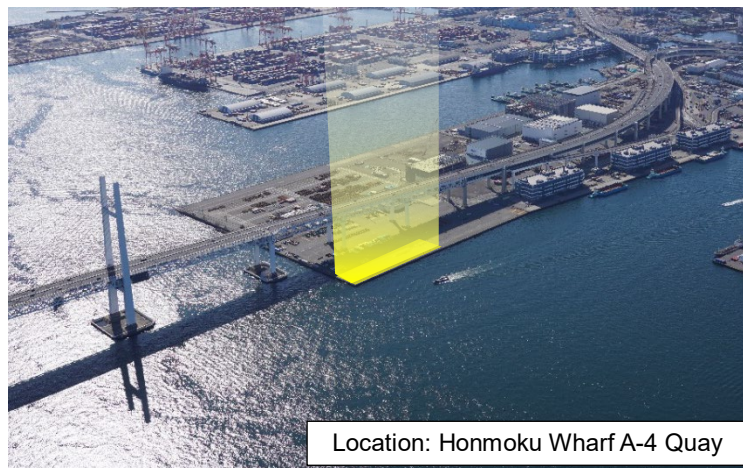


Ammonia Bunkering for Ammonia Fueled Tugboats at Honmoku Wharf, Port of Yokohama ～World's first Truck to Ship Method～

On July 17th, ammonia was supplied to an ammonia-fueled tugboat as marine fuel at the Honmoku Wharf A-4 quay by the Truck to Ship method. This is the world's first attempt to supply ammonia to ships as marine fuel in this method.

In May 2022, City of Yokohama concluded MOU with NYK Line, IHI Power Systems, and Class NK regarding the acceptance of ammonia-fueled tugboats at the Port of Yokohama, and has been discussing operational methods related to fuel supply, establishment of transportation and acceptance systems, and safety measures. The ammonia-fueled tugboat is scheduled to be in service at the Port of Yokohama by late August as the world's first commercial ammonia-fueled vessel.

City of Yokohama, aiming to realize a decarbonized society by 2050, will promote various initiatives related to next-generation marine fuels to form a Carbon Neutral Port (CNP) in cooperation with the government and private sectors.



1 Ammonia bunkering



Ammonia-fueled tugboat



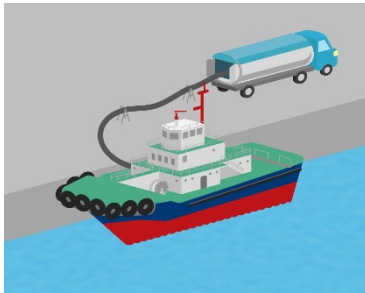
Ammonia bunkering

2 Related Businesses

Development & Construction	NYK Line, IHI Power Systems Co., Ltd. Class NK, Keihin Dock Co., Ltd.
Ship Operation	Shin-Nippon Kaiyosha Inc.
Fuel Supply	JERA Inc.
Fuel Production & Transportation	Resonac Inc., Tokyo Power Technology, Inc. KUSUHARA Transportation Co., Ltd.

(Reference 1) Bunkering Methods

(1) Truck to Ship



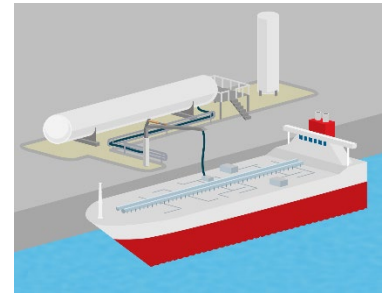
Marine fuel is supplied from the truck to the ship at berth.

(2) Ship to Ship



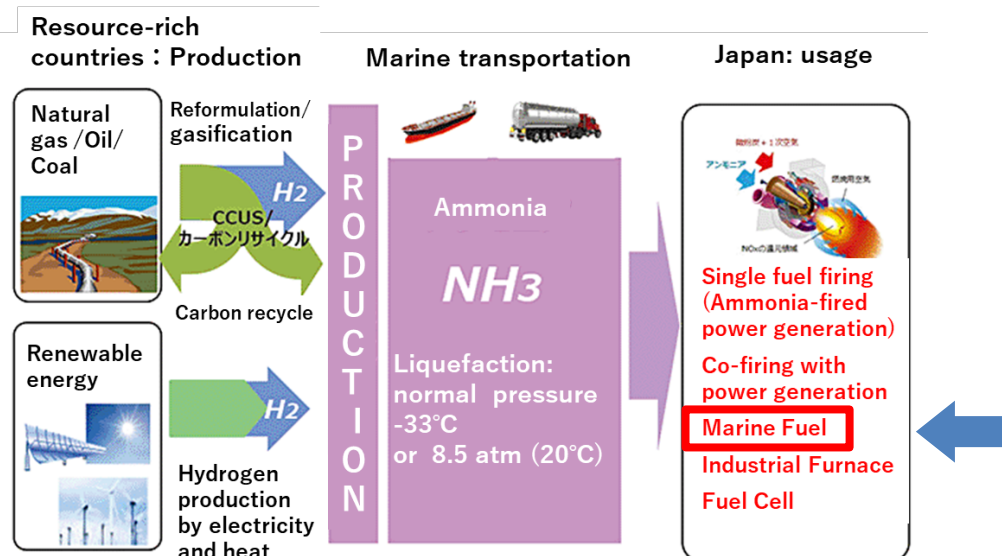
Marine fuel is supplied from the bunkering ship to the ship at berth.

(3) Shore to Ship



Marine fuel is supplied from the landside facility to the ship at berth.

(Reference 2) Outline of fuel ammonia use (from the Agency for Natural Resources and Energy website)



Carbon Neutral Port Initiative at the Port of Yokohama

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