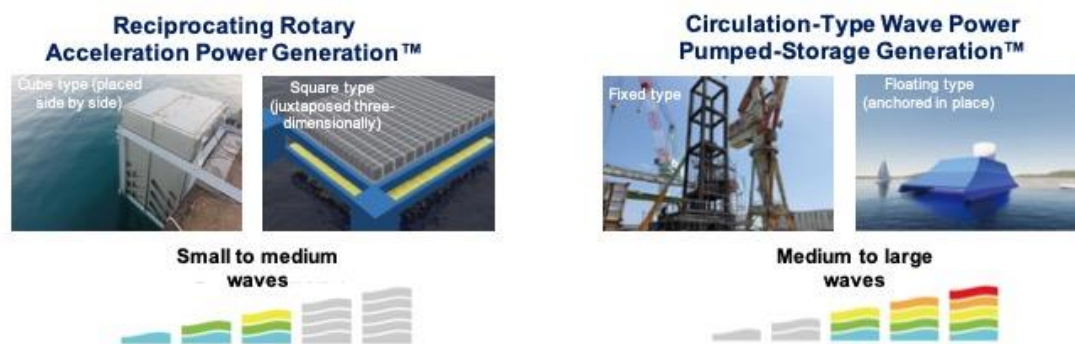


## Metal One Invests in Wave-Power Generation Equipment Firm Global Energy Harvest

Metal One Corporation (Headquartered in Chiyoda-ku, Tokyo; President and CEO: Yoshiyuki Watanabe) has announced its investment in Global Energy Harvest Co. (hereinafter GEH), a Japan-based company in the field of research and development of energy harvesting technology<sup>1</sup>. GEH is aiming to become the first in the world to commercialize mass-produced wave-power generation systems<sup>2</sup>.

Metal One formed the Green Transformation Office last year to explore investment opportunities that enhance new value creation in the value chain of low/free carbon supply chains in the steel industry. With Metal One's investment in GEH—which is developing wave-power generation as a new renewable energy source option—the two companies will collaborate on enhancing the value of wave-power generation technology that GEH has developed, such as the Reciprocating Rotary Acceleration Power Generation™ and Circulatory Wave Pumping Power Generation™ systems, utilizing Metal One's wide-ranging resources. Metal One also plan to promote the public implementation of the technology and collaborate on the development of mass-production scheme for GEH's systems.



GEH's Reciprocating Rotary Acceleration Power Generation system has a mechanism that uses a small generator installed on a wharf or similar site to generate power. A float on the sea's surface rotates the generator's gears to convert wave movement into power. The system's distinctive characteristic is that it can generate power efficiently whether the float is moving up or down. Its special gears can take advantage of even small waves.

Meanwhile, the basic principle of GEH's Circulatory Wave Pumping Power Generation system is that it generates hydropower using wave energy to pump water up and then drop it into a lower pool via another pipe. The force of the falling water turns turbines that generate power. Special fresh water retained in the generator system is pumped up to the upper pool via a riser pipe using the energy of waves to move a floating piston.

The optimal equipment for power generation can be chosen according to the predicted size of waves at the installation site. The reciprocating type is suitable for small to medium waves, while the circulation type is best for medium to large waves. Wave energy can be efficiently and stably converted into electricity.

Generic steel products such as steel plate, pipe, sheet, stainless steel and specialty steel are used as materials. Because the structure completely isolates the generator (dynamo) from seawater, there is little impact from marine creatures attaching themselves to the equipment. Moreover, GEH equipment is designed to be installed on disused wharfs or around breakwaters in harbors so that it is environmentally friendly, and excels in terms of safety, ease of maintenance and recyclability.

Surrounded by the sea, Japan is blessed with great potential for generating marine-based energy. Wave-power generation has a particularly high-capacity utilization rate compared to solar- and wind-power generation—both of which are heavily affected by weather conditions—so it is expected to help achieve the best energy mix for renewables as a stable power source.

Metal One established the GEH Project Office on October 1, 2024, and will strengthen the relationship between the two parties. As our first initiative, we plan to target outlying islands—as well as the model carbon-free areas the Ministry of Environment defined under its goal of achieving net zero CO<sub>2</sub> emissions in the private sector by 2030—to promote GEH's wave-power generators. Metal One will continue to contribute to a sustainable, low-carbon or decarbonized society together with GEH, which is striving to be first in the world to commercialize mass-produced wave-power generation products.

<sup>1</sup> Technology whose objective is to harvest tiny amounts of energy from the sources that surround us—such as sunlight/interior lighting, vibration and heat—and convert that energy for use as electric power.

<sup>2</sup> Refers to Reciprocating Rotary Acceleration Power Generation and Circulatory Wave Pumping Power Generation systems, for which patents have been acquired.

For reference:

Profile of Global Energy Harvest Co.

1. Business: Research, development, manufacturing and sales of first-in-the-world energy-harvesting technology products from Japan, using patented technology the company developed. Representative products include Power Generation Floor<sup>®</sup>, Shindo Battery<sup>®</sup>, and battery-free IoT sensor energy-harvesting technology, creating demand in a variety of areas. The company is now focusing on commercializing wave-power generation.

Note: Power Generation Floor and Shindo Battery are registered trademarks of Global Energy Harvest Co.

2. Headquarters: 4-26-7 Nakahara, Mitaka, Tokyo

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