THE SHIPBUILDERS' ASSOCIATION OF JAPAN

Progress in Japan's Next-Generation Ship Development

16th ASEF Forum, Yokohama, 2025

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JMU Japan Marine United Corporation

Japanese shipbuilder's stance on NZF

MEPC ES.2 has decided to adjourn deliberations on the adoption of the Net Zero Framework (NZF) for one year.

However, shipbuilders remain confident that the NZF will provide appropriate, comprehensive guidance for the international shipping industry to achieve reduction targets in line with global decarbonisation.

Consequently, **numerous development projects related NZF** are currently underway in Japan.

Ammonia-Fueled Bulk Carrier

Reference：11 Apr. 2024
Press Releases from each company

MAN Energy Solutions (MAN)
ITOCHU Corporation (ITOCHU)
Mitsui E&S Co., Ltd. (Mitsui E&S)
Nihon Shipyard Co., Ltd. (NSY)
Kawasaki Kisen Kaisha Ltd.(“K” LINE)
NS United Kaiun Kaisha Ltd. (NSU)

- NSY, ITOCHU, MAN Energy Solutions, Mitsui E&S, "K" LINE and NS United, signed an MOU to jointly develop and commercialize Ammonia-Fueled ships.
- 200,000DWT Bulk Carriers designed by NSY will be equipped with ammonia-fueled engines developed by MAN as pilot projects. Operational data will be collected to support future commercialization.
- This initiative, part of “Green Innovation Fund Project” offered by NEDO, aims to advance ammonia as a zero-emission marine fuel and promote the safe, practical use of ammonia-fueled vessels for a sustainable maritime industry.

Ammonia-Fueled Medium Gas Carrier (AFMGC)

Reference：19 Aug. 2024
Press Releases from each company

Nippon Yusen Kabushiki Kaisha (NYK)
Japan Engine Corporation (J-ENG)
IHI Power Systems Co., Ltd.
Nihon Shipyard Co., Ltd.
Nippon Kaiji Kyokai (ClassNK)

- ClassNK granted the world's first "Machinery Room Safety for Ammonia" (MRS) certification to AFMGC developed by a consortium including NYK and NSY.
- MRS notation proves that a ship's machinery room meets the highest safety standards for ammonia-fueled vessels.
- The consortium is improving ammonia-fueled ship safety by assessing toxicity risks, designing leak-prevention measures, and developing the vessel and operational manuals.
- This AFMGC is planned for delivery at Japan Marine United Co. Ariake Shipyard in November 2026.

Ultra Large Ammonia Carrier

Reference：14 Mar. 2025
Press Releases from each company

Mitsui O.S.K. Lines, Ltd. (MOL)
Namura Shipbuilding Cp., Ltd.
Mitsubishi Shipbuilding Co., Ltd. (MSB)

- The consortium including MOL, Namura and MSB is developing an innovative ammonia-fueled carrier designed for both zero-carbon transport and use as a hydrogen carrier, addressing growing demand for ammonia in power generation.
- The vessel has larger cargo tanks than conventional VLGCs and VLACs, enabling higher capacity and lower emissions, while remaining compatible with existing Japanese power plant and terminal facilities.
- ClassNK has reviewed the basic design and HAZID safety study, confirming effective measures against ammonia toxicity.

Ammonia-Fueled Medium Gas Carrier (AFMGC)

Reference：31 Mar. 2025
Press Release; Shin Kurushima Dockyard CO., LTD.

- Shin Kurushima Dockyard (SKDY) received Approval in Principle (AiP) from ClassNK for its ammonia-fueled car carrier, designed in line with the latest ClassNK and IMO safety guidelines.
- In collaboration with Mitsubishi Shipbuilding, SKDY completed design reviews and a HAZID study to ensure safety.
- The vessel's systems and equipment meet updated standards, with thorough risk assessments addressing potential ammonia leaks.

Ammonia-Fueled Tugboat “SAKIGAKE”

Reference：23 Aug. 2024
Press Releases from each company

Nippon Yusen Kabushiki Kaisha (NYK)
IHI Power Systems Co., Ltd.

- The world's first Ammonia-Fueled vessel for commercial use tugboat "SAKIGAKE" was completed by NYK and IHI Power Systems in cooperation with ClassNK.
- The predecessor, the LNG-Fueled Tugboat of same name, was completed in August 2015 as the first LNG-fueled vessel in Japan.
- After eight years of tug service in Tokyo Bay, SAKIGAKE was docked at the Keihin Dock Co. Ltd. for conversion to an ammonia-fueled vessel.

Hydrogen-fueled Multi-Purpose Vessel

Reference：19 Oct. 2023
Press Releases from each company

Mitsui O.S.K Lines, Ltd.(MOL)
MOL Drybulk, Ltd.
Onomichi Dockyard Co., Ltd.
Kawasaki Heavy Industries, Ltd.(KHI)
Japan Engine Corporation (J-ENG)

- MOL, MOL Drybulk, Onomichi Dockyard, KHI and J-ENG conducted a risk assessment of a Multi-Purpose Vessel powered by hydrogen, zero-emission fuel and has been granted Approval in Principle (AiP) of parcel layout concept from Nippon Kaiji Kyokai (ClassNK).
- This is the world's first AiP certification for a ship equipped with a low speed two-stroke hydrogen-fueled engine as the main propulsion engine
- Demonstration operation of the vessel will be conducted for two years from around 2027.

Hydrogen Fuel Cell Ship “MAHOROBA”

Reference：24 Apr. 2025
Press Releases from each company

Namura Shipbuilding Co., Ltd.
Iwatani Corporation
Setouchi Craft Co., Ltd.

- Namura delivered Japan's first hydrogen-fueled, light alloy catamaran passenger ship "MAHOROBA“, built at Setouchi Craft, to Iwatani Corporation on 9 Dec. 2024.
- MAHOROBA is a hybrid electric propulsion vessel equipped with hydrogen fuel cells and lithium-ion secondary batteries.
- Compared to conventional ships, it not only offers high environmental performance by emitting no CO_2 while traveling, but also offers excellent comfort with no odor, noise, or vibration.
- MAHOROBA was in service during the 2025 Osaka-Kansai Expo, which closed in October 2025.

Next generation passenger ship “HANARIA”

Reference：21 May 2025
Press Releases from each company

MOL Techno-Trade, Ltd.
Hongawara Ship Yard Co., Ltd.

Winner of The Ship of the Year award 2024

- MOL Techno-Trade’s next-generation passenger ship “HANARIA”, built with funding from The Nippon Foundation, has been awarded Ship of the Year 2024 by The Japan Society of Naval Architects and Ocean Engineers.
- HANARIA is a hybrid ship that integrates three power sources; hydrogen fuel cell, lithium-ion batteries and bio-diesel generator.
- This innovative system allows HANARIA to achieve zero-emission navigation by combining the hydrogen fuel cell and batteries, while also enabling flexible operation with the addition of the environmentally friendly bio-diesel generator.

Low-Pressure Type Liquefied CO_2 Carrier

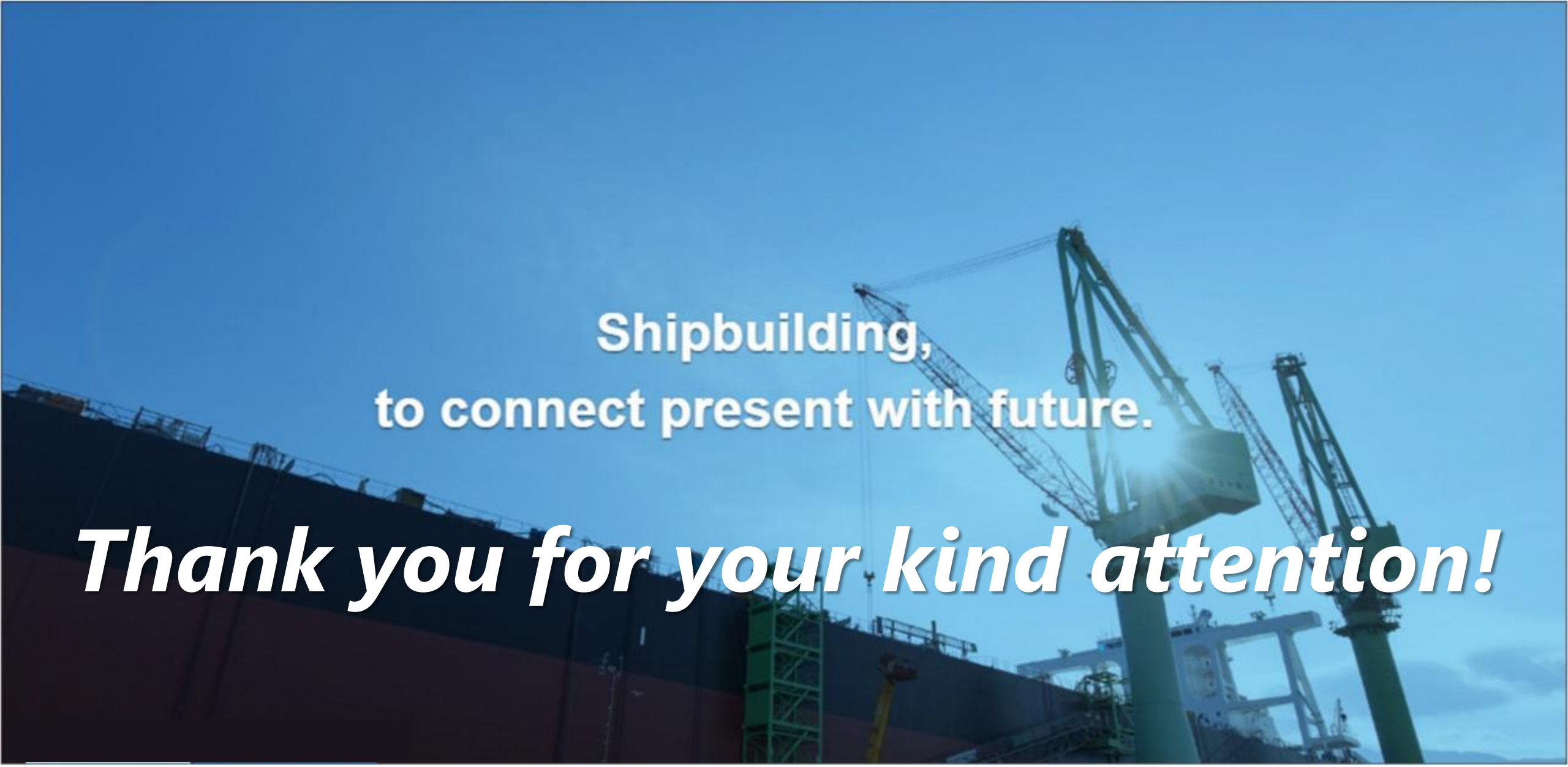
Reference：18 Sept. 2024
Press Releases from each company

Nihon Shipyard Co., Ltd. (NSY)
Kawasaki Kisen Kaisha, Ltd. (“K” LINE)
Mitsui O.S.K. Lines, Ltd. (MOL)
Nippon Yusen Kabushiki Kaisha (NYK Line)
Mitsui & Co., Ltd. (Mitsui)
Mitsubishi Corporation (Mitsubishi)
Mitsubishi Shipbuilding Co., Ltd (MSB)

- A consortium of Japanese companies has obtained AiP from ABS and ClassNK for two types of low-pressure liquefied CO_2 (LCO_2) carriers, 50,000m³ class and 23,000m³ class vessels, under joint development.
- The designs use alternative cargo tank materials instead of nickel steel and apply the Engineering Critical Assessment (ECA) method, which eliminates the need for post-welding heat treatment (PWHT).

Toward the IMO mid-term measures

- As environmental measures are strengthened globally, the shipbuilding industry is undergoing a period of significant transformation.
- To comply with the IMO GHG strategy and achieve sustainable development, comprehensive engineering through collaboration across the maritime sector is required.
- Meanwhile, SAJ also recognises that the shipbuilding industry's active contribution to IMO discussions is essential to the sustainable development of the global maritime industry.
- SAJ will make efforts in this regard through ASEF, which hold the consultative status at IMO.



Thank you for your kind attention!

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