

# **Japan's CCS Policy and International Collaboration**

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## Japan's Long-Term Roadmap

#### [Basic principles]

To implement CCS systematically and rationally to promote the sound development of CCS business in Japan with minimal social costs, thereby contributing to the development of Japan's economy and industry, securing a stable energy supply, and the achievement of carbon neutrality.

#### [Objectives]

A business environment for commencement shall be prepared by 2030, involving cost reduction, public understanding, overseas CCS promotion, and CCS Business Act legislation, based on the rough estimation of enabling CO2 storage of about 120 to 240 million tons as of 2050, and full-scale CCS business shall deploy after 2030.



#### [Specific actions]

- (1) Government support for CCS business
- (2) Efforts for reducing CCS costs
- (3) Promotion of public understanding of CCS business
- (4) Promotion of overseas CCS business
- (5) Examination for the development of the CCS Business Act (tentative name)
- (6) Formulation and review of the CCS Action Plan

## Purpose of advanced CCS program

- To secure annual storage of 120-240 million tons of CO2 by 2050, A business model for CCS that can crosssectoral should be established at an early stage. Thus, Japanese government selected "Advanced CCS projects" led by operators and will actively support them.
- This supporting program will establish various CCS business models by supporting projects with different combinations of CO2 source, transportation methods and CO2 storage areas. Furthermore, it aims to secure 6-12 million tons of CO2 storage per year by 2030.
- This year, this program will provide support for the analysis of this geologic data and feasibility study.

CO2 sources	Transport methods	CO2 storage areas
Thermal power plant Steel plant	Dipolino	Onshore
Chemical plant	Pipeline	Nearchara
Cement plant	Shin	inear shore
Paper plant	Ship	Offebore
Hydrogen plant etc.		Onshore

#### Possible types of CO2 source, transport methods, and CO2 storage areas

## Locations of the selected projects and companies



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## The Policy on Regulatory Measures for CCS Business (1)

#### (1) Measures to ensure stable storage of CO2

- "Storage right" will be created as the right to store CO2 in a reservoir, and "prospecting right" will be created as the right to drill to confirm whether CO2 can be properly stored, and will be subject to licensing by the Minister of Economy, Trade and Industry.
- "Storage right" and "prospecting right" shall be offered to the open bid in Japanese Mining Law, in order to select the party that can be most appropriate subject to carry out the storage project adequately.
- "Storage right" and "prospecting right" are deemed property rights, allowing to avoid third party interference by involving these rights, etc.
- In case of an accident or other incident resulting from storage operations, compensation liability shall be based on strict liability, in which the operator is liable regardless of intentional or negligent conduct, in order to provide relief to the victim.

#### (2) Regulations for storage operators

- "Implementation plans" for storage project shall be subject to approval by the Minister of Economy, Trade and Industry.
- "Monitoring obligation" is imposed for storage operator to ensure that CO2 is being stored as expected and that there is no leakage.
- Storage operators prohibited from refusing storage requests from CO2 emitters without justifiable reasons and treating them in a discriminatory manner, are obliged mortify "fees and other conditions" to Minister of Economy, Trade and Industry.
- Storage operators must comply with safety regulations, including the obligation to comply with technical standards and notify construction plans to Minister of Economy, Trade and Industry.

## The Policy on Regulatory Measures for CCS Business (2)

#### (3) Transfer of management of storage site to JOGMEC

- In order to promote active participation in the storage business, the management and other operations at the storage site will be allowed to be transferred to JOGMEC if certain requirements are met, such as stable CO2 behavior after the injection is completed.
- Storage operators required to secure allowance for management and operations by injection.
- In order to secure the fund for the management and other operations performed by JOGMEC, storage operators are required to deposit contribution into a fund which JOGMEC will establish.

#### (2) Regulations for Pipeline Transport Operators

- Pipeline operators prohibited from refusing transport requests from CO2 emitters without justifiable reasons and treating them in a discriminatory manner, are obliged mortify "fees and other conditions" to Minister of Economy, Trade and Industry.
- Pipeline operators must comply with safety regulations, including the obligation to comply with technical standards and notify construction plans to Minister of Economy, Trade and Industry.

## **Asian CCUS Network**

In June 2021, the Asia CCUS Network (ACN), an international industry-academia-government platform, was established as part of AETI. It aims to share knowledge and develop a business environment for CCUS utilization throughout Asia where large-scale CO<sub>2</sub> storage potential is expected.



## The 3rd Asia CCUS Network Forum

The 3rd Asia CCUS Network Forum held several activities focusing on the practical aspect of CCUS: discussion on CCUS importance and global trends, Asia-wide CCUS projects, and a signing ceremony of several memorandums of understanding (MOUs) regarding CCUS, which are developing import/export mechanism of CO2 and knowledge sharing CCS technology. The Asia CCUS Network will continue to support the expansion of CCUS deployment in Asia as a platform.



## Joint Statement for 3<sup>rd</sup> Asia CCUS Network Forum

#### c) Action plan (excerpt)

- 2. The Asia CCUS Network recognizes the importance of a legal and regulatory framework at the national and regional level, the economics of CCUS in realizing CO2 trade, and the challenges of these issues as a platform of CCUS in Asia...
- Therefore, the CCS and CO2-EOR guidelines published by the Japan Organization for Metals and Energy Security (JOGMEC), will be useful for Asian countries who are seeking to expand CO2-EOR projects for their own energy security and transition.
- 4. The Network will also study the appropriate institutional designs of financing and carbon credit in Asia with the cooperation of related organizations.

The Asia CCUS Network will contribute to the initiating of decarbonization projects introducing CCUS in the Asia Pacific region through cooperation from SEACA promoted by GCCSI and the ASEAN Centre for Energy (ACE).



# MOC on the cross-border of CO2 transportation between METI, JOGMEC and PETRONAS

- **Outline** : In order to undertake CO2 transboundary to Malaysia, it is necessary to discuss the establishment of rules and a method for calculating CO2 reductions between the two countries. METI, JOGMEC, and PETRONAS signed the MOC to promote discussions on CO2 transboundary transport and storage.
- **Purpose of MOU** : The signed MOC aims to promote discussions on the bilateral cross-border of CO2 transportation and storage, which will contribute to greenhouse gas reduction.

URL : https://www.meti.go.jp/english/press/2023/1006\_002.html



## **Project of advanced monitoring systems for CCS**

- Large-Scale Demonstrative Verification in Cooperation with Overseas Institutions
- Fiber-optic monitoring and measurement systems are to be demonstrated in the US (EERC) and Australia (CSIRO and CO2CRC).



#### SW Hub demonstration site in Western Australia and Australia Otway, Victoria, Australia

(An LOI has been concluded between RITE and CSIRO, and an MOU between RITE and CO2CRC)



Field tests for stability evaluation of faults in deep formations

#### Objectives of this project

- Stability evaluation of faults
- Shallow fault leakage monitoring technique





## **Tomakomai CCS Demonstration Project**

- Demonstrate full-chain CCS system from capture to storage
- Disclose project information & data and enhance understanding of CCS by residents
- Last September, MOU on technical collaboration has been concluded between Japan CCS and Victorian government





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## Japan's contribution toward CCS value chain

 Japan is the only country that has various technology related to the CCS value chain, such as CO2 capture, transport and storage.

