

December 2, 2021

Kawasaki Kisen Kaisha, Ltd.

“K” LINE Conducts Trial Use of Marine Biofuel for Decarbonization on Car Carrier

Kawasaki Kisen Kaisha, Ltd. (“K” LINE) is pleased to announce that we have conducted a trial use of marine biofuel which was supplied by global integrated energy company bp on car carrier “POLARIS HIGHWAY”.

“K” LINE signed a deal for marine biofuel supply with bp. The marine biofuel was delivered to the vessel at the Dutch port of Flushing on Nov 6<sup>th</sup>, 2021. After leaving Europe Emission Control Area, the vessel conducted the trial use of the marine biofuel.

Marine biofuel (Note 1) has the potential to become an environmentally friendly alternative fuel, it will be able to reduce CO<sub>2</sub> by about 80-90% in the well-to-wake (from fuel generation to consumption) process without changing current engine specifications.

This marine biofuel uses renewable organic resources such as biomass which don't utilize as foodstuff and feed crop.

In “K” LINE Environmental Vision 2050 -Blue Seas for the Future- (Note2), we have set the 2030 interim target of improving CO<sub>2</sub> emission efficiency by 50% over 2008, surpassing the IMO target of 40% improvement. Furthermore, we set our new target for 2050 as “The Challenge of Achieving Net -Zero GHG Emissions”. As an action plan, we will continue to work on the introduction of new fuels, which have a low environmental impact and take on the challenge of achieving the targets set forth.

(Note1) Biofuel

Biofuels are made from renewable organic resources like biomass. Therefore, although CO<sub>2</sub> is emitted after its combustion, those emissions are compensated with the CO<sub>2</sub> absorbed during the growth of the biogenic sources used as raw materials.

Furthermore, for its production, waste and residues that need to be disposed of can be reused. Some examples are Used Cooking Oil collected from restaurants and residential households and animal fats. This will avoid the use of raw materials that compete with food or feed market. Both the biofuels feedstocks origination and its production along the supply chain are sustainability certified following the criteria of international recognized standards so its generation and traceability are guaranteed by independent third party, ultimately contributing to deployment of biofuels as an environmentally friendly alternative to fossil fuels around the world.

(Note2) [“K” LINE Environmental Vision 2050 "Blue Seas For the Future"](#)

As an action plan for GHG reduction, we are introducing zero-emission fuels such as ammonia and hydrogen fuels, as well as carbon-neutral fuels such as bio-LNG and synthetic fuels.



### "K" Line decarbonization—Reduce CO<sub>2</sub> emissions

**01 New fuels (Fuel conversion)**

#### Expand introduction of LNG fueled ships

- Expanding introduction of LNG in the 2020s and invest in approximately 40 vessels by 2030
- Delivered "K" LINE's first LNG-fueled car carrier, GENTARO HAWAII GREEN, in March 2023
- Plan to deliver "K" LINE's first LNG-fueled capsule bulk carrier in 2024
- Decided to invest in a further eight LNG-fueled car carriers by 2025

Approximately 20% to 30% reduction in CO<sub>2</sub> emissions, compared with heavy-oil fueled vessels



#### Introduce LPG fueled ships

- Planning to deliver in 2025 a very large gas carrier (VLGC), mainly fueled by LPG and capable of carrying LPG or ammonia, with a view to transporting ammonia in the future

Approximately 20% reduction in CO<sub>2</sub> emissions, compared with heavy-oil fueled vessels



Although high cost, it is possible to transport many industries, etc.

#### Introduce zero-emission vessels that use new fuels such as ammonia and hydrogen

- Currently considering the introduction of zero-emission fuels, such as ammonia and hydrogen, and carbon neutral fuels, such as bio-LNG and synthetic fuel
- Participating in a joint study framework for researching the use of ammonia as a marine fuel that crosses industrial boundaries, such as those between the shipping companies, trading companies, shippers, and manufacturers, with the aim of using ammonia fueled vessels
- Currently considering the target of commercialization and introduction of zero-emission vessels in the second half of the 2020s

Zero CO<sub>2</sub> emissions



Ammonia fuel commercialization is expected to start around 2025