

Special  
Feature

## 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<sub>2</sub> Capture, and (3) Engineering.

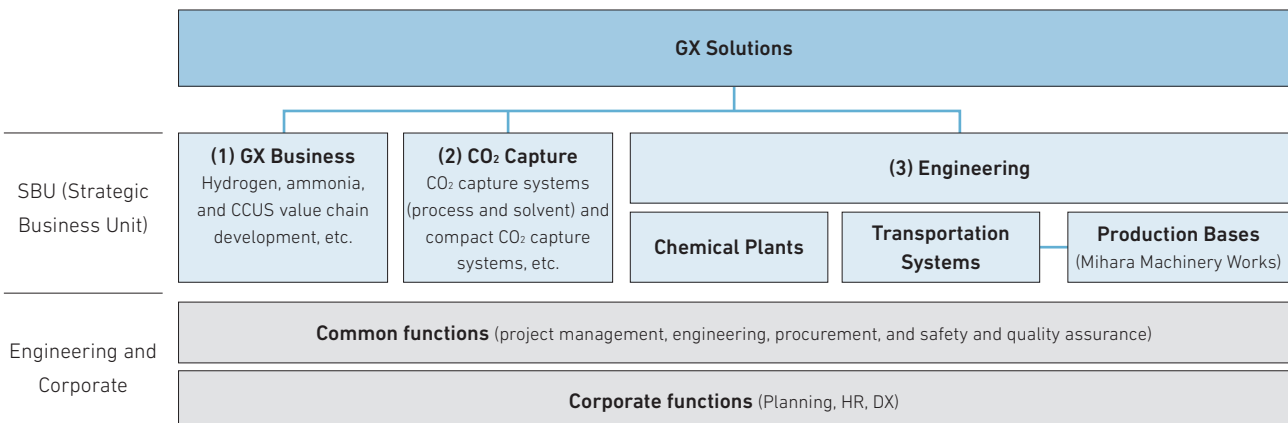
The GX Business SBU is working to build hydrogen, ammonia, and CCUS\* value chains. It is also actively developing businesses and projects that surpass simple product-based businesses.

Leveraging our CO<sub>2</sub> capture technology, which boasts the top global market share, the CO<sub>2</sub> Capture SBU provides CO<sub>2</sub> capture plants, compact CO<sub>2</sub> 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<sub>2</sub> Capture SBUs.

\*CCUS: Carbon dioxide Capture, Utilization, and Storage

## Functions of GX Solutions



MISSION NET ZERO

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.

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.

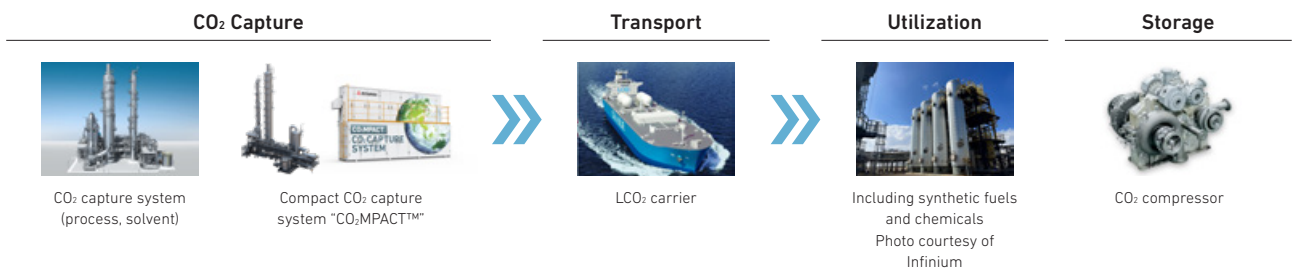
In the U.S. state of Utah, we are participating in the Advanced Clean Energy Storage Project, the world's largest hydrogen production, storage, and supply project.



Building a CCUS Value Chain

We are working to build a value chain that leverages our core technologies and products for CO<sub>2</sub> capture, transport, and storage. In addition to securing contracts for CO<sub>2</sub> 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<sub>2</sub> storage by FY2030. To further strengthen our competitiveness, we are also developing next-generation CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> Capture SBU has been receiving inquiries from customers about transportation and storage methods for the captured CO<sub>2</sub>. 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  
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of GX Solutions