

September 13, 2024

Japan Petroleum Exploration Co., Ltd.

JGC Holdings Corporation

Kawasaki Kisen Kaisha, Ltd.

JFE Steel Corporation

Mitsubishi Gas Chemical Co., Inc.

Mitsubishi Chemical Corporation

The Chugoku Electric Power Co., Inc.

Nippon Gas Line Co., Ltd.

PETRONAS CCS Ventures Sdn. Bhd.

Commission a CCS engineering design work in Sarawak, Malaysia
as the “Japanese Advanced CCS Projects” in FY2024

Japan Petroleum Exploration Co., Ltd. (JAPEX), JGC Holdings Corporation (JGC HD), Kawasaki Kisen Kaisha, Ltd. (“K” LINE), JFE Steel Corporation (JFE Steel), Mitsubishi Gas Chemical Co., Inc. (MGC), Mitsubishi Chemical Corporation (Mitsubishi Chemical), The Chugoku Electric Power Co., Inc. (EnerGia) and Nippon Gas Line Co., Ltd. (NGL) (hereinafter “Eight Japanese Companies”) signed a contract with Japan Organization for Metals and Energy Security (JOGMEC) for the commissioning of design work, etc. (hereafter, the “Work”) related to the Carbon Capture and Storage (CCS) project to inject and store CO₂ emitted from multiple industries in Japan including the Setouchi area in offshore Sarawak, Malaysia, which is one of the public solicitations regarding the Request for Proposal on the “Japanese Advanced CCS Projects” in the fiscal year 2024 (hereinafter the “Public Solicitation”).

Eight Japanese Companies that signed the contract will proceed with the Work to examine the equipment and costs required for the separation, collection and liquefaction of CO₂ emitted from steelworks, power plant, chemical plant, etc., in Japan. PETRONAS CCS Ventures Sdn. Bhd. (PCCSV) will jointly work with the Eight Japanese Companies (hereinafter “Nine Participating Companies”) to examine equipment and costs required for the marine transport to Sarawak (including domestic marine transportation in the Setouchi area) and the injection and storage of the CO₂.

Please refer to the appendix for an outline of the Work, roles of the Nine Participating Companies and profiles of each company.

JAPEX, JGC HD, “K” LINE, and PCCSV have signed the Key Principles Agreement (KPA) regarding the study of commercializing the CCS project on September 22, 2023*1 and have signed the Storage Site Agreement with PETROLEUM Sarawak BERHAD the Sarawak state-run energy company and the state’s CO₂ storage rights manager on February 26, 2024. To implement the injection and storage of CO₂ from domestic as well as foreign countries such as Japan, JAPEX, JGC HD, “K” LINE, and PCCSV are investigating the profitability of the CCS

project using depleted gas fields off the coast of Sarawak, offshore Malaysia including M3 depleted field as CO2 storage sites by formulating a development plan for the CO2 storage sites including CO2 transportation, onshore terminals and pipelines, and evaluating their technical and commercial feasibility*2.

In addition, on February 26, 2024, JAPEX, JGC HD, “K” LINE, JFE Steel, EnerGia, and NGL (hereinafter “the Six Companies”) have signed a Memorandum of Understanding regarding joint evaluation aiming to establish CCS value chain originated from Japan for the commercialization of the CCS project in Malaysia. The Six Companies are conducting the joint evaluation of required facilities and costs*3 to establish the CCS value chain, from CO2 separation and capture at JFE Steel’s steelworks and EnerGia Group’s power plant to marine transportation (including domestic marine transportation in the Setouchi area) of liquefied CO2 to the receiving point(s) in Malaysia. As the joint evaluation progressed, the Six Companies recognized that their direction of business consideration was in line with those of MGC and Mitsubishi Chemical, which were considering decarbonizing their factories. As a result, the Eight Japanese Companies concluded the contract with JOGMEC.

By promoting the Work with the aim to early commercialize the CCS project, the Eight Japanese Companies will contribute towards carbon neutrality in 2050, including the realization of a decarbonized society in Asia targeted by the “Asia Energy Transition Initiative (AETI)” *4.

*1: Please refer a joint press release “JAPEX, JGC HD, and “K” LINE Sign a Key Principles Agreement with PETRONAS for the maturation and development of the CCS Project in Malaysia” on November 20, 2023.

<https://www.kline.co.jp/en/news/carbon-neutral/carbon-neutral-20231120.html>

*2: Please refer a joint press release “JAPEX, JGC, and “K” LINE Sign a Storage Site Agreement with PETRONAS and PETROS for the CCS Project in Malaysia” on February 29, 2024.

<https://www.kline.co.jp/en/news/carbon-neutral/carbon-neutral-20240229.html>

*3: Please refer a joint press release “The Chugoku Electric Power and Nippon Gas Line Participate in the Joint Evaluation to Establish CCS Value Chain Originated from Japan for the CCS Project in Malaysia” on February 26, 2024.

<https://www.kline.co.jp/en/news/carbon-neutral/carbon-neutral-20240226.html>

*4: The Japanese Government’s initiative announced in May 2021, which aims to achieve sustainable economic growth and carbon neutrality simultaneously in Asia.

[Appendix] Outline of the Work

1) Outline

Storage area	Off the coast of Sarawak, offshore Malaysia
Storage amount	Approximately 1.9~2.9 million tons per year (*)
Emission source	Steelworks, Power plant, and Chemical plant in the Setouchi area
Transportation	Pipelines, domestic coastal boat transportation, oceangoing transportation
Feature of the project	Promote a highly scalable, wide-area project that connects CO2 storage regions with substantial injection potential via marine transportation, targeting a wide range of industries in the Setouchi area.

(*) Assumption storage capacity in 2030 is 5 million tons per year.

2) Each role of the Nine Participating Companies in the Work

JAPEX	Conduct joint technical and commercial studies on CO2 transport and storage by utilizing the experience and expertise of each company in areas such as oil and natural gas exploration and development, CO2 geological storage, plant design and construction, and marine transport of liquefied CO2
JGC	
“K” LINE	
PCCSV(*)	
JFE Steel	CO2 separate, capture facilities in the JFE Steel’s own operation, and liquefy and shipping facilities in the JFE Steel’s premises
MGC	CO2 separate and capture facilities in the MGC’s own operation
Mitsubishi Chemical	CO2 separate and capture facilities in the Mitsubishi Chemical’s own operation
EnerGia	CO2 separate and capture facilities in the EnerGia’s own operation, and liquefy and shipping facilities in the adjacent premises
NGL	Infrastructure for domestic coastal boat transport of liquefied CO2

(*) PCCSV is participating as a joint proponent, not as a contracting party.

[Appendix] Outline of Nine Participating Companies

Japan Petroleum Exploration Co., Ltd. (JAPEX)

Head Office : SAPIA Tower 1-7-12, Marunouchi, Chiyoda-ku, Tokyo

Representative : Representative Director and President, Chief Executive Officer, YAMASHITA Michiro

JGC Holdings Corporation (JGC HD)

Head Office : 2-3-1, Minato Mirai, Nishi-ku, Yokohama-shi, Kanagawa

Representative : Representative Director, Chairman and Chief Executive Officer (CEO), Masayuki Sato

Kawasaki Kisen Kaisha, Ltd. ("K" LINE)

Head Office : 2-1-1, Uchisaiwaicho, Chiyoda-ku, Tokyo

Representative : Representative Director, President & CEO, Yukikazu Myochin

PETRONAS CCS Ventures Sdn. Bhd. (PCCSV) (*)

Head Office : Tower 1, PETRONAS Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur, Malaysia

Representative : Chief Executive Officer, Emry Hisham Yusoff

(*) PCCSV is participating as a joint proponent, not as a contracting party.

JFE Steel Corporation (JFE Steel)

Head Office : 2-2-3, Uchisaiwaicho, Chiyoda-ku, Tokyo

Representative : President and CEO, Masayuki Hirose

Mitsubishi Gas Chemical Co., Inc. (MGC)

Head Office : Mitsubishi Building 2-5-2, Marunouchi, Chiyoda-ku, Tokyo

Representative : Representative Director, President, Masashi Fujii

Mitsubishi Chemical Corporation (Mitsubishi Chemical)

Head Office : 1-1-1 Marunouchi, Chiyoda-ku, Tokyo

Representative : Representative Director, Yasuo Shimodaira
Representative Director, Nobuo Fukuda

The Chugoku Electric Power Co., Inc. (EnerGia)

Head Office : 4-33 Komachi, Naka-ku, Hiroshima-shi, Hiroshima

Representative : Representative Director, President & Chief Executive Officer, Nakagawa Kengo

Nippon Gas Line Co., Ltd. (NGL)

Head Office : 4-12-7 Sanbancho, Matsuyama City, Ehime

Representative : President Yasuhiro Muramatsu