

A Message from the President & CEO

**Shared Aspirations for  
a Carbon Neutral Future**



President & CEO  
**Seiji Izumisawa**

## A Message from the President & CEO

### MHI Group's Value Creation Proposal

Throughout our long history, Mitsubishi Heavy Industries (MHI) Group has continuously combined cutting-edge technology with extensive expertise in order to improve the lives of people around the world. At every step, we have contributed to resolving societal issues by providing products and services which respond to the demands of the day. At the time of our founding, we built ships and power plants. Later, we manufactured a variety of industrial machinery and contributed to the exploration of space. More recently, we have provided CO<sub>2</sub> capture plants and other advanced environmental systems. Constant contribution to society's development is, I believe, MHI's true purpose.

Today, climate change poses a challenge of utmost urgency. When I joined MHI in the early 1980s, the issues we faced involved securing substitute fuels and efficiently using energy in order to cope with depleting oil reserves. Since that time, MHI Group has continuously manufactured products responsive to those needs as a leader in the energy and environmental machinery fields. This includes high-efficiency gas turbines, energy-conserving heat pumps, and power systems employing geothermal, wind, and other renewable energies.

Creating new products and services required by society—state-of-the-art offerings unprecedented in Japan or globally—is our greatest source of pride. The pride which all of our employees hold in their work and the confidence and diligence with which they apply themselves allow us to overcome any difficulties we might face. Our strong determination to resolve societal issues is crystallized in MHI Group's fundamental philosophy, known as Our Principles. In the years ahead, we intend to continue pursuing this most noble of purposes.

As a part of MHI Group's Sustainability Management policy, we link our business operations with society's most important challenges, which we call Materiality. Our first priority today is to leverage our products, technologies, and experience in the area of decarbonization with

the ultimate goal of contributing to the achievement of Carbon Neutrality and solving climate change.

In October 2021, we announced MISSION NET ZERO, our commitment to achieve Carbon Neutrality across our value chain by 2040.\*<sup>1</sup> Like many other nations, Japan is aiming to achieve Carbon Neutrality by 2050. To reach this goal, considering the lead time required for our products and technologies to enter service, we at MHI have declared our intent to realize net zero CO<sub>2</sub> emissions by 2040, ten years ahead of the Japanese government's target.

By our estimate, CO<sub>2</sub> emissions from products we have provided to our customers (Scope 3) totaled approximately 1.5 billion tons as of 2019. We are confident in our ability to make a significant contribution to global Carbon Neutrality by reducing those emissions with our technological capabilities.

In our MISSION NET ZERO announcement, we set two targets: first, to cut our Scope 3 + CCUS emissions by 50% compared to 2019 levels by 2030, and then, to reach Net Zero by 2040. Secondly, we set two targets regarding Scopes 1 and 2 emissions—CO<sub>2</sub> emissions resulting from our Group-wide production activities. We will reduce Scopes 1 and 2 emissions by 50% compared to 2014 levels by 2030 and then achieve Net Zero by 2040. We have already succeeded in reducing our Scopes 1 and 2 emissions by more than 40%. Today, we are proceeding with plans to demonstrate our Carbon Neutral Factory concept at Mihara Machinery Works in western Japan. We aim to achieve Carbon Neutrality at this manufacturing facility mainly by replacing conventional power sources with green energy derived from renewables, electrifying heat sources, and installing energy management systems. By applying the experience gained through these efforts and working closely with our peers in industry, we will develop innovative, carbon neutral solutions and propose them to our customers.

\*1 For details, see "Special Feature: MHI Group's Carbon Neutrality Initiatives" on pages 30-40.

## Carbon Neutrality Initiatives in the 2021 Medium-Term Business Plan

In accordance with our 2021 Medium-Term Business Plan (MTBP), we are pursuing two main initiatives to contribute to Carbon Neutrality: Energy Transition and Smart Infrastructure. In the Energy Transition, we are focusing on three goals: decarbonizing existing infrastructure, building a hydrogen solutions ecosystem, and realizing a CO<sub>2</sub> solutions ecosystem. We are also seeking to reduce CO<sub>2</sub> emissions through conversions to alternative fuels, such as hydrogen, and by utilizing nuclear power. In hard-to-abate industries such as steel and cement manufacturing, however, decarbonization poses an especially difficult challenge. Waste incineration, too, inevitably will produce carbon emissions. Therefore, to achieve Carbon Neutrality, such unavoidable emissions must be curtailed with CO<sub>2</sub> capture. That said, we must also consider how to store the captured CO<sub>2</sub> initially and then make use of it at a later time.

Today, the CO<sub>2</sub> capture market is especially active in North America, Europe, and Japan. MHI has a high global market share of large-scale CO<sub>2</sub> capture systems for use in the energy and chemical manufacturing industries. In FY2021, customer recognition of our proven track record in this field helped us book orders for feasibility studies equivalent to approximately 27 million tons of captured CO<sub>2</sub> per year. We are hopeful that the strength of our achievements and proprietary technologies will assist in converting these studies into firm orders going forward. In partnership with IBM Japan, we are now developing CO<sub>2</sub>NNEX\*<sup>2</sup>, a digital platform to enable the visualization of CO<sub>2</sub> transactions throughout the value chain, encompassing all steps from emission and transport to storage and utilization.

\*2 For details, see on page 37.

### ► MHI Group Sustainability Initiatives

- Achievement of Carbon Neutrality is essential to realizing a sustainable society that is safe, secure, and comfortable
- MHI Group will promote decarbonization of energy supplies through the Energy Transition together with energy conservation, automation, and decarbonization of energy use with Smart Infrastructure



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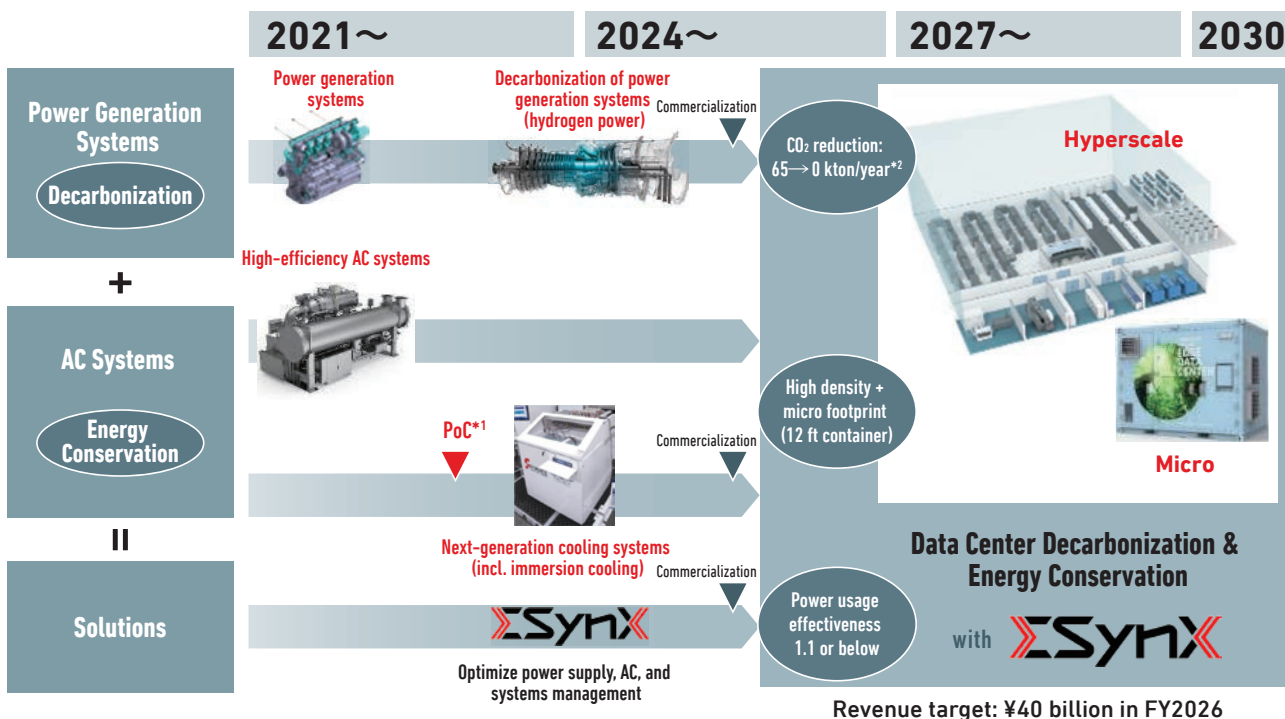


Within the 2021 MTBP and in parallel with our Energy Transition initiatives, which seek to decarbonize energy supply, we are also pursuing what we call Smart Infrastructure, which aims to conserve energy, automate, and decarbonize energy use.

As digital technologies have come to occupy every facet of our lives in recent years, data centers today are seeing substantial increases in data transmission and processing volumes. The large amount of energy needed to dissipate the considerable heat generated at these data centers poses a great challenge. MHI Group today offers high-efficiency cooling and power generation systems for large-scale data centers, and going forward we aim to develop cooling systems offering even greater efficiency to help reduce CO<sub>2</sub> emissions further.

We have already launched highly maneuverable Automated Guided Forklifts (AGFs) into the market, as well as cooling systems with low Global Warming Potential (GWP), which use natural refrigerants CO<sub>2</sub> and NH<sub>3</sub> (ammonia). In the coming years, we will proceed with development of automated logistics solutions, such as automated refrigerated warehouses, and integration and coordination of power supply and air conditioning systems to achieve game-changing advances in energy conservation and decarbonization.

### ► Data Center Decarbonization and Energy Conservation



\*1 PoC: Proof of Concept \*2 For 1 standard hyperscale data center

## 2021 Medium-Term Business Plan Progress and Changes in the Business Environment

We finalized the 2021 MTBP, which is now underway, roughly six months earlier than usual back in 2020. At that time, rapid changes in the business environment arising from the COVID-19 pandemic, climate change, and heightened geopolitical risks compelled us to swiftly formulate and put in motion growth strategies and financial plans adapted to these developments.

Within the 2018 MTBP, we had targeted top-line growth through M&A and other methods. Contrastingly, in the 2021 MTBP, we chose to focus on growth area development—especially in the decarbonization area—and strengthening profitability with the goal of preparing the foundation for our next growth phase. In FY2021, the first year in the current MTBP period, we succeeded in achieving our goals in every area: profitability, financial stability, and dividends. I wish to express my wholehearted appreciation to all of our employees for your dedicated effort, and to all of our stakeholders for your support and cooperation, all of which were critical in helping us achieve these successes.

Personally, however, I am not contented simply with the numerical results of FY2021. I believe our true value will be tested in FY2022, the second year of the 2021 MTBP. That said, since the plan was finalized two years ago, both the society and business environment in which MHI Group operates have changed significantly. In response to these changes, we will need to take additional measures beyond the original plan.

First, concerning climate change, I have a strong sense that during the past year discussions about potential solutions took a more realistic direction than before. Under the EU Taxonomy system,<sup>\*3</sup> gas-fired thermal power and nuclear power were classified as important energy sources in the transition to Carbon Neutrality. The Japanese government's 6th Strategic Energy Plan, issued in October 2021, placed its main focus on achieving a safe, stable, low-cost energy supply that is also environmentally friendly. This concept is collectively referred to as S + 3E.<sup>\*4</sup>

All along, we have believed that the final goal we seek to reach—Carbon Neutrality—is the same for everyone, only

the paths toward that goal differ by country and region. In Europe, for example, renewable energy is readily available at low cost and in stable supply, and therefore the barrier to decarbonization using these renewables is relatively low. In contrast, wind power and other renewable energy sources are in short supply in Asia, so pursuit of decarbonization here by the same methods as in Europe would inevitably result in higher costs. This is therefore an unrealistic option.

For that reason, achieving Carbon Neutrality will require an approach that takes into consideration the regional characteristics and economic situation of each country. In some cases, for example, there will be an incremental approach to decarbonization through fuel conversions at existing power generation facilities. I believe realistic and achievable roadmaps of this kind are gradually obtaining acceptance globally, including here in Japan.

Increasing geopolitical instability and anxieties around energy supplies following the breakout of conflict in Ukraine have recently led to active debate concerning national and energy security. Against the backdrop of this difficult situa-

<sup>\*3</sup> EU Taxonomy is a framework of sustainable economic activities promoted in conjunction with the European Union's sustainable finance strategy. In February 2022, gas-fired thermal power and nuclear power under certain conditions were classified as sustainable economic activities during the transition to Carbon Neutrality.

<sup>\*4</sup> Safety + Energy Security, Economic Efficiency, and Environment.



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tion, we are seeing heightened global interest in MHI Group in recognition of our position as a leader in defense and nuclear power. We will do everything we can to meet these rising expectations.

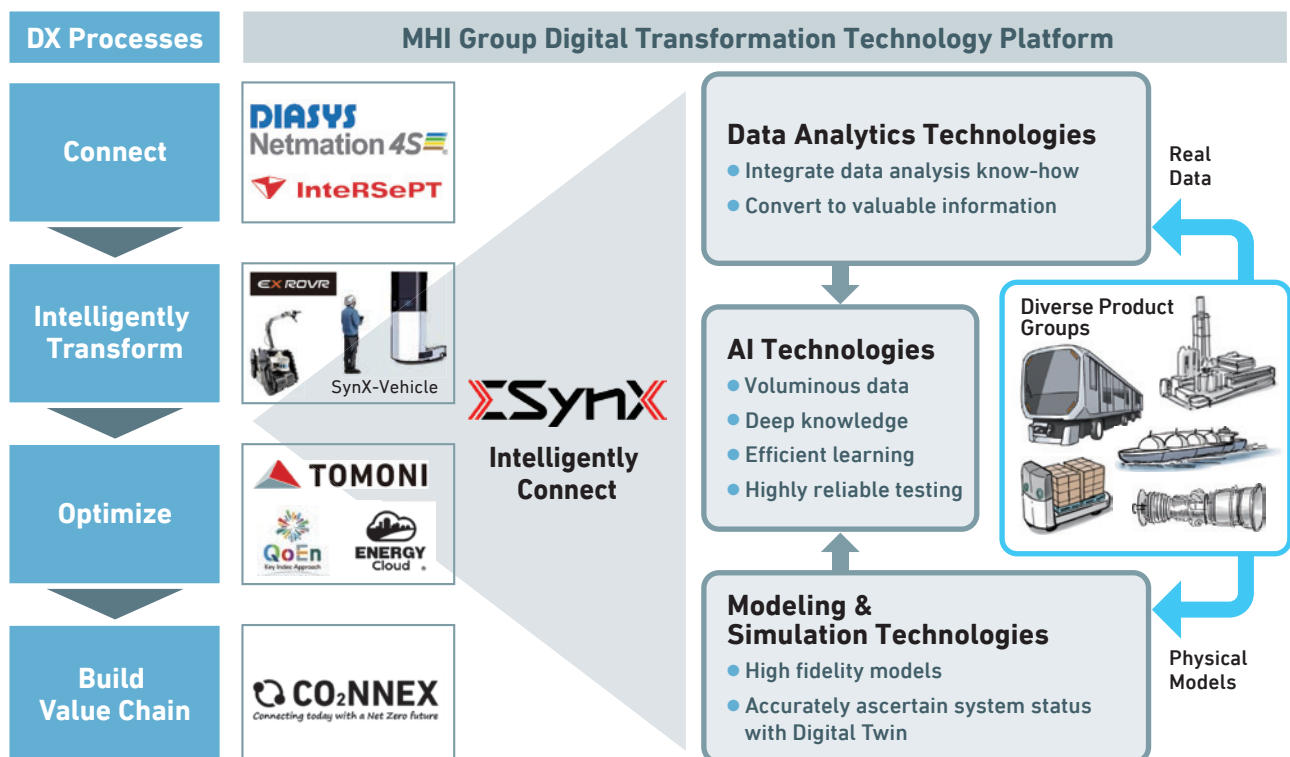
However, a variety of factors also have the potential to negatively impact our businesses. These include uncertainty surrounding the future of the COVID-19 pandemic, global inflation, and shortages of semiconductors and raw materials. To cope with these changes in our external environment, we will seek to increase productivity and also gain the understanding of our customers as we request that they assume a fair share of increasing costs. In these ways, we will solidify the foundation on which achievement of our 2021 MTBP targets will be built.

Today, many disparate companies are accelerating their Digital Transformation (DX) efforts. MHI Group has core competencies in high-precision digital control and advanced security technologies, which enable the stable operation

of complex machinery and infrastructure, as exemplified by our defense and nuclear power products. Specifically, we are developing technologies in modeling and simulation based on many years of research, development, and on-site validation. We are also accumulating data collection and analytics technologies based on abundant operational achievements, AI technologies applied to diverse products and systems, and security technologies developed for our defense products, among others.

By applying our strengths in these varied fields and intelligently connecting products and services, we can further enhance the potential of our machinery systems. Furthermore, we can minimize the burden on operators, reduce societal risk, and optimize energy resource usage by intelligently transforming and automating our individual machinery systems, coordinating among them, and making infrastructure more intelligent. All of this will enable the establishment of safe, secure, and efficient infrastructure.

### ► Cooperative Development with Customers Supported by DX



In this way, our DX initiatives will create new social value by connecting machinery systems, intelligently transforming them, and optimizing their performance.

In July 2022, we established a new Digital Innovation Headquarters to oversee the sharing of existing core technologies and to drive new developments within our Group. With this new organization, we will further accelerate the intelligent connection of our product groups with digital technologies in order to provide our customers with new solutions and value.

On the topic of business portfolio optimization, in FY2021, we achieved a degree of progress in this area, divesting one business and consolidating some overseas locations

in another. In this way, we have shored up our business fundamentals and addressed some issues that had been of concern. We will now proceed to the next step beyond these achievements. During this new phase, whether a given business has top-level competitiveness and sufficient growth potential, both within Japan and internationally, will be given even greater importance. Going forward, we will continue reviewing our business portfolio using our Strategic Business Assessment System, which will help us decide which businesses are positioned to experience synergies and capitalize on their strengths within MHI Group, and which businesses would have more opportunities to grow if handled by other companies.

## A Message to Our Stakeholders — Striving to Balance Environmental and Economic Needs —

*Tomoiki*—harmonious co-existence—is a concept I hold dear to my heart. It is a Buddhist concept broadly encompassing two aspects, one physical and the other temporal. The physical aspect has to do with harmonious co-existence with nature and your local community. The temporal aspect has to do with the connections between us in the present with our ancestors in the past and future generations to come. *Tomoiki* has a common thread with our mission to achieve Carbon Neutrality 20 to 30 years into the future.

In our collective pursuit of solutions to climate change, we have to find optimal approaches that do not focus solely on environmental or economic needs, but rather address both in equal measure. Our dream is for a world in which all people can live comfortable and fulfilling lives, regardless of the country or region where they live, enabled by stable supplies of electricity generated affordably. I have complete faith in the ability of MHI Group to achieve these dual environmental and economic goals by applying the full breadth of technologies we have developed throughout our history. I also believe that it is MHI Group's duty to make use of our multifaceted capabilities to help make this kind of world a reality.

In the years ahead, MHI will continue to hold a firm commitment to society, a commitment that we will pass on to future generations. I sincerely ask you—our shareholders and investors—for your continued understanding and support as MHI Group works toward realizing a sustainable, safe, secure, and convenient world for everyone, everywhere.

