

April 11, 2024

Kawasaki Kisen Kaisha, Ltd.

Memorandum of Understanding
Regarding the Joint Development of Ammonia-Fueled Bulk Carriers Signed

Kawasaki Kisen Kaisha, Ltd. (“K” LINE), announced today that, together with ITOCHU Corporation (“ITOCHU”), Nihon Shipyard Co., Ltd., MAN Energy Solutions (MAN), Mitsui E&S Co., Ltd., and NS United Kaiun Kaisha, Ltd. have signed a memorandum of understanding (MOU) regarding joint development efforts for the commercialization of ammonia-fueled ships.

Ammonia is advancing as a key zero-emission marine fuel solution and if it becomes possible to commonly use ammonia as a marine fuel, this will greatly contribute to the reduction of greenhouse gas (GHG) emissions. The development and commercialization of ammonia dual fueled engines using ammonia as their primary fuel (ammonia-fueled engines) is essential for widespread use of ammonia-fueled ships. In particular, the ensuring of safety in the handling of toxic ammonia and the confirming of stable operations at sea are important milestones on the road to the social implementation. This MOU is based on the premise that 200,000 deadweight ton class bulk carriers to be built by Nihon Shipyard will be equipped with ammonia-fueled engines being developed by MAN as a pilot project prior to commercialization, and that the necessary operational data will be collected after the delivery of the ships for the commercialization of ammonia-fueled engines and ammonia-fueled ships in cooperation with other parties involved.

The signing of this MOU is an important milestone for the implementation of ammonia-fueled ships, a new challenge being taken on by the maritime industry, and also an important step in the ongoing implementation of the Integrated Project being facilitated by ITOCHU.

ITOCHU and its partners will proceed with the development of the ammonia-fueled engines and ships based on this MOU, aiming to begin social implementation once the engines and ships are ready in accordance with the integrated project for the development and social implementation of ammonia fueled ships selected by the New Energy and Industrial Technology Development Organization (NEDO) in October 2021 to be a part of its publicly solicited Green Innovation Fund Project/Development Project for Next-Generation Ships/Development of Ammonia Fueled Ships*

As a logistics company rooted in the shipping industry, the “K” LINE Group will continue to work to reduce its environmental impact to aim for sustainable growth and greater corporate value based on its corporate principle of “we help make the lives of people more affluent.”

* October 26, 2021: Joint project on “Development of Ammonia-fueled ship” adopted as Green Innovation Fund

https://www.kline.co.jp/en/news/Liquefied_gas/Liquefied_gas-20211026.html

【Key Roles】

Partners	Key Roles
MAN	Design and development of Ammonia Fueled Engine and verification after delivery of 200,000 deadweight ton class bulk carriers equipped with Ammonia Fueled Engines

Nihon Shipyard	Design and construction of 200,000 deadweight ton class bulk carriers equipped with Ammonia Fueled Engines
ITOCHU "K" LINE NS United	Crew development and ship management for operation of 200,000 deadweight ton class bulk carriers equipped with Ammonia Fueled Engines and collection of operation data
Mitsui E&S	Manufacturing Ammonia Fueled Engine of 200,000 deadweight ton class bulk carriers and Design and production of related system
ITOCHU	Information sharing for ammonia fuel supply

【MOU signing ceremony】



From left:

Sato Yoshinori, Executive Officer, NS United Kaiun Kaisha, Ltd.

Tanaka Ichiro, Director, MITSUI E&S Co., Ltd.

Daniel Struckmeier, Managing Director, MAN Energy Solutions Japan Ltd.

Higaki Kiyoshi, President, NIHON SHIPYARD CO., LTD.

Ikeda Shingo, Executive Officer, Kawasaki Kisen Kaisha, Ltd.

Ozeki Hirohiko, General Manager of Marine Department, ITOCHU Corporation