MOVE THE WORLD FORWARD MITSUBISHI HEAVY INDUSTRIES GROUP

MHI REPORT 2024

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MITSUBISHI HEAVY INDUSTRIES GROUP INTEGRATED REPORT

For the Year Ended March 31, 2024

MITSUBISHI HEAVY INDUSTRIES

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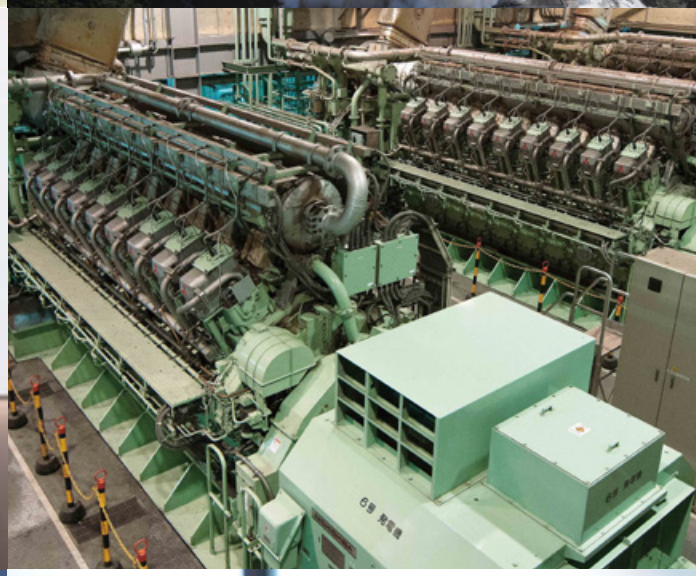
Forecasts regarding future performance in these materials are based on judgments made in accordance with information available as of September 2024. As such, these projections involve risks and uncertainties. Also, the results projected here should not be construed in any way as being guaranteed by the Company. For this reason, investors are recommended not to depend solely on these projections for making investment decisions.

It is possible that actual results might differ significantly from these projections for a number of factors. Such factors include, but are not limited to, economic trends affecting the Company's operating environment, currency movement of the yen value to the U.S. dollar and other foreign currencies, and trends of stock markets in Japan.



Cover

Launch of domestically produced H3 Test Flight No. 2 (February 2024)

In 2014, we began developing the H3 as Japan's flagship rocket to succeed the H-IIA. MHI, as the development prime contractor and post-development launch service provider, has been developing the airframe system in collaboration with the Japan Aerospace Exploration Agency (JAXA). The Test Flight No. 2 was successfully launched in February 2024.

About MHI REPORT 2024

Purpose of This Report

Mitsubishi Heavy Industries (MHI) Group aims to achieve growth by contributing to the development of society by responding to current and future issues and needs with a variety of technologies, based on our corporate philosophy set forth in Our Principles.

To help shareholders, investors, and other stakeholders better understand our philosophy, we have published this MHI REPORT as an integrated report that provides financial information, including management strategies and operating performance, as well as non-financial information, such as management resources, corporate governance, and risk management that support our strategies and performance, and the Group's environmental and social activities since fiscal year ended March 2014 (FY2013).This report has been edited with reference to the International Integrated Reporting Framework by the IFRS Foundation and the Guidance for Collaborative Value Creation 2.0 by the Ministry of Economy, Trade and Industry of Japan.

Reporting period: April 1, 2023–March 31, 2024 (includes information about some activities after this target period)
Organizations: Mitsubishi Heavy Industries, Ltd. and its consolidated subsidiaries

Main Points about MHI REPORT 2024

In May 2024, we announced our new medium-term business plan, called the 2024 MTBP. This MHI REPORT has been updated to coincide with the launch of the 2024 MTBP and offers enhanced content.

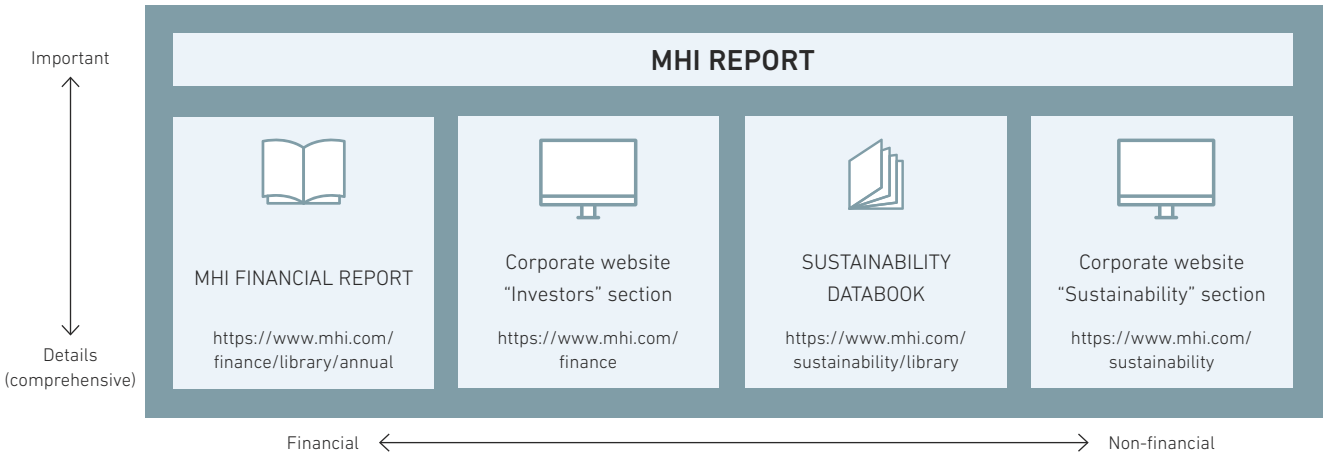
The opening "A Message from the CEO" describes our values and raison d'etre and explains the path to the society we envision. The subsequent "A Message from the CFO" explains the financial strategies and goals of the 2024 MTBP, as well as our new dividend policy.

There are two special features, the first of which focuses on the 2024 MTBP. An introduction to our plan to strengthen portfolio management is followed by a conversation between our CSO, who is responsible for formulating the business plan, and Professor Masatoshi Fujiwara of Hitotsubashi University's Graduate School of Business Administration regarding the 2024 MTBP and the future direction of MHI Group. The second special feature continues the theme of MISSION NET ZERO from the previous year. It showcases our business strategy and technology development aimed at contributing to realize a carbon-neutral society, including the initiatives of GX Solutions, a new business segment that was established in April 2024.

Furthermore, the report explains the corporate governance, sustainability, and risk management systems and approaches that support our sustainable growth. We also expanded the HR-related content and provide a detailed explanation of our HR strategy under the title "MHI Group's HR Strategy: Launching the Future" aimed at realizing our business strategy.

Information Disclosure System

This MHI REPORT contains information that is important for readers to better understand MHI Group.
For more detailed information, please visit our corporate website.
https://www.mhi.com/finance



Philosophy

The Three Principles of Mitsubishi Group

This is the common philosophy of Mitsubishi Group established by Koyata Iwasaki, the fourth president of Mitsubishi. It represents the spirit that has been handed down continuously throughout Mitsubishi's history.

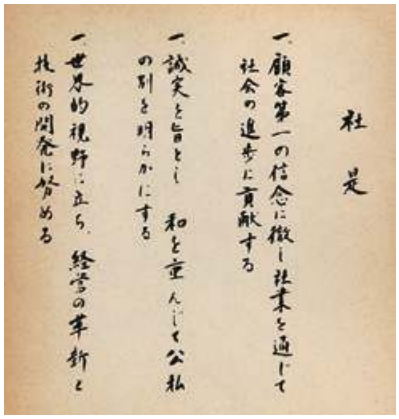
"Shoki Hoko" Corporate Responsibility to Society	Strive to enrich society, both materially and spiritually, while contributing towards the preservation of the global environment.
"Shoji Komei" Integrity and Fairness	Maintain principles of transparency and openness, conducting business with integrity and fairness.
"Ritsugyo Boeki" Global Understanding through Business	Expand business, based on an all-encompassing global perspective.

Our Principles

Established on the 100th anniversary of Mitsubishi's founding, Our Principles are a concise expression of the Three Principles of Mitsubishi Group from the three perspectives: the basic stance of MHI, the mindset of our employees, and the future direction to which MHI should aspire.

Formulated on June 1, 1970

1. We deliver reliable and innovative solutions that make a lasting difference to customers and communities worldwide.
2. We act with integrity and fairness, always respecting others.
3. We constantly strive for excellence in our operations and technology, building on a wide global outlook and deep local insights.



Mission

Announced on October 30, 2020

Combine cutting-edge technology with many years of expertise to provide solutions to the evolving challenges facing the world while enriching people's lives

History

MHI Group is one of the world's leading industrial groups, spanning energy, smart infrastructure, industrial machinery, aerospace and defense. We combine cutting-edge technology with deep experience to deliver innovative, integrated solutions that help to realize a carbon-neutral world, improve the quality of life and ensure a safer world.

1884–1945

Evolution from a foundation in shipbuilding to the manufacture of transportation infrastructure

In 1884, our founder, Yataro Iwasaki, leased the Nagasaki Shipyard from the Meiji government and began the business. Leveraging its technological expertise, including from the production of Japan's first iron steamship, MHI diversified its business by expanding into various machinery, such as turbines, internal combustion engines, aircraft, and automobiles. In that era of global uncertainty, the most advanced technology of the time was being used for military purposes.

1946–1963

Shift to producing consumer goods to support postwar reconstruction

After the war, MHI shifted its focus to the development and manufacture of various consumer products to support Japan's reconstruction. In 1950, MHI was split into three entities under the GHQ policy to dissolve Japan's largest conglomerates. This enabled us to further expand and diversify our product lines and enhance our technological competitiveness. It also laid the foundation for MHI to grow into a leading player in heavy industry.

1870

Origin of Mitsubishi

Tsukumo Shokai

Yataro Iwasaki

MHI's first president

1884

Nagasaki Shipyard

Establishment

1873 Mitsubishi Shokai

1875 Mitsubishi Steamship Co. Mitsubishi Mail Steamship Co.

Foundation

1886 Mitsubishi Sha

1893 Mitsubishi Goshi Kaisha

1907 Shipbuilding Division of Mitsubishi Goshi Kaisha

1917 Mitsubishi Shipbuilding & Engineering Co., Ltd.

1920 Mitsubishi Internal Combustion Engine Manufacturing. Co., Ltd.

1921 Mitsubishi Electric Manufacturing Co., Ltd.

1921 Mitsubishi Internal Combustion Engine Co., Ltd.

1928 Mitsubishi Aircraft Co., Ltd.

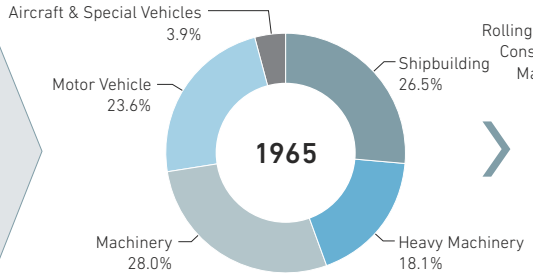
1908
Made shipbuilding history with the construction of *Tenyo Maru*, Japan's first passenger ship exceeding 10,000 gross tons

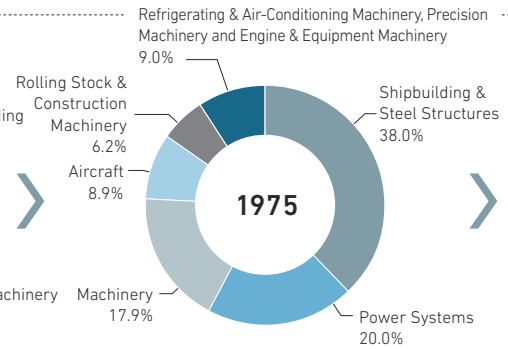
1908
Manufacture of Japan's first steam turbine

1939
Successfully completes the "Nippon" round-the-world goodwill flight

1970
Kansai Electric Power's Mihama Unit 1 (PWR nuclear power plant) begins operation

Evolving Business Portfolio (from 1965)





1964–1999

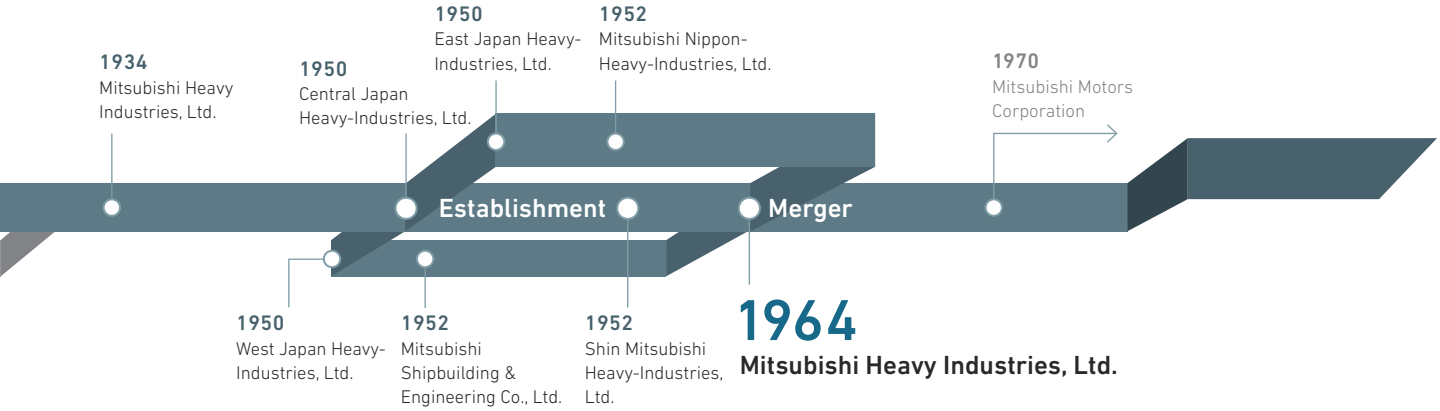
Entry into large-scale project development following the reunification

In 1964, MHI completed the reunification of its former companies, resulting in the birth of the new Mitsubishi Heavy Industries. By addressing the soaring energy demand and robust private-sector investment, we supported Japan's ensuing period of rapid economic growth. Subsequently, faced with a severe downturn in the shipbuilding industry, we focused on growth areas, such as power systems and aviation, while pursuing global expansion as a means of finding new opportunities abroad. We also leveraged our advanced technologies to enter the space development sector, ushering in a new era.

2000–

Contribution to a sustainable society

To meet the challenge of balancing growing energy demand with the need to reduce environmental impact, we provide a range of products and solutions, including the world's most efficient gas turbines, nuclear power plants, and CO_2 capture systems. In these ways, we help realize a sustainable society. In 2021, we announced our Carbon Neutrality declaration, MISSION NET ZERO.

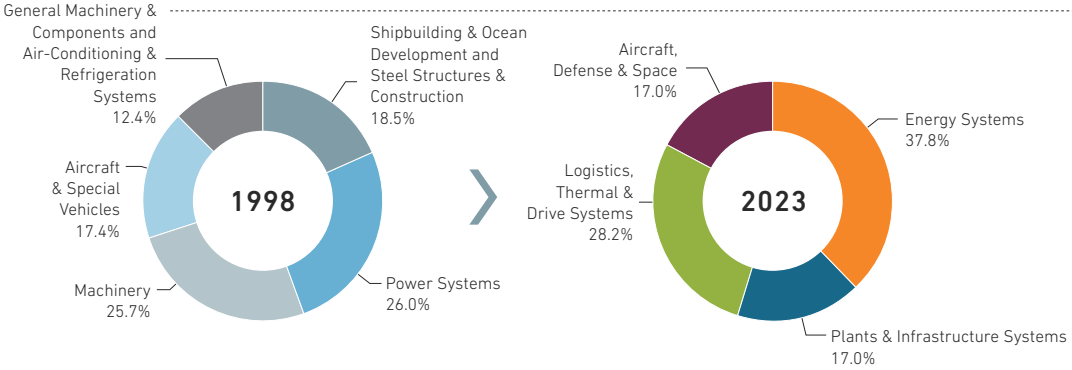


1986
Successful launch of first H-I rocket

2011
World's most-efficient J-series gas turbine achieves record turbine inlet temperature of 1,600°C during demonstration test

2016
World's largest CO_2 capture plant (for enhanced oil recovery) completed in the U.S.

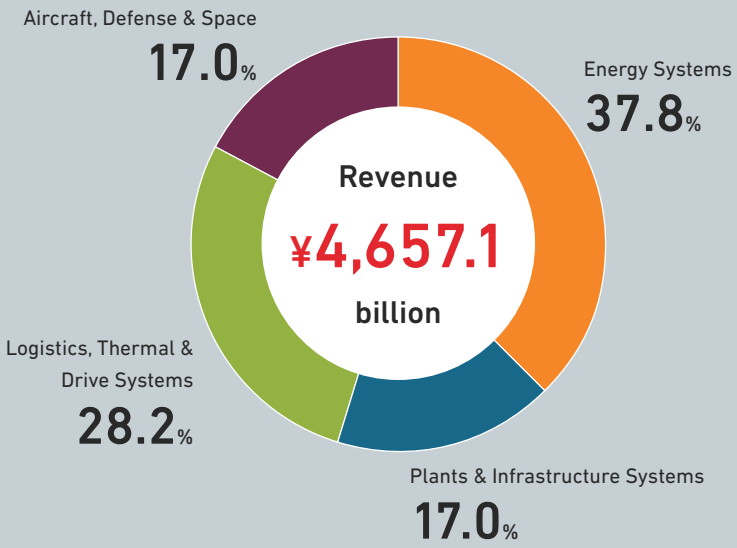
2019
Doha Metro, a fully automated unmanned urban rail system, begins operation in Qatar



Group Profile

MHI Group manages its operations through three business domains and five segments. We have grouped these business domains and segments based on the similarity of their respective customers and product characteristics into four reporting segments: Energy Systems; Plants & Infrastructure Systems; Logistics, Thermal & Drive Systems; and Aircraft, Defense & Space.

Composition of Revenue by Segment (FY2023)



Number of Employees
77,697 people

Number of Group Companies (consolidated)
257

R&D Expenses
178.3 billion

Number of Patents Held
26,158

(As of March 31, 2024)

Energy Systems

Main Businesses

- Gas & steam power systems*
- Nuclear power systems
- Aero engines
- Compressors
- Marine machinery

*Includes GTCC, steam power, and air quality control system

Plants & Infrastructure Systems

Main Businesses

- Metals machinery
- Commercial ships
- Environmental systems
- CO_2 capture systems
- Engineering
- Machinery systems

Logistics, Thermal & Drive Systems

Main Businesses

- Material handling systems
- Engines
- Turbochargers
- HVAC systems
- Automotive air conditioners

Aircraft, Defense & Space

Main Businesses

- Commercial aviation
- Defense aircraft
- Missile systems
- Naval ships
- Maritime systems (torpedoes)
- Land systems (tanks)
- Space systems

Internal Organizations and Major Subsidiaries

Energy Systems

Nuclear Energy Systems

- Mitsubishi Heavy Industries Aero Engines, Ltd.
- Mitsubishi Heavy Industries Compressor Corporation
- Mitsubishi Heavy Industries Marine Machinery & Equipment Co., Ltd.

Internal Organizations and Major Subsidiaries

Plants & Infrastructure Systems

GX Solutions

Machinery Systems

- Primetals Technologies, Limited
- Mitsubishi Shipbuilding Co., Ltd.
- Mitsubishi Heavy Industries Environmental & Chemical Engineering Co., Ltd.
- Mitsubishi Heavy Industries Machinery Systems, Ltd.

Internal Organizations and Major Subsidiaries

Logistics, Thermal & Drive Systems

- Mitsubishi Logisnext Co., Ltd.
- Mitsubishi Heavy Industries Engine & Turbocharger, Ltd.
- Mitsubishi Heavy Industries Thermal Systems, Ltd.

Internal Organizations and Major Subsidiaries

Commercial Aviation Systems

Integrated Defense & Space Systems

- MHI RJ Aviation Inc.

A Message from the President & CEO

TOWARDS A SAFE, SECURE, & SUSTAINABLE FUTURE

Leveraging our manufacturing expertise to address changing societal issues, we will help realize a safe, secure, and sustainable society.

Seiji Izumisawa
President & CEO

Embracing Different Values and Moving Forward Together

In FY2023, global uncertainty persisted as a new conflict erupted in the Palestinian territories while the situation in Ukraine remained at a standstill. In Japan, the Nikkei 225 reached record highs, but the depreciation of the yen continued to unprecedented levels. It was a year of significant changes, but two key observations stand out overall. The first is that the values and norms that shaped our postwar world are wavering, leading to divisions and widening inequality in various areas, and suggesting that human history has reached a critical turning point. Second, it is important to recognize and embrace new, increasingly diverse values, rather than to try to make things conform to one particular standard. If we all do not make an effort to recognize views that differ from our own, human society will not last. I find myself greatly concerned by this lately.

Making an Ongoing Contribution to the World

MHI Group has a core value that has remained steadfast throughout the ages: the determination to dedicate our resources—technological, human, and otherwise—to resolve issues confronting global society and help realize a safe, secure, and sustainable society. This is our true purpose as an organization.

I would like to share a personal story that illustrates this core value. In the past, MHI Group participated in the project to construct the International Space Station (ISS). It was a collaborative project involving the United States, Japan, Canada, several European countries, and Russia, with our Group participating as a member of the Japanese team. I was on the front lines of the project as an engineer, and I still vividly remember how the various Japanese companies set aside competition to truly function as "Team Japan." We discussed and exchanged ideas on how best to create value together. My senior colleagues and I approached our work not from the perspective of our own company's interests, but with a broader view—focusing on what was best for Japan and the world as a whole.

Always considering the bigger picture in our work is ingrained in MHI Group's corporate culture. This is precisely why we have been able to tackle large-scale issues related to energy, the environment, and infrastructure over the years. As we engage in business, we continually reflect on what is expected of us and what role we should play in creating a safe, secure, and sustainable society. I am committed to repeatedly communicating the Group's purpose and values to our employees worldwide, so we can continue developing the corporate culture we have inherited from our forebears.

Commitment to MISSION NET ZERO

In our MISSION NET ZERO declaration of 2021, we set the goal of achieving Carbon Neutrality by 2040. But why 2040? It is because we determined that, for our customers who use our products and services to achieve Carbon Neutrality by 2050, the Group must realize the necessary technologies 10 years before then.

So far, we have been able to reduce our Scopes 1 and 2 CO_2 emissions generally in line with the plan. As we move forward, however, achieving Carbon Neutrality will require considerable investment, and we will need to accelerate our efforts to meet this challenge. One key initiative is the Advanced Carbon Neutrality Project at Mihara Machinery Works. During this project, we are working to decarbonize Mihara Machinery Works by electrifying heat sources, conserving energy, and installing solar panels. We will apply the techniques developed during this project to other plants across MHI Group to help them become carbon neutral as well.

Reducing MHI Group's Scope 3 emissions will greatly contribute to the realization of global Carbon Neutrality.

We have nearly completed the technical groundwork for fuel conversions of thermal power plants to hydrogen and ammonia, as well as for CO_2 capture. Achieving decarbonization on a societal scale, however, will require mechanisms whereby the necessary cost burden is shared across society. To successfully develop such a mechanism, we will need to build long-term partnerships with both upstream and downstream partners within the various value chains. To ensure that our partners recognize us as a trustworthy counterpart, we must present our technological capabilities and ideas in a tangible way. Accordingly, we will conduct research and validation testing at the aforementioned Mihara Carbon Neutral Plant, as well as Takasago Hydrogen Park and Nagasaki Carbon Neutral Park, and use the results of these efforts to create real-world decarbonization solutions.

For more information, please refer to "Special Feature: MISSION NET ZERO" (PP38-49).

2021 MTBP: Building Strong Business and Financial Foundations

During the 2021 Medium-Term Business Plan (MTBP) period, our outlook was highly uncertain due to the COVID-19 pandemic, which was followed by material cost inflation and semiconductor shortages. For this reason, we paused our previous strategy, which focused on volume expansion, and instead worked to strengthen profitability. As a result, we successfully built strong business and financial foundations, posting record-high results in orders received, revenue, and business profit in FY2023. We attribute this achievement to the hard work of each and every employee and the support of our stakeholders, including our partner companies. I would like to express my sincere gratitude to everyone involved.

However, we did not achieve the desired results in some areas. Perhaps we could have raised our profit margin a step higher or done more to improve productivity. Although external factors beyond our control often posed challenges, there are undoubtedly areas where our own efforts could have led to better outcomes. Since becoming President, I have consistently encouraged our employees

to approach their work with a sense of ownership, taking responsibility and initiative rather than simply doing what they are told. Five years have passed, and I feel that this mindset has taken root within our organization. However, there is still much more we can do. I encourage our employees to embrace the challenge of achieving even greater results under the 2024 MTBP without becoming complacent with the successes of the 2021 MTBP. I trust that they will maintain a healthy sense of urgency, taking pride and enjoyment in the journey to reach new heights.

Launch of 2024 MTBP

Although we achieved record-high results and successfully built strong business and financial foundations during the last MTBP period, we are still not at the same level as our global competitors. We must also note that some of our products have already entered the maturity phase of their life cycles.

Taking all these factors into consideration and after extensive discussions, we formulated the 2024 MTBP, which emphasizes a robust framework aimed at ensuring sustained growth. This framework has three focus areas: Ensure steady performance in growing core businesses where growth is expected, Commercialize future growth areas to lay the groundwork for future success, and Enhance our businesses' competitiveness to boost profitability. In this way, we aim to strengthen and evolve our approach to business portfolio management.

MHI Group offers a wide range of products, which are used by customers all over the world. Rather than developing business strategies and growth forecasts that are solely focused on our own interests, we aim to build a business structure that ensures the sustainable growth of the Group while fulfilling our responsibilities to our customers. We have articulated this approach as MHI Group's new portfolio management strategy.

Going forward, we will develop optimal strategies in the three aforementioned focus areas—Ensure steady performance in growing core businesses, Commercialize future growth areas, and Enhance our businesses' competitiveness—and chart a clear path to sustained growth. In our growing core businesses, we will target resource allocations on business expansion. In our future growth areas, as well, we will make steady progress in considerations regarding business opportunities and execute up-front investments in multiple initiatives, including CO_2 capture and electrification, with the aim of further commercialization and upscaling in these areas. Furthermore, under the 2024 MTBP, we will leverage the business foundation established under the 2021 MTBP to generate stable cash flow, which we will strategically allocate to investments in our future, dividends to shareholders, and compensation for employees. Through these measures during the 2024 MTBP period, we aim to take our organization to the next level by achieving both business growth and stronger profitability.

▶ For more details, please refer to "Special Feature: 2024 MTBP" (PP26-37).

Contributing to Stable Energy Supplies and National Security

One of the initiatives within our plan to ensure steady performance in growing core businesses is to contribute to stable energy supplies. MHI Group has consistently advocated for a gradual transition to Carbon Neutrality through efficiency improvements and conversions to low- and zero-carbon fuels at existing facilities. In the past, however, we had often heard extreme views, such as those advocating that not only coal-fired thermal power, but indeed all forms of thermal power, should be phased out and replaced by renewable energy. However, more realistic solutions are now being considered, and thinking has shifted. There is now a broader recognition that a phased approach to decarbonization tailored to the situation in each region—rather than a one-size-fits-all approach—is needed. We take pride in the fact that our proposals for achieving Carbon Neutrality, which are aligned with current needs, are resonating. We are committed to leveraging our technologies and experience to provide decarbonization solutions that ensure stable energy supplies.

Another key initiative related to our growing core businesses is our contribution to national security. As a leading company in Japan's defense industry, we have a responsibility to follow national policies and ensure that we support our country's security needs. The Group has worked in the defense sector for many years, contributing to Japan's peace and security. In light of recent changes in the security environment, Japan is reassessing its defense policies. We remain committed to consistently meeting the expectations placed upon us, as we have done in the past.

Strengthening Human Capital

As part of our efforts to strengthen human capital, we are promoting mid-career recruitment, implementing an internal job posting system to facilitate employee transfers, and actively recruiting women and international talent. In addition, we are enhancing our training programs and expanding our investment in education with the aim of cultivating more than 20,000 Digital Innovation (DI)-proficient personnel by 2030.

Looking to the future, in this time of VUCA,* we expect the makeup of society and the issues facing us to become even more complex. In such an environment, finding solutions to various challenges requires not only the ability to solve existing problems but, more importantly, the ability to identify what the problems are in the first place. With this in mind, we are actively reviewing and enhancing our education programs and the career paths we offer.

*VUCA: volatility, uncertainty, complexity, and ambiguity

▶ For more details, please refer to "MHI Group's HR Strategy: Launching the Future" (PP86-93).

Advantage of Providing Diverse Product Technologies

MHI Group is a manufacturer with a diverse range of product technologies. We possess numerous technologies and have established a system and tradition for applying these technologies across various products. We also have shared platforms that span our diverse product lines and encompass human resources, technological expertise, and manufacturing infrastructure, including service capabilities. These are a significant strength of the Group and apply a premium to our corporate value as we work to create new products.

One example related to this is our investigation into the cause of the failure of H-II Launch Vehicle No. 8 in 1999. We started by recovering the rocket engine from a depth of 3,000 meters on the ocean floor. Members from our research institute who specialized in structural integrity engineering for ships and nuclear energy systems joined the team and contributed significantly to identifying the cause of the failure. The investigation laid the foundation for new structural design standards of rocket engines, leading to the high success rate of the current H-IIA Launch Vehicle and paving the way for the development of the H3 Launch Vehicle. In this way, we successfully applied technologies related to shipbuilding—a business we have pursued since our founding—to the cutting-edge field of aerospace. Our ability to apply the Group's exceptional technologies and human capital in various other business and product areas is one of our greatest strengths. Advanced technologies will continue to evolve over time, but I believe that the Group's shared platforms will remain a powerful, premium asset.

Becoming a Hub Driving Societal Transformation

Amid advances in AI and other digital technologies, the need to create value in cyberspace is gaining increased attention. However, the importance of the physical world where people live has not diminished. In the real world, power plants and transmission networks are essential for supplying energy. The increasing use of AI is expected to further drive up power consumption. While mobility and logistics are indispensable to modern life, the infrastructure that supports them is also important. In this evolving society, the Group will leverage our core strengths in manufacturing to address various challenges, support people's lives, and contribute to societal transformation.

Moreover, simply manufacturing and delivering products, as we have traditionally done, is insufficient to sustain a business and often fails to create new value. As reflected in our ΣSynX (Sigma SynX) automation and intelligence platform, we will create new systems to intelligently connect machines and provide these systems to our customers. Demand for such solutions is likely to grow, and we believe we will be able to develop new business models in this area.

As society has become more complex, the challenges and needs across different regions, countries, and customers have come to vary significantly. To provide realistic solutions in this context, we are not tackling these challenges alone. Instead, we are expanding our business both upstream and downstream within value chains, while also building ties with like-minded partners to address these issues together. In the case of CO_2 capture, for example, a complete value chain—from capture and transportation to utilization or storage—must be established before carbon capture can be implemented at scale. For hydrogen, as well, it is essential to create a framework for sharing technologies and costs. MHI Group seeks to become a central hub to connect the upstream and downstream segments of these value chains, thus completing the chains and allowing them to operate effectively.

Providing Society with Peace of Mind Based on Relationships of Trust

MHI Group has for many years sought to help realize a safe, secure, comfortable, and sustainable society. Safety can be evaluated quantitatively, but security is difficult to consider objectively, as it depends on people's subjective emotions. I believe that the basis for providing a sense of security lies in the relationships of trust we build. We aspire to be a corporate group that society trusts—we aim for people to feel secure knowing that MHI Group is involved and have confidence in a given subject simply because MHI Group is the one explaining it. Accordingly, we will continue working with sincerity in each of our businesses, one step at a time. We appreciate the continued understanding and support of our stakeholders.

A Message from the CFO

We aim to further enhance corporate value by continuously improving our business portfolio.

Hisato Kozawa
Executive Vice President and CFO

Review of the 2021 MTBP

When we formulated the 2021 Medium-Term Business Plan (MTBP) in FY2020, our performance had declined due to the COVID-19 pandemic. This was preceded by significant losses related to SpaceJet in FY2019. Consequently, the market had a negative view of MHI, and some credit rating agencies downgraded our rating.

As CFO, I recognized that restoring our financial health was our most important priority, so I focused on formulating and executing the 2021 MTBP accordingly. First, we sold fixed assets and strategic shareholdings, using the proceeds to pay down interest-bearing debt. As a result, we were able to substantially reduce debt and improve our debt-to-equity ratio, thereby enhancing our financial soundness.

Another major priority was to strengthen profitability. We set specific targets, such as a business profit margin of 7% and a return on equity (ROE) of 12%. Although we fell slightly short of these targets, we made significant gains in profitability-related indicators.

On the financial side, therefore, we made good progress in restoring profitability under the 2021 MTBP and improved financial soundness beyond our initial expectations, laying a solid foundation for expanding investments in future growth areas under the 2024 MTBP.

Evolution of Financial Indicators over Time

	FY2020 (Result)	FY2023 (Result)	FY2026 (Plan)
Revenue	¥3.7 tr	¥4.6 tr	≥¥5.7 tr
Business Profit	¥54.0 bn	¥282.5 bn	≥¥450.0 bn
Business Profit Margin	1.5%	6%	≥8%
ROE	3.1%	11%	≥12%
Total Assets	¥4.8 tr	¥6.3 tr	¥6.3 tr
Total Asset Turnover	0.8	0.8	0.9
Debt/EBITDA Ratio	4.7x	1.7x	≤1.7x
Dividend per Share[1]	¥7.5	¥20	¥26

1 Historic dividends shown here retroactively adjusted to 1/10 original value to reflect 10-for-1 stock split effective April 1, 2024

Basic Financial Policies of the 2024 MTBP

Under the 2024 MTBP, we have the set the following numerical targets: revenue of ¥5.7 trillion or higher, business profit of ¥450 billion or higher, and ROE of 12% or higher. Regarding shareholder returns, we adopted the dividend on equity (DOE) ratio as a new key performance indicator (KPI) under our dividend policy aimed at steadily increasing dividends over the medium and long terms. Recognizing that our cost of equity is approximately 8%, we have set a DOE target of 4% or higher, with the aim of consistently returning more than half of our capital costs to shareholders.

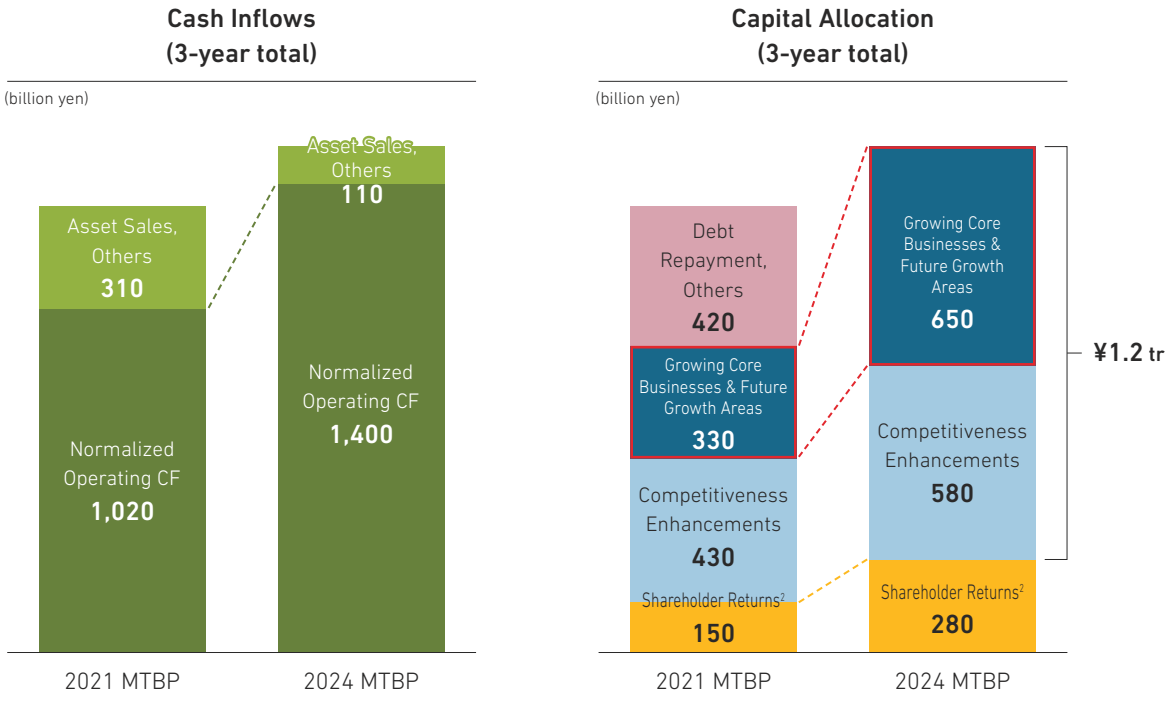
In the three-year period of the 2021 MTBP, we generated ¥1,330 billion in cash inflows (¥1,020 billion from normalized operating cash flow and ¥310 billion from asset sales and other sources). Of this, we allocated ¥420 billion to repayment of interest-bearing debt. As investments in our businesses, we allocated ¥330 billion to growing core businesses and future growth areas and ¥430 billion to

enhancing the competitiveness of our other businesses. In addition, we returned ¥150 billion to shareholders.

Under the 2024 MTBP, we will build on the profitability that we strengthened under the 2021 plan. Specifically, we project total cash inflows of ¥1.51 trillion (¥1.4 trillion from normalized operating cash flow and ¥110 billion from asset sales and other sources). Of this, we will allocate ¥650 billion to growing core businesses and future growth areas, ¥580 billion to enhancing the competitiveness of our other businesses, and ¥280 billion to shareholder returns.

Compared with the 2021 MTBP, we will increase investments by 60% or more under the new plan. We trust that stakeholders will see this as a clear demonstration of our commitment to aggressively pursue strategic up-front investments to drive future growth. We also aim to nearly double shareholder returns compared with the previous plan. While this capital allocation includes a certain amount set aside for business acquisitions, the actual scale of such cash outflows could vary significantly. We intend to maintain strict financial discipline by responding appropriately to fluctuations in demand for capital.

Capital Allocation Plan



2 Includes dividends to non-controlling interests

Must-Achieve Target: ROE of 12% or Higher

In FY2023, the final year of the 2021 MTBP, we strove to reach an ROE of 12%, a major target under that plan. However, due to an increase in shareholders' equity stemming from foreign exchange effects and the mark-to-market valuation of securities and other assets, we posted an ROE of 11%, falling just short of the target. Under the 2024 MTBP, we are targeting an ROE of 12% or higher. In terms of capital efficiency, we also monitor and evaluate performance using metrics such as return on invested capital (ROIC). However, we place particular emphasis on ROE, which is a key indicator directly linked to our stock price and price-to-book ratio (PBR). Given current market expectations and valuations, our ROE is not yet at a satisfactory level. Nevertheless, management is determined to enhance corporate value by focusing our efforts on achieving an ROE of 12% or higher.

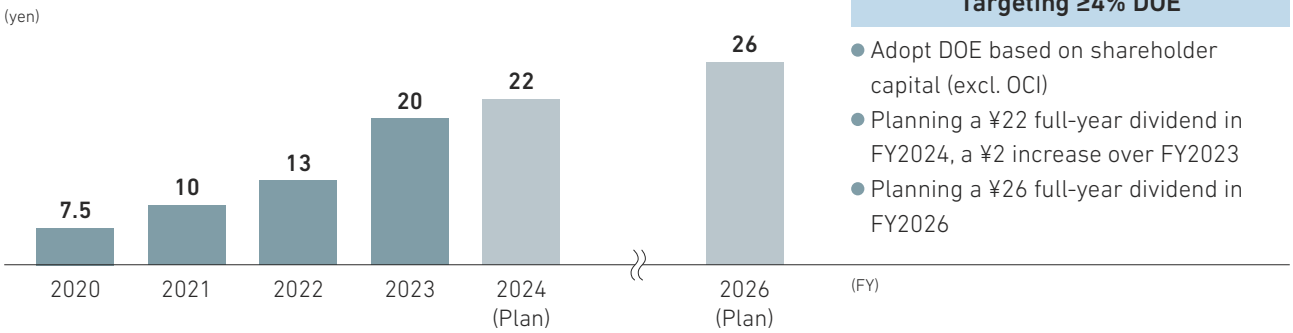
Adoption of DOE-Based Dividend Policy

In the 2024 MTBP, we have adopted a dividend policy based on the DOE ratio[3]. We recognize that dividends are the foundation of shareholder returns, so adopting the DOE ratio enables us to clarify our criteria and rationale for determining future dividend amounts.

As a dividend policy, many companies use a set percentage of net income (dividend payout ratio) as the basis for determining dividend amounts. At MHI Group, we have used a dividend payout ratio of 30% as our guideline for some time. However, because net income fluctuates widely from year to year and there are often discrepancies between forecasts and actual results, a payout ratio offers lower predictability for future dividends. There are various ways to address this problem, such as committing to a progressive dividend with specific targets. However, observing the trends of other companies that have implemented progressive dividends, they typically set time limits of around three to five years, making it challenging to establish this approach in the long term. Taking these points into account, we considered ways to both increase dividends in line with profit growth while paying stable dividends with high predictability, and came to the conclusion that a DOE-based approach would be better. In calculating the actual dividend amount, it is reasonable to use shareholders' equity excluding foreign currency translation adjustments and other items, such as unrealized gains and losses (other comprehensive income, or OCI) to increase predictability without being subject to short-term market fluctuations. The standard we use is 4% or more of OCI-adjusted shareholders' equity.

For FY2024, we currently plan to pay a total full-year dividend of ¥22 per share, up ¥2 year-on-year, and ¥26 per share in FY2026, the final year of the 2024 MTBP. Looking further ahead, when we reach the next stage of improved profitability and asset efficiency, we will consider raising the DOE benchmark.

Annual Dividend per Share[4]



Targeting ≥4% DOE

- Adopt DOE based on shareholder capital (excl. OCI)
- Planning a ¥22 full-year dividend in FY2024, a ¥2 increase over FY2023
- Planning a ¥26 full-year dividend in FY2026

3 DOE: Dividends paid ÷ Shareholders' equity (excluding OCI)

4 A stock split was enacted on April 1, 2024. To facilitate comparison, dividends through FY2023 are shown here retroactively adjusted to reflect the stock split.

Efforts to Improve Asset Efficiency

Although our debt-to-equity (D/E) ratio (the ratio of interest-bearing debt to net assets) at the end of the 2021 MTBP period was satisfactory, we believe there is still room for improvement given the overall size of our balance sheet. Due to the unavoidable disruptions in the supply chain caused by the COVID-19 pandemic, we were forced to maintain higher levels of inventory and raw materials, which caused our inventory assets to increase. Additionally, the yen's depreciation led to an increase in the valuation of foreign currency-denominated assets. In a sense, these assets can also be viewed as a source of potential risk.

With this in mind, the 2024 MTBP is ambitious because it focuses on increasing profits without expanding total assets. To achieve this, our business units will work to reduce asset volumes by shortening production lead times, optimizing inventory levels, and improving payment terms. In parallel, our finance and accounting departments will take the lead in managing overall operations with a focus on improving asset efficiency.

Stock Valuation

When I became CFO in 2020, our stock price[5] was approximately ¥2,500, market capitalization was around ¥800 billion, and a PBR was 0.6x–0.7x. Upon entering the position, my initial targets were to reach a market capitalization of ¥1 trillion (at a share price[5] of around ¥3,000) and then achieve a PBR of 1x or higher (with a share price[5] of around ¥4,000 relative to shareholders' equity at the time). If possible, I also would have liked to reach a market capitalization exceeding ¥2 trillion. Currently, our PBR exceeds 2x, reflecting a market valuation that surpasses our initial expectations.

Of course, I acknowledge that our current success is not solely the result of our own efforts, as changes in the operating environment have also provided tailwinds. Going forward, I also feel that the capital markets are paying attention to us and expecting us not only to achieve our business plan but also to exceed our targets. If we can meet these expectations and produce results in a tangible and understandable manner, I believe we can further solidify our reputation in the market.

5 Stock price before the April 1, 2024, stock split

New Business Portfolio Management Approach with a Financial Perspective

In the 2024 MTBP presentation materials, we explained our business portfolio management approach using three categories: growing core businesses, future growth areas, and competitiveness enhancement businesses. This is a crucial point for driving the future growth of MHI Group. As I mentioned earlier, we intend to allocate funds to growing core businesses and future growth areas in a focused manner.

When it comes to competitiveness enhancement businesses, however, I expect that there will be variations in how funds are actually allocated, even within the same category. Accordingly, we will consider and enact appropriate business operations based on the operating environment and profitability of each business unit. This process may

For more information, please refer to "Special Feature: 2024 Medium-Term Business Plan" (PP26-37).

Examples of Recent Portfolio Changes

Business	Other Party	Transaction Type	Date of Transaction	Current Status
Thermal Power	Hitachi, Ltd.	Joint Venture (major investment by MHI)	February 2014	Integrated into MHI
Metals Machinery	Siemens AG Hitachi, Ltd. IHI Corporation	Joint Venture (major investment by MHI)	January 2015	Primetals Technologies (wholly owned subsidiary of MHI)
Machine Tools	Nidec Corporation	Divestment	August 2021	Nidec Machine Tool Corporation (subsidiary of Nidec Corporation)
Naval Ships	Mitsui E&S Co., Ltd.	Acquisition	October 2021	Mitsubishi Heavy Industries Maritime Systems Co., Ltd. (wholly owned subsidiary of MHI)
Power Generator Systems	Mitsubishi Electric Corporation	Joint Venture (minor investment by MHI)	April 2024	Mitsubishi Generator Co., Ltd. (equity-method affiliate of MHI)

require acquisitions or divestitures of certain businesses. We often view mergers and acquisitions (M&A) as being focused on simply buying and selling companies. However, there are also valuable opportunities for collaboration with other companies or forming joint ventures. Our approach is to identify the best management styles and enhance competitiveness by effectively integrating our strengths with those of other companies, while always keeping in mind who the "best owner" is. This approach aligns perfectly with MHI Group. Taking this approach to its logical conclusion, even if a business in our Group is generating good profits, the "best owner" concept suggests that if another company could generate even greater profits by taking control of it, we should choose that option. We will always look for ways to increase total corporate value.

MHI Group: Constantly Taking on New Challenges and Evolving

MHI implemented a 10-for-1 stock split, effective April 1, 2024. By lowering the price per trading unit, we aim to make it easier for investors—especially retail investors—to invest in MHI, thereby expanding our investor base.

I believe that a company's value is reflected in its stock price. In that sense, delivering solid, measurable results is absolutely essential for increasing corporate value. In addition, it is becoming more and more important for stakeholders, including shareholders and other investors, to view MHI Group as a growing company that is indispensable to society. Therefore, we are committed to our daily business activities with the aim of fostering such expectations and becoming a corporate group that meets them.

In our previous medium-term business plans, it was standard practice to treat each business unit equally when explaining our company to external parties. In the 2024 MTBP, however, we framed our approach to plan achievement using the three categories mentioned previously to make our message clearer to investors. That said, these categories are not set in stone, and there may be a certain amount of shuffling within them in terms of the positioning of each business. Business portfolios evolve with the times. Even if we could achieve the "perfect" portfolio, which is highly unlikely, it would only last for a brief moment. With this in mind, MHI Group will stay constantly attuned to the changing times as we continue to invest in future growth areas and develop new businesses.

Value Creation Process

Develop Technologies | Strengthen Value Chain Resilience | Enhance Manufacturing Capabilities

Financial capital

Shareholders' equity
¥2,244.6 billion

Interest-bearing debt
¥728.9 billion

Human capital

Number of employees
77,697 people

Training hours per employee
20.6 hours

Intellectual capital

R&D expenses
¥178.3 billion

Number of patents held
26,158

Manufactured capital

Property, plant and equipment
¥908.4 billion

Capital expenditures
¥200.4 billion

Social and relationship capital

Social contribution expenses
¥1.4 billion

People undergoing human rights awareness training
1,810 people

Natural capital

Energy consumption
1,734 GWh

Water intake
6,500 thousand m³

Value Creation Engines

Our Principles

1. We deliver reliable and innovative solutions that make a lasting difference to customers and communities worldwide.
2. We act with integrity and fairness, always respecting others.
3. We constantly strive for excellence in our operations and technology, building on a wide global outlook and deep local insights.

Through our day-to-day business operations, MHI Group drives value creation and leverages our wide-ranging resources to provide economic, societal, and environmental value. We are working to establish a virtuous cycle whereby we will continuously enhance our manufacturing capabilities and thereby create new value. By putting this cycle into motion, we will achieve MISSION NET ZERO and realize a safe, secure, and sustainable society.

Achieving Goals for Material Issues

- Provide energy solutions to enable a carbon neutral world
- Transform society through AI and digitalization
- Build a safer and more secure world
- Promote diversity and improve employee engagement
- Enhance corporate governance

Economic Value

Societal Value

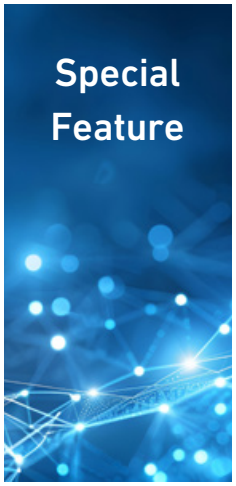
Environmental Value

Mission

Combine cutting-edge technology with many years of expertise to provide solutions to the evolving challenges facing the world while enriching people's lives

Our Vision for Society

Safe, Secure, and Sustainable World



2024 Medium-Term Business Plan

2024 MTBP: Strengthen Portfolio Management

In May 2024, MHI Group announced the 2024 Medium-Term Business Plan (2024 MTBP). Under the plan, we aim to further strengthen and evolve portfolio management by leveraging the business and financial foundations established during the previous business plan period.

Our Mission

Combine cutting-edge technology with many years of expertise to provide solutions to the evolving challenges facing the world while enriching people's lives

Our Vision for Society

MISSION NET ZERO

Safe, Secure, and Sustainable World

Succeed in the global competitive landscape into the future by realizing our vision for society

- Provide realistic solutions tailored to local communities and customers to solve societal issues
- Starting with manufacturing, expand our scope of work both up- and down-stream within value chains, form partnerships, and become a hub for ecosystems to change society

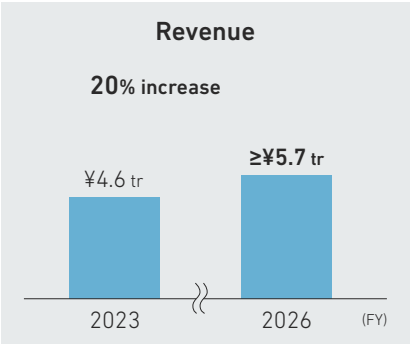
Quantitative Targets for the 2024 MTBP

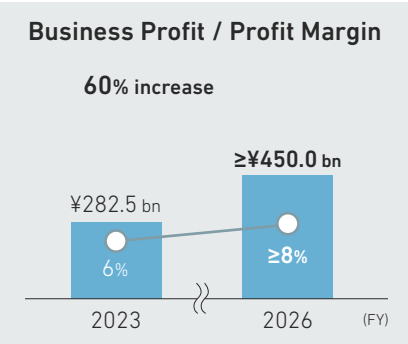
During the previous plan, the 2021 MTBP, our operating environment suddenly became uncertain due to the COVID-19 pandemic. In response, rather than expanding scale, we focused on restoring and strengthening profitability and developing growth areas.

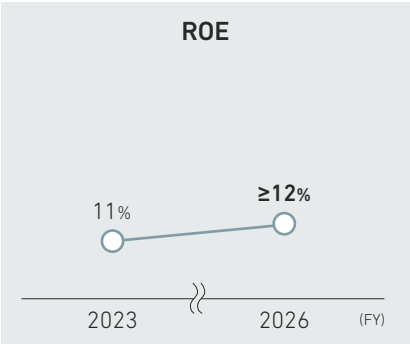
As a result, we achieved record-high business profit in FY2023 and established solid business and financial foundations.

During the 2024 MTBP, we will develop our business while balancing business growth with further profitability improvements. We aim to achieve revenue of at least ¥5.7 trillion, an increase of 20% over FY2023 level, and business profit of at least ¥450 billion, an increase of 60%, resulting in an ROE of 12% or higher.

Exchange rate assumptions: ¥140/USD, ¥150/EUR







▶ For information on the financial strategy of the 2024 MTBP, please refer to "A Message from the CFO" (PP18–23).

Three Strategies for Achieving 2024 MTBP Goals

Strengthen Portfolio Management

We will revise our portfolio of businesses from the perspective of the Group's overall strategy to determine what is needed to further develop individual businesses and chart a course for growth. Our aim is to maximize corporate value by appropriately allocating management resources according to our portfolio-related goals.

Strengthen Technologies and Human Capital

Technologies and human resources are the foundations for strengthening portfolio management. To reinforce our technological capabilities, we will combine core technologies accumulated and refined through experience with cutting-edge technologies in new areas such as AI and quantum to create new customer value. To acquire these advanced technologies, we plan to pursue open innovation, including through investment in start-ups. To strengthen human capital, we will focus on three key areas: Strengthening recruitment and development, Reallocating resources, and Work-style improvements. In particular, we will roll out initiatives to cultivate more than 20,000 employees proficient in digital technologies by 2030.

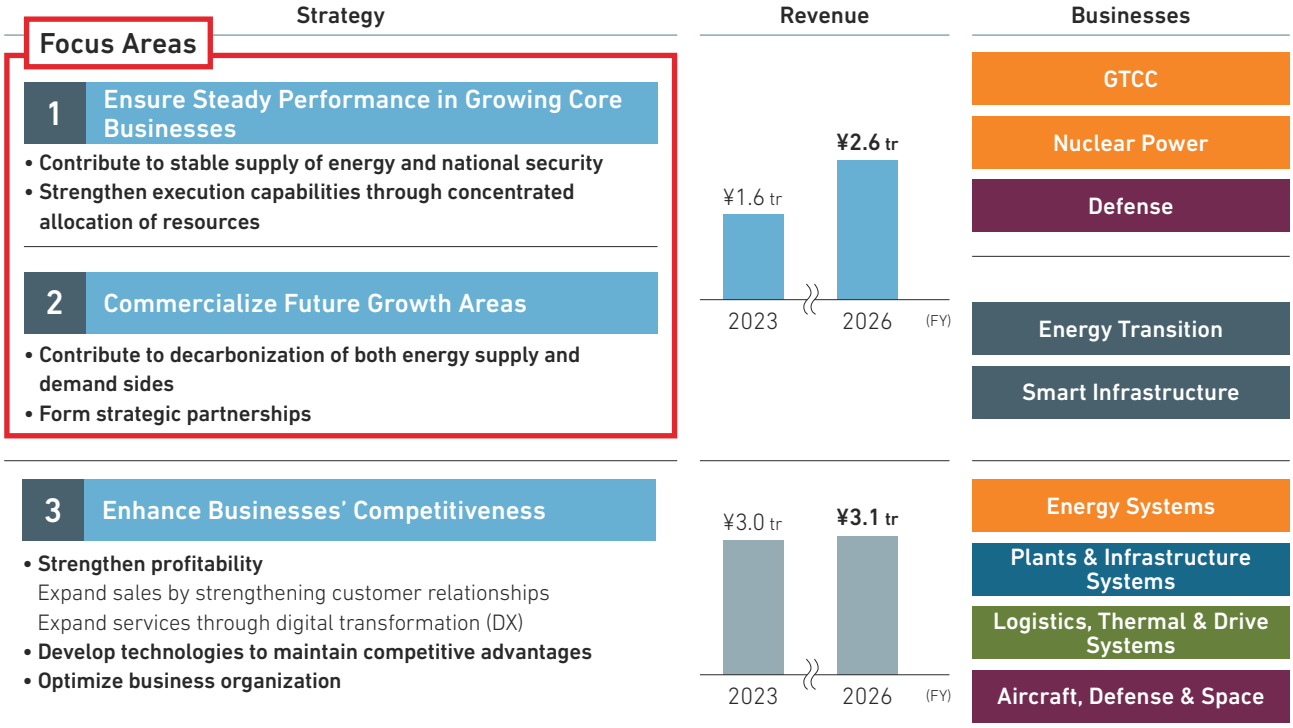
Promote MISSION NET ZERO

We are making steady progress with MISSION NET ZERO as we work to realize a sustainable, safe, and secure society. We will develop plant decarbonization techniques at Mihara Machinery Works, which is pioneering these initiatives. Then, we will reduce emissions across the company by sharing these techniques with other plants within the Group.

▶ For details, please refer to "Special Feature: MISSION NET ZERO" (PP38–49).

Strengthen Portfolio Management

We have established a robust framework aimed at ensuring sustained growth. This framework is comprised of three strategies: Ensure steady performance in growing core businesses, Commercialize future growth areas to lay the groundwork for future success, and Enhance businesses' competitiveness to boost profitability. By combining these elements together, we aim to strengthen and evolve our approach to portfolio management. In particular, we will work to increase revenue from our focus areas—growing core businesses and future growth areas—by ¥1 trillion by FY2026 and will actively allocate management resources accordingly.



Focus Areas

1 Ensure Steady Performance in Growing Core Businesses

During the 2024 MTBP, we expect a significant increase of ¥1 trillion in revenue from Gas Turbine Combined Cycle (GTCC), Nuclear Power, and Defense, which achieved large order intake growth during the 2021 MTBP. We will focus resources in these areas and stably execute their order backlogs. Furthermore, as these are key products that contribute to the stable supply of energy and national security, we will steadily develop our businesses in these areas.

GTCC

Enact Strategies Based on Market Needs to Further Increase Global Market Share

The gas turbine market is expected to expand in the future due to strong demand for decarbonized fuel conversions stimulated by CO_2 emissions regulations, load-following power accompanying the expansion of renewable energy, and on-site power generation for data centers. In this market environment, we will maintain our top share by developing and validating highly reliable fuel conversion technologies and combining them with CO_2 capture in the future. We will continue to expand our supply capacity while increasing personnel and production capacity to meet this strong demand. We will also actively invest in R&D to maintain our competitive advantages and lead the decarbonization market.

M504 J-series gas turbine

Opportunities during 2024 MTBP

Market Environment

- High output, high-efficiency models now mainstream. Market to grow at a certain rate through 2030.
  - Demand for decarbonized fuel conversions stimulated by CO_2 emissions regulations
  - Demand for load-following power to stabilize grids amid expansion of renewable energy
  - Demand for on-site power generation for data centers and semiconductor plants
- Demand for hydrogen and ammonia combustion to ramp up

Initiatives to Strengthen Business

Strengthen Supply Capacity

- Improve business execution capabilities by expanding facilities and personnel

Actively Invest in R&D

- Develop technologies to solidify competitive advantages in pursuit of a decarbonized world

Propose Services Utilizing Vast Operations Data

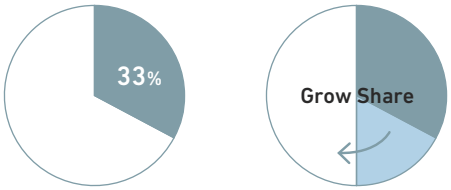
- Propose effective maintenance utilizing data obtained through remote monitoring products (TOMONI®)

MHI's Strengths

- High performance, large frame gas turbines
- High reliability through pre-launch testing at utility-scale, in-house demonstration plant
- Optimized operation with CO_2 capture systems
- Validation of future hydrogen and ammonia fuel conversion technologies outpacing competitors

Further Global Market Share Growth

Maintain top market share held since 2022



Left: CY2020-2022 actual annual market size (McCoy)
Right: CY2023-2027 annual market size forecast, MHI order volume based on 2024 MTBP period average
Note: Large frame gas turbine output range (excl. mechanical drive applications)

Nuclear Power

Steadily Pursue Initiatives in a Variety of Areas to Expand Our Business

Advanced Light Water Reactor SRZ-1200®

Against the backdrop of Japan's national policy to maximize the utilization of nuclear energy, we will steadily expand this business. In particular, we will continue to support the restart of existing plants and the establishment of the nuclear fuel cycle. We will also perform maintenance work for the long-term, stable operation of restarted plants. We also forecast the export of equipment to other countries as demand for nuclear power grows worldwide. Furthermore, as the lead company in Japan, we will continue design work on an Advanced Light Water Reactor and will develop next-generation nuclear reactors: fast reactors and high temperature gas-cooled reactors.

Opportunities during 2024 MTBP

Market Environment
- Japan's Basic Policy for the Realization of GX[1] includes the utilization of nuclear energy
- Investment appetite increasing for nuclear power as a means to achieve Carbon Neutrality and maintain stable power supplies

Business Expansion
- Support PWR[2] and BWR[3] restarts and SSFs[4] construction
- Support establishment of the nuclear fuel cycle
- Perform maintenance work for long-term, stable plant operation
- Export equipment for existing and new plants outside Japan
- Continue design work on Advanced Light Water Reactor SRZ-1200®
- Develop fast reactor and high temperature gas-cooled reactor technologies

1 Green Transformation 2 Pressurized Water Reactor
3 Boiling Water Reactor 4 Specialized Safety Facility

Initiatives to Strengthen Business

Strengthen Supply Capacity
- Expand personnel to enable parallel execution of current projects and development of fast reactors and high temperature gas-cooled reactors

Actively Invest in Facilities and R&D
- Develop technologies through government-led projects, and update and enhance production facilities

Support Maximum Utilization of Existing Plants
- Support availability improvements, operation enhancements, and preventative maintenance with a view to long-term plant operation

Defense

Expand Business by Responding to Sharp Increase in National Security Needs in Japan

Next-Generation Fighter Aircraft concept art
(Courtesy of Japan Ministry of Defense)

Our business is rapidly expanding against the backdrop of increasing needs for national security measures in Japan, and we will ensure our ability to reliably respond to the Japanese government's requests. We will continue to work on stand-off defense and missile defense capabilities, as well as to promote international joint development on the Next-Generation Fighter Aircraft. We also believe that the use of unmanned systems will increase in the future, and we will work to develop fundamental technologies in this area.

Opportunities during 2024 MTBP

Market Environment
- Japan's defense budget increasing due to rising geopolitical risks
- New defense equipment with advanced capabilities to be introduced

Business Expansion
- Stand-off defense (in all domains: air, land, and sea)
- Integrated missile defense
- Next-Generation Fighter Aircraft development
- Unmanned asset defense
  Responding to needs for unmanned aerial, underwater, and ground vehicles
- Space domain
  Needs for space asset utilization enabling communications, navigation, and information gathering

Initiatives to Strengthen Business

Strengthen Supply Capacity
- Increase personnel by around 30%, including optimization of internal human resource utilization.
  Increase development and production capacity to enable revenue increases.

Promote International Joint Development
- Participate in Global Combat Air Programme promoted by GIGO[5]

Actively Invest in R&D
- Get head start on next-generation fundamental technology development

5 GCAP International Government Organisation: An intra-governmental organization promoting the Global Combat Air Programme (GCAP), in which Japan, UK, and Italy are participating

Focus Areas

2 Commercialize Future Growth Areas

Under the 2021 MTBP, we focused on developing growth areas and identified fields with the potential for commercialization. During the 2024 MTBP period, we will work to commercialize those areas with an eye to full-scale deployment during the 2027 MTBP period and beyond. While pursuing commercialization, we will also build value chains and collaborate with other organizations through strategic partnerships.

Hydrogen and Ammonia

Combine Core Technologies and Products to Build Hydrogen and Ammonia Value Chains

Through the GX Solutions segment, which was established in April 2024, we will participate in projects around the world and form strategic partnerships to build value chains.

Furthermore, we will develop core technologies and products, such as hydrogen- and ammonia-fired gas turbines and hydrogen production systems.

Hydrogen project in Utah, U.S.

2021 MTBP

- Participated in hydrogen production, storage, and supply project in Utah, U.S. Facilities now under construction (~80% complete)
- Built Takasago Hydrogen Park and Nagasaki Carbon Neutral Park in Western Japan. Worked to develop hydrogen production systems and hydrogen/ammonia gas turbines.
- Two hydrogen hub projects with MHI involvement were nominated to receive funding from the U.S. Department of Energy

2024 MTBP

- Project in Utah, U.S. to reach completion, and power generation with hydrogen co-firing at commercial plant to begin
- Validate 100% hydrogen and ammonia firing in small and mid-size gas turbines, and 50% hydrogen co-firing in large frame gas turbines
- Establish business model using hydrogen-related and other technologies
- Form strategic partnerships, and pursue realization of projects, including hydrogen hubs in U.S. and ammonia bunkering project in Singapore

CCUS

Build a CCUS Value Chain

We are pursuing initiatives in multiple regions and industries which are tailored to the specific circumstance in each area. While working to achieve FID[1] in the projects in which we are participating, we are also developing next-generation CO_2 capture technologies to solidify our competitive advantage.

1 FID: Final Investment Decision

CO_2 capture system (process, absorbent)

2021 MTBP

- Responded to inquiries and participated in FSs[2] for many CO_2 capture projects in a variety of industries (>50 projects)
- Worked to develop core technologies and products such as a new absorbent, a modular CO_2 capture system, an LCO_2 carrier, a CO_2 compressor, and synthetic fuels
- Created CCS solutions organization through alliance with ExxonMobil.
  Partnered with licensees around the world.

2 FS: Feasibility Study

2024 MTBP

- Receive subsidies from the U.S. Department of Energy, and achieve FID on leading projects such as CCUS hubs and clusters in UK
- Develop next-generation CO_2 capture technologies, and build service infrastructure, including for remote monitoring, in order to enhance competitiveness
- Participate in JOGMEC[3] Advanced CCS[4] Projects

3 JOGMEC: Japan Organization for Metals and Energy Security
4 CCS: Carbon dioxide Capture and Storage

Electrification and Data Centers

Provide One-stop Decarbonization and Energy Conservation Solutions, Combining Energy Supply, Cooling, and Highly Intelligent EMS Systems

Leverage thermal and electric engineering technologies to provide one-stop decarbonization and energy conservation solutions, combining energy supply, cooling, and highly intelligent EMS systems.

2021 MTBP

Identified electrification and data centers as important megatrends

- Targeted one-stop solution combining power supply, cooling, and control systems
- Validated immersion cooling and power supply system technologies
- Acquired Concentric, LLC as North American service location

2024 MTBP

Fully enter data center and electrification markets

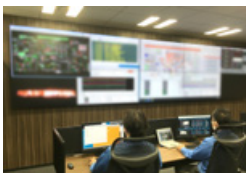
- Promote one-stop solutions business combining power supply with cooling systems
- Apply on-site power generation systems according to power demand
- Build energy management product to optimize entire systems
- Further strengthen service network

3 Enhance Businesses' Competitiveness

Our existing businesses faced challenges during the 2021 MTBP period, including those posed by the COVID-19 pandemic and the subsequent spike in inflation, so we focused on restoring and strengthening profitability. By improving profitability, we will further strengthen competitiveness while building a solid business foundation, strengthening cash generation capabilities, and investing in growth.

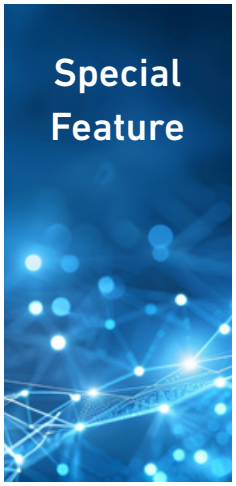
Examples of 2024 Initiatives

Expand sales by strengthening customer relationships	• Strengthen and expand direct sales organizations in HVAC, Logistics Systems, and others • Establish position as system integrator by providing core technologies and design services in Metals Machinery, Commercial Ships, and others
Expand services through DX	• Enhance O&M[5] with remote monitoring and automation technologies in Environmental Systems, HVAC, and others • Respond to customer needs and potential problems using AI-enabled failure prediction and preventative maintenance in Machinery Systems and others • Share in-house best practices (MHI digital products for image monitoring and audio instruction) in Metals Machinery with other businesses (such as Transportation Systems) • Strengthen after-sales services in Commercial Aviation and Aero Engines 5 Operation & Maintenance
Develop technologies to maintain competitive advantages	• Develop technologies for the decarbonization of steelmaking processes • Launch automation products in Logistics Systems and others, which coordinate equipment and operators using ΣSynX® (read as "Sigma Syncs") • Develop products using natural refrigerants such as heat pumps • Develop clean fuel–compatible products such as engines
Optimize business structures	• Consolidate and optimize production bases and sales networks • Reallocate resources to focus areas by improving operational efficiency and productivity



Machinery Systems AI remote monitoring and operational support system MaiDAS®

New forklift model enabled with ΣSynX®



2024 Medium-Term Business Plan

A Conversation with the CSO

In this section, Professor Masatoshi Fujiwara, an expert in innovation management, and MHI CSO, Masayuki Suematsu, discuss the 2024 Medium-Term Business Plan (MTBP) and the future direction of MHI Group.

Masayuki Suematsu

Executive Vice President and CSO

Joined MHI in 1986. Appointed Executive Vice President of Mitsubishi Agricultural Machinery Co., Ltd. in 2012 and CEO of Mitsubishi Mahindra Agricultural Machinery Co., Ltd. in 2016. Served as Senior Vice President and Head of Business Strategy Office at MHI in 2019. Assumed current position in 2023.

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Masatoshi Fujiwara

Professor, Graduate School of Business Administration, Hitotsubashi University

Ph.D. in Commerce and Management at Hitotsubashi University. Specializes in strategic management and innovation management and received the 60th Economist Award for *Mechanisms for the Long-Term Innovation* (co-author).

Positioning of the 2024 MTBP

Leveraging the Foundation Built during the 2021 MTBP to Become a Leading Global Company

Fujiwara Thank you for taking the time for this conversation. I have been doing research on innovation management and strategic management. Today, I would like to ask you about MHI's corporate strategy and your innovation goals.

Suematsu Thank you for joining me today. I've been looking forward to this conversation.

Fujiwara Based on my discussions with the companies I have been researching, I hear that MHI responds in earnest to the needs of your customers. Also, there are former employees of your company who are now working in thriving start-ups. I recognize MHI as an organization that is more than just a company and that makes significant contributions to Japan's industry as a whole.

Suematsu Thank you for the kind words. MHI's "Our Principles," formulated in 1970, include this statement: "We deliver reliable and innovative solutions that make a lasting difference to customers and communities worldwide." Going back even further, one of Mitsubishi's "Three Principles"—which were laid out by Koyata Iwasaki, the fourth president of Mitsubishi—focuses on "Corporate Responsibility to Society." This signifies that the ultimate purpose of business is to contribute to society. I believe that our commitment to benefiting society and our customers has been fundamental to MHI for the past 140 years.

Fujiwara Moving on to our first conversation topic, could you please share the positioning and objectives of the 2024 MTBP, which was announced in May 2024?

Suematsu Our previous plan, the 2021 MTBP, covered the three-year period from April 2021 through March 2024. It was formulated during the COVID-19 pandemic, which was a time of uncertainty. Accordingly, we designed the 2021 MTBP with the primary objective of strengthening profitability, rather than expanding business scale. As a result, in FY2023, the final year of the plan, we posted record-high results and successfully established strong business and financial foundations to support future growth. Under the 2024 MTBP, we have set the following targets: revenue of ¥5.7 trillion or higher, business profit of ¥450 billion or higher, and an ROE of 12% or higher. By reaching these goals, we seek to solidify our position as a truly global company.

Fujiwara One of the key concepts of the new plan is to strengthen portfolio management. What is your basic approach to MHI Group's portfolio of businesses?

Suematsu We place importance on setting distinctive points of focus for each of the businesses that make up the Group and finding ways to strengthen their composition as a whole. This approach is reflected in the 2024 MTBP, where we outlined three main strategies: Ensure steady performance in growing core businesses, Commercialize future growth areas, and Enhance our businesses' competitiveness. Also, our businesses range from short-cycle products, such as air conditioners, to those with longer timelines, like nuclear energy systems, where the process from planning to completion spans many years, and where plants can be operated for multiple decades. This perspective on time horizons is crucial when managing such a diverse range of businesses. We continuously think about our position in the market and who the best owner of each business is, while considering how best to strengthen the Group as a whole. With this in mind, we have identified growing core businesses and future growth areas as important focus areas in the 2024 MTBP.

Capital Allocation Plan

Aggressively Invest in Business Expansion

Fujiwara Under the capital allocation plan of the 2024 MTBP, you will allocate ¥650 billion to your growing core businesses and future growth areas. Could you share more details on the specific investments being considered?

Suematsu As a manufacturer, I believe that capital investment is fundamental to success. For example, in Defense, one of our growing core businesses, it will be challenging to operate smoothly without scaling up our manufacturing facilities and equipment. In some cases, we might need to relocate operations from their current sites, so we are planning for a significant amount of capital investment. Of course, the plan also includes M&A investments. While we focus on capital expenditures and R&D to strengthen existing areas, we are also actively considering M&A to expand into new growth areas. A typical example of this is our data center business, which we are working to expand further. In October 2023, we completed the acquisition of Concentric, LLC, an American company that provides power systems for data centers and logistics warehouses. We are considering further expansion of this business through M&A in the future.

Fujiwara Data centers are a rapidly growing sector. Could you tell us about MHI's strengths and the unique value you bring to this field?

Suematsu Data centers consume significant power 24 hours a day, so in addition to supplying our on-site standby generator sets, we will help build energy management systems to optimize overall power usage. We also specialize in HVAC systems and are developing cutting-edge technologies to efficiently cool high-heat-generating equipment. We expect to commercialize those technologies quickly. Our strength lies in our ability to provide such solutions as an integrated package. We aim to grow this into a business worth several hundreds of billions of yen in annual revenue within the next decade.

Becoming a Hub for Ecosystems

Creating Value by Combining Our Expertise with Our Partners'

Fujiwara The 2024 MTBP emphasizes your goal of becoming a hub for ecosystems. As you build ecosystems and create value for society in collaboration with various partners, what key areas will you be focusing on?

Suematsu We are not a financial services company, so we will not become a hub through financing. Our primary focus is to build an ecosystem that leverages MHI Group's proprietary technologies. One example of this is the Advanced Clean Energy Storage Project, a hydrogen production, storage, and supply project currently under construction in Utah, United States. We supply the key component—a hydrogen-fired gas turbine—but that alone will not allow us to become a hub. This project involves a series of ecosystems in which hydrogen is produced using excess renewable energy and stored, then supplied to a gas turbine to generate electricity. We will design a comprehensive system by leveraging broad expertise and involving the most suitable partners as needed. In this way, the Group will function as a hub within this ecosystem.

> **I anticipate seeing you use the knowledge you have accumulated to innovate society and lead the world.**
>
> —— Masatoshi Fujiwara, Professor

Expand Business Areas and Grow Market Share

Enhance Competitiveness through Stronger Relationships with Customers

Fujiwara Over the years, MHI has achieved significant diversification, and your businesses operate in a wide range of sectors. What are your plans for the businesses targeted for enhancements to competitiveness?

Suematsu We anticipate growth in two directions: expanding the areas in which our businesses operate and increasing our market share. Although circumstances vary by business—such as having a high market share in a shrinking market—we generally aim to strengthen competitiveness and profitability by leveraging both of these directions. A crucial part of this process is reevaluating customer spending behavior. In most cases, purchases from the Group represent only a small portion of each customer's total expenditures. We aim to grow the areas in which we operate by expanding business with such customers, which in turn will help attract new customers and drive market share growth as well. This is the growth model we envision.

Fujiwara In my research on business strategy, I have observed that the most successful companies are those that perform highly detailed analyses of their customer bases. For businesses that will need strengthening in the future, will you increase your focus on customer analysis?

Suematsu Yes, we will. To achieve this, it's important for employees to have a mindset to proactively engage with customers and create opportunities to initiate dialogue. I was previously involved in the Logistics Systems and Agricultural Machinery businesses. At that time, we extended the scope and duration of the post-sale warranty on our products, and this became a major differentiator for us versus the competition. I remember clearly how this helped strengthen relationships with existing customers and gave us more opportunities to approach new ones.

Fujiwara That's a great example of how customer analysis and targeted strategies can improve the quality of dialogue. From another perspective, do you think that optimizing your business portfolio could also be a key factor in addressing the businesses you seek to make more competitive?

Suematsu For areas with declining demand, we need to adjust the businesses to match the reduced market volume. For example, coal-fired thermal power is facing significant challenges as the world shifts towards decarbonization. However, some customers are still operating existing coal-fired thermal power systems, so we must carefully consider how our business structure should be organized to support them effectively. In areas with shrinking demand, the possibility of excess personnel cannot be ruled out. In such cases, we may need to shift resources to other businesses. Our aim is to make full use of each individual's skills and experience.

Strengthening Technologies

Incorporating New Approaches to Increase the Latest Techniques

Fujiwara All of your businesses have their own potential for innovation, and you are making long-term investments in each of them. What approach are you taking to strengthen your technologies?

Suematsu As stated in our Group Mission, we have provided value to society by incorporating the latest techniques with technologies developed over our long history. We have a wealth of knowledge and expertise built up by combining advanced insights and technologies in response to the changing times. Our basic approach is to ensure that these assets are not left untapped and are actively utilized. Accordingly, we will accelerate this practice and decrease cycle time.

Fujiwara What are your thoughts on R&D investment?

Suematsu Our strategy is to make ongoing investments in R&D at a significant scale proportional to revenue. Currently, we are working on around 600 smaller research topics with a strong emphasis on speed, led by the CTO. We also aim to accumulate cutting-edge techniques through joint research and commissioned projects with government agencies.

Fujiwara As the CSO, are there any particular points you focus on when exploring new business opportunities?

Suematsu I pay particular attention to the technology readiness level (TRL). We intentionally diversify our portfolio by including technologies at various stages, from early development to near commercialization. Also, as our business areas cover a broad range, the scope for exploring new ventures is equally diverse. We actively invest in promising areas, including start-ups, with varying scales of investment.

Fujiwara Recently, there has been an increase in Japanese companies investing in start-ups and then making financial and/or strategic returns as the ventures successfully grow. This seems to align with efforts to foster open innovation. MHI is also working hard to achieve open innovation, isn't it?

Suematsu Yes, and we expect these initiatives to continue to increase in the future. In Defense, for example, as ICT technology advances, we expect situations that will be difficult to address using traditional equipment alone. In addition to our own accumulated expertise, therefore, we will need to approach issues from different angles.

Fujiwara Within the section of the 2024 MTBP related to strengthening technologies, you also emphasize the need to expand monetization opportunities through the licensing business. Could you please provide a bit more detail on this?

Suematsu Most of the infrastructure-related equipment

> **As a company that is involved in solutions on both the supply and demand sides of energy, we provide unique value to society.**
>
> —— Masayuki Suematsu

the Group handles is custom-made to meet the specific requirements of each customer. Handling each project individually would lead to a shortage of manpower. Therefore, we aim to standardize key components and entrust the rest to licensees. Our intention here is to minimize the effort required for customized solutions and achieve scalability—thereby maximizing opportunities. In terms of business areas, we expect Energy Transition-related products to be the main focus.

Realizing the Society We Aspire to Create

Building on and Refining Expertise Accumulated over 140 Years

Fujiwara MHI is involved in various types of infrastructure, including IT-related facilities like the data centers we discussed earlier. I believe that safety and reliability are the primary qualities expected of the companies that support this kind of infrastructure. Can you tell us about your company's efforts regarding safety and reliability?

Suematsu Lately, we are focusing particularly on cybersecurity. MHI Group has been targeted by numerous cyberattacks throughout the years, and by addressing them we have accumulated valuable knowledge regarding cybersecurity measures for infrastructure systems. We also provide cybersecurity solutions to monitor infrastructure facility control systems to detect and respond to unusual behavior.

Fujiwara A stable supply of energy is also essential for the safe, secure, and sustainable society that you are aiming for. What is your strategy in this area?

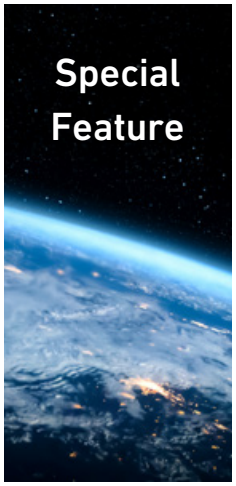
Suematsu Our top priority is developing and providing energy-efficient products. In the field of thermal power, our gas turbines have achieved world-class efficiency by increasing combustion temperature to 1,600°C. By also utilizing exhaust heat from gas turbines to generate power with steam turbines—a process known as gas turbine combined cycle (GTCC)—we can further enhance power generation efficiency. The availability of energy varies according to region and country, and by offering a wide range of products and optimal solutions, we can meet diverse customer needs.

Fujiwara I look forward to seeing how things develop in the future. Speaking with you today, I've realized that there is strong ongoing demand for the technologies and services MHI has built, not only in energy but also in IT infrastructure. Also, there are high expectations for new infrastructure needs related to green transformation (GX). I anticipate seeing you use the knowledge you have accumulated to innovate society and lead the world. Finally, can you tell us about your aspirations for the future?

Suematsu MHI Group offers various solutions on the demand side of energy, including the electrification of infrastructure and automation through the use of digital technologies. Infrastructure requires reliable power supplies, and as we operate on both the supply and demand sides, we aim to use our technology to help create a smarter world. We will build upon and refine the expertise the Group has accumulated over the past 140 years and thus retain our position as a company that contributes to society.

Fujiwara Thank you very much. I have high hopes that you will successfully achieve the 2024 MTBP and realize your vision for the future.

Suematsu We are fully committed to achieving Net Zero and building a safe, secure, and sustainable society. I hope that you will follow our progress.



MISSION NET ZERO

Carbon Neutrality Declaration and MHI Group's Initiatives

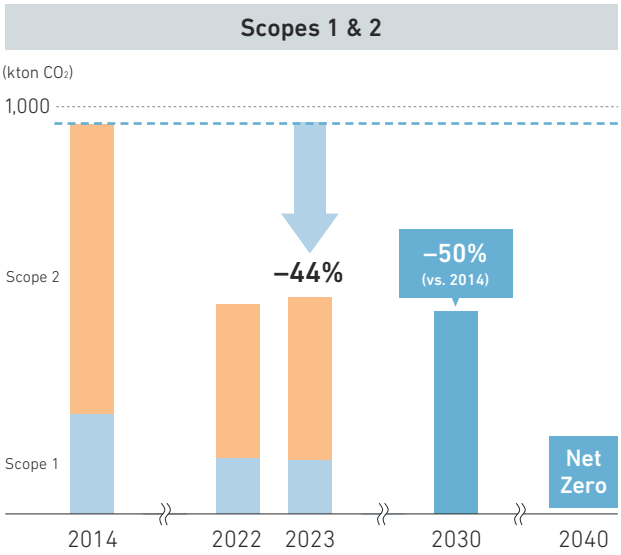
In October 2021, MHI Group announced our Carbon Neutrality declaration, MISSION NET ZERO. This is an important management strategy to both solve a major societal issue and to achieve sustainable growth for the Group, and we are working steadily to achieve these goals.

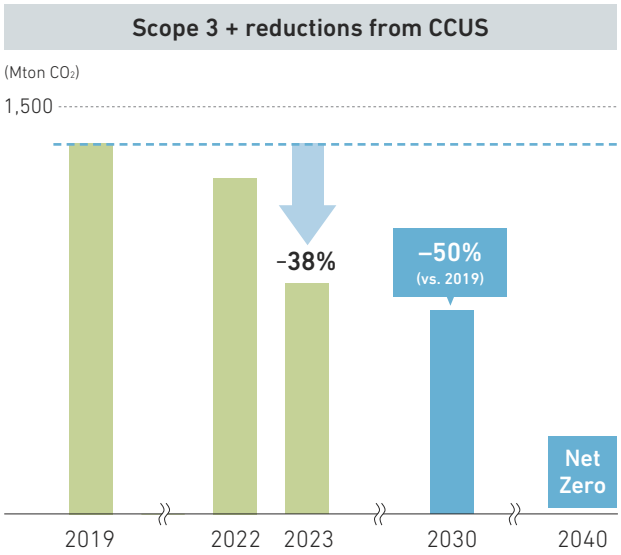
CO_2 Emissions and Target Setting

Under MISSION NET ZERO, the Group will reduce CO_2 emissions (Scopes 1 & 2 and Scope 3 + reductions from CCUS) throughout the value chain by 50% by 2030 (versus 2014 levels for Scopes 1 & 2 and 2019 levels for Scope 3 + reductions from CCUS) and Net Zero by 2040.

Scopes 1 and 2 emissions in FY2023 were 534 kton, up 19 kton from the previous year. This is due to an increase in the CO_2 emissions factor for Japanese domestic electricity, although our actual energy consumption declined year-on-year. Compared to when MISSION NET ZERO was announced in FY2021, the FY2023 figure was down 20 kton despite revenue being up ¥796.8 billion. The Scope 3 plus reductions from CCUS figure for FY2023 was 850 Mton, down 375 Mton from FY2022 and down 728 Mton from FY2021.

Under the 2024 Medium-Term Business Plan (MTBP), however, we expect our operations to expand beyond the projections made when MISSION NET ZERO was announced. This growth will be driven mainly by Gas Turbine Combined Cycle (GTCC), Nuclear Power, and Defense. Therefore, it is possible that the CO_2 emissions forecast on which MISSION NET ZERO was based may increase. Although we will face challenges in our quest to achieve Carbon Neutrality, the basic concept of MISSION NET ZERO is to realize both decarbonization and business growth. While maintaining our original Carbon Neutrality target, we will steadily move toward decarbonization by setting emissions targets for FY2026, the final year of the 2024 MTBP, of 505 kton for Scopes 1 and 2 and 897 Mton for Scope 3 plus reductions from CCUS.





Note: CCUS: Carbon dioxide Capture, Utilization, and Storage

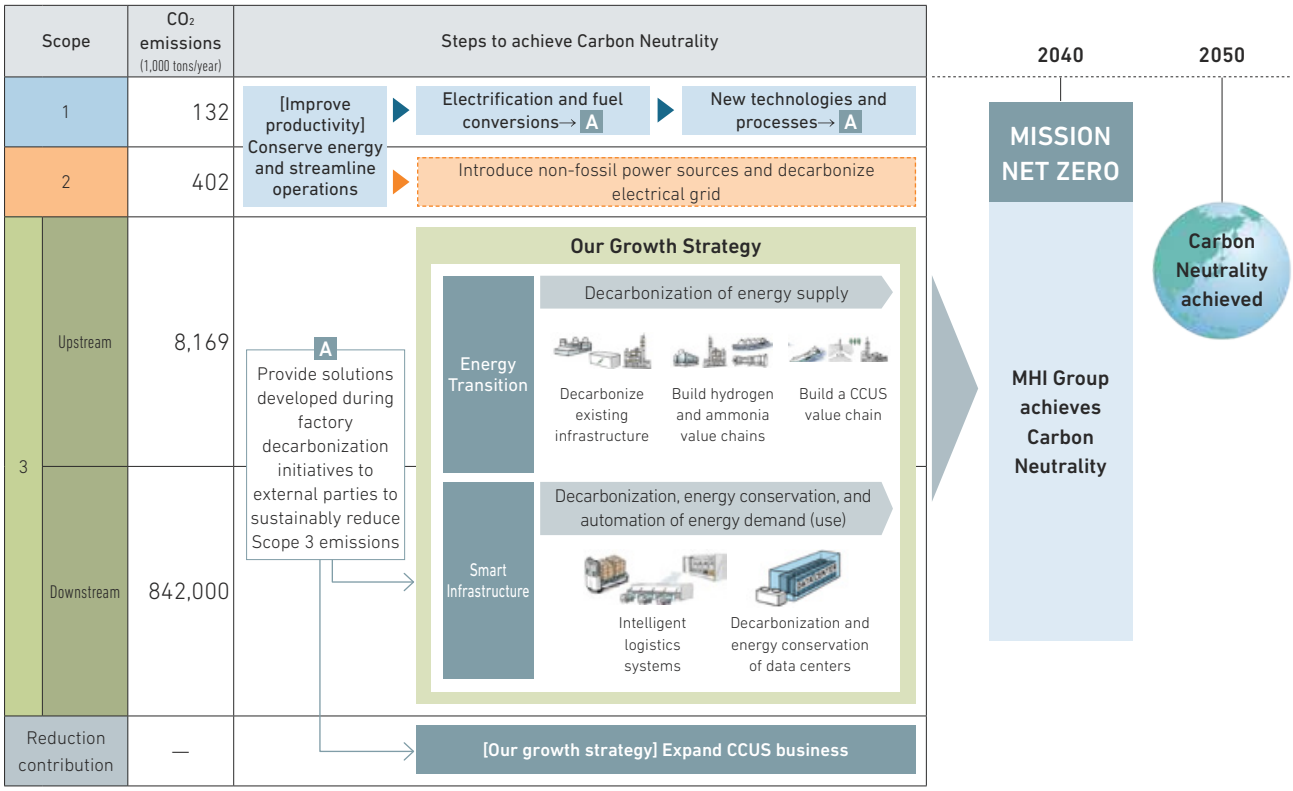
Basic Strategy for MISSION NET ZERO

MHI Group is committed to not only reducing CO_2 emissions to achieve Carbon Neutrality but also continuously promoting MISSION NET ZERO as an integral part of our growth strategy.

Scopes 1 and 2 primarily refer to CO_2 emissions generated from the use of energy, such as gas and electricity, associated with the manufacturing of products in our factories. By calculating the theoretical energy requirements of each production process, we can more effectively promote energy conservation and streamlining. In addition, we will establish technology development topics for the challenges we face in reducing Scopes 1 and 2 emissions to acquire the technologies needed to achieve Carbon Neutrality. We view the reduction of CO_2 emissions as an excellent opportunity to improve productivity and develop new technologies, so we will forge ahead without being satisfied to simply treat decarbonization as an additional cost.

For Scope 3, we will achieve reductions by providing products and services that contribute to decarbonization while engaging in low-carbon initiatives, thereby addressing both the supply and demand sides of energy. On the supply side, we have identified GTCC and Nuclear Power as growth areas. We will pursue Net Zero by implementing solutions that balance 3E+S (Energy security, Economic efficiency, Environment, and Safety). This involves developing conversion technologies for carbon-neutral fuels, including hydrogen, and expanding our CCUS business. On the demand side of energy, there is still significant potential to reduce CO_2 emissions using existing products and technologies, such as heat pumps and cogeneration systems. Accordingly, we will strive to provide attractive products that enable more customers to adopt these solutions. In addition, the worldwide expansion of data centers and the electrification of industrial facilities are expected to have a significant impact on the future energy demand mix. With this in mind, the Group is addressing the energy challenges of data centers by developing server cooling technologies and pursuing M&A. Meanwhile, the greatest challenge for reducing CO_2 emissions is to address the issue of steam generation. Here, I believe that high-temperature, steam generating heat pumps will be a key solution, so we are focusing development on this kind of product.

By also sharing techniques developed during Scopes 1 and 2 emissions reductions, we will contribute significantly to CO_2 emissions reductions throughout the value chain, including at our customers' and business partners' facilities. Our fundamental strategy to achieve MISSION NET ZERO is to align our efforts to reduce Scopes 1, 2, and 3 emissions. We view these reductions not as a burden on our business but as an opportunity for growth.



Company-Wide Application of the MAC Curve

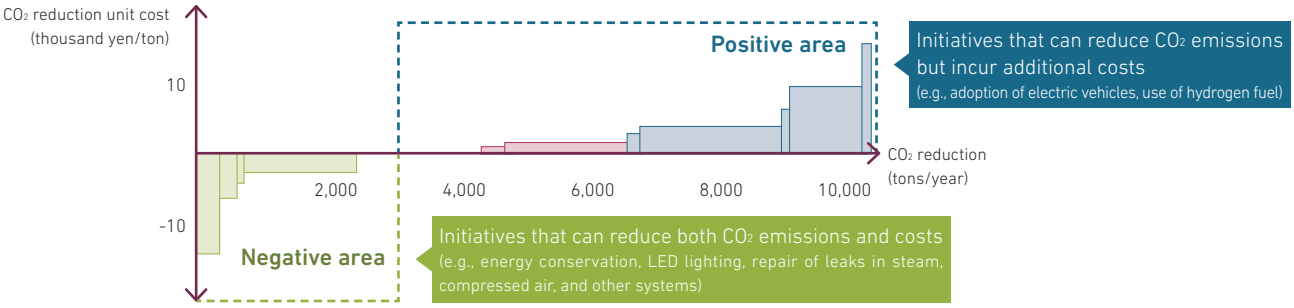
MHI Group uses the MAC Curve to effectively reduce the anticipated increase in CO_2 emissions associated with business growth. The MAC Curve is a graphical representation of the effectiveness of individual reduction measures to reduce CO_2 emissions and the costs associated with them. It can serve as a roadmap for achieving Carbon Neutrality in factories.

In FY2023, we established guidelines for using the MAC Curve through Mihara Machinery Works' Advanced Carbon Neutrality Project. We have since completed a MAC Curve that covers approximately 400 kton of emissions across most of the Group's major Japanese domestic and international bases. As a result, we can now visualize which measures should be prioritized, enabling us to make decisions from a global perspective. In addition, we share the MAC Curve throughout the Group so that various information, such as energy-saving and streamlining rationalization solutions discovered in the process of creating MAC Curves at each factory and location can be accessed Group-wide. As a result, we can now widely utilize the insights gained from our factories' decarbonization efforts.

Furthermore, because the MAC Curve can be utilized outside of the Group as well, we are preparing to extend its application to our customers and supply chain. By using the MAC Curve to share CO_2 emissions information and jointly create effective solutions across the entire value chain, we will establish a virtuous cycle aiming to achieve Carbon Neutrality.

Note: MAC Curve: Marginal Abatement Cost Curve

MAC Curve Sample



Relentless Pursuit of Technological Advancement to Achieve Carbon Neutrality

When we announced MISSION NET ZERO in October 2021, there were various discussions about the best pathway to Carbon Neutrality. However, our thinking on this has been that we must balance the Energy Transition (the gradual promotion of decarbonization) with 3E+S (Energy security, Economic efficiency, Environment, and Safety). This is because we believe that, while we need to start reducing CO_2 emissions as soon as possible, Carbon Neutrality is closely related to energy issues in our daily lives and thus requires sustained effort.

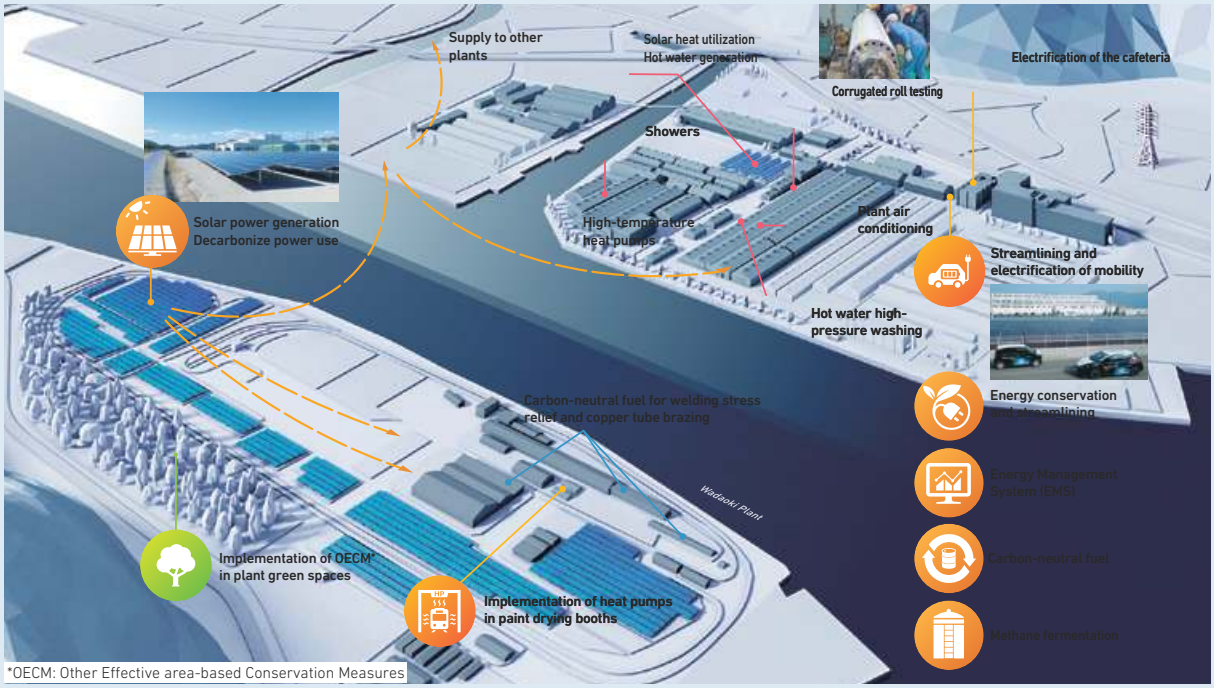
MHI Group's high-efficiency GTCC power generation systems have been highly evaluated by many customers,

TOPIC

Carbon Neutral Transition Hub Mihara

Mihara Machinery Works' Advanced Carbon Neutrality Project, which launched in June 2022, is an initiative aimed at achieving zero CO_2 emissions at our Mihara Machinery Works in Mihara City, Hiroshima Prefecture, Japan. By the end of FY2023, we had reduced the facility's annual CO_2 emissions of approximately 10 kton by 97.7%.* This was achieved through the operation of solar panels installed on the premises, rigorous energy conservation and streamlining efforts, and the use of electric vehicles. Moreover, we have shared the techniques gained from creating the MAC Curve during this project throughout the Group.

Currently, there are 228 tons of CO_2 emissions remaining to be addressed.* However, we will use this as an opportunity to develop technologies aimed at achieving Carbon Neutrality, such as electrification of heat sources and fuel conversions. We will also expand our efforts to transform Mihara Machinery Works into Carbon Neutral Transition Hub Mihara, where we will actively consolidate and implement decarbonization solutions in a phased manner. *Includes estimates.



*OECM: Other Effective area-based Conservation Measures

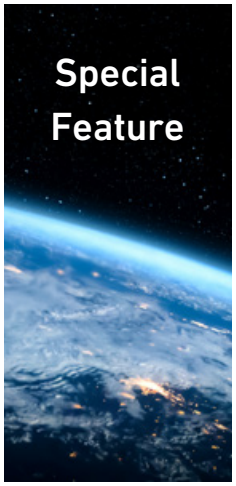
- Integrate factory decarbonization solutions with additional low- and zero-carbon products and technologies, such as high-temperature heat pumps and solar thermal systems
- Pursue collaboration with customers and business partners who are working to decarbonize their factories, making MHI a decarbonization hub for the entire value chain

and there is great excitement around nuclear energy as a carbon-free power source that can achieve 3E+S at a high level. Furthermore, we are making steady progress in developing hydrogen and other carbon-neutral fuel technologies, as well as CO_2 capture, and we are assembling the technologies needed to achieve Carbon Neutrality after the Energy Transition is complete.

That said, we still need to build a new ecosystem to effectively deploy these new technologies—including those related to hydrogen—on a society-wide level. By connecting multiple industries with different revenue structures and business characteristics, we can establish an ecosystem where each sector can pursue a Carbon Neutrality that makes economic sense. This will help mitigate the financial burden accompanying new technologies while increasing new revenue and value creation opportunities. To that end, the Group is building an ecosystem utilizing new technologies based on six key concepts: utilize, separate, consolidate, exchange, circulate, and synthesize.

During the Mihara Machinery Works' Advanced Carbon Neutrality Project, we achieved non-fossil power usage for all electricity consumed at the facility through the installation of solar panels in cooperation with Chugoku Electric Power Company. Furthermore, we reduced Scope 1 emissions by 16.5% through energy conservation and streamlining. As a result, we confirmed that it is possible to maintain economic viability while improving productivity and reducing CO_2 emissions.

We will continue striving to develop decarbonization techniques and technologies, which we will leverage to achieve Carbon Neutrality, thereby ensuring our future as a business.



MISSION NET ZERO

Energy Transition

MHI Group offers realistic Energy Transition solutions tailored to the individual circumstances and challenges of our customers—which vary by country and region—to achieve Carbon Neutrality.

The Group's Energy Transition strategy centers on three pillars: Decarbonization of existing infrastructure, Implementation of a hydrogen solutions ecosystem, and Building a CO_2 solutions ecosystem. To decarbonize existing infrastructure, we are focusing on increasing the efficiency of thermal power and converting to carbon-free fuels, as well as contributing to the maximum utilization of nuclear power and the decarbonization of industries such as steelmaking. To implement a hydrogen solutions ecosystem, we are working to establish a value chain encompassing the production, transportation, storage, and utilization of hydrogen to be used as a fuel for power generation. To build a CO_2 solutions ecosystem, we will leverage our expertise in CO_2 capture technology to provide solutions for the capture, transport, storage, and utilization of CO_2 in hard-to-abate industries.

In this special feature, we outline our approach to the Energy Transition in thermal power systems, part of the critical power infrastructure that supports modern society.

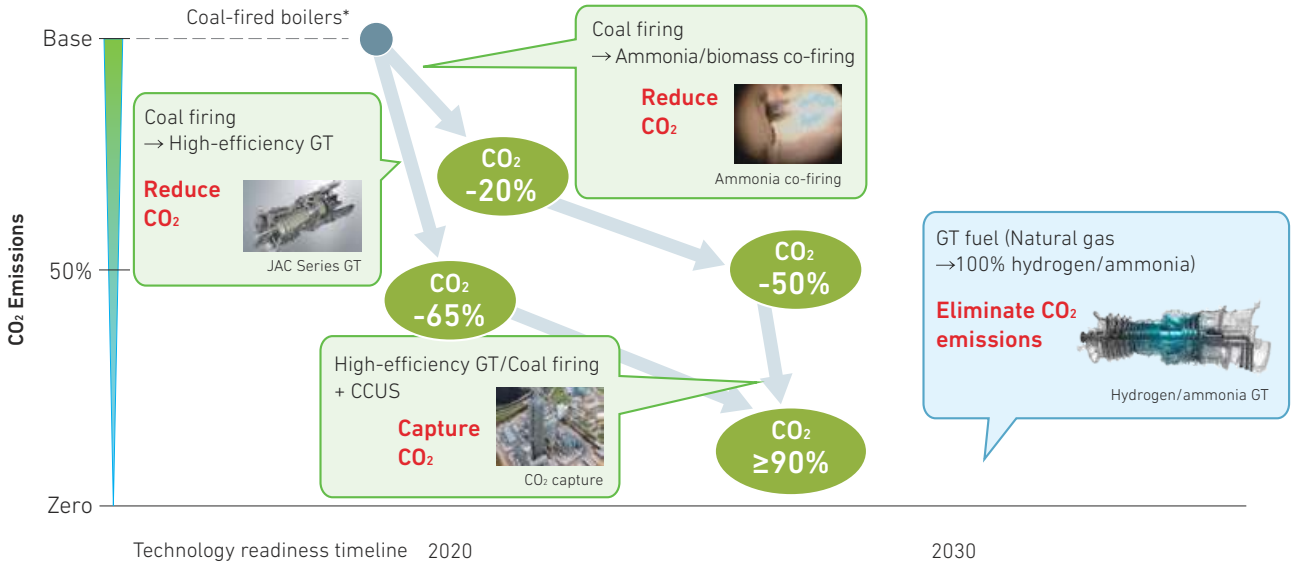
MHI Group Technological Capabilities Backed by a Long History of Extensive Achievements

Going all the way back to Japan's first domestically produced steam turbine in 1908, MHI Group's Gas & Steam Power Systems businesses have developed in step with the world's growing demand for electricity. Throughout our history of development and production spanning more than a century, MHI has grown into one of the world's top-class manufacturers of gas turbines for power generation applications. The ability to fire fuel at high temperatures is essential to achieving high efficiency in a gas turbine, which is currently one of our mainstay products. Thanks to cutting-edge technology development efforts in such areas as aerodynamics, cooling, and materials science, MHI brought the world's first 1,600°C J-series gas turbine to market in 2011.

During the Energy Transition, to achieve the widespread implementation of decarbonization solutions—including efficiency improvements in existing infrastructure, conversions from fossil to clean fuels, and CO_2 capture—it will take time for existing infrastructure to be replaced in a phased manner. Technology development will also require sustained effort over a long time frame. Here, MHI's strengths will be on full display: analysis of operations data gathered during often decades of providing after-sales services for our products, continuous development of our technologies and
human capital, and a stable financial foundation to support these efforts.

Roadmap for Energy Transition in Thermal Power

To decarbonize thermal power, MHI Group is pursuing three approaches: reducing, capturing, and eliminating CO_2 emissions. As shown in the diagram below, each of these solutions will contribute steadily to reducing CO_2 emissions.



*Based on CO_2 emissions from subcritical pressure coal-fired boilers

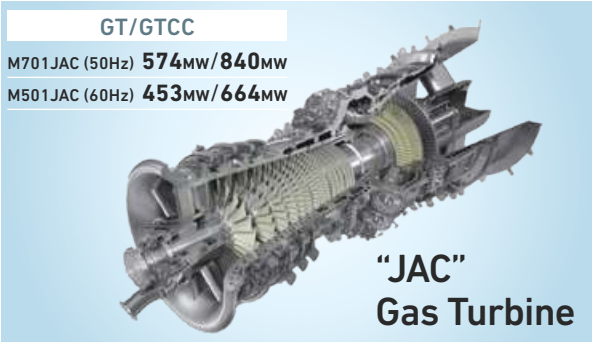
Conversion of Coal-Fired Power to Decarbonized Fuels and Replacement with GTCC

At every stage of the process, from gas turbine R&D, design, validation, manufacture, installation, and trial operation to after-sales services, MHI Group provides quality that customers trust. In addition, existing coal-fired thermal power generation systems can reduce CO_2 through the co-firing of low-carbon or decarbonized fuels, such as ammonia and biomass. CO_2 can also be reduced by replacing coal-fired systems with high-efficiency gas turbines. GTCC power generation systems using cutting-edge JAC[1] gas turbines have achieved a power generation efficiency of 64%, the highest level in the world. The result is up to 65% reduction in CO_2 emissions compared to conventional coal-fired thermal power systems. MHI's high-efficiency, highly reliable JAC gas turbines also satisfy customer needs as a lower-carbon alternative to coal-fired thermal power as a baseload power source.

1 JAC: J-series Air-Cooled gas turbines

Cutting-Edge JAC Gas Turbine

Replacing a coal-fired thermal power system with a gas-fired GTCC can cut CO_2 emissions by up to 65%.



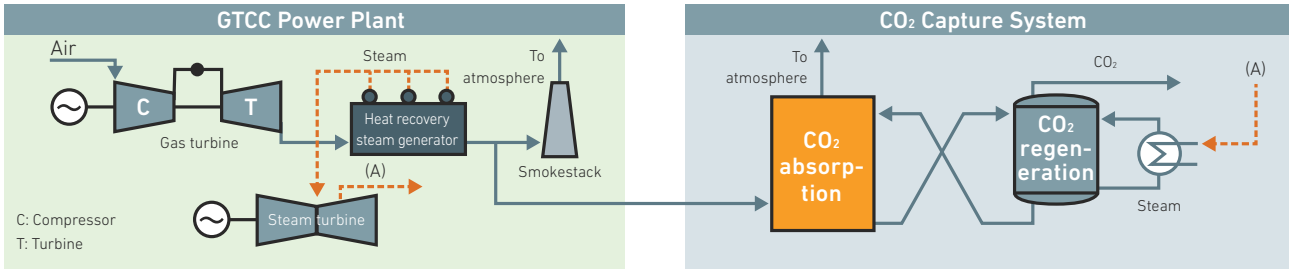
High efficiency: 64% CC efficiency	■ High pressure ratio compressor (25:1) ■ Enhanced air-cooled combustors ■ Advanced thermal barrier coating (TBC)
Reliability: 99.5% reliability	■ Cumulative operation hours: > 2.4 million hours ■ Booked units: 136 units (J-series as of July 31, 2024)
Fuel flexibility: Compatible with a variety of fuels	■ Fossil fuels (natural gas, oil) ■ Clean fuels (hydrogen)

High-Efficiency GTCC + CO_2 Capture System

MHI Group has worked to develop the KM CDR Process™ and Advanced KM CDR Process™ in collaboration with The Kansai Electric Power Co., Inc. since 1990. Both of these technologies employ a chemical absorption method using a proprietary amine absorbent. We have delivered CO_2 capture systems for use in chemical plants and power generation facilities worldwide. As of September 2024, we have the world's highest market share in commercial flue gas CO_2 capture plants on a capacity basis.

The demand for combinations of high-efficiency GTCC power systems with CO_2 capture systems is increasing worldwide, driven by the establishment of legal frameworks supporting decarbonization, such as the Inflation Reduction Act (IRA) in the U.S. We have been awarded front-end engineering design (FEED) contracts for CO_2 capture systems to be applied to GTCC power plants, primarily in North America and Europe. In January 2024, we agreed with The Kansai Electric Power Co., Inc. to install a new CO_2 capture pilot plant at Himeji No. 2 Power Plant with plans to demonstrate next-generation CO_2 capture technology using flue gas from a GTCC system. This next-generation technology is currently under joint development with ExxonMobil. We will continue to enhance our competitiveness and steadily develop the CCUS business leveraging our proprietary CO_2 capture technology.

By installing a CO_2 capture system at a high-efficiency GTCC power plant, it is possible to capture over 90% of the CO_2 generated.



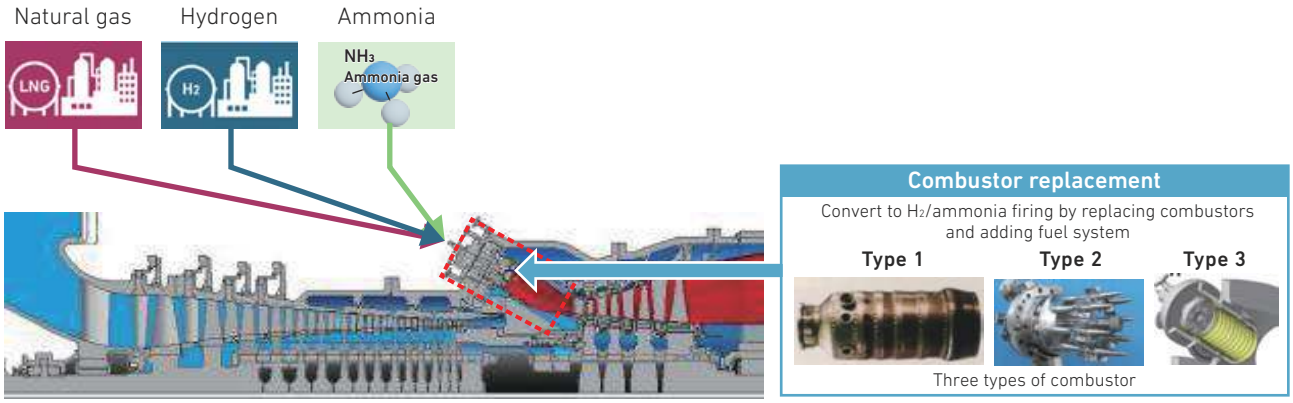
Hydrogen- and Ammonia-Fired Gas Turbine Development

In response to customer requests for a method to effectively utilize oil refinery and steel mill off-gas, since the 1970s, MHI Group has manufactured gas turbines which fire off-gas containing hydrogen. Since the 1980s, MHI has worked to develop technology to fire hydrogen in 15 MW-class gas turbines. Leveraging our experience developing and operating combustors for these industrial applications, MHI is working hard to develop next-generation combustion techniques which will make 100% hydrogen firing possible by resolving technical issues, such as hydrogen's especially high rate of combustion.

MHI has completed development of a large frame gas turbine combustor enabling 30% hydrogen co-firing. We also successfully conducted a combustion test with a 50% hydrogen mix in 2022. This was an important milestone at which we effectively gained the ability to comply with the EU Taxonomy's 270 g/kWh CO_2 emissions standard. Following this successful combustor test, in November 2023, we used our state-of-the-art 1,650°C class J Series Air-Cooled (JAC) gas turbine at Takasago Machinery Works' GTCC demonstration facility. This validation operation, which used a fuel mixture of natural gas blended with 30% hydrogen, was successful. We will continue validation operations with a 50% hydrogen mix at the same facility. In parallel, we are working to develop a 100% hydrogen-fired gas turbine using a new multi-cluster combustor design, with commercialization planned for 2030 or thereafter.

Another valid approach to decarbonization is utilizing ammonia, which acts as a hydrogen carrier and is easier to handle than hydrogen. The use of ammonia will help stabilize energy supplies and address environmental issues, thus facilitating a smooth Energy Transition. MHI has also begun work on the development of a 40 MW-class gas turbine that directly uses 100% ammonia fuel. We are pursuing combustor development in the lead-up to commercial unit operation and market launch in 2025 or thereafter.

A natural gas-fired gas turbine can be adapted to fire hydrogen or ammonia—and thereby achieve decarbonization—simply by replacing the combustors and adding a hydrogen or ammonia fuel supply system



Type 1 (diffusion)	100% H_2 firing	Development complete
Type 2 (premix)	30% H_2 co-firing	Development complete for large frame GTs
	Type 3 (multi-cluster)	2022: Successful combustion tests for large frame GTs
Type 3 (multi-cluster)	100% H_2 firing	After 2025: Commercialization of small and mid-size GTs After 2030: Commercialization of large frame GTs
Type 1 (diffusion)	100% ammonia firing	Validating in the lead-up to commercial unit operation and market launch in 2025 or thereafter

Decarbonization Technology Development Center Now Fully Operational

MHI Group established Takasago Hydrogen Park (Takasago City, Hyogo Prefecture) and Nagasaki Carbon Neutral Park (Nagasaki City, Nagasaki Prefecture) as development hubs for decarbonization technologies. At Takasago Hydrogen Park, we use a utility-scale GTCC demonstration facility to conduct long-term validation of the latest fundamental technologies, from hydrogen production to utilization (power generation), under real-world operating conditions. Nagasaki Carbon Neutral Park is a base for developing these fundamental technologies.

The process of bringing products to market that have undergone a series of fundamental technology development and validation cycles in conditions similar to those of commercial operations helps us improve the reliability of the products we develop.

Takasago Hydrogen Park

In 2022, we established Takasago Hydrogen Park at Takasago Machinery Works, our base for the development, design, manufacture, and validation testing of gas turbines. It is the world's first integrated hydrogen validation facility for technologies ranging from hydrogen production to utilization (power generation).

In the area of hydrogen production, we commenced operation of an alkaline water electrolyzer in the autumn of 2023. SOEC (Solid Oxide Electrolysis Cell) is a next-generation, high-efficiency hydrogen production technology, which we are developing through the application of proprietary fuel cell technologies which achieve high levels of pressure that other companies cannot replicate. An SOEC test module has been in operation since the spring of 2024. We are also developing an AEM[2] electrolyzer, which will allow us to reduce the cost and size of electrolyzer systems. We aim to produce commercial AEM electrolyzer units after completing validation operations at Takasago Hydrogen Park. Furthermore, we are developing a next-generation turquoise hydrogen production technology using a methane pyrolysis technique, which converts methane into hydrogen and solid carbon. Going forward, we will pursue validation

operations at Takasago Hydrogen Park and continue working to commercialize the large-scale production of hydrogen.

In addition to the validation testing of hydrogen-fired gas turbines, we are expanding our hydrogen production and storage facilities. We believe that using these facilities will enable us to contribute greatly to the widespread use of hydrogen and the practical implementation of hydrogen power generation.

2 AEM: Anion Exchange Membrane

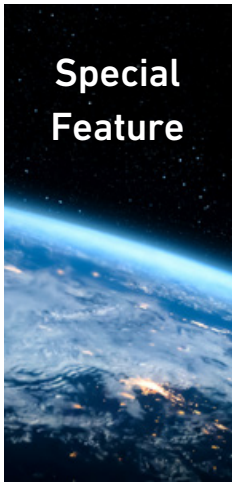
Takasago Hydrogen Park Validation Schedule

		2023	2024	2025	2026	2027
Hydrogen production facilities	Alkaline water electrolyzer	Commissioning		Commercial operation started (40 units) Advanced Clean Energy Storage Project (North America)		
	SOEC	Fundamental technology testing	400 kW-class test module under validation		Multiple-MW validation operation (planned)	
	AEM electrolyzer	Fundamental technology testing and development validation				
	Turquoise hydrogen	Fundamental technology testing and development validation				Multiple-MW validation operation (planned)
Hydrogen storage facility	Hydrogen storage	350 units	Expansion (1,050 units)			
Gas turbine validation schedule	Large frame gas turbines	30% co-firing validation achieved	50% co-firing validation (planned)	Start of 30% hydrogen co-firing commercial operations in North America		
	Small- and mid-size gas turbines	100% hydrogen firing validation				

Nagasaki Carbon Neutral Park

We established Nagasaki Carbon Neutral Park within Nagasaki Shipyard and Machinery Works and the Research & Innovation Center in Nagasaki in 2023. In addition to the hydrogen production technologies to be validated at Takasago Hydrogen Park, we are developing fundamental technologies for ammonia firing, CO_2 capture, and fuel synthesis using biomass. We will leverage our long-established capabilities in the design and manufacture of thermal energy systems to accelerate the development and commercialization of new decarbonized products.

In the power generation sector, we are developing ammonia combustion technology for use in boilers, gas turbines, and gas engines. We are also conducting research and validation tests for the utilization of ammonia in marine engines.



MISSION NET ZERO

Role of GX Solutions in Achieving MISSION NET ZERO

In April 2024, MHI Group established GX Solutions as a new business domain to promote Energy Transition initiatives, which we are pursuing as a future growth area within our growth strategy. This new organization is driving the Energy Transition-related business, which previously spanned multiple divisions of MHI Group.

Note: GX (Green Transformation): A growth strategy advocated by the Japan Ministry of Economy, Trade and Industry which refers to the transformation of entire socio-economic systems, which is needed to balance economic growth and protection of the environment.

Purpose of GX Solutions

In the Energy Transition business, we need to propose optimal combinations of solutions based on each customer's preferences and circumstances. To provide one-stop solutions for diversifying needs, we reorganized and integrated several related departments to create GX Solutions. By combining the Group's products and technologies with those of various partners, we will make optimal proposals, create new businesses, and forge ahead on the path to MISSION NET ZERO.

GX Solutions consists of three strategic business units (SBUs): (1) GX Business, (2) CO_2 Capture, and (3) Engineering.

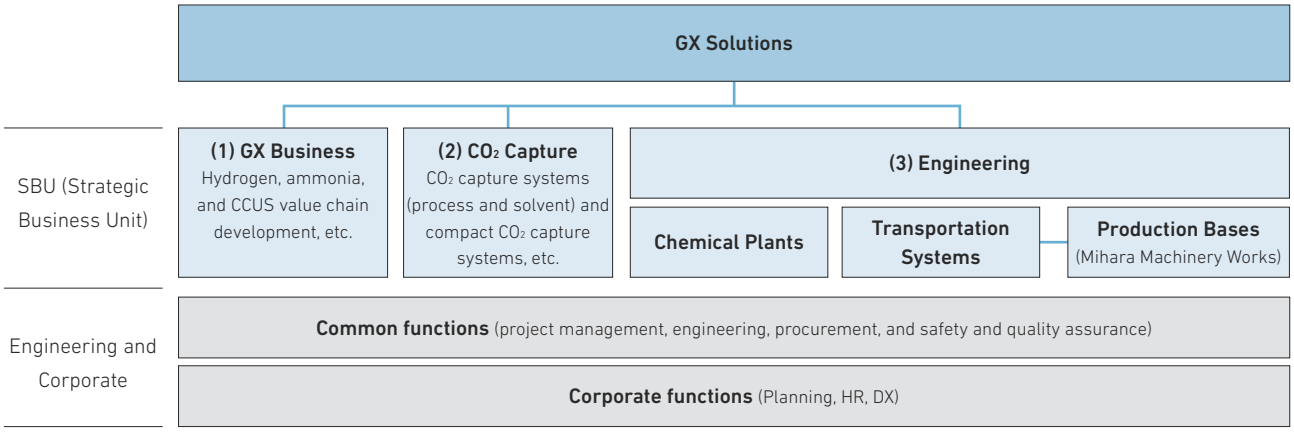
The GX Business SBU is working to build hydrogen, ammonia, and CCUS* value chains. It is also actively developing businesses and projects that surpass simple product-based businesses.

Leveraging our CO_2 capture technology, which boasts the top global market share, the CO_2 Capture SBU provides CO_2 capture plants, compact CO_2 capture systems, and operations and maintenance (O&M) services. It is working actively to develop new technologies and services to meet the decarbonization needs of a variety of industries.

The Engineering SBU leverages our advanced engineering and project management capabilities to provide chemical plants and transportation systems that meet our customers' strict requirements. Our engineering and project management expertise, cultivated over many years, is a key strength of GX Solutions. We will leverage this strength to support the expansion of both the GX Business and CO_2 Capture SBUs.

*CCUS: Carbon dioxide Capture, Utilization, and Storage

Functions of GX Solutions



Main Measures under the 2024 MTBP

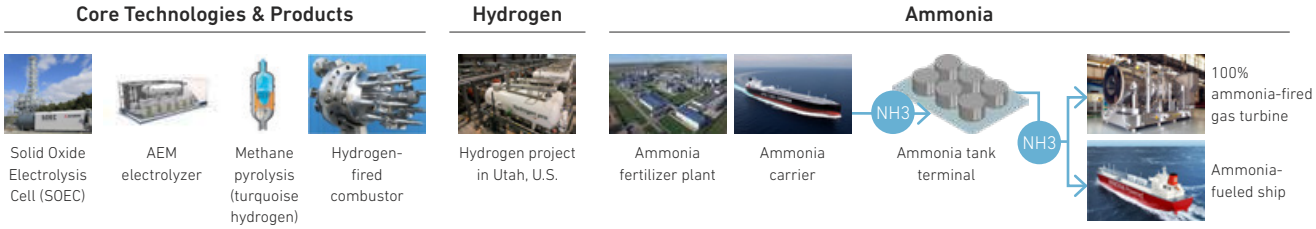
In the 2024 Medium-Term Business Plan (MTBP), GX Solutions will play a central role in building value chains for hydrogen, ammonia, and CCUS—our future growth areas—and drive business execution in these areas.

Building Hydrogen and Ammonia Value Chains

GX Solutions is responsible for business and project development by integrating in-house-developed core technologies and products, such as hydrogen- and ammonia-fired gas turbines and hydrogen production equipment.

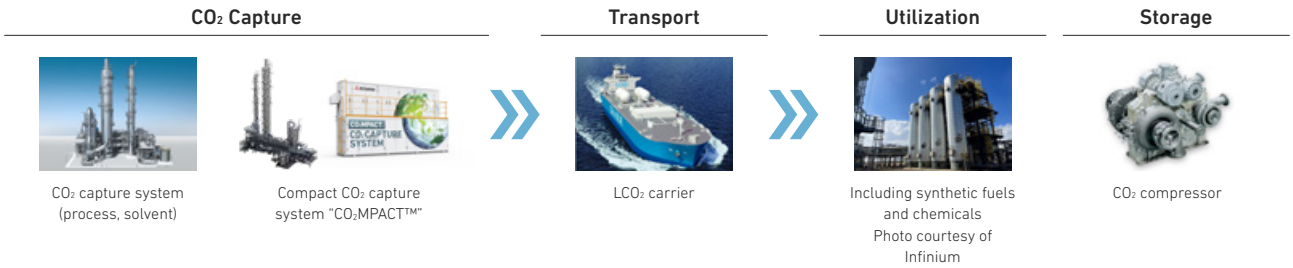
In the U.S. state of Utah, we are participating in the Advanced Clean Energy Storage Project, the world's largest hydrogen production, storage, and supply project.

By 2025, we plan to begin supplying green hydrogen to a GTCC power plant equipped with hydrogen-fired gas turbines. We will continue to form strategic partnerships with other companies and pursue realization of various initiatives, including hydrogen hub projects in the U.S. and ammonia bunkering projects in the Asia-Pacific region.



Building a CCUS Value Chain

We are working to build a value chain that leverages our core technologies and products for CO_2 capture, transport, and storage. In addition to securing contracts for CO_2 capture projects in North America and Europe, we are increasing our involvement in an advanced CCS project led by the Japan Organization for Metals and Energy Security (JOGMEC) on the Sea of Japan side in the Tohoku region, aiming to begin CO_2 storage by FY2030. To further strengthen our competitiveness, we are also developing next-generation CO_2 capture technologies, expanding remote monitoring and other O&M services, and strengthening partnerships.



Realizing Carbon Neutrality throughout MHI Group

Please tell us about the origin of GX Solutions.

Under the 2021 MTBP, covering the period from April 2021 to March 2024, MHI Group promoted decarbonization on two fronts toward realizing Carbon Neutrality: Reducing carbon emissions on the energy supply side through the Energy Transition, improving energy efficiency, and achieving automation and decarbonization on the energy demand side through Smart Infrastructure. At the time, the departments pursuing the related businesses within the Group included the Growth Strategy Office, Energy Systems, and Engineering Solutions. However, we recognized the need for a unified external point of contact and stronger cross-functional collaboration to better develop markets and respond to customer needs. For example, in the CCUS value chain, which spans multiple business domains, such as CO_2 capture, transportation, storage, and utilization, it was not clear for customers where to direct their inquiries. Therefore, we established GX Solutions with the aim of unifying the point of contact and providing customers with optimal solutions from across the Group.

Did global trends also affect your decision?

Until around 2018, the focus seemed to be more on low-carbon approaches aimed at reducing CO_2 emissions rather than full decarbonization. After that, however, this trend significantly changed, with various countries, including Japan, declaring their commitment to achieving Carbon Neutrality by 2050. Amid the growing momentum toward decarbonization, customer demand for decarbonization solutions has been increasing. We recognized the need for a dedicated department to address these ever-growing needs effectively.

What duties and goals are GX Solutions expected to fulfill?

The achievement of MISSION NET ZERO through our business activities is a key role that we expect GX Solutions to play. To achieve this, in addition to developing and selling products and services that contribute to decarbonization—such as hydrogen gas turbines—it is important that GX Solutions contributes to building the value chains required for large-scale implementation.

In the 2024 MTBP, we have set a target to grow revenue from businesses related to the hydrogen, ammonia, and CCUS value chains to ¥300 billion by 2030. To achieve this, we will need to collaborate with a variety of partners, both inside and outside the Group, to provide wholistic solutions. First, we will make projects related to CO_2 capture, hydrogen, and ammonia a reality within three years' time.

How has progress been since the establishment of GX Solutions?

I definitely feel that cross-functional collaboration has become much stronger. In the hydrogen project in North America, for example, employees with abundant engineering experience in transportation systems and chemical plants are supporting our GX Business SBU. This shows that our experience, accumulated over the years, is now being applied to new businesses and fields. In addition, the CO_2 Capture SBU has been receiving inquiries from customers about transportation and storage methods for the captured CO_2. By strengthening cross-functional collaboration, we have been able to respond quickly to customer needs.

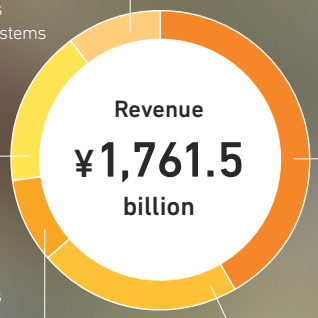
Please offer some final comments to our stakeholders.

Promoting the Energy Transition and achieving MISSION NET ZERO are challenges not only for GX Solutions but also for the entire company. By using GX Solutions as a jumping off point and creating strong momentum throughout the Group, we will drive the development of new businesses. We encourage our employees to actively propose ideas to contribute to Carbon Neutrality, and we are committed to the relentless pursuit of MISSION NET ZERO.

Hitoshi Kaguchi

Senior Executive Vice President and Head of GX Solutions

ENERGY SYSTEMS



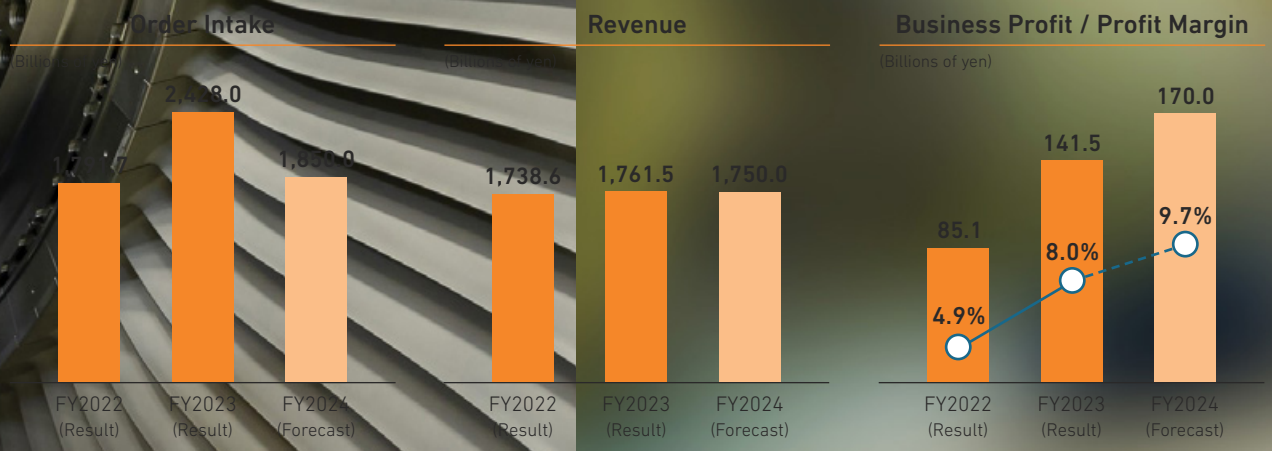
Others
¥177.9 billion
Key products and services
- Wind power systems
- Air quality control systems (AQCS)
- Compressors
- Marine machinery

Nuclear Power Systems
¥300.8 billion
Key products and services
- Light water reactors
- Decommissioning
- Fuel cycle
- Future reactors
- New fields

Aero Engines
¥157.4 billion

Steam Power
¥389.8 billion

GTCC
¥735.6 billion



Note: Figures for FY2024 (forecast) reflect a reclassification of reportable segments due to a reorganization, including the establishment of the new GX Solutions segment on April 1, 2024.

Overview of FY2023

Consolidated order intake totaled ¥2,428.0 billion, up from the previous year, mainly due to an increase in orders for GTCC systems, for which we maintain the top share of the booming global market, as well as higher orders for nuclear power systems in response to the restart of existing plants.

Revenue amounted to ¥1,761.5 billion, up year on year, mainly due to increased sales of aero engines and nuclear power systems. Profit from business activities was ¥141.5 billion, surpassing the previous year's figure, mainly owing to increases in earnings from GTCC systems and steam power systems, as well as stable earnings from nuclear power systems.

Takasago Hydrogen Park

Takahama Nuclear Power Station
(The Kansai Electric Power Co., Inc.)

Business Environment and Key Strategies in the Medium to Long Term

Business Environment

The movement towards decarbonization is accelerating, centered on Europe and the United States, among rising interest in achieving Carbon Neutrality and energy security.

The European Union is seeing a wider reevaluation of nuclear power and natural gas, with a decision to include nuclear power and natural gas in the EU Taxonomy[1], which defines sustainable economic activities.

In Japan, the cabinet approved the Basic Policy on Green Transformation in February 2023. The policy clearly lays out the country's direction on both responding to climate change and ensuring a stable supply of energy, mainly by promoting action on decarbonization, such as thorough energy conservation and switching to decarbonized sources of electricity that help to increase the country's energy self-sufficiency, such as nuclear power and hydrogen. MHI Group is actively promoting an Energy Transition grounded in reality through a wide range of solutions including gas & steam power systems, such as high-efficiency gas turbines, hydrogen-firing gas turbines, and biomass boilers, as well as nuclear power systems.

1 EU Taxonomy: A set of criteria established as part of the European Union's sustainable finance strategy, defining standards for "sustainable economic activities"

Business Status

Gas & Steam Power Business

Gas turbines saw a steady buildup of orders received from Japan, the U.S., Brazil, Uzbekistan, Singapore, and elsewhere backed by firm demand for gas-fired thermal power, which has a lower environmental impact than coal-fired thermal power. The Company's gas turbines are highly regarded for offering the world's highest level of efficiency and output capacity and maintained the world's top market share in FY2023 for the second consecutive year. This is due to the high product reliability of the J-series gas turbine, which has a cumulative operating time of more than 2 million hours, and the future extensibility such as installation of CO_2 capture equipment and conversion to hydrogen-firing.

At the GTCC demonstration facility (rated output: 566,000 kW) in Takasago Hydrogen Park, we successfully conducted demonstration tests using the latest JAC gas turbine with a turbine inlet temperature of 1,650°C. The tests, conducted at both partial and full loads, utilized a mixed fuel containing 30% hydrogen blended with city gas. Moving forward, we will make full use of Takasago Hydrogen Park, which enables integrated demonstration tests, from hydrogen production to storage and utilization (power generation). In the process, we will establish hydrogen-fired gas turbine technology to help realize a future carbon-neutral society.

The focus of the steam power business is shifting to a service-centered model in response to the shrinking new-build market. As the need for stable electricity supply and decarbonization differs from region to region, we propose solutions tailored to local conditions. As part of this effort, we signed a memorandum of understanding to study the use of biomass and ammonia fuels at existing thermal power plants. We are also promoting CO_2 emissions reduction in our service business by making proposals for maintenance and suggesting innovations to increase efficiency, for example.

Nuclear Power Business

In the nuclear power business, we are working with electric utilities to restart existing light water reactor plants, installing severe accident management facilities (Specialized Security Facilities), and preparing for completion of a fuel cycle facility's construction. In FY2023, we completed the installation of key equipment for such facilities at Kansai Electric Power's Takahama Nuclear Power Station (Unit 1 and Unit 2) and restarted operations, thus contributing to stable and low-cost supply of electric power through the stable operation of 12 PWR[2] plants. Recently, based on our track record in restarting PWR plants and installing Specialized Security Facilities, we

have received a number of requests from BWR[3] electric utilities for support in regard to restarting BWR plants and installing Specialized Security Facilities. In addition, with a view to contributing to the realization of Carbon Neutrality and stable energy supply, we have been working with four PWR electric utilities[4] on joint development and design of the Advanced Light Water Reactor SRZ-1200, which will achieve the world's highest standards of safety, aiming for practical implementation in the mid-2030s. The basic design for the standard plant has been largely completed. Once a specific construction site is determined, we will proceed with basic and detailed designs of individual plants, with the aim of achieving early commercialization.

Furthermore, to enable us to respond to diversifying social needs in the future, we are proceeding with development of technologies including small light water reactors as distributed power sources, high temperature gas-cooled reactors that can contribute to large-scale stable hydrogen production, and fast reactors that contribute to a reduction in the volume and toxicity of radioactive waste. With government assistance, we are aiming for practical implementation of these technologies around 2040. In FY2023, MHI was selected as the core company for design and development of a demonstration fast reactor and a high temperature gas-cooled demonstration reactor, both promoted by the Japanese government.

2 PWR: Pressurized water reactor
3 BWR: Boiling water reactor
4 Hokkaido Electric Power, Kansai Electric Power, Shikoku Electric Power, and Kyushu Electric Power

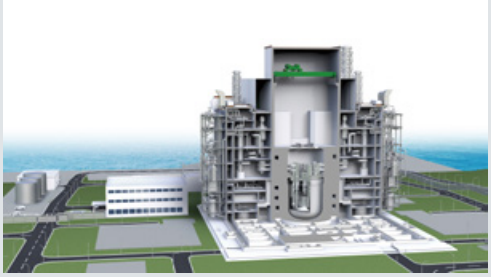
FOCUS

Selection as core company for development of a demonstration fast reactor and a demonstration high-temperature gas-cooled reactor

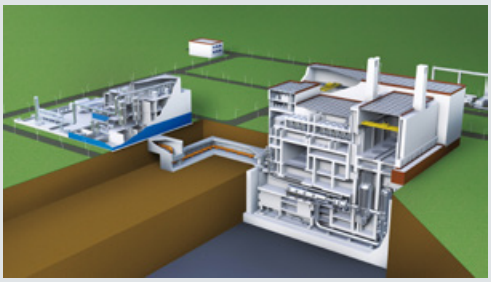
Nuclear power is carbon-free and provides a large-scale, stable power supply, making it an essential baseload power source from the perspective of energy security. Therefore, we believe that utilizing nuclear power in the future is essential.

In this context, MHI was selected as the core company for the design and development of a demonstration fast reactor and a demonstration high-temperature gas-cooled reactor, both promoted by the Japanese government.

Fast reactors are extremely important for Japan, which has limited natural resources, because their inclusion produces a fuel cycle that enables such resources to be used more efficiently. Furthermore, they make it possible to reduce the volume and toxicity of high-level radioactive waste. As the core company in fast reactor development, we will steadily proceed with the aim of building a domestic demonstration reactor by around 2040.



Sodium-cooled tank-based fast reactor
(includes research results from projects commissioned by the Ministry of Economy, Trade and Industry)



Hydrogen terminal utilizing a high-temperature gas-cooled reactor
(artist's rendering)

High-temperature gas-cooled reactors are capable of utilizing nuclear heat at ultrahigh temperatures exceeding 900°C. By using nuclear energy as a carbon-free, high-temperature heat source for large-scale and stable hydrogen production, they can contribute to the decarbonization of steel and other industrial sectors. As the core company in high-temperature gas-cooled reactor development, we aim to build a demonstration reactor by around 2040. To this end, we will engage in design and development in collaboration with the Japan Atomic Energy Agency (JAEA).

Aero Engines/Compressors/Marine Machinery

Aero engines saw growth in demand for new builds and maintenance as air travel demand returns to a growth trajectory following the relaxation of travel restrictions. To keep pace with the expected growth in MRO[5] demand, we completed expansion work on our aero engine maintenance plant in Komaki, Aichi Prefecture. We are also proceeding with expansion of our Nagasaki Plant, aiming to integrate production of combustors and achieve further productivity gains. The second phase of that expansion is scheduled for completion in 2024, with operations beginning in stages thereafter.

In compressors, we will actively respond to demand for use in decarbonization-oriented ethylene, ammonia, and LNG plants, mainly in North America and the Middle East, backed by our strong track record in supplying compressors for oil and gas and petrochemical plants. In addition, we will proceed with product development to address new needs related to CCS and hydrogen.

In the marine machinery sector, we are managing our business by maintaining and increasing our market share in the newbuilding market and expanding our after-sales business. In response to the introduction of energy efficiency regulations for vessels in service and the International Maritime Organization's adoption of an accelerated zero greenhouse gas (GHG) emissions target, we promote solutions for the energy-saving systems market and the fuel conversion retrofitting market to meet growing demand for reducing CO_2 and other GHG emissions.

5 MRO: Maintenance, repair, and overhaul

FOCUS

Expansion of aero engine combustor manufacturing plant to meet rising demand

Mitsubishi Heavy Industries Aero Engines, Ltd. (MHIAEL), which handles the manufacturing, maintenance, and repair of aero engines, has completed the second phase of the construction of its Nagasaki Plant. This expansion strengthens its production capacity to meet growing demand for engine components for short- and medium-haul passenger aircraft. In addition to expanding production capacity, MHIAEL will enhance its manufacturing technology and strengthen cost competitiveness by introducing Japan's first thermal-barrier coating system for mass production of aircraft-related components.

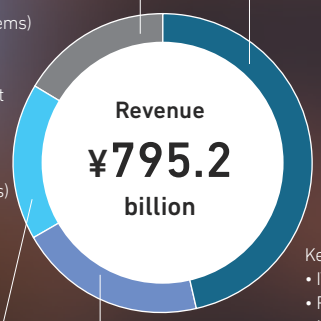
MHIAEL Nagasaki Plant

The first phase of the plant, which manufactures combustors for the PW1100G-JM engine (installed on the Airbus A320neo), began operations in November 2020 and has since been gradually expanding its production scale. With this second phase of investment, we expanded the production area to approximately 11,000 m², doubling its original size. In addition, we plan to integrate certain manufacturing processes that are currently outsourced to overseas manufacturers, thereby achieving full in-house production of combustors. At the same time, we will enhance our facilities in preparation for a significant increase in production in the future.

The MHIAEL Nagasaki Plant is an aircraft-related facility specializing in the production of combustors, a critical component of aero engines. Its production line can handle fully integrated operations, from receipt of raw materials for combustor parts to machining and assembly. To efficiently manufacture highly complex aero engine components, it has introduced advanced automation and labor-saving technologies, including cutting-edge machine tools and automated conveyance and tool-changing systems.

MHIAEL will continue enhancing its technical capabilities and reliability in the development, manufacture, and after-sales service of aero engines while expanding its production capacity, thereby fostering the development of the aircraft industry in Japan and contributing to "carbon neutrality of the skies."

PLANTS & INFRASTRUCTURE SYSTEMS



Others
¥129.4 billion

Key products and services
- (Commercial ships) Passenger ferries, general commercial ships, special purpose ships, shipbuilding engineering
- (Environmental systems) Air quality control systems, waste-to-energy systems, heat recovery systems, sludge treatment systems
- (CO_2 capture systems) CO_2 capture plants

Metals Machinery
¥369.4 billion

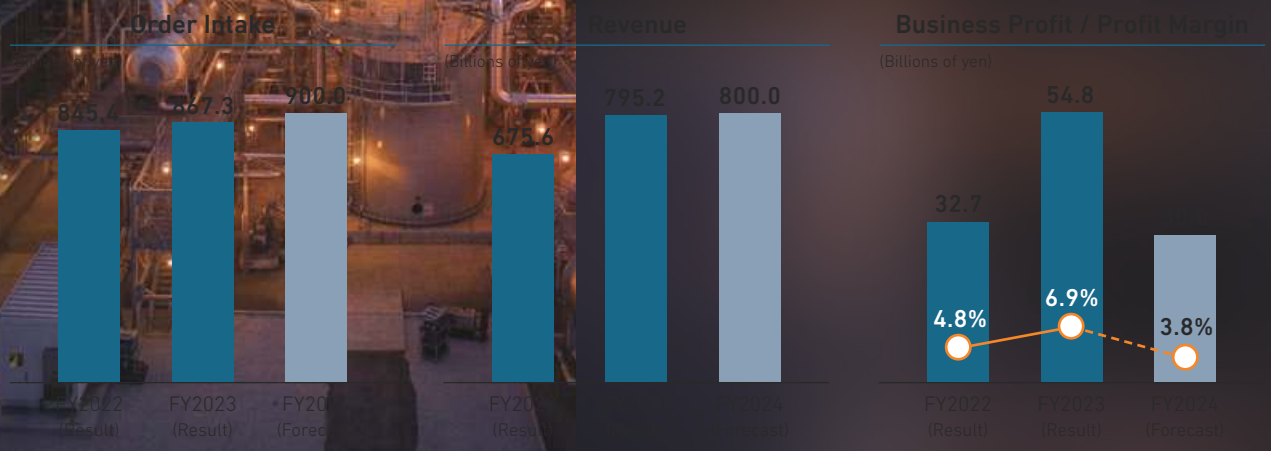
Key products and services
- Ironmaking plants
- Steelmaking plants
- Continuous casting plants
- Rolling mills
- Processing lines

Engineering
¥134.0 billion

Key products and services
- Transportation systems
- Chemical plants

Machinery Systems
¥162.4 billion

Key products and services
- ITS
- Parking systems
- Machinery systems
- Food & packaging machinery
- Special testing facilities
- Printing & packaging machinery



Note: Figures for FY2024 (forecast) reflect a reclassification of reportable segments due to a reorganization, including the establishment of the new GX Solutions segment on April 1, 2024.

Overview of FY2023

Consolidated order intake amounted to ¥867.3 billion, surpassing the previous year's figure, due to factors such as increased demand for mobility, particularly in the United States and Asia, and strong performance in the automated guideway transit (AGT) market.

Revenue totaled ¥795.2 billion, up from the previous year, driven by growth in sales of metals machinery and engineering. Profit from business activities rose to ¥54.8 billion, reflecting the same factors.

Manila Metro Rail Transit System Line 3 (MRT-3)

Electrical steel production systems

Business Environment and Key Strategies in the Medium to Long Term

To address growing demand for carbon-neutral initiatives and the need for efficiency, automation, and manpower-saving through digital transformation (DX), we are developing a diverse range of products and expanding our business to address environmental challenges and meet social needs.

With respect to metals machinery, we anticipate growth in green steel investments not only in Europe and North America, which are driving the market, but also in the Middle East and Asia. In response, we are expanding our product lineup to meet a wide range of customer needs by developing differentiated technologies, including the hydrogen-based direct reduction of iron ore.

In machinery systems, we are expanding our business in two key areas. First, we are strengthening our efforts in mobility and testing equipment, as well as related devices, to support the development of autonomous driving technology and infrastructure. Second, we are developing industrial solutions to drive expansion of after-sales services using DX.

In engineering, we are working to attract orders for new projects and O&M services for transportation systems, focusing on growing demand in North America and Asia. In chemical plants, we are promoting initiatives for clean fuels and high-performance chemicals in addition to conventional plants, such as fertilizers and ammonia.

In commercial ships, we are working to provide LNG fuel supply systems and develop ammonia fuel handling systems and liquefied CO_2 handling systems in response to the tightening of environmental regulations aimed at decarbonization. We are also working to build environmentally friendly vessels fueled by LNG and methanol to replace heavy oil. In environmental systems, we are striving in various ways to address the growing social need for resource-circulating solutions. For example, we are working to achieve high-efficiency power generation by utilizing steam generated during waste incineration. We are also developing CCU*, methane fermentation, and other technologies at waste incineration facilities. In CO_2 capture systems, we are strengthening the competitiveness of our own CO_2 capture technologies and products while expanding partnerships globally to build a carbon dioxide capture, utilization, and storage (CCUS) value chain, to drive business growth.

*CCU: Carbon dioxide Capture and Utilization

FOCUS

Demonstration test of MAmmoSS® ammonia handling system for ships in preparation for market launch

To achieve the International Maritime Organization's goal of net-zero greenhouse gas emissions from international shipping by around 2050, a shift from traditional fossil fuels to next-generation fuels is essential. Ammonia, which produces zero CO_2 emissions when burned, is regarded as a promising decarbonized fuel for the maritime industry and is earmarked to become a key component of stable, clean energy solutions in the future. With this in mind, Mitsubishi Shipbuilding Co., Ltd. is developing an ammonia handling system called MAmmoSS® (Mitsubishi Ammonia Supply and Safety System) to support the utilization of ammonia as marine fuel. That company has built a demonstration-testing facility in MHI's Research & Innovation Center in Nagasaki, where various tests are under way for the safe treatment of excess ammonia gas, with the aim of bringing the system to market in 2025. By commercializing MAmmoSS®, Mitsubishi Shipbuilding will help achieve carbon neutrality in the maritime industry.

MAmmoSS® module (image)

Demonstration experiment for CO_2 capture from waste-to-energy plant flue gas for use in methanation

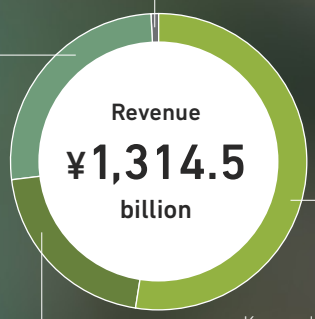
In the waste treatment sector, companies are expected to step up efforts to decarbonize waste-to-energy plants in the pursuit of a carbon-neutral society.

The City of Yokohama, the Tokyo Gas Group, and MHI Group are engaged in Japan's first regional collaborative CCU demonstration project. In this project, CO_2 is separated and captured from the flue gas of a Yokohama City waste-to-energy plant using a system developed by MHI Group. The captured CO_2 is then transported to the Tokyo Gas Group's methanation[1] demonstration facility, where it is used to produce e-methane[2]. Through this project, we will work on the full-scale application of CO_2 capture systems in waste-to-energy plants and improvement of methanation and other CCU technologies, thereby fostering the realization of CO_2 resource recycling.

1 A technology for producing methane, the main component of city gas, through the reaction of carbon dioxide and hydrogen
2 Synthetic methane produced from non-fossil energy sources, such as green hydrogen

Compact CO_2 capture system (CO_2MPACT) installed at the Tsurumi Plant in Yokohama City

LOGISTICS, THERMAL & DRIVE SYSTEMS

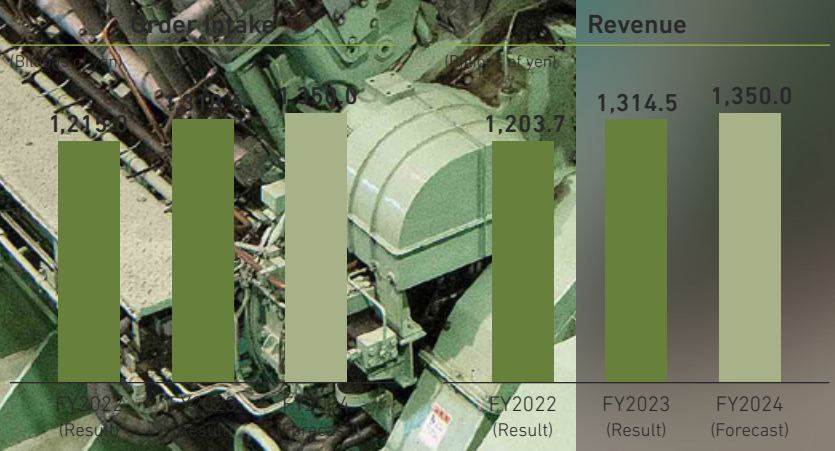


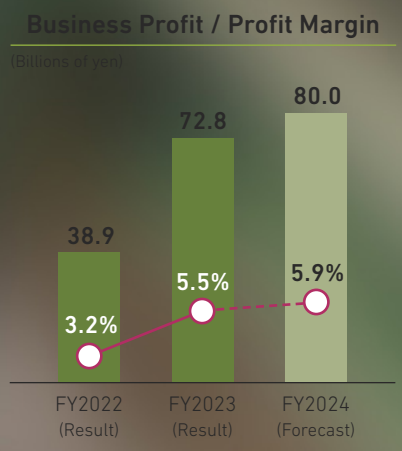
Others
-¥8.0 billion

HVAC & Car A/C
¥348.1 billion
Key products and services
- Household and commercial air conditioners
- Turbo chillers
- Transport chillers
- Electric-driven and belt compressors

Material Handling Systems
¥701.3 billion
Key products and services
- Forklifts
- Dockyard cargo handling machinery
- Logistics systems and peripherals

Engines and Turbochargers
¥273.1 billion
Key products and services
- Industrial machinery engines
- Power-generation sets
- Cogeneration systems
- Turbochargers





Overview of FY2023

Consolidated order intake totaled ¥1,318.6 billion, up from the previous year, mainly due to an increase in material handling systems and engines on the back of growing global demand.

Revenue amounted to ¥1,314.5 billion, up year on year, mainly due to increased sales of material handling systems, HVAC systems, and engines. Profit from business activities was ¥72.8 billion, surpassing the previous year's figure, mainly owing to increased sales of material handling systems stemming from price optimization and higher revenue.

Medium-sized battery-powered forklift (EDiA XL)

Refrigeration condensing unit (C-puzzle)

Business Environment and Key Strategies in the Medium to Long Term

Business Environment

Although we were impacted by rising raw material and logistics costs, as well as supply chain disruptions, we achieved a recovery in profitability thanks to various measures we took, such as capturing increasing global demand in the post-COVID world and optimizing pricing. In the medium to long term, the market for energy-efficient and electrified products is expected to expand, driven by the progression toward a low-carbon and decarbonized society.

Business Status

In the area of material handling systems, we began practical operation of an automated system for loading trucks using unmanned forklifts (automated guided forklifts). This will help reduce the time that trucks spend at facilities and address the so-called "Year 2024 problem" in Japan's material handling industry.

In thermal systems, the market for heat pump products is expected to expand amid the growing need for decarbonization due to tighter global environmental regulations. We are preparing for increased demand by introducing new heat pump water heaters. In automotive air conditioners, we are committed to meeting the needs of our customers, offering a lineup of large-capacity, high-voltage electric compressors to address the growing market for electrified vehicles.

In engines, we are developing and introducing hydrogen engines that produce zero CO_2 emissions in an effort to realize a decarbonized future society. In turbochargers, we are leveraging the rotator technologies we have cultivated to develop and accept orders for electric compressors for fuel cell systems to address the transition to zero-emission vehicles and other changing business conditions. By delivering compressed air to the fuel cell stack, these compressors play a key role in boosting the overall efficiency of the fuel cell system.

FOCUS

Field-testing begins at a demonstration facility with a view to commercialization of hydrogen combustion engines

Mitsubishi Heavy Industries Engine & Turbocharger, Ltd. (MHIET) is working on the commercialization of hydrogen engines as part of our MISSION NET ZERO initiative.

Specifically, MHIET installed and conducted operational tests of a single-cylinder engine (cylinder bore: 170 mm; piston stroke: 220 mm) based on its GSR series of reciprocating gas engines at the Fukushima Renewable Energy Institute of the National Institute of Advanced Industrial Science and Technology (AIST) in Koriyama, Fukushima Prefecture. In the process, it established technologies to achieve stable combustion of 100% hydrogen.

As the next step toward commercialization, MHIET set up a demonstration facility at its Sagamihara Plant featuring a newly developed 500 kW-class 6-cylinder hydrogen engine generator set. This facility includes a hydrogen supply system that reduces the pressure of high-pressure hydrogen gas delivered by hydrogen trailers before supplying it to the generator set. It then began test operations to verify the system's integrity.

Due to its inherent design, a reciprocating engine can burn various types of fuel, including hydrogen, and power generation sets using hydrogen-fired engines emit zero CO_2 because they burn pure hydrogen as fuel. As such, they contribute to the decarbonization of distributed power sources.

By developing hydrogen-fired engines, MHIET aims to encourage the increased use of hydrogen and thus help realize a decarbonized society.

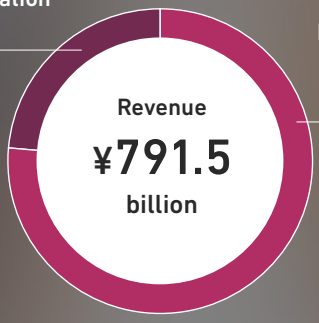
Hydrogen engine generator set demonstration facility

500 kW-class 6-cylinder hydrogen engine (prototype)

AIRCRAFT, DEFENSE & SPACE

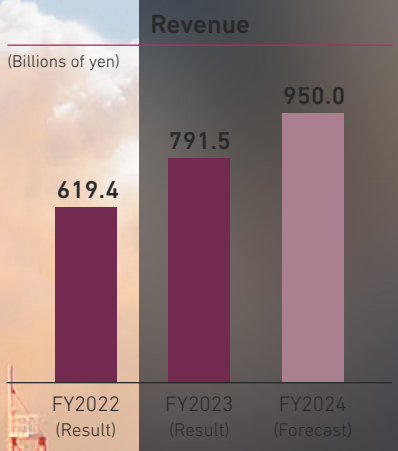
Commercial Aviation
¥185.1 billion

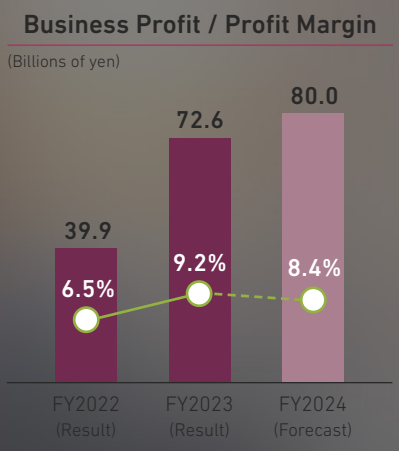
Key products and services
- Commercial aviation (Aerostructure Tier 1 business, Aftermarket business)



Integrated Defense & Space Systems
¥606.4 billion

Key products and services
- Defense aircraft
- Missile systems
- Naval ships
- Maritime systems (torpedoes)
- Land systems (tanks)
- Space systems





Overview of FY2023

Consolidated order intake totaled ¥2,068.7 billion, up from the previous year, mainly due to an increase in orders for missile systems, defense aircraft, and maritime systems in response to the Japanese government's policy on strengthening its defense capabilities.

Revenue totaled ¥791.5 billion, up year on year, due to an increase in sales of commercial aviation and missile systems. Profit from business activities was ¥72.6 billion, surpassing the previous year's figure, driven by an increase in sales of commercial aviation, missile systems, and defense aircraft.

Main wings of Boeing 787

Type 12 surface-to-ship missile

Business Environment and Key Strategies in the Medium to Long Term

Business Environment

In the commercial aviation field, passenger demand has largely recovered from the decline caused by the global COVID-19 pandemic, and it is expected to continue growing in line with the expanding global economy. For the short term, quality issues with certain aircraft models and supply chain constraints caused by industry-wide labor shortages are impacting the orderly recovery of passenger aircraft production. In the medium to long term, however, both production rates and operational aircraft numbers are expected to increase in line with passenger demand.

In the defense field, Japan's Defense Buildup Program has seen significant expansion, reflecting a growing momentum toward further enhancement of national security.

In the space field, demand for launch vehicles is expanding against the backdrop of growing utilization of space worldwide. Expectations are high among domestic and overseas satellite operators particularly with respect to the H3, Japan's latest mainstay launch vehicle.

Business Status

In the aerostructure Tier 1 business of the commercial aviation sector, we will continue digitalization of the design, manufacturing, and certification processes of aircraft. By also promoting R&D in such areas as advanced composite materials and automation to achieve high-rate production, we will pursue participation in new programs. In the aftermarket business, we will further improve the productivity of our existing MRO[1] operations, primarily focused on CRJ. We will also work to expand business scale and improve profitability by capturing demand for services for other aircraft models, expanding our CR&O[2] business, and increasing the sales of used parts. In addition, we will accelerate the integration of our multiple operations in North America, the largest market in the aviation industry, so that we can capture a pool of new customers and expand our business beyond our current boundary.

In the defense business, we received several major orders, including for stand-off defense capabilities. We were also selected as the prime contractor for the procurement of a new frigate, a testament to the role we are expected to play in strengthening national security. In addition, we will continue supporting a safe and secure society by enhancing unmanned defense capabilities, improving the performance of existing equipment, and expanding into peripheral fields.

In the space business, the H3 Test Flight No. 2 and Flight No. 3 were successful. We will continue working alongside the Japan Aerospace Exploration Agency (JAXA) to ensure the successful completion of the H3's development.

1 MRO: Maintenance, Repair and Overhaul
2 CR&O: Component Repair and Overhaul

FOCUS

New era with first successful launch of H3 Test Flight No. 2

At 9:22 a.m. on February 17, 2024, we launched the H3 Test Flight No. 2, a new domestically produced rocket, from the Tanegashima Space Center. Around one year after the failure of the Test Flight No. 1, caused by the second-stage engine failing to ignite, the Test Flight No. 2 successfully resumed flight. In this mission, the second-stage engine ignited and burned correctly, achieving the planned orbit entry. We received numerous messages of joy and praise from our customers and stakeholders, both domestic and international, who had eagerly anticipated the successful launch.

The decision to develop the H3, intended to succeed the H-IIA as Japan's flagship rocket, was made in 2013 with the goals of ensuring autonomy in space activities and creating a rocket with international competitiveness. MHI was selected as the prime contractor for development and post-development launch services and has been working with JAXA since 2014 to develop the airframe system. Ten years after development began, the successful launch of the H3 Test Flight No. 2 marks the first step towards transitioning from the soon-to-be-retired H-IIA (up to F50) and H-IIB (up to F9) rockets to the H3.

Moving forward, the H3 will serve as Japan's flagship rocket, supporting the nation's increasingly vital space activities, which include intelligence gathering, Earth observation, broadcasting and communications, scientific exploration, and international cooperation. Furthermore, in addition to our domestic missions, we aim to become a key player in the rapidly expanding global satellite launch market. By consistently achieving successful launches, we will continue earning the confidence of our customers.

The second H3 launch vehicle ©JAXA

Introducing Members of the Board

As of July 1, 2024

Chairman of the Board

Shunichi Miyanaga

(DOB: April 27, 1948)

Career summary

Apr. 1972 Joined MHI
Apr. 2006 Senior Vice President, Deputy Head of Machinery Headquarters
May 2006 Senior Vice President, Deputy Head of Machinery & Steel Structures Headquarters
Apr. 2008 Executive Vice President, Head of Machinery & Steel Structures Headquarters
Jun. 2008 Director (Member of the Board), Executive Vice President, Head of Machinery & Steel Structures Headquarters
Apr. 2011 Director (Member of the Board), Senior Executive Vice President, Head of the Presidential Administration Office
Apr. 2013 President and CEO (Member of the Board)
Apr. 2014 President and CEO (Member of the Board)
Apr. 2019 Chairman of the Board (present position)

President and CEO[1]

Seiji Izumisawa

(DOB: September 3, 1957)

Career summary

Apr. 1981 Joined MHI
Apr. 2008 Senior General Manager, Technology Management Department, Technical Headquarters
Apr. 2011 Senior General Manager, Technology Management Department, Technology & Innovation Headquarters
Apr. 2013 Senior Executive Officer, Mitsubishi Motors Corporation
Jun. 2013 Director, Mitsubishi Motors Corporation
Apr. 2016 Senior Vice President, Senior General Manager, Technology Strategy Office
Jun. 2017 Director (Member of the Board), Full-time Audit and Supervisory Committee Member
Jun. 2018 Director (Member of the Board), Executive Vice President, CSO[2]
Apr. 2019 President and CEO (Member of the Board), CSO
Apr. 2020 President and CEO (Member of the Board) (present positions)

Director, Senior Executive Vice President, Assistant to President and CEO, Head of GX Solutions

Hitoshi Kaguchi

(DOB: February 15, 1960)

Career summary

Apr. 1984 Joined MHI
Apr. 2018 Senior Vice President, Deputy Head of Business Strategy Office
Apr. 2019 Senior Vice President, CoCSO, Head of Marketing & Innovation Headquarters
Apr. 2020 Executive Vice President, CSO
Apr. 2021 Executive Vice President, CSO, President and CEO, Energy Systems
Jun. 2021 Director (Member of the Board), Executive Vice President, CSO, President and CEO, Energy Systems
Apr. 2023 Director (Member of the Board), Senior Executive Vice President, Assistant to President and CEO
Apr. 2024 Director (Member of the Board), Senior Executive Vice President, Assistant to President and CEO, Head of GX Solutions (present positions)

Director, Executive Vice President, CFO[3]

Hisato Kozawa

(DOB: April 2, 1962)

Career summary

Apr. 1986 Joined MHI
Oct. 2019 Senior Vice President, CoCFO
Apr. 2020 Senior Vice President, CFO
Jun. 2020 Director (Member of the Board), Senior Vice President, CFO
Apr. 2021 Director (Member of the Board), Executive Vice President, CFO (present positions)

Director

Ken Kobayashi

Corporate Advisor, Mitsubishi Corporation
(DOB: February 14, 1949)

Career summary

Jul. 1971 Joined Mitsubishi Corporation
Jun. 2007 Member of the Board, Executive Vice President, Mitsubishi Corporation
Jun. 2008 Executive Vice President, Mitsubishi Corporation
Apr. 2010 Senior Executive Vice President, Mitsubishi Corporation
Jun. 2010 Member of the Board, President and CEO, Mitsubishi Corporation
Apr. 2016 Chairman of the Board, Mitsubishi Corporation
Jun. 2016 Director (Member of the Board), MHI (present position)
Apr. 2022 Member of the Board, Corporate Advisor, Mitsubishi Corporation
Jun. 2022 Corporate Advisor, Mitsubishi Corporation (present position)

Director

Nobuyuki Hirano

Senior Advisor, MUFG Bank, Ltd.
(DOB: October 23, 1951)

Career summary

Apr. 1974 Joined The Mitsubishi Bank, Limited
Jun. 2005 Member of the Board of Directors, Managing Executive Officer, The Bank of Tokyo-Mitsubishi, Ltd.
Member of the Board of Directors, Mitsubishi Tokyo Financial Group, Inc.
Oct. 2008 Member of the Board of Directors, Senior Managing Executive Officer, The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Jun. 2009 Member of the Board of Directors, Deputy President, The Bank of Tokyo-Mitsubishi UFJ, Ltd.; Managing Executive Officer, Mitsubishi UFJ Financial Group Inc. (MUFG)
Jun. 2010 Member of the Board of Directors, MUFG
Oct. 2010 Member of the Board of Directors, Deputy President, MUFG
Apr. 2012 President & CEO, The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Member of the Board of Directors, MUFG
Apr. 2013 President & CEO, MUFG
Jun. 2015 Member of the Board of Directors, President & Group CEO, MUFG
Apr. 2016 Chairman of the Board of Directors, The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Apr. 2019 Member of the Board of Directors, Chairman (Corporate Executive), MUFG
Member of the Board of Directors, MUFG Bank, Ltd. (until April 2020)
Jun. 2019 Director (Member of the Board), Audit and Supervisory Committee Member, MHI
Apr. 2021 Member of the Board of Directors, MUFG (until June 2021)
Senior Advisor, MUFG Bank, Ltd. (present position)
Jun. 2021 Director (Member of the Board), MHI (present position)

1 CEO: Chief Executive Officer
2 CSO: Chief Strategy Officer
3 CFO: Chief Financial Officer
4 CAO: Chief Administrative Officer

Director

Mitsuhiro Furusawa

President, Institute for Global Financial Affairs, Sumitomo Mitsui Banking Corporation
(DOB: February 20, 1956)

Career summary

Apr. 1979 Joined Ministry of Finance
Aug. 2012 Director-General of the Financial Bureau, Ministry of Finance
Mar. 2013 Vice Minister of Finance for International Affairs, Ministry of Finance
Jul. 2014 Special Advisor to the Prime Minister, Special Advisor to the Minister of Finance
Mar. 2015 Deputy Managing Director, the International Monetary Fund (IMF)
Dec. 2021 President, Institute for Global Financial Affairs, Sumitomo Mitsui Banking Corporation (present position)
Jun. 2023 Director (Member of the Board), MHI (present position)

Director
Full-time Audit and Supervisory Committee Member

Setsuo Tokunaga

(DOB: October 20, 1958)

Career summary

Apr. 1984 Joined MHI
Apr. 2017 Fellow, General Manager, Research & Innovation Center
Jun. 2017 Fellow, Senior General Manager, Technology Strategy Office
Apr. 2019 Senior Fellow, Senior Chief Researcher, Research & Innovation Center
Jun. 2021 Director (Member of the Board), Full-time Audit and Supervisory Committee Member (present positions)

Director
Full-time Audit and Supervisory Committee Member

Masayuki Fujisawa

(DOB: August 23, 1960)

Career summary

Apr. 1983 Joined MHI
Apr. 2017 Vice President, Power Systems
Oct. 2018 Senior Vice President, Vice President, Power Systems
Apr. 2020 Director, Executive Vice President, CFO and CAO[4], Mitsubishi Hitachi Power Systems, Ltd.
Sept. 2020 Director, Executive Vice President, CFO and CAO, Mitsubishi Power, Ltd.
Apr. 2021 Director, Executive Vice President, CSO, CFO and CAO, Mitsubishi Power, Ltd.
Oct. 2021 Senior Vice President, Vice President, Energy Systems
Jun. 2024 Director (Member of the Board), Full-time Audit and Supervisory Committee Member (present positions)

Director
Audit and Supervisory Committee Member

Hiroo Unoura

Senior Advisor, Nippon Telegraph and Telephone Corporation (NTT)
(DOB: January 13, 1949)

Career summary

Apr. 1973 Joined Nippon Telegraph and Telephone Public Corporation
Jun. 2002 Senior Vice President, Member of the Board, NTT
Jun. 2007 Executive Vice President, Member of the Board, NTT
Jun. 2008 Senior Executive Vice President, Representative Member of the Board, NTT
Jun. 2012 President and Chief Executive Officer, Representative Member of the Board, NTT
Jun. 2018 Advisor, NTT
Jun. 2019 Director (Member of the Board), Audit and Supervisory Committee Member, MHI (present positions)
Jul. 2021 Senior Advisor, NTT (present position)

Director
Audit and Supervisory Committee Member

Noriko Morikawa

(DOB: October 18, 1958)

Career summary

Apr. 1981 Joined CHORI CO., LTD.
Aug. 1988 Joined Daiwa Securities America, Inc.
Sep. 1991 Joined ARTHUR ANDERSEN & CO.
Mar. 1995 Joined Motorola Inc.
Mar. 2005 Director of the Board, Motorola Inc.
Jun. 2009 Joined Bosch Corporation
Aug. 2010 Executive Vice President and Director, Bosch Corporation (until December 2018)
Jun. 2020 Director (Member of the Board), MHI
Jun. 2021 Director (Member of the Board), Audit and Supervisory Committee Member, MHI (present positions)

Director
Audit and Supervisory Committee Member

Masako Ii

Professor, School of International and Public Policy, Hitotsubashi University
Professor, Graduate School of Economics/Faculty of Economics, Hitotsubashi University
(DOB: February 8, 1963)

Career summary

Jul. 1990 Researcher, The World Bank
Apr. 1995 Associate Professor, Department of Economics, Yokohama National University
Apr. 2004 Professor, Graduate School of International Corporate Strategy, Hitotsubashi University Business School
Apr. 2005 Professor, School of International and Public Policy, Hitotsubashi University (present position)
Professor, Graduate School of Economics/ Faculty of Economics, Hitotsubashi University (present position)
Jun. 2021 Director (Member of the Board), Audit and Supervisory Committee Member, MHI (present positions)

Messages from Outside Directors

Aiming to Be a Leading Company that Meets Society's Expectations and Consistently Provides Value

Mitsuhiro Furusawa
Director

Amid dramatic changes in the global economy and geopolitics, Japan is starting to see light at the end of the tunnel after years of economic stagnation. There is also increasingly open and lively debate on the role of national defense and nuclear energy from a broader perspective, which is leading to a revision of national policies. These changes are closely related to the activities of MHI Group. It has been a little over a year since I became a director, and I feel honored to be involved in the management of MHI during this time of great change.

The purpose of corporate governance is to ensure sustainable growth and increase shareholder value over the medium to long term. Simply pursuing profit alone will not lead to sustainable growth. We need to continue fostering the development of society through business activities that align with societal expectations. I will make every effort to ensure that MHI Group is a leading entity that consistently creates universal value that contributes to the safe, secure, and sustainable lives of people around the world.

Engaging in Discussions from a Wholistic Perspective

In large companies and organizations, it is not uncommon for actions deemed optimal by individual departments to lack a wholistic perspective. However, after attending Board of Directors' meetings for a year, I have come to realize that MHI Group is effectively managing the challenges that are inherent in large organizations. The Board serves as a forum for candid discussions, where each director presents informed opinions based on his or her own experiences from their careers. Outside directors do not feel that their role is merely to endorse the actions of the executive team. They have remarkably sharp insight into the inner workings of the company. I wish I could share all of the discussions that take place at the Board meetings with those who might doubt this.

With regard to sustainability, it is important both to put in the work day to day while also ensuring that we are recognized for our achievements. It is essential to actively communicate what we are doing through disclosure and evaluation frameworks. Furthermore, our MISSION NET ZERO commitment aims to achieve Carbon Neutrality by 2040, ten years ahead of the Japanese government's target. This is a highly ambitious target, and the branding is excellent. With such a remarkable goal in place, it is important to produce tangible results going forward.

Strengthening Portfolio Management

For MHI Group, which has a wide range of businesses, strengthening portfolio management is a highly important strategic priority. It is noteworthy that the 2024 MTBP has set a clear direction in this regard, and I highly commend the ambitious financial targets of increasing revenue by 20% and business profit by 60% over a three-year period.

The Group has been able to sustain itself over the last 140 years by anticipating the needs of the future, sowing the seeds of new businesses, and developing innovative products and technologies. For a company to endure beyond the life span of individual businesses, the key is to identify what will be needed 10 to 20 years from now, to define new areas of focus, and to shift human resources smoothly while maintaining employee motivation.

Meanwhile, partnerships will become increasingly important to address the diverse and complex needs of society. With this in mind, I plan to leverage my personal experience to contribute to the Group as it works to accurately identify changing global trends and to transform itself into a hub for ecosystems to change society.

Strengthening Human Capital to Drive Sustainable Growth

Masako Ii
Director
Audit and Supervisory Committee Member

There are two key aspects of MHI Group's corporate governance that I view highly. First is the substantive discussions that take place at Board meetings. The meetings have an open atmosphere where attendees feel comfortable speaking their minds, and sometimes quite unsparing opinions are shared. I feel that the overall balance of skills and careers among the Board members enables wide-ranging discussions on the challenges that management faces.

Second, there is an extensive support system for outside directors. Information is provided well in advance, and the support staff respond to requests promptly and courteously. This allows us to attend Board meetings with the information we need in hand. We also have opportunities to visit domestic and international locations and interact directly with employees from a variety of divisions. This has been helpful to me in my role as outside director.

Agreeing with the President's Powerful Message

We announced our new business plan, the 2024 MTBP, in May 2024. President Izumisawa explained the policies of the plan in an in-house video message. Under the plan, he called for a strong commitment to achieve profitability in line with our competitors' while evolving our business, to provide realistic solutions based on the problems faced by individual regions and customers, and to expand our business up- and down-stream within value chains. It is extremely important for leaders to deliver clear messages like this when making significant management decisions or implementing organizational changes.

The 2024 MTBP also clearly indicates MHI's commitment to our focus areas. We do not have to choose between the environment and the economy; we can have both. I believe the Group's efforts to position MISSION NET ZERO as a pillar of our growth strategy are a prime example of this. Even companies providing public infrastructure have a responsibility as for-profit entities to generate returns while managing their businesses sustainably. As a specialist in public policy, I have spent many years considering the relationship between the public and private sectors. I will use the insight accumulated over my career to contribute to the effective management of MHI Group.

I also commend the prioritization of strengthening human capital within the plan. This means providing opportunities for employee growth and enhancing engagement through work-style reforms and other initiatives. In a time when many companies struggle with recruitment, it is especially important to attract, develop, and retain talented individuals who can contribute over the long term. Going forward, I plan to focus on HR initiatives and provide support as necessary.

Valuing Personal Perspectives and Opinions

The people working at MHI Group are truly exceptional. Every time I interact with employees, I grow fonder of the Group. What worries me a little, however, is that perhaps there is an overemphasis on precedent and quantitative evidence. As an economist, I certainly value data-driven logic and precedent, but it is also true that intuition and spontaneity can sometimes lead to important breakthroughs. If we can broaden the scope of discussions to include personal views and draw out the rich imagination of each employee, I believe this will drive the Group toward the next stage of growth. It will also help improve the transparency and health of the organization and reduce risk.

Corporate Governance

Basic Approach to Corporate Governance

As a company responsible for developing the infrastructure that forms the foundation of society, MHI's basic policy is to manage the company in consideration of all stakeholders and make efforts to enhance corporate governance on an ongoing basis in pursuit of sustained growth of MHI Group and improvement of its corporate value in the medium and long terms. In accordance with this basic policy, MHI endeavors to improve its management system, such as by enhancing its management oversight function, separating management oversight and execution, and inviting outside directors onto the Board. We are focused on improving the soundness and transparency of management while building a Japanese-style global management model that values diversity and harmony.

Corporate Governance Framework

To compete with the big players in the global market, it is essential to enable efficient and agile business execution through rapid decision-making. We also need to further strengthen the business execution supervisory function. With this in mind, we have adopted the form of a Company with an Audit and Supervisory Committee. This system enhances the oversight function of the Board of Directors by leveraging the extensive experience and broad perspectives of outside directors. It also enables us to separate the oversight and business execution functions by delegating authority to representative directors and other executive directors.

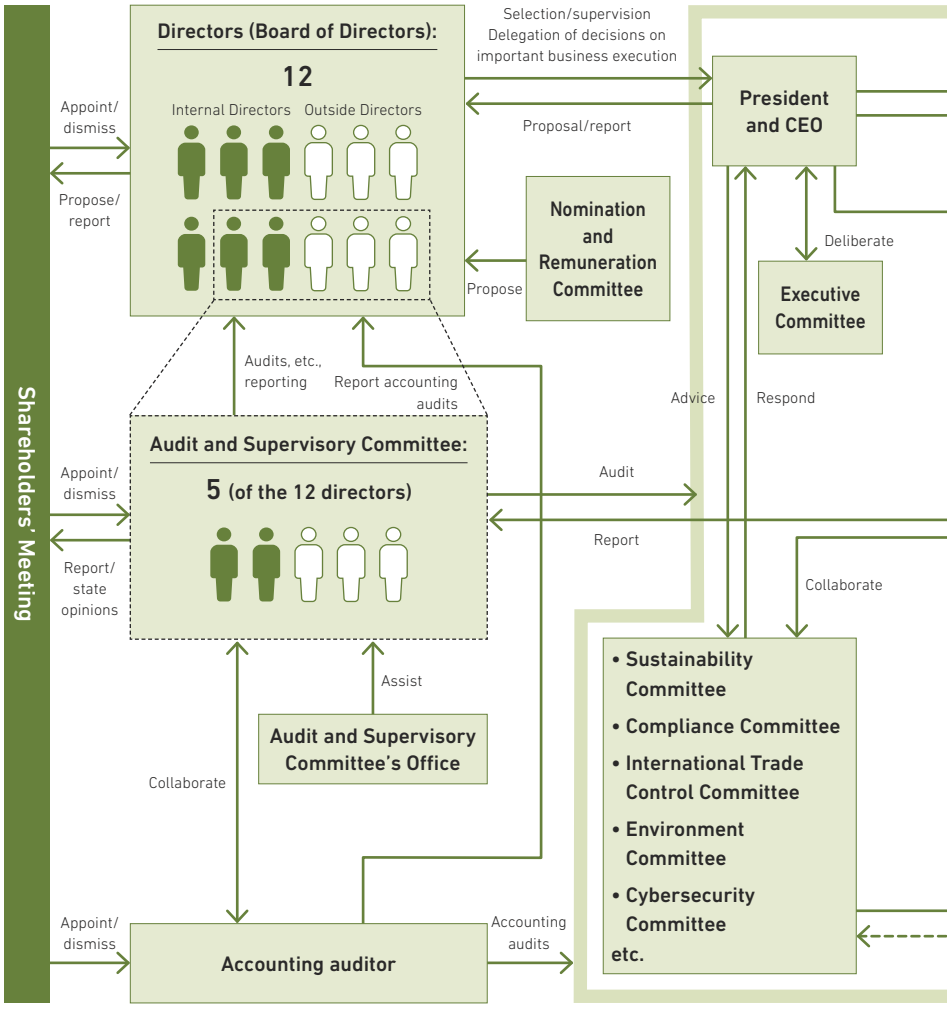
To further enhance the transparency and objectivity of the executive selection and remuneration decision-making processes, meanwhile, we revised the positioning and naming of the Nomination and Remuneration Advisory Council and reestablished it as the Nomination and Remuneration Committee in September 2024.

Board of Directors

In accordance with MHI's Articles of Incorporation and a resolution by the Board of Directors, MHI delegates decisions on execution of operations to the President and CEO or a specially designated director, excluding matters designated by laws and ordinances as matters to be decided exclusively by the Board of Directors; business plans; the appointment, dismissal, and remuneration of directors, chief officers, and administrative executive officers; and other specific business matters, investments, etc., that are particularly important. This approach facilitates timely decision-making and flexible business execution while also enabling the Board of Directors to focus on the oversight of those in charge of business execution.

Audit and Supervisory Committee

The Audit and Supervisory Committee consists of five directors, the majority of whom (three) are outside directors. To ensure the effectiveness of the Audit and Supervisory Committee's activities, two full-time members of the Audit and Supervisory Committee are mutually selected by the committee's members. One of these full-time members possesses substantial knowledge in finance and accounting. To support auditing activities, the Audit and Supervisory Committee's Office has been set up with its own dedicated staff of seven to facilitate the work carried out by the Audit and Supervisory Committee. The Audit and Supervisory Committee monitors and verifies the execution of business by directors, the appropriateness of business reports, the adequacy of the accounting auditor's audits, and the effectiveness of the internal control system. The results of its activities are provided to shareholders as an audit report. The Committee expresses opinions on selection and remuneration for directors who are not Committee members and determines the content of proposals regarding the appointment of the accounting auditor for the General Meeting of Shareholders.



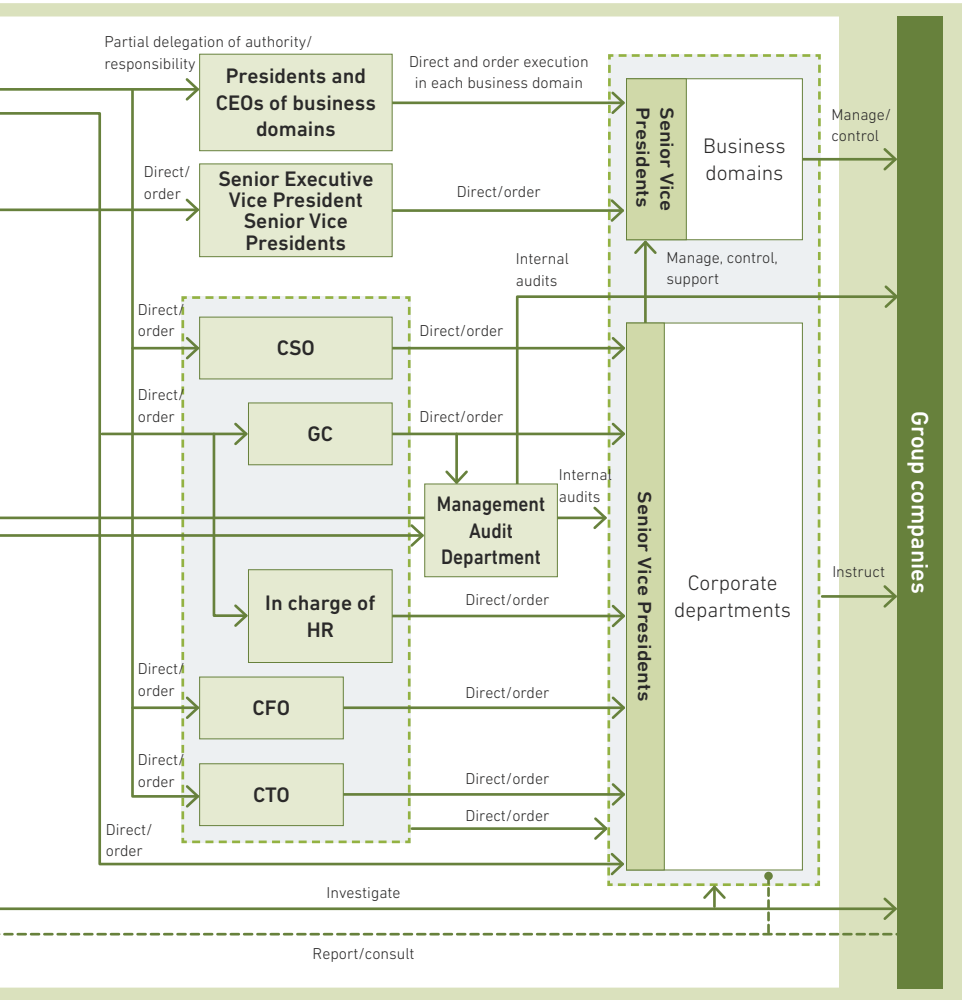
Note: CEO (Chief Executive Officer), CSO (Chief Strategy Officer), CFO (Chief Financial Officer), CTO (Chief Technology Officer), GC (General Counsel), In charge of HR (Chief HR Officer)

Key Initiatives to Strengthen Corporate Governance

2005 • Introduced an executive officer system
2014 • Introduced a chief officer system
2015 • Transitioned to company with Audit and Supervisory Committee
• Ratio of outside directors surpassed one-third
• Introduced new stock remuneration system for officers
2016 • Established Nomination and Remuneration Advisory Council
• Commenced Board evaluations
2019 • Abolished advisor system
2020 • Outside director ratio reached 50%
2024 • Changed Nomination and Remuneration Advisory Council to Nomination and Remuneration Committee

Outside Director Ratio

Female Director Ratio



Nomination and Remuneration Committee

In 2016, the Company established the Nomination and Remuneration Advisory Council to deliberate on matters related to the appointment and dismissal of executives (including nomination of director candidates and selection or dismissal of the CEO and other executive management), as well as executive remuneration (such as determining remuneration for directors who are not Audit and Supervisory Committee members). This council has operated as an advisory body to the Board of Directors, eliciting the opinions and advice of outside directors.

In September 2024, we changed its name to the Nomination and Remuneration Committee and positioned it as the body responsible for deciding on the aforementioned matter and formulating and submitting proposals to the Board of Directors. The Committee consists of six independent outside directors, the Chairman of the Board, and the President and CEO. The chairperson, who is selected from among the outside directors, convenes and presides over the Committee meetings.

Chief Officers and Standing Executives in Charge of Operations

MHI has introduced a chief officer system. Specifically, portions of the responsibilities and authority of the CEO (President) are delegated to a number of chief officers reporting to the CEO. These chief officers consist of domain CEOs (the heads of individual business domains) as well as the CSO, CFO, and CTO. The CSO, CFO, and CTO have company-wide authority to give instructions and commands and provide support to business domains. The GC and standing executive in charge of HR assist the CEO with their duties by supervising and executing activities in line with the CEO's mission.

Director Skills Matrix

MHI Group has adopted Our Principles as its fundamental management philosophy and objectives and periodically formulates business plans to steadily realize them. The Group has embraced a mission of integrating cutting-edge technology and expertise built up over many years to provide solutions to some of the world's most pressing issues and improve people's lives.

Overseeing the management of MHI Group as it pursues this mission requires knowledge, experience, and expertise in socio-economic issues, risk management/compliance, global enterprise management, technology/digitalization, marketing, finance/accounting, and human resources. Our Board of Directors must possess a well-balanced mix of such knowledge, experience, and expertise.

Individual directors' knowledge, experience, and expertise are tabulated below. We believe our Board as a whole is adequately endowed with knowledge, experience, and expertise in the aforementioned areas.

Name	Gender	Inside/ outside	Audit and Supervi-sory Commit-tee Members	Tenure in years[1]	Number of shares owned (100 shares)	Knowledge, experience and expertise[2]						
						Socio-economic Issues	Risk Management/ Compliance	Global Enter-prise Manage-ment	Technol-ogy/ Digitali-zation	Market-ing	Finance/ Account-ing	Human Resources
Shunichi Miyanaga	Male	Inside		16	6,352	●	●	●		●		
Seiji Izumisawa	Male	Inside		7	2,438	●	●	●	●	●		
Hitoshi Kaguchi	Male	Inside		3	748	●	●		●	●		
Hisato Kozawa	Male	Inside		4	718	●	●				●	
Ken Kobayashi	Male	Outside		8	233	●	●	●		●		
Nobuyuki Hirano	Male	Outside		5	341	●	●	●			●	
Mitsuhiro Furusawa	Male	Outside		1	29	●	●				●	
Setsuo Tokunaga	Male	Inside	●	3	650	●	●		●			
Masayuki Fujisawa	Male	Inside	●	Newly appointed	520	●	●			●	●	
Hiroo Unoura	Male	Outside	●	5	429	●	●	●		●		●
Noriko Morikawa	Female	Outside	●	4	58	●	●	●			●	●
Masako Ii	Female	Outside	●	3	72	●	●					●

1 As of the end of the General Meeting of Shareholders on June 27, 2024

2 The dots in the seven rightmost columns do not indicate the entire range of knowledge, experience, and expertise that the given director possesses.

Knowledge, experience and expertise	Reasons knowledge, experience and expertise are thought to be important
Socio-economic Issues	Because knowledge, experience and expertise on constantly changing social and economic trends and the issues MHI Group should prioritize for medium- to long-term growth are essential for supervising the management of MHI Group, which has a mission to provide solutions to some of the world's most pressing issues and provide better lives.
Risk Management/ Compliance	Because knowledge, experience and expertise on risk management and compliance in general corporate management including business risks are essential for supervising the management of MHI Group through the preparedness and implementation of internal control systems and the management of serious risks in management.
Global Enterprise Management	Because knowledge, experience and expertise on global enterprise management are necessary for supervising the management of MHI Group in operating diverse businesses globally amid accelerating global competition.
Technology/ Digitalization	Because understanding of the latest technology including digitalization, in addition to knowledge, experience and expertise on technology and digitalization such as the applications and trends thereof are necessary for supervising the management of MHI Group in strengthening its technology base to provide solutions to socio-economic issues.
Marketing	Because knowledge, experience and expertise on marketing for ascertaining the needs of diverse customers and stakeholders including growth areas are necessary for supervising the management of MHI Group in operating diverse businesses globally.
Finance/Accounting	Because knowledge, experience and expertise on finance and accounting are necessary for supervising the management of MHI Group including checking the appropriateness of various measures such as allocation of management resources and strengthening of the financial base.
Human Resources	Because knowledge, experience and expertise on human resource development and cultivation are necessary for supervising the management of MHI Group including confirmation of the appropriateness of measures to strengthen the human resource base such as cultivation of management personnel contributing to sustained growth and development of MHI Group, promotion of diversity and improvement of engagement.

Board of Directors' Main Deliberation Items

The main items deliberated by the Board of Directors in FY2023 are presented in the table below.

General Meeting of Shareholders	•Resolution on matters for calling the Annual General Meeting of Shareholders	
Items related to financial results	•Financial results	•Shareholder return policy
Items related to executives and Board members	•Board Evaluation •Remuneration of directors, and executive appointments (including chief officers)	•Director and officer liability (D&O) insurance policies
Internal controls	•Status of internal control systems operation	
Resolutions on and status of execution of important operations	•Status of business in individual domains and segments	
	•Status of execution of operations by individual chief officers	•Status of progress of growth strategy
	•Acquisition of a U.S. company in the electrification business	•Sustainability initiatives
Others	•Key-risk identification and management process	•Cybersecurity strategy
	•Strategic shareholding reduction status and plan	

Providing Support for Outside Directors

The Company has assigned dedicated staff to serve as the secretariat for the Board of Directors. Prior to Board meetings, they send out materials in advance and provide explanations on important matters to outside directors. They also conduct tours of manufacturing sites to help outside directors gain a deeper understanding of our business.

Manufacturing site visit by outside directors

Board Evaluation Results and Future Initiatives

MHI conducts an analysis and evaluation of the effectiveness of the Board of Directors as a whole (hereinafter referred to as "Board Evaluation") once a year for the purpose of further improving the effectiveness of the Board and ensuring that it is fully accountable to its stakeholders. The process and results of the FY2023 Board Evaluation, the status of activity based on the results of the Board Evaluation conducted in the previous fiscal year (FY2022), and future responses based on this year's evaluation results are as presented in the table below.

Process and Results of FY2023 Board Evaluation

Evaluation item	**Composition of the Board of Directors, Operation of the Board of Directors, Supervisory Function of the Board of Directors, Structure to Support Outside Directors**			
Process	**Questionnaire survey** Questionnaires sent to all directors	**Exchange of opinions** Exchanged opinions in meetings among outside directors	**Discussions** Discussions held by the Board of Directors based on the results of the questionnaire survey	**Resolution** Resolutions by Board of Directors on the results of the Board Evaluation
Results	**The Board Evaluation using the above process in FY2023 revealed that the overall effectiveness of the Board has been ensured with no major concerns.**			

	FY2023 Initiatives
1	In addition to discussions on the formulation of the next business plan, we discussed our long-term vision for MHI Group. We also held discussions on our growth strategy, personnel strategy, and commitment to sustainability.
2	We continued working on ways to prepare materials to enhance the efficiency of Board meetings. We also enhanced agenda item explanations, including through pre-meeting briefings, to address time constraints and clarify discussion points, thus enhancing Board discussions.
3	To foster a deeper understanding of our business, we continued conducting visits to our production sites and increased opportunities for communication through dialogues with executive officers and employees.
4	In the Nomination and Remuneration Advisory Council, we established opportunities to discuss the composition of the Board of Directors, etc.

	Planned Actions for FY2024
1	**Initiatives aimed at enhancement of discussion** We will provide timely updates on the progress of the 2024 Medium-Term Business Plan (MTBP) to the Board of Directors. We will also incorporate matters of particular interest to the directors into the annual agenda for explanation and discussion.
2	**Create opportunities for outside directors to exchange information and share awareness of issues** In addition to various meetings scheduled throughout the year, we will continue providing opportunities to hold separate meetings when deemed necessary by the outside directors.
3	**Provide opportunities to help outside directors understand our business** We will continue providing opportunities for outside directors to visit production sites and engage in dialogue with executive officers and employees.

Status of Audit and Supervisory Committee Activities

In FY2023, the Audit and Supervisory Committee focused on priority areas, such as the progress of the 2021 MTBP, the formulation of the 2024 MTBP, our sustainability efforts, and our risk management.

Directors who are Audit and Supervisory Committee members attend Board meetings as directors. In addition, the full-time Audit and Supervisory Committee members participate in important meetings, such as Executive Committee meetings, MTBP meetings, and Compliance Committee meetings. They also engage in discussions with the representative directors, conduct hearings with business and corporate departments, and arrange site visits to domestic and international business locations.

The Audit and Supervisory Committee fully utilizes the results of the comprehensive and regular audits conducted by the Management Audit Department. Full-time Audit and Supervisory Committee members hold regular information exchange meetings (generally once a month) with this department to confirm the formulation and progress of audit plans by the department and receive reports on audit results in a timely manner.

The Audit and Supervisory Committee and the accounting auditor regularly exchange opinions on the accounting auditor's auditing plans and results, and full-time Audit and Supervisory Committee members hold monthly meetings to exchange information with the accounting auditor to ensure close communication.

Furthermore, full-time Audit and Supervisory Committee members regularly hold information exchange meetings attended by the full-time auditors of MHI Group companies to confirm the status of creation and implementation of internal control systems in major subsidiaries.

As a result of these activities, the Audit and Supervisory Committee submitted an audit report to the General Meeting of Shareholders held on June 27, 2024, stating the following:

(1) The business report and the related supplementary schedules fairly represent the status of the Company in accordance with applicable laws and ordinances and the Company's Articles of Incorporation.
(2) With respect to the Directors' execution of duties, there are no material facts of violation of applicable laws, ordinances, and the Company's Articles of Incorporation.
(3) The contents of the resolutions of the Board of Directors regarding internal control systems are appropriate, and there are no matters that need to be pointed out in its operation.
(4) The methods and results of the accounting auditor's audit concerning the non-consolidated and consolidated financial statements are appropriate.

Officers' Remuneration Structure

Remuneration of Directors Who Are Not Audit and Supervisory Committee Members (excluding outside directors)

Remuneration for directors who are not Audit and Supervisory Committee members (excluding outside directors) consists of base remuneration, performance-linked remuneration, and stock-based remuneration from the viewpoint of reflecting business performance and sharing value with shareholders.

The remuneration standard for the Company's President is set at roughly 30% base remuneration, 40% performance-linked remuneration, and 30% stock-based remuneration (assuming that consolidated profit from business activities reaches ¥200 billion). This is calculated based on the fair value of stock award points granted during FY2018, making for a remuneration structure in which the higher a director's position is, the greater his or her performance-linked remuneration will be. To promote MHI stock ownership that better aligns with the interests of shareholders, once profit from business activities exceeds ¥200 billion, stock-based remuneration increases as a medium- to long-term incentive. At the same time, performance-linked remuneration's rate of increase progressively tapers off before plateauing once profit from business activities exceeds ¥400 billion.

The benchmark used to calculate performance-linked remuneration is profit from business activities. Profit from business activities was chosen to reflect the results of business operations in performance-linked remuneration. (However, there may be a partial adjustment in terms of remuneration computation based on assessment of the impact of changes in accounting principles; the same applies below.)

The benchmark used to calculate stock-based remuneration is profit from business activities. Profit from business activities was chosen to reflect the results of business operations in stock-based remuneration. In FY2023, we changed the key relevant indicator from profit before income taxes to profit from business activities to increase the linkage with the MTBPs and other business plans.

Methods for Calculating Each Type of Remuneration (remuneration for directors who are not Audit and Supervisory Committee members (excluding outside directors))

	Base remuneration	Performance-linked remuneration	Stock-based remuneration
Overview	Monthly payment based on the following formula (taking into consideration each director's position and the nature of his/her duties):	• The amount is determined based on the following formula, taking into account the consolidated business results for the fiscal year, the position of each director, and the performance and achievements of the business for which he/she is responsible. • Paid if profit from business activities for the fiscal year (after any adjustments, if applicable) is in the black and dividends are distributed from retained earnings	As a general rule, through the Board Incentive Plan (BIP) Trust, directors receive MHI shares and/or cash in an amount equivalent to MHI shares' liquidation value three years after being granted stock award points, based on stock award points granted to directors in accordance with, among other factors, the position of each director and the financial results of MHI. The calculation formula is described below.
Calculation Formula	(1) Standard amount based on position + (2) Additional amount based on performance	(3) Position-based payment coefficient x Profit from business activities for the fiscal year ÷ 10,000 x (4) Coefficient of business results	(5) Position-based standard points x (6) Coefficient of business results
Calculation Standards	(1) Standard amount based on position Based on position, duties, etc. (2) Additional amount based on performance Up to ¥500,000/month	(3) Position-based payment coefficient Based on position, duties, etc. (4) Coefficient of business results Within a range from 1.3 to 0.7, based on the performance and results of the business of which the director is in charge	(5) Position-based standard points Based on position, duties, etc. (6) Coefficient of business results Based on previous year's business profit and an external evaluation by major ESG rating agencies

● Incorporating ESG Perspectives into Stock-Based Remuneration Calculation Criteria

With respect to stock-based remuneration, we have introduced a system to determine stock award points that takes into account the status of ESG-related initiatives. The system incorporates the external evaluation results from major ESG rating agencies into the calculation formula for stock-based remuneration (coefficient of business results). This enables us to objectively reflect our wide-ranging ESG initiatives in such remuneration.

● Clawback System

With regard to stock-based remuneration, we have introduced a system in which, in the event that a director engages in improper conduct, the Company suspends the granting of stock award points and the issuance of shares to said director. There are also cases where the Company asks such a director to submit a payment equivalent to the number of shares that has been issued to him or her. (This is comparable to a clawback system or malus clause.)

Remuneration for Outside Directors

The Company expects outside directors to offer their objective opinions and guidance, primarily on their vision for the Company over the medium to long term, from an independent standpoint. Accordingly, the outside directors are only paid base remuneration, which is set at an appropriate amount.

Remuneration for Directors Who Are Audit and Supervisory Committee Members

The amount of remuneration for directors who are serving as Audit and Supervisory Committee members and the policy for deciding its calculation method are determined through discussions by those directors.

Directors who serve as Audit and Supervisory Committee members are only paid base remuneration. The amount for this base remuneration is determined in consideration of each member's roles and responsibilities and based on whether he/she is a full-time or part-time member.

However, the base remuneration for full-time Audit and Supervisory Committee members can be reduced in consideration of the status of the Company's management and other factors.

Breakdown of Directors' Remuneration (FY2023)

Classification	Number of subjects (persons)	Total amount of remuneration (Millions of yen)	Base remuneration	Performance-linked remuneration	Stock-based remuneration
Directors who are not Audit and Supervisory Committee members (excluding outside directors)	4	1,023	231	444	348
Directors who are Audit and Supervisory Committee members (excluding outside directors)	2	103	103	—	—
Outside directors	7	100	100	—	—
Total	13	1,227	435	444	348

1. The recipients include one director who was not an Audit and Supervisory Committee member who stepped down on June 29, 2023 (date of the 98th Annual General Meeting of Shareholders).
2. The total amount of stock-based remuneration is the amount of expenses recognized for the 557,000 stock award points granted in total during FY2023 (equivalent to 55,700 shares of MHI) under the Board Incentive Plan Trust. However, the amount recorded for expenses related to the stock award points pertains to the number of shares granted before the stock split conducted on April 1, 2024.

Policy and Trends of Strategic Shareholdings

Acquisition, Holding, and Reduction Policy

MHI acquires and holds shares necessary for the Group's sustainable growth and value improvement with the aim of developing business strategies; creating business opportunities; and building, maintaining, and strengthening business relationships. MHI will continue investing in growth areas for the future. And at the same time, we will promote initiatives to reduce the strategic shareholding ratio to less than 15% of its total equity (consolidated) by the end of FY2025 and less than 10% by the end of FY2030.

Verification Policy and Results for Holding Individual Stocks

The Board of Directors annually reassesses all strategic shareholdings from multiple standpoints, including their compatibility with the Group's business strategies, their actual or prospective role in creating or expanding business opportunities, their returns (whether they exceed our target capital cost (the weighted average cost of capital)), and strengthening of the Group's business relationship with their issuer. After assessing each shareholding and taking into account the Company's strategic shareholding reduction target, MHI makes a final decision on whether to continue holding the shares, including those deemed reasonable from all standpoints during the assessment. As a result of verification performed in FY2023, a certain

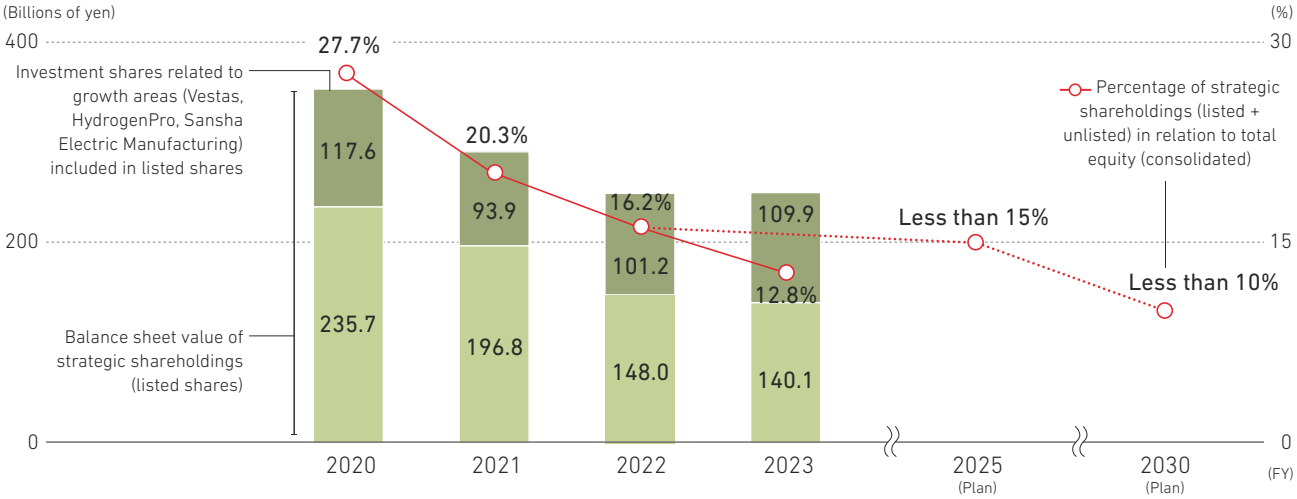
number of shares were identified as candidates for reduction mainly due to the decreased significance of holding (but this number was down from the previous year).

Reduction in Strategic Shareholdings

Based on the above acquisition, holding, and reduction policy and the result of verification, MHI sold or divested 11 individual stocks in FY2023 valued at ¥58.3 billion (over 10% of total holdings), and the total value on the balance sheet at the end of the FY2023 was ¥303.2 billion (¥6 billion increase from the previous year due to a Japanese stock market surge). Consequently, the ratio of strategic shareholdings to total equity (consolidated) fell to 12.8%. This means we achieved our target for the end of FY2025 (less than 15%) ahead of schedule.

We also have investments in growth areas (three listed shares, including in Vestas Wind Systems A/S) to promote Energy Transition aimed at realizing a carbon-neutral society. The total value of such holdings at fiscal year-end was ¥109.9 billion. MHI will continue working with strategic partners in various fields to expand renewable energy and pursue decarbonization technologies."

Balance Sheet Value of Strategic Shareholdings and Ratio to Total Equity (Consolidated)



Breakdown of Change in FY2023 (Number of Stocks, Value)

Number of stocks	As of March 31, 2023	Decrease[1]	Increase	As of March 31, 2024
Non-listed shares	142	2	9	149
Listed shares	37	4	2	35
Total	179	6	11	184

Balance sheet value (Billions of yen)	As of March 31, 2023	Decrease[2] (Sale value)	Increase (Acquisition value)	Changes in share prices, etc.	As of March 31, 2024
Non-listed shares	479	-12	76	-11	532
Listed shares	2,493	-571	22	556	2,500
Total	2,972	-583	98	545	3,032

1 Number only shown for stocks completely sold. Five other stocks were also partially sold.
2 Total value of complete sales and partial sales

Risk Management

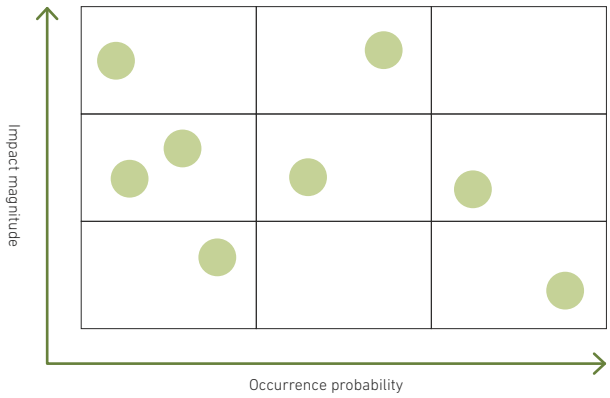
MHI Group: Risks and Responses

Key risks that could, in the assessment of MHI Group's management, materially affect the Group's financial condition and/or operating performance, including cash flows, are tabulated below (forward-looking statements are based on judgments as of March 31, 2024).

We have established management processes for identifying, assessing, and cataloging operational risks on an annual basis. To identify relevant risks, we prepare a comprehensive list of risks with input from external experts that covers the risks generally relevant for companies, including changes in the external environment. Based on this list, we identify specific risks that have the potential to occur within the next 10 years. We then assess the probability of such risks occurring and the magnitude of impact when they materialize, taking into account the effectiveness of countermeasures, and organize them into a risk map showing quantitative risks and qualitative risks. The identified and visualized risks are reported to the Board of Directors and incorporated into the business planning process and its follow-up cycle.

The countermeasures in the table below are examples of specific measures we have already implemented in response to key risks. They are factored into the key risks' potential impacts on our financial condition and/or operating performance. In addition to the countermeasures mentioned below, we engage in risk management, including risk avoidance and reduction, according to the type and nature of various risks, including those specific to individual business units that require attention.

Risk Map (image)



Key risks	Potential impacts on financial condition and/or operating performance	Countermeasures
Changes in the business environment	• Constraints on negotiations and supplier selection, etc. due to progress of economic decoupling caused by the U.S.–China conflict, the introduction of new foreign and security policies, or changes in existing policies, etc. • Rapid fluctuation of exchange rates, rising raw material prices, and logistical stagnation and disruption • Growing labor shortages, intensifying competition to attract human resources, and increasing labor mobility in Japan • Contraction in businesses' scale and/or inability to recoup invested capital due to a reduction in demand for products or services caused by growing environmental consciousness • Reduction in order bookings or a slowdown in service businesses in response to, e.g., intensification of competition or a sharp drop in demand for electric power derived from fossil fuels • Energy transition may evolve more slowly than assumed when we developed the business plan • Recognition of impairment losses due to mergers, acquisitions, and/or alliances' underperformance of expectations	• Collection of information on global conditions and laws and regulations of each country, and implementation of action based on this • Placed priority on new functions/solutions that incorporate external expertise and are predicated on maintaining or strengthening product competitiveness in terms of, e.g., performance, reliability, price, and/or eco-friendliness through R&D or capex • In April 2024, we established the GX (Green Transformation) Solutions segment to strengthen our project management and engineering functions related to energy transition initiatives. • Facilitated PMI* through, e. g., better up-front screening and monitoring of M&A deals/alliances *PMI: Post Merger Integration

Key risks	Potential impacts on financial condition and/or operating performance	Countermeasures
Disasters	• Destruction of or damage to production facilities, supply chain backups or disruptions, shortages of, e.g., parts or materials required for production, interruption of services, reduction in production capacity utilization, plant shutdowns, loss of backup production capacity or suppliers, and/or losses in excess of insurance coverage due to a disaster in Japan or Thailand, where production capacity is concentrated, or anywhere else operations are located globally	• Maintained adequate insurance coverage, collected information on conditions and safety in every country in which we operate, took precautions based on that information and communicated with relevant government authorities • Utilized disaster preparedness/response tools, established/maintained lines of communication, formulated/updated business continuity plans, formulated/updated working environments and systems, inspected plants, upgraded facilities' earthquake-resistance, periodically conducted emergency drills
Product/service-related problems	• Cost overruns, payment of damages to customers, impairment of public reputation and/or loss of societal trust due to, e.g., the occurrence of various problems with or arising from products, cost increases attributable to, e.g., changes in specifications or process delays, unforeseen problems related to construction or sourcing of, e.g., parts and materials, and/or impacts on MHI's production activities or products/services' availability to customers resulting from a supplier's inability to supply specific parts/materials or the occurrence of labor shortages among partners due to stricter labor-related laws and regulations • Deterioration of business conditions or changes in business policies among important and difficult-to-replace customers, suppliers, and business partners	• Instituted and enforced various regulations, built and strengthened the operational risk management regime • Individually screening incoming orders before acceptance, monitoring fulfillment process after acceptance • Conducting training for project/department managers, holding product safety seminars on ongoing basis • Implemented recurrence prevention measures, including by recapping causes of, and corrective action in response to, major losses incurred on previous projects and incorporating the information into internal training programs ▶ For details, please refer to "Business Risk Management" (P75).
Intellectual property disputes	• Liability for damages and/or loss of right to use certain technology due to adverse outcome of, e.g., litigation related to intellectual property (IP) infringement • Obstruction of business operations due to inability to in-license technology from third party	• Avoiding IP disputes by thoroughly researching IP owned by others at the product planning, design, and production stages • Upgraded IP staff's expertise through education and HR development
Cybersecurity problems	• Major loss of competitiveness, impairment of public reputation and/or loss of societal trust in connection with information leak due to, e.g., increasingly sophisticated/malicious cyberattacks • Disruption of operations due to, e.g., disablement of computers or servers • Investigations by authorities, claims for damages by, e.g., customers	• Implemented cybersecurity controls (standards, safeguards, self-assessments, internal audits), incident response measures, etc. by building a cybersecurity regime under direct supervision of the CTO ▶ For details, please refer to "Cybersecurity" (P76).
Legal/regulatory violations	• Administrative sanctions imposed by government authorities, including correction orders, penal fines, non-penal fines, suspension of operations, and/or export bans in the event of legal/regulatory violations; claims for damages from authorities or interested parties • Disruption of operations, impairment of public reputation, and/or loss of societal trust	• Instituted and enforced the MHI Group Global Code of Conduct and various regulations applicable to all Group personnel • Regularly holding Compliance Committee meetings, established internal compliance reporting program • Disseminating messages from management officers on strict legal/regulatory compliance, conducting various internal trainings on an ongoing basis, augmenting training curricula, conducting internal audits ▶ For details on strengthening compliance, please refer to "Compliance" (P77).

Basic Approach to Business Risk Management

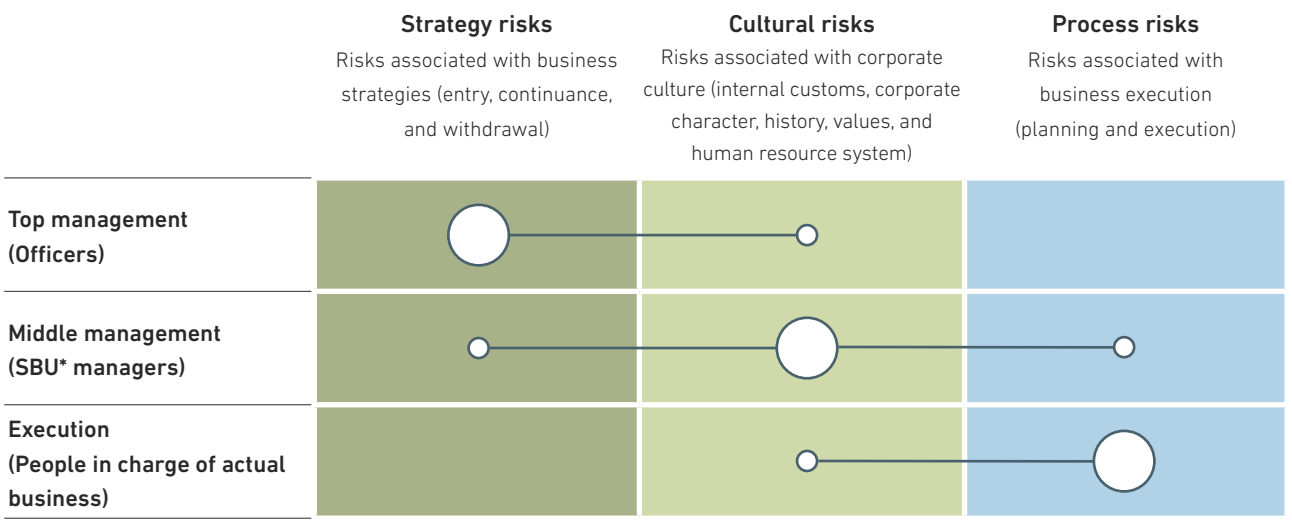
Throughout its history, MHI Group has achieved sustained growth by taking up diverse new challenges and initiatives in numerous business areas. At the same time, on occasion we have experienced losses on a large scale.

For MHI Group to mark sustained growth amid an ever-changing business environment, it is necessary to continue to take up challenges in new fields, new technologies, new regions, and new customers as well as to improve and strengthen operations in its existing business markets. Such challenges will entail business risks, and a company's ability to curb risks wields significant influence on its business results and growth potential.

To link challenges of this kind to the next leap into the future, MHI Group, applying its past experience and lessons learned, has established the "Business Risk Management Charter" and will promote the creation of mechanisms that will ensure the effective execution of business risk management and the cultivation of a culture responsive to risks. MHI Group will also reinforce advanced, intelligent systems and process monitoring, both of which support top management's strategy decisions. Through these approaches, we will pursue "controlled risk-taking" that will enable us to carry out carefully planned challenges toward expanding our business.

We believe that risk management is a part of governance and functions only when the elements of systems and processes, corporate culture, and human resources are in place. For our Group to succeed in the global market, we need to take bold and daring risks, but we also need to manage those risks. That is the perfect combination for continually increasing our corporate value. In this sense, it is important that all business participants, from people engaged in the actual business to management, comprehend and control risks in business, from processes to strategies. For details, please see the chart below (Matrix of Business Risk Management).

Matrix of Business Risk Management



*SBU: Strategic Business Unit (business unit in the Strategic Business Assessment System)

Business Risk Management Structure

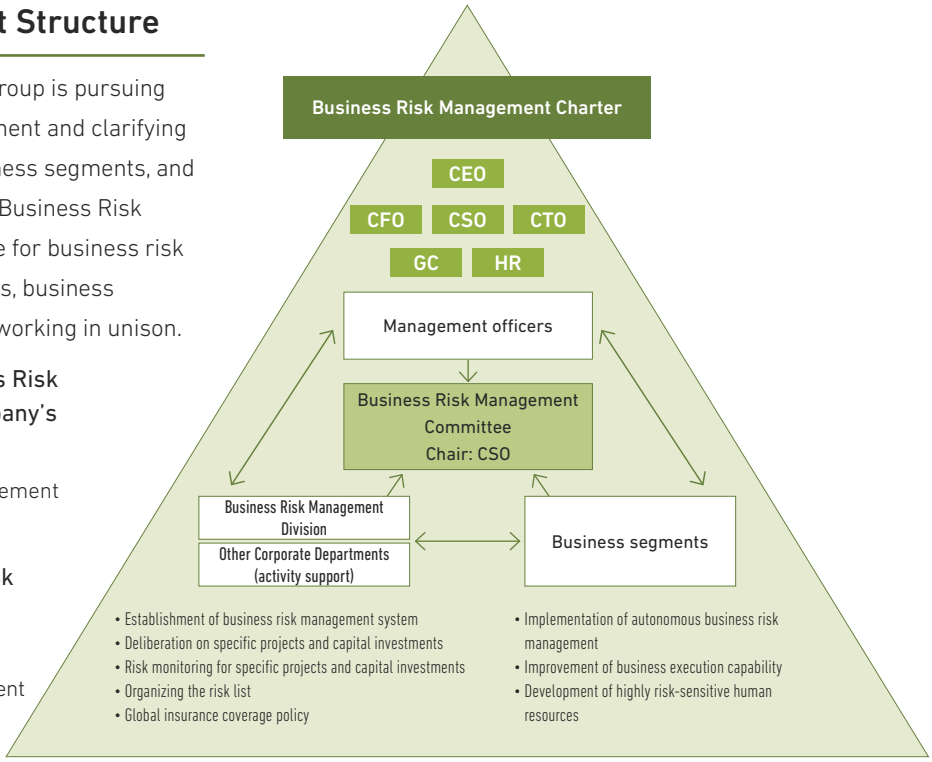
Through the following measures, MHI Group is pursuing more organized business risk management and clarifying the roles of management officers, business segments, and corporate departments. In addition, the Business Risk Management Department is responsible for business risk management, with management officers, business segments, and corporate departments working in unison.

1 Observe and practice the Business Risk Management Charter as the Company's foremost set of rules

- Clarify, observe, and practice risk management targets, etc.

2 Hold meetings of the Business Risk Management Committee

- Share information on important risks and discuss response policy by top management
- Report particularly important matters to the Board of Directors
- Held four meetings in FY2023

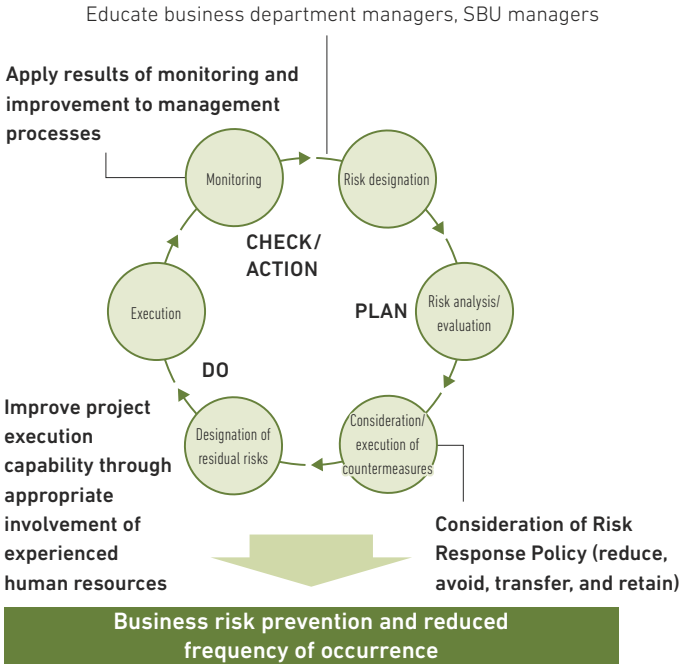


Business Risk Management Process

With the Business Risk Management Division acting as the responsible department, MHI Group engages in business risk management activities bringing together management, business segments, and corporate departments.

The chart on the right (Business Risk Management Process) outlines specific activities. In addition to improving systems and processes to prevent business risks, reduce the frequency with which such risks manifest themselves, and consider and implement measures, we develop human resources in charge of business risk management and cultivate a culture of responding to risks through such efforts as providing training for SBU manager candidates.

Business Risk Management Process



Cybersecurity

MHI Group, which provides critical infrastructure to society, recognizes cybersecurity risk as one of its most important risks. With this in mind, we established a cybersecurity basic policy and a cybersecurity strategy.

The Group regularly monitors this risk. The President and CEO supervises the cybersecurity strategy, and the CTO reports the results of discussion in the Cybersecurity Committee in a timely manner to the Executive Committee and Board of Directors. Based on the policy and strategy, a cybersecurity program has been implemented under the control of the CTO to minimize the risk of cyber incidents. Cybersecurity governance, incident response, and education and training are maintained and performed under this program. At the same time, MHI Group is contributing to the establishment of a global cybersecurity framework.

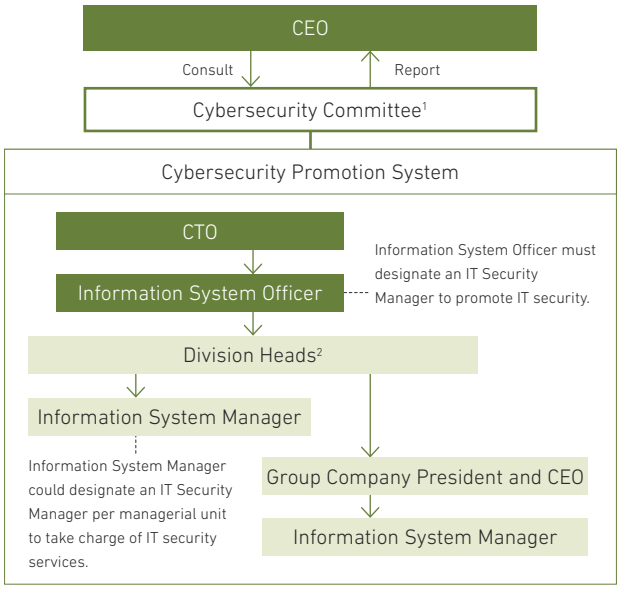
Cybersecurity Governance

Based on the NIST CSF[1], MHI Group has established cybersecurity standards and implemented multi-layered defense measures against cyberattacks. We also perform periodic self-assessments and internal audits.

Emergency responses are taken without hesitation when signs of a security risk are found. Furthermore, we are revising standards based on MHI Group's issues by referring to the state of formulation and revision of guidelines by governments and organizations, such as the Cybersecurity Management Guidelines announced by the Ministry of Economy, Trade and Industry. With respect to control systems for our products and services, we have built a framework that controls cybersecurity risk and will work with business partners to upgrade the cybersecurity capabilities and capacity of our products and services on a regular basis. By driving the development of next-generation cybersecurity solutions, MHI will help build a safe, secure society.

1 NIST CSF: National Institute of Standards and Technology Cyber Security Framework

IT Security Management System



1 Established August 8, 2023
2 Division Head: The Head of domain, and the Head of segment. The Head of Digital Innovation HQ for the corporate division.

Response to Cybersecurity-Related Incidents

In the event of a cybersecurity incident, a CSIRT (Computer Security Incident Response Team) immediately reacts to the incident, handles analysis and examination of the incident, recovers systems, and carries out further preventive measures. Incidents are reported to stakeholders as needed, including concerned government agencies. Serious incidents are internally reported to directors, and measures are taken in accordance with our crisis management system to swiftly recover operations according to our business continuity plan.

Due to the increased frequency of ransomware attacks requiring swifter management decisions and communication, we confirm and revise the response capabilities and issues of organizations in an emergency through incident response drills that include management.

Cybersecurity Education and Training

MHI Group regularly provides cybersecurity education and training to all employees as warranted by their respective roles with the aim of maintaining and improving their cybersecurity literacy. We also aim to cultivate engineers capable of both safety- and security-minded product and service development.

Contributing to the Establishment of a Global Cybersecurity Framework

Through participation in the Study Group for Industrial Cybersecurity[2], the Charter of Trust[3], promotion of the Declaration of Cyber Security Management 2.0, and other cybersecurity initiatives, MHI Group is contributing to the establishment of a global cybersecurity framework.

2 An initiative by the Ministry of Economy, Trade and Industry to examine industrial cybersecurity measures.
3 An initiative by private corporations to build trust in cybersecurity.

Compliance

MHI Group attaches importance to complying with applicable laws and social norms and is promoting fair and honest business practices. For the promotion of such practices, MHI Group established the Compliance Committee, which is chaired by the General Counsel (Senior Vice President). The Compliance Committee draws up and implements Group-wide compliance promotion plans and confirms their progress. In addition, the Committee works to strengthen compliance on a continuous basis through such means as sharing compliance-related initiatives and cases within the Group.

In addition, MHI Group has also set up whistleblowing hotlines in Japan and overseas in an effort to swiftly respond to various compliance-related risks, including compliance violations or actions that run the risk of becoming compliance violations.

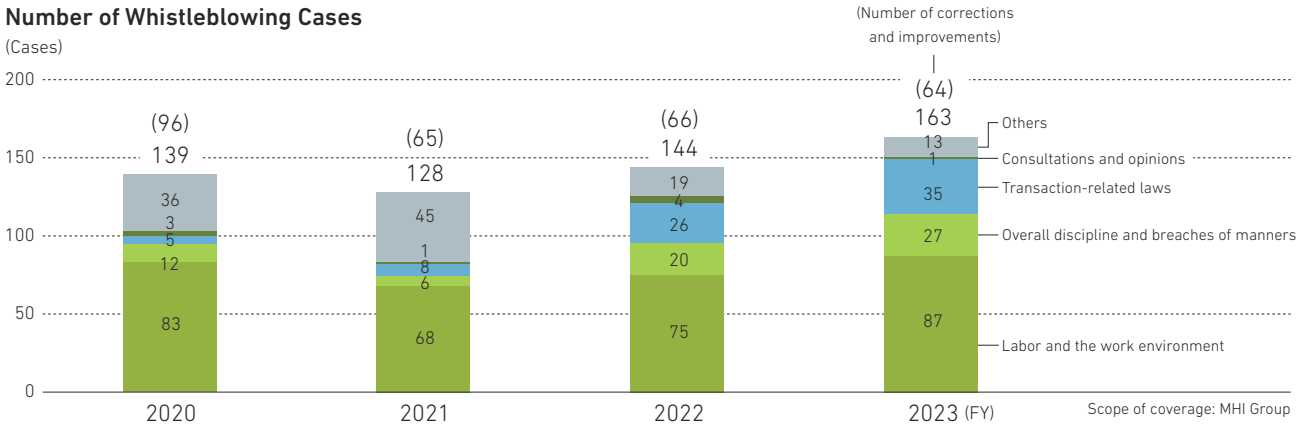
As a global organization, MHI Group employs thousands of individuals from different backgrounds, nationalities, and cultures. Such diversity of talent and perspectives is one of our greatest assets. Having diverse backgrounds, it is important to work together and promote our business under a common corporate culture.

To that end, MHI Group has formulated the MHI Group Global Code of Conduct. Through such efforts as education through e-learning and the distribution of booklets, we strive to disseminate this code of conduct among MHI Group employees around the world. At the same time, we have formulated the Compliance Promotion Global Policy, clarifying basic matters and rules for promoting compliance, such as the organizational framework, roles, and administration standards.

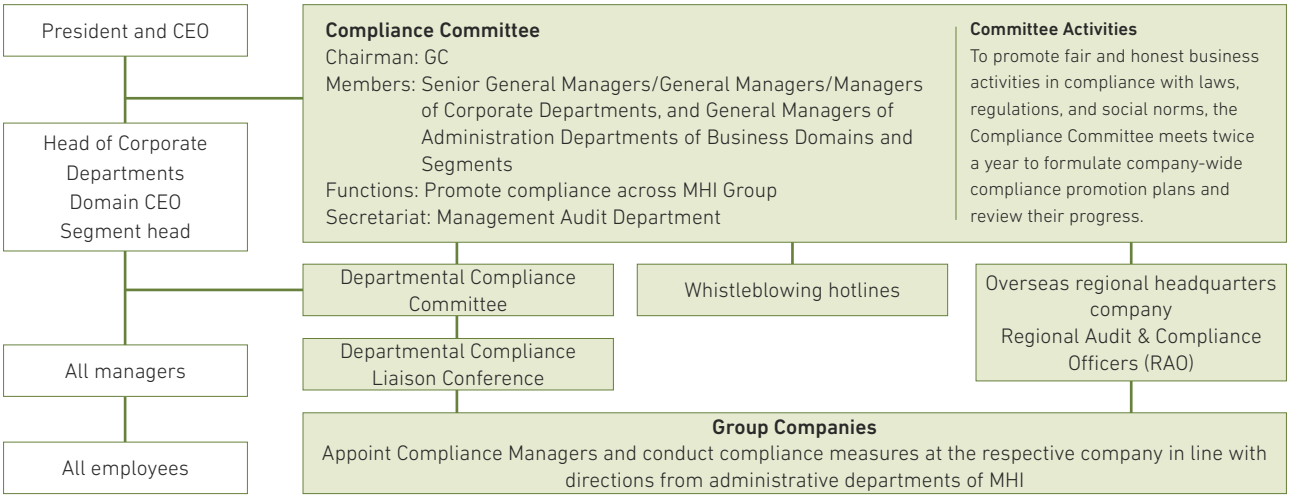
Number of participants in compliance training (e-learning)

Approx. 81,000 people (FY2023)

Number of Whistleblowing Cases



Compliance Promotion System



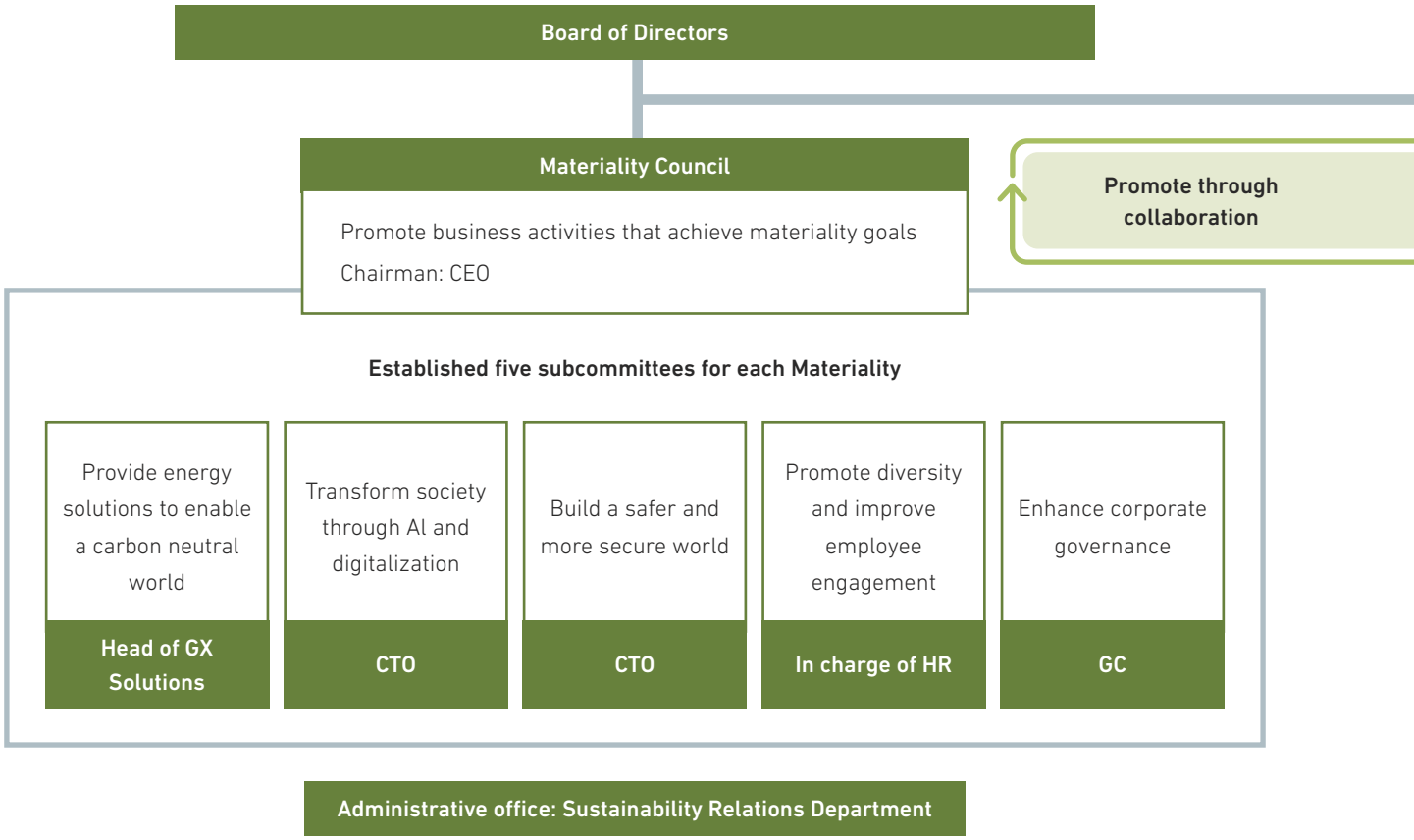
Sustainability

Sustainability and CSR Policy

In accordance with the Three Principles that are at the heart of Our Principles, MHI Group serves as a manufacturer that contributes to societal progress through its business endeavors of delivering products and technologies in support of social and industrial infrastructure worldwide. MHI Group shall not only make contributions through its products and technologies to resolve social issues such as environmental problems but also work on resolving a wide range of social challenges through various activities in the process of its overall business and conduct sustainability management in tandem with its business activities. Furthermore, we believe that this fundamentally entails realizing a sustainable society and ensuring a future for people and the planet by providing exceptional products and technologies, conducting business activities that take diverse stakeholders' interests into consideration and optimally returning profits to all stakeholders.

The MHI Group's CSR Action Guidelines serve as collective standards for all MHI Group employees. These guidelines provide a concrete and easy-to-understand way for employees to consistently keep sustainability in mind as the Group contributes to societal progress through its business endeavors and Our Principles centered on the principles of sustainability.

In 2015, we established the MHI Group Global Code of Conduct, a provision of common principles which stipulates how the Group's employees with various backgrounds, nationalities, and cultures should act and behave. Regarding the environment, MHI Group has established the Basic Policy on Environmental Matters and Action Guidelines in 1996 to encourage initiatives to reduce the environmental burden.



Sustainability Promotion System

Matters of importance concerning the challenges involved in approaching sustainability are discussed at the Sustainability Committee, with reports then provided to the Board of Directors in relation to the relevant matters. The contents of activities undertaken in relation to Material Issues are also the subject of reports to be provided to the Board of Directors on a periodic basis and serve as important themes for us to consider when it comes sustainability management.

Committee name	Head	Members	Purpose	Number of meetings held in FY2023	Main agenda items in FY2023
Materiality Council	CEO	Executive Vice Presidents, CSO (Chief Sustainability Officer), GC (General Counsel), CFO, CTO, officer in charge of HR, head of Business Strategy Office, and domain CEOs	To follow up on business activities to realize materiality goals and discuss how to respond going forward	2	• Detailed decisions on company-wide materiality goals and the scope of initiatives for KPIs (progress monitoring indicators) • Monitoring the progress of materiality initiatives
Sustainability Committee	CSO (executive officer in charge of sustainability)	Executive Vice Presidents, GC, CFO, CTO, officer in charge of HR, head of Business Strategy Office, and domain CEOs	To make management-level decisions related to how to address sustainability issues (e.g., ESG initiatives)	2	• Research into trends in sustainability-related industry policy and regulations • Drafting strategy for dealing with ESG rating agencies • TCFD planning cycle for FY2023 • Progress on ESG initiatives (e.g., human rights, biodiversity) • How to carry out sustainability management

Committees Related to Sustainability

Sustainability Committee

Hold the Group accountable for responses to issues related to sustainability based on the perspectives of stakeholders

- Discuss promotion of sustainability management
- Further strengthen the ESG initiatives implemented
- Promote social contribution activities, etc.

Chairman: CSO

Compliance Committee

Environment Committee

International Trade Control Committee

Business Risk Management Committee

Cybersecurity Committee (established August 2023)

For the latest information on sustainability, please visit our website.
https://www.mhi.com/sustainability

For more details on sustainability, please refer to "SUSTAINABILITY DATABOOK."
https://www.mhi.com/sustainability/library

Human Rights Initiatives

MHI Group is committed to respecting human rights and workers' rights of employees in accordance with international treaties and other guidelines relating to human rights. In May 2015, we established the MHI Group Global Code of Conduct as the common standard for MHI Group. Through the establishment of this standard, which was compiled making reference to the UN Guiding Principles on Business and Human Rights, we aim to cultivate a shared corporate culture, one that is rooted in mutual trust and affords dignity and respect to all employees. MHI Group values the individual contributions of all people irrespective of race, color, religion, political convictions, gender, age, nationality, sexual orientation, marital status, or disability.

Ascertaining of Human Rights Risks

We are moving forward with human rights due diligence in adherence with the UN Guiding Principles on Business and Human Rights. In terms of what we are specifically doing in that area, we conduct risk assessments that have us investigating human rights risks within our supply chain (including within in-house operations) in 39 countries where MHI Group has operations, extracting information on the potential human rights issues being faced, and periodically rethinking things in accordance with the necessity to do so.

In FY2022, we conducted a survey-based investigation for 25 of our suppliers in Southeast Asia that were believed to present high levels of potential risk, and subsequently conducted additional on-the-ground investigations for a portion of those suppliers.

In FY2023, we expanded the scope of suppliers covered by the survey, and based on a review of relevant suppliers, primarily in the procurement division and business divisions, carried out site visits to a total of 13 companies, focusing again on the Asia region. In both fiscal years, the surveys resulted in the discovery of no noteworthy human rights risk.

Remediation (Corrections)

When it comes to initiatives that we are undertaking with respect to human rights due diligence based on the UN Guiding Principles on Business and Human Rights, we are discussing and considering the whole concept of measures serving to correct and remedy human rights violations when they have arisen. In FY2023, we joined JaCER (Japan Center for Engagement and Remedy on Business and Human Rights) in order to establish a remedy system for all of our stakeholders based on the UN Guiding Principles.

Biodiversity

MHI Group's business activities both depend on and have potential to impact biodiversity and natural capital in various ways.

In FY2023, we used IBAT[1], a tool recommended by the TNFD, to investigate the interface with areas of biodiversity importance within a 3-km radius of 99 MHI Group operational sites, mainly major production sites around the globe.

MHI Group profoundly recognizes the importance of adopting nature-positive initiatives in line with the Kunming-Montreal Global Biodiversity Framework adopted at the 15th meeting of the Conference of the Parties to the UN Convention on Biological Diversity (COP-15) in December 2022. To realize a world that lives in harmony with nature by 2050, we issued the MHI Group's Declaration on Biodiversity in April 2023.

Biodiversity Risk Assessment

Recognizing the importance of the location-based analysis for understanding dependencies and impacts on nature, we are working on biodiversity risk assessment referring to the LEAP[2] approach presented in the TNFD framework.

1 IBAT (Integrated Biodiversity Assessment Tool): One of the TNFD's recommended tools, it can survey protected natural areas, habitats of endangered species, etc. around a target location based on latitude and longitude information.

2 LEAP: An assessment process for nature-related risks and opportunities, comprising the following four phases: Locate the organization's interfaces with nature, Evaluate dependencies and impacts, Assess risks and opportunities, and Prepare to respond to nature-related risks and opportunities and report.

Material Issues

To enhance corporate value and grow in the medium to long term through solutions to social issues, in FY2020 we identified Material Issues that MHI Group should be addressing. The progress of each Material Issue is managed with progress monitoring indicators (KPIs), and the PDCA cycle is steadily applied.

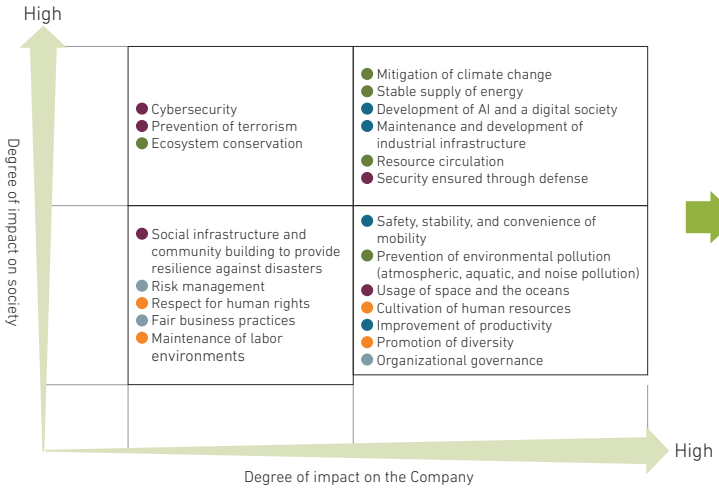
Activities involving engagement with Material Issues embody sustainability management in terms of business. To make the activities effective, we have established subcommittees with managers and departments for each Material Issue, and the person responsible and organizing department consider specific measures and roadmaps.

In October 2021, we established the Materiality Council to follow up on business activities aimed at realizing company-wide goals for Material Issues and to instruct business divisions addressing the goals to take necessary measures. Council meetings taking place during FY2023 were held on two occasions in June and December, during which information on the progress being made with respect to each Material Issue was shared and questions and opinions were freely exchanged. We are making progress with R&D projects in such areas as Carbon Neutrality and digital platform services, and our efforts are starting to bear fruit. These activities are important themes in sustainability management and are regularly reported to the Board of Directors.

Processes of Identifying Material Issues

Step 1 Prioritizing Social Issues	Step 2 Creating a Materiality Matrix	Step 3 Verifying Appropriateness	Step 4 Identifying Material Issues	Step 5 Setting Company-Wide Goals and Progress Monitoring Indicators (KPIs)
We inventoried the Company's businesses and initiatives, linked them to a list of social issues prioritized in line with international frameworks — including the SDGs, the GRI Standards, ISO 26000, the SASB Standards, the EU Taxonomy, and others— and identified 37 social issue themes related to MHI Group.	(1) Importance of social issues assessed and mapped along two axes (Vertical axis: degree of impact on society; horizontal axis: degree of impact on the Company; see "Approach to Identifying Material Issues" below) (2) Nine Material Issues postulated based on the Materiality Matrix	(1) Discussion held at Materiality review meetings (consisting of CSR Committee members), and Material Issues narrowed down to six items (2) Dialogue held with outside experts in accordance with the necessity	The CSR Committee identified Material Issues. A report was provided to the Board of Directors after deliberations at the Executive Committee.	(1) A task force team comprising young and mid-level employees played a central role in establishing a draft of company-wide goals and KPIs for monitoring progress when it comes to Material Issues. (2) These were further considered at Materiality subcommittees, decided upon by the Materiality Council, and then disclosed.

Approach to Identifying Material Issues



Five Material Issues identified based on social issues important to MHI Group

Business Contribution (business-related)
- Provide energy solutions to enable a carbon neutral world
- Transform society through AI and digitalization
- Build a safer and more secure world

Foundation to Support Business (corporate-related)
- Promote diversity and improve employee engagement
- Enhance corporate governance

Material Issues for MHI Group: Company-Wide Goals and Progress Monitoring Indicators (KPI)

Material Issues (Officer in Charge)	Company-wide Goals	Progress Monitoring Indicator (KPI)
Provide energy solutions to enable a carbon neutral world ▶ Head of GX Solutions	Reduce the CO_2 emissions of MHI Group. Achieve Net Zero CO_2 emissions from its operations by 2040 (Scopes 1 and 2)	Reduce total CO_2 emissions from business activities (Scopes 1 and 2) by 50% by 2030 (compared to 2014 levels), and achieve net zero by 2040.
	Contribution to society throughout the value chain by 2040. Achieve Net Zero CO_2 emissions from its entire value chain by 2040 (Scope 3 + reduction through CCUS)	Reduce CO_2 emissions across the entire value chain (Scope 3 + CCUS contribution for CO_2 reduction) by 50% by 2030 (compared to 2019 levels) and achieve Net Zero by 2040.
		Develop products and services that contribute to decarbonization of the energy supply by 2040 (Energy Transition)
		Develop products and services that contribute to conservation, decarbonization, and automation of energy use by 2040 (Smart Infrastructure)
		Develop and prove new products and services that contribute to the carbon cycle
Transform society through AI and digitalization ▶ CTO	Expand lineup of useful and sustainable AI/digital products meeting needs of customers and users	Steadily increase the number of newly developed advanced AI and digital solutions (services, products, R&D) that solve customer issues
	Contribute to a sustainable society through future-oriented energy management strategies that use AI and digitalization to appropriately and efficiently manage power supply and demand	Propose optimal energy infrastructures to customers according to the characteristics of the region
		Increase the number of products linked to future-oriented energy management systems
	Improve our working environment to produce creative products	Improve employees' awareness of creative time and environments
Build a safer and more secure world ▶ CTO	Boost the resilience of products, businesses, and infrastructure	Carry out various disaster impact assessments, and promote the development and practical application of resilient designs and technologies
	Implement fully-automated and labor-saving measures	Promote the development and practical application of technologies that enable the remote operation and automatic inspection of products, businesses and infrastructure
	Continuously strengthen cybersecurity measures for all MHI products	Promote the development and practical application of cybersecurity technologies
Promote diversity and improve employee engagement ▶ In charge of HR	Project new value through participation of diverse human resources	Increase the ratio of women on the Board of Directors to at least 30% by 2030
		Double the ratio of women in management positions by 2030 (compared to FY2021)
		In accordance with the MHI Group Human Rights Policy, raise awareness of diversity among Group employees through education and other efforts
	Ensure safe and comfortable workplaces	Reduce the number of serious accidents to zero
		Maintain a labor (work absence) accident frequency at a rate that is equal to or lower than the industry average
	Improve our environment that maximizes employee performance, and develop human resources who are healthy, energetic and able to contribute to society	Raise the employee awareness survey's "engagement" score above the global average by FY2030
Enhance corporate governance ▶ GC	Further enhance deliberations by the Board of Directors	Maintain the ratio of Independent Outside Directors on the Board of Directors at 50% or more (MHI)
		Assess the effectiveness of the Board of Directors annually to ensure and improve it (MHI)
	Promote legal compliance and honest and fair business practices	Maintain the number of serious laws/regulation violations at zero
		Continue activities that promote an open organizational culture
	Further promote responsible (CSR) procurement in the global supply chain	Promote sustainability and CSR procurement activities with partners to build a sustainable supply chain
		Offer continuous educative information to suppliers/business partners in order to establish and maintain sustainable supply chain
	Create opportunities to explain non-financial information	Conduct ESG briefings to investors at least once a year

1 The hydrogen mixture ratio is express as a volume ratio.
2 YHH (Yokohama Hardtech Hub): A co-creation space operated by MHI in Yokohama.
3 Charter of Trust: An initiative by private corporations to build trust in cybersecurity. MHI has participated in this initiative since April 2019.

Initiatives and Progress in FY2023
• Forecasting a reduction in 2023 CO_2 emissions of 42% (compared to 2014 levels). • At Mihara Machinery Works, which is pioneering initiatives to reduce CO_2 emissions, forecasting a 97.7% reduction (compared to 2021 levels) through installation of solar panels, energy conservation, and streaming, and acquired practical plant decarbonization know-how.
• Forecasting a reduction in 2023 CO_2 emissions (Scope 3 Category 11) of 36% (compared to 2019 levels).
• Conducted a successful demonstration operation of 30% hydrogen fuel co-firing[1] the GTCC demonstration power plant in Takasago Hydrogen Park, using a state-of-the-art JAC gas turbine. • To increase global business opportunities for CO_2 capture, expanded partnerships, including concluding a general license agreement with the major engineering firm Saipem. • Nearly completed the basic design for the Advanced Light Water Reactor "SRZ-1200," which will have the world's highest standards of safety. In addition, selected as the core company for design and development of a demonstration fast reactor and an HTGR (high-temperature gas-cooled reactor) demonstration reactor, both promoted by the Japanese government.
• Responded to feasibility study (FS) and front-end engineering and design (FEED) requests for numerous projects in a variety of industries, including a FEED contract for a CO_2 capture plant for major cement manufacturer Heidelberg Materials. • Prepared for commercialization in the electrification and data center fields by developing a new container-type data center with an immersion/air-cooled hybrid cooling system, and by strengthening the North American service system through the acquisition of Concentric.
• Conducted demonstration tests for biowaste utilization (hydrolysis), and pursued development of production technologies for carbon-neutral fuels such as sustainable aviation fuel (SAF).
• Confirmed the basic performance of the prototype for the next generation unmanned forklift (based on ΣSynX), and conducting demonstration activities for an automated picking solution at YHH[2]. Further development of intelligent logistics systems is also continuing. • An automated material handling system for maritime transportation is under development. • An intelligent system for operation of industrial machines is under development. • Within our central R&D organization, MHI Group conducts advanced research and development, and the results are applied widely across our business areas. This allows us to promote the development of solutions such as AI and digital products and services for diverse business units.
• Started feasibility study of optimal energy infrastructure solutions for a city in Japan and the factory of a domestic beverage manufacturer, considering regional characteristics based on an assessment balancing social, economic, environmental factors, and carbon neutrality.
• Conducted external verification of a core energy management system (EMS) with expanded control functions for heating equipment for use in carbon neutral EMS products.
• The following were implemented in order to make MHI a more creative workplace: • Internal community site (EKKYO BASE): Organized collaboration projects and distributed related digital contents such as one-on-one workshops. Expanding opportunities for dialogue and co-creation with employees from inside/outside of MHI. • Future Design Task Force: R&D activity "Future design process" is ongoing. Eight new themes in six areas are under development. • Formulated a human resource development plan in the field of Digital Innovaton, under the strategic goal of developing 22,000 Digital Innovation experts groupwide. • Advanced efforts in promoting groupwide use of CRM (Customer Relations Management), utilization of data foundation, and development of future IT architecture. • YHH: Started verification tests and co-creation research for container DC, EMS, etc. Established LogiQ X Lab, a logistic intelligence project, and conducted verification tests with Kirin Beverage that led to an order for an actual logistic system. • From October 2022, Continued human resources development program at YHH for entrepreneurship. Contributed to revitalizing new business creation activities and improving business operations, after returning to their original posts.
• Completed the application of disaster prevention simulation for tsunami, typhoon, heavy rain, storm surge, etc. at all domestic MHI factories. The weak points at each factory regarding various disasters were clarified, and the effectiveness of countermeasures was confirmed and verified. We will continue to promote measures to strengthen plant resilience and review our BCP. • In the above simulations, we also conducted an impact assessment of severe heavy rainfall considering climate change scenarios in the wake of the flooding of the Hitachi plant caused by Typhoon No. 13 in September 2023. • The disaster prevention simulation was applied in the proposal for a customer's plant construction.
• Confirmed functional performance of forklift operation via low delay video transmission in cooperation with NTT. • Started system design on the highway Vehicle-to-Infrastructure system, which uses wireless communication to connect ICT-enabled "connected" vehicles and elated infrastructure components, in preparation toward realizing a future of autonomous mobility. • Continued to promote the research & development of unmanned defense equipment. • Developing a labor-saving system for ferry cargo handling. • Delivered a monitoring platform (ΣSynX Supervision) for ships. • A remote monitoring and operation support system (MaiDAS) for a waste incinerator plant has been verified and presented at a major academic conference. • Continued to promote research and development of intelligent operation systems for paper converting machinery. • Developing plant piping inspection robots. • Developing an explosion–proof plant–patrol inspection robot together with ENEOS.
• In FY2023, cybersecurity R&D investments increased 2.0 times the level of FY2020. • In order to strengthen the security resistance of our factories, evaluation and verification of network security detection devices were conducted in Sagamihara Machinery Works, YHH, Nagoya Guidance & Propulsion Systems Works – Komaki North Plant and other locations. • The basic security requirements set by Charter of Trust[3] were shared at ICS Device Security Administrators Meeting. •A webform to receive vulnerability information on products and services was established.
• Continued our training program for potential future executive candidates in collaboration with each business unit. • Expanded various employee support systems with consideration to childcare and caregiving in order to enable employees to continue their careers. Working to build a workplace environment and organizational culture allowing for a balance of professional and private life.
• Enhanced the content of educational materials (e-learning) on the topic of respecting human rights in MHI Group, based on the result of the first time of the e-learning conducted in FY 2023.
• MHI achieved zero serious accidents in FY 2023.
• The rate of lost-worktime injuries was slightly higher than the industry average. • Implemented AI-based method for detecting signs of potential industrial accidents, and analysis of root causes. Established process and procedures of collecting safety management data from overseas group companies.
• Action policies organized based on the result of the 4th MHI Group Employee Survey, undertaken in March 2023. • President's Town Meeting was held at five sites in Japan. • Announced pulse survey tool to all MHI Group and continuing operational improvement.
• Maintained the percentage of independent outside directors at 50% (6/12) and worked to speed up decision-making processes and strengthen oversight functions.
• Engaged in the following initiatives to evaluate the effectiveness of the Board of Directors in FY2023. • Conducted questionnaires to all members of the board. • Discussed the results of these evaluations in meetings of independent outside directors and reported the same to Board of Directors meetings. • Established policies based on the results of the effectiveness evaluation and finalized the draft of disclosure, both by the resolutions of the Board of Directors. Also started planning the agenda schedule for FY2024.
• There were no serious laws/regulation violations. • Case studies related to compliance were published monthly to raise awareness within the company. • Compliance information tailored to each region was shared with Group companies outside Japan in an effort to prevent compliance issues. • Ensuring that overseas group companies set up hotlines for reporting on compliance issues.
• Implemented the following compliance training for employees both within and outside Japan. • Japan: e-learning, discussion-based training, job grade-based training • Outside Japan: e-learning
• Implemented a CSR questionnaire for Japanese and overseas partner companies with a certain amount of regular orders from MHI, and obtained their agreement to the MHI Group Supply Chain CSR Promotion Guidelines.
• Delivered educational materials on CSR procurement when sending the periodical CSR questionnaire for partner companies, and confirmed widespread understanding within each company. • Performed CSR procurement education at business briefings and meetings with partners.
• Held Energy Transition Briefing in May 2023 and explained our aim to contribute to the reduction of CO_2 emissions through our products, technologies, and services.

Responses to Risks and Opportunities Caused by Climate Change (Disclosure in Accordance with the TCFD Recommendations)

MHI Group has endorsed the Task Force on Climate-related Financial Disclosures' (TCFD) recommendations and discloses climate-related information in accordance with the TCFD recommendations. In the FY2023 review, we quantified the financial impact of common Group-wide risks and opportunities and conducted scenario analyses of all businesses.

Governance

One of MHI Group's important social issues (Material Issues) is to "Provide energy solutions to enable a carbon neutral world."

The Materiality Council, chaired by the CEO, meets twice a year to review business activities aimed at achieving goals related to our Material Issues. It also discusses the direction of future initiatives and provides necessary instructions to the business divisions. In addition, the Sustainability Committee, chaired by the CSO, meets twice a year to consider ways to practice sustainability management. It also discusses and decides on basic policies related to ESG initiatives and spearheads various related activities.

The CSO is responsible for assessing and managing climate-related risks and opportunities and submits its findings to the Sustainability Committee, which reports its activities to the Board of Directors at least once a year.

Risk Management

The process of identifying, assessing, and managing climate-related risks and opportunities is integrated into our Group-wide sustainability promotion system. Under the responsibility of the CSO, this process involves the following four steps:

Step 1: The Administrative Office refers to external scenarios to identify and assess risks and opportunities for each business unit.
Step 2: Each business unit assesses the appropriateness of the aforementioned risks and opportunities by comparing them to its current business plan.
Step 3: During the planning stages of actual projects, each business unit holds a review meeting to ensure rigorous risk management.
Step 4: Information on risks and opportunities identified and assessed by the Administrative Office and business units are submitted to the Sustainability Committee, a higher-level organization, for review and management.

Financial Impact and Response (medium term) of Risks and Opportunities of Major Products by Business Domain in a Decarbonization Scenario

		Risks				
		Type	Content	Impact	Response	
Energy Systems	GTCC	Technology	• Delayed development of hydrogen gas turbines	Small	• Adhere to the development schedule	
	SPMI	—	• No significant risk exists under this precondition*	—	—	
	Nuclear Power	—	• No significant risk exists under this precondition	—	—	
Plants & Infrastructure Systems	CO_2 Capture System	Technology	• Decline in the competitiveness of our current CO_2 capture technology • Emergence of innovative alternative technologies	Small	• Improve the current CO_2 capture technology • Expand our CO_2 capture technology lineup	
	Metals Machinery	—	• No significant risk exists under this precondition*	—	—	
Logistics, Thermal & Drive Systems	Engines and Turbochargers	Market/Customer Trends	• Reduced demand for conventional models due to the shift to carbon-neutral fuels and the electrification of vehicles	Small	• Introduce products compatible with carbon neutrality to the market ▶ Hydrogen-powered engines ▶ Electric compressors for fuel cells	
	Logistics Systems	Market/Customer Trends	• Possible reduction of service revenue due to the shift from engine to battery forklift trucks	Small	• Consider ways to expand service revenue from battery-powered forklifts	
	HVAC	Changes in policy and legislation Market/Customer Trends	• Excessive tightening of environmental regulations on refrigerant regulations, etc. • Loss of sales opportunities due to power shortages caused by increased electricity consumption in emerging countries	Small	• Lobby through industry associations and develop new products using alternative refrigerants • Diversify sales channels and develop energy-saving products	

[Selection Criteria for Businesses Subject to Analysis]
(1) Businesses at or above a certain scale (roughly ¥200 billion) that are significantly impacted by carbon neutrality
(2) Businesses that are currently small in scale but are expected to grow significantly in the future due to the impact of carbon neutrality

▶ For more details about disclosure undertaken in accordance with the TCFD recommendations, please visit our website.
https://www.mhi.com/sustainability/environment/climate_tcfd.html

Strategies (Scenario Analysis)

We developed a Decarbonization Scenario[1] and a Fossil Fuel Dependency Scenario[2] to analyze common Group-wide climate-related risks and opportunities, considering the time frames of "short-term," "medium-term, and "long-term"[3]. In determining the financial impact, we classified the effect on business profits into "large," "medium," and "small"[4].

Regarding the transition risk of tightening regulations, such as carbon taxes, we assessed it as a "large" risk under the Decarbonization Scenario. We also classified physical risk, such as increasing natural disasters, as "small" under the Decarbonization Scenario and "medium" under the Fossil Fuel Dependency Scenario. With respect to business opportunities, we anticipate increasing demand for products and services that contribute to decarbonization. We aim to promote Energy Transition, which focuses on achieving decarbonization on the energy supply side, and Smart Infrastructure, which targets energy efficiency, automation, and decarbonization on the energy demand side. We aim to grow this into a trillion-yen business by FY2030.

In addition to the above, the Group operates a wide range of businesses, each with different risks and opportunities. Accordingly, we conduct individual analyses of each business. These analyses focus on the risks and opportunities expected in the medium term under the Decarbonization Scenario across all our business units. The results of the analyses are shown in the table below.

1 A "scenario to promote decarbonization through stricter climate change policies," which aims to achieve economic growth while limiting the global average temperature rise to a maximum of 1.5°C above pre-industrial levels in the year 2100.
2 A "scenario in which climate change policies are not made stricter and the dependence on fossil fuels proceeds," which assumes a global average temperature increase of 4.0°C above pre-industrial levels in the year 2100.
3 Short-term: 3 years (FY2024–FY2026); Medium-term: Up to FY2030; Long-term: Up to FY2040
4 Large: ¥10 billion or more; Medium: ¥5–10 billion; Small: Less than ¥5 billion

Metrics and Targets

One of MHI Group's important social issues (Material Issues) is to "Provide energy solutions to enable a carbon neutral world." With this in mind, we made our MISSION NET ZERO declaration to achieve Carbon Neutrality by 2040 and established two targets as outlined in the table below.

Target year	Scopes 1 & 2 (Group-wide CO_2 emissions)	Scope 3 + reductions from CCUS (contribution to society across entire value chain)
2030	–50% (vs. 2014)	–50% (vs. 2019)
2040	Net Zero	Net Zero

Opportunities				
	Type	Content	Impact	Response
	Changes in policy and legislation Market/Customer Trends	• Tailwinds from policies in Japan and North America • Increased demand for products and services that promote carbon neutrality	Medium	• Promote the development of hydrogen gas turbines • Promote solutions that combine GTCC and CCUS
	Changes in policy and legislation Market/Customer Trends	• Tailwinds from domestic policies in Japan • Increased demand for products and services that promote carbon neutrality	Medium	• Promote fuel conversion to ammonia
	Changes in policy and legislation Market/Customer Trends	• Promote policies aimed at maximizing nuclear power use in Japan • Increased importance of energy security • Increased demand for products and services that promote carbon neutrality	Large	• Promote the new construction of advanced light water reactors, provide support for restarting existing plants (PWR/BWR), and provide maintenance for restarted plants
	Changes in policy and legislation Market/Customer Trends	• Development of legal/tax systems in various countries and regions • Increased demand for products and services that promote carbon neutrality	Large	• Promote CO_2 capture business in North America, Europe, etc., where progress has been made in establishing legislation and tax systems • Expand our CO_2 capture-related product lineup and develop a new business model • Promote strategic partnerships
	Market/Customer Trends	• Increased demand for products and services that promote carbon neutrality	Small	• Strengthen solutions for electric arc furnaces (EAFs), direct reduction steelmaking, etc. • Promote the development of hydrogen reduction steelmaking equipment, and encourage the replacement of existing plants
	Market/Customer Trends	• Increased demand for products and services that promote carbon neutrality • Tightening of environmental regulations in emerging countries	Small	• Introduce products compatible with carbon neutrality to the market ▶ Hydrogen-powered engines ▶ Electric compressors for fuel cells • Expand sales to new customers, especially those in emerging countries
	Market/Customer Trends	• Increased demand for products and services that promote carbon neutrality	Small	• Provide competitive battery-powered forklift trucks as well as eco-friendly port handling equipment (RTG) • Promote logistics solutions business
	Changes in policy and legislation Market/Customer Trends	• Appropriate tightening of environmental regulations on refrigerants, etc. • Increased demand for products and services that promote carbon neutrality	Small	• Expand sales of air conditioners and heat pump–based heaters that use low-temperature refrigerants

*In determining the impact of risks and opportunities, we compared the impact on business profit between the end of FY2023 and 2030.
Based on this, the risks associated with declining demand for coal-fired power plants and carbon-intensive steelmaking plants have been factored into the FY2023 figures (base plan figures).

MHI Group's HR Strategy: Launching the Future

MHI Group has sought to combine cutting-edge technology with many years of expertise to provide solutions to the evolving challenges facing the world while enriching people's lives. In accordance with this Group mission, we strive to create a safe, secure, and sustainable world with the goals to Strengthen portfolio management, Strengthen technologies and human capital, and Promote MISSION NET ZERO in the 2024 Medium-Term Business Plan (MTBP).

To achieve these goals, we are required to have business strategies that embody value creation and close coordination among HR strategies to maximize human capabilities more than ever. Furthermore, it is the heart of each one of us that launches the future. We can build strong momentum if each and every employee, including management leaders, pictures the future to be achieved, envisions it along with the future goal for MHI Group, and establishes an organization where we can collaborate.

At MHI Group, with management, business departments, and HR departments functioning as one, we will promote initiatives to launch the future that we envision, along with all of our Group employees.

Management strategy of MHI Group

2024 MTBP: Strengthen portfolio management, Strengthen technologies and human capital, and Promote MISSION NET ZERO

HR strategy to realize the management strategy

Leadership

Development of future management candidates

Developing leaders who can steer the Group's future

Talent

Human resource acquisition/development

Bringing together future-oriented personnel

Organization

Strengthening organizational capabilities

Building organizations that can adapt to change

Engagement

Employee engagement

Creating environments for the future

HR Responsibility Strengthening HR departments: For HR to build the future together

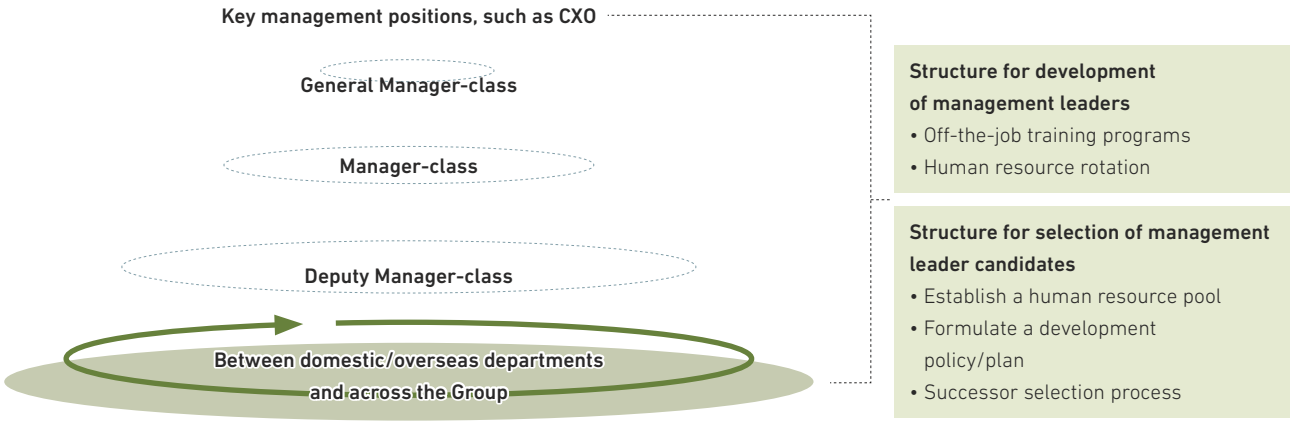
Establish a structure to execute the HR strategy to achieve the management strategy

Leadership Development of Top Management Human Resources: Developing Leaders Who Can Steer the Group's Future

Environments surrounding our businesses continuously change, including the shift to a decarbonized society, rapid development for digital transformation, and increased geopolitical risks. In light of such changes, the development of management leaders that can steer the overall Group is the most important theme for the entire Group. In addition to having a sense of pride in contributing to society, management leaders are required to embrace multifaceted perspectives that resonate globally, a sense of diversity to manage varying human resources, and a sense of balance to simultaneously handle existing businesses and develop new ones.

MHI Group will build a management structure that can cope with changes in any environment by establishing a system that continues to create management leaders on a global scale. We strive to introduce to society leaders who can respond to various global social issues, envision a new future, and pave the way to its achievement as a result.

Development of management leaders to shape personnel, businesses, and society



Building Talent Pools for Management Positions

Potential candidates for management talent pools are selected on recommendations from departments in principle, but from FY2022, self-nomination is allowed for some talent pools. We aim to provide growth opportunities for as many employees as possible in order to promote the diversity of future management candidates and encourage employees to actively face challenges. To foster these talent pools, we hold human resource review meetings in each department to discuss personnel development policies from a long-term perspective. For candidates in these pools, we provide the necessary managerial experience by implementing assessments, creating individual development plans, assigning employees to broaden their experience, and having them participate in management leadership development programs. We also seek to strengthen their management literacy and foster a leadership mindset.

Development Programs for Management Candidates

For those selected for the management talent pools, we offer a variety of training programs. For example, we collaborate with business schools in Japan, the United States, the United Kingdom, and China to provide off-the-job training programs aimed at cultivating management knowledge and skills and inspiring leadership ambition. In FY2023, more than 200 participants took part in these programs. We also assign candidates to roles that expand their range of experience as executive leaders based on their individual development plans.

Inter-Regional Talent Management Program

Talent Human Resource Acquisition/Development: Bringing Together Future-Oriented Personnel

MHI Group promotes a wide range of businesses supporting current society and takes on challenges to create a future society in a multifaceted manner. This is precisely the reason we want to be a corporation that attracts people with the ambition and responsibility to proactively create and support society. We hope to support the challenges and growth of employees with such vision.

People are the core that supports businesses, and the collective efforts of individuals become our organizational capabilities. To enhance our personnel capabilities, we will provide various opportunities for challenges and growth in accordance with "Ownership, collaboration, and challenge" presented in the "MHI Group Talent Development Guidelines." The premise for this initiative is the awareness of each and every employee to consider their own career. We will provide support for our employees to discover social values that they can promote through their own lives, incorporate these values into organizational goals, and achieve such efforts within the Group.

Career design
Support a career design that incorporates personal and organizational goals

Human resource development
Provide opportunities to support challenges and growth

Human resource acquisition
Be a corporate group that attracts diverse people with the ambition and responsibility to proactively create and support society

The MHI Group Talent Development Guidelines

Value

Ownership	Collaboration	Challenge

Concept of human resource development

Role of employees

Role of company — Role of superiors

Efforts to Strengthen Recruitment

In our recruitment activities, we focus on showcasing MHI Group's appeal and enhancing its image in the talent market through strategic recruitment branding. This approach aims to improve perceptions of the Group and attract top talent.

With respect to new-graduate recruitment efforts in Japan, we offer over 400 diverse internship programs to science and engineering students at the undergraduate and graduate levels. This helps them experience the appeal and excitement of working for MHI Group while deepening their understanding of it. We also tailor our recruitment activities to applicant needs in various ways. For mid-career recruitment, we have introduced a variety of methods, including the use of direct recruiting and "welcome back" hiring, and have established a system that allows us to flexibly hire talented people with diverse experience and skills. Welcome back hiring enhances our initiative for rehiring employees (alumni) who previously left the Company. We also provide information to alumni through a dedicated website and have a system in place for them to consult with a professional coordinator to address any concerns they might have about rejoining the company.

In the U.S. and Europe, we utilize a unified recruitment platform to conduct hiring activities under the Group's brand. We also leverage social media to attract talent with the skills we require.

Digital Innovation (DI) Education

MHI Group has set "Transform society through AI and digitalization" as one of its Material Issues and is working with customers to co-create new value chains utilizing digital technology and solutions to smartly connect complex mechanical systems. In promoting digital innovation (DI) as a Group, we are actively developing the human resources who will play a central role in this effort.

In promoting digital human resource development, we are putting in place a unified standard for digital human resource models, tasks, and skills that comply with every standard and guideline. We are developing training programs according to these standards based on an accurate understanding of the human resources needed to carry out our business. As a specific example, we have completed the rollout of digital literacy education for employees based in Japan to enhance the overall digital innovation capabilities of the Group. We are now extending this initiative to employees working globally.

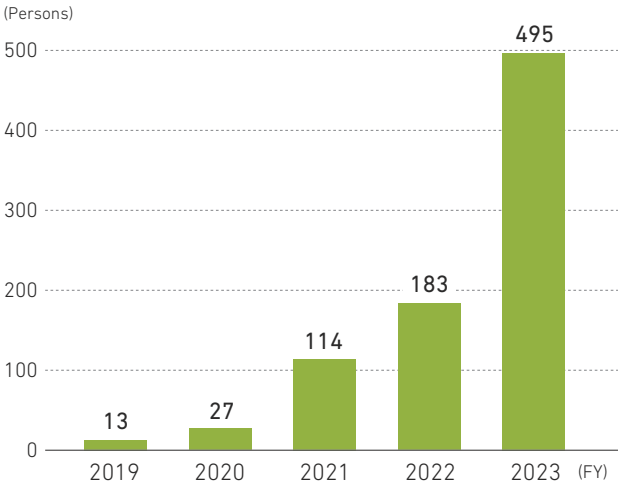
Furthermore, we are committed to cultivating talent globally who can lead new business development and advancement of existing operations, while leveraging digital technologies to improve the efficiency and sophistication of internal processes. Through introductory and foundational education, specialized technical training, and practical application methods, we aim to equip individuals with not only knowledge but also the ability to act autonomously. In a new initiative, we are accelerating the use of digital technologies by developing talent capable of effectively utilizing tools, such as generative AI and cloud computing, in business operations. Through these digital HR development programs, we aim to develop more than 20,000 digital innovators by 2030.

System to Support New Challenges for Employees

● Group Self-Nomination System

To support individual employees in managing their own careers and encourage them to pursue continuous growth and challenges, we operate an internal job application system that allows employees to proactively choose their own development opportunities. This system enables employees to transfer based on their own initiative and move to a new department if they pass the selection process for their desired position. From 2019 to March 2024, around 800 employees transferred to new roles and embarked on fresh challenges under the system. Our talented individuals, with diverse knowledge, experiences, and backgrounds, actively engage with one another across job functions, regions, and product areas. This has helped revitalize their workplace and drive innovation.

Personnel Transfers due to Open Recruitment



● Cross-Border Learning

We have integrated "Cross-Border Learning" into our education system to encourage employees to step outside their own organization, rediscover their own and the Company's strengths, gain a broader perspective through collaboration, and develop the ability to take initiative and think independently to overcome the status quo.

We help employees take on new challenges by offering various opportunities, such as "Cross-Border Challenge," where they temporarily transfer to other departments within the Group. We also have the "MHI Global Training" program, which provides training at overseas locations, and the "Yokohama Hardtech Hub (YHH) Talent Development Program," which fosters entrepreneurship through co-creation activities with the venture ecosystem, as well as various external programs.

Promoting Diversity and Inclusion

MHI Group consists of around 80,000 employees with diverse work experiences, nationalities, and cultures, making a corporate culture where everyone is respected as an essential condition for the measures mentioned so far. We believe that the diversity of our employees is an important foundation for allowing the Group to contribute to solving social issues through its business activities and find growth while continuing to innovate.

Against this backdrop, we have set as a company-wide goal to project new value through the participation of diverse human resources as part of our Material Issues. We continue to provide guidance and training to achieve one of our KPIs to increase the ratio of female executives to 30% and double the ratio of women in management positions by 2030 (compared with FY2021). In addition, we are working outside the Company to expand the base of female engineers in Japan as a whole. One such initiative is the "JEES/MHI Mirai Scholarship Program," which provides support for female graduate students in the sciences.

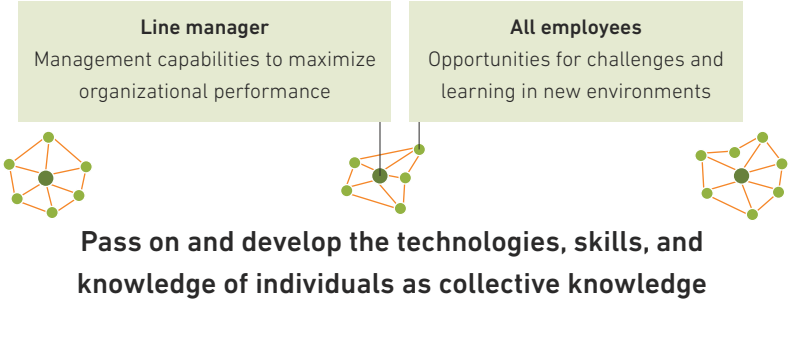
To ensure that all employees, regardless of gender, can continue their careers, we are expanding our systems for supporting childcare, elder care, and other personal needs. We are also working to create an inclusive workplace by establishing a dedicated diversity consultation office, implementing guidelines related to LGBTQ issues, and expanding job opportunities for employees with disabilities. Through these efforts, we aim to create a more comfortable and supportive work environment for employees from diverse backgrounds. Furthermore, we provide ongoing education to help employees maintain a high level of awareness about the importance of respecting diversity.

Global HR conference

Organization Strengthening Organizational Capabilities: Building Organizations That Can Adapt to Change

We are required to promote organizational management that can respond to the ever-changing business environment in a flexible and speedy manner. To do so, it is important to shift our resources into business areas with expected growth in a timely manner and appropriately manage the human resource portfolio utilizing the strengths of the Group that promotes a wide range of businesses. However, simply aggregating resources will not be enough.

Become an organization that can continue responding to changes in a flexible and speedy manner



We must bring out the capabilities of individuals and maximize our performance as an organization. The key will be the people-management capabilities of the line managers in each organization. We also need to build a robust business foundation for the future by passing on the technologies, skills, and knowledge of individuals while developing successors. Development of such organizational management can lead to opportunities where employees can learn new skills and adaptability. This will strengthen the learning capabilities that allow us to continue responding to environmental changes.

Strengthening Our Middle Managers

We have clearly defined the skills and behaviors expected of middle managers regarding the key principles outlined in our Talent Development Guidelines (ownership, collaboration, and challenge), and we share such information across the entire Group. This approach enables our middle managers to regularly reflect on their own actions, while also receiving feedback from 360-degree evaluations. It allows them to objectively recognize areas for improvement, providing a foundation for further self-driven growth.

In the future, through rank-specific education and OJT, we will try to raise the strength of organizational management by strengthening our training programs to ensure they acquire these capabilities and behavior traits, while also linking them to requirements necessary for promotion to manager.

Promoting Data-Driven HR Management

To effectively implement our business and HR strategies, we must utilize accumulated and collected HR data in decision-making processes at both the management and individual business levels. To this end, we have built a global HR database covering more than 170 domestic and overseas consolidated companies. In Japan, we have also established a unified HR core system on a single platform, laying the foundation for data-driven management. In the next phase, we will use the collected HR data to set up a dashboard to support specific decision-making scenarios and further advance data visualization. Through this approach, we will entrench a process of setting and verifying hypotheses based on real-time data analysis and forging ahead in each phase of strategy formulation and execution.

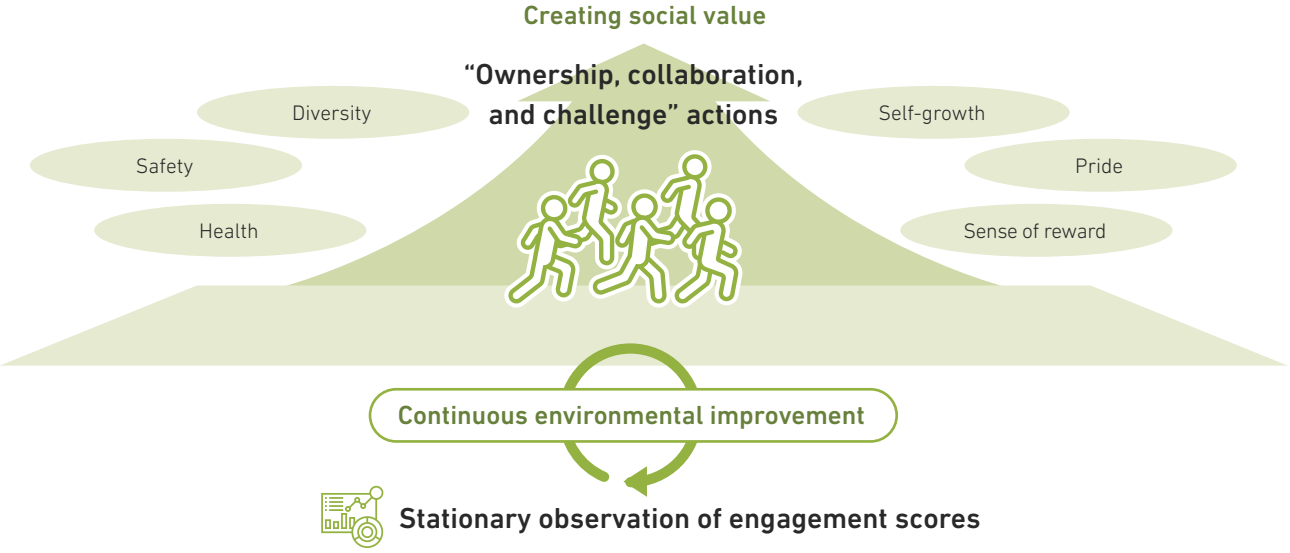
Strengthening and Passing on Our Manufacturing Expertise

A key mission of MHI Group is to consistently provide unwavering, high-quality manufacturing even in constantly changing business conditions. To cultivate talent with true manufacturing expertise—equipped with skills and knowledge and the wisdom to apply them—the Group has established three training centers in Japan. These centers provide foundational education focused on skill development for new employees assigned to the front lines, with training lasting one to 1.5 years. In addition, we encourage young technicians to improve their skills and raise their expertise level by competing in external competitions, including the "World Skills Competition," with the aim of developing them into core personnel who will support future manufacturing sites. For mid-level employees earmarked to become future frontline leaders, we provide "Core Skill Training." This program equips them with the knowledge, broad perspectives, and leadership skills needed to adapt flexibly to various changes brought about by advancements in and the increasing sophistication of manufacturing technologies, thereby preparing them to lead on front lines. By offering various education and training programs to maintain and improve the skill level of these employees according to their rank and position and enhance their management skills on the front lines, we ensure that the Group's trusted manufacturing capabilities are strengthened and passed on.

Skills training at our Skills Training Center

Engagement Employee Engagement: Creating Environments for the Future

To develop future social value, it is important for each and every employee to feel a sense of reward from working driven by intrinsic motivation. Our goal is for all employees of the Group to be able to work with a sense of pride while feeling the significance of their own job, be able to experience their own growth through their daily work, be able to choose their work-style in accordance with their life plan and life stage, and be able to work with a sense of security in a safe and healthy environment. We believe that all of these aspects together can lead to the realization of happiness for each employee through work and even promote autonomous actions to create social value. To achieve this, we will always comprehend employees' conditions and continuously create environments with a good balance between working comfort and a sense of reward from working.



Improving Engagement

Since fiscal 2017, we have conducted periodical employee awareness surveys of all Group employees to measure employee engagement and develop future strategies. Based on past survey results, we identified strategy and direction, leadership, and growth opportunities as key company-wide priorities. In response, we took various initiatives, including talent exchanges both within and outside the Group, investments to improve the work environment, and leadership reinforcement efforts. As a result, our most recent survey, conducted in 2023, showed significant improvements in the scores for these categories. We plan to conduct another survey in fiscal 2024.

CEO Town Hall Meeting

MHI Group places great importance on dialogue between top management and frontline employees. With is in mind, we have held town hall meetings at various locations globally, where the President and employees engaged in direct dialogue. These meetings saw participation from many employees. At the meetings, the President conveyed messages of pride in contributing to society and the importance of maintaining quality, and employees offered

Town hall meeting at Mitsubishi Heavy Industries America, Inc. (April 2024)

Results of Initiatives to Address Company-Wide Priority Issues

Note: Indexed using the 2020 survey score as 100

a variety of opinions and ideas. By providing these opportunities for dialogue, we are fostering a sense of unity between management and the front lines, which has helped boost employee morale and enhance overall engagement.

Health and Safety

A workplace environment where employees do not have anxiety about their safety or health is a prerequisite for improving employee engagement. MHI Group's basic policy on occupational health and safety is "At MHI Group, safety is the No. 1 priority. We will do everything in our power to protect lives." We have established MHI Group Health and Safety Policies reflecting the code of conduct for employees to realize this policy.

To realize environments in which work can be conducted safely and with peace of mind in business sites spanning the entire world, we will create an environment in which all employees have Stop Work Authority (SWA): the authority, regardless of position or affiliation, to stop work and correct a situation when machinery or behavior is unsafe. By creating an environment where all employees can exercise this authority, we are making efforts to foster a safety work culture that prioritizes safety.

Under the President's health declaration—We will engage in health management that highlights the importance of ensuring that employees feel mentally and physically healthy and their work is rewarding—we collaborated with the MHI Health Insurance Association to establish "MHI Group Wellness Action 24–26," a health management plan and are pursuing Group-wide activities accordingly. In recognition of these efforts, the Company was certified as a Health and Productivity Management Organization in 2024 for the second consecutive year. By promoting health management, we will continue striving to develop human resources who are healthy and full of vitality and who can contribute to society.

2024
健康経営優良法人
Health and productivity

Financial and Non-Financial Highlights

INPUT

As of March 31, 2023

Total assets
¥5,474.8 billion

Total equity
¥1,833.9 billion

Interest-bearing debt
¥742.4 billion

Number of employees
76,859 people

Number of patents held
25,771

OUTPUT

(YoY)

Research and development expenses
¥178.3 billion — 40.0% UP

Capital expenditures
¥200.4 billion — 33.0% UP

Total energy consumption[1]
1,734 GWh — 1.3% DOWN

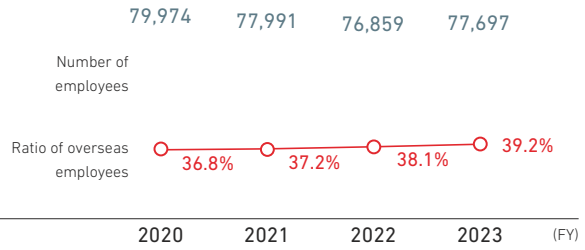
Number of overseas employees
30,494 people — 4.0% UP

Orders received
¥6,684.0 billion — 48.5% UP

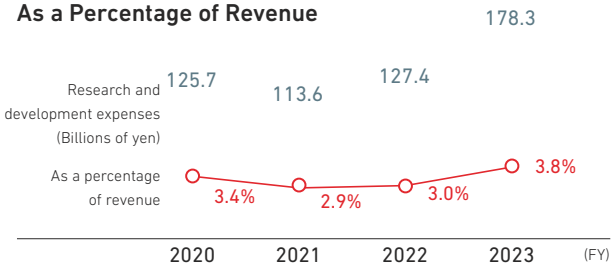
Revenue
¥4,657.1 billion — 10.8% UP

Profit from business activities
¥282.5 billion — 46.1% UP

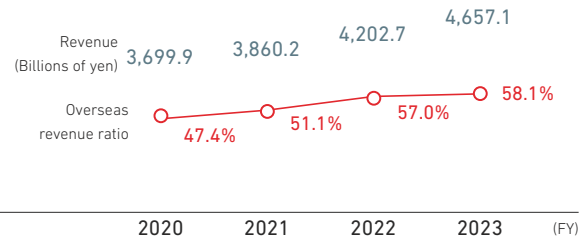
Number of Employees/Ratio of Overseas Employees



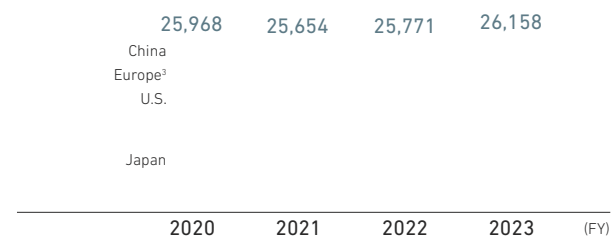
Research and Development Expenses/ As a Percentage of Revenue



Revenue/Overseas Revenue Ratio



Number of Patents Held[2]



1 Scope of data: MHI on a non-consolidated basis and Group companies (FY2020: 156, FY2021: 158, FY2022: 163, FY2023: 156 (Revenue coverage ratio: 98%))
2 Scope of data: MHI and major consolidated subsidiaries
3 Data are for European regional patents
4 Scope of data: MHI on a non-consolidated basis and Group companies (FY2020: 44, FY2021: 56, FY2022: 56, FY2023: 51 (Employee coverage ratio: 71.1%))
5 This figure has been retroactively adjusted to reflect a 10-for-1 stock split conducted on April 1, 2024 (pre-split dividend x 1/10).

OUTCOME

EBITDA
¥432.6 billion — 30.7% UP

EBITDA margin
9.3 % — 1.4pt UP

Greenhouse gas (CO_2) emissions[1]
534 kilotons — 3.7% UP

Profit attributable to owners of the parent
¥222.0 billion — 70.2% UP

Free cash flows
¥200.1 billion — ¥164.8 billion UP

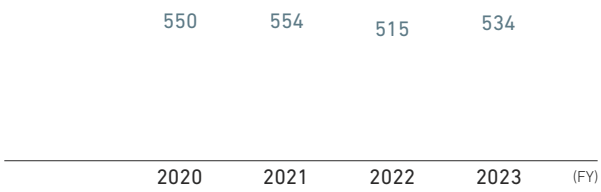
ROE
11.1 % — 3.2pt UP

Dividend payments (for FY2023)
¥50.3 billion — 30.3% UP

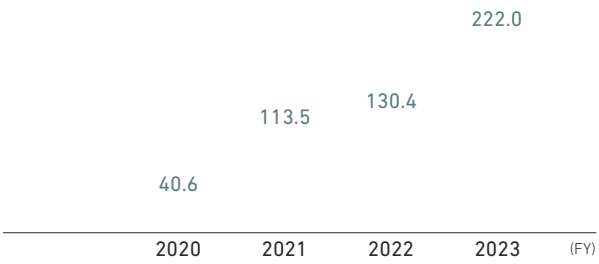
As of March 31, 2024

		(YoY)
Total assets	¥6,256.2 billion	14.3% UP
Total equity	¥2,360.6 billion	28.7% UP
Interest-bearing debt	¥728.9 billion	1.8% DOWN
Number of employees	77,697 people	1.1% UP
Number of patents held	26,158	1.5% UP

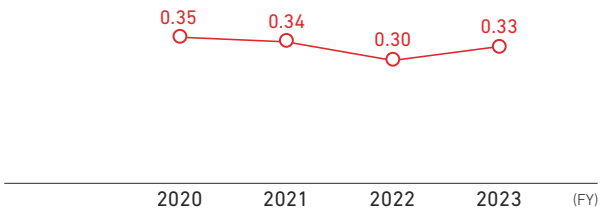
Greenhouse Gas (CO_2) Emissions (Scopes 1 and 2)[1] (Kilotons)



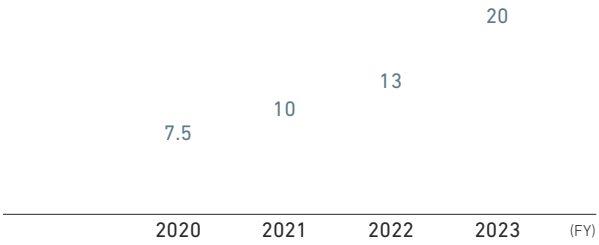
Profit Attributable to Owners of the Parent (Billions of yen)



Industrial Accident Frequency Rate[4]

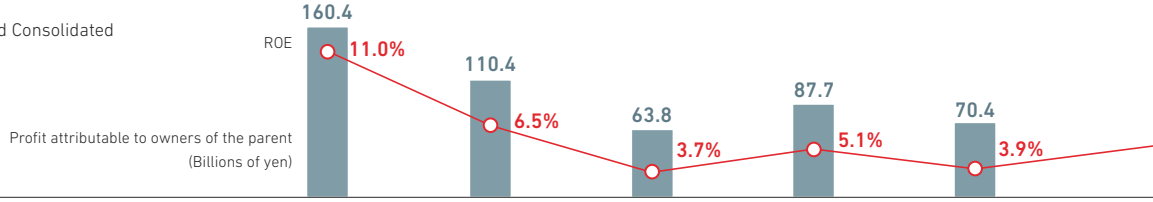


Cash Dividend per Share[5] (After accounting for stock split) (Yen)



Eleven-Year Financial and Non-Financial Data

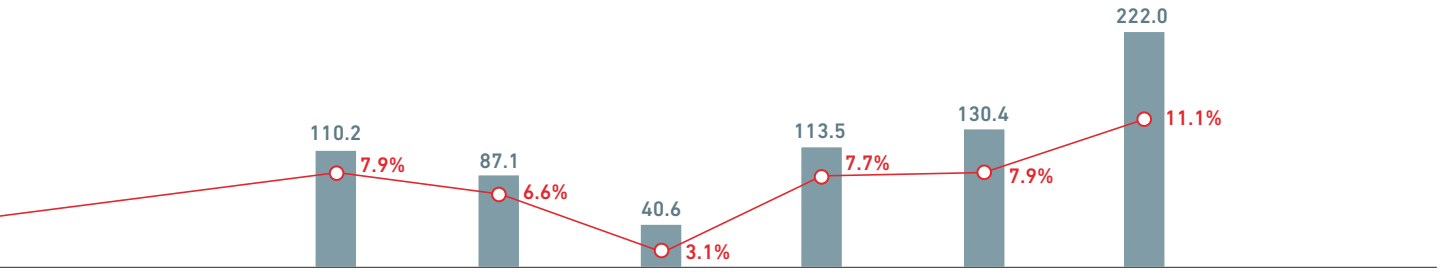
Mitsubishi Heavy Industries, Ltd. and Consolidated Subsidiaries Years ended March 31



	2014/3	2015/3	2016/3	2017/3	← JGAAP 2018/3
(Years ended March 31 or as of March 31) Billions of yen	2012 Medium-Term Business Plan		2015 Medium-Term Business Plan		
Orders received	¥ 3,420.0	¥ 4,699.1	¥ 4,485.5	¥ 4,275.6	¥ 3,875.7
Revenue	3,349.5	3,992.1	4,046.8	3,914.0	4,110.8
Profit from business activities	206.1	296.1	309.5	150.5	126.5
Profit before income taxes	214.4	232.6	132.6	169.7	128.0
Profit attributable to owners of the parent	160.4	110.4	63.8	87.7	70.4
Research and development expenses	¥ 138.5	¥ 145.5	¥ 150.6	¥ 160.7	¥ 176.8
Capital expenditures	148.6	156.1	175.5	204.4	158.4
Depreciation and amortization	134.9	157.0	158.7	172.7	176.1
Total assets	¥ 4,886.0	¥ 5,520.3	¥ 5,500.7	¥ 5,481.9	¥ 5,487.6
Total equity	1,774.2	2,120.0	1,999.7	2,104.1	2,164.4
Interest-bearing debt	957.4	975.5	1,052.1	925.5	813.1
Cash flows from operating activities	¥ 296.2	¥ 212.8	¥ 270.0	¥ 95.9	¥ 345.1
Cash flows from investing activities	(151.5)	(174.1)	(262.4)	8.7	(137.1)
Free cash flows	144.6	38.6	7.5	104.6	2,07.9
Cash flows from financing activities	(136.6)	(45.8)	(23.1)	(162.0)	(152.1)
Per share information of common stock[2] Yen					
Basic earnings (losses) per share	¥ 47.81	¥ 32.90	¥ 19.02	¥ 26.12	¥ 20.98
Total equity	459.99	530.65	500.30	529.91	543.10
Cash dividend	8.00	11.00	12.00	12.00	12.00
Ratios					
Overseas sales ratio	49.3%	53.4%	55.4%	53.5%	54.2%
Ratio of profit from business activities	6.2%	7.4%	7.6%	3.8%	3.1%
Return on equity[3]	11.0%	6.5%	3.7%	5.1%	3.9%
Return on assets[4]	3.6%	2.1%	1.2%	1.6%	1.3%
D/E ratio[5]	54%	46%	53%	44%	38%
Equity ratio[6]	31.6%	32.3%	30.5%	32.5%	33.3%
Dividend payout ratio[7]	16.7%	33.4%	63.1%	45.9%	57.2%

MHI Group has adopted the International Financial Reporting Standards (IFRS) from FY2018. Actual financial numbers for FY2017 are also shown here in accordance with IFRS. The IFRS categories under Japanese GAAP are as follows: revenue corresponds to net sales; profit from business activities corresponds to operating income; profit (loss) attributable to owners of the parent corresponds to net income (loss) attributable to owners of the parent; total equity corresponds to total net assets; basic earnings (losses) per share correspond to profit (loss) per share; and equity ratio corresponds to shareholders' equity ratio.
"Profit from business activities" on the consolidated statement of profit or loss is presented as a measure that enables continuous comparison and assessment of the Group's business performance. "Profit from business activities" is calculated by subtracting "cost of sales," "selling, general and administrative expenses," and "other expenses" from "revenue" and adding "share of profit (loss) of investments accounted for using the equity method" and "other income" to the resulting amount. "Other income" and "other expenses" consist of dividend income, gains or losses on sales of fixed assets, impairment losses on fixed assets, and others.

1 U.S. dollar amounts in this report are translated from yen, for convenience only, at the rate of ¥151.41 = U.S.$1, the exchange rate prevailing at March 31, 2024.
2 The Company conducted a 1-for-10 reverse stock split of common shares on October 1, 2017, and a 10-for-1 stock split of common shares on April 1, 2024. Figures for FY2017 to FY2023 assume that the stock splits occurred at the beginning of the respective periods, and "Per Share Information" is calculated accordingly.
3 Return on equity = profit attributable to owners of the parent / (total equity – share subscription rights – non-controlling interests)
4 Return on assets = profit attributable to owners of the parent / total assets
5 D/E ratio = interest-bearing debt / total equity
6 Equity ratio = (total equity – share subscription rights – non-controlling interests) / total assets
7 Dividend payout ratio = dividends / profit attributable to owners of the parent
8 People in positions of section manager or higher
9 MHI on a non-consolidated basis and Group companies (FY2020: 44, FY2021: 56, FY2022: 56, FY2023: 51 (Employee coverage ratio: 71.1%))
10 MHI on a non-consolidated basis and Group companies (FY2020: 156, FY2021: 158, FY2022: 163, FY2023: 156 (Revenue coverage ratio: 98%))



IFRS → 2018/3	2019/3	2020/3	2021/3	2022/3	2023/3	2024/3	2024/3 Millions of U.S. dollars[1]
	2018 Medium-Term Business Plan		2021 Medium-Term Business Plan				
¥ 3,868.7	¥ 3,853.4	¥ 4,168.6	¥ 3,336.3	¥ 4,067.7	¥ 4,501.3	**¥ 6,684.0**	**$44,145**
4,085.6	4,078.3	4,041.3	3,699.9	3,860.2	4,202.7	**4,657.1**	**30,758**
58.1	200.5	(29.5)	54.0	160.2	193.3	**282.5**	**1,866**
39.2	195.0	(32.6)	49.3	173.6	191.1	**315.1**	**2,081**
(7.3)	110.2	87.1	40.6	113.5	130.4	**222.0**	**1,466**
¥ 176.8	¥ 152.1	¥ 146.8	¥ 125.7	¥ 113.6	¥ 127.4	**¥ 178.3**	**$ 1,177**
158.4	147.3	161.5	125.5	122.8	150.7	**200.4**	**1,323**
176.1	135.6	144.6	139.2	132.1	137.8	**150.1**	**991**
¥ 5,248.7	¥ 5,240.3	¥ 4,985.6	¥ 4,810.7	¥ 5,116.3	¥ 5,474.8	**¥ 6,256.2**	**$41,319**
1,693.8	1,728.6	1,290.0	1,439.3	1,662.5	1,833.9	**2,360.6**	**15,591**
813.1	665.1	598.2	905.6	734.9	742.4	**728.9**	**4,814**
¥ 405.7	¥ 420.3	¥ 452.5	¥ (94.9)	¥ 285.5	¥ 80.8	**¥ 331.1**	**$ 2,187**
(238.1)	(161.8)	(239.5)	(182.2)	16.3	(45.5)	**(131.0)**	**(865)**
167.5	258.4	212.9	(277.1)	301.8	35.3	**200.1**	**0.132**
(112.3)	(271.0)	(204.4)	221.7	(255.7)	(18.9)	**(158.9)**	**(1,049)**
							U.S. dollars
¥ (2.18)	¥ 32.84	¥ 25.94	¥ 12.09	¥ 33.82	¥ 38.84	**¥ 66.07**	**$ 0.436**
415.35	420.47	362.77	406.47	469.64	518.31	**667.86**	**4.410**
12.00	13.00	15.0	7.50	10.00	13.00	**20.00**	**0.132**
55.1%	54.0%	52.0%	47.4%	51.1%	57.0%	**58.1%**	
1.4%	4.6%	(0.7)%	1.5%	4.2%	4.6%	**6.1%**	
(0.5)%	7.9%	6.6%	3.1%	7.7%	7.9%	**11.1%**	
(0.1)%	2.1%	1.7%	0.8%	2.3%	2.4%	**3.5%**	
48%	38%	46%	63%	44%	40%	**31%**	
26.6%	26.9%	24.4%	28.4%	30.8%	31.8%	**35.9%**	
—	39.6%	57.8%	62.0%	29.6%	33.5%	**30.3%**	

Non-financial indexes	Scope of data				
Number of employees	Consolidated	79,974	77,991	76,859	**77,697**
Number of overseas employees	Consolidated	29,425	29,032	29,317	**30,494**
Number of female managers[8]	Consolidated	123	162	157	**158**
Industrial accident frequency rate	Note 9	0.35	0.34	0.43	**0.33**
Total energy consumption (GWh)	Note 10	1,718	1,783	1,746	**1,734**
Greenhouse gas (CO_2) emissions (Kilotons)	Note 10	550	554	515	**534**
Scope 1 (Kilotons)	Note 10	151	172	137	**132**
Scope 2 (Kilotons)	Note 10	399	382	378	**402**
Social contribution expenses (Billions of yen)	Consolidated	12	11	12	**14**

Corporate Data

As of March 31, 2024

Head Office:	2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo 100-8332, Japan Phone: +81-3-6275-6200
Established:	January 11, 1950
Paid-in Capital:	¥265.6 billion
Total Number of Issuable Shares:	600,000,000 (As of April 1, 2024)
Total Number of Shares Issued:	3,373,647,810 (As of April 1, 2024)
Number of Shareholders:	275,218

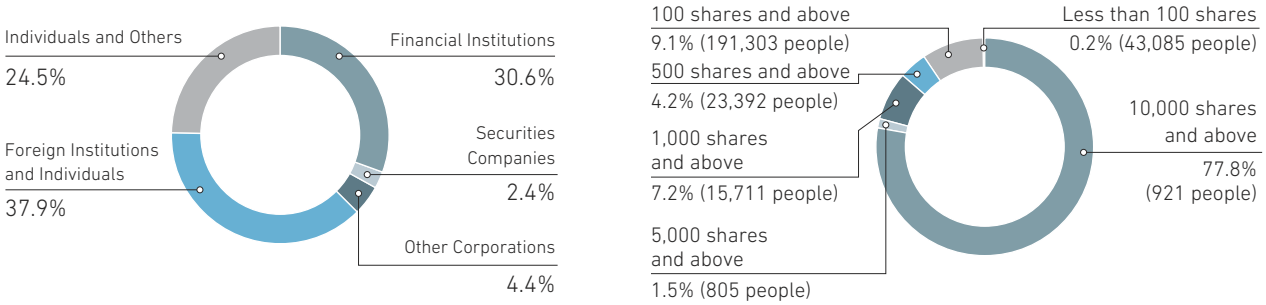
Number of Employees:	77,697 (Consolidated) 22,538 (Non-consolidated)
Stock Listings:	Tokyo, Nagoya, Fukuoka, and Sapporo Stock Exchanges
Ticker Code:	7011
Manager of the Register of Shareholders:	Mitsubishi UFJ Trust and Banking Corporation 4-5, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8212, Japan
Independent Auditor:	KPMG AZSA LLC 1-2 Tsukudo-cho, Shinjuku-ku, Tokyo 162-8551, Japan

Major Shareholders

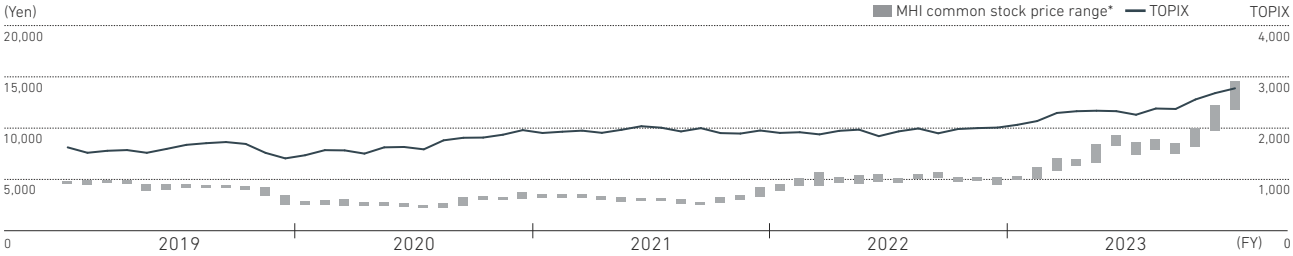
	Number of shares owned by major shareholders	Composition rate (%)
The Master Trust Bank of Japan, Ltd. (Trust Account)	51,957,600	15.4
Custody Bank of Japan, Ltd. (Trust Account)	20,600,515	6.1
Meiji Yasuda Life Insurance Company	8,002,274	2.3
STATE STREET BANK WEST CLIENT - TREATY 505234	6,561,305	1.9
SSBTC CLIENT OMNIBUS ACCOUNT	5,761,188	1.7
The Nomura Trust and Banking Co., Ltd. (Retirement Benefit Trust Account for The Bank of Mitsubishi UFJ, Ltd.)	4,894,500	1.4
Mitsubishi Heavy Industries Employee Shareholding Association	4,501,838	1.3
STATE STREET BANK AND TRUST COMPANY 505001	4,174,713	1.2
JP MORGAN CHASE BANK 385781	3,921,319	1.1
GOVERNMENT OF NORWAY	3,842,335	1.1

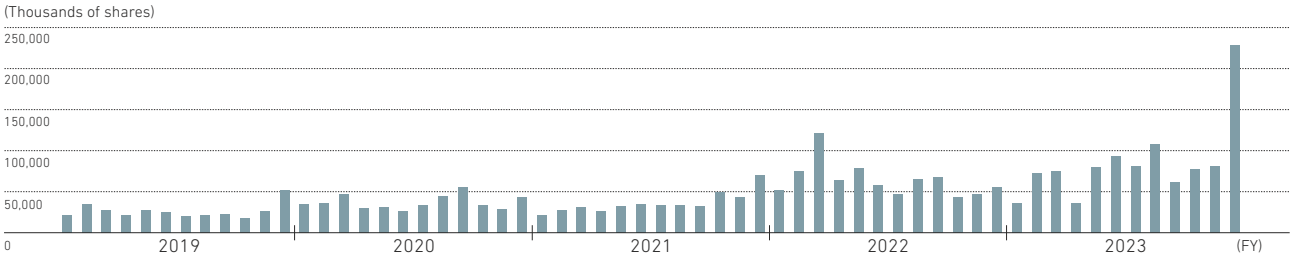
Classified by Type of Shareholder

Classified by Number of Holdings



Stock Price Range and Trading Volume (Tokyo Stock Exchange)





*On April 1, 2024, MHI conducted a 10-for-1 stock split for common stock. Because the above graph covers the period through March 31, 2024, it shows the share price prior to the stock split.

Status of IR Activities

Retail Investor Briefings

We held small meetings for individual investors throughout the year. In these meetings, we provided an overview of MHI Group and explained our business strategy, shareholder returns, and other topics.

Equity Analyst and Institutional Investor Briefings

The CFO briefed equity analysts and institutional investors on our financial results on a quarterly basis.

The President briefed capital market participants on our new three-year business plan, the 2024 Medium-Term Business Plan (MTBP).

In addition, we held business strategy briefings on individual topics, such as the Energy Transition, Nuclear Power, and Defense. We also organized tours of Takasago Machinery Works, Hiroshima Machinery Works, and Nagasaki Shipyard & Machinery Works.

Dialogue with Japanese and International Institutional Investors

We held meetings with institutional investors in Japan, North America, Europe, and Asia to explain our financial results and management strategies, and solicited their opinions on our management.

We also actively participated in institutional investor conferences held in Japan and elsewhere throughout the year.

Status of Inclusion in ESG Indexes (As of September 2024)

MHI Group promotes sustainability-oriented management and focuses on various activities and information disclosure. As a result of these efforts, in 2023 we were included for the first time in the World Index of the Dow Jones Sustainability Index, a global ESG investment index.

Furthermore, we have been selected for the following ESG-related indexes for Japanese equities employed by the Government Pension Investment Fund (GPIF), a Japanese pension fund and one of the largest institutional investors in the world.

- MSCI Japan ESG Select Leaders Index
- FTSE Blossom Japan Index
- FTSE Blossom Japan Sector Relative Index
- S&P/JPX Carbon Efficient Index
- Morningstar Japan ex-REIT Gender Diversity Tilt Index

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

FTSE Blossom Japan Index

2024 CONSTITUENT MSCI NIHONKABU ESG SELECT LEADERS INDEX

THE INCLUSION OF MITSUBISHI HEAVY INDUSTRIES, LTD. IN ANY MSCI INDEX, AND THE USE OF MSCI LOGOS, TRADEMARKS, SERVICE MARKS OR INDEX NAMES HEREIN, DO NOT CONSTITUTE A SPONSORSHIP, ENDORSEMENT OR PROMOTION OF MITSUBISHI HEAVY INDUSTRIES, LTD. BY MSCI OR ANY OF ITS AFFILIATES. THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCI OR ITS AFFILIATES.

S&P/JPX カーボン エフィシェント 指数

FTSE Blossom Japan Sector Relative Index

MITSUBISHI HEAVY INDUSTRIES, LTD.

MHIIR24E1-A-0, (0.2)24-11, O