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JFE Steel Corporation

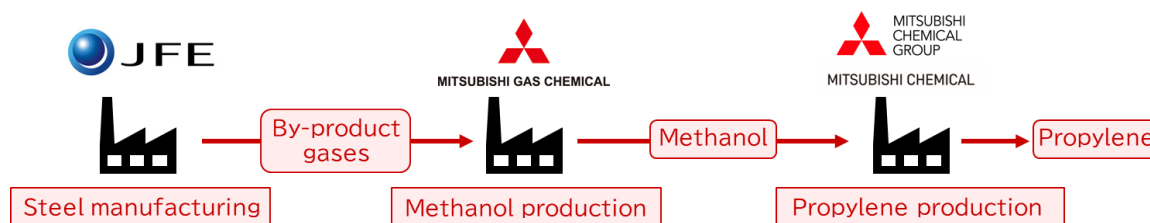
Mitsubishi Gas Chemical Company, Inc.

Mitsubishi Chemical Corporation

## **JFE Steel, Mitsubishi Gas Chemical, and Mitsubishi Chemical Collaborate to Develop a Carbon Recycling Supply Chain at Mizushima Complex**

JFE Steel Corporation (Headquarters: Chiyoda-ku, Tokyo; President: Masayuki Hirose, hereinafter referred to as "JFE Steel"), Mitsubishi Gas Chemical Company, Inc. (Headquarters: Chiyoda-ku, Tokyo; President: Masashi Fujii, hereinafter referred to as "Mitsubishi Gas Chemical"), and Mitsubishi Chemical Corporation (Headquarters: Chiyoda-ku, Tokyo; Representative Directors: Yasuo Shimodaira and Nobuo Fukuda, hereinafter referred to as "Mitsubishi Chemical")—collectively referred to as "Three Companies"—have signed a Memorandum of Understanding (MOU) concerning a demonstration project (hereinafter referred to as "the Demonstration Project") at the Mizushima Complex (Kurashiki City, Okayama Prefecture). The project aims to produce methanol from by-product gases emitted during steel manufacturing processes and further utilize the methanol to produce propylene, a key raw material for plastics.

The Demonstration Project is slated to begin in FY2026. JFE Steel will supply by-product gases generated in the steel manufacturing process to Mitsubishi Gas Chemical, which will conduct demonstrations of methanol production using these gases as raw material at a new demonstration plant to be constructed. Mitsubishi Chemical will utilize this methanol to evaluate the compatibility with their propylene production technology (DTP®\*) at its existing demonstration facilities and consider applications for other chemical products.



**< Roles of the three companies and material flow in the Demonstration Project >**

Reducing greenhouse gas (GHG) emissions in the industrial sector is a critical societal issue in addressing climate change. In the steel industry, efforts to cut CO<sub>2</sub> emissions in steel manufacturing processes include developing cutting-edge technologies, such as ultra-

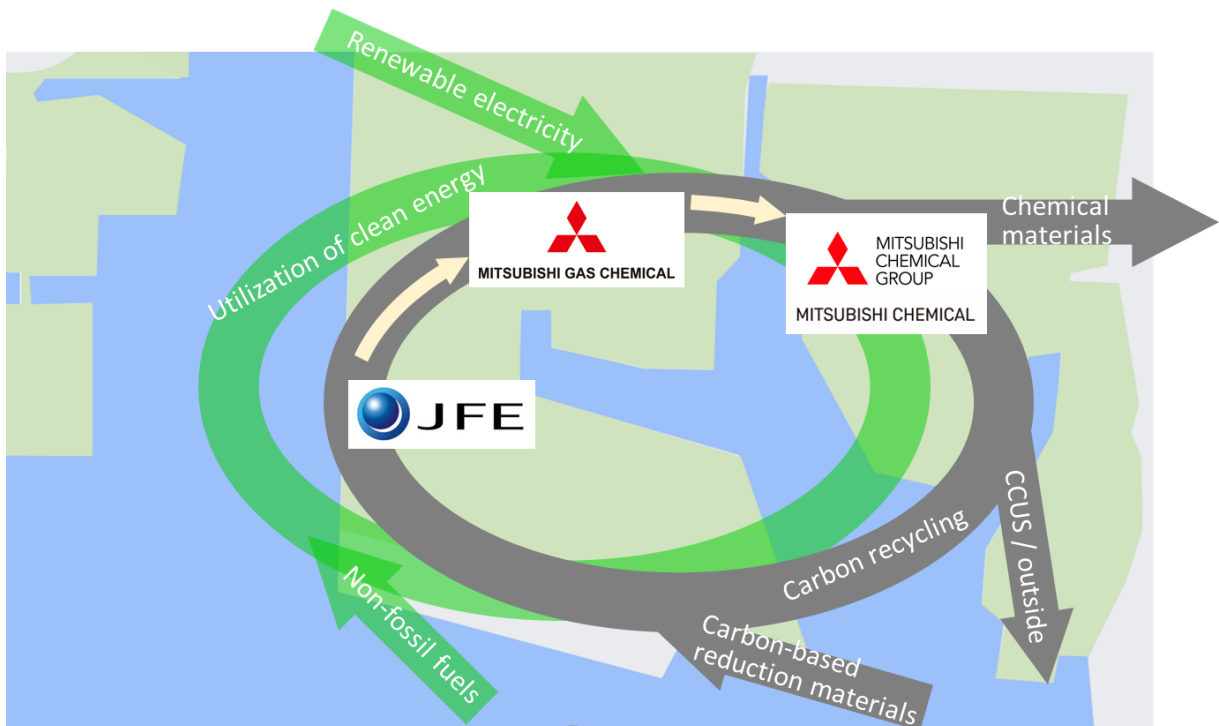


innovative blast furnaces and large-scale high-efficiency electric arc furnaces, and exploring CCUS (Carbon Capture, Utilization, and Storage). Methanol, a key basic chemical, can be synthesized from captured CO<sub>2</sub> and other sources. It has gained attention as a next-generation energy source, including as fuel for ships, and is expected to play a significant role in achieving GHG reductions and advancing a carbon-recycling society due to its broad applications in the chemical market. Ethylene and propylene, essential raw materials for plastics widely used in daily life, are currently produced from fossil based raw materials in Japan. Therefore, the Methanol to Olefin (MTO) process, which produces these materials from methanol, is attracting attention as a promising technology to achieve carbon neutrality.

The Demonstration Project represents a new initiative within the Mizushima Complex to promote collaboration among Hard-to-Abate industries (industries where GHG emissions are difficult to reduce). By utilizing CO<sub>2</sub> contained in by-product gases from steel manufacturing processes to produce valuable chemicals, the project provides a model for collaborative CO<sub>2</sub> utilization. Looking ahead, the initiative aims to develop into a conceptual framework for carbon recycling through the collaboration of the steel and chemical industries. This approach is expected to reduce GHG emissions compared to traditional fossil resource-based methods for chemical production.

The Mizushima Complex, home to business operations of all three companies, is a high-density industrial area where diverse industries have concentrated. It is a promising region for cross-industry collaboration on CO<sub>2</sub> utilization. Through the supply chain established within the Mizushima Complex, the three companies will strengthen their collaboration to contribute to building a sustainable society and advancing the Demonstration Project.

Furthermore, the three companies will explore broader opportunities for collaboration with other businesses within the Mizushima Complex. By promoting initiatives aimed at achieving carbon neutrality across the entire Mizushima Complex, they aim to drive meaningful contributions to tackling global environmental challenges.



**<A concept for carbon recycling through cross-industry collaboration in the Mizushima Complex>**

**【Overview of the three companies】**

JFE Group has formulated the JFE Group Environmental Management Vision 2050, and has positioned addressing climate change issues as the most important management issue, and is strongly promoting efforts to resolve these issues. In addition to working on the development of various ultra-innovative technologies such as carbon recycled blast furnaces and large, high-efficiency EAF, JFE aims to achieve carbon neutrality by utilizing CCUS, which includes inter-company collaboration and industrial complex collaboration. In order to build the CCUS value chain, we will accelerate our efforts by expanding and strengthening inter-company collaboration, including in Japan and overseas.

Mitsubishi Gas Chemical Company, Inc. (MGC) is a unique technology-oriented manufacturer producing more than 90% of its products using proprietary technologies. From basic chemicals like methanol, xylene, and hydrogen peroxide to high-performance products such as engineering plastics, materials for printed wiring boards, and oxygen absorbers, MGC continually creates value through innovative chemistry. Going forward, MGC will continue to actively promote decarbonization and environmental recycling through circular carbon methanol (Carbopath™) based on MGC group's mission, "Creating



value to share with society."

Mitsubishi Chemical Corporation is working to realize a circular economy, aiming to achieve carbon neutrality with virtually zero GHG emissions by 2050. Mitsubishi Chemical possesses the technology\* to directly produce propylene from methanol, which was jointly developed with JGC Corporation.

\*DTP®: Dominant Technology for Propylene production

DTP® is a registered trademark of JGC Corporation.

**【Contact】**

JFE Steel Corporation

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