August 19th, 2024
Japan CCS Co., Ltd.
Nippon Gas Line Co., Ltd.

Startup of the Liquefied CO_2 Ship Transportation Demonstration Project

Between 19th and 27th July, as part of the NEDO※1 demonstration project※2, the liquefied CO_2 transport demonstration vessel "EXCOOL" operated by Nippon Gas Line Co., Ltd. conducted liquefied CO_2 loading and unloading, shifting within the port (marine transportation), and storage in the onshore tank at the onshore terminal (Tomakomai Terminal), which is under construction by Japan CCS Co., Ltd.

The liquefied CO_2 transport demonstration vessel "EXCOOL" has been equipped with a marine cargo tank system capable of demonstrating liquefied CO_2 transportation at low temperatures and low pressures, which was developed by the New Energy and Industrial Technology Development Organization (NEDO) project aimed at developing integrated technology for transporting large amounts of liquefied CO_2 for long distances. Since completion in November 2023, the vessel has been conducting training such as crew training and loading/unloading operation in preparation for various demonstrations planned in the NEDO project.

This demonstration, comprised of loading liquefied CO_2 from a tank truck at a berth in Tomakomai Port, shifting the vessel from the berth to the Tomakomai Terminal, unloading and storing the CO_2 in the onshore storage tank was conducted upon receiving the understanding and support of local stakeholders as well as the required approvals from the relevant authorities. Up to now, the condition of liquefied CO_2 for transportation has been generally around -20℃, 1.9MPaG, or so-called medium temperature and medium pressure. This demonstration was conducted using liquefied CO_2 at a lower temperature of around -35℃ for the first time.

After completing the construction of onshore terminals in Maizuru and Tomakomai, full-scale demonstration at various transport conditions including low temperature and low pressure (-50℃, 0.6MPaG) are scheduled to start.

Japan CCS Co.,Ltd., under the commissioning of NEDO will carry out the exploration and development of optimal temperature/pressure conditions for the onshore terminal with regard to integrated CO_2 ship transportation through the construction and operation of both onshore terminals, which have liquefaction, storage and cargo handling facilities. Nippon Gas Line Co., Ltd., also under the commissioning of NEDO will utilize its know-how in the operation of coastal gas carriers and carry out data measurements such as CO_2 temperature, pressure, and flow velocity while operating "EXCOOL" and develop optimal transportation and cargo handling methods.

※1 New Energy and Industrial Technology Development Organization
(https://www.nedo.go.jp/english/index.html)

※2 R&D and Demonstration of CO_2 Ship Transportation

[Scenes from demonstration]

・"EXCOOL" berthing at onshore terminal
Liquefied CO_2 is being transferred through the loading arm shown in the middle.

・Manifold onboard "EXCOOL"
Transferring the liquefied CO_2 by connecting the loading arm and ship.

【Inquiries regarding this matter】

Japan CCS Co., Ltd.
International Affairs Dept.
TEL: 03-6268-7387

Nippon Gas Line Co., Ltd.
Planning Dept.
TEL: 03-5148-8855