

 **Mitsui O.S.K. Lines**

 **MOL Coastal Shipping, Ltd.**

 **Murakami Hide Shipbuilding Co., Ltd.**
村上秀造船株式会社

 **TABUCHI KAIUN CO., LTD.**

 **新居浜海運株式会社**

 **HANSHIN DIESEL**

March 11, 2022

Tabuchi Kaiun Co., Ltd.
Niihama Kaiun Co., Ltd.
Murakami Hide Shipbuilding Co., Ltd.
The Hanshin Diesel Works, Ltd.
Mitsui O.S.K. Lines, Ltd.
MOL Coastal Shipping, Ltd.

Six Companies Forming Strategic Alliance to Develop Japan's First Methanol-fueled Domestic Tanker

~ Selected for METI and MLIT Subsidy for 'Project on Transport Efficiency improvement Utilizing AI/IoT
(Demonstration Project on Domestic Ship Innovative Operation Efficiency) ~

Mitsui O.S.K. Lines, Ltd., MOL Coastal Shipping, Ltd., Tabuchi Kaiun Co., Ltd., Niihama Kaiun Co., Ltd., Murakami Hide Shipbuilding Co., Ltd., and The Hanshin Diesel Works, Ltd. have agreed to form strategic alliance aimed at reducing environmental impact through the development of methanol-fueled Domestic tanker.

The vessel development project, which targets delivery of the ship in 2024, was also selected to receive public funding through the Japanese Ministry of Economy, Trade and Industry (METI) and Ministry of Land, Infrastructure, Transport and Tourism (MLIT), "Subsidy for 'Project on Transport Efficiency improvement Utilizing using AI/IoT (Demonstration Project on Domestic Ship Innovative Operation Efficiency)" (Note 1).

Methanol can reduce emissions of sulfur oxide (SOx) by up to 99%, particulate matter (PM) by up to 95%, nitrogen oxide (NOx) by up to 80%, and carbon dioxide (CO₂) by up to 15%, compared to vessels using conventional fuel oil, which is currently the main fuel for marine vessels. Methanol has outstanding properties for use as a fuel, as it is liquid at normal temperatures and normal air pressure. Methanol fuel

has been more widely introduced on ocean-going vessels as an environmentally friendly fuel, including four MOL Group-operated ships, but this will be the first methanol-fueled Domestic ship.

In addition, methanol can be produced with CO₂ and hydrogen as raw material, so in the future, it can be produced by utilizing the CO₂ capture and transport business to synthesize hydrogen, which uses electricity derived from renewable resources such as offshore wind power and wave power. If this methanol can be used as fuel, it can establish an environmental circulation type business model, enabling a reduction in net CO₂ emissions.

The six alliance partners will each orchestrate their advantages in technology, expertise, and networks (Note 2) aiming to realize a decarbonized society.

(Note 1)

The funding subsidizes the costs required to conduct the demonstration project with the aim of optimizing overall transport by introducing measures on software aspects such as ship operation planning and optimization of cargo handling operations, as well as hardware-based steps such as energy-saving ship designs, high-efficiency propulsion systems, and systems and equipment to enhance cargo-handling operations.

(Note 2)

Alliance Partners and Their Roles in the Project

 <p>Ownership of methanol-dual fueled methanol carrier; Sharing operational expertise</p>	 <p>Manning and ship management services for the vessel</p>
 <p>Murakami Hide Shipbuilding Co., Ltd. 村上秀造船株式会社</p> <p>Abundant experience in construction of chemical tankers; Responding to unique specifications</p>	 <p>HANSHIN DIESEL</p> <p>World's 1st company to successfully develop methanol-fueled low speed 4-stroke diesel engine for marine use.</p>

<Corporate Profile>

Mitsui O.S.K. Lines, Ltd.

Established	May 1884
Address of head office	2-1-1 Toranomom, Minato-ku, Tokyo
Representative	Takeshi Hashimoto
Business	Ocean shipping services, etc.

MOL Coastal Shipping, Ltd.

Established	December 22, 1953
Address of head office	2-1-1 Toranomom, Minato-ku, Tokyo
Representative	Hiroshi Kobayashi
Business	Marine transport services

Tabuchi Kaiun Co., Ltd.

Established	October 1935
Address of head office	2-2-5 Ajigawa, Nishi-ku, Osaka-shi, Osaka
Representative	Norio Tabuchi
Business	Ocean shipping services, etc.

Niihama Kaiun Co., Ltd.

Established	August 1948
Address of head office	1-4-18 Nishibaracho, Niihama-shi, Ehime Prefecture
Representative	Shuichi Moriga
Business	Marine transport services

Murakami Hide Shipbuilding Co., Ltd.

Established	November 1963
Address of head office	4641 – 2 Hakatacho Kinoura, Imabari-shi, Ehime Prefecture
Representative	Eiji Murakami
Business	Shipbuilding, repair services, etc.

The Hanshin Diesel Works, Ltd.

Established	January 1918
Address of head office	4F Shinko Building, 8 Kaigandori, Chuo-ku, Kobe, Hyogo Prefecture
Representative	Kazuhiko Kinoshita
Business	Production of ship engines, etc.