 Yokogawa Sustainability Report.

Contribution area	Focus area	Stories of growing our businesses and contributing to society			Details of the story
		Why/Social issues to face	How/Approach to solving the issues	Impact/Value to be created	
Achieving carbon neutrality	Supporting power generation by renewable energy	• GHG emissions • Stable production and supply of renewable energy	• The "ability to connect" and the know-how of companies that have newly joined the Yokogawa Group • Integration of multiple renewable energy facilities and overall system optimization	[Business growth] • Enhancement of our solutions lineup • Expansion of our customer base [Social and environment] • Curbing in customers' CO_2 emissions • Maximization of the efficiency and productivity of power generation facilities	📖 2022 Yokogawa Sustainability Report
	Supporting distribution, storage, and utilization of renewable energy	• GHG emissions • Efficiency improvements and stable supply for renewable energy power generation	• High-precision electrical power measurement technologies • Track record as a leading company in power conversion efficiency improvement	[Business growth] • Expansion of our solutions for power generation equipment manufacturers [Social and environment] • Promoting the spread of renewable energy in line with the lower cost of power generation • Reduction in GHG emissions	📖 2022 Yokogawa Sustainability Report
Improving efficiency in society & industry	Smart manufacturing, consultation, ERP, MES, EMS	2023 Report • Efficient use of resources and energy and decarbonization in the manufacturing industry • Balancing consideration for the environment and economic growth	• Digital maturity assessment using the Smart Industry Readiness Index (S.I.R.I.) • Formulation of a solution road map • Provision of total solutions through the integration of production sites and headquarters, companies and communities.	[Business growth] • Greater public recognition through accumulated examples of contributions [Social and environment] • Achieving high efficiency • Contribution to solving large-scale, complex issues such as decarbonization and supply chain optimization	📖 Improving Efficiency in Society & Industry P.22
	Value chain optimization for pharmaceutical and food & beverage customers (ERP, MES, LIMS, EQMS)	• Stable supply of high-quality pharmaceuticals • Ensuring food safety and security • Decline in the working population	• Track record of supporting productivity improvements through production management systems, etc. • Development contributing to operational autonomy and smart factories	[Business growth] • Application of Japanese know-how overseas and expansion of sales [Social and environment] • Reduction in the lead-time for the supply of new drugs • Stable supply of safe, secure foods	📖 2022 Yokogawa Sustainability Report

2023 Report represents stories presented in this report

Our Stories of Growing Our Businesses and Contributing to Society

Contribution area	Focus area	Stories of growing our businesses and contributing to society			
		Why/Social issues to face	How/Approach to solving the issues	Impact/Value to be created	Details of the story
Optimizing plant lifecycle & protecting environment	Supporting long-term optimal operation of plants	• Energy and resource depletion • Maximizing the utilization of plant assets	• Large installed base and trust as a lifecycle partner • Provision of Managed Service	[Business growth] • Growth in the number of maintenance service contracts [Social and environment] • Environmental conservation through safe operation • Operating cost optimization	📖 2022 Yokogawa Sustainability Report
	Supporting the reduction of environmental footprint of the plant	`2023 Report` • Environmental pollution from the emission of hazardous substances and wastewater • Compliance with environmental laws and regulations	• Water purification process management and wastewater quality monitoring using process analyzers • Reduction in installation costs and more efficient maintenance through the shift to a platform for signal processing parts and the digitalization of sensors	[Business growth] • Creation of business opportunities through application to all industries [Social and environment] • Contribution to preventing environmental pollution	📖 Optimizing Plant Lifecycle & Protecting Environment P.25
Improving health & safety	Supporting safety and security of plant and workers (1. Safety instrumented systems)	`2023 Report` • Plant safety risks due to natural disasters and accidents • Decline in productivity due to excessive risk mitigation measures	• Provision of safety instrumented systems that meet international standards • Product lineup to meet the required safety level • Integration of control and safety systems	[Business growth] • Increase in opportunities to introduce emergency isolation systems, etc. [Social and environment] • Contributing to safe and secure plant operation	📖 Improving Health & Safety P.27
	Supporting safety and security of plant and workers (2. Plant operator training systems)	`2023 Report` • Passing on techniques and safety know-how to the next generation	• Plant operator training using dynamic simulators • Ascertaining the ideal operating conditions using digital twin technology based on dynamic simulators	[Business growth] • Expanding our track record in simulator delivery [Social and environment] • Boosting knowledge of processes among engineers and operators • Achieving safe operation • Minimizing raw materials and waste through optimized operation	📖 Improving Health & Safety P.28
	Life science business	• Increasingly complex and sophisticated research • Rising demand for safe and efficient research styles	• Patented technologies and a track record of sales around the world • Support from fundamental research to implementation • Expansion into bio lab automation	[Business growth] • Function extension and new product development • Overseas business expansion [Social and environment] • Contribution to new drug discovery and the identification of causes of diseases	📖 2022 Yokogawa Sustainability Report
	Supporting lifeline, water and sewage businesses	`2023 Report` • Stable water supply • Providing safe water that meets quality standards	• Connecting all aspects of the water cycle • Supporting operation and contributing to autonomous water and sewage systems • Providing solutions to address water shortages, such as the potable water reuse	[Business growth] • Creating business opportunities in emerging countries • Expanding the number of solutions provided for water environment improvement [Social and environment] • Building environments for the safe and stable supply of water	📖 Improving Health & Safety P.29
Creating a resource-recycling ecosystem	Contributing to specialty chemical and biochemical industries, supporting efficiency improvement of the recycling businesses	• Development, stable provision, and recycling of materials with a small environmental footprint	• Stronger batch solutions • Development and expansion of operational improvement solution • Carbon management solutions	[Business growth] • Focused efforts to firmly establish our business base [Social and environment] • Improved productivity of storage batteries and energy conservation • Achieving a recycling-based society	📖 2022 Yokogawa Sustainability Report

`2023 Report` represents stories presented in this report

Six Contribution Areas ▶

1. Achieving Carbon Neutrality

Yokogawa contributes to reducing GHG emissions and shifting to affordable, reliable, and sustainable energy sources. In the AG2023, Yokogawa sees initiatives of "Supporting power generation by renewable energy," "Supporting distribution, storage, and utilization of renewable energy," and "GHG reduction at Yokogawa sites and in supply chain" as focus areas with the aim of creating value through solving social issues.

This story of growing our businesses and contributing to society is presented in the 2022 Yokogawa Sustainability Report

📖 2022 Yokogawa Sustainability Report
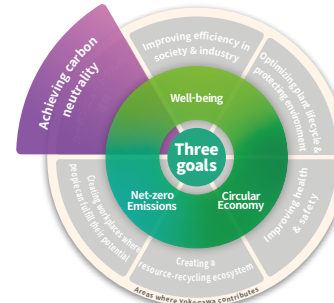
Focus Areas of AG2023

Supporting power generation by renewable energy

Supporting distribution, storage, and utilization of renewable energy

(within Yokogawa) GHG reduction at Yokogawa sites and in supply chain

Initiatives Toward "Achieving Carbon Neutrality"

case 1 │ Selected as MAC[1] for Construction of Europe's Largest Renewable Hydrogen[2] Plant

Focus area | **Supporting power generation by renewable energy**

Hydrogen is gaining attention as a promising energy source in the energy transition aimed at achieving a decarbonized society.

Holland Hydrogen I is a hydrogen plant constructed by Shell Plc in the Dutch port of Rotterdam. The Holland Hydrogen I will produce renewable hydrogen by using electricity from an offshore wind farm and will be Europe's largest green hydrogen[3] plant once operational in 2025.

The green hydrogen produced at this plant will be transported via a pipeline to the Shell Energy and Chemicals Park Rotterdam, where it will replace some of the grey hydrogen used in the refinery, partially decarbonizing the facility's production of energy products like gasoline, diesel and jet fuel.

Yokogawa has been selected as the Main Automation Contractor (MAC) for this project, in recognition of the relationships of trust it has built with customers over many years and its achievements in large-scale project execution. Yokogawa will optimize operations at the plant by closely integrating its systems and equipment.

Yokogawa aims to play a leading role in achieving a world in which systems are closely integrated, based on the system of systems (SoS) concept. In the hydrogen supply chain, there are individual systems for functions such as production, pipeline transport, storage, and supply, each of which is owned by a different entity. Advanced integration capabilities are required to integrate the operation of these systems. Through participation in projects that help our customers achieve progress in their decarbonization strategies and add value to their enterprises, Yokogawa will continue working to realize a sustainable society.
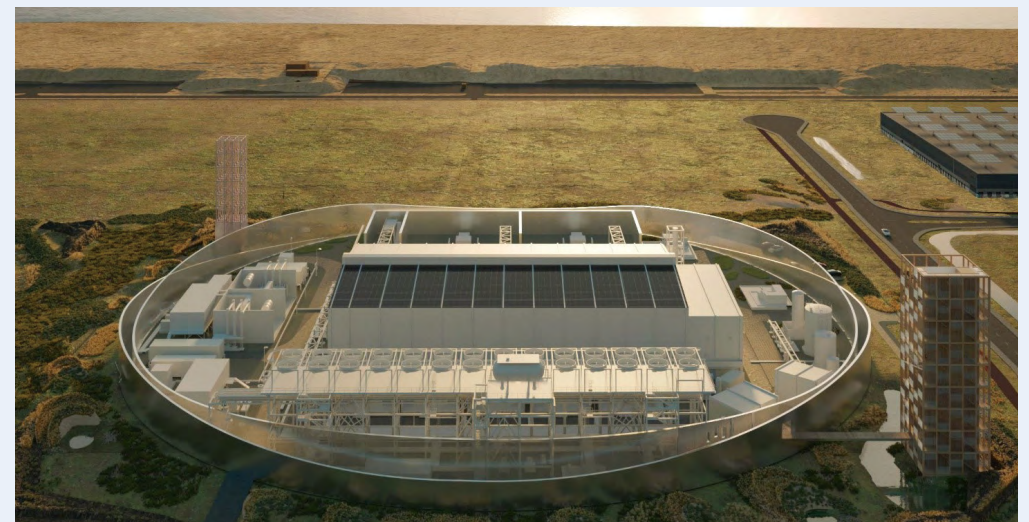

Illustration of the proposed Holland Hydrogen I site. Source: Shell

[1] MAC (Main Automation Contractor): The contractor responsible for all areas of project execution related to plant automation.
[2], [3]: Hydrogen generated through the electrolysis of water powered by renewable energy. It emits no CO_2 when it is produced or used.

Six Contribution Areas Initiatives Toward "Achieving Carbon Neutrality"

case 2 | Maximizing the Value of Renewable Energy Through Hydrogen Storage Operations

Focus area **Supporting distribution, storage, and utilization of renewable energy**

With the expanding shift to renewable energy, the variability of power output and the handling of excess power have become major issues. In line with the issues to be addressed, attention is focused not only on battery storages but also on hydrogen, methane, ammonia, and other energy-storage technologies to provide a stable supply of energy.

The large-scale introduction of solar power and wind power generation will lead to substantial amounts of excess power when supply exceeds demand depending on weather conditions or the time of day. Battery storages are usually used to store electrical power, but a massive battery capacity is required to store large amounts of power, leading to higher costs. Hydrogen can store energy for long periods—months or even years—with no energy loss during storage. It is also highly portable, giving it unique advantages over batteries. It also emits no CO_2 when used, thereby reducing environmental impact, and can be generated from a wide range of different resources. In this way, hydrogen is an indispensable energy source for achieving decarbonization.

At Yokogawa, we help our customers to "store" energy not only through proposals for battery storage operation but also proposals for ESS[*1] operation optimization services that incorporate energy storage operations using hydrogen and other technologies.

Under this initiative, we provide these services to a pilot plant constructed by an electrolyzer manufacturer in Japan. We are studying more efficient operating methods for the electrolyzers used to generate hydrogen and hydrogen tank utilization based on the balance of supply and demand. Formulating storage utilization plans based on demand and solar power generation forecasts will enable a stable supply of energy and can be expected to reduce energy procurement costs and CO_2 emissions. After this system begins operation, we plan to jointly conduct the analysis of various KPIs, such as the identification of the characteristics of each piece of equipment and the calculation of conversion efficiency, to firmly establish operating methods for the entire system.
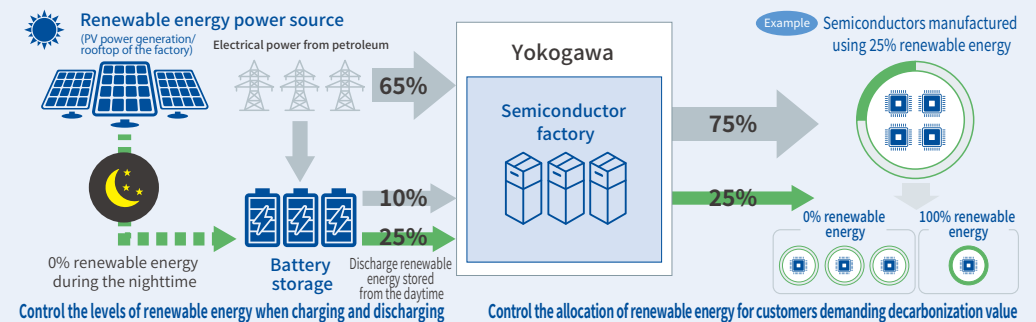
By providing operation optimization services utilizing storage management, Yokogawa will contribute to our customers' initiatives for decarbonization and carbon neutrality.

*1 ESS: Energy Storage System

case 3 | Visualizing the Proportion of Renewable Energy Used in Production Processes Through Tracking Technologies Utilizing Blockchain

Initiatives for decarbonization throughout the supply chain have come under attention in recent years, and the CO_2 emitted from factories during the manufacture of products has become a particular focus. The use of renewable energy is gaining popularity as a way to reduce CO_2 emissions. However, as all the electricity generated at power plants is combined in the power grid before it is supplied to companies and other users, it is not possible to pinpoint the source of the electricity consumed. International initiatives such as Renewable Energy 100% (RE100) require companies to certify the source (attribution) of the renewable energy they use. This has given rise to the issue of establishing tracking technologies.

At Yokogawa, we have succeeded in visualizing the proportion of renewable energy and CO_2 emissions from each production process, based on the virtual supply of renewable energy generated from the solar panels installed on the rooftop of our headquarters factory to a specific semiconductor manufacturing equipment (minimal fab) area. The use of blockchain technology enables us to increase the proportion of renewable energy used for specific products and verify the proportion of renewable energy used in production. Going forward, we plan to formulate production/operation plans for semiconductor manufacturing equipment based on forecast solar power generation data, controlling energy consumption and CO_2 emissions from the manufacture of products in line with the systematic charge and discharge of battery storages.

The utilization of renewable energy is anticipated to continue to grow as companies strive to reduce CO_2 emissions. At Yokogawa, we will continue to co-create with our customers and promote the development and spread of energy source (attribution) tracking technologies utilizing blockchain.

Renewable energy power source (PV power generation/ rooftop of the factory)
Electrical power from petroleum
65%
Yokogawa
Semiconductor factory
75%
Example Semiconductors manufactured using 25% renewable energy
10%
25%
25%
0% renewable energy during the nighttime
Battery storage
Discharge renewable energy stored from the daytime
0% renewable energy
100% renewable energy

Control the levels of renewable energy when charging and discharging **Control the allocation of renewable energy for customers demanding decarbonization value**

Six Contribution Areas

2. Improving Efficiency in Society & Industry

Yokogawa uses DX to contribute to greater efficiency for companies and society, facilitating the efficient use of resources and energy. In the AG2023, Yokogawa sees initiatives of "Smart manufacturing, consultation, ERP[1], MES[2], EMS[3]," "Value chain optimization for pharmaceutical and food & beverage customers (ERP, MES, LIMS[4], EQMS[5])," and "Operational optimization" as focus areas with the aim of creating value through solving social issues.

　This page outlines a story of contribution and growth for "Smart manufacturing, consultation, ERP, MES, EMS."
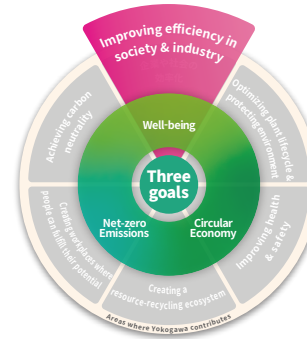
Focus Areas of AG2023

Smart manufacturing, consultation, ERP, MES, EMS

Value chain optimization for pharmaceutical and food & beverage customers (ERP, MES, LIMS, EQMS)

(within Yokogawa) Operational optimization

Stories of Growing Our Businesses and Contributing to Society

■ Smart manufacturing, consultation, ERP, MES, EMS

Why Social issues to face	The manufacturing industry is required to implement the efficient use of resources and energy and decarbonization to achieve a sustainable society. However, if these efforts are limited to the level of individual factories or companies, it is difficult to solve the issues faced by society, which are increasingly complex and subject to dramatic change. It is necessary to connect systems together. The development toward a system of systems is vital, aimed not only at integrating information between different systems but also solving issues holistically through the coordination of aspects including operation and management through this system. In the manufacturing industry, the transformation to smart manufacturing utilizing the latest DX technologies such as AI and machine learning is required in order to achieve this system of systems.
How Approach to solving the issues	At Yokogawa, we utilize our insight into leading-edge DX and IT-OT (operational technology: operating and control technology) and our specialized knowledge of various industries to assist our customers to achieve smart manufacturing. • S.I.R.I.[6]-qualified personnel : S.I.R.I. Consultants assess the digital maturity of our customers' organizations and factories and formulate roadmaps for optimal solutions to match each customer's business targets and preparation status. • Structuring total solutions : Based on these roadmaps, we combine ERP, MES, EMS, and other solutions with Yokogawa's consulting know-how to collect and analyze massive amounts of data, implement the overall optimization of production processes and energy consumption efficiency, and structure total solutions integrating production sites and headquarters, companies and communities to achieve goals such as decarbonization management. We also provide solutions to boost the efficiency of electricity supply and demand in collaboration with local communities.
Impact Value to be created	**Impact on Yokogawa's business growth** By building a track record of providing diverse customers with solutions that contribute to society and raising our social presence, we will create business opportunities and expand orders and sales. **Impact on society and the environment created through customers** By maintaining independence even through close collaboration, the solutions we provide achieve a high level of efficiency unattainable using stand-alone systems. This enables us to contribute to solving large-scale, complex issues such as supply chain optimization and decarbonization.

KPI	Order intake growth rate of production/energy efficiency business (base year: FY2020)	FY2022 performance **1.2times** ╱ FY2023 target **1.3times**

*1 ERP: Enterprise Resource Planning　*2 MES: Manufacturing Execution System　*3 EMS: Energy Management System　*4 LIMS: Laboratory Information Management System　*5 EQMS: Enterprise Quality Management System
*6 S.I.R.I.: Smart Industry Readiness Index, created by the Singapore Economic Development Board in partnership with a network of leading technology companies, consultancy firms, and industry and academic experts. It assesses digital maturity from the perspective of the three core elements of Industry 4.0: process, technology, and organization

Six Contribution Areas — Initiatives Toward "Improving Efficiency in Society & Industry"

case 1 | World-first Official Adoption of Reinforcement Learning AI at a Chemical Plant

Focus area — Smart manufacturing, consultation, ERP, MES, EMS

In a continuous joint field test of autonomous control AI[1] (Factorial Kernel Dynamic Policy Programming (FKDPP) reinforcement learning algorithm) by ENEOS Materials Corporation and Yokogawa, we were able to confirm high performance through autonomous control of the chemical plant for almost an entire year. ENEOS Materials Corporation has proceeded to officially adopt this AI-based system. This is the first example in the world of reinforcement learning AI being officially adopted for direct control of a plant[2].

This field test was initially conducted continuously over 35 days (840 hours) from January 17 to February 21, 2022. We confirmed that this AI technology can control operations that have been beyond the capabilities of existing automation methods and have until now been manually controlled using control valves based on the judgments of plant personnel. Then, after the periodic plant maintenance was completed, we continued the test for almost a full year. The plant control carried out by the AI solution successfully dealt with the complex conditions needed to ensure product quality and maintain liquids in the distillation column at an appropriate level while making the maximum possible use of waste heat as a heat source. In doing so, it stabilized quality, achieved high yield, and saved energy.

In another world first[3], Yokogawa has successfully launched[4] a service that enables the use of autonomous control by AI in edge controllers to achieve autonomous plant operation. We also provide a global consulting service to customers aiming for autonomous plant operation, from the identification of issues at control points to the examination of optimal control methods, their estimated cost-effectiveness, safeguards, implementation, maintenance and operation.

[1] Yokogawa defines autonomous control AI as AI that deduces the optimum method for control independently and has a high level of robustness, enabling it to autonomously handle to a certain extent situations that it has not previously encountered.
[2], [3] Based on comprehensive secondary research of publicly available resources by IoT Analytics, performed in March 2023.
[4] Yokogawa Launches Autonomous Control AI Service for Use with Edge Controllers - Optimizes control to improve productivity and save energy -

Confirmed benefits from the year-long field test

| Year-round stability even with external temperature changes of around 40℃ | Optimized energy use and reduced time and cost while maintaining quality, enabling a 40% cut in CO2 emissions | Lightened workload and improved safety | AI control model could be used as is even after plant shut-down for maintenance and repair |

Confirmed benefits from the field test of reinforcement learning AI

case 2 | Contributing to the Construction of a Next-generation Smart Factory —the Case of NISSIN FOOD PRODUCTS CO., LTD.—

Focus area — Value chain optimization for pharmaceutical and food & beverage customers (ERP, MES, LIMS, EQMS)

The food & beverage industry faces issues such as the pursuit of food safety and security, improving profitability throughout the value chain, and labor shortages. In addition, efforts to realize smart factories for factory automation and labor saving, such as the use of IT technology and robotics, are accelerating. NISSIN FOOD PRODUCTS CO., LTD. (NISSIN), a leading company in Japan's food & beverage industry, has engaged in the construction of a next-generation smart factory, led by its belief in the need to establish a new supply system that provides product safety, labor savings, and cost competitiveness.

Yokogawa was recognized by NISSIN as a partner with a high level of experience and a thorough knowledge of manufacturing sites that would learn and understand its customers' operations and propose solutions, and we were involved in considering the project together with NISSIN from the basic planning stage when the overall design was drawn up. We went on to support the introduction of a total of five solutions[1] such as the manufacturing management execution system, the warehouse management system, the operational information management system, and PI System. Data linkage is essential for the automated operation of state-of-the-art facilities, and Yokogawa's five solutions play a crucial role as core systems in the smart factory. As a result, we have been able to make a significant contribution to improving the safety, product quality, and productivity at NISSIN's production site.

By providing solutions that support the overall optimization of value chains, we will continue to contribute to global food security together with the food & beverage industry, whose mission is to provide a permanent and stable supply.

An external view of NISSIN FOOD PRODUCTS CO., LTD. KANSAI FACTORY

[1] Some of these products and solutions are only sold in Japan.

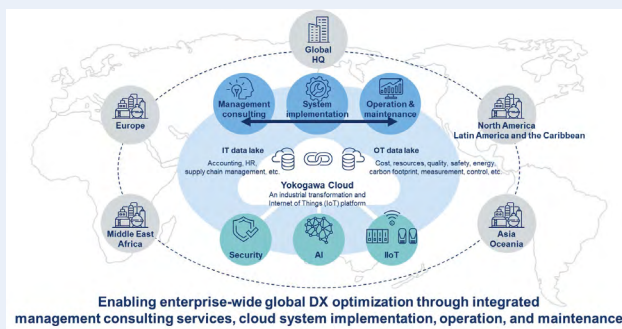**Six Contribution Areas**　Initiatives Toward "Improving Efficiency in Society & Industry"

case 3 | Established Yokogawa Digital Corporation to Support DX in the Manufacturing Industry

Yokogawa has established a new company, Yokogawa Digital Corporation, to provide management consulting services to manufacturers that will cover everything from business management to plant operations. The new company began operation in October 2022.

　In recent years, manufacturers all over the world have been striving for sustainability transformation (SX)*1. While dealing with the COVID-19 pandemic, supply chain issues, and the need to contribute toward the SDGs and implement ESG management, companies must also optimize all of their business activities operations, from management and the supply chain through production, to increase competitiveness and achieve a sustainable society. To accomplish these objectives, DX including the utilization of AI will be essential.

　However, as each organization has its own individually optimized systems and processes, integration is not simple, and in many cases, the current DX initiatives go no further than partial optimization. To achieve more significant results, it is necessary to globally integrate the management of systems and processes at factories and offices, wherever they may be located, and aim for enterprise-wide optimization. By doing so, companies can ensure that their business strategy takes root throughout the organization, and achieve SX in the truest sense.

　In addition to the strength of Yokogawa's OT expertise, such as DX strategy formulation, AI utilization, carbon neutral services, security services, OT strategy for services, Yokogawa Digital aims to consulting firm integrating IT and OT, providing overall business optimization value to its customers.

Enabling enterprise-wide global DX optimization through integrated management consulting services, cloud system implementation, operation, and maintenance

The global optimization provided by Yokogawa Digital

*1 Sustainability transformation (SX): Transformation to achieve a management approach that takes sustainability into consideration while seeking to enhance the company's strengths and business model

case 4 | Launched SynCrest Inc., a Joint Venture Targeting the CRDMO Business for Middle-molecular Drugs

In recent years, middle-molecular drugs such as peptide and nucleotide therapeutics have been the focus of considerable research because they combine the advantages of low-molecular drugs and bio-antibody drugs, namely, high efficacy and low side effects.

　Together with Otsuka Chemical Co., Ltd., Yokogawa has established SynCrest Inc., a joint venture (investment ratio: Otsuka Chemical, 51%; Yokogawa Electric, 49%) that will engage in research, development, and manufacturing in the promising field of middle-molecular drugs as a Contract Research, Development and Manufacturing Organization (CRDMO), which incorporates Research function into CDMO (Contract Development and Manufacturing Organization). By combining Yokogawa's production process management, powered by its world-leading measurement and control technologies, with Otsuka Chemical's cutting-edge technologies, based on its GMP*1 management know-how, the companies have developed the world's most advanced solution that integrates the continuous flow synthesis method with in-line measurement*2, making it possible to carry out non-destructive measurements in real-time with a high level of precision.

　Through the use of this jointly-developed solution, SynCrest will help researchers and producers of middle-molecular drugs be more productive by providing integrated services ranging from basic drug research through to process development and commercial manufacturing. It will also provide optimal services to respond to diverse challenges and needs related to quality, delivery, and cost in the value chain.

The SynCrest Naruto Plant

*1 GMP (Good Manufacturing Practice): Standards for manufacturing and quality control for the production of safe and effective pharmaceuticals and foods. Each country has its own rules and guidelines.
*2 The continuous flow synthesis method with in-line measurement: A flow synthesis method that enables process continuity through integrated control of multiple processes in production, from reaction to purification/extraction, with in-line measurement.

Six Contribution Areas

3. Optimizing Plant Lifecycle & Protecting Environment

Yokogawa contributes to supporting both the long-term optimal operation of plant assets and the reduction of their environmental footprint. In the AG2023 plan, Yokogawa sees initiatives of "Supporting long-term optimal operation of the plant," "Supporting reduction of environmental footprint of the plant," and "Reduction of Yokogawa's environmental footprint (water and biodiversity)" as focus areas with the aim of creating value through solving social issues.
　This page outlines a story of contribution and growth for "Supporting reduction of environmental footprint of the plant."
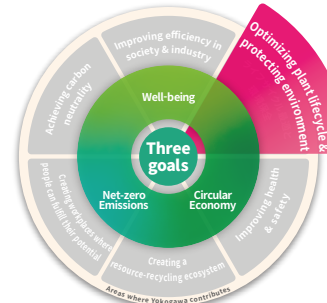
Focus Areas of AG2023

Supporting long-term optimal operation of the plant

Supporting reduction of environmental footprint of the plant

(Within Yokogawa) Reduction of Yokogawa's environmental footprint (water and biodiversity)

Stories of Growing Our Businesses and Contributing to Society

■ Supporting reduction of environmental footprint of the plant

Why
Social issues to face

The impact of hazardous substances and wastewater from production activities at manufacturing plants on the environment and organisms has become a significant problem, and initiatives to reduce environmental impact are gathering pace. Various restrictions have been imposed in each country and region aimed at preventing and controlling environmental pollution. Complying with these restrictions is crucial for business continuity. Companies have a social responsibility to abide by these regulations by reducing their emissions of greenhouse gasses, sulfur oxides, and nitrogen oxides from the combustion of fossil fuels and managing the quality of their wastewater output. This also helps to build good relationships with local communities.

How
Approach to solving the issues

The acquisition of highly reliable measurements of gaseous components and water quality is vital for the monitoring and control of all kinds of combustion, water purification, wastewater processing, and other processes.
　To take the example of water quality management, the pH analyzers, dissolved oxygen analyzers, conductivity analyzers, and other process analyzers provided by Yokogawa are used to manage the purification process at clean water facilities and monitor water quality at the wastewater and sewage processing stage and the final output stage. Moreover, multiple process analyzers are necessary for water quality management, and regular maintenance (cleaning, calibration, and parts replacement) is required to achieve continuous, accurate measurement. Yokogawa's SENCOM 4.0 Platform liquid analyzer achieves a reduction in installation costs and more effective maintenance through the shift to a platform for signal processing parts and the digitalization of sensors. Specifically, by enabling a single signal processing unit to handle signals from multiple sensors, we have not only reduced the cost of installation works and other introduction costs but also achieved enhanced extendability. This includes the adoption of user-friendly interfaces and an extensive suite of protocols for connecting with external systems.

Impact
Value to be created

Impact on Yokogawa's business growth

Expanded sales of process analyzers will contribute to Yokogawa's medium- and long-term growth. As a core product for supporting the reduction of environmental impact, we will apply them across all industries to create new business opportunities.

Impact on society and the environment created through customers

We will help to prevent environmental pollution by monitoring the quality of industrial and other wastewater and monitoring gaseous components to ensure compliance with environmental laws and regulations.

| KPI | Order intake growth rate of process analyzer (base year: FY2020) | FY2022 performance **1.2times** / FY2023 target **1.3times** |

Six Contribution Areas — Initiatives Toward "Optimizing Plant Lifecycle & Protecting Environment"

case 1 │ Contributing to the Reduction of CO_2 Emissions by Boosting Power Generation Through Advanced Control of Copper Smelting

Focus area — **Supporting reduction of environmental footprint of the plant**

The copper smelting process generates a huge amount of heat in the chemical reactor equipment involved in the flash smelting furnace, the converter furnace, and the sulfuric acid manufacturing process. This heat is recovered in the form of steam generated from the waste heat boilers installed on each piece of equipment. This high-temperature, high-pressure steam is fed into a power generation turbine, then the low-pressure steam used in the plant. However, unlike in a thermal power plant, where the amount of steam generated is generally stable, the amount of steam generated from copper smelting may vary dramatically in a short space of time due to the smelting status. Therefore, when the amount of steam generated exceeds the amount required in the plant, the steam is fed into equipment that stores it for a short duration, for use at times when less steam is generated. If the amount of steam generated increases substantially in a short time, the supply of steam to the turbines must be swiftly adjusted to the maximum level and any excess steam must be released immediately by opening the pressure reduction valve, or the steam pressure will rise sharply, leading to a wasteful discharge into the atmosphere from the safety valve. Therefore, copper smelters face the challenge of supplying the maximum possible amount of steam to the turbines to maximize power generation while prioritizing the stable supply of steam for use in the plant.

At Yokogawa, we have created a system that uses our Platform for Advanced Control and Estimation to maximize the effective utilization of steam in the turbines. This Platform for Advanced Control and Estimation maintains a fixed steam supply pressure for use in the plant while satisfying the operating restrictions of the equipment for steam storage and turbine operation. It minimizes the supply of steam for the factory through the pressure reduction valve, which does not contribute to power generation, and maximizes the steam fed to the turbines.

These operations were previously dependent on the work of veteran operators. Through the Platform for Advanced Control and Estimation, we have simultaneously achieved an automated, stable supply of steam to the plant and an increase in power generation. The amount of power generated increased by approximately 1% due to the introduction of advanced control. This has led to a decrease in the electricity purchased from power companies and an estimated reduction of 300t per year in CO_2 emissions. By providing advanced control solutions such as this, Yokogawa is boosting performance at customers' plants as well as contributing to the reduction of their environmental footprint.

JX Metals Smelting Co., Ltd. Saganoseki Smelter & Refinery

| Results at the smelter	CO_2 emissions reduction of 300t/year

Six Contribution Areas

4.Improving Health & Safety

Yokogawa contributes to promoting life-related innovation and improving safety in plants and communities. In the AG2023 plan, Yokogawa sees initiatives of "Supporting safety and security of plant and workers," "Life science businesses," "Supporting lifeline, water and sewage businesses," and "Occupational health and safety of workers at Yokogawa, respect for human rights" as focus areas with the aim of creating value through solving social issues.

This page outlines our first story of contribution and growth for "Supporting safety and security of plant and workers."
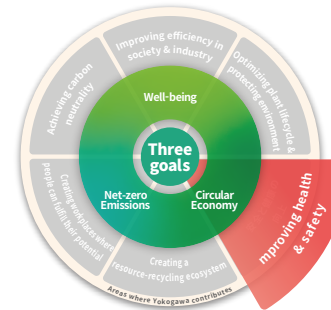
Focus Areas of AG2023

Supporting safety and security of plant and workers
Life science business
Supporting lifeline, water and sewage businesses
(within Yokogawa) Occupational health and safety of workers at Yokogawa, respect for human rights

Stories of Growing Our Businesses and Contributing to Society

■ Supporting safety and security of plant and workers (1)

Why	If a plant faces critical conditions due to a natural disaster, accident, or other event, this may have various negative effects on the people who work at the plant and the customer's assets. Plant owners are required to assess the risks that may threaten the plant and minimize the risk of impacting people, things, and the environment. However, excessive risk mitigation measures reduce plant productivity. It is therefore vital to implement, maintain, and manage appropriate risk mitigation measures.
Social issues to face	

How	Yokogawa has established internal management standards for ProSafe-RS safety systems based on international standards and industry best practices and constructed a system for the appropriate provision of safety systems. We continually upgrade our product lineup to ensure we provide appropriate products and services to match the level of safety required. It is vital for safety systems to have a self-diagnosis function and operate steadily in the case of an emergency, but it is also crucial that they notify the operator of their own condition. Yokogawa's safety systems can be integrated with CENTUM VP integrated production control systems and Collaborative Information Servers (CI Servers). Through the visualization of plant safety, they provide safety and security to our customers and society.
Approach to solving the issues	

Impact	**Impact on Yokogawa's business growth**
Value to be created	We provide outstanding products and services to meet the required safety level and we will expand opportunities to install them in our customers' emergency isolation systems and fire prevention and extinguishing systems. We will also use the provision of safety instrumented systems as a starting point to create opportunities to introduce other Yokogawa products.
	Impact on society and the environment created through customers
	We contribute to safe and secure plant operation and help our customers fulfill their responsibilities for safe and stable supply.

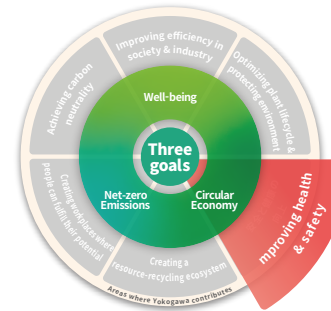| KPI	Number of safety instrumented systems provided	FY2022 performance **157**systems	FY2023 target **157**systems

Six Contribution Areas ➤ 4.Improving Health & Safety

This page outlines our second story of contribution and growth for "Supporting safety and security of plant and workers."

Focus Areas of AG2023

Supporting safety and security of plant and workers
Life science business
Supporting lifeline, water and sewage businesses
(within Yokogawa) Occupational health and safety of workers at Yokogawa, respect for human rights

Stories of Growing Our Businesses and Contributing to Society

■ Supporting safety and security of plant and workers (2)

Why Social issues to face	The veteran engineers and operators with the advanced knowledge and experience that has hitherto underpinned industry are progressively retiring from service. Meanwhile, labor shortages and the lack of sufficient experience among the younger generation taking over from these veterans have given rise to the issue of how to maintain safe plant operations.	

How Approach to solving the issues	We will reinforce the solutions described below, pivoting on the dynamic simulators developed by Yokogawa's subsidiary Omega Simulation Co., Ltd., to solve this issue. In addition, we will utilize digital twins based on these dynamic simulators to assist in optimal plant operation while also contributing to environmental conservation. • Process training : Inexperienced people can try their hand at controlling chemical processes (plants and equipment) on a dynamic simulator to acquire a basic knowledge of processes first-hand. • Plant operator training : Enabling people to learn the routine and emergency operations using operator training systems facilitates safe plant operation and maintenance checks. • Supporting optimal operation of plants : Dynamic simulators are used to map the status of actual plants onto virtual plants, creating truly dynamic digital twins. This enables users to ascertain the optimal operating conditions. Moreover, amid the current focus on AI technology-driven plant control and operational support, the use of dynamic simulators to generate a wide range of simulated operational data, including abnormal conditions, will enable AI systems to continually optimize operating conditions.

Impact Value to be created	**Impact on Yokogawa's business growth** With the cumulative total number of dynamic simulators delivered topping 500 systems, and we aim to expand sales. **Impact on society and the environment created through customers** Process training and operator training will lead to an improvement in the knowledge of processes among our customers' engineers and operators, contributing to safe plant operation. In addition, ascertaining the optimal operating conditions will help to minimize the resources invested and the waste produced.

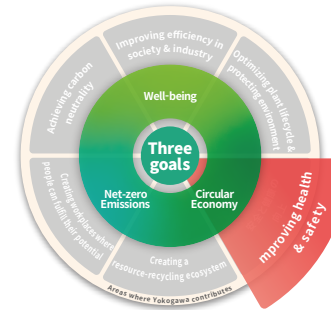| KPI	Number of plant operator training systems provided	FY2022 performance **21**systems / FY2023 target **30**systems

Six Contribution Areas ▶ 4.Improving Health & Safety

This page outlines a story of contribution and growth for "Supporting lifeline, water and sewage businesses."

Focus Areas of AG2023

| Supporting safety and security of plant and workers |
| Life science business |
| **Supporting lifeline, water and sewage businesses** |
| (within Yokogawa) Occupational health and safety of workers at Yokogawa, respect for human rights |

Stories of Growing Our Businesses and Contributing to Society

■ Supporting lifeline, water and sewage businesses

Why
Social issues to face

Water supports human life, not only through everyday applications such as drinking water but also through food production and economic activity. However, it has become difficult to secure stable water resources due to climate change and the rising global population. The world population is expected to reach approximately nine billion people by 2050, and it is said that around five billion of these will be affected by water shortages. It is imperative to ensure a stable supply of safe water. Each country and region faces different issues such as quality standards, utilization rate, and demand, and it is necessary to address demands and issues based on regional characteristics.

How
Approach to solving the issues

To ensure a stable supply of safe water, it is vital to engage appropriately in tasks such as the development of water resources, the construction of water and sewage infrastructure, water treatment and water quality control, and the efficient operation of systems. At Yokogawa, we are leveraging our extensive track record of deliveries and project implementation capabilities related to water and sewage in Japan to connect the entire water cycle, from water sources to waterworks, water usage, sewage, and effluent discharge areas. We help to secure and improve the quantity and quality of water resources and contribute to a safe and secure water supply. Specifically, by providing a range of products, solutions, and services to various facilities such as water and sewage systems, seawater desalination plants, potable water reuse, pipelines, and reservoirs, we provide operational support and enable autonomous operation and contribute to water distribution and water quality management, reducing energy consumption, reducing treatment costs, maximizing the amount of water treated, and reducing maintenance management costs. In the future, we aim to facilitate the potable water reuse and utilize simulators and AI technology to support operations, as well as contribute to human resources development.

Impact
Value to be created

Impact on Yokogawa's business growth

We create business opportunities through participation in the Japanese government's Official Development Assistance (ODA) for emerging countries. In addition to supplying monitoring and control products, field instruments, and other existing products, we will develop new solutions to manage the potable water reuse, water distribution, water leakage, and other issues, thereby expanding the range of water-related environmental improvement solutions we provide.

Impact on society and the environment created through customers

We support the creation of environments for the stable supply of safe water in countries and regions, primarily emerging and developing countries, where rising populations and social and economic development have led to water shortages. We help to create peaceful societies without water risk. In this way, we contribute to the achievement of Goal 6 (ensure availability and sustainable management of water and sanitation for all) of the SDGs.

KPI | Number of solutions provided for water environment improvement (excluding Japan) | FY2022 performance **87**solutions / FY2023 target **90**solutions

Initiatives Toward "Improving Health & Safety"

case 1 | Cybersecurity Services Utilizing Cutting-edge Technologies

Focus area   Supporting safety and security of plant and workers

Today, new cybersecurity threats seem to emerge on a daily basis. Technological advances have given cyber threats and vulnerabilities the potential to wreak serious damage on an organization's data, assets, and reputation, and security threats have become recognized as a business risk. Security operations centers (SOCs)—organizational sections dedicated to the detection and analysis of cyber threats and the implementation of countermeasures—are becoming a crucial part of effective cybersecurity strategies.

In the manufacturing industry, there is an accelerating trend toward the effective utilization of operational technology (OT) data as a management information resource. OT and IT, which were previously managed separately, are becoming increasingly integrated through DX, and it is crucial to manage cybersecurity through an integrated IT/OT approach.

Yokogawa established the Yokogawa Security Operation Center (Y-SOC) in 2019, based on our belief that stronger security was essential to move ahead with DX. Y-SOC monitors various IT devices at Yokogawa Group companies around the world, including production sites.

Since August 2022, we have used these experiences and expertises, together with the OT knowledge we have developed across a range of different industries, to provide the OpreX™ IT/OT Security Operations Center (IT/OT SOC) service. IT/OT SOC is a cloud-based security management service that employs Security Information and Event Management (SIEM). The service uses a detection program based on various cyber threat information and machine learning tools to achieve automated operation ranging from incident detection to protection. The service also features customer support provided by the Yokogawa Group's experts around the world, while working closely with customers' security teams.

Through this service, which leverages the latest technologies and our OT expertise, we will help customers promote DX while also contributing to the mitigation of security risks.
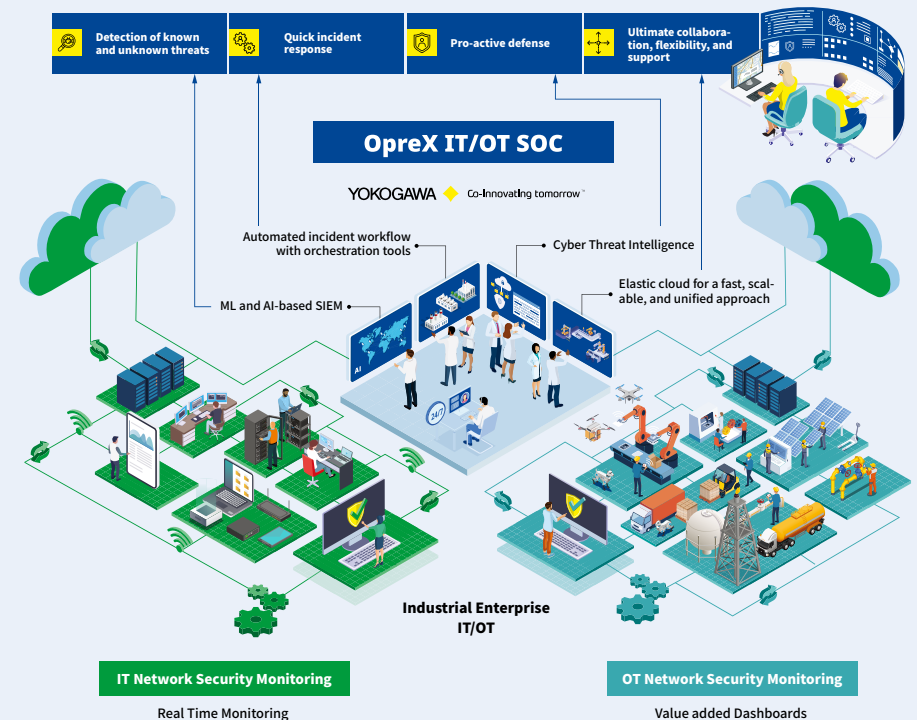
OpreX IT/OT SOC

Six Contribution Areas ▸ Initiatives Toward "Improving Health & Safety"

case 2 | Achieving a Practical Training Curriculum Through the Introduction of Virtual Training for Field Work

Focus area Supporting safety and security of plant and workers

The demand is rising for new technologies and human resources development to ensure a stable supply of oil and gas.

The Japan Cooperation Center for Petroleum and Sustainable Energy (JCCP) was established in 1981 to promote friendly relations between oil- and gas-producing countries and Japan through technical cooperation and personnel exchanges. Its main projects focus on human resources development through the provision of a range of training, including training for foreign engineers.

To meet the need for new technologies and human resources development to strengthen industry in oil- and gas-producing countries, JCCP has examined the use of digital transformation (DX) to expand and enhance its training curriculum. As a result, it has decided to introduce Yokogawa's virtual training for field work, which focuses on the on-site use of the latest digital virtual reality technology. This system uses a chemical plant constructed in a virtual environment to enable instructors to show themselves carrying out procedures such as disassembling field equipment online to trainees participating remotely from all over the world. Without attending the site in person, trainees can receive practical training as if they were actually there.

The virtual training for field work proposed by Yokogawa is a next-generation 3D solution based on the concept of bringing innovation to field work training. A digital twin of the plant is constructed in the virtual space and used to enable the simulated operating experience. This has successfully raised the level of satisfaction among training participants.

At Yokogawa, we will continue to utilize the latest digital technology to provide an attractive training curriculum that can be implemented in a virtual environment, without physical constraints. In this way, we will leverage cutting-edge technology to construct more effective field training environments.

Illustration of virtual training for field work

case 3 | Contributing to India's National Water Resources Project with Remote Monitoring and Control Technology

Focus area Supporting lifeline, water and sewage businesses

In India, the demand for water is increasing year by year due to rapid population growth and economic development in recent times. This has led to increasingly serious water shortages. Water resources are directly linked to people's livelihoods and existence, and the development of infrastructure to manage water resources has become an urgent issue.

India's National Hydrology Project (NHP) is a nationwide project aimed at optimizing the supply of water resources within India and enhancing the capacity of management bodies. It is intended to improve the decision-making support systems related to resource assessment and planning on the scope, quality, and access to w ater resources, and the level of flooding and catchment areas. Yokogawa proposes and provides remote monitoring and control solutions to India's NHP using DCS and SCADA systems to accelerate the construction of water resource networks and assist in strengthening the Water Resource Information System (WRIS) covering all of India.

A large number of weirs, dams, storage reservoirs, and other works have been constructed in India for the purposes of irrigation and power generation. Each reservoir has a system of canals for irrigation. Measuring instruments with motors are installed in these canal systems, which control the flow of water released based on the measurements of the amount of water to prevent the canals from drying up. The flow of water released through primary and secondary channels is remotely monitored and controlled from a central control room using DCS and SCADA systems based on the amount of water in the reservoir. Gates are operated with remote control based on key data such as the water level in dams and the amount of water supplied. The optimal flow of water through the secondary channels is calculated and water is distributed to each agricultural zone.

Yokogawa's control technology for water resource optimization, which uses real-time remote control based on on-site conditions, has gained the recognition of the Indian government, leading to the adoption of our control systems at 14 NHP sites across nine states from December 2020 to July 2023. Yokogawa will contribute to promoting the NHP across each state in India through our real-time remote monitoring and control solutions.

Yokogawa's achievements in India's NHP

Six Contribution Areas

5. Creating a Resource-Recycling Ecosystem

Yokogawa contributes to fostering the development of the bioeconomy and a circular economy.

In the AG2023 plan, Yokogawa sees initiatives of "Contributing to specialty chemical and biochemical industries, supporting efficiency improvement of the recycling businesses" as focus areas with the aim of creating value through solving social issues.

This story of growing our businesses and contributing to society is presented in the 2022 Yokogawa Sustainability Report

📖 2022 Yokogawa Sustainability Report

Focus Areas of AG2023

Contributing to specialty chemical and biochemical industries, supporting efficiency improvement of the recycling businesses

Initiatives Toward "Creating a Resource-Recycling Ecosystem"

case 1 | Helping the Utilization of Used Lithium-ion Batteries with Yokogawa's Proprietary Diagnostic Technology

Focus area | **Contributing to specialty chemical and biochemical industries, supporting efficiency improvement of the recycling businesses**

As the movement toward carbon neutrality gathers pace globally, the world is seeing an acceleration in the use of electric vehicles (EVs) powered by lithium ion batteries (LiBs). The expansion in demand for LiBs for vehicles is expected to lead to an increase in used (second-hand) LiBs for vehicles. Meanwhile, Europe is anticipated to see the introduction of a system of Battery Passports to digitally record and manage information from each stage of the manufacturing process and lifecycle of storage batteries. It has become vital to encourage the active reuse of LiBs, not least from the perspective of securing resources. This trend is expected to influence countries and regions outside Europe as well.

In view of this social demand, various companies are engaged in efforts to repurpose used LiBs as stationary energy storage systems (ESS).

However, these efforts are making little progress due to safety issues. These include doubts over the safety of restructuring vehicle LiBs as an ESS due to the unavailability of first-hand data on the in-vehicle use of LiBs and an insufficient understanding of their state of deterioration, as well as the need for the repurposing company to provide a product warranty for the ESS in place of the LiB manufacturer. In this context, Yokogawa utilizes its proprietary diagnostic technology to provide solutions for customers engaged in repurposing used LiBs.

Our diagnostic system for battery storages enables us to diagnose a LiB's state of deterioration by uploading charge and discharge data to our cloud network. It therefore eliminates the necessity for impedance measuring instruments and other specialized equipment and enables diagnosis even in the absence of first-hand data on the in-vehicle use of LiBs. In addition to carrying out a diagnosis when used LiBs are restructured into an ESS, our system enables the continued monitoring of deterioration during ESS operation, providing support for the product warranties issued by repurposing companies.

Yokogawa is currently involved in the repurposing business of our customers in Japan and China. We are also engaged in verifying the effectiveness of our diagnostic technology and the construction of ESS through the repurposing of used LiBs. We are also collaborating with the manufacturers of the various equipment needed to construct an ESS, as well as insurance companies and others, aiming for a business framework with high maintenance capabilities. We will continue to leverage our core competencies to solve the issues faced by our customers while also contributing to the resolution of resource problems and other social issues.
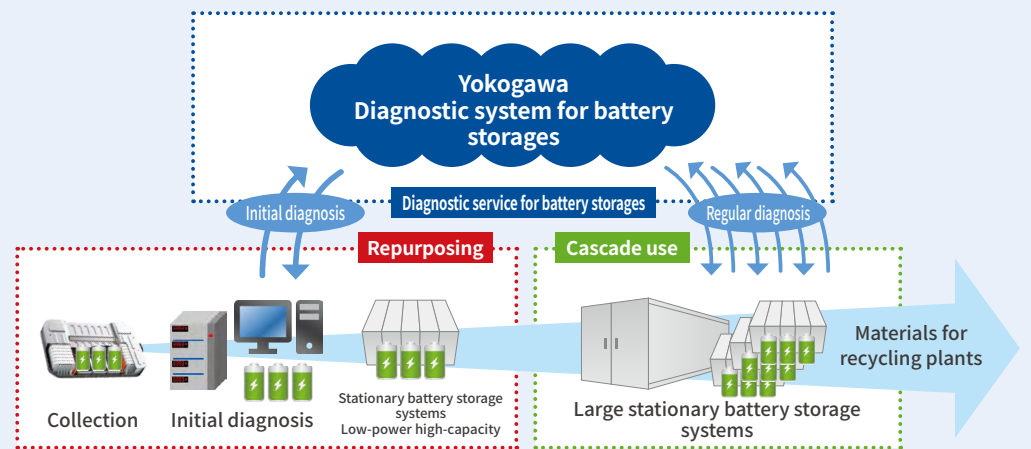
Overall flow of the reuse of used EV batteries

Six Contribution Areas

6. Creating Workplaces Where People Can Fulfill Their Potential

Yokogawa establishes equal opportunity workplaces where employees can be treated with dignity and fulfill their potential.

In the AG2023, Yokogawa sees initiatives of "Employee well-being & engagement," "People capability development for change," and "Promotion of diversity, equity & inclusion" as focus areas. We will work to support our employees and strengthen our base to solve social issues.
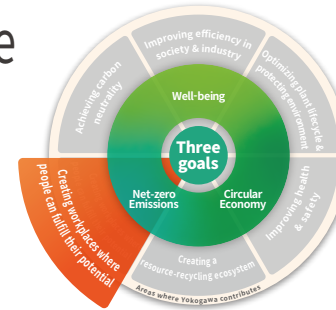
Focus Areas of AG2023

(Within Yokogawa) Employee well-being & engagement

(Within Yokogawa) People capability development for change

(Within Yokogawa) Promotion of diversity, equity & inclusion

Initiatives Toward "Creating Workplaces Where People Can Fulfill Their Potential"

case 1 | **Program for the Development of Human Resources with AI Skills**

Focus area | **People capability development for change**

In the manufacturing industry, Yokogawa's main market, we are required to address a wide range of issues such as the expanding scope of operation, wide variations in quality, and the shortage of experienced technicians. Under these conditions, the advance of the Industrial Internet of Things (IIoT) and other technologies has enabled the collection of large amounts of data at plants and factories. The use of the collected data, together with artificial intelligence (AI), promises to provide solutions to the issues indicated above. While the swift application of AI is required, however, the shortage of human resources able to undertake the introduction and spread of AI is becoming a serious problem. In this context, Yokogawa pursues its vision for AI, "Perceive the present, predict the future, and optimize operations." We not only use AI technology to analyze data but also train human resources capable of contributing to the achievement of customer goals by simultaneously utilizing their domain knowledge.

We have defined five roles for AI-competent human resources, depending on their anticipated tasks: AI consultants, AI sales engineers, AI engineers, AI planners, and AI users. Then, we have classified our ideal human resources into four levels, from beginner to professional, and constructed training programs that enables employees themselves to select and study the most appropriate curricula. In addition to courses provided by external vendors, these include 18 internally developed e-learning courses. Employees are also free to participate in case studies of the use of AI in Yokogawa's businesses. Over the three years from fiscal year 2020 to fiscal year 2022, approximately 7% of all employees participated in e-learning. Until now, the curricula were focused on the beginner level, but we aim to provide more high-level curricula in the future.

Human resources who have completed each curriculum will not only make full use of AI technology to analyze data but also incorporate their extensive knowledge and insight for Yokogawa's processes to interpret and identify the significance of the results of data analysis. In this way, we will realize optimal operation to assist our customers in achieving their goals.
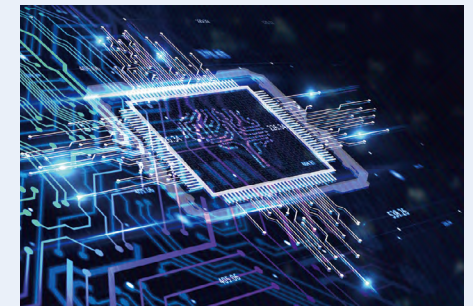
Climate Risks and Opportunities (Response to TCFD)

Environment Surrounding Yokogawa

Climate change is an urgent issue that the world must work together to tackle.

Countries around the world have agreed, as an official target, to limit the temperature increase to 1.5℃ above pre-industrial levels (the 1.5℃ target). This 1.5℃ target has gone a step further than the 2℃ target of the 2015 Paris Agreement in view of the increasingly noticeable damage caused by heavy rains, strong winds, droughts, and other effects associated with climate change in recent years around the world. Companies are also being urged to take further actions for climate change.

Against this backdrop, Yokogawa's customers and investors are changing their behaviors dramatically. Our customers are working towards reducing greenhouse gas (GHG) emissions throughout their supply chains, demanding that Yokogawa also accelerate its efforts to reduce emissions. Furthermore, capital markets have seen a growing call for improved disclosure of information related to GHG emissions. As such, we, with our business spanning the globe, are under pressure to take appropriate action.

As the world's population continues to grow, our society faces the challenge of reducing GHG emissions while continuing to provide the energy and resources needed by society as a whole. Yokogawa has set net-zero emissions as the vision for society in 2050 and listed "Achieving carbon neutrality" as one of the six contribution areas established in AG2023. Viewing curbing GHG emissions and switching to inexpensive, reliable and sustainable energy as priority issues, we are not only reducing GHG emissions from our own operations but also contributing to the spread of renewable energy and more efficient energy use through our business.

Support for TCFD

Yokogawa is determined to proactively address climate change and prepare itself for the future, and it has expressed its support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), which was established by the Financial Stability Board (FSB) to promote the disclosure of climate-related financial information (February 2019).

Climate-related Financial Information

Governance
Governance regarding climate-related risks and opportunities
Recommended disclosures : a) Board of Directors' monitoring structure   b) The Role of Management

▌ The Role of the Board of Directors

The Board of Directors formulates basic policies for addressing climate change and basic policies regarding the improvement of the system for managing risks and opportunities, monitors and supervises the effective operation of the system and appropriate response to sustainability issues. The Board considers the climate-related impacts during its discussion of business strategies and plans.

In appointing Directors and Audit & Supervisory Board Members, we take into account their experience, skills, and expertise that are highly needed in our company. Climate-related issues are of paramount importance in sustainability and ESG.

▌ The Role of Management

The Management Board, as the decision-making body for business execution, takes into account the impact of climate change in terms of both risks and opportunities when formulating business strategies and plans. The Management Board works to achieve the sustainability targets linked to the mid-term business plan, including the targets related to climate change, and reports progress regularly to the Board of Directors.

For group-wide risks including climate change risks, the Management Board has established the Risk Management Committee which selects the priority management risks that should be managed preferentially at the Group level, monitors the management of these risks, and reports to the Board of Directors. As the chair of the Risk Management Committee, the President and CEO is responsible for overseeing all matters related to risk management.

The Sustainability Committee, which is chaired by the President and CEO and serves as an advisory body to the Management Board, has been established for the purpose of holding discussions specifically on sustainability. The Sustainability Committee conducts materiality analysis covering various issues related to climate change and GHG emissions, and discusses risks and opportunities related to climate change. The matters discussed by the Sustainability Committee are resolved by the Management Board and reported to the Board of Directors.

Climate Risks and Opportunities (Response to TCFD)

<table>
<tr><td>Strategy</td></tr>
<tr><td>Impact of climate-related risks and opportunities on businesses, strategy, and financial planning
Recommended disclosures : a) Mid- and long-term risks
                                b) Impact on businesses, strategy, and financial planning
                                c) Resilience of climate scenario strategies</td></tr>
</table>

Strategy Overview

Energy, chemical, and other manufacturing industries that greatly influence global GHG emissions are the clientele of Yokogawa's businesses. Yokogawa helps its customers reduce GHG emissions through its solutions that achieve stable operations, the conservation of energy and greater comprehensive business efficiency. We are also working to establish energy management that enables the optimal operation of infrastructure for energy supply chains, including the utilization of batteries, hydrogen, and other energy storage solutions.

Mid- and Long-term Changes of the Business Environment

Yokogawa analyzed the changes in the business environment around 10 years later regarding climate change from the perspectives of politics, economics, society, and technology. From the perspective of politics, we predict that laws and regulations will become more strict to respond to climate change and increased geopolitical risk caused by energy shortages due to a larger population. From the perspective of economics, we predict a diversification of energy sources assuming the increased use of renewable energy, a shortage of food and water, and resource depletion. From the perspective of society, we predict that global warming will continue and that environment pollution will be aggravated because of consumption rise along with economic growth. Also, from the perspective of technology, we predict that the structure of society will drastically change due to AI, IoT, and other digital technologies and that biomass materials contributing to resource recirculation will widely spread. Against the background of those environmental changes, our customers are transforming into companies that operate low-carbon businesses including renewable energy or that produce materials with little environmental impact such as bio materials, thereby increasing their business opportunities in those areas.

Long-term Business Framework and Mid-term Business Plan

Based on the drastically accelerating change in business environment, we aim for growth through the provision of shared value based on actions such as our response to climate change in the long-term business framework, and are working to expand business by seizing business opportunities created by the transformation of our customers' business strategies based on renewable energy-related market growth and climate-related issues in the AG2023 plan. Yokogawa also helps its customers reduce GHG emissions through its solutions that achieve stable operations, the conservation of energy and greater comprehensive business efficiency.

More specifically, we have determined six contribution areas and established focus areas and sustainability targets (for fiscal year 2023 and fiscal year 2030) for each contribution area. In one of the contribution areas, the "Achieving carbon neutrality," where our goal is to reduce GHG emissions and shift to affordable and reliable sustainable energy sources, we have set renewable energy infrastructure support, storage battery production support, and GHG emissions reduction in our business facilities and the supply chain as focus areas. We have also set the improvement of customers' efficiency and new businesses that will contribute to the reduction of GHG emissions, such as smart manufacturing business which contributes "Improving efficiency in society & industry," and the support of new businesses, which aims to "Creating a resource-recycling ecosystem," as focus areas.

To achieve the sustainability targets, we are operating our main business, the control business, in three subsegments—Energy & Sustainability, Materials, and Life—and steadily expanding our business in these areas. In the Energy & Sustainability segment focusing on businesses for a decarbonized society, the renewable energy industry is our target, where we will contribute to the transformation of our customers' businesses amid the global trend toward decarbonization. We will also work to establish energy management that enables the optimal operation of the entire energy transmission and distribution infrastructure for complex energy supply chains including batteries. In the Materials segment, we are expanding our solutions in the specialty chemicals market. As the shift to carbon neutrality and a circular economy accelerates, we will respond to the needs of new materials such as rechargeable batteries for electric vehicles (EVs) against the backdrop of CO_2 reduction efforts in the mobility market. We contribute to solving environmental and social issues, including CO_2 reduction through the provision of carbon management solutions. In the Life segment, we are expanding our business in supporting productivity improvements throughout the value chains on the back of the demand for energy reduction and efficiency in the pharmaceutical and food industries that contribute adaptation to climate change. In the water business, to meet the growing demand for stable water supply and improved water quality, we will work to create new value, such as expanding our wide-area wastewater management and seawater desalination in overseas markets, as well as conducting proof-of-concept experiments for the potable water reuse. In the measuring instruments business, we aim to achieve net-zero CO_2 emissions by contributing to the shift from fossil fuels to renewable energy by power supply companies and providing measurement solutions for the development of EVs and other electrification endeavors.

Implementation of Internal Carbon Pricing (ICP)

In fiscal year 2022, we began operating the ICP system to promote GHG emissions reduction measures that provide high economic rationale. When considering capital investment or energy procurement plans, we make decisions based on the impact of GHG emissions by converting the expected increase or decrease in GHG emissions into monetary values and taking them into account in financial decisions. We set a carbon price (1,000 yen/t-CO_2) for the entire Group that targets the procurement of electricity from renewable energy sources, which greatly contribute to Scope 2 reduction, and investment of manufacturing equipment. The ICP policy and carbon price are deliberated by the Sustainability Committee and resolved by the Management Board. We will progressively apply the ICP and carbon price to Scope 1, Scope 3, and business planning.

Climate Risks and Opportunities (Response to TCFD)

▌ Resilience of Climate Scenario Strategies

When developing the long-term business framework and the AG2023 plan, we evaluated risks and opportunities and planed measures to address them in the 1.5°C and 4°C scenarios that we had established internally. In the 1.5°C scenario, along with acceleration of the transition in energy caused by the increasingly strict carbon-free policies of each country, we predict the need for renewable energy and energy conserving businesses, etc. will grow while fossil fuel business will shrink. In the 4°C scenario, we predict the expansion of disaster prevention solutions and pharmaceutical and food production-related businesses due to physical risks such as damage to business facilities and supply chains in conjunction with increased flooding and other natural disasters and reduced yields of agricultural products and increase of diseases resulting from an abnormal climate. We have dug into these climate change-related risks and opportunities by business segment and risk type, developed direction of response, and incorporated them into our business strategies.

Main opportunities related to climate change

| Classification	Business segments	Key opportunities	Direction of response
Opportunities	Energy & Sustainability Business	Establishment of energy management that enables the optimal operation of the entire energy transmission and distribution infrastructure for energy supply chains that include the utilization of batteries, hydrogen, and other energy storage solutions	• Expand the range of providing solutions to the entire value chain • Explore co-creation with customers through PoC and pilot projects • Investigate different business models and examine the profitability of these businesses in collaboration with stakeholders in related industries in business areas such as CCUS and hydrogen • Accelerate business development through M&A and participation in government-support schemes • Set and promote renewable energy infrastructure support as a focus area for achieving carbon neutrality
		Contribution to customers' business transformation by leveraging Yokogawa's deep domain knowledge amid the accelerating global decarbonization trend	
	Materials Business	Expand the portfolio of solutions to contribute to solving issues including those from the site level to the management level, such as carbon neutrality in supply chains and achieving a recycling-oriented economy	• Strengthen the ability to provide solutions on a global level • Contribute to solving environmental and social issues, including CO_2 reduction through the provision of carbon management solutions • Set and promote manufacturing support for the mobility supply chain (specialty chemicals, storage batteries, and semiconductors) as a focus area for achieving carbon neutrality
	Life Business	Support for productivity improvement throughout pharmaceutical and food value chains on the back of energy reduction and efficiency needs	• Accelerate overseas business expansion and new product development • Continue to engage in M&A and alliance activities
		Provide solutions in the water sector against the backdrop of growing needs for a stable supply and improved quality of water	• Facilitate digital transformation (DX) by introducing measurement technology developed in genetic analysis and scientific instruments
	Measuring Instruments Business	Contribute to a transition from fossil fuels of power supply companies to renewable energy with the aim of net-zero CO_2 emissions	• Expand solutions to meet needs such as support for technology development and tests to determine compliance with power quality standards, with a focus on conversion efficiency measurement of power conditioning systems used in renewable energy power generation • Provide highly accurate and seamless evaluation solutions based on integrated measurement for developing EVs and other electrified transportation equipment by further strengthening our high-precision, broadband power measurement technology
		Contribute to rapid and efficient development of electric vehicles (EVs) and other electrification endeavors	

Main risks related to climate change

Classification	Type	Category	Key risks	Direction of response
Risks	Transition risks	Policy and legal	Impact on businesses from the introduction of measures such as carbon taxes, taxes on fuel/energy consumption, and emissions trading	• Implement emission reduction plans to achieve targets for Scopes 1, 2, and 3 • Efficiently carry out investment and measures for decarbonization by expanding the application of ICP
			Business opportunity losses due to changes in laws and regulations	
		Technology	Sales opportunity losses due to delays in technical development of new products and services aimed at a decarbonized society	• Accelerate the development of new products and services for carbon neutrality and expand existing products • Promote to develop environmentally friendly products based on evaluations using the Lifecycle Assessment (LCA) standards • Pursue investments including M&A and alliances to acquire technology
		Market	Business opportunity losses due to a delayed implementation of climate change initiatives in response to changes in the market environment	• Consider initiatives for environmental changes such as energy shifts and respond to changes in the market environment • Utilize domain knowledge and digital transformation (DX) and expand the solutions portfolio
		Reputation	Decline in Yokogawa's reputation and corporate value due to delayed actions in addressing climate change	• Set the "Three goals" sustainability goals based on Yokogawa's vision for society in 2050 in light of growing public interest in climate change and expectations for the role of companies • Improve information disclosure
	Physical risks	Acute and chronic risks	Impact on businesses from social disruption caused by climate disasters resulting from the impact of climate change, such as cyclones and floods (acute) and changing weather patterns and rising average temperatures (chronic), as well as damage to business facilities and impact on supply chains	• Prevent, avoid, and reduce the impact of social disruption through efforts such as information gathering within the Group and contract with external organizations • Conduct close supplier management and source from multiple suppliers • Conduct regular risk assessment on major manufacturing bases and formulate and review business continuity plans (BCPs)

*An assessment of physical risks has been conducted for all of our organizations including Group companies and locations. These risks are managed as mid- and long-term risks (3-5 years) and countermeasures are planned every year.

▌ Assumed Climate Change Scenarios

To address the uncertainty surrounding the effects of climate change, we are considering the form that society should take on by 2030, including our response in the 4°C scenario with severe, pervasive, and irreversible global impacts and the 1.5°C scenario where even stricter reductions in greenhouse gas emissions than the 2°C scenario and other efforts will be required.

Global average surface temperature change (relative to 1986-2005)

Source: ARS SYR Figure SPM.6
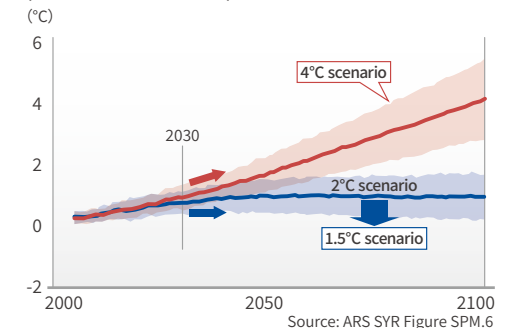
Climate Risks and Opportunities (Response to TCFD)

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Risk Management

Processes for the identification, assessment, and management of climate-related risks

Recommended disclosures：a) Risk identification and assessment processes
b) Risk management process
c) Process for integrating climate-related risks into overall risk management

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▌ Risk Management Structure

We identify, assess and prioritize risks and establish and implement countermeasures and targets while confirming and improving the effectiveness of our countermeasures. In order to realize effective risk management within the Group, we also have established the Risk Management Committee chaired by the President and CEO, who is responsible for supervising all matters related to risk management.

We define uncertainties that might affect the Group's corporate value (e.g., our external environment including climate change, strategies, product quality, environmental impact, crisis management, and corporate ethics) as risk. Under the basic policy of integrally managing various internal and external uncertainties relating to the business to maintain and increase the corporate value of the Yokogawa Group, we categorize and manage these uncertainties in terms of business opportunities, compliance, and crisis events.

▌ Promoting Risk Assessment and Management

Macroeconomic trends and large-scale disasters such as floods caused by climate change are assessed for all organizations including all Yokogawa Group companies and locations, and their outcomes are incorporated into the selection of priority management risks.As part of their independent risk management activities, each organizational unit of the Group including all group companies and locations, identifies and assesses risks every year, establishes countermeasures and targets, and implements these countermeasures including risk reduction. Moreover,each organizational unit has a risk manager and a network for the Group's risk management.

Based on risk assessment and also in view of management strategies, management issues, and the external environment, the Risk Management Committee selects priority management risks whose management should be prioritized at the Group level. Priority management risks are determined by the Management Board and reported to the Board of Directors. The counter-measures for priority management risks and the progress of those countermeasures are reviewed on a quarterly basis. The Risk Management Committee assesses the status of risks, and reports it to the Management Board and the Board of Directors. It also reviews the countermeasures, identifies points for improvement, and incorporates them into the selection of priority management risks for the following year.

In risk assessment, we assess the severity of risks from the perspectives of impact and likelihood of occurrence: The risks assessed include business opportunity risks, e.g., external environment and strategies including climate change, compliance and crisis event risks, such as

product quality, environmental impact, health and safety, corporate ethics (accounting fraud, bribery and other forms of corruption, harassment, etc.), information security, and crisis management. When we assess the impact of risks, we also take into account the social and environmental impact of risks such as human rights risks and responses to climate change, as well as financial and human aspects. We take a comprehensive approach to assessment considering the bottom-up perspective from each organizational unit in the Group and the top-down perspective including changes in our management environment.

In addition, we have established the Crisis Management Committee chaired by the President and CEO to respond to crises such as events, affairs, disasters, and accidents that may seriously impact management. When a crisis occurs by becoming apparent of risk, we will collect information, give instructions for quick and appropriate action, secure human safety, minimize economic loss, and fulfill the social responsibilities of the company.

The department in charge of internal audits evaluates the effectiveness of Yokogawa Group's risk management process and reports important findings to the Board of Directors and the Audit & Supervisory Board Members twice a year.

▌ Priority Management Risks

In fiscal year 2022, we selected and managed as one of the Group's priority management risks "the risk of lagging behind the pace of change in the external environment, including in responding to reforms aimed at a decarbonized society and reducing internal GHG emissions." This risk has also been selected as a priority management risk for fiscal year 2023.

Risk identification	Prioritization	Establishment of countermeasures/targets	Implementation of countermeasures
Identify uncertainties associated with climate change on a single-year basis (short-term) and in the mid- and long-term in terms of both risks and opportuniti	Prioritize risks taking into account financial and human aspects as well as the impact of climate change	Formulate countermeasures and targets according to order of priority and factor them into business plan	Implement countermeasures according to the plan and check/improve their effectiveness

Climate Risks and Opportunities (Response to TCFD)

Metrics and Targets

Metrics and targets for assessing and managing climate-related risks and opportunities
Recommended disclosures : a) Metrics for assessment
b) GHG emissions and related risks
c) Targets and performance

Metrics and Targets

In its AG2023 plan, Yokogawa set the achievement of carbon neutrality through the reduction of GHG emissions and the transition to affordable reliable, and sustainable energy as a contribution area with the goal of achieving it by 2030.

We have set the target of reducing the CO_2 emissions from our customers' businesses by 1 billion tons (fiscal year 2018 to fiscal year 2030). It is a target we will work together with customers to achieve. We aggregate the difference between customers' CO_2 emissions from renewable energy-related business or low-carbon energy production, and average CO_2 emissions from fossil fuels usage, then record is as a result.Further, we have set indicators and targets (fiscal year 2023) for our support of the development of renewable energy technology and the provision of systems used in storage battery production.

To track GHG emissions performance at our business facilities, we also set reduction targets for Scopes 1, 2 and 3, calculating emissions based on the GHG protocol methodologies. In Scopes 1 and 2, we aim to achieve a 50% reduction by fiscal year 2030 when compared to fiscal year 2019 and the carbon neutrality of our business facilities by 2040. In Scope 3 (Categories 1 and 11), our aim is to reduce emissions by 30% compared to fiscal year 2019 by fiscal year 2030. These targets are based on a GHG emission reduction level to limit the global temperature rise to 1.5°C over the pre-industrial level, which is one of the goals of the Paris Agreement. The targets were certified by Science Based Targets (SBT) initiative in fiscal year 2022.

CO_2 emissions control amount through customers
(billion t-CO_2)

Cumulative total from fiscal year 2018 to fiscal year 2030
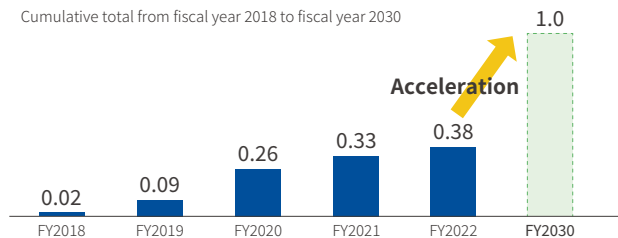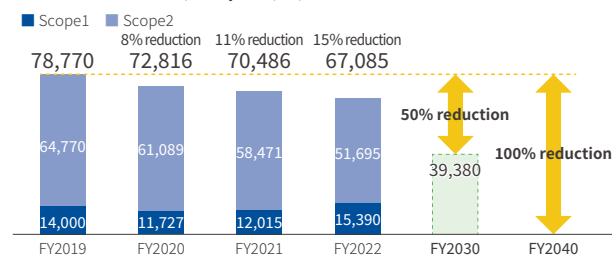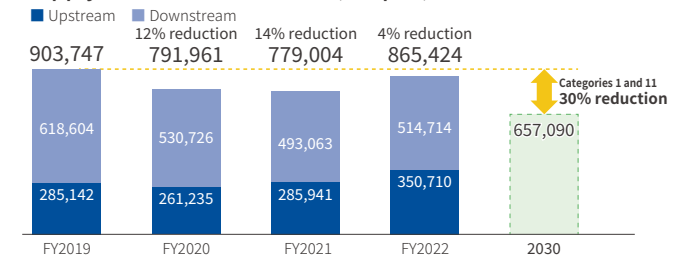
Fiscal year 2030 and 2040 targets

Indicator	Target	Fiscal year 2022 result
CO_2 emissions control amount through customers	1 billion t-CO_2 (50% or more from renewable energy and new technologies), cumulative total from fiscal year 2018 to fiscal year 2030	380 million t-CO_2 (270 million t-CO_2 from renewable energy)
GHG emissions (Scope 1, 2)	50% reduction by fiscal year 2030 (base year: fiscal year 2019) 100% reduction by fiscal year 2040	14.8% reduction
GHG emissions (Scope3*)	30% reduction (base year: fiscal year 2019)	4.4% reduction

Fiscal year 2023 target

Focus area	Indicator	Fiscal year 2030 target	Fiscal year 2022 result
Support renewable energy power generation	CO_2 emissions control amount through customers (cumulative total since fiscal year 2018)	500 million t-CO_2	380 million t-CO_2
Support for transportation, storage and utilization of renewable energy	Sales growth rate of measurement instruments to renewable energy customers (base year: fiscal year 2020)	2.2 times	2.5 times
	Growth rate of number of units shipped of battery electrode thickness gauges (base year: fiscal year 2020)	1.7 times	3.2 times
(within Yokogawa) GHG reduction at Yokogawa sites and in supply chain	GHG emissions (Scope 1, 2) (base year: fiscal year 2019)	10.0% reduction	14.8% reduction
	GHG emissions (Scope 3*) (base year: fiscal year 2019)	10.0% reduction	4.4% reduction

*Emissions from purchased goods and services (Category 1) and emissions from the use of sold products (Category 11)

Performance

In fiscal year 2022, the CO_2 emissions from our customers' businesses reduced since fiscal year 2018 amounted to 380 million tons, mainly due to significant growth in contribution to wind power generation. GHG emissions (Scopes 1 and 2) were reduced by 15% compared to fiscal year 2019 as a result of measures to reduce energy consumption, replacement of equipment with equipment that emits less GHGs, and a shift to electricity generated from renewable energy. GHG emissions in our supply chain (Scope 3) were reduced by 4% compared to fiscal year 2019 as emissions from the use of sold products (Category 11), which account for 60% of Scope 3 emissions, were curbed by decreased sales volume of hardware products. Meanwhile, compared to the previous fiscal year, Scope 3 emissions increased by 11% with an increase in emissions from purchased goods and services (Category 1) due to increased procurement as a result of business growth. To achieve our targets, we will accelerate our efforts to reduce the power consumption of existing products and develop solutions and products with low GHG emissions.

GHG emissions (Scope 1, 2) (t-CO_2e)

Supply chain GHG emissions (Scope3) (t-CO_2e)

Biodiversity-related Disclosure (Response to TNFD)

Environment Surrounding Yokogawa

The Kunming-Montreal Global Biodiversity Framework adopted in 2022 aims to conserve at least 30% of the land and sea by 2030. It recommends that companies disclose their impact on biodiversity as part of efforts to promote the preservation, recovery, and sustainable use of terrestrial ecosystems and achieve the sustainable management of forests. Companies will be required to address such impact on biodiversity.

At Yokogawa, we are engaged in awareness-raising and conservation activities related to biodiversity as part of our corporate citizenship activities. Together with local governments, local NPOs, and others, we have engaged in activities to rediscover local value and expanded the scope of our local biodiversity conservation activities. Perceiving trends in biodiversity as a business opportunity, we contribute through measurement and other cutting-edge technologies. The Group's environmental policy targets environmental issues including biodiversity. We have also set environmental targets and are working to conserve the environment. Specifically, we promote initiatives such as the reduction of greenhouse gas emissions, water consumption, and waste creation. Through our supply chains, we ask our suppliers to promote environmentally friendly initiatives and encourage business with suppliers who actively address biodiversity conservation. We promote activities to conserve biodiversity throughout the value chain.

Governance

Governance regarding nature-related risks and opportunities

▌ The Role of the Board of Directors

The Board of Directors recognizes biodiversity as an issue to be addressed. It formulates basic policies regarding the improvement of the system for managing risks and opportunities, monitors and supervises the effective operation of the system and appropriate response to sustainability issues.

▌ The Role of Management

The Management Board, as the decision-making body for business execution, takes into account the impact of issues including biodiversity in terms of both risks and opportunities when formulating business strategies and plans. The Management Board works to achieve sustainability targets, including targets related to biodiversity.

The Sustainability Committee, which serves as an advisory body to the Management Board, holds discussions specifically on sustainability. The Sustainability committee has conducted materiality analysis covering various issues related to biodiversity.

Strategy

Impact of nature-related risks and opportunities on businesses, strategy, and financial planning

▌ Biodiversity Policy

Biodiversity is a foundation of sustainability in society. Together with our stakeholders, including customers, employees, suppliers, partners, and local residents near our business sites, Yokogawa engages in action throughout the value chain to conserve biodiversity while taking regional characteristics into account. We work to reduce any negative impacts resulting from our various business activities. This includes avoiding business activities near areas with important biodiversity. We also expand support for biodiversity through our businesses to contribute to creating a better environment in local communities, aiming for No Net Loss (NNL).

▌ The Relationship Between Our Business Activities and Biodiversity

Yokogawa has launched the group-wide bottom-up network "SDG Hub & Pod" and is implementing SDGs promotion activities. In fiscal year 2022, we invited Professor Junko Edahiro, Department of Leadership and Innovation, Graduate School of Leadership and Innovation, Shizenkan University as an advisor and 20 motivated employees voluntarily participated in discussions on the theme of biodiversity. Part of this was a discussion regarding the relationship of dependence between Yokogawa's business activities and biodiversity and their impact on biodiversity, using the LEAP approach, an integrated assessment process flamework for managing nature-related risks and opportunities. The results of this discussion are presented below. We have recognized that while Yokogawa's business activities depend on ecosystem services, they also have an impact on biodiversity. Yokogawa will proceed to evaluate the full-scale impact of the entire value chain on biodiversity.

Impact of Yokogawa's business activities on biodiversity
Processes throughout Yokogawa's value chain risk impacting biodiversity. For example, processes from procurement to manufacture risk land alteration through mining, the GHGs emitted through processes from the supply to the use of products risk causing global warming and atmospheric pollution, and the disposal process risks impacting land usage and causing water pollution through landfills. We recognize the risk that the operation of Yokogawa's business sites may impact biodiversity in each region due to factors such as water emissions, global warming from GHG emissions, waste, landfill, and land alteration.

Contributing to biodiversity through our businesses
Yokogawa contributes to solving social issues, utilizing its ability to measure and connect. We contribute to biodiversity by solving our customers' issues through the provision of products, solutions, and services utilizing Yokogawa's cutting-edge technologies.

Biodiversity-related Disclosure (Response to TNFD)

case | Revealing the Mechanism of the Natural Cycle by Using Cutting-edge Measurement Technology

Humans do not yet fully understand the mechanism of the natural cycle that leads to the formation and preservation of entire forest ecosystems. Yokogawa's measurement technology helps researchers who are working steadily to reveal the mechanism of this natural cycle through the process of hypothesis testing.

Yokogawa's CSU confocal scanner unit enables a clear visualization of the movements inside living cells, not as stationary images but in real-time. Using the green fluorescent protein (GFP) found in luminous jellyfish, which can illuminate the cells of any organism for viewing with the CSU, makes it possible to capture the phenomena and functions of biological activity in each living cell of an organism in detailed images at a molecular level. For academic research, especially, this ability to engage in the dynamic analysis of the functions of DNA and other substances at the molecular level, in addition to static analysis, has led to rapid advances in our understanding of the functions of various organisms and contributed to new discoveries.

In recent years, cutting-edge technologies including the CSU confocal scanner unit have enabled the acquisition of clear images of plants producing toxins in response to internally-generated danger signals, not only at the site of insect damage but throughout their bodies, through cell-level biological reactions in their leaves. This has clarified an astonishingly advanced ability in plants. Academic research has finally given us a glimpse of the mutual inter-species assistance in plant life-support activities and the mechanism of the forest-wide natural cycle. Plants taking measures to defend themselves against external threats or engaging in pest control by releasing substances from the surface of their leaves that attract the natural enemies of insect pests: our new understanding of the mechanism of the natural cycle has not only upended our conventional notion of plants as docile and insensible creatures but is also used in a range of initiatives to preserve biodiversity.

Yokogawa will contribute to academic research and corporate initiatives aimed at mitigating the impact on biodiversity by supporting efforts to elucidate the mechanism of the natural cycle through our cutting-edge measurement technology.

The production of toxins

CSU

Risk and Impact Management

Methods for the identification, assessment and management of nature-related risks

Biodiversity affects Yokogawa's business both directly and indirectly. It is included in the scope of group-wide risk management. Each organizational unit of the Group identifies and assesses risks, and formulates and implements countermeasures and targets. The Risk Management Committee regularly monitors significant risks.

📖

case | Lecture to Deepen Understanding of Biodiversity

Under the Kunming-Montreal Global Biodiversity Framework, targets for 2030 were adopted and targets related to companies were incorporated. We invited Mr. Teppei Dohke of the Nature Conservation Society of Japan to lecture aimed at understanding what is biodiversity and what are the new global targets for 2030 and helping us actively engage in conserving biodiversity through our business activities. He has participated in numbers of meetings of the Conference of the Parties to the Convention on Biological Diversity (COP) including COP15.

As we deepen our understanding of biodiversity, we will contribute to it through our business activities.

Metrics and Targets

Metrics and targets for assessing and managing nature-related risks and opportunities

Yokogawa sets targets and promotes initiatives related to nature. We also disclose our progress toward these targets.

Metrics for initiatives to mitigate the impact on biodiversity

Driver of nature change	Indicator	Targets	
Climate change	GHG emissions	GHG emissions (Scope 1, 2 and 3)	📖 See P.38.
Pollution/pollution removal	Total amount of hazardous waste generated	Total Waste Generation (actual performance only)	📖 See P.61.
		Environmental pollutant emissions (actual performance only)	📖 See P.62.
Resource use/replenishment	Water withdrawal and consumption from areas of water shortage	Water withdrawal amount at Yokogawa sites	📖 See P.61.

A selection of the disclosure metrics indicated in TNFD v0.4 that relate to Yokogawa have been presented above

Metrics for initiatives to contribute to biodiversity

Driver of nature change	Indicator	Targets	
Climate change	GHG emissions	CO_2 emissions control amount through customers	📖 See P.38.
Resource use/replenishment	Water withdrawal and consumption from areas of water shortage	Number of solutions provided for water environment improvement	📖 See P.29.

Social

Companies are supported by people and society.
Yokogawa seeks to provide all members of our diverse workforce with opportunities to thrive at work, fulfill their potential, and grow with society. This chapter introduces our initiatives relating to human resource management, occupational health and safety and human rights.

CONTENTS

Metric	Engagement survey score
Performance and Targets	At a level comparable to other leading companies (FY2030 target) 81% (FY2023 target) 76% (FY2022 performance)

Human Resource Management

Human Resources Strategy

Yokogawa aims to realize the aspirations expressed in Yokogawa's Purpose and achieve the growth that will put us on track to becoming a trillion-yen company by fiscal year 2030 through the provision of shared value to society. The driving force behind this is the growth of each and every one of our employees. We will create an environment in which our employees can resolutely tackle the changes in the business environment that are exceeding all expectations, adopt whatever mindset is required, and act on their own initiative to improve individual capabilities and skills.

Under the AG2023 plan, we are thoroughly implementing a global human resources strategy to optimize our internal operations and transform mindsets, as part of which we are cultivating a corporate culture and an organizational climate that encourages people to take on new challenges. A key to expansion into new businesses and fields is to secure human resources with the required capabilities at a global level. We will visualize information on the quality and number of personnel, and recruit, train, and optimally deploy employees. Through recruitment and M&A, we will bring on board personnel who can be immediately effective, promote a change in mindset among our employees, and enhance the training environment for reskilling the workforce. At the same time, the Global HR Transformation Project will integrate personnel systems, processes, and HR databases to establish a foundation for the optimal allocation of human resources. By creating an environment in which human capital is enhanced by such means as improving employee capabilities and engagement, we will maximize the efficiency of our global team. And through our practice of human capital management, our aim as one globally unified company is to continually provide shared value to society.

Improvement of Employee Engagement

Importance of Employee Engagement

We believe increasing sustainable employee engagement is essential to Yokogawa's corporate value and sustainable growth. When employees are engaged, enabled and energized, they are independently and enthusiastically committed to their work and feel ownership of the achievements of the organization's goals, performance and ultimately the value provided to the company's stakeholders. We help each employee contribute by providing a work environment that supports productivity and performance while ensuring individual physical, interpersonal and emotional well-being at work.

Global Employee Engagement Survey

Employee engagement is the intensity of employees' connection to their organization toward achieving organizational goals which is sustained by an environment that supports productivity and a work experience that promotes well-being. Its improvement also requires employees' understanding of the organization's vision, mission, and values, the provision of career development opportunities for employees, and appropriate performance evaluations. To understand the current situation, we regularly conduct global employee engagement surveys every 2 years. Analyze the results of the surveys and reflect the lessons learned in our strategies and improvement measures to increase employee engagement. In years when a global employee engagement survey is not conducted, an abbreviated global survey is conducted to measure the effectiveness of actions in place to improve employee engagement.

Sustainability Goal: Engagement Survey Scores

In order to improve employee engagement, we have declared employee engagement survey scores as one of our sustainability goals. The Engagement Survey Score measures employees' satisfaction with their work environment, the state of their well-being, and the level of employee engagement. Based on this, we try to achieve high-level employee engagement on par withglobal high performing companies. The Global Employee Engagement Survey also examines and analyzes 14 other more specific categories (e.g., understanding of the organization's strategy and direction; satisfaction with performance evaluation, compensation, benefit programs, growth opportunities, environment, and work processes; trust in leadership) that may impact engagement survey scores, and uses the results to develop action plans for improvement.

2022 Global Employee Engagement Pulse Survey, Results and Improvement Activities

The 2022 Pulse Survey results checked on the progress we are making in improving employee engagement.Compared to 2019 and 2021 results, employee engagement has been decreasing. The results of this survey are shown below:

- Employee engagement has decreased.
- There is a perception that the organization is not effectively addressing challenging tasks (Enabled).
- Maintaining energy throughout the day is perceived as difficult.
- Our processes are still not efficient.
- A better understanding is needed regarding how the job of each employee fits with the mid-term business plan.
- There is a perception of being less empowered to make decisions.

Improving efficiency has been an improvement point since 2021, and despite implementing measures, it is still considered a problem. It is noted that inefficient work processes hinder employees' energy and engagement.

Furthermore, there is a need for further improvement in the connection between managers and general employees. Given the current situation where many employees are working remotely, a lack of communication is seen as one of the causes. "Communication" and "teamwork" are being emphasized as a focus for improvement.

To promptly address these issues, sustainable improvement in engagement is being positioned as the mission for all organizational leaders. Efforts are being directed towards improvement activities.

Metric	Proportion of women in managerial positions	Employment rate of disabled persons (Japan)
Performance and Targets	20.0% (FY2030 target) 12.5% (FY2023 target) 13.3% (FY2022 performance)	2.5% (FY2023 target) 2.52% (FY2022 performance)

Human Resource Management

DE&I (Diversity, Equity and Inclusion)

Our DE&I Statement

Yokogawa believes in building a culture that accepts, values and celebrates individual differences. Yokogawa is committed to providing an equitable and inclusive environment where everyone can belong, contribute, succeed, and demonstrate their full potential without fear of harassment, verbal abuse, or other behaviors that inhibit someone from fully contributing or harms their dignity.

To achieve this, Yokogawa will actively recruit, develop, and promote people from a variety of backgrounds who differ in terms of experience, knowledge, thinking styles, perspective, cultural background, and socioeconomic status, and in so doing will not discriminate based on ethnicity, nationality, gender, religion, age, social position, or disability. By utilizing digital technology and cultivating an inclusive working environment, we will make it possible for every employee to demonstrate his or her full potential and to work comfortably with a flexible workstyle. Engaging communication and constructive collaboration based on mutual respect facilitates innovation and the co- creation of new value for our customers, partners, suppliers, and in so doing, improves our planet.

DE&I initiatives Over the World

The diversity of our people is our strength as well as a requirement for Yokogawa to expand its businesses globally. To enable this, we have expanded the scope of the global job opportunity system to allow employees to apply for open job opportunities anywhere around the world.

In addition, during the past year, Yokogawa has conducted many DE&I mindset trainings to deepen our understanding of the importance of promoting diversity, equity and inclusion in Yokogawa, as well as, recognizing unconscious bias and how it affects our actions. In 2020, more than 1,000 leaders from overseas took the training, and in July 2021, the training was held for the top executives. DE&I promotion activities are spreading around the world, including recognition of International Women's Day and promoting Women in STEM networks.

Yokogawa Vietnam conducted a DE&I training for their employees in February 2022 with experts on the topic. The training covered topics such as the definition of DE&I and the impact of unconscious bias and focused on the importance of promoting an inclusive workplace and diversity. Positive feedback was received from the participants.

We are also actively engaged in human rights education. Since fiscal year 2021, e-learning based on the "YOKOGAWA Group Human Rights Policy" has been available in multiple languages, and a total of more than 13,400 employees have taken the course so far.

Through the e-learning program, participants can learn about the prohibition of discrimination and harassment, gender equality, and other topics through videos and case studies, including the related YOKOGAWA Corporate Philosophy.In fiscal year 2023, we will continue to expand these DE&I promotion activities.

LEARN EMBRACE UPHOLD **HUMAN RIGHTS**

DE&I training in Vietnam

Promoting Women's Empowerment

Yokogawa is promoting women's empowerment as a part of its diversity promotion activities based on the human asset strategy of the midterm business plan. In April 2015 Yokogawa established a work section that is dedicated to the promotion of diversity. Yokogawa is pursuing its goal of achieving a ratio of Women managers of 12.5% (global) by fiscal year 2023. Currently, we are exceeding our FY2023 target. In addition, Currently, we are exceeding our FY2023 target. In addition, and 20% (global) by fiscal year 2030. Two women have been appointed as executive officers in 2021.
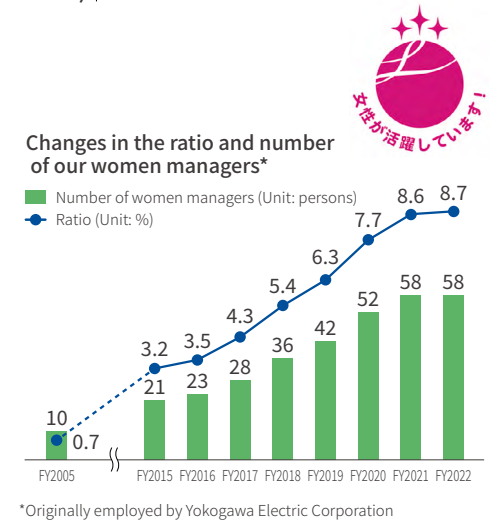
In Yokogawa Electric Corporation, we are actively helping women in Japan achieve success in their jobs by providing assistance with formulating career development plans. Furthermore, career development training for young employees conveys the message that Yokogawa offers the possibility for anyone to become a leader, regardless of the attributes or background of the employee, thereby strengthening the motivation of young women to become leaders. At the same time, we also hold awareness-raising training and seminars for all managers to promote their understanding of DE&I. In our recruitment activities, we aim to optimize the ratio of men and women employees over the long term, while targeting a women ratio of 30% or more of the total number of recruits. Also, since March 2016, we have formulated a "General Employer Action Plan" based on the Law for the Promotion of Women's Work Activities and published it on the website of the Ministry of Health, Labor and Welfare. In July 2016, we obtained certification from the Minister of Health, Labor and Welfare (certification level 3 (3-star), satisfying all five evaluation items) as a company with excellent implementation of initiatives for the promotion of women's work activities.

Changes in the ratio and number of our women managers*

- 🟩 Number of women managers (Unit: persons)
- 🔵 Ratio (Unit: %)

FY2005	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022
10	21	23	28	36	42	52	58	58
0.7	3.2	3.5	4.3	5.4	6.3	7.7	8.6	8.7

*Originally employed by Yokogawa Electric Corporation

Promoting Active Participation by People with Disabilities

Since it launched a normalization project in 1992, Yokogawa Electric Corporation has consistently continued its activities to recruit employees with disabilities. In Yokogawa group, employees with disabilities (e.g., disability with upper or lower limbs, auditory disorder, visual disorder, internal organ disease, mental disorder, developmental disorder, intellectual disability) engage in various fields, such as engineering, manufacturing, sales, and office work with holding up independence, autonomy, ambition, and rising to challenges as its keywords. Yokogawa Foundry Corporation, a Group company, has been certified as a special subsidiary conforming to The Act for Promotion of Employment of Persons with Disabilities. We will continue to promote the active participation of employees with disabilities in cooperation with labor organizations.

Metric	Training hour per person
Performance and Targets	**40 hours per year per person (FY2023 target)** **41.3 hours (FY2022 performance)**

Human Resource Management

Human Resources Development

A diverse workforce is an indispensable management resource and a key driver for Yokogawa's growth and creation of value.

To achieve the targets of the AG2023 mid-term business plan, Yokogawa is pursuing transformation through accelerated strengthening of human resources, for creation of new value through co-innovation with our customers. Moreover, to be a trusted partner and a respectful citizen to our various stakeholders, we will advance group-wide efforts to cultivate a rewarding corporate culture by instilling Yokogawa's mission and purpose in the hearts of each employee and establishing a framework that enables employees to pursue their career goals.

Fostering a Corporate Culture That Inspires Employees to Grow with the Company

■ Initiatives of Yokogawa University to Realize a "Learning Company"

With the goal of ensuring Yokogawa can continue to create greater value for our customers and society in a fast-changing world, in October 2018 we established Yokogawa University, an inhouse institution, to provide our employees with an environment to acquire and increase their level of expertise and skills in a broad range of areas. E-learning is used as the primary method of training so that our employees around the globe have an equal opportunity to learn without time or location constraints. At the same time, we are developing instructors globally to ensure the availability of instructors at all our locations.

Further, our officers serve as instructors to educate our employees.

By offering employees opportunities to take on new challenges and helping motivated employees grow faster while cultivating a corporate culture where employees can learn from one another ("Learning Company"), Yokogawa aims to transform itself into an enterprise that is able to achieve sustained growth through employee growth and development.
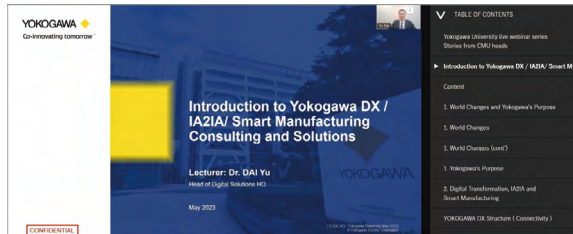
E-learning class with internal lecturer

■ Expanding the Program

Content to Contribute to AG2023

Education programs are divided into three major themes: Business literacy, which is a set of basic skills in leadership, finance, and other areas expected of a professional; themes based on new technologies and other resources needed to create new businesses and transform business models; and themes based on functional areas of business such as sales and services needed to transform existing businesses and to impart knowledge. External e-learning resources have also been incorporated to expand the programs. Moreover, we added hard and soft types of contents geared toward achieving our AG2023 targets. While the University started with some 120 programs when it opened in October 2018, it was increased to about 24,000 by the end of March 2023. Employees will apply what they learned from the programs to work and generate more value, so as to realize growth for the Company.
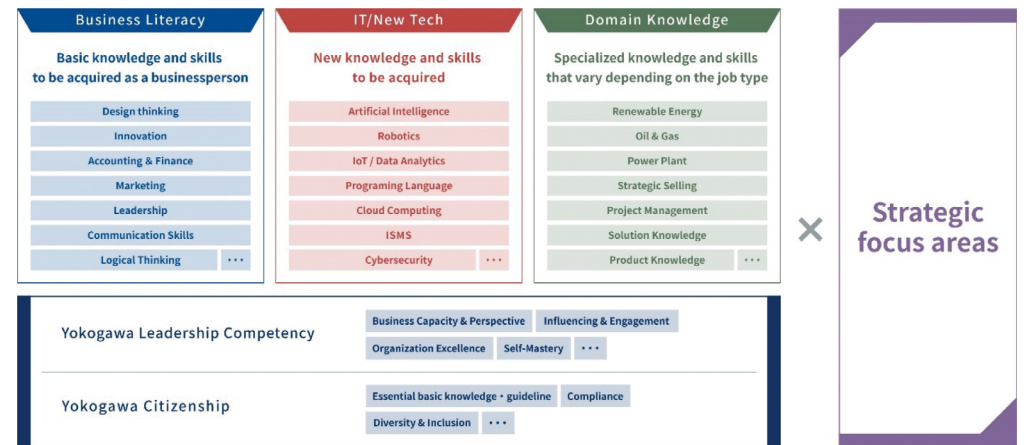
Yokogawa University Learning Categories

Global Talent Management System

To sustain growth and enhance its corporate value over the medium to long term, Yokogawa is prioritizing the development of leaders who are capable of achieving success in the global business arena. To systematically recruit and develop global human resources and prepare them for managerial roles, in fiscal year 2018 Yokogawa established an organization to pursue a group-wide, strategic approach to human resources allocation and development.

Moving forward, we will further expand our efforts to develop more leaders at an early stage.

Safe and Comfortable Work Environment

Promotion of Work-Life Management

The environment and values surrounding employees are constantly changing due to life stages and other factors. In response to these changes, Yokogawa supports employees' work-life management by providing flexible work systems such as flextime without core hours, telework, and leave by the hour so that employees can concentrate on their work with more peace of mind. In terms of balancing work and child rearing, Yokogawa has a system of childcare hours and child nursing leave that can be used until the child enters elementary school, as well as a next-generation childcare support system that provides 100,000 yen per year per child for financial support. These systems are used by many employees, regardless of gender. Thanks to the enhancement of systems that make it easier for employees to work after returning to the workplace, understanding from the workplace, and a supportive corporate culture, almost all employees who have taken childcare leave have been able to return to the workplace. We are also making the new mother and her supervisor aware of the systems available for childcare in order to make it easier for the mother to take childcare leave.

For the period of childcare leave, childcare leave benefits are provided by employment insurance (in principle, until the day before the child turns one year old), and we have also introduced systems such as making the first week of the leave period paid. The maximum period of leave can be taken until the day the child reaches two years of age. As a result of our efforts to create a corporate culture and system related to childcare leave, the percentage of men employees taking childcare leave has increased from the 1% level to 49.2% (actual results for fiscal year 2022).

Furthermore, we have invited Poppins Nursery School Musashino, a Tokyo Metropolitan Government-certified nursery school, to our head office premises to support our employees as well as local residents in balancing work and child-rearing. In recognition of these activities, in February 2021, Yokogawa received "Platinum Kurumin Certification" from the Director-General of the Tokyo Labor Bureau as a Company Supporting Childrearing. The telework system and hourly leave system introduced at Yokogawa in fiscal year 2016 are used by many employees, not only those with childcare or nursing care needs, as a work style that is not restricted by time or location.

Regarding nursing care, in addition to the nursing care leave stipulated in the Child Care and Family Care Leave Law, nursing care leave that can be taken in half-day or hourly units, and shorter working hours for nursing care, we have also established a "Lost Paid Leave Reserve System" that allows employees to accumulate up to 40 days of expired annual paid leave to be used for nursing care or so on. This system supports employees in balancing nursing care and work on an ongoing basis. Various options for working hours are also available, including shorter working hours for childcare and nursing care, as well as a three-day workweek and half-day workweek for senior employees in response to changes in the environment and diversification of values.

As part of our efforts to create a corporate culture that encourages employees to use the system, we publish in our internal newsletter the working styles of employees who are making effective use of the system and a message from the president. We also promote the use of the

The Kurumin mark

system through various media, such as by opening an information website on the intranet to introduce diverse work styles and the system.

Transformation from a telework-centered work style to a hybrid work style that combines coming to the workplace and teleworking

Due to COVID-19, we have undergone a major shift from a work style based on coming to a workplace to one based mainly on teleworking. In response to this change, we have been improving various systems and environments. In Yokogawa, a remote work system that allows employees to work location-free style was introduced in April 2021.As of June 2023, approximately 50 employees work outside the commuting area. In recognition of these efforts, Yokogawa received the 22nd Telework Promotion Award and Excellence Award from the Japan Telework Association.

While teleworking has become more widespread and has made it possible for individuals to achieve a better work-life balance, there are also issues such as a lack of daily communication in online working styles. It is a fact that online communication is not a replacement for all real communication. We believe that there is an emerging necessity to reevaluate the value of real communication once again.

Yokogawa's strengths are mainly built through real communication, such as on-site expertise, perseverance in tackling difficult projects, and overcoming challenges through teamwork. We have begun working on hybrid work that combines the best parts of telework and real communication.

Harassment Prevention

Yokogawa works to prevent harassment and prescribes that "harassment is not allowed" in the Yokogawa Group Code of Conduct. In order to promote diversity and develop an environment where all employees can thrive, we revised the "Corporate Policy for Harassment" and established the "Harassment Prevention Guidelines" in fiscal year 2016. We encourage the employees of Yokogawa Electric and its group companies in Japan to be respectful of one another and inform them that we do not tolerate any acts of harassment, including sexual harassment, abuse of authority, harassment that interferes with the use of childcare and nursing care leave, stalking, and discriminatory acts against members of the LGBT community, and are making efforts to ensure compliance and implementation.

Further, Yokogawa Electric has established the "Yokogawa Group General Hotline," where the employees of Yokogawa Electric Corporation and its group companies in Japan can receive consultations on various issues including harassment. When consulted, we conduct necessary interviews and investigations on workplace conditions based on the intentions of employees seeking advice while taking their privacy into consideration. If harassment is found to have occurred, we take strict disciplinary actions against the person who committed the harassment and give appropriate guidance such as requesting measures to prevent reoccurrence. We ensure that employees seeking consultation and employees who contribute to fact-finding investigations will not be treated disadvantageously.

Safe and Comfortable Work Environment

Management of Health and Productivity

In order for Yokogawa to provide sustainable value and lead the way in solving social issues, it is essential to promote health and productivity management in which health is considered from a management perspective and strategically practiced. Our health and productivity management is aimed at helping employees autonomously maintain their health while improving their physical and mental health, satisfaction, and happiness in order to increase work engagement and productivity across the Group.

In 2016, Yokogawa formulated a Health Declaration as a basic policy for health and productivity management with the aim to further accelerate initiatives related to employee health.At Yokogawa, health management is promoted under the leadership of the management team, with the Representative President as the Chief Health Officer and the General Safety and Health Manager, i.e., the officer in charge of occupational safety and health.The Safety and Health Committee, with the Clinical Center of the Human Resources & General Affairs Division, Japan HR Div., and the General Affairs Department as the departments in charge, collaborates with industrial physicians, the Yokogawa Electric Health Insurance Union, and labor unions.The Company has worked on various initiatives under its policy relating to maintaining and improving the health of employees, including working styles that allow flexibility in work locations and times, creating employee-friendly office environments, management of working hours, and health improvement programs. As a result of these initiatives, Yokogawa has been continuously certified as an outstanding health and productivity management organization* by the Ministry of Economy, Trade and Industry since fiscal year 2017. In fiscal year 2023, the company was also certified as a "White 500 / Corporation for Excellent Health Management" for the first time in two years.

* "Health and productivity management" is a registered trademark of Workshop for the Management of Health on Company and Employee.

■ Health Improvement Measures

Yokogawa Electric has been running the Health Development Program as a measure to promote health since fiscal year 2015. In this, employees independently check their condition and are encouraged to provide self-care and improve their health. The program includes counting the number of steps in a one-week period, an interview with a physician on the day of the program (about exercise, diet, drinking, smoking, sleep, and cognitive habits, etc.), and the measurement of body composition and physical fitness. In addition, occupational physicians refer to findings from previous checkups and give each employee tips to improve lifestyle. Amid changes to work styles due to the

Health Declaration

Yokogawa aims to be a company that supports its employees in their efforts to improve their physical and mental health, encourages the development of lively and stimulating workplaces, and contributes to society.

COVID-19 pandemic, we reviewed the existing Health Development Program that operates under the assumption that employees work on-site at workplaces. We will roll out a new health improvement program called "Let's Shine!" going forward from fiscal year 2022. There are plans to organize initiatives such as a walking event for each organizational unit so that employees feel connected to each other and acquire healthy lifestyle habits in a fun way.

■ Utilizing Data on Health

We started tallying and analyzing data from health examinations, stress checks, the Health Development Program, and work attendance in fiscal year 2020. The results are shared within the Health and Safety Committee and used in various health improvement measures. By implementing measures based on data to improve employees' health literacy, we aim to energize the organization and increase work engagement and productivity.

■ Providing Learning Opportunities to Promote Mental and Physical Health

In order to promote employees' autonomous health behavior, we are working to raise their health awareness through e-learning, manager training, health education such as various seminars, and various exercise-related events.

■ EAP for a Healthy, Fulfilling Company Life

We offer an Employee Assistance Program, which is designed to help employees maintain high performance and avoid a situation in which they are unable to demonstrate their full potential due to health problems and life changes. Under EAP, we establish a comfortable working environment while improving the program to adapt to the current situation and support employees to manage both their mental health (e.g., stress care) and careers (e.g., reinstatement support). It is our goal to ensure that all our employees stay in good health and enjoy a fulfilling company life.

Employee Assistance Program (EAP)

Education/PR	Utilize e-mail and web pages to provide relevant information that will help employees gain a better understanding of mental health.
Mental health training	Implement training for new employees and managers in an effort to prevent or early detect mental health problems.
Stress check	Based on the results of the stress check, identify causes of stress in the workplace. Implement programs and activities involving the entire workplace to prevent, contain, and eliminate these causes so as to ensure a more comfortable workplace.
Health Promotion Program	We have a "Health Promotion Program" that focuses on improving lifestyle habits, especially exercise habits, with the aim of improving the physical and mental health of each employee. Exercise is believed to be effective in preventing not only physical illnesses but also mental illnesses, and we support our employees in improving their health by checking their own physical condition and taking care of themselves.
Consultation	We have a system to help our employees seek consultation within or outside the Company regarding not only mental health but also various areas of human relationships, career issues, sexual harassment, abuse of authority, and discrimination against individuals including LGBTs.
Support for employee's reinstatement to work	To care for employees who suffer from mental health problems or take a leave of absence, and to ensure the smooth reinstatement of those who return to work after recovery so as to prevent recurrence, we have a system to provide proper support for each individual and workplace in all stages of mental health response.

Safe and Comfortable Work Environment

Workplace Reform

We are working on workplace transformation, aiming for a hybrid work style that combines office work and telework. We create offices so that employees can choose the environment in which they work safely, securely, and autonomously. Spaces have been designed for a variety of uses, including a "place of concentration" to focus on one's own work, a "place of collaboration" to promote cooperation within the company, and a "place of relaxation" to facilitate the birth of new ideas.

We can change how the free workspaces are used dependingon the situation. Changing from collaboration-oriented (top photo) to solo work-oriented (bottom photo) is also possible.

■ Trying Workplace Reform at Development Workplaces Too

Our development workplace offices used to be difficult in terms of workplace reform because of the work conducted there. However, as employees at development workplaces increasingly expressed their desire to try new work styles, we started work to renew the offices by having the employees there set up projects.

Renewed development workplace

■ Using Shared Office as a Third Place

Working in an office used to be the norm, but now working at home has become a part of our daily lives. Shared offices are being used so that employees can choose to work at locations other than the office or at home according to their own work schedule.

Shared offices where employees can independently choose to work

■ Facilities Dedicated to Human Resources Development

Yokogawa has a "learning center" used for various human resources development, including new employee training. We have prepared an environment for comfortable training, both in person and online, with rooms that can be changed into different sizes and layouts according to number of participants and training contents.

Learning center Yokogawa Campus

■ Building an Environment That Accepts Diversity

As our employees become more diverse, we are working hard to create an environment where everyone's "differences" are understood and everyone feels comfortable working.

• Prayer rooms
  We have set up facilities for employees who need to pray during working hours for religious reasons.

• Break rooms for women
  When communicating with employees in the middle of childrearing, they said things like "there's nowhere I can comfortably pump my breast milk," "I'd like somewhere to relax during pregnancy," and "it would be good to have somewhere to lie down a while." It is an important task to create a working environment where everyone is respected and equal, so it was urgent for us to create a workplace environment where pregnant and child-rearing women can also feel comfortable. This is why Yokogawa Electric created the "break rooms for women" as spaces where women can pump milk, manage their health, and relax comfortably.

   We have prepared the required environment by including a fridge and freezer for storing breast milk and a microwave oven to sterilize the milk pump, thereby making it easier for women to choose to raise toddlers while working. Feedback from women employees using the rooms has been things like "I use it when I go to work and it's a great help" and pregnant employees commenting that "I generally telework, but just having the break room is an assurance when I do go to the office."
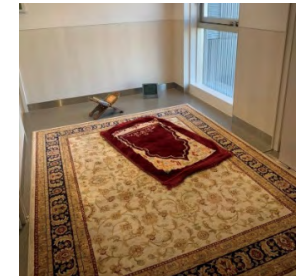
Prayer rooms

Break rooms for women

Metric	ISO45001 certification acquisition
Performance and Targets	Principal locations certified (12 companies) (FY2023 target) Principal locations certified (10 companies) (FY2022 performance)

Safe and Comfortable Work Environment

Occupational Health and Safety Initiatives

The Yokogawa Group has introduced an Occupational Health and Safety Management System and seeks to continuously enhance the levels of activities related to occupational health and safety and promote risk reduction. With the goal of improving the levels of occupational health and safety in phases, the Group is undertaking initiatives to eliminate and reduce potential risks identified through risk assessment and is regularly conducting internal audits of the Group companies to evaluate and review the initiatives. Yokogawa is also enhancing the effectiveness of the system by combining these initiatives with its existing activities, including analysis of and countermeasures against near-misses and health and safety patrol. We have designated risk assessment, occupational health and safety (OHS) training, and health and safety patrol as group-wide key activities and we monitor the activity times.

Occupational Health and Safety Policy

In recognition that occupational health and safety are a basis for the management of the Yokogawa Group, Yokogawa shall pursue the following initiatives to promote, create and maintain health and safety for all of its personnel involved.

- Establish an occupational health and safety management system, clarify roles, authorities, and responsibilities, and promote occupational health and safety management activities.
- Work to improve occupational health and safety by observing relevant laws and regulations as well as establishing the necessary independent standards.
- Seek to eliminate or lessen risks to occupational health and safety by first assessing their danger level
- Establish occupational health and safety metrics and targets, and strive for improvement.
- Promote open communications with Yokogawa Group personnel, customers, shareholders, members of the local community, and contractors.
- Provide the education and training to all Yokogawa Group personnel to ensure occupational health and safety.
- Perform audits on a regular basis and make continual improvements in our occupational health and safety system.

Operation of the Occupational Health and Safety Management System

With the goal of improving the levels of occupational health and safety in phases, the Group is undertaking initiatives to eliminate and reduce potential risks through risk assessment carried out periodically or at the time of the change in operations, operating procedures or others as well as the implementation of countermeasures, while also conducting internal audits of the Group companies to evaluate and review the initiatives. The Occupational Health and Safety Management System is being operated while maintaining communication with people working at the Group, including temporary staff and contract workers. Yokogawa is also enhancing the effectiveness of the system and activities by combining its existing activities, including analysis of and countermeasures against near-misses and health and safety patrols.

In order to increase the effectiveness of our system and activities, we aim to have all 12 principal locations certified with ISO 45001, which is the international standard for occupational health and safety management, by fiscal year 2023, of which 10 have been certified as of fiscal year 2022. The Yokogawa Group also encourages its manufacturing sites to be certified with ISO 45001. By fiscal year 2022, 14 of the Group's 18 manufacturing sites have obtained the certification, representing a certification rate of 78%.

Yokogawa Group Occupational Health and Safety Objectives

- **Elimination and reduction of occupational accidents**
  Secure safety and promote health of all personnel working for the Yokogawa Group.
- **Establishment, maintenance, and improvement of the Occupational Health and Safety Management System**
  (1) Make continual improvements in OHS activities, through implementation of PDCA cycle and sharing OHS activity information.
  (2) Conduct risk assessments in all Yokogawa Group companies, for eliminating or reducing risks.
  (3) Maintain and improve the current OHS level by carrying out internal audits.
- **Observing laws and regulations**
  Observe OHS-related laws and regulations.
- **Conducting OHS activities**
  (1) Activities to ensure safety as well as to maintain and improve health
  (2) Activities to build awareness of traffic safety
  (3) OHS training
  (4) Fire and evacuation drills
- **Disclosure of OHS information**
  Communicate openly with Group personnel and the local community about OHS activities and results.

Occupational Health and Safety Management System Structure

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President & CEO of Yokogawa Electric
            │
Health and Safety Officer of Yokogawa Group
            │
Department in charge of OHS at the Yokogawa Group
            │
    ┌───────┼───────────────┐
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Yokogawa Electric Corporation	Group companies in Japan	Group companies outside Japan
General safety and health manager	OHS Manager	OHS Manager
Safety and health manager at each headquarter	Departments/Subsidiaries	Departments/Subsidiaries
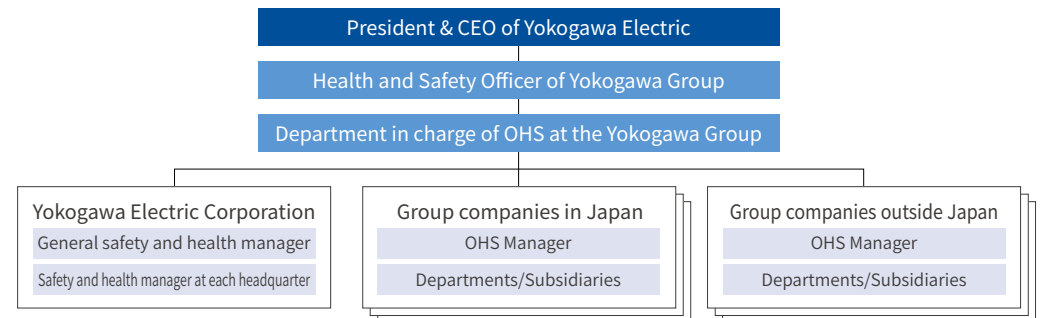
Safe and Comfortable Work Environment

Occupational Health and Safety Education and Training

To maintain and improve the standards of activities throughout the entire Yokogawa Group and eliminate occupational accidents, we are committed to providing awareness activities for all group employees. We offer an educational program to reiterate the importance of preventing "slips, trips, and falls," as well as "Yokogawa QHSE Month," an awareness program related to quality, occupational health and safety and the environment. We also provide education targeting newly-appointed personnel in charge of occupational health and safety activities, etc., hold workshops in the Health and Safety Committee, conduct training sessions for ensuring safety while performing tasks at our customers' plants, factories, etc., and give lectures on traffic safety, among others.

Evacuation drill (Yokogawa Electric)

We have designated occupational health and safety (OHS) training as group-wide key activities and we monitor training times. In fiscal year 2022, we provided approximately 89,000 hours of OHS training in total across the Group.

Yokogawa Safety Handbook

As part of our measures to eliminate and reduce occupational accidents, we published the Yokogawa Safety Handbook. Shared by the entire Yokogawa Group, the handbook is intended as a guide to help employees ensure safety and behave in a safe manner.

It comprises nine basic safety rules and three important practices on occupational health and safety. The nine basic safety rules focus on reducing the risk of occupational accidents. The three important practices introduce topics helpful in building and maintaining a safe workplace environment. The handbook was translated into multiple languages and distributed to all staff members of the Yokogawa Group.

Yokogawa Safety Handbook

Elimination and Reduction of Occupational Accidents

We have introduced a framework for reporting to Department in charge of OHS at the Yokogawa Group by the person responsible for OHS at each Group company in the event of an occupational accident or similar incident, including cases where temporary staff and contract workers are affected.

Under the guidance of OHS Manager, each Group company investigates the cause of the incident and implements measures to prevent recurrence. In addition, the lessons learned from occupational accidents are shared throughout the Group to prevent the recurrence of similar accidents.

In fiscal year 2022, both the number of lost time accidents involving employees and the frequency rate improved compared to fiscal year 2021, but there was a deterioration in the frequency rate of occupational accidents including accidents where no working time was lost.

The number of falling accidents was greatest across the entire Group for both lost time accidents and no lost time accidents. These were mainly caused by slips, trips, and loss of footing. We are implementing countermeasures such as group-wide training aimed at preventing falling accidents, the improvement of uneven and slippery flooring, and ensuring that employees use handrails on stairs. We will continue to provide training and strive to reduce falling accidents in fiscal year 2023.

In addition, to eliminate and reduce occupational accidents and improve the quality of health and safety activities, we aggregate and analyze data and information on occupational accidents on a quarterly basis.

Frequency rate of lost time accidents (Yokogawa group)

Frequency rate of lost time accidents = Number of lost time accidents ÷ Aggregate number of work-hours × 1,000,000
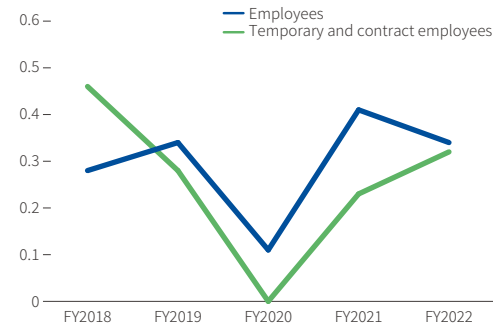
Frequency rate of occupational accidents (Yokogawa group)

Frequency rate of occupational accidents = (Number of lost time accidents + Number of no lost time accidents) ÷ Aggregate number of work-hours × 1,000,000
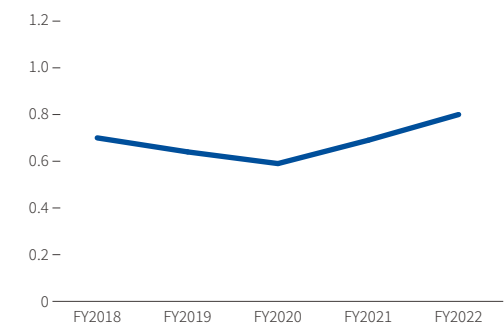
Respect for Human Rights

Yokogawa Group Human Rights Policy

Yokogawa Group's corporate philosophy is "As a company, our goal is to contribute to the realization of a sustainable society through broad-ranging activities in the areas of measurement, control, and information. Individually, we aim to combine good citizenship with the courage to innovate." Based on this philosophy, the Group has supported industry and society by providing a variety of solutions that help our customers improve productivity and transform their businesses. Together with our customers and partners, we continue to create new value for the future under our corporate brand slogan, "Co-innovating tomorrow."

All of our business activities for value co-creation are based on respect for human rights. By deepening our understanding of the various human rights issues in the countries and regions where we conduct our business, and by being actively involved in resolving them, we must strive to ensure that people's dignity is protected and respected. We hereby establish the Yokogawa Group Human Rights Policy as a commitment to fulfill this responsibility.

1. Compliance with Human Rights-related Laws and Regulations and Respect for the International Code of Conduct
2. Implementation of Human Rights Due Diligence
3. Yokogawa's Priority Human Rights Issues
4. Communication and Engagement

🖥 The Policy is disclosed on the Group's website.

Human Rights Management

Yokogawa Group Human Rights Policy was established with the approval of the Board of Directors. We have established an internal system in which the President and CEO has the highest responsibility for human rights in the Group, and we are implementing ongoing efforts. The Human Rights Working Group, whose members are selected from the departments related to human rights, is working on concrete human rights initiatives.

Human Rights Due Diligence

Yokogawa is committed to implementing human rights due diligence to identify, prevent, and mitigate any potential negative impacts on human rights throughout our business and the supply chain and to achieve responsibility for our activities.

We have built internal control systems for the entire Group for occupational safety and health, labor management, and purchasing and sales management, and are working to reduce risks, taking corrective actions when we identify problems.

■ Human Rights Helpline and Remedy Procedures

To swiftly detect and rectify any human rights violations that we may have directly caused or be indirectly involved in, Yokogawa has established an in-house consultation and reporting desk for all persons working at Yokogawa, as well as a helpline for our suppliers. We also accept reports and consultations on human rights violations from all stakeholders, including customers, business partners, and local communities, through the Contact Us form on our website.

We permit anonymous reports and consultations and ensure that the privacy of the whistleblower is protected while also prohibiting any retaliation or disadvantageous treatment taken against the whistleblower. For human rights violations notified by our stakeholders, our corporate ethics, human resources, procurement, and legal departments will work together to investigate and take corrective action such as advising and educating those responsible to prevent the reoccurrence of similar cases.

Process flow from consultation to issue resolution on human rights issues

Human rights complaint	Initial assessment	Investigation	Decision	Corrective measures	Communication
We accept human rights complaints on our website.	Once we receive a complaint, our staff will be in touch to ask for additional details.	We will investigate and determine whether there is a violation. (In some cases, it may not be possible to determine any factual evidence behind the complaint.)		We will take appropriate action such as assisting and education those responsible to prevent the reoccurrence of similar cases.	We will explain the outcome of the investigation and corrective measures to the whistleblower.

■ Human Rights Risk Assessment

In fiscal 2019, Yokogawa assessed the potential human rights risks in Yokogawa's business activities and value chain together with NGO's BSR (Business for Social Responsibility), a global NGO active in the field of business and sustainability. Then, in fiscal 2022, we reassessed human rights risks based on changes in the external environment and the progress of internal initiatives.

The human rights risk assessment identifies human rights issues of high priority by confirming company policies, business activities and the operating status of the internal control systems, and interviewing relevant parties in the Group as well. The priority is determined by two perspectives: salience of the risk of creating an adverse impact through our business activities and business relationships, and Yokogawa's ability to manage the risks.

Respect for Human Rights

Process of identifying the risk of violating human rights

1 Relevance	2 Importance	3 Prioritization
Identifying the most relevant human rights for YOKOGAWA	Determination of the importance of human rights risk based on the severity of the risk and the possibility of it occurring.	Prioritize based on relevance, influence, and management status

Main stakeholders targeted for due diligence:
Direct employees / Indirect employees, Women and girls, Children and adolescents, Communities, Migrant workers, Indigenous peoples, Workers in supply chain and Others (Rural population, Low income segments of the population, Segments of the population with low education)

Human rights risks identified:
Product quality and security, social and environmental impacts, fair business practices, forced and bonded compulsory labor, child labor, working conditions (including freedom from discrimination, fair remuneration, freedom of association, right to collective bargaining), health and safety, peace and conflict, access to remedy
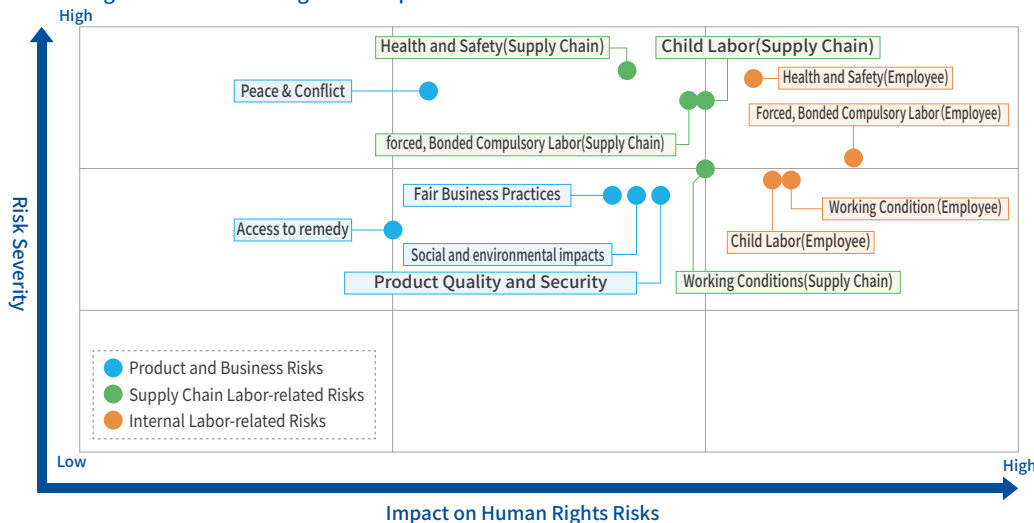
Human Rights Risk of the Yokogawa Group

The results of the risk assessment showed that the risk of peace and conflict has increased due to the outbreak of the conflict in Ukraine. However, the risks of involvement in the six areas identified as high priority in the previous risk assessment, namely social and environmental impacts, forced and boded compulsory labor (employee), health and safety (employee), fair business practices, product quality and security, and working conditions (employee), have been reduced through the implementation of various measures. On the other hand, the priority level of labor-related risks in the supply chain has increased, and we assessed that the relevance of

the risks to our business has increased as we continue to work with our suppliers to respect human rights. With respect to human rights risks, whether high or low priority, we will work to further reduce risks, taking into account the characteristics of each country and region, and will take appropriate action when a potential problem is identified.

Major Human Rights Initiatives in fiscal year 2022

● **Human rights risk assessment activities**
In fiscal 2021, we conducted Self-Assessment Questionnaires (SAQ) for our manufacturing sites, and there were no high-risk sites. In fiscal 2022, based on various feedback from the previous fiscal year's activities, we conducted SAQ on "forced labor and bonded labor," "occupational health and safety," and "working environment" at 33 domestic and overseas sites with engineering functions. We analyzed the results and identified areas for improvement at each site. Although there were no high-risk sites requiring immediate action, we will continue to communicate with them to reduce the risk of human rights violations.

● **Conducting human rights due diligence for critical suppliers**
We have used the expert's knowledge to identify critical suppliers. Specifically, we made judgments based on the size of the transaction amount and the content of the purchase (including services). We conducted human rights due diligence using SAQ by suppliers for business sites of selected suppliers. Based on the assessment of SAQ responses, we selected 16 high-risk sites and communicate (including face-to-face interview and interview with third-party organizations) with them to improve their situation.

● **Revising Sustainable Procurement Guidelines**
We have confirmed international standards for procurement and revised our Sustainable Procurement Guidelines. We ask our suppliers to ensure that they comply with the guidelines, and we also ask them to provide information and cooperate in our audits.

● **Education and awareness-raising programs on respect for human rights**
Every fiscal year, we conduct education and awareness-raising programs (including prevention of discrimination) on respect for human rights so that human rights policies are understood and implemented by all people who work for us. In fiscal 2022, in order to improve the implementation rate, we introduced multiple languages for educational materials (English, Japanese, Chinese, Spanish, and Portuguese) and encouraged employees who did not take training through individual distribution through the internal education system. We will continue to implement education in cooperation with each group company.
In conjunction with the World Human Rights Day, we issued compliance newsletters to all employees on the topics of "Human rights risks in business" and "Human rights in the workplace" to raise awareness of respect for human rights.

● **Human rights helpline and remedy procedures**
In order to detect and correct human rights infringement events at an early stage, we have established a whistle-blowing hotline for employees and a helpline for business partners. In addition, reports and consultations related to human rights violations from external stakeholders, such as customers and local communities, are received through the "Inquiry" section of our website. By posting on our website the flow from receiving human rights consultations, such as privacy considerations, to solving problems, we are taking care to ensure that reports are reported with peace of mind. In line with the partial revision of the Whistleblower Protection Act in Japan, the related internal rules have been revised and communicated to employees, and they have been operated in accordance with the contents of the revision.

● **Update risk map**
We have updated the risk map established in fiscal 2019 based on changes in the external environment, progress of internal initiatives, and continuity of notation. We will work to clarify the details of risks and make it easier to formulate improvement measures.

Community Engagement

Yokogawa strives for harmonious co-existence with local communities as a good citizen, recognizing that companies are also members of society. We not only contribute to society through our businesses but also promote a wide range of local contribution activities and cooperate to achieve common regional and social goals in all of the countries and regions in which we do business, thereby contributing to their progress.

We also assist our employees in their own participation in local contribution activities as good citizens and provide volunteer programs in which employees are able to make the most of their diverse skills and capabilities, including local human resources development and environmental conservation activities in local communities.

Policy for Corporate Citizenship Activities

Based on the Yokogawa Philosophy and the Yokogawa Group Code of Conduct, we engage in corporate citizenship activities by prioritizing fields related to our core business.

Priority areas	• Regions in which we conduct business • Our business fields • Large-scale disasters • Contribution to social progress

Guidelines for Corporate Citizenship Activities

Yokogawa Group has established its Guidelines for Corporate Citizenship Activities and promotes its corporate citizenship activities accordingly. We ensure the transparency of our corporate citizenship activities that involve donations and expenditures by clarifying their resolution/approval procedures and standards.

Corporate Citizenship Activities

Yokogawa's corporate citizenship activities for fiscal year 2022 took the form of financial assistance (177.76 million yen), donations of goods and the opening of its facilities to the public (equivalent to 3.53 million yen), and support activities by its employees (equivalent to 18.54 million yen).

When classified according to SDGs, our activities related to Goal 4, promotion of education, were the largest in number of all of the corporate citizenship activities in which we are engaged. Our activities contribute to 15 of the 17 SDGs.

Sharing Sustainability Awareness

Yokogawa Test&Measurement, provides cutting-edge measurement solutions which support customers involved in developing next generation technologies that contribute to sustainability and reduction in carbon emissions. To understand the importance of how Yokogawa T&M contributes they believe it is important for each employee to raise their awareness, share what they can do personally, and understand more what the customer needs. To that end, they implemented a sustainability program starting with the European T&M team. By working in cross country teams and sharing the results through team activities, group meetings as well as a video and sustainability book, they raised awareness of sustainability both inside and outside the organization.

Learn from everyday life

Major Corporate Citizenship Activities and Contribution to SDGs in fiscal year 2022

Goal 1. No poverty
• Providing aid in the form of clothes, livelihood support and assistance for school supplies (Japan, Thailand, Indonesia, China, South Korea, and USA)

Goal 2. Zero hunger
• Providing meals and livelihood support (Singapore, China, South Korea, India, and USA)

Goal 3. Good health and well-being
• Supporting cultural events (Japan and Vietnam)
• Supporting activities of sports organizations and events (Japan)
• Supporting activities to enhance maternal and child health (Japan, Cambodia, and Myanmar)
• Giving support to low-income people and people with disabilities (Japan, Taiwan, South Korea, and India)
• Blood donation activities and donations to medical institutions (Japan, Thailand, Philippines, Taiwan, India, and Bahrain)
• Supporting disaster-affected areas (Philippines, Turkey, and Syria)

Goal 4. Quality education
• Supporting community education programs and education activities (Japan, Singapore, Thailand, Indonesia, Malaysia, Vietnam, Australia, New Zealand, China, South Korea, India, UAE, Saudi Arabia, Nigeria, South Africa, USA, Canada, Mexico, Austria, Germany, Italy, Spain, Portugal, UK, Scotland, Croatia, Norway, Brazil, Peru, and Russia)

Goal 5. Gender equality
• Supporting the empowerment of women (Japan and Australia)

Goal 6. Clean water and sanitation
• Cleaning rivers and supporting water supply (Japan and USA)

Goal 8. Decent work and economic growth
• Providing procurement-related tools (Japan)

Goal 10. Reduced inequalities
• Commemorative ceremony for honoring indigenous peoples (Australia)

Goal 11. Sustainable cities and communities
• Local volunteer activities (Japan)

Goal 12. Responsible consumption and production
• Lecture on cardboard cabinets (Japan)

Goal 13. Climate action
• Tree-planting activities (Japan and Thailand)

Goal 14. Life below water
• Beach cleanup (Taiwan)

Goal 15. Life on land
• Supporting the protection of wild animals (Singapore)

Goal 16. Peace, justice and strong institutions
• Donations to Ukraine (Netherlands)

Goal 17. Partnerships for achieving the goals
• Cooperation with external organizations (Japan and Vietnam)

Environment

Climate change and environmental problems are expected to impact not only business but the very survival of humanity.
Yokogawa is proactively working on global environment protection.
This chapter introduces our initiatives for environmental protection.

CONTENTS

Environmental Management

Environmental Policy

In accordance with Yokogawa's corporate philosophy "contribute to the realization of a sustainable society through broad-ranging activities in the areas of measurement, control, and information," we will promote environmental preservation activities to help realize a sustainable society and try to achieve our three goals for 2050.
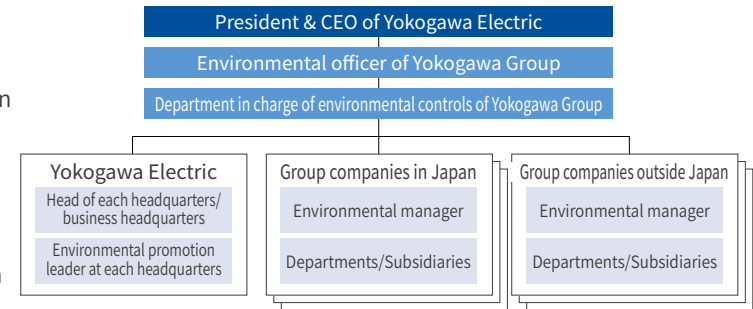
- We will : Establish an environment management system, clarify roles, authorities and responsibilities, and promote environmental preservation activities.
- Prevent pollution by observing laws and regulations and, if necessary, setting voluntary standards.
- Promote environmental conservation by tackling environmental issues such as climate change, biodiversity, and use of resources and by setting environmental targets.
  (1) Pursue resource recycling management by endeavoring to save, reuse, and recycle resources, conserve energy, and prevent global warming, while reducing the risks of environmental pollution by minimizing the substances having a negative impact on the environment in all operations.
  (2) Develop and produce environmentally friendly products by evaluating the environmental impact throughout the product lifecycle from material procurement, manufacturing, distribution, and use to disposal.
  (3) Provide society with higher-value-added solutions and services that contribute to global environmental conservation through measurement, control, and information technologies.
  (4) Strive to co-exist with society as a good corporate citizen by participating in environmental conservation activities and encouraging employees to take part in voluntary activities.
- Provide all Yokogawa Group personnel with the education and training necessary to pursue environmental conservation activities.
- Disclose relevant information and promote open communications with Yokogawa Group personnel, customers, shareholders, members of the local community, and business partners to deepen and cocreate environmental conservation actions and initiatives.
- Make continual improvements on the Yokogawa Group environmental management system by evaluating environmental performance and conducting audits on a regular basis.

Environmentally sustainable society

Provision of environmental solutions and environmentally friendly products

Promotion of environmental management by the Yokogawa Group
Resource and energy conservation, pollution prevention, waste reduction, promotion of reuse and recycling, etc.

Promotion of environmental management by customers
Resource and energy conservation, pollution prevention, waste reduction, promotion of reuse and recycling, etc.

Building recycling-based society

Promotion Structure

We promote environmental management globally through the consideration of measures and the review of activities by the people responsible for environmental management at each Group company in Japan and overseas, under the supervision of the environmental officer of Yokogawa Group.

Environmental promotion structure

President & CEO of Yokogawa Electric
Environmental officer of Yokogawa Group
Department in charge of environmental controls of Yokogawa Group

Yokogawa Electric
Head of each headquarters/ business headquarters
Environmental promotion leader at each headquarters

Group companies in Japan
Environmental manager
Departments/Subsidiaries

Group companies outside Japan
Environmental manager
Departments/Subsidiaries

Environmental Management System

The Yokogawa Group is implementing an environmental management system in the Group companies to ensure full compliance with the laws, regulations, and agreements for the prevention of environmental pollution. Moreover, we are working to reduce the impact on the environment by means such as saving energy and transitioning to alternative technologies with smaller environmental footprint.

Yokogawa has acquired ISO 14001 certification at its major offices and manufacturing sites as part of its effort to improve the environmental management system.

■ **Internal Audits**
Internal audits for ISO 14001 are conducted at least once a year.

■ **Annual Audits**
Regular audits (renewal audit or surveillance) are conducted once a year at each ISO 14001-certified Group company by a certifying organization in order to maintain ISO 14001 certification.

■ **ISO 14001 Certification at Yokogawa Group**
The Yokogawa Group has achieved ISO 14001 certification primarily at its major offices and manufacturing sites in and outside Japan. Certification was obtained at 15 of the Group's 18 manufacturing sites, representing a certification rate of 83%.

🖥 See our website for our certification status.

Environmental Management

Environmentally Friendly Design

Yokogawa actively develops environmentally friendly products through the implementation of its own strict standards of design and assessment for long-term usability, energy-saving performance and other aspects. New products are evaluated for energy consumption as well as the emission of carbon dioxide (CO_2), nitrogen oxide (NOx) and sulfur oxide (SOx) based on our "Lifecycle Assessment (LCA) standards" . Some of the evaluated products bear the LCA label, which shows the LCA results.

(1) Environmental Assessment Standards for Product Design
We have established assessment standards in eight areas: ease of recycling and treatment, resource conservation, energy conservation, long-term usability, ease of collection and transport, safety and environmental protectiveness, information disclosure, and packaging. These standards are used in conducting assessments during each inspection (initial design, intermediate design, and final design).

(2) Lifecycle Assessment (LCA) Standards
The LCA standards are used for preliminary assessments of energy use, CO_2 emissions, NOx emissions, SOx emissions, and the like throughout the lifecycle of a product. These standards are used in conducting assessments during each inspection (initial design, intermediary design, and final design).

(3) Environmentally Friendly Product Design Guidelines
These guidelines state for long-life design, energy-saving design, resource-saving design, design considering recycling and disposal, design considering processing and assembly, and the guideline for selecting materials and components.

(4) Management criteria for hazardous substances contained in products
Yokogawa has established chemical substance management categories to be the criteria for selecting environmentally friendly components and materials in the design stage.

Banned Substance 1 : Substances globally prohibited for use in products
Banned Substance 2 : Substances nationally/regionally prohibited for use in products
Banned Substance 3 : Substances prohibited for use in products for specific uses
Controlled substance : Substances whose content should be known and notified

(5) Recycled Product Design Standards
These standards encourage the three Rs: the reduction of waste, the reuse, and recycling of used products.

(6) Energy-Saving Design Guidelines
These guidelines state the matters to be ensured in energy-saving design in product use and manufacturing processes.

LCA Label

Yokogawa began to conduct the lifecycle assessment (LCA) in 1999 in the design phase of all new products as part of efforts to minimize our products' environmental impact. Some of the results of the LCA are disclosed on our website. When LCA data is disclosed for a product, the applicable product is "LCA labeled" in the product webpage and/or sales brochure. This corresponds to Type 2 environmental labelling as stipulated by ISO 14021.

■ Concept/Implementation of the LCA

Yokogawa has set its unique LCA standards based on JIS Q 14040 "Environmental management - Life cycle assessment - Principles and framework." We compare a new product with our previous product for assessment purposes. The results of the LCA of the previous product are multiplied by the "functional factor" to compare the environmental impacts based on the equivalent functionality of the new product. When the results of the LCA on the previous products clearly suggest how these products would impact the environment, we may only conduct LCA on the elements significantly affecting the environmental impact.

■ Requirements for LCA Labeling

A product will be LCA-labeled if it meets all the requirements described below:
1. Lifecycle assessment has been conducted according to Yokogawa's engineering specifications.
2. The results of lifecycle assessment are disclosed on the Yokogawa website according to the Company's internal rules.

💻

Environmentally Friendly Design and Environmental Assessment Standards

Design Standards	Environmental regulations outside Japan				
• Environmentally friendly product design • Management of chemical substances in products • Recycled product design • Energy-saving design	• Regulations on chemical substances in products (RoHS, REACH, etc. in each country) • Regulations on waste (Directive on Waste Electrical and Electronic Equipment (WEEE Directive), etc.) • Regulations on ecological design and energy saving	Product design Basic design	Technical prototype	Manufacturing prototype	Initial production
		Initial design inspection	Intermediary design inspection	Final design inspection	
	Environmental Assessment Standards	• Environmental assessment standards for product design • Lifecycle assessment standards			

Environmental Practices

Data of Environmental Practices

◾ Overview of Environmental Impact

Yokogawa calculates the eco-balance of its overall business activities, or the annual volume of the energy and material inputs for its business activities (including manufacturing, sales, and service) as well as their annual output of waste and other substances into the air and water. Analysis of the ecobalance helps us effectively use resources, raise energy efficiency, and improve the waste recycling rate.

◾ Compliance

In fiscal year 2022, Yokogawa continued its efforts to ensure full compliance with environmental laws, regulations, agreements, and other requirements. As a result, Yokogawa committed no major violations and faced no fines or other penalties resulting from such violations.

◾ Conserving Water and Soil

Yokogawa has been conducting soil and water surveys at former plant sites in accordance with its proprietary control standards since before the Japan's Soil Contamination Countermeasures Act came into effect.

◾ Awareness Programs

To raise employee awareness about the environment, awareness programs are offered to all employees of the Yokogawa Group, including e-learning courses on quality, the environment, and safety, films with environmental themes, and lectures.

Eco-Balance (Annual Input and Output)

INPUT

Type of Environmental Footprint			FY2022
Energy	Total Energy		1,317TJ
	Power	Purchased power	115,331MWh
		Self-generated (Solar)	184MWh
	Petroleum	Light oil	1,373kL
		Gasoline	2,251kL
		Kerosene	3kL
	Gas	City gas	2,046kNm^3
		LPG	392t
	Heat		103GJ
Water	Utility water		346,945m^3
	Ground water		154,735m^3
Substances	Paper		151t
	Hydrogen fluoride and its water-soluble salts		1.5t
	Ferric chloride		11.7t
	Hydrazine		2.0t
	Xylene		4.4t
	Toluene		1.4t

OUTPUT

Type of Environmental Footprint			FY2022
Air	Greenhouse gas (GHG)		67,085t-CO$_2$e
	NOx		4.0t
	SOx		0.2t
	Volatile Organic Compounds (VOCs) Emissions (toluene and xylene)		3.7t
Water	Industrial wastewater		80,790m^3
	General wastewater		358,898m^3
Waste	Non-hazard-ous	Recycled	2,877t
		Incinerated	393t
		Landfilled	489t
	Hazardous	Recycled	546t
		Incinerated	207t
		Landfilled	1t

Data covers the Yokogawa Group

Environmental Accounting

In accordance with the Ministry of the Environment's Environmental Accounting Guidelines 2005, Yokogawa calculates the costs of its environmental activities and their economic impact.

Environmental Conservation Costs (FY2022)

(Unit: millions of yen)

Category	Item	Key Initiatives	Capital Investment	Related Costs
Costs for reducing environmental impact of factories (areas of operation)	Pollution prevention costs	Monitoring and measurement	21.3	71.1
	Environmental conservation costs	Energy savings	312.4	649.4
	Resource recycling costs	Waste reduction, water conservation	0.0	150.3
Costs for reducing environmental impact of procurement and logistics (upstream and downstream costs)		Green procurement	0.0	8.2
EMS maintenance costs		EMS updates, education	0.0	184.5
Environmental conservation costs in community activities		Environmental events	0.0	37.4
Costs for correcting damage to the environment		Soil recovery	0.0	0.0
Total			333.7	1,100.9

*Data covers ISO 14001-certified manufacturing sites.

Effects of Environmental Conservation Measures

Category	Description of Effect	FY2021	FY2022	Increase/ Decrease
Inputs	Total amount of energy consumed (TJ)	1,008	925	-83
	Water withdrawals (km^3)	338	373	+35
Global warming prevention	CO$_2$ emissions (t)	47,996	42.932	-5,064
Outputs	Total amount of waste generated (t)	3,946	3,501	-445

*Data covers ISO 14001-certified manufacturing sites.

Economic Effects of Environmental Conservation Measures (FY2022)

(Unit: millions of yen)

Segment	Amount
Revenue from recycling (sale of valuable resources, etc.)	134.1
Reduction in expenditures due to resource and energy savings (power, water, paper, etc.)	45.6
Total	179.7

*Data covers ISO 14001-certified manufacturing sites.

Metric	Greenhouse gas (GHG) emissions

Performance and Targets	**Scope1,2 (base year FY2019)**	**Scope3* (base year FY2019)**
	100% reduction (FY2040 target)	30% reduction (FY2030 target)
	50% reduction (FY2030 target)	10% reduction (FY2023 target)
	10% reduction (FY2023 target)	4.4% reduction (FY2022 performance)
	14.8% reduction (FY2022 performance)	* Emissions from purchased products/services (Category1) and emissions from use of sold products (Category11)

Greenhouse Gas (GHG) Emissions Reduction

Steadily Progressing Towards Ambitious Goals

Yokogawa Group has set ambitious long-term targets of reducing Scope 1 and 2 GHG emissions to net zero by fiscal year 2040 and reducing Scope 3 emissions by 30% compared to fiscal year 2019 by fiscal year 2030. These targets are aimed at limiting the temperature increase to 1.5°C above pre-industrial levels and are in line with the agreement included at the 26th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26): "to pursue efforts to limit the temperature increase to 1.5°C." In fiscal year 2022, we launched full-scale measures aimed at achieving these targets group-wide. We succeeded in reducing Scope 1 and 2 emissions by 4% compared to the previous year or 15% compared to fiscal year 2019, while Scope 3 emissions increased by 11% compared to the previous year but decreased by 4% compared to fiscal year 2019. We will push ahead with initiatives to achieve our reduction targets.

Acquiring Science Based Targets (SBT) Certification

The Yokogawa Group's GHG emission reduction targets[1] for 2030 have been certified by the Science Based Targets initiative (SBTi)[2], an international environmental body, as science-based targets consistent with the Paris Agreement goal of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C .
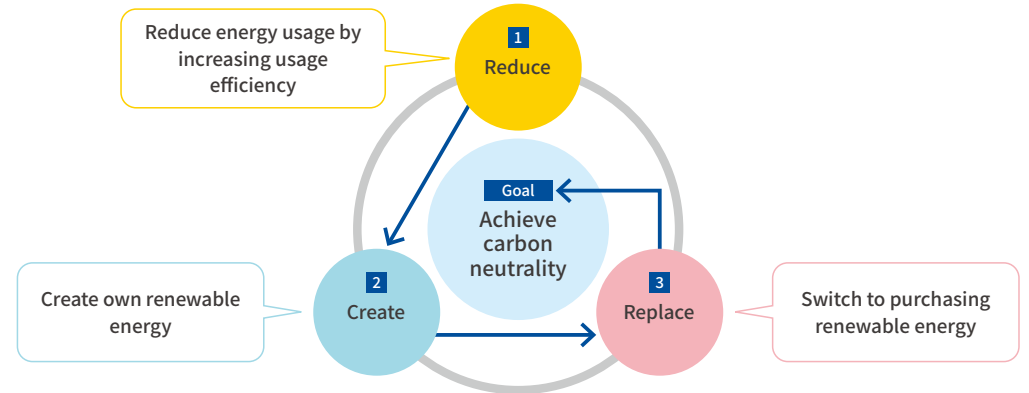
SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

[1] Target for Scope 1 and 2 (GHG emissions from the Group's business activities): 50% reduction by FY2030 (base year: FY2019)
Target for Scope 3 (indirect GHG emissions in the supply chain, focusing on emissions from purchased products and services and emissions from the use of sold products): 30% reduction by FY2030 (base year: FY2019)

[2] The SBTi was established jointly by the international not-for-profit environmental group CDP, the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). It aims to achieve the goal of the Paris Agreement by encouraging companies to set science based GHG emission reduction targets.

Scope 1 and 2 Emissions Reduction Strategy

Scope 1 and 2 GHG emissions are calculated as "energy usage x CO_2 emission factor[*]," measures will be taken to both reduce energy usage and CO_2 emission factor. In principle, each of these measures will be executed in line with the GHG emissions reduction roadmap but considering economic rationality. We aim to achieve carbon neutrality through activities focused on three key efforts: "Reduce" our energy consumption and "Create" and "Replace" to reduce the CO_2 emissions factor.

* The CO_2 emissions factor represents the CO_2 emissions per unit of energy consumption. It is zero for renewable energies, because they do not emit CO_2.

Basic strategy to reduce Scope 1 and 2 emissions

Reduce energy usage by increasing usage efficiency → **1 Reduce**

Create own renewable energy → **2 Create**

Switch to purchasing renewable energy → **3 Replace**

Goal: Achieve carbon neutrality

We prioritize our activities and promote measures that are especially effective in reducing costs as a top priority. We determine measures based on a consideration of the status of the renewable energy power market in each country and characteristics such as whether our location is a manufacturing site or office.

Roadmap

GHG emissions | Reduce | Create | Replace

Increase due to business growth | Reduce energy usage by increasing usage efficiency | Create own renewable energy | Switch to purchasing renewable energy

50% reduction | 100% reduction

FY2019 (base year) | FY2030 | FY2040
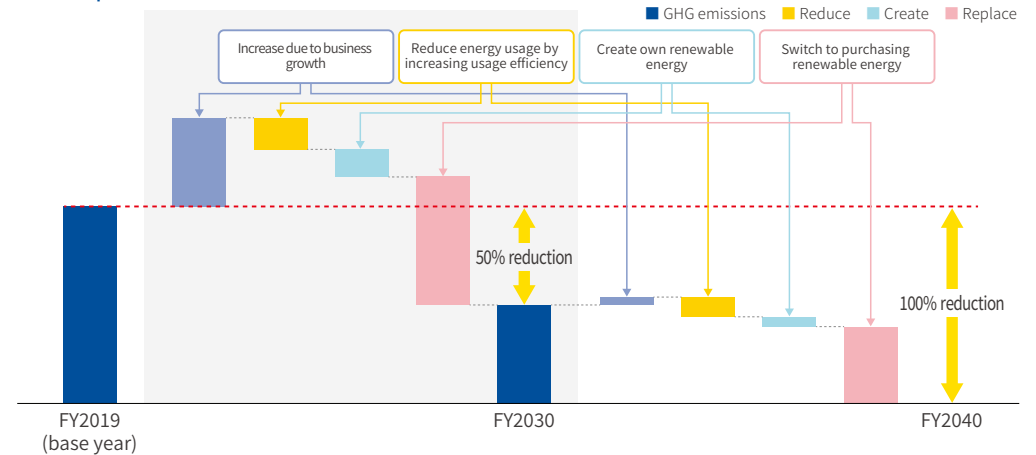
Greenhouse Gas (GHG) Emissions Reduction

Key Measures up to Fiscal Year 2030 (Scope 1 and 2)

We are engaged in efforts to reduce both energy usage and CO_2 emission factor, aiming to halve our GHG emissions by fiscal year 2030.

We have established group-wide measures to achieve this target, allocated reduction targets to the people responsible for each of the main organizational units and Group companies, and set rules for GHG reduction investments using our internal carbon pricing (ICP).

From fiscal year 2023 to fiscal year 2030, we plan to invest approximately 1.9 billion yen to reduce our energy consumption and approximately 1.4 billion yen to reduce the CO_2 emissions factor.

Specific Measures

|	
Energy-Saving (Reduce)	1. Improving energy efficiency by utilizing Yokogawa solutions 2. Improving equipment energy efficiency (air conditioning, lighting, HV, etc.) 3. Improving the efficiency of our own buildings and rental offices (improve shade and insulation efficiency, etc.) 4. Improving the efficiency of products and production methods 5. Efficient operation of energy-using equipment (operation rule setting, educational activities, base load reduction, etc.)
Reducing the CO_2 emissions factor (Create and Replace)	✔ Adopting renewable energy-derived power generation system (CAPEX or PPA) ✔ Switching to renewable energy power generation contracts ✔ Replacing company vehicles to EVs or FCVs

GHG Emissions Reduction Performance for Fiscal Year 2022 (Scope 1 and 2)

In fiscal year 2022, we invested 329 million yen in reducing energy consumption and procuring electricity sourced from renewable energy. We succeeded in making significant progress to lower the CO_2 emissions factor, reducing group-wide GHG emissions (Scope 1 and 2) by 4% compared to the previous year or 15% compared to fiscal year 2019, the base year. We were also able to cut annual energy costs by 8 million yen.

From fiscal year 2023, we expect to substantially increase our energy costs against investment by clarifying our reduction strategy and pushing ahead with technological improvements.

GHG Emissions Reduction Targets and Performance (Scope1,2)

■ Scope 1 performance   ■ Scope 2 performance   ■ Target
(Unit : t-CO_2e)
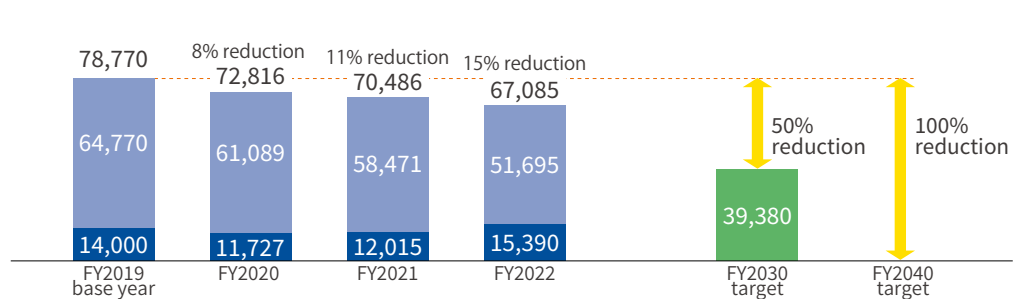
The main cause of the Group's GHG emissions is indirect emissions from electricity consumption (Scope 2), which account for more than 80% of all Scope 1 and 2 emissions. By focusing on curbing this main source and implementing energy reduction measures at each group company, we were able to keep energy consumption lower than in the previous year despite the expansion of our business from the previous year.

Moreover, by promoting the switch to electricity sourced from renewable energy, we succeeded in transitioning to 100% renewable energy-sourced power across 18 sites in three countries: Germany, Netherlands, and Japan. The proportion of group-wide electricity consumption from renewable energy increased dramatically from 2.2% in the previous year to 9.3% in fiscal year 2022.

Renewable Energy Consumption and Proportion of Total Electricity Consumption Sourced from Renewable Energy

■ Renewable energy consumption (Unit: MWh)
🔵 Proportion of renewable energy (%)
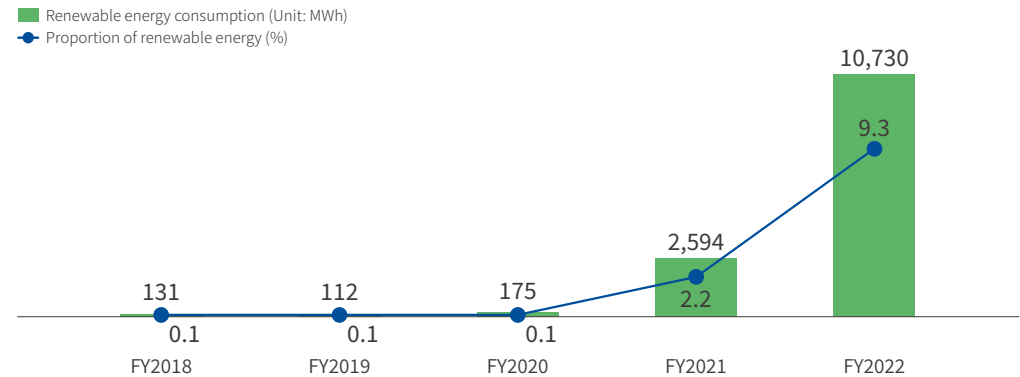
The GHG emissions reduction measures launched in fiscal year 2022 are shown below.

Measures	Number of projects	CO_2 reduction (t-CO_2)
Reduce	47	2,024
Create	2	154
Replace	24	3,860
	73	6,038

Greenhouse Gas (GHG) Emissions Reduction

Example of Scope 1 and 2 Emission Reduction Activities: Progressive Energy-saving and Procurement of Power from Renewable Energy Sources

In this section, we present the initiatives implemented by Group companies in fiscal year 2022 to reduce energy consumption and activities to procure power sourced from renewable energy.

Activity 1 — Accelerating the Procurement of Power from Renewable Energy Sources at Our European Business Sites

As one of its initiatives to reduce GHG emissions, Yokogawa Europe B.V. switched the energy purchased for its company building (Netherlands) from "gray energy," a mix of fossil fuels and renewable energy, to "green energy" in fiscal year 2021. The green energy it now uses is 100% generated from wind power in Europe and uses no fossil fuels, which are harmful to the environment. By fully transitioning to green energy for the approximately 3,500MWh of power consumed at its company building, Yokogawa Europe B.V. is able to reduce around 1.5 million kilograms of CO_2 emissions, which is equivalent to the quantity of CO_2 absorbed by roughly 98,000 trees in a year. Activities such as this have enabled Yokogawa Europe B.V. and its affiliated companies in Europe to reduce GHG emissions by approximately 60% until now. Yokogawa Europe B.V. continues to pursue further innovation and environmentally friendly initiatives in order to achieve Yokogawa's "Three goals" sustainability goals, recognizing that making energy greener is one of the important initiatives to consider the global environment. We will continue to contribute to the global environment protection.

Activity 2 — Achieved Both Increased Operating Profit and Reduced Energy Consumption at South American Office

When the COVID-19 pandemic struck and restrictions on movement were imposed, Yokogawa America do Sul Ltda. transitioned to a home-office hybrid working style and strengthened its remote sales methods. This enabled it to achieve an increase of 40% in operating profit while reducing energy consumption by approximately 25% and GHG emissions by approximately 50%.

Improved operation of office facilities through a hybrid working styles

As a specific initiative, it improved the facilities and their operation so that the decline in office usage due to the hybrid working style would lead to a reduction in energy consumption. In addition to switching the motion sensor LED lights installed at its business site between constant illumination and automatic illumination based on working schedules, Yokogawa America do Sul Ltda. implemented patrols to ensure the operation of this system. Appropriate operation was also ensured for air conditioners through different on/off settings for working and unused areas and temperature settings that change depending on the season. When implementing these

Motion sensor LED lights

measures, Yokogawa America do Sul Ltda. provided an awareness program to ensure consciousness among employees. Yokogawa America do Sul Ltda. also engaged in various other activities to reduce energy consumption, such as renewing gasoline-powered company cars with hybrid vehicles.

In Columbia, two offices (total 930m^2) were integrated in to one office (350m^2), in line with the introduction of a hybrid working style, achieving a substantial reduction in operating costs and energy consumption.

Moreover, our relocation of the Brazil regional headquarters to a convenient location facilitated a subsequent improvement in communication between employees in South America and an increase in operating profit.

Yokogawa America do Sul Ltda. will continue to expand our businesses and reduce energy consumption.

Reduction of GHG Emissions

Scope3 Reduction Target and Performance

For Scope 3 emissions, we are planning and implementing reduction measures to achieve our targets. In fiscal year 2022, emissions from the use of sold products (Category 11), which account for 60% of Scope 3 emissions, there were little change compared to the previous fiscal year. Emissions from purchased goods and services (Category 1), which are calculated with the amount purchased as the activity level, were affected by an increase in the purchase amount due to exchange rate movements and rise in purchase prices. As a result, total Scope 3 emissions increased by 11% compared to the previous fiscal year.

FY2030 (Scope 3) GHG Emission Reduction Target and Performance

■ Scope3 (Category1,11) Performance ■ Scope3 (Other categories) Performance ■ Target
(Unit：t-CO_2e)

	FY2019 base year	FY2020	FY2021	FY2022	FY2030 target
Total	903,746	791,961 (12% reduction)	779,004 (14% reduction)	865,424 (4% reduction)	
Scope3 (Other categories)	81,590	64,403	61,669	79,621	
Scope3 (Category1,11)	822,156	727,558	717,335	785,803	575,500

Category 1+11 30% reduction

GHG Emissions in Our Supply Chain (Scope 3)

(Unit：t-CO_2e)

FY2022
Total emissions
865,424

- End-of-life treatment of sold products 1,015
- Use of sold products 513,699
- Employee commuting 4,208
- Business travel 20,217
- Purchased goods & services 272,104
- Capital goods 25,997
- Fuel- and energy-related activities not included in Scope 1 or 2 11,033
- Transportation & logistics 16,032
- Waste generated in operations 1,119
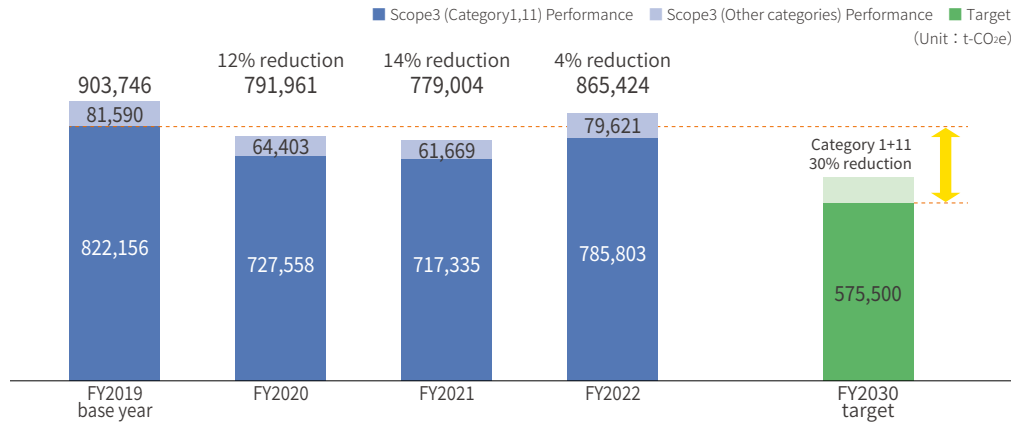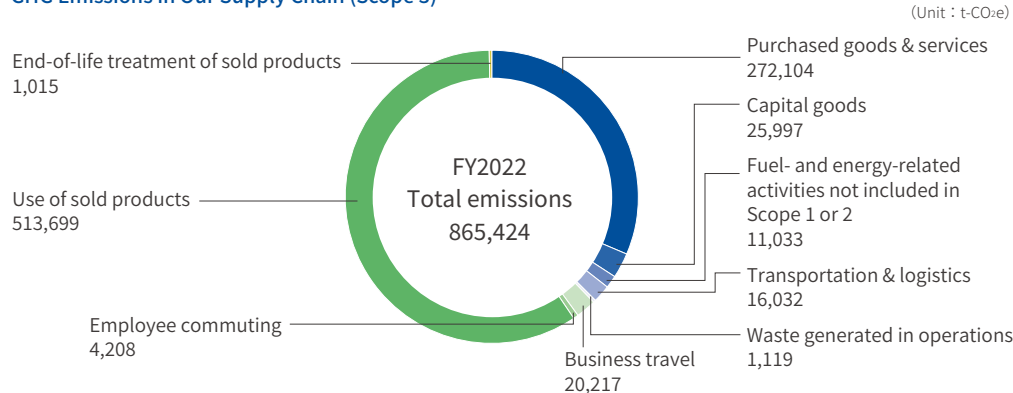
Initiatives to Reduce GHG Emissions (Scope 3):

To reduce emissions from the use of sold products (Category 11), the departments in charge of developing each product are promoting more energy-saving designs at design change of existing products or at the development of new products. Our effort include discussions with suppliers on feasibility of introducing energy-saving products for resale goods.

It is difficult to reduce GHG emissions from the supply chain (Scope 3) in a short period of time, we formulate plans at an early stage to achieve our target.

Reducing Electricity Consumption by Approximately 60% Through Energy-Saving Design

We are engaged in reducing electricity consumption through a radical redesigning of the power source modules used in plant control systems.

Power source modules are one part of the field control units that form control systems. They supply electricity to the various modules installed in field control units. Each power source module supplies approximately 80W of power but also consumes power itself. We therefore revised the design of power source modules to reduce the power they consume.

Our first power source module was developed in 2001. With two subsequent modifications of the design we have progressively reduced power consumption, and we have so far achieved a reduction of approximately 60% compared to our 2001 design. A comparison of thermography images measuring the temperature on the surface of power source modules reveals a decrease in the red area, which represents high temperature, indicating a reduction in the power consumed by the module itself. Reducing the heat generated by the product itself also helps to keep the surrounding temperature under control, leading to a reduction in power consumption by air conditioners in our customers' instrument rooms.

We will apply the technologies acquired through this development process to other products as we strive to reduce Scope 3 emissions from the use of sold products (Category 11).

Various modules   Power source modules

Field control unit
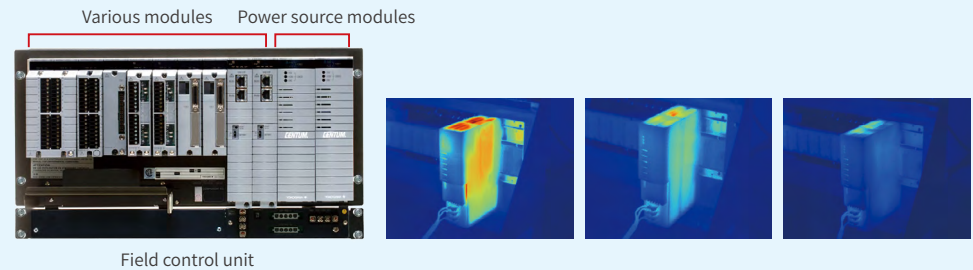
Yokogawa continues to make efforts for the realization of a decarbonized society by reducing energy consumption, promoting the spread of renewable energy, and promoting reduction measures through the supply chain.

Environmental Initiatives at Business Facilities

| Metric	Water withdrawal amount at Yokogawa sites
Performance and Targets	Water withdrawal amount at Yokogawa sites (base year FY2019) 4% reduction (FY2023 target) 2% reduction (FY2022 performance)

Water Resource Protection

Yokogawa is working to reduce the amount of water usage by improving our production processes and introducing water-saving systems to our office water supplies.

In fiscal year 2022, our water intake increased compared to fiscal year 2021 as a result of factors such as a water leak at one of our manufacturing sites and an increase in cooling water consumption associated with high summer temperatures.

By preventing the recurrence of the water leak, improving production processes, and introducing water-saving devices, we will try to curb the increase in water intake due to the upturn in the office attendance rate and production volume and work towards achieving our target for fiscal year 2023.

Water Intake (Unit: K m³)

FY2018	FY2019	FY2020	FY2021	FY2022
561	513	488	425	502
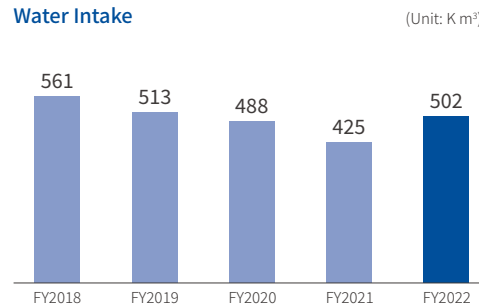
Response to Water Risks

In regions where securing water resource is a serious challenge, Yokogawa is promoting efforts related to water resources through measures such as monitoring water usage and securing alternative water resources.

■ Yokogawa Electric Asia, Yokogawa Engineering Asia, Yokogawa Electric International (Singapore)

While Singapore has continued its efforts to ensure water self-sufficiency, it is expected that its total water needs will increase going forward.

Yokogawa's business site in Singapore is carrying out the following initiatives to maintain water resources and utilize alternatives:

- Comply with the guidelines set by PUB (Public Utilities Board) to avoid excess use of water.
- Use NEWater, a recycled water resource, for air conditioning systems
- Install water-saving devices to washbasins and plumbing systems.
- Regularly check water consumption to find water leakage early

■ Yokogawa Middle East & Africa (Bahrain)

In Middle Eastern countries, water shortage is a serious problem. Yokogawa Middle East & Africa carries out the following initiatives:

- Set annual targets for reduction in water consumption per employee and manage the progress.
- Use normal tap water for non-drinking purposes
- Comply with local regulations on water protection including conservation and contamination prevention.
- Increase employee awareness of water protection.
- Inspect any water leakages during the HSE (Health, Safety, and Environment) inspection tour at all facilities and take immediate corrective and preventive measures on any detected abnormality in the water supply system.

Reduction of Waste

Yokogawa is working to reduce waste by reducing, reusing, and recycling resources in our factories and offices, for example, product packaging.

The decrease in fiscal year 2022 was due to a decrease in waste resulting from office work-style reform at the head office and waste resulting from the sale of a business, which had caused a temporary increase in the previous year, as well as efforts to reduce chelate waste water at the Yokogawa Manufacturing Kofu Factory. In fiscal year 2023, we will continue our efforts to reduce, reuse and recycle to reduce waste.

Total Waste Generation (Unit: t)

FY2018	FY2019	FY2020	FY2021	FY2022
5,190	4,913	4,383	4,692	4,513
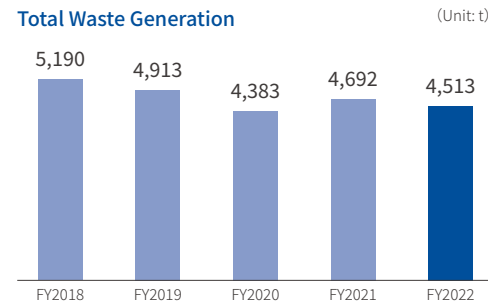
Waste sorting at the recycling center

Environmental Initiatives at Business Facilities

Chemical Substance Reduction

Yokogawa places strict controls on chemicals that are harmful to humans and the global environment. In addition, Yokogawa is developing and introducing alternative processes in an effort to reduce chemical use and waste. Further, to comply with RoHS Directive restricting the use of certain chemicals in electrical and electronic equipment in Europe, as well as with the REACH Regulation (Registration, Evaluation, Authorization and Restriction of Chemicals), we are implementing initiatives for the reduction and proper management of such chemical substances.

■ Volatile Organic Compounds (VOCs)

Yokogawa is engaged in reducing the emission of volatile organic compounds (VOCs). We monitor the toluene and xylene emitted from the painting and other manufacturing processes.

Volatile Organic Compound (VOC) Emissions (Toluene and Xylene) (Fiscal year 2022)   (Unit : ton)

	2018	2019	2020	2021	2022
Direct emissions	5.6	5.0	5.7	4.7	3.7

■ PRTR Substances

The amount of substances reported under PRTR* requirements (1,000 kg/year or more handled) is shown in the table below.

* PRTR: Pollutant Release and Transfer Register. The PRTR was established to enable society as a whole to manage chemical substances through the disclosure of toxic chemical emissions data and other information.

PRTR Data (Fiscal year 2022)

Factory	Substance	Amount used (kg)	Amount emitted (kg)				Amount transported (kg)	
			Air	Public water area	Soil	Landfill	Sewage system	External site
Yokogawa Manufacturing Komagane Factory	Hydrogen fluoride and its water-soluble salts	1,534	3.2	74	0	0	0	0
	Hydrazine	1,984	0	0	0	0	0	0
	Xylene	1,550	1,100	0	0	0	0	450
	Ferric chloride	4,975	0	0	0	0	0	0
Yokogawa Manufacturing Kofu Factory	Ferric chloride	6,732	0	0	0	0	0	0

Reducing Chelate Waste Water

Yokogawa Manufacturing Kofu Factory has installed new surface processing equipment for manufacturing processes. We utilize a cascade water supply system (continuous water supply) for enhanced cleansing power, resulting in an increase in the volume of chelate waste water, which is a specially controlled industrial waste. We therefore modified the existing fluorine adsorption equipment, constructed a circulation system with the new addition of ion adsorption waste water processing equipment, and reused the waste liquid, which had previously been disposed of, from each process in our rinsing water supply to reduce both liquid waste and water usage. Through these activities, we were able to reduce our waste liquid emissions from the 482t initially forecast to 363t (-25%) in fiscal year 2022. We will continue improvement activities aimed at the effective use of water resources through further reductions in liquid waste.

Conserving Biodiversity

In its environmental policy, Yokogawa pledges its commitment to biodiversity issues and promotes activities to conserve biodiversity.

■ Biodiversity Policy

Biodiversity is a foundation of sustainability in society. Together with our stakeholders, Yokogawa engages in action to conserve biodiversity while taking regional characteristics into account. We will spare no effort to reduce any negative impacts resulting from our various business activities to improve biodiversity and to contribute to creating a better environment in local communities.

■ Biodiversity Action Guidelines

- **Cooperation with the Local Community to Enhance Local Value**
  Take action in cooperation with government agencies and NPOs to acknowledge and enhance local value.
- **Providing Employees with Educational Opportunities and Raising Awareness**
  Raise awareness of biodiversity among employees by offering them relevant seminars and events.
- **Considering Biodiversity Conservation within Business Facilities**
  Operate business facilities while giving consideration to the ecosystem by, for example, managing their green areas.

Governance

Yokogawa conducts business based on our corporate philosophy and aims to achieve sustainable growth and improve mid- to long-term corporate value.
This chapter introduces our governance and risk management system which are essential foundations of our corporate activities as well as our initiatives for compliance and supply chain management.

## CONTENTS

Sustainability Governance

Yokogawa regards sustainability as one of its key management issues and is continuously working on the improvement of governance. Moreover, with the goals of achieving sustainable growth and earning the trust of every stakeholder through continuing contributions to society and the environment in accordance with the AG2023 mid-term business plan, we monitor sustainability indicators and priority management risks.

Corporate Governance Promoting Sustainability

■ Basic Policy on Corporate Governance

Yokogawa established Yokogawa's Purpose and its corporate philosophy as the basic policies related to its sustainability initiatives and strives to achieve sustainable growth for the company and to increase mid- and long-term corporate value. To maximize its corporate value, the Group has formulated the Yokogawa Corporate Governance Guidelines which serve as the basic policy for continually working on corporate governance and has disclosed them on its website. Following the revision of Japan's Corporate Governance Code which came into effect in June 2021, we have revised the Yokogawa Corporate Governance Guidelines. We will review the corporate governance annually and continue to strengthen our efforts to improve corporate governance in the future.

Corporate Governance Structure
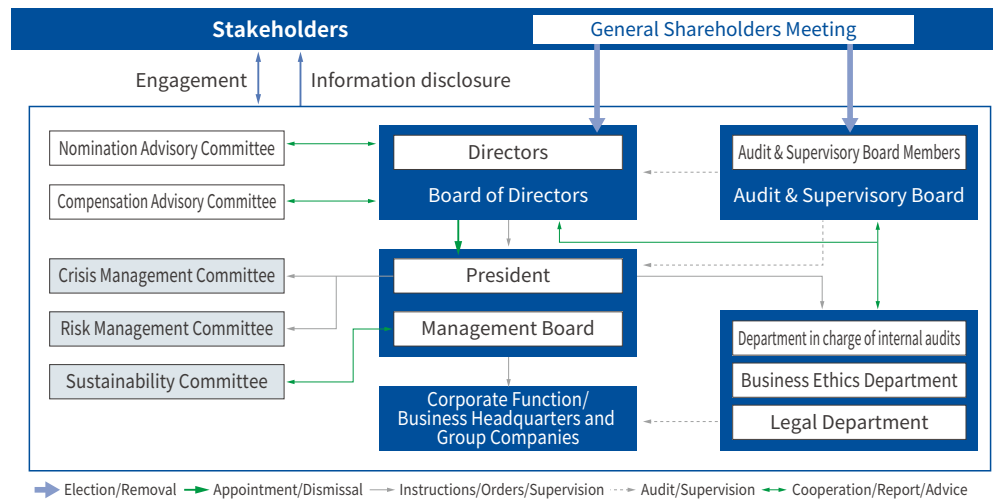
■ Board of Directors

The Board of Directors meets once a month in principle with the goals of achieving sustainable growth and increasing the corporate value of the Group over the mid- and long-term as a decision-making body related to management. To achieve these goals, the Board of Directors regards sustainability initiatives as one of its key management issues and strives to improve profit-earning capability and capital efficiency while setting the general direction of the Group, including its

corporate strategies. In addition to monitoring and supervising the execution of business by management, including the Directors and officers, the Board of Directors develops provisions related to Directors' execution of their duties, and it has established a framework to ensure it fulfills its responsibility to supervise the execution of business.

Main Sustainability-Related Agenda of the Board of Directors

● Progress of mid- and long-term sustainability targets including climate change
● Sustainability committee report
● Establishment of internal regulations on sustainability management
● Yokogawa Group's priority management risks
● Initiatives for human capital management

■ Audit & Supervisory Board

To ensure the Group's sustainable growth and corporate soundness, the Audit & Supervisory Board, which meets once a month in principle, makes appropriate decisions and expresses its opinions from an independent and objective standpoint. Moreover, based on laws and regulations as well as the Auditing Standards for Audit & Supervisory Board Members and the Rules Governing the Audit & Supervisory Board, the Audit & Supervisory Board receives reports from each Audit & Supervisory Board Member on important matters related to audits, deliberates, and passes resolutions as necessary.

■ Management Board

The Board of Directors delegates decision-making related to the execution of business to the Management Board to promote swift decision-making. The Management Board, which meets once a month in principle, is required to report its resolutions and other matters to the Board of Directors.

■ Risk Management Committee

The Risk Management Committee selects significant risks whose management should be prioritized, decides the methods for monitoring them, and reports them to the Board of Directors. Respective organizational units of the Yokogawa Group perform the identification and assessment of risks, followed by the preparation and implementation of countermeasures against them. The department in charge of internal audits evaluates the effectiveness of the Yokogawa Group's risk management process and reports important findings to the Board of Directors and the Audit & Supervisory Board Members.
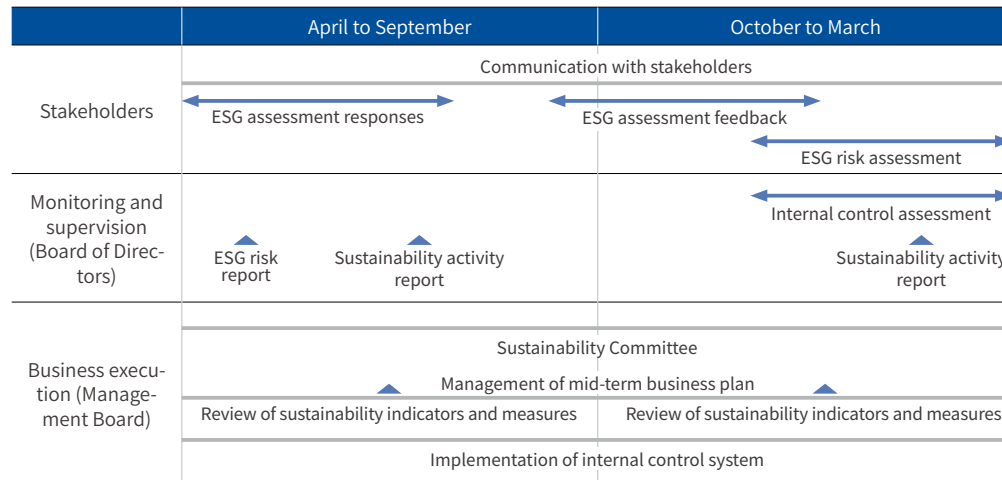
Sustainability Governance

Sustainability Management

Sustainability management is conducted as a part of the company-wide management cycle that includes the mid-term business plan, risk management and the internal control system. From the viewpoint of contributing to society and the environment and increasing corporate value, Yokogawa identifies priority issues relating to sustainability, sets sustainability indicators to address these issues, and defines management cycles, which are subject to monitoring and supervision by the Board of Directors. Non-financial items as well as important matters and the implementation of each management cycle are reported to the Board of Directors, and the status of sustainability activities is also regularly reported. The Board of Directors monitors and supervises sustainability initiatives based on factors such as changes in social conditions, progress in sustainability indicators, feedback from external stakeholders including ESG evaluation organizations, and ESG risk assessment results from external stakeholders' perspectives.

Sustainability Management Cycle

	April to September	October to March
Stakeholders	Communication with stakeholders	
	ESG assessment responses	ESG assessment feedback
		ESG risk assessment
Monitoring and supervision (Board of Directors)		Internal control assessment
	ESG risk report / Sustainability activity report	Sustainability activity report
Business execution (Management Board)	Sustainability Committee	
	Management of mid-term business plan	
	Review of sustainability indicators and measures	Review of sustainability indicators and measures
	Implementation of internal control system	

■ Internal Control

Yokogawa has established and is operating an internal control system to promote management efficiency while ensuring the appropriateness of business operations, and to achieve continuous growth and increase corporate value.

The Group Management Standards (GMS) were established as the most important regulations within Yokogawa Group, clarifying the roles and responsibilities of each business process, and implementing an internal control system based on autonomous control activities. Among the internal control systems, processes that are particularly important from the perspective of operational appropriateness are consolidated into a deployment system consisting of business ethics, decision-making, operations management, crisis management, and corporate auditing infrastructure. The system of overall responsibility for the Group has been established and is being operated. The person responsible for each process is responsible for providing supervision and guidance to ensure (i.e. maintain and improve) the effectiveness and efficiency of internal controls at each Group company.

In operating the internal control system, relevant result indicators and action indicators are clearly defined and PDCA is followed. The department in charge of internal audits conducts an internal audit of the effectiveness of the internal control system and reports important matters to the Board of Directors and the Audit & Supervisory Board Members.

■ Sustainability Committee

The Sustainability Committee was established in fiscal year 2022 to identify priority issues from the perspectives of both corporate value and social value, and to establish the mid- and long-term direction of management and strategies for resolving sustainability issues. As an advisory body to the Management Board, the Sustainability Committee, chaired by the President and CEO, with executive officers as members, is positioned as a forum for intensive discussions on sustainability-related themes from a management perspective. At the biannual meeting of the Sustainability Committee held in fiscal year 2022, the committee conducted a materiality analysis, then confirmed that the priority issues that the company must resolve and six contribution areas have not changed since AG2023 was formulated. The thematic subcommittees (Business Subcommittee, Product Subcommittee, Management Subcommittee, and Disclosure Subcommittee) have been established under the Sustainability Committee. The subcommittee held active discussions on a variety of topics, including the stories of growing our business and contributing to society, internal carbon pricing, human capital management, communication, and non-financial disclosure. The matters discussed by the Sustainability Committee are decided by the Management Board and reported to the Board of Directors.

```
Board of Directors
        |
Management Board
        |
Sustainability Committee    Chairperson: President and CEO
        |                   Members: Executive officers
  ┌─────┬────┴────┬─────────┐
Business    Product    Management    Disclosure
Subcommittee Subcommittee Subcommittee Subcommittee
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Risk Management

The Yokogawa Group has in place within its organizational units a risk management structure to control uncertainty affecting its corporate value, an internal control system to ensure the appropriateness of the businesses and a crisis management system to respond promptly to any event that could seriously impact its operations.

Risk Management Structure

We define uncertainties that might affect the Group's corporate value (e.g., our external environment, strategies, product quality, environmental impact, crisis management, and corporate ethics) as risk. Under the basic policy of integrally managing internal and external uncertainties relating to the business to maintain and increase the corporate value of the Yokogawa Group, we categorize and manage these uncertainties in terms of business opportunities, compliance, and crisis events.
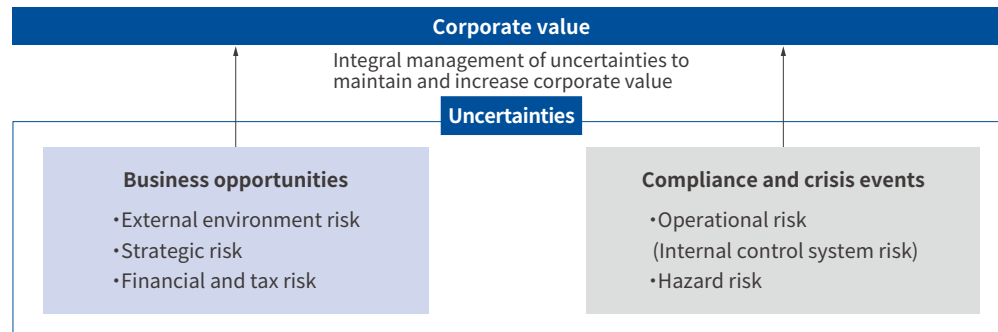
We also identify, assess and prioritize risks and establish and implement countermeasures and targets while improving and confirming the effectiveness of our countermeasures. Alongside these efforts, to realize effective risk management within the Group, we have established the Risk Management Committee chaired by the President and CEO, who is responsible for supervising all matters related to risk management.

Promoting Risk Assessment and Management

As part of their independent risk management activities, each organizational unit of the Group, including individual Group companies and locations, identifies and assesses risks every year, establishes countermeasures and targets, and implements these countermeasures. Moreover, each organizational unit has a risk manager and a network for the Group's risk management.
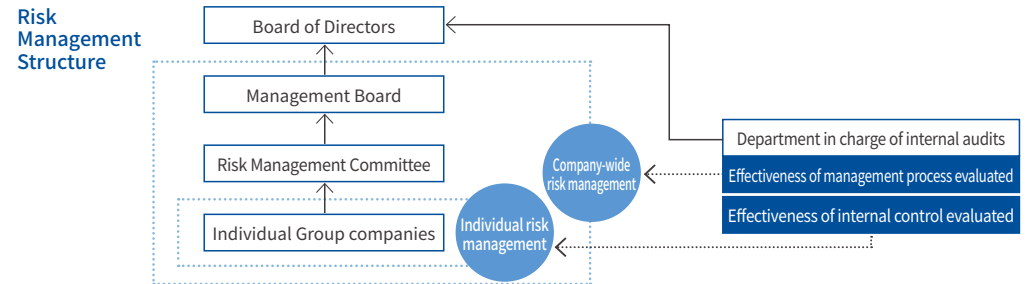
Based on risk assessments, the Risk Management Committee selects priority management risks whose management should be prioritized at the Group level, taking into account factors such as business strategies, management issues, and the external risk environment. Priority management risks are

determined by the Management Board and reported to the Board of Directors. The Risk Management Committee checks countermeasures for priority management risks and the progress of those countermeasures on a quarterly basis, evaluates the status of risks, and reports them to the Management Board and the Board of Directors. It also reviews countermeasures, identifies points for improvement, and incorporates them in the selection of priority management risks for the following year.

In risk assessment, we assess the severity of risks from the perspectives of impact and likelihood of occurrence: The risks assessed include business opportunity risks, e.g., external environment and strategies including climate change, compliance and crisis event risks, such as product quality, environmental impact, health and safety, corporate ethics (accounting fraud, bribery and other forms of corruption, harassment, etc.), information security, and crisis management. When we assess the impact of risks, we also take into account the social and environmental impact of risks such as human rights risks and responses to climate change, as well as financial and human aspects. We take a comprehensive approach to assessment, considering the bottom-up perspective from each organizational unit in the Group and the top-down perspective including changes in our management environment.

Basic Policy on Risk Management

Corporate value

Integral management of uncertainties to maintain and increase corporate value

Uncertainties

Business opportunities	Compliance and crisis events
・External environment risk ・Strategic risk ・Financial and tax risk	・Operational risk (Internal control system risk) ・Hazard risk

Risk Management Structure

- Board of Directors
- Management Board
- Risk Management Committee
- Individual Group companies
- Company-wide risk management
- Individual risk management
- Department in charge of internal audits
- Effectiveness of management process evaluated
- Effectiveness of internal control evaluated

PDCA for Risk Management

Plan
- Identification of risks
- Determination of priority management risks
- Confirmation of risk scenarios and planning of countermeasures

Do
- Implementation of countermeasures

Check
- Monitoring of the status of countermeasures by the Risk Management Committee (quarterly)
- Report to the Management Board and the Board of Directors

Act
- Identify areas for improvement
- Review and implement countermeasures

Risk Management

Escalation of the Information and Crisis Management System

In the event of a disaster, accident, or incident that could seriously impact the Yokogawa Group companies' management or endanger the lives of their employees, each Group employee must minimize the damage by taking prompt initial action and reporting to senior management. To address this issue, we have established the Yokogawa Group Crisis Reporting Guidelines, which stipulate details such as the information to be reported, as well as reporting routes and processes, and ensure that all Group employees are made aware of them. We regularly revise these guidelines and take steps to improve the escalation of information. In addition to these, we have established a Crisis Management Committee chaired by the President and CEO to ensure human safety, minimize economic losses, and fulfill our corporate social responsibilities in the event of a crisis.

Business Continuity Management (BCM)

Yokogawa's business is closely tied to social infrastructure including electricity, gas, water, and sewerage infrastructure. To continue our business activities in the event of a natural disaster such as an earthquake, windstorm and flood, or anthropogenic disaster including accidents and take action as quickly as possible to help maintain and restore social infrastructure, we developed the Business Continuity Plan (BCP).

We developed response plans and action guidelines assuming risks that could seriously impact the Group's management, such as natural disasters including a huge earthquake, windstorms, floods, or an epidemic of contagious disease. We have been collaborating with Group companies worldwide to improve these plans and guidelines. To increase the effectiveness and workability of our BCP, regular training for the identification of problems is provided by members of the crisis management organization, including senior management, to continuously improve the BCP. In addition, we have also introduced a system to promptly check employee safety and provide regular training to enhance proficiency in using the system, while also offering education on the basics of disaster prevention and BCP in case of an emergency. These activities were utilized to provide a prompt initial response to disasters including the May 2023 Oku-Noto earthquake. To strengthen our resilience to potential cyberattacks, which have been increasing in recent years, we share the latest information and provide training for the management team every year.

Protecting Global Employees from Crisis

Recently we have seen crime, terrorism, and violence occurring all over the world, including international travelers falling victim to crimes. In these circumstances, employees who are transferred to an international post or who travel abroad on business need to do more to prepare and take appropriate safety measures. To protect its employees working all over the world from crises (such as terrorism, riots, and crime), Yokogawa issues alerts. In addition, we hold seminars and provide education to help employees keep themselves safe when they are transferred to an international post or when travelling abroad on business.

■ Training for Protection from Terrorism and Crime

Yokogawa holds seminars on self-protection, including specific steps to take to minimize harm in the event of a terrorist attack, violence, or crime. In the seminars, we invite outside security experts to provide instruction and demonstrations both in English and Japanese, and conduct practical training involving the participation of the attendees.

Training in fiscal year 2019

Code of Conduct and Compliance

Yokogawa's top priority is compliance and it conducts its business activities in compliance with the relevant laws, regulations, and ordinances. We respect social norms and international guidelines, and act with high ethical standards. The Yokogawa Group Code of Conduct sets out the guidelines that its employees should observe in their actions for the realization of Yokogawa's corporate philosophy, while the Yokogawa Group Compliance Guidelines prescribe specific actions that each and every employee should take.

The Yokogawa Group Code of Conduct

The Yokogawa Group Code of Conduct sets forth guidelines for all employees of the Yokogawa Group to observe in their actions. The Code of Conduct, a basic policy adopted by the Board of Directors, governs the overall structure of the Group Management Standards (GMS), which take precedence over all internal regulations and rules in the Group. Chapter 1 describes the Yokogawa Group's basic policies, including the realization of its corporate philosophy, compliance with laws and regulations, respect for human rights, and contribution to the realization of a sustainable society. Chapter 2 specifies the Yokogawa Group's ethical standards concerning the Group's relationship with stakeholders, workers' rights, and the responsibilities of the management team, among other things.

🖥 The full text of the Yokogawa Group Code of Conduct is on our website.

Yokogawa Group Compliance Guidelines

The Yokogawa Group Compliance Guidelines are practical guidelines that provide an easy-to-follow explanation of the Yokogawa Group Code of Conduct and describe specific actions that employees should take. The Guidelines have been prepared to educate employees and set forth the specific rules and standards that all Yokogawa Group employees should observe when they encounter ethical and legal issues in the course of their day-to-day business activities. The Guidelines have been translated into 14 languages, and we have taken multiple approaches tailored for employee with different styles of work to keep them aware of the Guidelines. Informing all Group employees of the content of the Guidelines enables Yokogawa to ensure that its corporate philosophy is embraced and upheld by each and every employee.

Yokogawa Group Compliance Guidelines
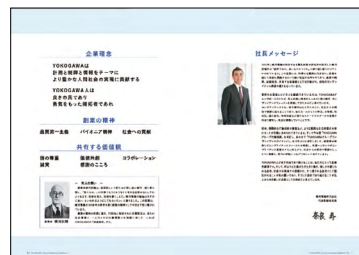
Supporting International Guidelines

■ **The United Nations Global Compact**

Yokogawa signed the United Nations Global Compact in 2009 and expressed its support for the Compact's ten principles addressing human rights, labour, the environment, and anti-corruption. We are working with our stakeholders to uphold the ten principles through efforts such as participation in Global Compact Network Japan, a local network in Japan. The Global Compact was first proposed by former Secretary-General of the UN Kofi Annan at the World Economic Forum in 1999 and was officially adopted in 2000. Participating companies are expected to practice and uphold international standards for human rights, labour, the environment, and the prevention of corruption.

President's Commitment

The Yokogawa Group Code of Conduct sets out six basic Group policies: the realization of the Yokogawa Philosophy, compliance with laws and regulations and cooperation with society, respect for human rights, fair business practices, contribution to society and the environment, and trust-based relationships with stakeholders. Yokogawa is committed to fulfilling its fundamental corporate responsibilities, including contributing to society through its business activities and ensuring compliance. In 2009, Yokogawa approved and signed the Global Compact, an international initiative proposed by the United Nations and has been endorsing and putting into practice its ten universal principles in the areas of human rights, labour, the environment, and the prevention of corruption. The Company shares these principles with its Group companies and business partners around the world. We will continue to strive to fulfill our responsibilities as a global company that conducts business around the world.

WE SUPPORT
UN GLOBAL COMPACT

President and CEO
Hitoshi Nara

ISO26000

The ISO 26000 standard published by the International Standardization Organization in November 2010 is an international standard relating to the social responsibilities of organizations that presents seven core subjects including organizational governance, human rights, labour practices, environmental responsibility, and fair operating practices. Yokogawa is a company active in the global marketplace, and it adheres to the ISO 26000 standard and regards corporate governance as a foundation for corporate management. As such, we are committed to the implementation of socially responsible activities to meet our stakeholders' expectations, including contributing to communities through our business operations, environmental conservation, and respecting human rights.
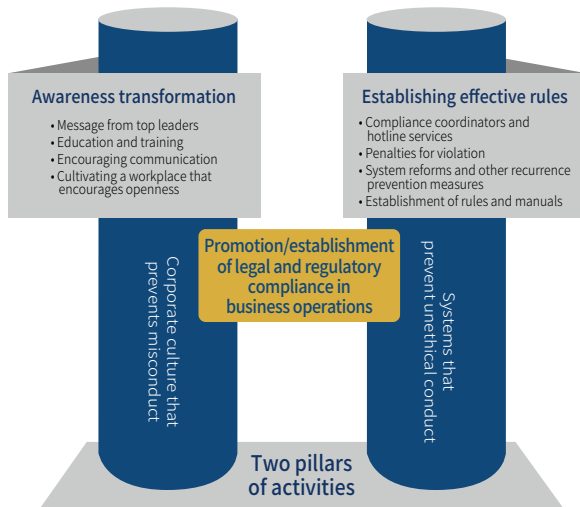
Code of Conduct and Compliance

Compliance Promotion Structure

To prevent wrongdoing and scandal, Yokogawa promotes sound and transparent business activities with a corporate culture that prevents misconduct and systems that prevent unethical conduct as two pillars of our compliance activities. The Yokogawa Group aggressively promotes management practices built upon a foundation of compliance through the establishment of a business ethics department that is responsible for developing a compliance promotion structure and identifying and addressing issues pertaining to it. We have established a workplace-based compliance promotion structure in our global offices. The business ethics department and the departments or persons responsible for compliance at each company cooperate to pursue compliance initiatives to raise and establish employee compliance awareness.

PDCA Cycle for Promoting Compliance

Act
- Analysis of awareness survey
- Action review and problem analysis

Plan
- Formulation of an annual action plan based on the survey results and review of the previous year

Check
- Implementation of awareness survey
- Review of helpline operations

Do
- Execution of action plan
  - Training activities
  - Awareness activities
  - Establishment of rules and manuals
- Appropriate helpline operations

Basic Approach to Thorough Compliance

Awareness transformation
- Message from top leaders
- Education and training
- Encouraging communication
- Cultivating a workplace that encourages openness

Establishing effective rules
- Compliance coordinators and hotline services
- Penalties for violation
- System reforms and other recurrence prevention measures
- Establishment of rules and manuals

Corporate culture that prevents misconduct

Promotion/establishment of legal and regulatory compliance in business operations

Systems that prevent unethical conduct

Two pillars of activities

Compliance Promotion Structure

Yokogawa Electric Corporation President and Chief Executive Officer

Yokogawa Electric Corporation Business Ethics HQ

Compliance Committee

Exchange of information
- Audit & Supervisory Board Members
- Audit & Compliance HQ
- Legal Dept./Human Resources and General Affairs HQ
- Outside law firms

Yokogawa Electric Corporation Departments
- Compliance Manager
- Compliance Coordinators
- Compliance Facilitators

In Japan — Internal reporting and consultation system

Workplace counselor

Group companies in Japan
- Compliance Manager
- Compliance Coordinators
- Compliance Facilitators

Group companies outside Japan
- Compliance Manager
- Compliance Coordinators

Companies outside Japan — Internal reporting and consultation system

Code of Conduct and Compliance

Anti-corruption Initiatives

Yokogawa is working to prevent all forms of corruption, including the abuse of power for personal gain, coercion and bribery, by prescribing within the Yokogawa Group Code of Conduct appropriate relationships with business partners, politicians, and government officials and prohibiting conflicts of interest. Specifically, we develop and implement rules such as the Yokogawa Group Compliance Guidelines and Yokogawa Group Anti-bribery and Anti-corruption Code and conduct education and awareness programs as part of our compliance initiatives to spread and entrench anti-corruption awareness.

■ Anti-bribery Initiatives

Yokogawa observes the bribery prevention laws and regulations of all of the countries where its Group companies conduct business activities to prevent bribery involving public servants and private citizens both at home and abroad. The Group assesses and controls bribery-related risks, and the Group companies manage these risks. We prevent bribery and ensure that business activities are fair and appropriate, by fully informing all employees of the Yokogawa Group Anti-bribery and Anti-corruption Code. Further, we have established the Yokogawa Group Sustainable Procurement Guidelines to support the prevention of bribery and are working to implement the guidelines in cooperation with our business partners. No bribery-related violations or penalties were reported in fiscal year 2022.

Measures to Prevent Anti-competitive Practices

Yokogawa considers that the observance of competition law is essential for ensuring the proper management of the Group and has set out its basic policy of fair, transparent, and free competition with competitors in the Yokogawa Group Code of Conduct. To further ensure compliance with competition law, we prescribe specific rules in the Yokogawa Group Compliance Guidelines and the Competition Compliance Code and provide in-house training about the competition law to increase employee awareness. No legal measures were taken against Yokogawa due to any anti-competitive acts, anti-trust law violations or monopolistic practices in fiscal year 2022.

Measures to Counter Anti-social Forces

The entire Yokogawa Group is taking steps to eliminate antisocial forces and describes in the Yokogawa Group Compliance Guidelines its responses to anti-social forces that threaten social order and safety. In compliance with the Tokyo Metropolitan Ordinance for Eliminating the Organized Crime Groups, we are engaged in initiatives such as including clauses concerning the elimination of anti-social forces in business contracts and other agreements and signing a memorandum on the elimination of anti-social forces with business partners, contractors, and customers.

Tax Policy

In light of the globalization of its business operations, Yokogawa believes it can fulfill its corporate social responsibilities and help realize a sustainable economy by properly meeting its tax obligations in the countries and regions where Yokogawa conducts business activities. Yokogawa takes the following actions in its tax accounting practices to ensure appropriate tax risk management:

1. Placing the highest priority on complying with the tax laws and regulations of each country, and appropriately paying taxes without applying preferential tax treatment by interpreting beyond legislative intent
2. Implementing appropriate tax-related accounting processes and other related measures
3. Establishing a tax governance structure and striving to increase tax compliance awareness
4. Responsibly performing tax duties in compliance with international tax standards such as the OECD Transfer Pricing Guidelines and the Action Plan on Base Erosion and Profit Shifting (BEPS)
5. Conducting transactions with non-Japanese affiliates on an arm's length basis by properly allocating profit for their contributions in accordance with the roles and risk analysis of the affiliate
6. Neither intentionally avoiding taxes by the act without commercial substance nor resorting to any abusive tax planning by utilizing low-tax jurisdictions
7. Not utilizing any tax haven for tax avoidance purposes. Appropriately filling and paying taxes in case becoming subject to the CFC rules by effective tax rate reductions, legislative changes, etc.
8. Optimizing tax expenses by means such as avoiding double taxation and utilizing appropriate tax incentives
9. Reducing tax risk by obtaining advice from external professionals when there is uncertainty regarding the application or interpretation of tax laws and regulations
10. Building, maintaining, and developing sincere, sound, and cooperative relationships with the tax authorities of respective countries

Code of Conduct and Compliance
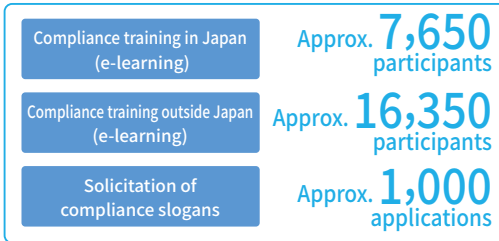
Preventing Insider Trading

To prevent insider trading, we have established the Code of Conduct for the Prevention of Insider Trading in the Group Management Standards (GMS) and have included a section on the prohibition of insider trading in the Yokogawa Group Compliance Guidelines. Further, we have established a group-wide compliance structure and provide education to thoroughly prevent insider trading. The officers or employees of the Group companies who intend to buy and sell Yokogawa Electric stock must follow the prior approval procedure through the person in charge of insider trading prevention at their company. In addition, the following individuals are subject to a blanket prohibition regarding the buying and selling of the Company's stock from the last day of each quarter to the date of the announcement of the financial results for the quarter.
1. Officers and managers of Yokogawa Electric Corporation, Yokogawa Solution Service, Yokogawa Manufacturing, and Yokogawa Test & Measurement
2. People directly involved in the preparation and announcement of quarterly results in Yokogawa Electric Corporation and the Group companies in Japan
No insider trading was reported in fiscal year 2022.

Education and Awareness Activities

Yokogawa offers a broad range of awareness programs such as compliance education and training, with the aim of fostering employees' awareness and understanding of compliance and a corporate culture that promotes fair, transparent, and open business practices with high ethical standards.

Compliance training in Japan (e-learning)	Approx. **7,650** participants
Compliance training outside Japan (e-learning)	Approx. **16,350** participants
Solicitation of compliance slogans	Approx. **1,000** applications

■ Compliance Training and Education

In Fiscal 2022, compliance training was conducted on themes such as the "prohibition of discrimination and harassment" and "prohibition of entertainment and gifts for public servants," based on the Yokogawa Group Code of Conduct and the Yokogawa Group Compliance Guidelines, with the aims of spreading and establishing compliance awareness across the entire Group. There was also an array of opportunity- and role-specific training for employees, including at the time they joined the company, when they are promoted to a managerial position, and when they are transferred to an international post.

■ Compliance Newsletter

We publish the Compliance Newsletter six times to communicate information about our corporate culture, recent business scandals, and other timely topics. The Compliance Newsletter helps improve employee compliance awareness through the internal publication of information for the entire Group. In fiscal year 2022, it highlighted topics such as "business and human rights," "the status of internal reporting and consultation hotlines," "the results of the compliance awareness survey," and "preventing bribery."

■ Compliance Week

The Compliance Week campaign is conducted to ensure that the compliance mindset is embraced and upheld. In fiscal year 2022, we provided learning (e-learning) courses on the "Yokogawa Group Code of Conduct" and "conflicts of interest in the workplace" for all of the employees of Yokogawa Group companies, solicited compliance slogans, and showcased them.

Compliance Awareness Survey

In fiscal year 2022, we conducted a compliance awareness survey for all employees of the Yokogawa Group. The results of this survey will facilitate activities in the next fiscal year through their visualization compared to previous results on compliance awareness for each workplace and position and the provision of feedback to each Group company.

Contact for Whistleblowing and Consulting

Yokogawa has a contact for whistleblowing and consulting for the early detection and prevention of compliance issues. Employees can blow the whistle or consult on compliance issues anonymously or by telling their name by email, over the telephone, in writing or by any other means in their own language.
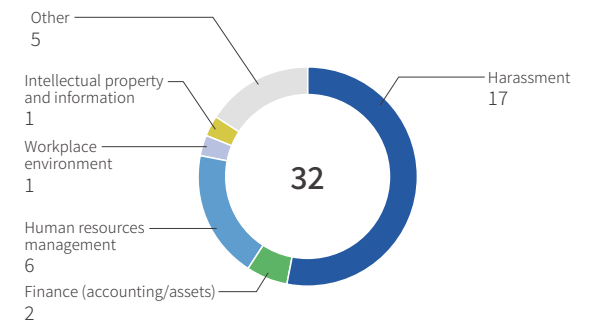
If any issue is reported and is likely to violate the Yokogawa Group Code of Conduct and/or be a compliance issue, then, the department in charge will investigate and try to resolve the situation in cooperation with a person in charge of the investigation appointed under the internal reporting and consultation rules, the human resources department, the legal affairs department, and the external lawyer in accordance with the rules. We protect the privacy of whistleblowers and do not ever tolerate retaliation or any disadvantageous treatment of them.

We continue to try to fully communicate information about the internal reporting and consultation system and establish an environment that allows whistleblowers to report without anxiety.

In addition, we accept reports from and listen to the problems of our customers, business partners, community members, and all stakeholders about human rights and other aspects of compliance through the inquiry function (Contact Us) and (Supplier Helpline) of our website.

No incidents that became issues that would significantly impact management were reported in fiscal year 2022.

(Reference) Breakdown of reports and consultations received in Japan in Fiscal Year 2022

- Other 5
- Intellectual property and information 1
- Workplace environment 1
- Human resources management 6
- Finance (accounting/assets) 2
- Harassment 17
- Total: 32

Supply Chain Management

Enhancement of Internal Control and Communications, and Promotion of Sustainability in the Supply Chain

Yokogawa has formulated the Procurement Process Standards for the entire Group as part of internal control. We are working to ensure fair and equitable transactions while taking account of sustainability. These initiatives are to apply to all processes involving our suppliers.

We contribute to the promotion of sustainability in the industry's supply chain as well as our own, through active participation in industry group committees such as the CSR Committee and the Procurement Committee of the Japan Electronics and Information Technology Industries Association (JEITA) and Global Compact Network Japan's study groups.

Sustainable Procurement Activities

We ask our suppliers to observe the Yokogawa Group Sustainable Procurement Guidelines, which we created based on the RBA* Code of Conduct, incorporating the approach of ISO 20400:2017 - Sustainable Procurement - Guidance.

We are working with our suppliers to identify risks that impede sustainable procurement, focusing on understanding the current state of the following four issues defined in the Yokogawa Group Sustainable Procurement Guidelines for suppliers: human rights and labor, health and safety, the environment, and ethics. In case a risk materializes, we work with our suppliers to make improvements. We also provide educational programs on sustainable procurement both inside and outside the Company. We set key performance indicators (KPIs) to manage and monitor the progress of these activities.

*RBA: The Responsible Business Alliance is a coalition of businesses that promote corporate social responsibility in global supply chains

🖥 The Yokogawa Group Sustainable Procurement Guidelines are on our website.

■ Planned and Underway Activities

From fiscal years 2020 to 2022, we reduced CSR risk in the supply chain based on due diligence regarding the protection of human rights. We identify high risk business facilities through the Self-Assessment Questionnaire (SAQ) about environmental conservation and human rights that is sent to the facilities of our suppliers and by assessing responses to the SAQ.

• **PDCA Cycle for Activities**

Based on KPIs formulated in fiscal year 2019, we work to mitigate CSR risk in the supply chain by communicating with our suppliers and perform the PDCA cycle shown in the right figure.
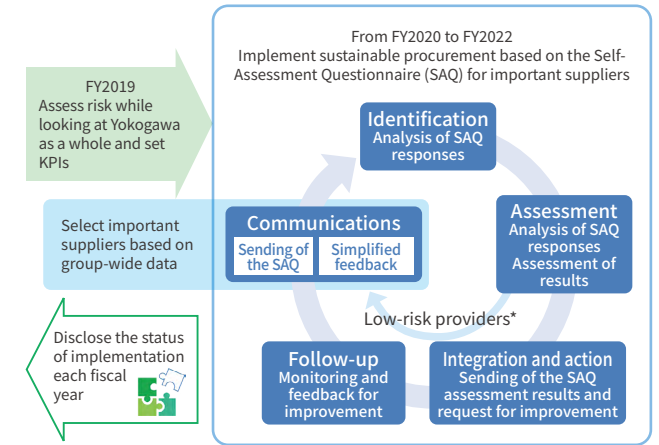
"Providers" is a collective term that refers to suppliers and sub-suppliers from which the suppliers procure goods to deliver to Yokogawa.

• **Cooperation in Global Procurement**

We engage in globally coordinated supply chain management utilizing data integrated across the Group, while emphasizing our relationships with the suppliers of our affiliates in each country.
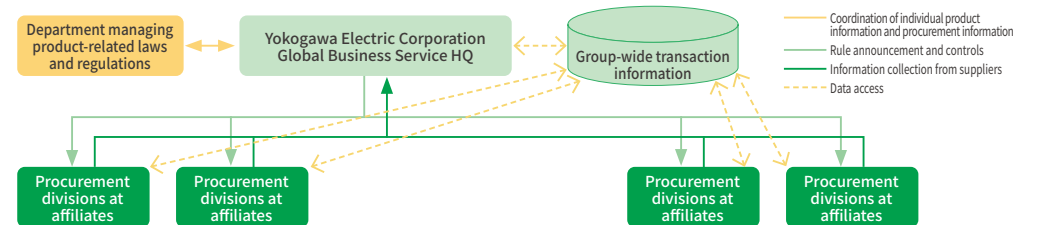
• **Plan and Results of the Self-Assessment Questionnaire (SAQ)**

Under a three-year plan, we check group-wide transaction information, selected 600 key suppliers based on transaction amounts and items procured, and implemented the SAQ for approximately 200 suppliers per year. Based on the responses obtained from the business places of our providers, we analyzed and evaluated supply chain risks.

KPIs	Total number of companies to which Yokogawa plans to send the SAQ	Companies to which the SAQ was sent	Total number of facilities that returned the filled-in SAQ	Fiscal year
Number of suppliers' facilities selected for the SAQ	200	191	166	FY2020
	400	389	333	FY2021
	600	588	491	FY2022

Supply Chain Management

The SAQ is composed of questions on all aspects of sustainable procurement, such as human rights and labor, health and safety, the environment, and compliance. The average scores for these three years are presented below. We have analyzed the details of our suppliers' responses and the trends in scores. This process is an effective way for Yokogawa to analyze its supplier risks, and we will continue to review and improve the SAQ.
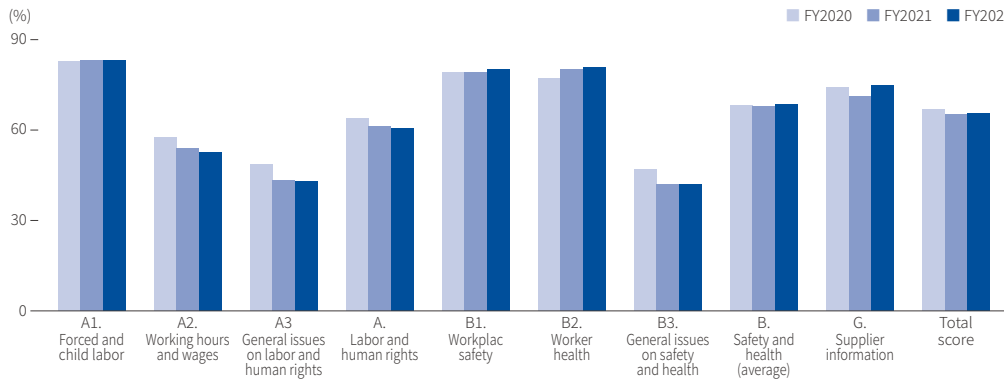
● **Improvement Initiatives**
To improve our activities together with suppliers, we ask them to agree to our sustainable procurement activities in the Yokogawa Group's supply chain. So far we have confirmed with about 80% of them.

We mark all of the responses to the SAQ and return each to the relevant respondent, together with the average score and comments on points for improvement. We also confirm the improvements, depending on the score. For important respondents, we carry out individual interviews and present a detailed report on improvements.

■ **Sustainable Procurement Education**
We have established an internal e-learning program about sustainable procurement, which employees are able to view on an on-demand basis.

For external stakeholders, we support a deeper understanding of laws and regulations related to sustainable procurement and environmental policy, including through the dissemination of a booklet explaining the Yokogawa Group Sustainable Procurement Guidelines.

Promotion of Green Procurement
Taking into account the entire lifecycle of products/solutions to be provided to customers, Yokogawa encourages the purchasing of products and services with a small environmental footprint and promotes transactions with the suppliers who are proactively involved in supporting biodiversity and environmental action for the reduction of their environmental footprint and the increase of added value. We also consider contribution to the SDGs in our procurement strategy. For example, we use PCs with bioplastic casings as standard products for office equipment. Furthermore, we present the Yokogawa Group Green Procurement Guidelines when concluding transaction contracts with new suppliers. Having established a system to promote management of the chemical substances contained in our products, we investigate and manage the chemical substances contained in the materials and components we use for full compliance with the laws and regulations concerning chemical substances (such as the REACH Regulation, RoHS Directive, and TSCA). We also hold briefings as necessary to share information with and educate our suppliers.

💻 The Yokogawa Group Green Procurement Guidelines are on our website.

Strengthening of Partnerships with Suppliers
Yokogawa is reinforcing its partnerships by interacting with the management teams of key suppliers and their sales representatives at each location. We hold a regular Supplier Policy Presentation Meeting at our headquarters in Musashino-shi, Tokyo, where we explain our management policy, business plans, purchasing strategy, and other matters, as well as presenting awards to suppliers who have contributed to the Group.

We also organize component exhibitions and technical seminars by manufacturers to provide a forum for communication with developers.

Reinforcement of Compliant Procurement
Yokogawa strives to reinforce compliant procurement across the Group by establishing standards for compliance in procurement to serve as group-wide management rules while maintaining close communication with those responsible at the Group companies. We also specify provisions concerning compliance in the business contracts. A helpline is available for suppliers to report actual or suspected compliance violations.

Supply Chain Management

Compliance with the Subcontract Act

To ensure compliance with the Act against Delay in Payment of Subcontract Proceeds, Etc., to Subcontractors (the "Subcontract Act"), Yokogawa's affiliates in Japan have made a Declaration of Partnership Building, and we strive to raise awareness by having employees attend outside workshops. In addition, we offer regular opportunities for purchasers to study the Group's original teaching materials via e-learning, as well as short tests to confirm their level of understanding. We also appoint compliance officers in each department and each Group company to share information regarding the Subcontract Act and build a compliance framework.

Procurement BCP

Recognizing that ensuring a stable supply of the products our customers need is an important social responsibility, we are taking action in line with our procurement business continuity plan (BCP). To respond to the new laws and regulations implemented in each country in recent years, our global organizational units for procurement, with the cooperation of our suppliers, have been working together to manage information on the areas producing the components used in our products and understand the logistics situation, aiming to minimize any impact on our customers. In addition to short-term activities, we will also reform supply chain management from a long-term perspective by analyzing the procurement information of key components used in our major products and considering future situations.

Initiatives on Conflict Minerals

■ Basic Policy

Based on the Yokogawa Group Human Rights Policy, the Yokogawa Group, as a global company, seeks to prevent the serious risk of being complicit in human rights violations that may arise in connection with the mining, trading, and handling of minerals from conflict-affected and high-risk areas, and ensures responsible mineral procurement. With reference to the "OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Due Diligence Guidance)[1]" published by the Organisation for Economic Co-operation and Development (OECD), the Yokogawa Group has constructed a structure to conduct surveys on minerals in the supply chain, including measures such as sharing and checking information submitted through the Conflict Minerals Reporting Template (CMRT)[2], and manage the supply chain as a corporate group. With this structure in place, we are engaged in activities aimed at preventing the purchase of products containing minerals that are associated with risks such as human rights violations and bribery in conflict-affected and high-risk areas.

*1 The OECD Due Diligence Guidance's full name is the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas
*2 The Conflict Minerals Reporting Template (CMRT) is issued by the Responsible Minerals Initiative (RMI)

■ Structure

With reference to the steps described in the OECD Due Diligence Guidance[1], the structure encourages the departments to set the roles suited to their function in the Yokogawa Group's addressing the conflict mineral issue. We cooperate with our suppliers to investigate the use of conflict minerals in certain products based on customers' requests. If an investigation reveals that a mineral procured by Yokogawa is a source of funds for armed groups, we immediately take measures to avoid the use of the mineral in question.

As a member of the Responsible Minerals Trade Working Group run by the industry group Japan Electronics and Information Technology Industries Association (JEITA), we coordinate our efforts with those of other corporations in the industry and obtain the latest information. The latest information and standardized procedures for investigating conflict minerals are shared throughout the Yokogawa Group.
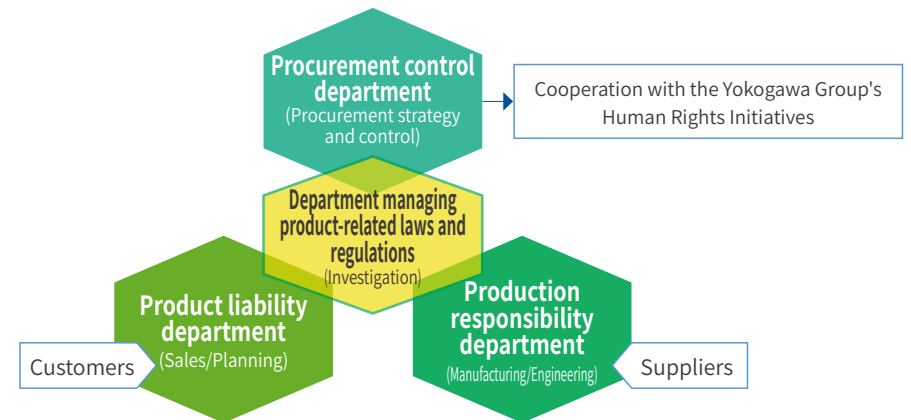
💻 The Responsible Mineral Procurement are on our website.
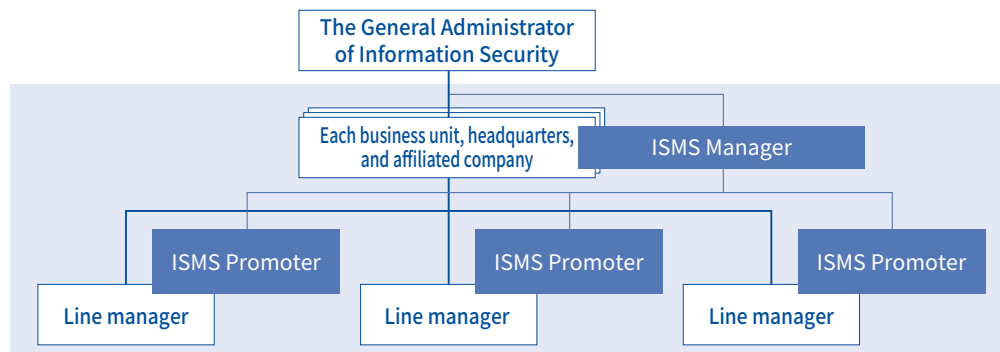
Information Security

Yokogawa works together with customers to provide solutions. To protect important information entrusted to us by our stakeholders, we implement information security measures from three perspectives: people, equipment, and information technology (IT).

Information Security

Yokogawa conducts information security activities based on the concept of the ISO 27001 standard. The general administrator of information security who serves as the officer in charge of information security management control notify each business unit, headquarters, and affiliated company of policies and measures. A secretariat conducts on-site inspections to monitor operations to ensure they are performed in line with rules and takes necessary improvement measures.

To ensure information security, Yokogawa has developed an information security structure at each of its business units, headquarters, and affiliated companies. All organization draws up an action plan at the beginning of year and checks the level of the organization using a maturity confirmation check sheet at the end of the year. In addition, it implements a PDCA cycle, which is the key to smooth information security promotion activities.

Information security organization

Information Security Committee

In conjunction with the above, Yokogawa also has an information security committee to improve its responses to cyberattacks and ensure that customers are able to continue their business activities safely and securely. This committee is chaired by the officer in charge of the information systems business unit and comprises cybersecurity experts on products and other fields that Yokogawa operates within and works to share information within the Group and understand the latest trends.

Information Security Committee
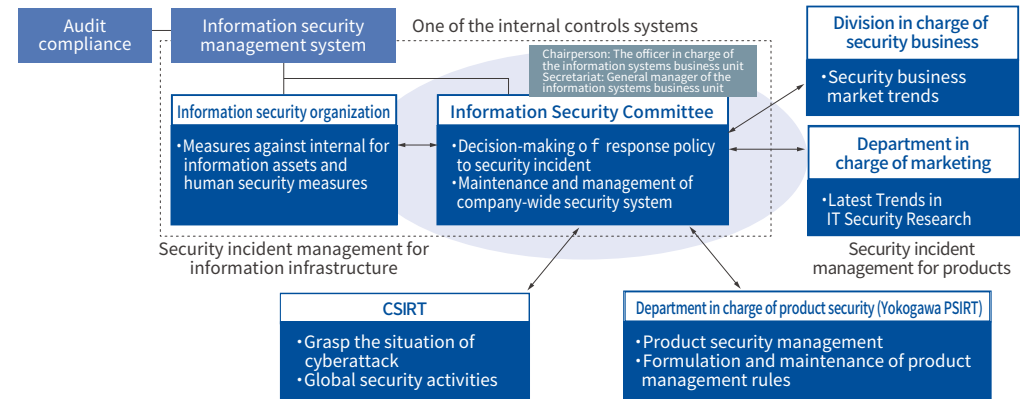
Response to Cyberattacks

Cyberattacks show no sign of slowing down and are becoming increasingly sophisticated. To prevent cyberattack risks, the Computer Security Incident Response Team (CSIRT) act effectively.

In recent years, the damage caused by ransomware has increased worldwide, and in 2022, cyber damage caused by ransomware attacks occurred frequently in Japan, and many companies and organizations were attacked. Yokogawa has investigated the vulnerability information of its own systems and networks and confirmed that there were no problems. And partnership with other departments is vital as many people are involved when responding to an incident. In 2023, we will continue to build a framework to respond to urgent incidents and improve the response capability of CSIRT.
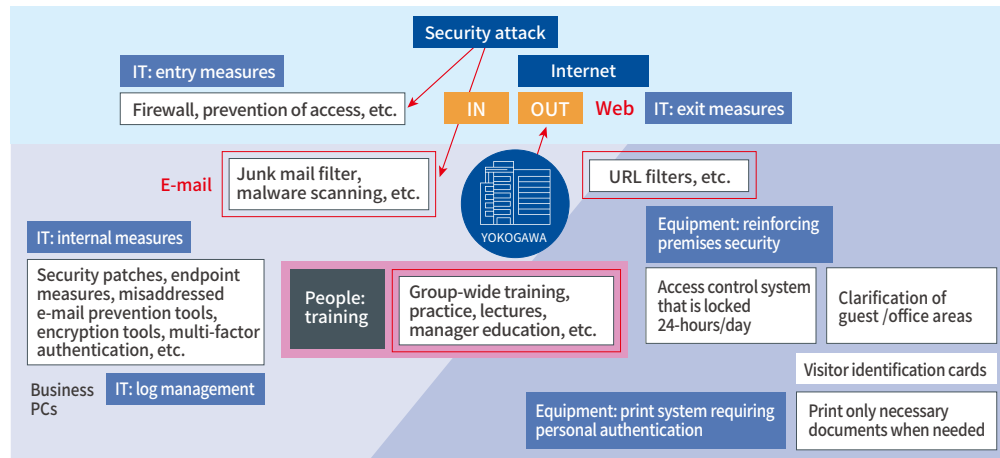
Information Security

Yokogawa's Security Management

In order to properly manage confidential information, it is necessary to be in a state where it can be objectively recognized as confidential. Yokogawa sets confidential information classification for confidential information and manages them according to classification. In addition, in order to protect confidential information, we are working on information security measures from the three perspectives of People, Equipment, and IT.

Information Security Management

■ People: Information Security Training

To protect information, every individual employee should be aware of information security. Yokogawa provides training using e-learning to all its employees every year to enable employees to think for themselves about the handling of information they receive and appropriately act. We share up-to-date knowledge regarding information security, and publish internal bulletins whenever necessary to keep our employees informed of responses to security incidents and recurrence prevention measures based on actual events. Further, we provide more practical information in the form of lectures on information security featuring expert lecturers, as well as education and training on responses to targeted attacks, phishing, BEC(Business Email Compromise). In addition, we facilitate education for line managers as well as mobile users according to access & role. Information security audits are also conducted to check whether the results of this training are reflected in day-to-day information security activities.

■ Equipment: Easy-to-understand and Secure (Security of Office Premises)

Information security must be easy to understand. We have clarified the areas that employees and visitors are permitted to enter. When a visitor enters an area other than a guest area, the visitor must wear a visitor identification card. We protect property and information assets on the premises of the head office using an access control system that keeps the office area locked 24 hours a day. Moreover, we have introduced a managed print service (MPS) that requires personal authentication for the printing of only the necessary documents at the time they are required, preventing documents from being left behind on printers or mixed in with other documents.

■ IT: Protection Behind the Scenes

We use IT to prevent human error such as accidental leaks and the inappropriate use of information due to a lack of knowledge, and also adopt a multi-tiered approach to prepare for external cyberattacks. In response to cyberattacks, which are diversifying day by day, we obtain the latest vulnerability response information, tune security equipment, and install a private SOC(Security Operation Center) using cloud and machine learning technology. Thereby, we are striving to prevent unauthorized access and early detection of signs and incidents. In addition, this private SOC technology is the foundation of IT/OT SOC.

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Privacy and Data Protection

As compliance is of the utmost importance to Yokogawa, the Privacy and Data Protection compliance program was further developed and expanded by the establishment of Yokogawa's global Privacy and Data Protection team. Throughout fiscal year 2022, Yokogawa prioritized stringent data protection measures, adhering to international regulations and best practices. Additionally, we conducted comprehensive privacy impact assessments for new projects, ensuring privacy by design principles were embedded in our practices. Our dedicated Privacy and Data Protection team monitors and responds to privacy inquires and concerns, emphasizing transparency in our day-to-day operations.

Information Security

Security Management for Products and Services

The Yokogawa Group recognizes that the continuous provision of measures to address cyber threats is important to its customers and society and is committed to addressing security together with its customers through the provision of its products and services.

In view of the recent rise in the risk of cyberattacks, countries around the world are requiring a higher level of security for critical infrastructure and progressively codifying these requirements in law and regulation to maintain public order and safety. Likewise, in many business fields, it has become necessary to regard the risk of cyberattacks on a broader horizon with perspectives that encompass factors such as digital transformation and supply chain management. For companies, ascertaining this risk and improving countermeasures for cyber threats have become urgent tasks from the standpoint of ensuring business continuity.

In this context, we endeavor to apprehend and understand legal regulation in each country and security trends among international security standard and industry association. We actively pursue activities aimed at providing products and services that conform to their security requirements.

Key Initiatives

At Yokogawa, we see the process from product development to system installation and operation as the system lifecycle. By supporting customers' security activities throughout that lifecycle, we work to reduce the risks to critical infrastructure that originate in cyberspace.

■ Product Development

- We have established a basic policy and standards for security measures. These are incorporated into our development process to eliminate vulnerabilities from products and enhance security.
- The product development department in charge of our control systems has obtained ISASecure SDLA (Security Development Lifecycle Assurance) certification from the ISCI, an international organization promoting security certification. This certification is given when the development process of control system products is found to meet the requirements for the secure development of products based on evaluations conducted by an independent organization. The review process determines that development processes comply with IEC 62443-4-1, an international standard governing product development security. Yokogawa is the first supplier of control system products in Japan to obtain this certification.
- To ensure security quality, our main products, CENTUM VP and ProSafe-RS, have obtained ISASecure CSA (Component Security Assurance) certification. ISASecure CSA certification is designed to comply with IEC 62443-4-1 and IEC 62443-4-2, international standards for the security of control devices.

ISASecure SDLA certificate

■ System Installation

- Through security training for engineers, the research and study of security technology conducted mainly at the security laboratory, and support for the introduction of security measures to systems, we aim to realize a uniform implementation of security and secure progress for system integration.

■ System Operation

- Through the operation of a security program, we aim to reduce cybersecurity risks in customer systems throughout their lifecycles, connect OT security risk management to business risk management, and realize optimal security systems so that customers can operate safely and securely in the wake of the era of IT/OT convergence and System of Systems (SoS). The program follows the Plan-Do-Check-Act cycle and offers six phases in total for continuous improvement and updating.

At Yokogawa, we provide extensive support, ranging from consulting services that derive the measures needed by each customer to implementation and operation through our OpreX™ Managed Service and OpreX™ IT/OT Security Operations Center (IT/OT SOC).

■ PSIRT (Product Security Incident Response Team)

- We extensively gather information about vulnerabilities related to our products, disseminate the information we obtain throughout the Yokogawa Group, investigate, and disclose relevant information regarding vulnerabilities and countermeasures to customers to support their security activities.

Security laboratory

Security program

Start

- Awareness & Training
- Risk Assessment
- Policies & Procedures
- Business Case
- Design & Implementation
- Managed Services

Security program

Quality Assurance

The Basic Quality Policy

- Quality management is carried out in order to implement customer focus based on "Quality First," which is the spirit of foundation, and "Healthy and Profitable Management" through improvements in management quality.
- Products that meet statutory and regulatory requirements as well as customer requirements are supplied.
- Appropriate quality management systems conforming to the International Standard ISO 9001 requirements are established and implemented. In addition, the effectiveness of those systems is continually improved.
- Customer requirements are fulfilled and customer satisfaction is increased through the results of quality activities in all organizations and personnel. For this purpose, each employee must feel that the quality of his or her work has a direct bearing on product quality, and that the company believes in "Quality First."
- The head of each organization is responsible for the quality of the relevant businesses. The responsibilities include ensuring that adequate resources are made available.

Customer Satisfaction and Quality

Yokogawa provides quality products and solutions that satisfy our customers. This is built upon the Quality First founding spirit that we have preserved for over 100 years. Our quality management consists of three basic elements: Quality Assurance (QA), Quality Improvement (QI), and Quality mind (the quality-first mindset) (Qm).

Quality Assurance (QA)
Continually seeking to provide better products to customers based on the philosophy of quality being the highest priority

Quality Improvement (QI)
Establishing a system to provide quality products and services

Quality mind (the quality-first mindset) (Qm)
Each and every employee having the quality-first mindset that is the Yokogawa Group's founding spirit.

Three Elements of Quality Management

- QA — Quality Assurance
- QI — Quality Improvement
- Qm — Quality mind (the quality-first mindset)

We believe that we can satisfy our customers' expectations and build long-lasting relationships of trust only when all of these elements are engaged. Yokogawa believes the quality-first mindset is particularly important for maintaining high levels of quality. All Yokogawa Group employees are aware of the importance of having the quality-first mindset, and quality is built into each operation based on group-wide rules and approaches.

Quality Assurance Activities

Since its founding, Yokogawa has built quality management systems into each process from development, planning, design, and manufacturing to sales and service, in order to deliver products and solutions that satisfy its customers. Yokogawa first obtained ISO 9001 certification in 1992, and its major Group companies in and outside Japan have also obtained the certification. Specialists deal with the issues and problems with products that are encountered by customers. Yokogawa has a service system featuring its Global Response Center that continually watches over customer equipment globally to ensure the equipment's safety. Yokogawa also ensures the traceability of measurement instruments as part of its quality assurance system. Yokogawa is an enterprise registered with Japan Calibration Service System (JCSS) for electricity, pressure, flowrate, and time.

■ Yokogawa QHSE Month

In 1960 in Japan, November was set as Quality Month by the Union of Japanese Scientists and Engineers, the Japanese Standards Association, the Japan Productivity Center, and the Japan Management Association. Yokogawa has continuously engaged in related activities during Quality Month.

Starting in 2018, we engage in an array of activities within the Group in November every year, having added occupational health and safety and environmental conservation, which are the foundation of management, to quality and renamed the month Yokogawa QHSE Month.

To instill the importance of quality, occupational safety and health, and environmental conservation in the minds of all employees, we have put up QHSE Month posters designed by an employee of a Group company. In addition to the quality-first mindset, we convey the thoughts of senior management regarding occupational safety and health, and environmental conservation to the employees of the Group in a QHSE Month message.
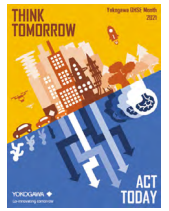
QHSE Month poster

■ Yokogawa QA Booklet

To maintain and improve quality, Yokogawa has prepared a QA Booklet that explains the attitude that is necessary during work every day in easy-to-understand terms. The booklet has been translated into five languages to facilitate implementation across the Group. Workers carry it at all times to ensure they maintain a quality-first mindset.

QA Booklet for manufacturing workers

Information

CONTENTS

Sustainability Data

Social Data

Item		2018	2019	2020	2021	2022
Number of Employees (persons)	Yokogawa Group	17,848	18,107	17,715	17,258	17,084
	Yokogawa Electric Co.	2,574	2,496	2,536	2,503	2,342
Women Managers Ratio (%)	Yokogawa Group	9.4	10.2	11.7	12.6	13.3
	Yokogawa Electric Co.	5.4	6.3	8.5	8.6	8.7
Women Employee Ratio (%)	Yokogawa Group	21.9	21.7	21.9	22.5	23.1
	Yokogawa Electric Co.	15.5	16.5	17.4	18.1	18.8
Disability Employment Rate in Japan (%)		2.27 (2019/6)	2.27 (2020/6)	2.40 (2021/6)	2.46 (2022/6)	2.52 (2023/6)
Collective Agreement Coverage(%)	Yokogawa Electric Co.	73.7	73.1	73.7	72.7	77.7

Environmental Data

Item		2018	2019	2020	2021	2022
Energy Consumption (In Japan, Outside Japan)	In Japan	684,085	632,217	623,618	641,173	567,187
	Outside Japan	854,898	831,180	758,685	745,515	750,264
	Total	1,538,983	1,463,397	1,382,303	1,386,688	1,317,451
	Intensity (GJ/100 million yen)	381	362	369	356	289
Renewable Energy (MWh)	Solar- and hydro-power	131	112	175	2,594	10,730
Greenhouse Gas (GHG) Emissions (t-CO_2e)	In Japan	34,447	30,745	29,850	28,331	25,127
	Outside Japan	49,439	48,025	42,966	42,155	41,958
	Total	83,886	78,770	72,816	70,486	67,085
	Intensity (t-CO_2e/100 million yen)	20.78	19.48	19.46	18.08	14.70
	Scope 1	15,015	14,000	11,727	12,015	15,390
	Scope 2	68,871	64,770	61,089	58,471	51,695

Item		Category	2021	2022
Supply Chain GHG Emissions (Scope 3) (t-CO_2e) A dash (—) indicates "not applicable."	Upstream	1 Purchased Goods & Service	225,275	272,104
		2 Capital Goods	24,926	25,997
		3 Fuel- and Energy-Related Activities Not Included in Scope 1 or 2	10,722	11,033
		4 Transportation & Distribution	15,055	16,032
		5 Waste Generated in Operations	1,055	1,119
		6 Business Travel	5,460	20,217
		7 Employee Commuting	3,448	4,208
		8 Leased Assets	—	—
	Downstream	9 Transportation & Distribution	—	—
		10 Processing of Sold Products	—	—
		11 Use of Sold Products	492,060	513,699
		12 End-of-Life Treatment of Sold Products	1,003	1,015
		13 Leased Assets	—	—
		14 Franchises	—	—
		15 Investments	—	—
		Total	779,004	865,424

Item		2018	2019	2020	2021	2022
Frequency Rate of Occupational Accidents (Number of accidents resulting in lost workdays / aggregate number of workhours × 1 million)	Employees	0.28	0.34	0.11	0.41	0.34
	Temporary and contract employees	0.46	0.28	0.00	0.23	0.32
Fatal Accidents	Employees	0	0	0	0	0
	Temporary and contract employees	0	0	0	0	0
Donations and Community Investments (million yen) — Activities	Cash contributions	194.3	184.4	229.7	199.5	177.8
	Time	1.7	1.0	0.6	0.7	0.5
	In-kind giving	7.4	45.9	4.1	12.7	3.5
	Management overheads	18.0	18.0	18.0	18.0	18.0
	Total	221.4	249.3	252.4	230.9	199.8
Donations and Community Investments (million yen) — In and outside Japan	In Japan	178.9	175.6	180.7	191.3	178.2
	Outside Japan	42.5	73.7	71.7	39.6	21.6
	Total	221.4	249.3	252.4	230.9	199.8

Item		2018	2019	2020	2021	2022
Water Withdrawal (m³)	In Japan	315,766	246,539	240,379	187,040	203,373
	Outside Japan	244,876	266,087	248,092	237,927	298,307
	Total	560,642	512,626	488,471	424,967	501,680
	Intensity (m³/100 million yen)	139	127	130	109	110
Water Dischargesl (m³)	In Japan	266,833	246,248	235,432	184,289	197,012
	Outside Japan	232,110	228,154	227,369	218,831	242,676
	Total	498,943	474,402	462,801	403,120	439,688
Waste Generated (t)	In Japan	2,566	2,414	1,977	2,530	2,203
	Outside Japan	2,624	2,499	2,406	2,162	2,310
	Total	5,190	4,913	4,383	4,692	4,513
	Intensity (t/100 million yen)	1.29	1.22	1.17	1.20	0.99
Non-Hazardous Waste (t)	Recycled	3,528	3,333	2,851	3,142	2,877
	Incinerated	126	393	481	434	393
	Landfilled	784	613	524	333	489
	Total	4,438	4,339	3,856	3,909	3,759
Hazardous Waste (t)	Recycled	—	—	—	708	546
	Incinerated	—	—	—	75	207
	Landfilled	—	—	—	0	1
	Total	752	574	527	783	754

Third-party Verification

To assure the reliability of sustainability information, Yokogawa has received an assurance for social and environmental data by a third-party organization (Lloyd's Register Quality Assurance Limited)

LRQA Independent Assurance Statement

Relating to Yokogawa Electric Corporation's Environmental and Social Data for the fiscal year 2022

This Assurance Statement has been prepared for Yokogawa Electric Corporation in accordance with our contract.

Terms of Engagement

LRQA Limited ("LRQA") was commissioned by Yokogawa Electric Corporation ("the Company") to provide independent assurance on its environmental and social data within its Sustainability Report 2023("the report") for the fiscal year 2022(from 1 April 2022 to 31 March 2023) against the assurance criteria below to a limited level of assurance and the materiality of the professional judgement of the verifier using ISAE 3000 (Revised) and ISO 14064-3:2019 for greenhouse gas ("GHG") emissions.

Our assurance engagement covered the Company's operations and activities in Japan and overseas and specifically the following requirements:

- Verifying conformance with the Company's reporting methodologies
- Evaluating the accuracy and reliability of data for only the selected indicators listed below:

  Environmental indicators:
  - Energy usage (GJ) [1]
  - Renewable energy usage(MWh)
  - GHG emissions [2] [3] (Scope 1, Scope 2 [Market-based] and Scope 3 [Category 3 and 5]) (tCO_{2e})
  - Water consumption (m^3) and Wastewater effluent volume (m^3)
  - Total waste generated (tonnes) and Total waste landfilled (tonnes)
  - Emission amount of VOC [4] (tonnes)

  Social indicators:
  - Frequency rate of occupational accidents [5]
  - Number of fatal accidents
  - Number of employees in the Industrial Automation and Control, Test and New businesses and other businesses
  - Female managers ratio to all managers (%)
  - Ratio of the overseas to total employees (%)
  - Number of registered / pending patents, designs, and trademarks (in Japan and overseas countries)

LRQA's responsibility is only to the Company. LRQA disclaims any liability or responsibility to others as explained in the end footnote. The Company's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of the Company.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that the Company has not, in all material respects:

- Met the requirements of the criteria listed above
- Disclosed accurate and reliable environmental and social data

[1] Indicates the primary energy equivalent under the Energy Conservation Law.
[2] GHG quantification is subject to inherent uncertainty.
[3] LRQA also reviewed the Company's 2022 fiscal year against its 2021 to confirm the year-on-year change in Scope 1 and 2 GHG emissions.
[4] (Production sites of YOKOGAWA group) toluene and xylene; (Production sites in Japan) 20 substances defined by 4 electrical and electronic organizations
[5] The number of occupational accidents with lost days in the boundary divided by total working hours (in the unit of million hours).

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The opinion expressed is formed on the basis of a limited level of assurance[6] and at the materiality of the professional judgement of the verifier.

LRQA's Approach

LRQA's assurance engagements are carried out in accordance with ISAE 3000 (Revised) and ISO 14064-3:2019. The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- Auditing the Company's data management systems to confirm that there were no significant errors, omissions or misstatements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification.
- Interviewing with those key people responsible for compiling the data and drafting the report.
- Sampling datasets and traced activity data back to aggregated levels;
- Verifying the environmental and social data and records for the fiscal year 2022; and
- Visiting Komine factory of Yokogawa Manufacturing Corporation to confirm the data collection processes, record management practices, and to physically check their facilities

Observations

The Company is expected to make its data aggregate calculation process automatic possibly can.

LRQA's Standards, Competence and Independence

LRQA implements and maintains a comprehensive management system that meets accreditation requirements for ISO 14065 *Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* and ISO/IEC 17021-1 *Conformity assessment – Requirements for bodies providing audit and certification of management systems – Part1: Requirements* that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants.

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LRQA is the Company's certification body for ISO 9001 and ISO 45001. We also provide the Company with a range of training services related to management systems. The verification and certification assessments, together with the training, are the only work undertaken by LRQA for the Company and as such does not compromise our independence or impartiality.

Signed   Dated: 18 June 2023

Yoshinori Shibata
LRQA Lead Verifier
On behalf of LRQA Limited
10th Floor, Queen's Tower A, 2-3-1 Minatomirai, Nishi-ku, Yokohama, JAPAN
LRQA reference: YKA4005469

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[6] The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

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Company Profile

▶ **Corporate Name:**   Yokogawa Electric Corporation

▶ **President and CEO:**   Hitoshi Nara

▶ **Headquarters**   2-9-32 Nakacho, Musashino-shi, Tokyo 180-8750, Japan

▶ **Founded:**   September 1, 1915

▶ **Incorporated:**   December 1, 1920

▶ **Paid-in Capital:**   43,401 million yen

▶ **Number of Employees:**   17,084 (Yokogawa Group)   2,342 (Yokogawa Electric Co.)

▶ **Subsidiaries and Affiliates:**   115 outside Japan, 13 in Japan

(as of March 31, 2023)

Editorial Policy

This report discloses information about the sustainability of the Yokogawa Group. This information is based on the GRI Standards, the global guidelines for the disclosure of sustainability information, and includes the disclosure of Yokogawa's priority issues in view of the opinions of its stakeholders. Further, Yokogawa has obtained external assurance to increase the reliability of the information.

　This fiscal year, we have expanded the "Our Stories" section to present several of Yokogawa's unique initiatives across six contribution areas to contribute to solving social issues and to achieve corporate growth. Yokogawa also promotes engagement with its diverse stakeholders, and we have presented specific examples of these initiatives. In addition, we have expanded our disclosure of efforts to reduce greenhouse gas emissions and conserve biodiversity, as well as disclosures related to the Sustainability Committee.

　Please see the Yokogawa Report (Annual Report) for financial information and ESG information closely related to our business strategies. The GRI Standards Index is shown on our website.

▶ **Period Covered by Report**
FY2022 (April 1, 2022 to March 31, 2023)
This Report also includes some information on major activities in prior years and some of the latest information in FY2023.

▶ **Scope of Report**
Yokogawa Electric Corporation and its consolidated subsidiaries in Japan and overseas
Where the scope is different, a note is added to the relevant data.

▶ **Timing of Publication**
November 2023 (published annually)

▶ **Intended Readership**
This Report is intended for a wide range of stakeholders, including customers, shareholders, investors, business partners, employees, local communities, NPOs, NGOs, and governments.

▶ **Company Names**
In this Report, "Yokogawa" and "Yokogawa Group" refer to Yokogawa Electric Corporation and its consolidated subsidiaries in Japan and overseas.
"Yokogawa Electric" and "Yokogawa Electric Corporation" refer to Yokogawa Electric Corporation.

▶ **Reference Guidelines**
・GRI Standards (Global Reporting Initiative)
・Environmental Reporting Guidelines 2018 (Ministry of the Environment, Japan)