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Oil, Gas & Energy Law Intelligence

Recent Development of New Legal System for CCS Projects in Japan by Y. Otsuki

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Recent Development of New Legal System for CCS Projects in Japan

Yoshiaki Otsuki¹

Abstract

The Japanese media has recently reported that a new bill named as the “CCS Business Act (title being tentative)” is expected to be submitted to the regular session of the National Diet of Japan in 2024. This plan of a bill of “CCS Business Act” is one of the outcomes of the discussion by the Japanese government towards the commercialization of carbon capture and storage (“CCS”) projects over these last few years with a view to achieving the goal of becoming “carbon neutral”. The Ministry of Economy, Trade and Industry (“METI”) has led the discussion for formulating the said “CCS Business Act” by referring to precedents in overseas countries such as the EU. In this article, we provide some of our thoughts regarding the concept of the “CCS Business Act” based on the already published government documents and announcements available so far.

I. Introduction

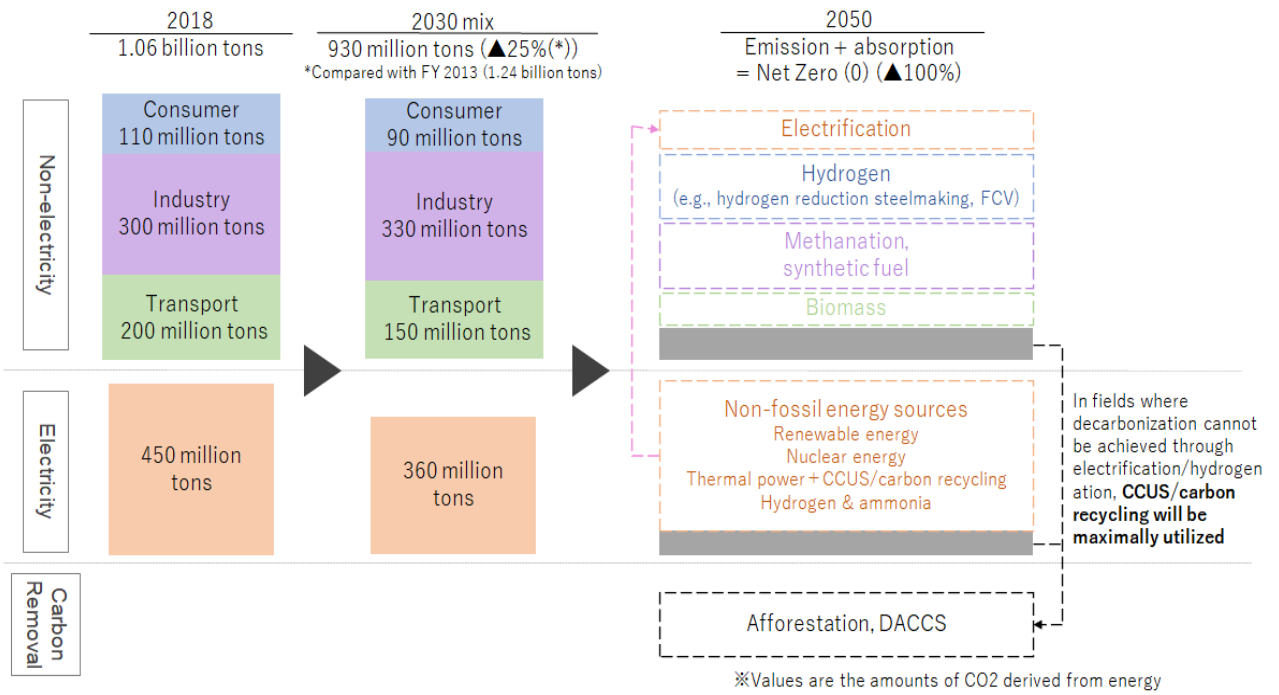
As the starting point of the CCS project in Japan, the 6th (Sixth) “Strategic Energy Plan” formulated by the Japanese government in 2021, which is the latest Strategic Energy Plan of Japan, names CCS as a key component essential for the Japanese government’s plan to achieve Japan’s goal of “carbon neutrality” by 2050, as set out below:

“The Japanese government will proceed with the establishment of CCS technology and its cost reduction for CCS, as well as development of suitable sites for CCS and creation of an environment for monetization of CCS. To this end, a long-term roadmap needs to be formulated and shared with stakeholders. In order to establish CCS technology and reduce the costs thereof, we will conduct research and development of technology to separate and capture CO₂, as well as its verification. We will also promote research and development for technology for the storage of CO₂, automation of monitoring of storage of CO₂, as well as cost saving for drilling, storage and monitoring of CCS. The Japanese government also plans to conduct a demonstration test of transporting liquefied CO₂ by ship, with the aim of implementing a low-cost and efficient CCS framework. Furthermore, we will work together with the public and private sectors to build a model basis for the reuse of CO₂ and network optimization between CO₂ storage sites. In addition, for the purpose of development of suitable sites for CCS projects, we will promote the evaluation of the potential of storage layers and other relevant studies, by taking into account economic efficiency and social acceptability. Overall, by referring to the movements in overseas CCS projects, we will have to promote the development of an environment for monetization of CCS in Japan.”

The overall function of CCS in achieving the goal of “carbon neutrality by 2050” is illustrated as follows in a document prepared by a study group created by METI, titled the “Final Report

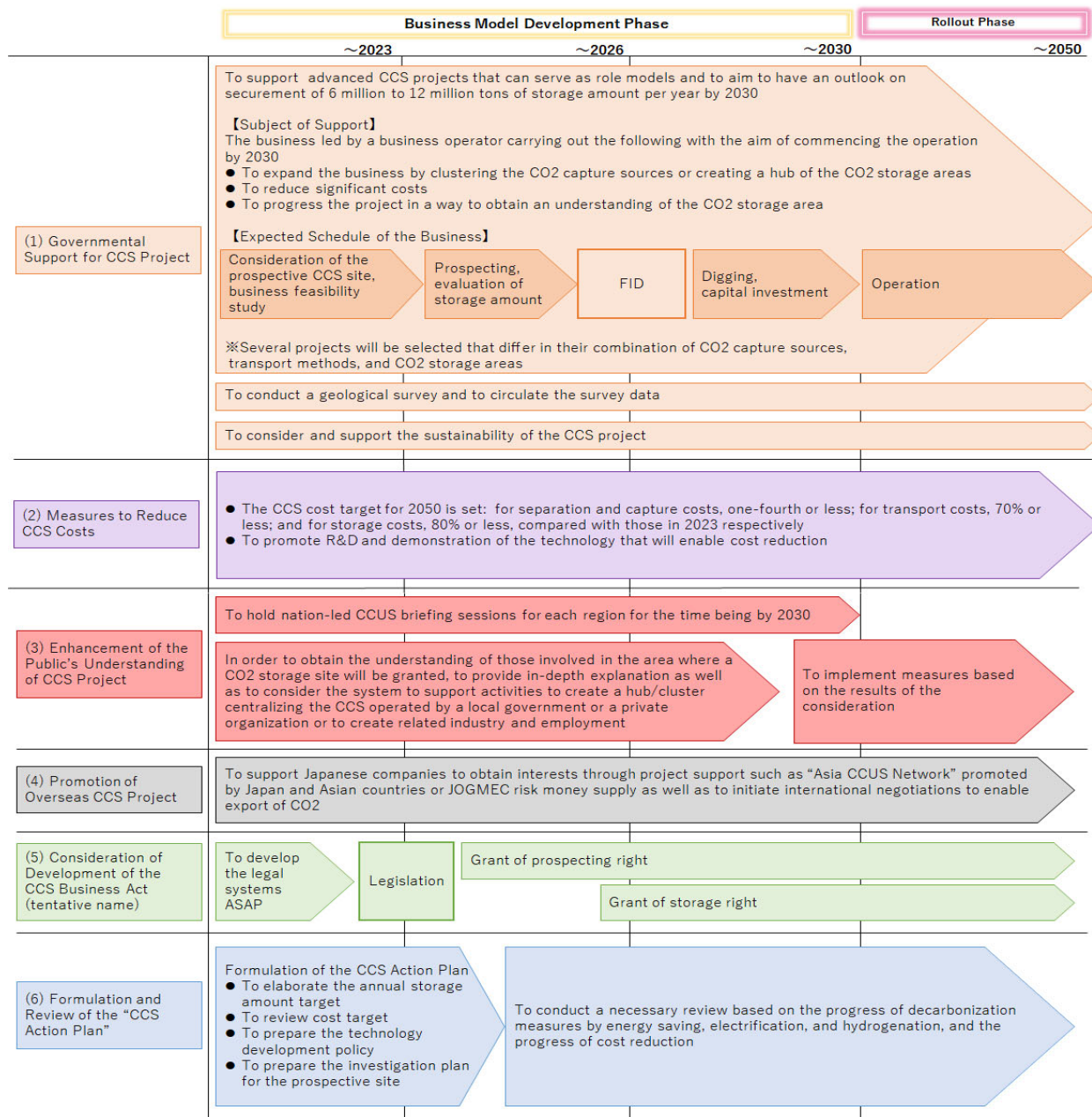
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by Study Group of Long-term CCS Roadmap” (the “Final Report”):



Source: Page 7 of Final Report by Study Group of Long-term CCS Roadmap of Japanese government, dated March 2023

The Final Report further illustrates the detailed roadmap up to 2025 for the development of CCS projects as follows:



Source: Page 12 of Final Report by Study Group of Long-term CCS Roadmap of Japanese government, dated March 2023

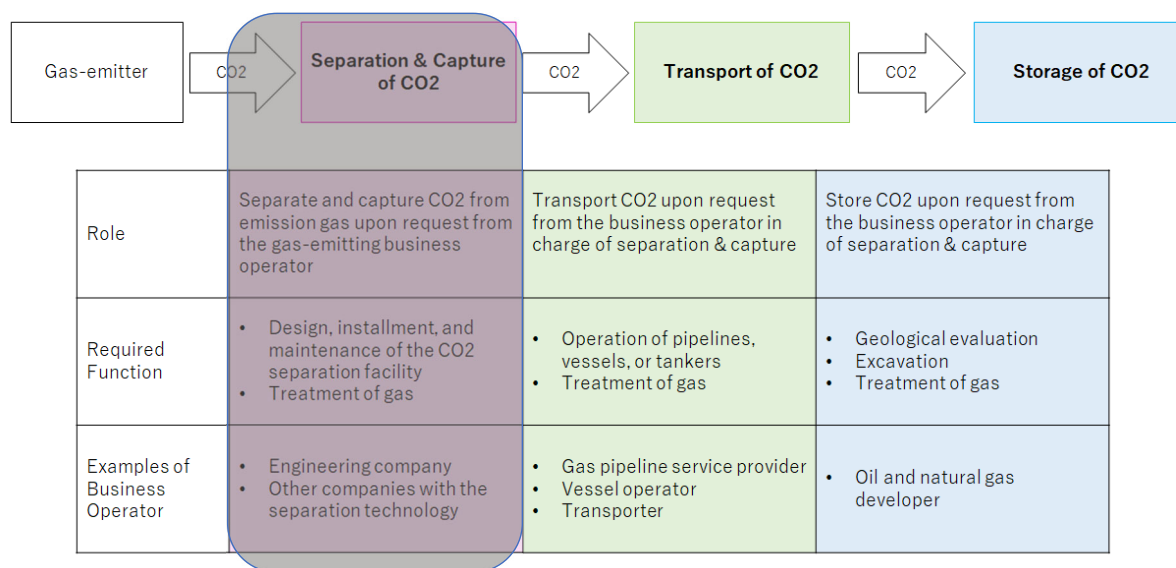
As of the start of 2023, however, the Japanese government came to the realization that time was running short and they would not be able to proceed with its roadmap in accordance with the timeline set out in the above chart. Under such circumstances, the Japan Organization for Metals and Energy Security (“JOGMEC”), an independent administrative agency under the control of METI, conducted a public tender bid for a research project for some “promising” CCS projects in March 2023 and identified the following seven projects as “advanced” CCS

projects inside and outside Japan.

	Project	Region	Volume of Storage	Type of Storage	CO ₂ Emission
1	Tomakomai	Tomakomai in Hokkaido, Japan	Approximately 1.5 million tons/year	Oil/Gas Fields or Aquifers	Refinery and Power Plant in Tomakomai
2	Coastal area of Tohoku	Tohoku, Japan	Approximately 2 million tons/year	Marine Aquifers	Whole area of Japan, including steel works, cement plants and other industry
3	East Niigata	Niigata Prefecture, Japan	Approximately 1.5 million tons/year	Existing Oil/Gas Fields	Chemical, paper and power plants in Niigata area
4	Metropolitan Tokyo	Tokyo Region, Japan	Approximately 1 million tons/year	Marine Aquifers	Industries including steel works within Tokyo area
5	North and west coast of Kyushu	Coastal area of Kyushu	Approximately 3 million tons/year	Marine Aquifers	Industries of Setouchi and Kyushu area. Refineries and thermal power plants in west area of Japan
6	Offshore east coast of Malay Peninsula	Offshore east coast of Malay Peninsula, Malaysia	Approximately 2 million tons/year	Depleted Oil/Gas fields and Aquifers	Industries including chemical and oil refining in Kinki and Kyushu regions
7	Oceania	Oceania	Approximately 2 million tons/year	Depleted Oil/Gas fields and Aquifers	Industries including steel works in Chubu area

The Final Report was made public on March 10, 2023, accompanied by an attached blueprint document titled “Discussion on the Concept of ‘CCS Business Act’ (*tentative title)” (the “**Blueprint Document**”).

Thereafter, as of January 29, 2024, an updated report was made available to the public as formulated by METI to illustrate the big picture of the upcoming “CCS Business Act”, which has reflected the recent discussion by the government with respect to the Blueprint Document (the “**Updated Report**”). According to the description in the Updated Report, the scope of the upcoming “CCS Business Act” will eliminate the aspect of “separation & capture” phase, and will be confined to the latter two phases: “transport” and “storage” of CO₂, as illustrated below:



Source: Page 10 of the Blueprint Document of “CCS Business Act (Tentative Title)”, dated March 2023

I provide my thoughts about the concept of the “CCS Business Act” discussed in the Blueprint Document and the Updated Report in the following sections.

II. Concept of the “CO₂ Storage Right” under the “CCS Business Act”

1. Differences with Mining Rights under the Mining Act

The Blueprint Document and the Updated Report set out a new concept, that of the “CO₂ Storage Right”, as one of the fundamental concepts under the “CCS Business Act”. The “CO₂ Storage Right” is defined as the right to conduct a business for the storage of CO₂ as a part of the CCS projects. These government documents indicate that this “CO₂ Storage Right” should be subject to a legal system which is similar to that of the existing mining rights under the Mining Act.² In my view, this approach looks reasonable when compared with the various approaches in foreign countries where CCS projects are active or developed, including the EU.

The following key matters are being discussed and written down in the Blueprint Document and the Updated Report as of January 29, 2024 in the drafting of the “CCS Business Act”:

a. Nationality of Holder of “CO₂ Storage Right”

The current Mining Act requires the holder of a mining right to be a Japanese national or a Japanese corporation.³ Noting the Blueprint Document’s position on the “public” nature of CCS business, it may be appropriate to include a similar “nationality” requirement for the holder of the “CO₂ Storage Right”. However, the Updated Report as of January 29, 2024 does not refer to the nationality of a right holder of the “CO₂ Storage Right”, which issue must be watched out for in the upcoming new bill of “CCS Business Act”.

b. Duration of “CO₂ Storage Right”

The duration of a “CO₂ Storage Right” should also be carefully considered. The duration of a prospecting right for oil and natural gas under the current Mining Act is four (4) years plus another four (4) years (if extended twice); being eight (8) years at maximum.⁴ The prospecting right (“*Shi-kutsu-ken*”) for CO₂ storage business may have the same time limitation of eight (8) years, as indicated in the Blueprint Document.

On the other hand, the duration of the “Storage Right”, which is the absolute right to “store” CO₂ after prospecting, will also need to be considered. There is no limit to the duration of a digging right (“*Sai-kutsu-ken*”) under the Mining Act, in that a digging right is an absolute right to mine the resources after prospecting under the Mining Act. However, in contrast a CCS project injects and stores a finite quantity of carbon dioxide, rather than extracts minerals, and accordingly, a similar indefinite duration may not be appropriate for a “CO₂ Storage Right”.

However, the Updated Report as of January 29, 2024 does not refer to the duration of a “CO₂ Storage Right”, which issue must be watched out for in the upcoming new bill of “CCS Business Act”.

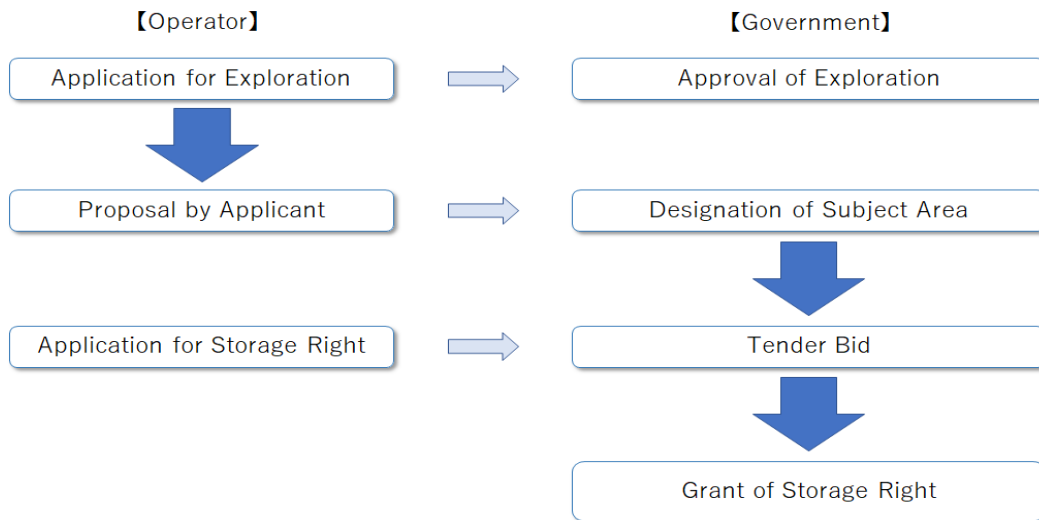
² Page 13 of the Blueprint Document.

³ Article 17 of the Mining Act of Japan.

⁴ Article 18 of the Mining Act of Japan.

c. Application Process for “CO₂ Storage Right”

The Blueprint Document indicates that the “CO₂ Storage Right” should be selected by a tender bid process hosted by METI.⁵ This is similar to the situation regarding “specified minerals” under Article 38 of the Mining Act to which the “first-to-file” principle thereunder does not apply.⁶ The conceived procedure from application until grant of the “CO₂ Storage Right” is illustrated as follows:



Source: Page 16 of the Blueprint Document of “CCS Business Act (Tentative Title)”, dated March 2023

The Updated Report as of January 29, 2024 follows the discussion in the Blueprint Document above regarding the application process for a “CO₂ Storage Right”, and it will be provided in the upcoming bill of “CCS Business Act”.

d. Criteria for Grant of “CO₂ Storage Right”

In respect of the criteria for the grant/approval of the “CO₂ Storage Right”, the Blueprint Document indicates that an applicant for a “CO₂ Storage Right” must demonstrate that it has sufficient financial and technical expertise to undertake the reasonable development of a CCS⁷ project. In this regard, the “public” nature of the “CO₂ Storage Right” will again have to

⁵ Page 16 of the Blueprint Document.

⁶ A summary of the application process for a mining right (a prospecting right or a digging right) under the Mining Act is as follows. By way of background, the Mining Act distinguishes between general minerals and other minerals that are deemed especially important to the Japanese economy, the latter of which are referred to as “specified minerals”. The ‘preservation’ issue of a preferred status to be given to a pending application differs based on whether or not the application is for “specified minerals”. In respect of minerals other than “specified minerals”, a “first-to-file” principle applies, whereby the applicant who first files the application for a mining right is given precedence over any other persons in respect of the area subject to the application. In contrast, this “first-to-file” principle does not apply to “special minerals”, since they are essential to the Japanese economy and thus the Japanese government’s policy is to grant the mining rights for such “specified minerals” only to applicants with sufficient capacity to fully develop such “specified minerals”. In short, in respect of “specified minerals”, METI will select a suitable developer via a tender bid, and the “first-to-file” principle does not apply.

⁷ By contrast, the criteria for the grant of a mining right (a prospecting right or a digging right) under the Mining Act are summarized as follows:

- (i) the applicant has sufficient financial capacity and technical expertise;
- (ii) the applicant is of good standing, and is not disqualified due to any historical violations of Japanese law;
- (iii) the subject area does not conflict with any other existing mining rights (if relevant);

be taken into account. Specifically, it is arguable if certain relevant documents, such as the financial statements of the applicant, should be required for the purpose of demonstrating the financial capacity of the applicant for a “CO₂ Storage Right” in consideration of the “public” nature of CCS projects.

However, the Updated Report as of January 29, 2024 does not refer to the criteria for the grant/approval of the “CO₂ Storage Right”, which issue must be watched out for in the upcoming new bill of “CCS Business Act”.

e. Special Treatment for Existing Mining Right Holders

The Blueprint Document refers to a type of special treatment applicable to existing mining right holders as follows⁸:

“By looking at the overseas cases, a mining right holder should use a depleted oil/gas field as a possible CO₂ storage site. In this case, some problems may arise if the holder of a “CO₂ Storage Right” is different from a mining right holder of the same site. Specifically, given that a mining right holder has sufficient knowledge of the geological information of the site under the mining right, it is highly likely that the mining right holder will win the bid for the purpose of selection of the CCS operator on the site. As such, a proper legal system should be set out by which a mining right holder may be able to skip the bid process if the mining right holder actually operates the mining activity on the site to be subject to the CCS project.”

The Blueprint Document further elaborates the issues of the special treatment for an existing mining right holder as follows⁹:

“We hereby assume a case where captured CO₂ will be stored in a depleted oil and gas field that has actually been developed. In this case, the mining right holder over such depleted oil and gas field will have to be granted the relevant “CO₂ Storage Right” for the following reasons: from the perspective of designing, operating and monitoring wells and facilities for storage of CO₂ in the depleted oil and gas field, the mining right holder thereof should have the most and best information and knowledge on the geology of that field. On the other hand, if the selection of the “CO₂ Storage Right” will be subject to a pure bidding process among candidates, it is possible that a third party other than the mining right holder may win the bid. This means that the existing mining right holder may hesitate to release the depleted field as a storage site for CO₂. This will hinder proper and smooth development of CO₂ storage site in Japan. Furthermore,

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- (iv) the contemplated mining activity is expected to have a certain level of ‘economic value’, where the ‘economic value’ will involve the value of the relevant mineral and the estimated quantity of the deposit;
 - (v) the contemplated mining activity is not contrary to the general interests of the public; provided that METI will consider, amongst other things, whether the contemplated mining activity will result in any irreparable harm to the environment, public health or public facilities, including cultural assets, public parks or hot springs; and
 - (vi) the contemplated mining activity is consistent with the economic and public interests of Japan. In this regard, METI will consider whether the contemplated mining activity is likely to negatively impact the economy or social well-being of Japan. For instance, if the contemplated mining activity gives rise to a pricing manipulation of the subject mineral or it harms the relevant supply chains around the subject mineral within Japan, then this criterion would not be satisfied.

⁸ Page 16 of the Blueprint Document.

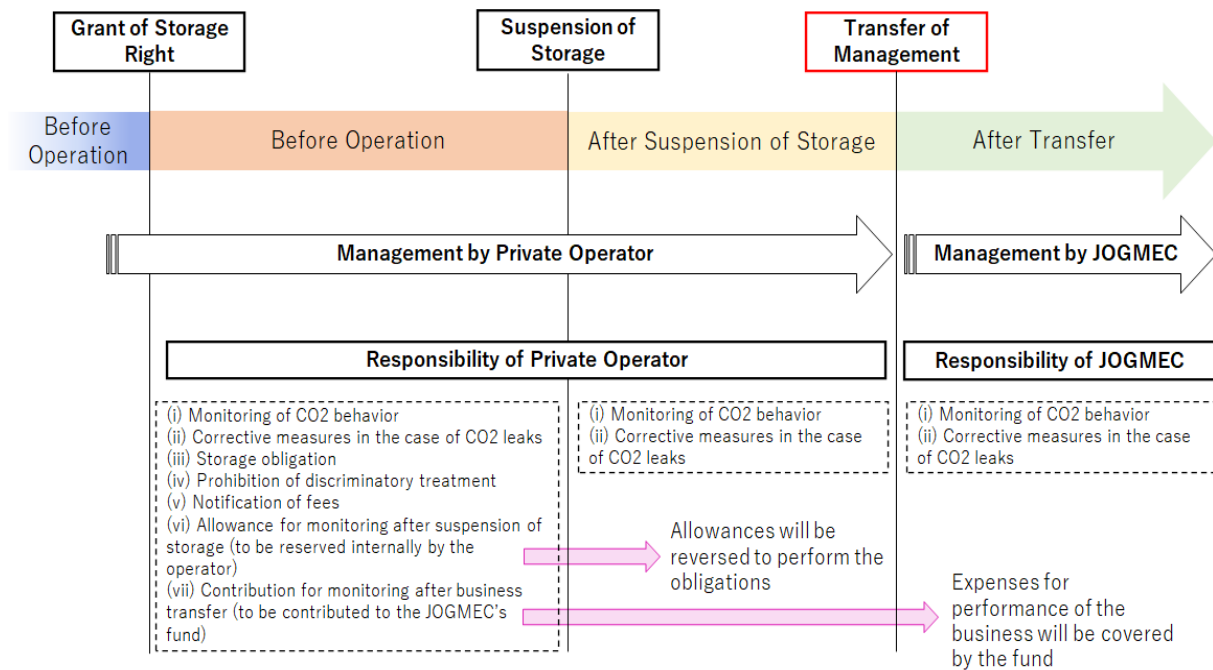
⁹ Page 17 of the Blueprint Document.

this kind of concern with respect to special treatment for an existing mining right holder is already discussed in other countries.”

The Updated Report as of January 29, 2024 follows the discussion in the Blueprint Document above regarding the special treatment applicable to an existing mining right holder, and it will be provided in the upcoming bill of “CCS Business Act”.

f. Transfer of Responsibility to the State

The Updated Report discusses the issue of transfer of responsibility to the state upon closure of storage site, just as the other countries discuss likewise. The following chart shows the big-picture of such transfer scheme using JOGMEC as the governmental agency:



Source: Page 16 of the Draft of “Proposed Legal Regime for CCS Business”, dated November 2023

g. Liability for Mine Pollution, etc.

In respect of the responsibility for mine pollution, Article 109 of the current Mining Act provides a strict liability to be imposed on a mining operator if and when any mine pollution occurs. However, it is arguable whether this theory of a strict liability for mine pollution should also be applicable to a “CO₂ Storage Right,” although the Blueprint Document and the Updated Report indicate that a similar principle should be adopted for CCS projects. It is notable that the Blueprint Document and the Updated Report also direct that a CCS operator should be held mainly responsible in respect of the risks arising from CCS projects.¹⁰ In consideration of the “public” nature of the CCS business as mentioned above, I believe that further discussion is needed in respect of the share of responsibilities among the stakeholders who participate in CCS projects.

¹⁰ Page 26 of the Blueprint Document and page 26 of the Updated Report.

h. Permit for Exploration Activities to Locate a Site for CCS

Additionally, the Blueprint Document assumes that exploration activities to locate a suitable site for CCS projects must be subject to approval by METI.¹¹ Under the current Mining Act, only the method of exploration by artificial earthquakes requires the approval of METI if conducted in a terrestrial area. No other exploration activities, such as magnetic surveys on site, require approval by METI. The Updated Report as of January 29, 2024 follows the discussion in the Blueprint Document above regarding the permit system over exploration activities, and it will be provided in the upcoming bill of “CCS Business Act”.

2. Security Issues in Respect of CCS Sites

The Blueprint Document refers to the following security issues in respect of the CCS business¹²:

“Ensuring security is essential to CCS operations. In particular, in the CO₂ storage business, it is necessary to pressurize CO₂ and store it underground, and therefore, there is a risk that salt water will be released from observation wells used to monitor underground conditions. As a gas, CO₂ is heavier than air and invisible, so we must avoid the risk of suffocation. Additionally, when storing CO₂, it is necessary to adjust the pressure so as not to destroy the shielding layer that prevents CO₂ from reaching the ground. Unless sufficient consideration is given to safety both underground and above ground, it will not be possible to smoothly develop a CO₂ storage site based on the understanding of residents in the surrounding area and workers of the site. As such, procurement of security is extremely important to the operation of CCS projects. Specifically, more effective procurement of security methods should be considered by carefully identifying the possible risks for each situation.”

The Updated Report as of January 29, 2024 basically follows the discussion in the Blueprint Document above regarding security issues of CCS sites, and it will be provided in the upcoming bill of “CCS Business Act”.

3. Land Use Right for CCS Sites

The Blueprint Document mentions the land use right necessary for CCS projects as follows¹³:

“The “CO₂ Storage Right” legally guarantees the exclusive right to use underground structures. However, the “CO₂ Storage Right” is not a right attached to land. Therefore, a CCS operator should assume that it will coordinate the use of the land with the landowner. As for the CO₂ storage business, there is a limit to the area that can be used for the CO₂ storage business because it utilizes a specific underground structure. In order for our country to achieve carbon neutrality in the future, we need to promote monetization of CCS. In some exceptional cases, a legal system such as use or forfeiture of the CCS sites and land in the vicinity will need to be established, by taking into account the public nature of CCS projects.”

¹¹ Page 15 of the Blueprint Document.

¹² Page 18 of the Blueprint Document.

¹³ Page 34 of the Blueprint Document.

The Blueprint Document refers to the right to be given to a holder of a “CO₂ Storage Right”, or any applicant thereof, to temporarily enter the site for the purpose of survey and construction as follows¹⁴:

“In order to install various facilities necessary for CO₂ storage operations, the CCS operator may need to enter the land of a third party or cut down trees for surveying, field investigation and construction. On the other hand, from the perspective of balancing the entitlement of the landowner, we will have to provide opportunities for the landowners to submit their opinions, and the law should also set out the obligation of the person who entered the site, i.e., the CCS operator (or the applicant for “CO₂ Storage Right”, as the case may be) to compensate the landowners for the losses suffered by them.”

The Blueprint Document refers to the right to be given to a holder of a “CO₂ Storage Right” upon grant of the same use and forfeiture of the lands subject to the “CO₂ Storage Right” and adjacent lands thereto as follows¹⁵:

“There are a limited number of underground structures that can store CO₂ inside the country. In other words, there are geographical and spatial limitations. Even if there is an underground structure that can be used for storage of CO₂, development of a CO₂ storage site is prohibited if there is no capacity above ground to install the necessary facilities and equipment. In order to achieve “carbon neutrality by 2050,” it is necessary to smoothly and quickly monetize CCS projects and develop and operate CO₂ storage sites in Japan. Therefore, if the operation of CCS is subject to strong geographical restrictions, the CCS operator should be able to use another person’s land, subject to proper conditions. However, even in this case, it should be limited to certain exceptional cases, such as where it is extremely difficult to replace the land with other land. Furthermore, if it is extremely difficult to restore the land to its original condition due to fundamental changes in the character of the land caused by the CO₂ storage operations, forfeiture in exchange for monetary consideration should be considered, from the viewpoint of benefit for the landowner.”

The Blueprint Document suggests granting the following authorities to the holder of a “CO₂ Storage Right”, so that he/she will be able to use or forfeit the land necessary for the CCS project as follows¹⁶:

	Use of Land	Forfeiture of Land
Person entitled	Holder of the “Prospecting Right” for CCS	Holder of the “CO ₂ Storage Right” upon prospecting
Key conditions for authority to be given	Procurement of alternative site is extremely difficult	It is extremely difficult to restore the land to its original condition due to fundamental changes in the character of the land caused by the CO ₂ storage operations

¹⁴ Page 34 of the Blueprint Document.

¹⁵ Page 35 of the Blueprint Document.

¹⁶ Page 35 of the Blueprint Document.

Purpose of use under the authority	<ul style="list-style-type: none"> (i) Opening of wellhead and wellbore; (ii) Installation of necessary mechanical equipment for exploration; (iii) Installation of mechanical equipment related to CO₂ injection or CO₂ storage; (iv) Installation of CO₂ transport pipes, roads, ports, irrigation channels, or electrical facilities; (v) Facilities necessary for the prevention or recovery of mine pollution; or (vi) Installation of an office for CO₂ storage operations or lodging or health and hygiene facilities for persons engaged in CO₂ storage operations. 	<ul style="list-style-type: none"> (i) Opening of wellhead and wellbore; or (ii) Installation of CO₂ transport pipes, roads, ports, irrigation channels, or electrical facilities.
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The Updated Report as of January 29, 2024 follows the discussion in the Blueprint Document above regarding the issues of land use right for the purpose of CCS business, and it will be provided in the upcoming bill of “CCS Business Act”.

III. Project Finance for CCS Projects

1. “CO₂ Storage Right” as Real Property

In the Blueprint Document, it is discussed that a “CO₂ Storage Right” shall be deemed as a “real property”.¹⁷ If this idea is adopted, CCS operators will be entitled to take actions to directly resolve disputes with any third party who interferes with the operation of the CCS business. Moreover, the operator of a CCS business will be able to transfer or otherwise dispose of the “CO₂ Storage Right”, which would enable the CCS operator to create a mortgage over the “CO₂ Storage Right” as a real property. I am of the view that this method to materialize the potential value of CCS projects as “real property” is similar to the concession rights in Private Finance Initiative (“PFI”) projects which were introduced in 2011 as per the amendment to the PFI Act of Japan. The Updated Report as of January 29, 2024 follows the discussion in the Blueprint Document above regarding the “deemed real property” concept of the “CO₂ Storage Right”, and it will be provided in the upcoming bill of “CCS Business Act”.

2. Creation of “CCS Business Foundation”

In addition to the deemed “real property” concept for the “CO₂ Storage Right”, the Blueprint Document discusses the idea of creating a so-called “CCS business foundation” system, whereby the land and structures, and also the equipment and other ancillary assets all together,

¹⁷ Page 14 of the Blueprint Document.

in addition to the “CO₂ Storage Right”, will constitute a single “foundation” as a possible subject of mortgages.¹⁸ Although this idea is promising from the viewpoint of project finance for CCS projects, it may be difficult to apply such system to assets that are frequently replaced during the operation of the CCS business. However, the Updated Report as of January 29, 2024 does not refer to this idea of creation of “CCS business foundation”, which issue must be watched out for in the upcoming new bill of “CCS Business Act”.

3. CO₂ as Valuable Commodity

In addition to the business of CO₂ storage, CCS-related business also includes the separation and capture of CO₂, and transportation of CO₂. Regarding these businesses (other than the storage of CO₂), the regulatory framework is currently being discussed by the government. The Blueprint Document suggests that it would be appropriate to treat CO₂ as a valuable resource instead of a waste product.¹⁹ As such, some consideration is to be given to the owners of stored CO₂ itself. It is our understanding that this discussion in the Blueprint Document is based on the prospect that CO₂ will somehow be a manageable object as a result of the storage of CO₂ underground. Additionally, in the context of the sale of captured CO₂, discussions are being held on what kind of measurements would be suitable for regulating the sale of such captured CO₂.²⁰ The commercial feasibility of CCS projects depends on whether any appropriate business models can be formulated. Accordingly, I believe that in order to operate CCS projects in the most efficient way possible, discussions should be held on how CCS projects can be monetized by utilizing stored CO₂ as a valuable resource, as well as allowing CCS operators to obtain some carbon credits as another possible solution.

As of now there is no mechanism to give incentive for the private sectors to invest in CCS business in Japan. As Japan is not oil or gas producing country, CCS business must be developed separately from the oil/gas development projects such as EORs. As such, from the private sector’s perspective, operating CCS is just “cost”. The Final Report indicates that the government will proceed with the discussion over such economic incentive to be given to private sectors in respect of CCS projects, by looking at the preceding business models in England and other countries. It should be discussed to introduce carbon credit mechanism arising from CCS, or commission fee system payable for collection of CO₂, in more details.

IV. Final Remarks

In this article, I have provided my preliminary view on the concept of the said “CCS Business Act,” and analyzed the various key considerations that must be taken into account in formulating the said act. However, I believe that there are still a number of other matters that need to be further considered in order to finalize the “CCS Business Act” bill, and will continue to keep an eye on the developments of the government’s discussions on the same. Notably, there is some news to report that Japanese company is active in investing overseas CCS projects (such as those in Australia).²¹ The Final Report in its page 25 illustrates the government’s

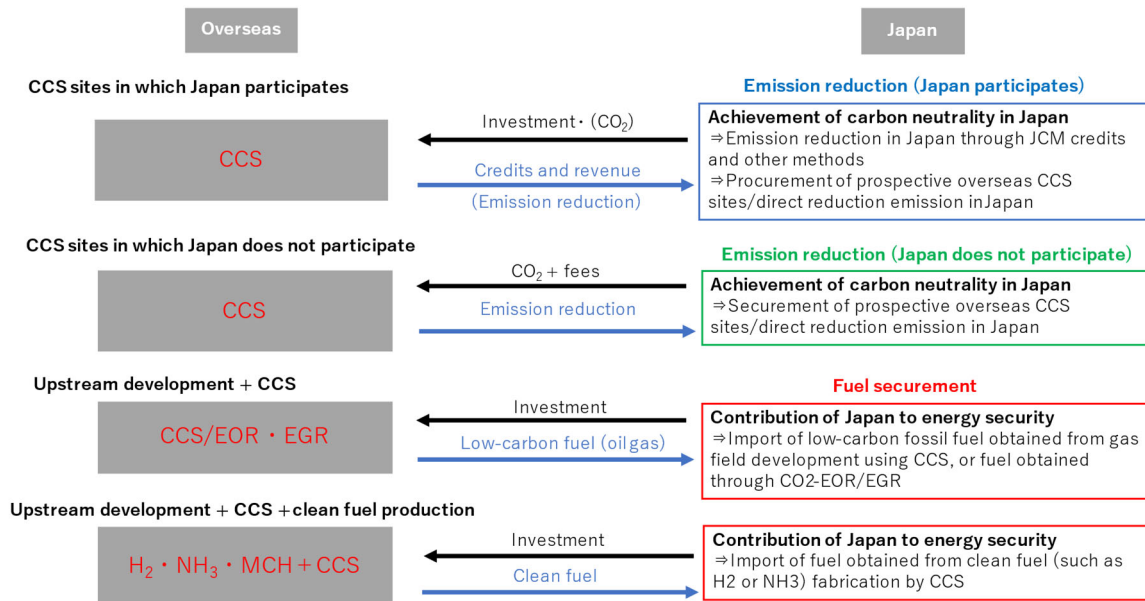
¹⁸ Page 27 of the Blueprint Document.

¹⁹ Page 11 of the Blueprint Document.

²⁰ Page 38 of the Blueprint Document.

²¹ Woodside, KEPCO investigate delivery of CO₂ from Japan to Australia, Sept. 7, 2023 <<https://www.offshore-mag.com/regional-reports/australia-new-zealand/article/14298634/woodside-kepco-investigate-delivery-of-co2-from-japan-to-australia>>

blueprint over the overseas CCS projects as follows:



It should be further watched out if there is any progress in the discussion by the Japanese government over the overseas CCS projects.

January 2024