



October 30, 2023

ENEOS Corporation
JFE Steel Corporation

Launch of Collaborative Study for Utilization of CO₂-Free Hydrogen at the Mizushima Industrial Complex

ENEOS Corporation (President: Saito Takeshi; "ENEOS") and JFE Steel Corporation (President and CEO: Kitano Yoshihisa; "JFE Steel") announce that they have started a collaborative study for the utilization of CO₂-free hydrogen at the Mizushima Industrial Complex (Kurashiki City, Okayama Prefecture).

The Mizushima Industrial Complex, where both companies have their business facilities and where businesses in many industries are concentrated, has the potential for large-scale use of hydrogen in the future. The two companies will conduct studies on the development and utilization of a facility to receive, store, and supply CO₂-free hydrogen in this area. With the aim of establishing a CO₂-free hydrogen supply chain by 2030, the two companies will also conduct studies on how to expand the supply chain toward the growing use of hydrogen after 2030 and how to effectively use hydrogen to realize a decarbonized society.

In the ENEOS Group's Long-Term Vision, ENEOS states that it will take on the challenge of achieving both a stable supply of energy and materials and the realization of a carbon-neutral society. As a part of this effort, ENEOS is conducting a study to establish a hydrogen supply chain using a type of organic hydride (LOHC)^{*1}, methylcyclohexane (MCH)^{*2}, which is a hydrogen carrier suitable for the storage and transportation of hydrogen. Specifically, the study will be conducted at the Mizushima Refinery for the reception, storage, and supply of hydrogen. MCH is a liquid with properties similar to petroleum, and by utilizing existing infrastructure such as refineries, it can reduce investment and enable a cost-competitive hydrogen supply in the future.

Meanwhile, the JFE Group has formulated the JFE Group Environmental Vision for 2050^{*3} and has positioned climate change initiatives as one of the most important management issues, making concerted efforts to solve this issue. JFE Steel has been conducting a multipronged study on the development of various ultra-innovative technologies such as carbon recycling blast furnaces and direct hydrogen-reduction steelmaking. Under the New Energy and Industrial Technology Development Organization (NEDO)'s commissioned and subsidized research and development project JPNP21019 "Green Innovation Fund Project^{*4} / Hydrogen Utilization in Iron and Steelmaking Processes," JFE Steel is working on the development of low-carbon technologies using external hydrogen and CO₂ contained in blast furnace exhaust gas. JFE Steel is currently studying a test blast furnace at West Japan Works (Kurashiki District) with the aim of starting a demonstration in 2029, and expects to utilize hydrogen as a fuel in this test furnace and in the iron mill.

The two companies aim to achieve carbon neutrality at the earliest date possible by leveraging their existing infrastructure and other assets, as well as the technologies and knowledge they have cultivated over the years. The two companies will also collaborate with other parties on various initiatives to promote carbon neutrality in the region as a whole, and contribute to the realization of a sustainable society.



<Aerial view of Mizushima Industrial Complex (courtesy of Kurashiki City)>

*1 Liquid organic hydrogen carrier

*2 A liquid at room temperature and atmospheric pressure with a volume 1/500 that of hydrogen gas. It is characterized by easy handling for storage and transportation.

*3 [JFE Holdings, Inc. "Addressing Climate Change Issues"](#)

*4 The fund established to create a "virtuous cycle between the economy and the environment" within the "Green Growth Strategy Through Achieving Carbon Neutrality in 2050" formulated by the Ministry of Economy, Trade and Industry with related ministries and agencies on December 25, 2020

[About the NEDO Green Innovation Fund \(in Japanese\)](#)

[Inquiries]

ENOES Corporation: Public Relations Department Public Relations Group +81-3-6257-7150

mail:pr@eneos.com

JFE Steel Corporation: General Administration Department Public Relations Section +81-3-3597-3845