

## 1. Objectives and Background

MHI contributes to the resolution of global issues through worldwide provision of products and technologies that support infrastructure, both improving people's lives and driving industry forward. Through our business operations we contribute to progress in the world as a company engaged in "monozukuri" – the traditional Japanese concept of craftsmanship – based on our corporate philosophy set out in "Our Principles."

MHI Group is proactively addressing environmental concerns through its support of the "Declaration on Challenge Zero." Challenge Zero (Challenge Net Zero Carbon Innovation) is a new initiative under which Japanese companies and organizations will promote and support worldwide innovative actions taken to achieve a decarbonized world – the long-term goal of the Paris Agreement, the international framework focused on addressing climate change.

To achieve a carbon neutral world by 2050 will require decarbonization and electrification in all aspects of mobility, everyday life and industry, as well as stable and economically viable supplies of energy. Providing solutions to these challenges and realizing carbon neutrality are the goals of the Energy Transition initiatives targeted by MHI Group. In the short term, the Company is focusing on decarbonization of existing infrastructure. In the medium to long-term view, initiatives will target the achievement of hydrogen and CO<sub>2</sub> ecosystems.

Through its second green bond issuance, MHI Group will bring environmentally improving effect by driving renewable energy/clean energy business (wind, hydrogen and geothermal power systems), which are the usage purpose set for this fund issuance. Eventually, we aim to contribute to achieving "ensuring access to affordable, reliable, sustainable and modern energy for all", which is the 7th Sustainable Development Goal defined by the United Nation, and contribute to MHI energy transition.

## 2. Outline of Green Projects



MHI Group's operations in wind power systems trace back to 1982 when the Company delivered its first commercial unit in Japan. Since then, we have supplied a total of more than 4,200 wind turbines (approx. 4.4 gigawatts) worldwide. In 2014 we established a joint venture with Vestas Wind Systems A/S (Vestas) of Denmark dedicated to business in offshore wind power systems. Known as MHI Vestas Offshore Wind A/S (MVOW), the JV has grown into a top global player in the area of wind systems. On October 29, 2020, MHI concluded an agreement with Vestas to transfer its shares in MVOW to Vestas and to acquire a 2.5% shareholding in Vestas, in order to strengthen competitiveness in this field by unifying development and manufacturing, including onshore wind systems, under Vestas. The agreement also strengthens MHI Group's partnership with Vestas in wind power systems, for example by MHI occupying one seat on the Vestas board. (The transfer of MVOW shares and acquisition of the shareholding in Vestas were completed in December 2020.) In February 2021, to further enhance the two partners' collaboration in the field of renewable energies, mainly wind turbines, MHI Vestas Japan Co., Ltd. was established to market wind power systems in Japan; operations were launched at that time. Elsewhere, with an eye on the overall offshore wind systems value chain, in July 2020 we established a JV with Copenhagen Infrastructure Partners P/S (CIP), also of Denmark, to develop an offshore wind power project in Hokkaido. In partnership with CIP, MHI is now entering the domestic market for offshore wind power systems.





## GEOTHERMAL POWER

MHI Group has continuously worked over many years to develop new geothermal power technologies. For example, we were first in the world to apply “two-phase flow and transport” in combination with a “double-flash” system, which today is a global standard in geothermal power plants. Our geothermal plants, which are based on the results of research accumulated over many years, today demonstrate their high performance and high operating rates worldwide. As an example, the Los Azufres III geothermal plant inaugurated in Mexico in 2015 achieved an operating rate of 99.6% within one year of start-up. MHI Group will continue to supply stable electric power using its advanced geothermal power generation technology, drawing on its extensive knowledge, technology, and world's best delivery record and experience.



## HYDROGEN POWER

MHI Group has a robust track record in the manufacture and delivery of diverse products related to hydrogen, including hydrogen production systems and rocket engines that use hydrogen as a liquid fuel. We also have abundant experience in the use of hydrogen to generate electricity: specifically, a history of using hydrogen-containing by-product gas spanning some 50 years, back to the 1970s. In the area of large-scale gas turbines, we have achieved 30vol% hydrogen mixed combustion technology, enabled mainly through development of proprietary combustion chamber technology. In addition, MHI Group is participating in a feasibility study for a project targeting transition to 100% hydrogen firing by 2025 at part (440 megawatts) of a natural-gas-fired GTCC (gas turbine combined cycle) power plant in the Netherlands. Plans call for nearly complete reduction of the plant's current CO<sub>2</sub> emissions (approx. 1.3 million tons per year).

