

March 10, 2026

Kawasaki Heavy Industries, Ltd.

Kobe Steel, Ltd.

World's First Next-Generation Hydrogen Fuel Supply System for Hydrogen Power Generation Starts Operation

—Aiming to utilize liquefied hydrogen for future large-scale gas turbine generators—

Tokyo, March 10, 2026 — Kawasaki Heavy Industries, Ltd. and Kobe Steel, Ltd. announced the start of operation of a next-generation hydrogen fuel supply system for hydrogen power generation, and the world's first supply of hydrogen fuel to a power generating facility using a hydrogen Intermediate Fluid Vaporizer (IFV)^{*1} combined with a liquefied hydrogen pump capable of pressurizing above its critical pressure.



Demonstration facility (Kobe Hydrogen Energy Center, Port Island, Kobe)

The two companies are working on the NEDO subsidized project “Technology development to improve the efficiency and performance of the hydrogen fuel supply system in a hydrogen CGS^{*2} regional model” to systemize the design and operational know-how of a hydrogen fuel supply system consisting of a liquefied hydrogen pump, IFV, and hydrogen gas turbine, based on a hydrogen gas turbine generator demonstration facility installed at Kobe Hydrogen Energy Center, Port Island, Kobe.

For this demonstration, Kawasaki is responsible for improving the efficiency of the fuel supply system for the gas turbine generator, which utilizes a liquefied hydrogen pump to boost pressure, while Kobe

Steel is developing an IFV that enables the utilization of the cold energy derived from liquefied hydrogen. In demonstration tests that began in January, hydrogen fuel was successfully supplied to a wet-type^{*3} combustion gas turbine. Moving forward, the companies plan to implement the supply of hydrogen to a dry-type^{*4} combustion gas turbine, the confirmation of operating performance under severe summer conditions, and the verification of the long-term reliability of the liquefied hydrogen pumps.

The hydrogen supplied to power generating facilities must be pressurized, and boosting the pressure of the gaseous hydrogen delivered by conventional supply systems requires high compression force. The use of the liquefied hydrogen pumps in the supply system being developed by Kawasaki and Kobe Steel removes the need for such high compression force, thereby enhancing the energy efficiency of the overall generating system. In addition, the cold energy generated by vaporization in the IFV can be recovered and used for various applications, such as cooling gas turbine intake air, operating refrigerators and freezers, cooling data centers, and air conditioning for commercial and industrial use. Furthermore, the system is scalable to large-capacity liquefied hydrogen power generation, which focuses on the future social implementation of hydrogen CGS at industrial complexes, factories, communities, and other settings.

Kawasaki and Kobe Steel are developing an efficient, safe, and easy-to-use hydrogen supply model for hydrogen power generation, with the aim of establishing a hydrogen supply chain centered on liquefied hydrogen, thereby contributing to the expansion of hydrogen use and the realization of a carbon-neutral society.

*1: IFV: A type of vaporizer that uses seawater or industrial water as a heat source to vaporize low-temperature fluids such as LNG, using an intermediate fluid like propane. The use of an intermediate fluid prevents the freezing of industrial water and allows for the effective utilization of the cold energy from LNG or other cryogenic fluids.

*2: CGS: Co-Generation System

*3: Combustion equipment that uses water injection to reduce NOx generation

*4: Combustion equipment that reduces NOx generation by establishing multiple micro-flames to prevent localized high-temperature zones, and does not use water injection

■ Links for reference

Kawasaki

World's First Heat and Electricity Supplied in an Urban Area Using 100% Hydrogen — Towards Establishing Optimal Energy Control Technology in Local Communities— (April 20, 2018)

https://www.khi.co.jp/pressrelease/news_180420-1_1.pdf (Link in Japanese)

World's First Successful Technology Verification of 100% Hydrogen-fueled Gas Turbine Operation with Dry Low NOx Combustion Technology Improving Power Generation Performances to Realize a Hydrogen Society(July 21, 2020)

https://global.kawasaki.com/news_200721-1e.pdf

Investigation Started for Technology Development and Social Implementation Model for Regional Hydrogen Power Generation (August 17, 2021)

https://www.khi.co.jp/pressrelease/news_210817-1.pdf (Link in Japanese)

Hydrogen Transported from Australia Used for Hydrogen Power Generation —The hydrogen production, transportation, storage, and utilization are seamlessly connected into an integrated supply chain— (June 23, 2022)

https://global.kawasaki.com/news_220623-1e.pdf

Successful Demonstration Operation of Dry-type Hydrogen Gas Turbine Using Mixed Hydrogen/Natural Gas Fuel with Large Reduction in NOx (September 29, 2022)

https://www.khi.co.jp/pressrelease/news_220929-2.pdf (Link in Japanese)

Kobe Steel

NEDO entrusts Kobe Steel with development of intermediate fluid vaporizer for liquid hydrogen that enables use of liquid hydrogen cold energy (May 19, 2022)

https://www.kobelco.co.jp/english/releases/1210228_15581.html

NEDO entrusts Kobe Steel with technology development to improve the efficiency and performance of the hydrogen fuel supply system in a hydrogen CGS regional model as part of the Technology Development Project for Creating a Hydrogen Society (September 14, 2023)

https://www.kobelco.co.jp/english/releases/1213959_15581.html

Kobelco Group to demonstrate hybrid-type hydrogen gas supply system toward realizing a hydrogen society (May 19, 2022)

https://www.kobelco.co.jp/english/releases/1210230_15581.html

Kobelco Group to start hydrogen supply/combustion tests with hybrid-type hydrogen gas supply system (September 14, 2023)

https://www.kobelco.co.jp/english/releases/1213960_15581.html

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