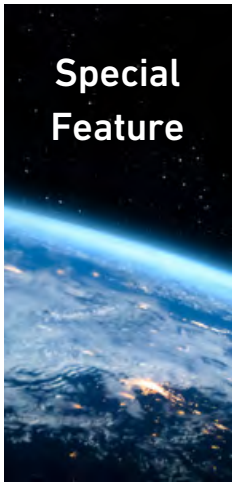



MISSION NET ZERO

# 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.

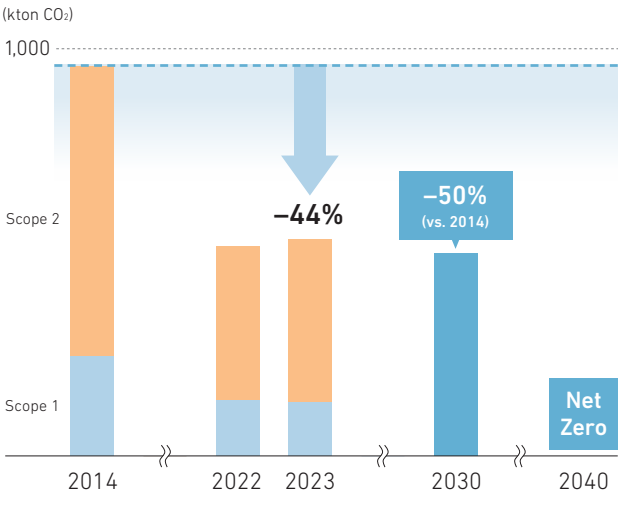
## $CO_2$ Emissions and Target Setting

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.

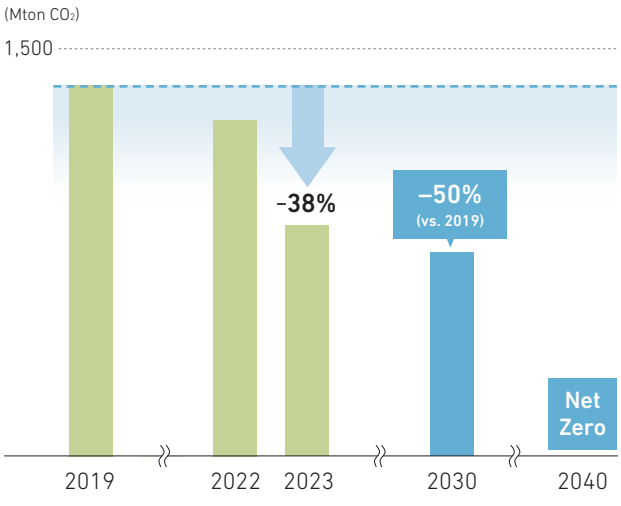
Scopes 1 and 2 emissions in FY2023 were 534 kton, up 19 kton from the previous year. This is due to an increase in the $CO_2$ emissions factor for Japanese domestic electricity, although our actual energy consumption declined year-on-year. Compared to when MISSION NET ZERO was announced in FY2021, the 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.

**Scopes 1 & 2**




**Scope 3 + reductions from CCUS**




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

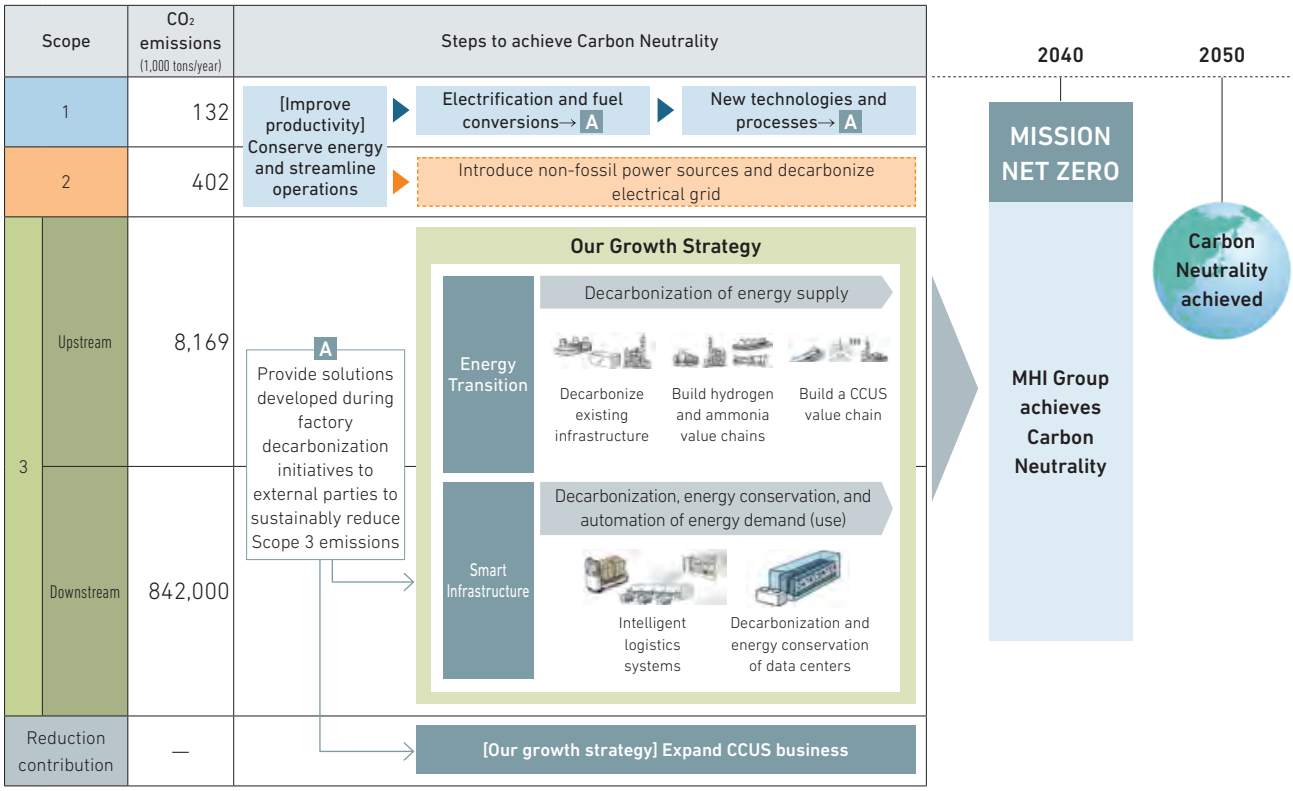
## Basic Strategy for MISSION NET ZERO

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

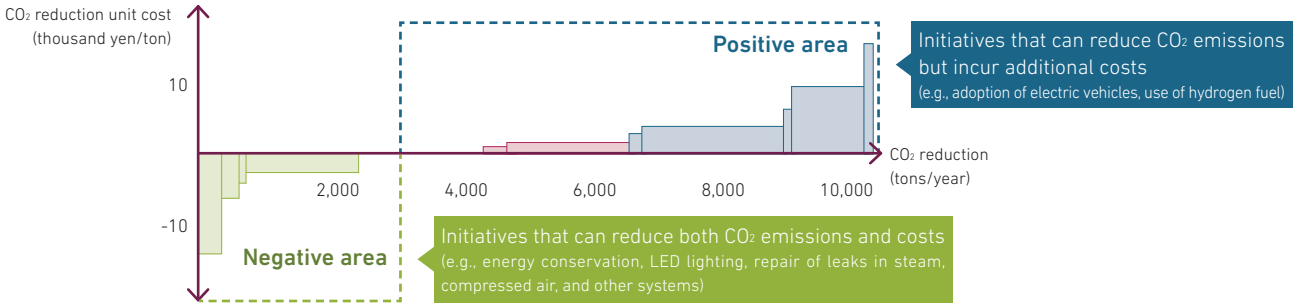
MHI Group uses the MAC Curve to effectively reduce the anticipated increase in $CO_2$ emissions associated with business growth. The MAC Curve is a graphical representation of the effectiveness of individual reduction measures to reduce $CO_2$ emissions and the costs associated with them. It can serve 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**




*Interview with CTO*

**Eisaku Ito**

Executive Vice President, CTO, and CoCSO

## 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.

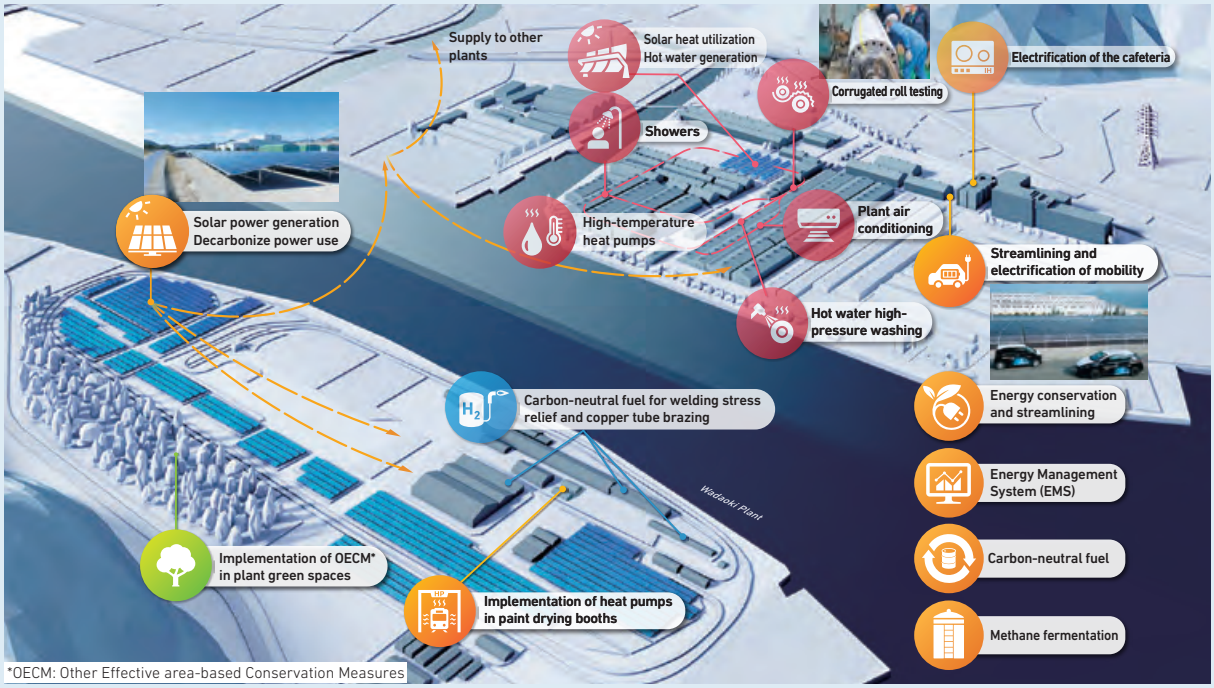
MHI Group's high-efficiency GTCC power generation systems have been highly evaluated by many customers,

## 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.