

Development of CCS Regulations in Japan — Necessary Steps to Enable CCS Projects Involving Cross-Border Transport of CO₂

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1. Introduction

Japan recently accelerated the development of legislation and support programmes for carbon dioxide capture and storage ('**CCS**') projects.

On 17 May 2024, the Act on Carbon Dioxide Storage Business ('**CCS Business Act**') was adopted; the act has been phasing into effect since the 5th of August.¹ The CCS Business Act provides a necessary regulatory framework for CCS activities in Japan. Specifically, it establishes a licensing system for CO₂ storage businesses, establishes the right to store CO₂ in reservoirs, obligates storage operators to take necessary measures to ensure public safety, and allows storage operators to transfer monitoring and other management operations to the Japan Organization for Metals and Energy Security ('**JOGMEC**') after storage under certain conditions.

On 28 June 2024, JOGMEC selected nine 'Advanced CCS Projects', which plan to commence operations by 2030, as part of a project by the Ministry of Economy, Trade and Industry (METI) to establish business models for CCS, in connection with Japan's goal to achieve carbon neutrality by 2050². Of the nine Advanced CCS Projects, five are planned to involve domestic storage and four will utilise overseas storage, with the aim of making a final investment decision by FY2026 (ending 31 March 2027). JOGMEC will provide approximately JPY 20 billion in funding for these projects to design facilities for each CCS process (i.e., capture, transport, and storage) and to evaluate the storage potential of the planned storage sites.

However, it is expected that the Japanese government will take additional steps to legalise CCS projects involving CO₂ export from Japan and sub-seabed storage abroad, in particular in connection with the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 ('**London Protocol**') and 2009 amendment to Article 6 of the London Protocol ('**2009 Amendment**'), pursuant to which CO₂ export for sub-seabed storage is permitted only under certain conditions. This newsletter briefly describes the framework for the export of CO₂ for sub-seabed storage under the London Protocol and the 2009

¹ The provisions of the CCS Business Act related to exploration came into effect on 5 August 2024. The provisions related to exploratory drilling will come into effect by 23 November 2024, and those related to CO₂ storage businesses and CO₂ pipeline transport businesses will come into effect by 23 May 2026.

² https://www.jogmec.go.jp/english/news/release/news_10_00072.html

Amendment, outlines possible domestic and international actions that the Japanese government is expected to take, and discusses how businesses planning to be involved in CCS projects involving the export of CO₂ from Japan should follow up on relevant issues.

2. The London Protocol and 2009 Amendment

(1) Sub-seabed CO₂ storage under the London Protocol

The London Protocol, which was adopted in 1996, aims to promote the effective control of all sources of marine pollution. Under the London Protocol, the 'dumping' of 'wastes or other matter' is prohibited, except for items listed in Annex I thereto, the 'dumping' of which is permitted if a permit is obtained. Carbon dioxide falls within the scope of 'wastes or other matter' in the protocol, and 'dumping' includes not only 'disposal into the sea', but also 'storage ... in the seabed and subsoil thereof'. However, the 2006 amendment to the London Protocol added 'carbon dioxide streams from carbon dioxide capture process for sequestration' to Annex I, allowing its disposal into 'a sub-seabed geological formation' with permission.

In order to implement the 2006 amendment to the London Protocol, Japan's Act on Prevention of Marine Pollution and Maritime Disaster ('**Marine Pollution Prevention Act**') was amended in 2007 to introduce a permit system for sub-seabed disposal of carbon dioxide streams.³ However, the permit system for sub-seabed disposal of carbon dioxide streams pursuant to the Marine Pollution Prevention Act was transferred to the CCS Business Act, and the relevant provisions of the Marine Pollution Prevention Act will be deleted upon the entry into force of the provisions related to storage business in the CCS Business Act.

(2) CO₂ Export for sub-seabed storage under the London Protocol and the 2009 Amendment

The export of CO₂ for sub-seabed storage also is regulated in Article 6 of the London Protocol, which prohibits the export of 'wastes or other matter' for 'dumping' (including sub-seabed storage). However, the 2009 conference of the contracting parties to the London Protocol adopted an amendment to Article 6, which creates an exception for the export of CO₂ for sub-seabed storage. Specifically, the following Paragraph 2 was added to Article 6, which allows the export of 'carbon dioxide streams for disposal' into 'a sub-seabed geological formation' when the exporting country and the receiving country have 'an agreement or arrangement' in place:

ARTICLE 6 EXPORT OF WASTES OR OTHER MATTER

- 1 Contracting Parties shall not allow the export of wastes or other matter to other countries for dumping or incineration at sea.
- 2 Notwithstanding paragraph 1, *the export of carbon dioxide streams for disposal in accordance with annex 1 may occur, provided that an agreement or arrangement has been entered into by the countries concerned.* Such an agreement or arrangement shall include:
 - .1 confirmation and allocation of permitting responsibilities between the exporting and receiving countries, consistent with the provisions of this Protocol and other applicable international law; and

³ The CCS large-scale demonstration project in Tomakomai (<https://www.japanccs.com/en/business/demonstration/>), which achieved an injection of 300,000 tons of carbon dioxide, obtained a permit for sub-seabed disposal of carbon dioxide streams in accordance with the Marine Pollution Prevention Act.

- .2 in the case of export to non-Contracting Parties, provisions at a minimum equivalent to those contained in this Protocol, including those relating to the issuance of permits and permit conditions for complying with the provisions of annex 2, to ensure that the agreement or arrangement does not derogate from the obligations of Contracting Parties under this Protocol to protect and preserve the marine environment.

The 2009 Amendment will enter into force if two-thirds of the contracting parties (36 of 54 countries) accept the amendment,⁴ but as of August 2024, only 11 countries have done so. Against this background, in 2019, the contracting parties adopted a resolution allowing for provisional application of the 2009 Amendment if countries deposit a declaration on provisional application of the amendment with the International Maritime Organization ('IMO'). So far, eight, mainly European, countries have declared provisional application of the 2009 Amendment, so the 2009 Amendment applies provisionally to these countries.

Table 1: Acceptance of the 2009 Amendment and declaration of provisional application

Contracting Party	Acceptance of 2009 Amendment	Declaration of Provisional Application
Norway	2011	2020
United Kingdom	2011	2022
Kingdom of the Netherlands	2014	2020
Islamic Republic of Iran	2016	-
Finland	2017	-
Estonia	2019	-
Sweden	2020	2022
Denmark	2022	2022
Republic of Korea	2022	2022
Belgium	2022	2022
Switzerland	2024	2024

Japan has not accepted the 2009 Amendment and has not made a declaration of provisional application. On 24 May 2024, Japan's Diet approved acceptance of the 2009 Amendment; however, this was only a preliminary domestic procedure. The Japanese government is expected to develop domestic regulations for implementation of the 2009 Amendment⁵ before depositing an instrument of acceptance, as well as a declaration on provisional application of the 2009 Amendment, with the IMO.

(3) Bilateral Agreements/Arrangements between Contracting Parties

As described above, Article 6.2 of the London Protocol permits the export of CO₂ for sub-seabed storage purposes only when 'an agreement or arrangement' has been executed between the exporting country and the receiving country. The bilateral arrangements signed to date are shown in the table below.⁶

⁴ Article 21.3 of the London Protocol.

⁵ The CCS Business Act contains no provisions related to CO₂ export; therefore, it is necessary to establish domestic regulations for implementation of the 2009 Amendment.

⁶ The table is based on documents available on the IMO website. An arrangement reportedly was signed between Denmark and the Netherlands in October 2023, but as of August 2024 it has not appeared on the IMO website.

Table 2: Bilateral arrangements between contracting parties

Contracting parties	Time of Signature	Notification to the IMO
Belgium and Denmark	December 2023 ⁷	February 2024
Norway and Belgium, Denmark, Netherlands, and Sweden	April 2024	June 2024

It is noteworthy that Norway, which is developing a leading sub-seabed storage project called Northern Lights⁸, already has reached arrangements with multiple countries. This suggests that cross-border transport of CO₂ around the North Sea will accelerate, with Norway as the receiving country.

With the Japanese Diet's approval of acceptance of the 2009 Amendment, the Japanese government also is expected to proceed with negotiations of bilateral agreements or arrangements with potential CO₂ receiving countries.

3. Next Steps for Businesses

As described in this newsletter, the export of CO₂ for sub-seabed storage is regulated by the London Protocol and the 2009 Amendment. Japan has taken the first step toward cross-border transport of CO₂ for sub-seabed storage, with the Diet's approval of acceptance of the 2009 Amendment. However, additional actions by the Japanese government are necessary for CCS projects involving the export of CO₂ from Japan to move forward legally; these steps include development of domestic regulations for implementing the 2009 Amendment, depositing an instrument of acceptance and a declaration on provisional application of the 2009 Amendment with the IMO, and entering into bilateral agreements or arrangements with one or more CO₂ receiving countries. Thus, businesses intending to engage in CCS projects involving the export of CO₂ from Japan are advised to keep a close eye on the progress and details of these endeavours.

The Japanese government also needs to address a number of issues to facilitate or support CCS projects involving sub-seabed storage of CO₂ abroad. One example is how to reflect the export and overseas sub-seabed storage of CO₂ in Japan's national inventory reports (NIR) and nationally determined contributions (NDCs) under the Paris Agreement. These issues may be particularly problematic in negotiations with CO₂ receiving countries, with regard to which country should benefit from the emissions reductions or removals attributable to CCS projects. Japan has been using emissions reduced in developing countries through the Joint Crediting Mechanism (JCM) to achieve Japan's emissions reduction targets, but in the case of overseas sub-seabed storage of CO₂, a new framework may be needed, as the recipient country also could bear certain burdens, including post-storage management operations.

It is worth noting that, unlike in Europe, Asian countries have yet to develop an institutional environment that promotes CCS projects. No Asian country other than the Republic of Korea has accepted or declared

⁷ According to the notice provided to the IMO, the MOU signed in December 2023 takes precedence over the MOU signed in September 2022.

⁸ <https://norlights.com/>



provisional application of the 2009 Amendment,⁹ and a non-party to the London Protocol is expected to be selected as the recipient of CO₂ exported from Japan. In addition, there are no common emissions trading systems in Asia, whereas the EU has operated the EU Emissions Trading System (ETS) for many years. Therefore, businesses involved in CCS projects that export CO₂ from Japan are advised to pay close, ongoing attention to the manner in which Japan shapes the rules governing CCS projects in the region, taking into account these characteristics of the Asian market.

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⁹ See, Table 1 above.