

Interview with President Motohiko Nishimura

Energy and Marine Engineering: Business Updates and Future Developments



Motohiko Nishimura

Senior Managing Executive Officer
President, Energy Solution & Marine Engineering Company

Corporate mission

Energy Solution & Marine Engineering Company was established in April 2021 through a merger of Ship & Offshore Structure Company and Energy System and Plant Engineering Company. This coincided with the establishment of Hydrogen Strategy Division. This organizational restructuring is a shift toward the hydrogen business, which will form the basis of our future direction. This is a major step forward to contribute to the achievement of carbon neutrality to solve global warming, a societal issue faced by all of humankind.

In 2010, we declared our commitment to build a hydrogen supply chain, and since then, we have

steadily completed the first such demonstration projects in the world, including the Kobe Smart Community Hydrogen Gas Turbine Cogeneration Project and the Liquefied Hydrogen Supply Chain Pilot Project between Australia and Japan (both projects are funded by NEDO: New Energy and Industrial Technology Development Organization, part of the Japanese government).

Currently, we are working diligently on a demonstration project for hydrogen commercialization. Its aim is to contribute to both carbon neutrality and energy security by supplying large quantities of hydrogen economically for full-scale commercial use in the early 2030s.

In this way, we have defined ourselves as an industry leader in hydrogen technology. In order to promote our hydrogen business, it is essential to secure profits from existing businesses related to general industry, public works, merchant ships, and naval ships, and we will continue to strive to improve the non-price competitiveness and profitability of our products.

Synergies generated by merger

Our products are supported by a wide range of unique technologies that are used in and on the sea, as well as on land and in space. Since the merger of the companies, we have achieved various forms of cross-functionality. These include shared design departments, sales, production, procurement, quality assurance, contracts, and commercial affairs, and we have furthermore pursued synergies of technologies and businesses among the divisions. Currently, we are promoting the skill diversification of our workforce and plants, and are working to build an organization that can respond quickly to the increased production of highly profitable products.

In order to commercialize our hydrogen business, we will gradually increase our annual production capacity. To this end, we will coordinate production at the Kobe, Harima, Sakaide, and Akashi Works. We will, for example, divide the production of vacuum insulated piping for liquefied hydrogen, onshore storage and marine cargo tanks, and other equipment for each component and part, and consolidate the final assembly in a single plant. This is where the aforementioned skill diversification of our workforce and plants will exhibit its true value.

Providing energy and environmental solutions

As an issue faced by customers moving towards carbon neutrality, the likelihood of stranded assets that have been using fossil fuels while emitting CO₂ is becoming a growing concern. Our gas turbines and gas engines, which boast the world's highest

efficiency, are being developed so that we can provide "hydrogen ready" technology that can seamlessly respond to transitioning from our current use of natural gas to the future use of hydrogen. All models of gas turbines are already capable of 30 vol% co-firing of hydrogen, and some models can be freely switched between mono-combustion and co-firing of natural gas and hydrogen. There have already been projects in which our gas turbines have been sold with "hydrogen ready" being a recognized non-price value. As part of our preparation for carbon neutrality, we are also developing technologies for boilers that support hydrogen combustion.

Initiatives for a safe and secure remote society

The developed countries of the world are facing shortages in their working populations. As an island nation with a high language barrier, Japan's ability to rely on the employment of immigrants is limited. This is where Japan's leading robot technology comes into focus. We have been a leader in the business as the first robot manufacturer in Japan.

In the latest environmental plant (waste treatment facility) that we delivered to local municipalities, we have reduced the physical burden on workers and achieved labor savings by introducing robots for the sorting of recycled resources. In addition, we have introduced an AI-powered system that supports the operation of incinerators and are contributing to stable operations with support from the remote monitoring and support system KEEPER installed in our support center.

Closing comments

Through the achievement of a hydrogen-based society, we will contribute to maintaining and improving the convenience of daily life and achieving carbon neutrality, while providing reliable solutions to address social issues related to energy, environment, employment, safety, and more through a wide range of technologies and services.