

**Supply Chain Established for Cargo Tanks Transporting Liquefied
CO₂ at Elevated Pressure (EP)
-- NYK, KNCC, and JFE Shoji Advance Toward Social
Implementation of CCS --**

Dec. 3, 2024

Nippon Yusen Kabushiki Kaisha
Knutsen NYK Carbon Carriers AS
JFE Shoji Corporation



Nippon Yusen Kabushiki Kaisha ("NYK"), its group company Knutsen NYK Carbon Carriers AS ("KNCC"), and JFE Shoji Corporation ("JFE Shoji") have recently completed a feasibility study confirming production facilities, production capacity, and the costs for steel materials used for the manufacturing of LCO₂-EP Cargo Tanks (the "tanks"). The tanks may be used as LCO₂ carrier cargo tanks and onshore temporary storage tanks required for LCO₂ transportation using the elevated pressure (EP) mode. The companies now have a clear prospect of establishing a stable supply of steel materials within the Asian region.

Based on the memorandum of understanding on strategic partnership for CO₂ capture and storage ("CCS") signed in March of this year, the three companies have been studying the establishment of a stable and large-volume supply network for the tanks. Joint development will continue for early social implementation of CCS projects.

The tanks may be used as LCO₂ carrier cargo tanks and onshore temporary storage tanks as part of an LCO₂-EP system*. The tanks are made of versatile carbon steel and can be produced using automatic welding machines at existing large-diameter steel pipe manufacturing facilities, making it possible to establish large-scale manufacturing and supply system with a short delivery time and low cost.



JFE Shoji sales offices supplying steel (Asia · Oceania region)

Role of each company

NYK: Based on its track record of developing comprehensive logistics businesses in Japan and overseas, NYK will study the entire CCS business supply chain, including the transportation of the tank. NYK will also study the feasibility of the CCS value chain** by examining LCO₂ transport vessels and conducting cost and operation simulations for ocean transportation.

KNCC: As a group company of NYK, KNCC offers EP, MP (medium pressure), and LP (low pressure) ship transportation and also possesses a technology related to LCO₂ transportation at EP. KNCC has developed this tank, and a patent application for it has been filed. KNCC will conduct simulations and study the feasibility of a CCS value chain.

JFE Shoji: As a core trading company of the JFE Group, JFE Shoji will contribute to the establishment of a supply chain by supplying steel products necessary for the manufacture of the tanks, utilizing its knowledge of steel peripheral businesses and its domestic and overseas networks.

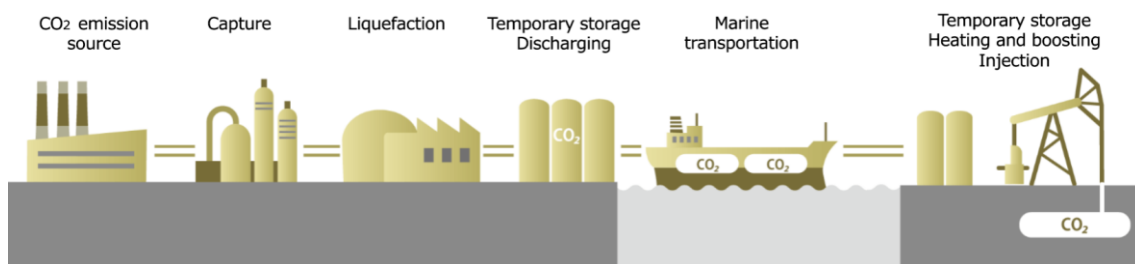


Image of the CCS Value Chain

* LCO₂-EP system

The system stores and transports CO₂ at ambient temperature and elevated pressure conditions (0-10°C, 35-45 bar), making it easy to handle CO₂ and reducing the carbon footprint and costs throughout the CCS value chain. Because relatively little energy is required for the heating and pressurization process before CO₂ is liquefied and pressurized into the reservoir, the carbon footprint and costs are expected to be reduced throughout the CCS value chain.

** CCS value chain

CCS (Carbon dioxide Capture and Storage) is a process that captures and stores CO₂ emitted from thermal power plants and factories, etc. in a stable underground geological formation. CO₂ is transported from the capture site to the utilization site or storage site by dedicated LCO₂ transport vessels.

■ Contact information

JFE Shoji Corporation
Public Relations Sec.
General Administration Dept.
TEL +81-3-5203-5055