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## **Joint Study of Ammonia as an Alternative Marine Fuel**

*Industry players set up “Joint Study” framework for studying common issues on ammonia as an alternative marine fuel, to get ready to IMO’s decarbonization targets, including energy, mining, power utility, chemical, terminal, shipping, shipbuilding, manufacture, bunkering, and classification society.*

Parties of total 23 companies including NS United Kaiun Kaisha, Ltd. have entered into a memorandum of understanding on joint study of common issues on ammonia as an alternative marine fuel beyond industry boundaries. The 23 founding signatories of this Joint Study framework include **ABS, ANGLO AMERICAN, CLASSNK, DNV, EQUINOR, FMG, GENCO, ITOCHU ENEX, ITOCHU, JERA, K-LINE, MAN ENERGY SOLUTIONS, MITSUI E&S MACHINERY, NIHON SHIPYARD, PAVILION ENERGY, TOTAL ENERGIES, TRAFIGURA, UBE INDUSTRIES, UNIPER GLOBAL COMMODITIES, UYENO TRANSTECH, VALE, VOPAK TERMINAL SINGAPORE, and NS UNITED**. In line with the agreed procedure, four common issues listed below are going to be discussed in the Joint Study framework.

- (1) Safety assessment of NH<sub>3</sub> fuel ship under guideline
- (2) Safety assessment of NH<sub>3</sub> bunkering
- (3) NH<sub>3</sub> fuel specification
- (4) NET CO<sub>2</sub> emission at NH<sub>3</sub> production

Moreover, this framework may ask some of NH<sub>3</sub> producers, relevant international organizations, port authorities / regulators in potential bunkering countries to share their opinion, view, expertise and experience.

This Joint Study framework keeps door open for companies or organizations which have an interest in participating this Joint Study. Please contact us or any participants.

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 maritime industry in 2018. This strategy sets targets to reduce CO<sub>2</sub> emissions per transport work – as an average across international shipping – by at least 40% by 2030 (compared to 2008 levels), to reduce CO<sub>2</sub> emissions by 50% by 2050, and 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 this Joint Study is not limited to verify and sort out common issues on ammonia as an alternative marine fuel which is new challenges of all of maritime industry players, but also to accelerate the development of ammonia fueled ship and the development of worldwide supply chain of ammonia.

We, NS UNITED, will continue to contribute to the realization of a sustainable society through implementation of environmental conservation efforts stated in our medium-term business plan, FORWARD 2030.

**Contact details for this News Release**

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