



ITOCHU group upgrades the existing MOU for accelerating joint development on ammonia fuel supply chain in Singapore, by inviting Pavilion Energy, MOL and TOTAL

ITOCHU ENEX Co. Ltd. (headquartered in Chiyoda-ku, Tokyo; Kenji Okada, President and CEO; hereinafter "ITOCHU ENEX"), ITOCHU Corporation (headquartered in Minato-ku, Tokyo; Keita Ishii, President & COO; hereinafter "ITOCHU"), Vopak Terminals Singapore Pte Ltd. (hereinafter "VOPAK"), Pavilion Energy Singapore Pte. Ltd. (hereinafter "PAVILION ENERGY"), Mitsui O.S.K. Lines Ltd. (hereinafter "MOL") and TOTAL MARINE FUELS PRIVATE LIMITED (hereinafter "TOTAL") are pleased to announce that the parties have entered into a memorandum of understanding (MOU) on the joint development study of ammonia as a new marine fuel in Singapore.

ITOCHU ENEX and ITOCHU, having executed the MOU with VOPAK on June 2020 which has expertise in handling ammonia at their Banyan Terminal, Singapore, takes a remarkable step into further development of the ammonia supply chain in Singapore, by inviting PAVILION ENERGY, MOL and TOTAL, which have high expertise and experience at each business segment, and are engaging in LNG bunkering business in Singapore. Great contribution to the project will be expected through their participation.

With international momentum towards the transition to a decarbonized society since the Paris Agreement came into effect in 2016, the International Maritime Organization (IMO) adopted a strategy for the reduction of greenhouse gas (GHG) emissions within the shipping industry in 2018. This strategy sets targets to reduce CO₂ emissions per transport work – as an average across international shipping – by at least 40% by 2030 (compared to 2008 levels), and to reduce total annual GHG emissions by at least 50% by 2050, while pursuing efforts to phase them out entirely (zero-emissions) during this century. In order to achieve these goals, the early adoption of ammonia as a suitable zero emission, alternative marine fuel is one of the key elements.

The purpose of the MOU is not limited to expansion and acceleration of the joint development of an ammonia fuel supply chain, including an on-shore and/or off-shore facility and an ammonia bunkering ship in Singapore. It is also a key element of an integrated project that includes the development of ammonia fueled ship by ITOCHU with other partners. ITOCHU intends to promote initiatives to reduce GHGs with the cooperation of domestic and overseas clients, as well as the relevant government agencies. Based on its corporate philosophy, "the Best Partner for Life and Society," the ITOCHU ENEX aims to ensure a stable supply of energy and help realize a Decarbonization society, reduce environmental impacts and contribute to a sustainable society in its role as an energy company.

Individual roles

| Company | Individual roles |
|-----------------|---|
| ITOCHU ENEX | ITOCHU ENEX will promote the development of ammonia fuel supply chain and safety guidelines of ammonia bunkering in Singapore together with other parties, by making use of their experience and expertise in the operation of marine fuel supply in Japan and Singapore. |
| ITOCHU | ITOCHU will promote (i) the development of off-shore facility such as floating storage unit and/or fuel supply ship, and safety guidelines of ammonia bunkering in Singapore together with other partners, and (ii) the integrated project, leading the formation of partnerships in Japan and overseas by making use of networks with various industries / companies such as shipper, shipping company, ammonia producer and/or any other parties related to ammonia fuel supply chain, owning and operate ammonia fueled ships, and jointly developing a facility for supplying ammonia fuel for ships. |
| VOPAK | VOPAK will promote the development of an independent, on-shore facility for the storage and handling of ammonia with loading / unloading facilities in Singapore by tapping its ammonia storage & handling expertise in its Banyan Terminal in Singapore. |
| PAVILION ENERGY | PAVILION ENERGY will promote the development of the ammonia fuel supply chain and safety guidelines of ammonia bunkering in Singapore with other partners, through leveraging each other's experience and expertise, especially in the operation of LNG as a marine fuel in Singapore. |
| MOL | MOL will promote the development of off-shore facility such as floating storage unit and/or ammonia bunkering ship, and safety guidelines of ammonia bunkering in Singapore together with other partners, by making use of their experience and expertise, especially as ship owner and ship-manager of LNG bunkering ship. |
| TOTAL | TOTAL will promote (i) the development of ammonia fuel supply chain and safety guidelines of ammonia bunkering in Singapore together with other partners, and (ii) the development of bunkering infrastructures |

| Company | Individual roles |
|---------|--|
| | together with other partners, by making use of their experience and expertise in LNG as marine fuel. |

[Contact information for this release]

ITOCHU ENEX Co.,Ltd.

Marine Fuels Department

IIO and SHIKATA and ISHIDA Tel +81-3-4233-8084

Corporate Communications Office, Management Planning Department,

AOYAGI Tel: +81-3-4233-8003