



New JOGMEC's Challenge to the Energy Security and Carbon Neutrality

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**Japan Oil, Gas and Metals National Corporation
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About JOGMEC



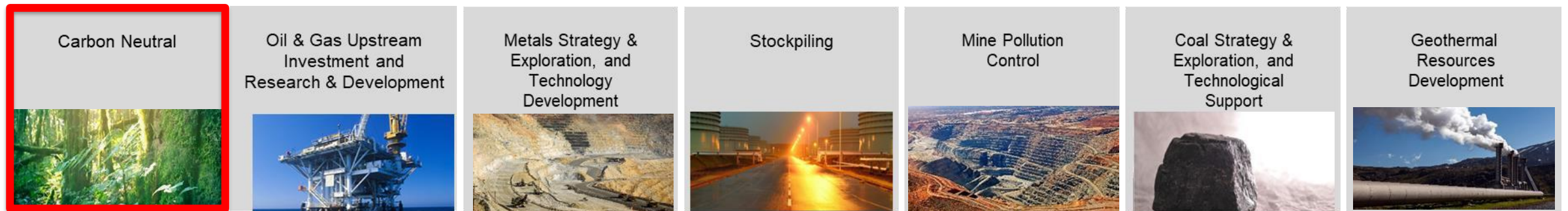
➤ Organization

JOGMEC (Japan Oil, Gas and Metals National Corporation) is a government-affiliated organization under the Ministry of Economy, Trade and Industry (METI), established in February 2004.

➤ Mission

To ensure a stable supply of energy and natural resources for Japan.

➤ Activities



Points of policy responses towards 2030 (Hydrogen/Ammonia)

Japan set targets...

- Looking ahead to the carbon neutral, **hydrogen** will be positioned as a new resource and its societal implementation will be accelerated.
- aiming at introduction/expansion of **30%-hydrogen co-firing** in gas-fired power generation or hydrogen-fired power generation.
- **20%-ammonia cofiring** in coal-fired power generation, demonstration of co-firing/single fuel firing will be promoted.
- **1% hydrogen/ammonia** will be positioned in power generation mix in **FY2030**.

Points of policy responses towards 2050 – Carbon Capture and Storage (CCS) –

The CCS Long-Term Road Map Committee of METI will soon establish two working groups.

WG1

to discuss the development of legislation in Japan for CCS projects.

WG2

to discuss project costs and government support throughout the CCS project value chain.

The goal is to start CCS projects in 2030.

(Estimated CO₂ sequestration in 2050 will be 120-240 Mtpa.)

A history of the strive of JOGMEC toward environment / climate change



Japan's 2050 Carbon Neutral Declaration

Accelerating global trends on climate change issues, increasing social demands

2021

- **Establishment of Carbon Neutral Promotion Headquarters** (April 1, 2021)
Newly established for initiatives as an entire organization, including metal and geothermal fields.

2020

- **Technical Business Strategy for a Low-Carbon Society** (oil and gas sector) (July 2020)

2019

➤ **JOGMEC Carbon Neutral Initiative** (announced on April 20, 2021)

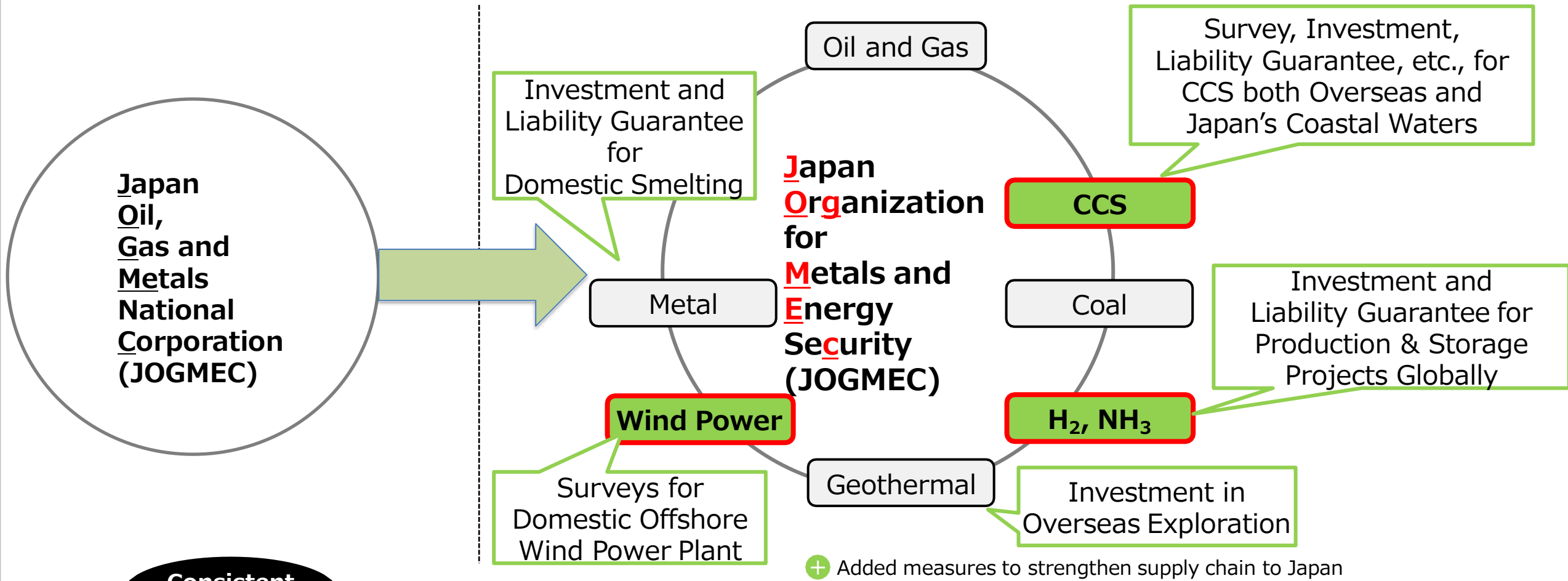
Three basic policies	Action plans
Formulate an organizational initiative policy.	



Law Amendment on JOGMEC's Activities

**Law Amendment
(Promulgated on May 20th)**

Amendment Act



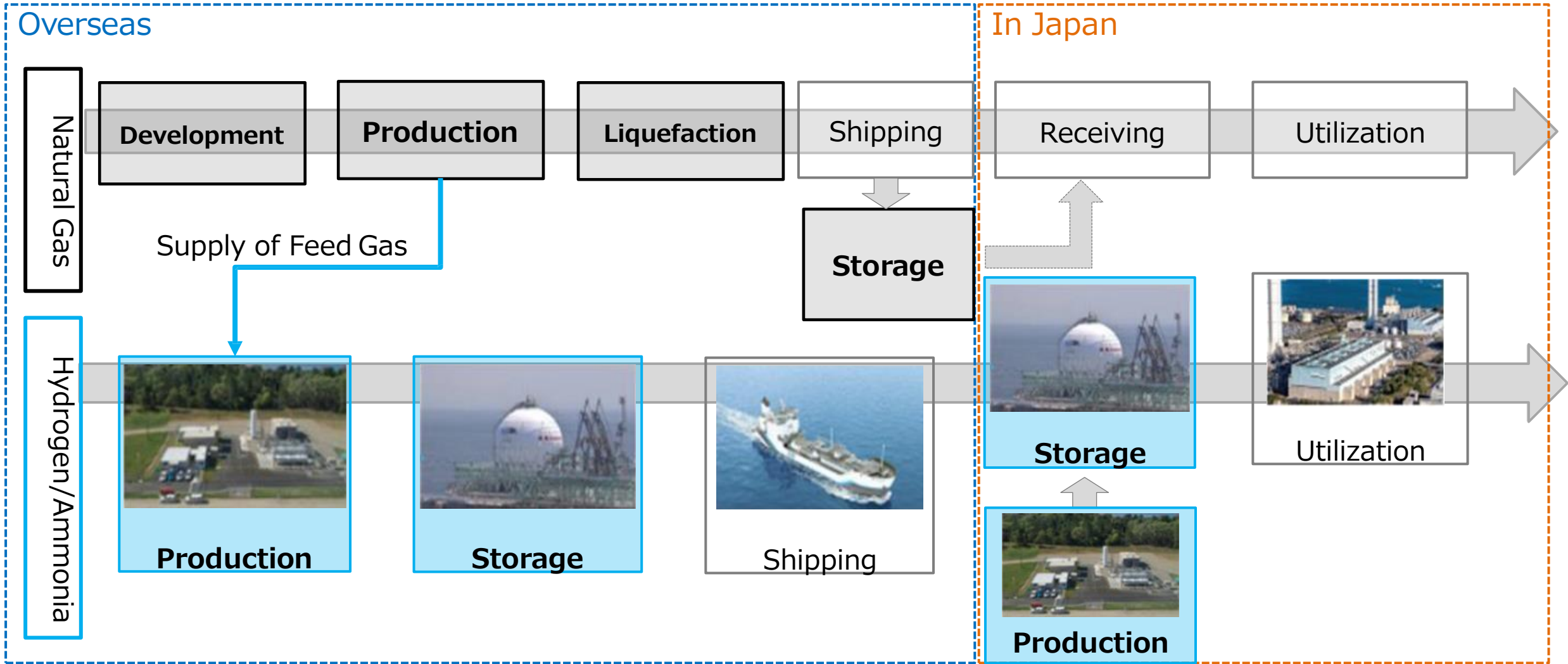
Consistent Mission

Secure a Stable and Affordable Supply of Energy and Metal Mineral Resources to Japan

Hydrogen/Ammonia Business Flow

Current Support Targets

New Support Targets

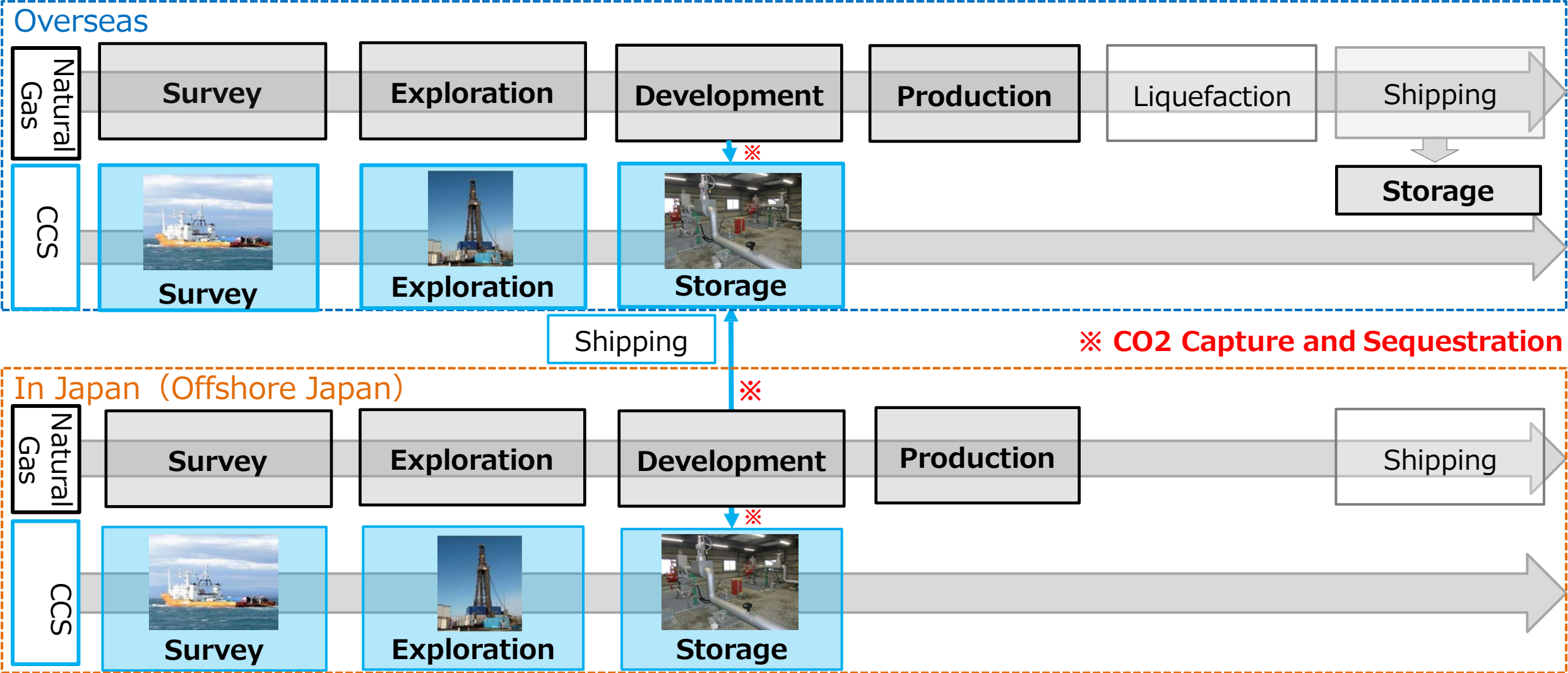


CCS Business Flow



Current Support Targets

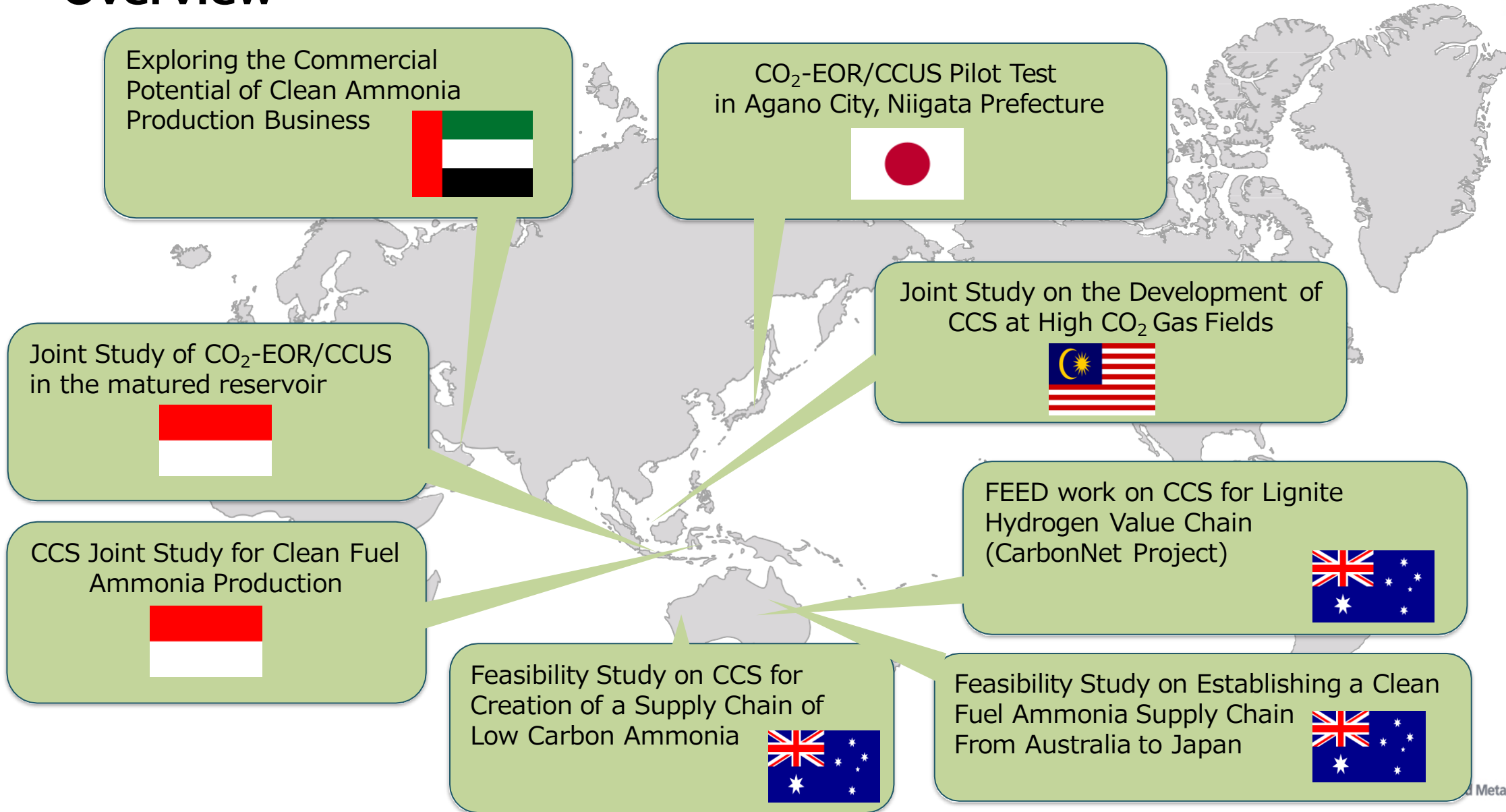
New Support Targets



※ CO2 Capture and Sequestration

Support & Joint Project in Progress

-Overview-



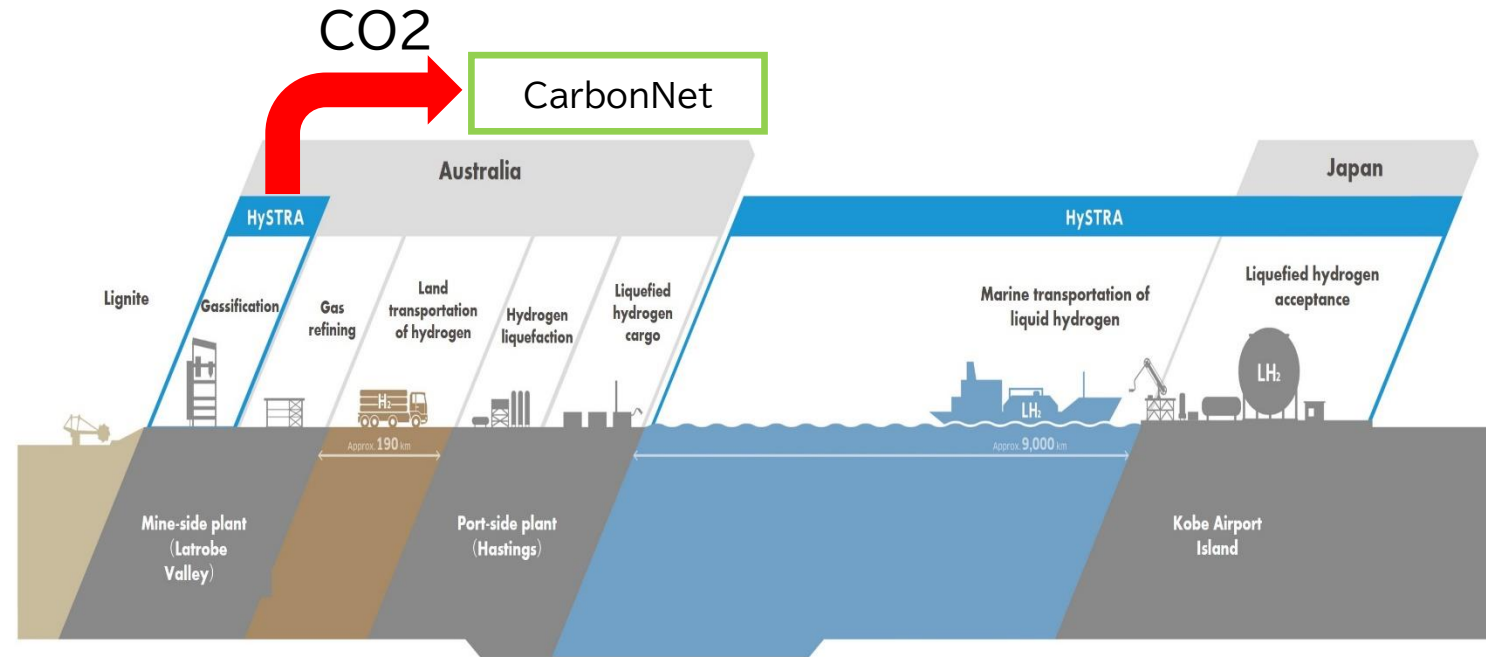
Support & Joint Project in Progress

-JOGMEC will contribute to the Front End Engineering and Design (FEED) of the CCS-

Location of the CarbonNet project in the Gippsland Basin, Victoria



- JOGMEC signed an agreement with the State of Victorian Government on January 20, 2022
- The CarbonNet is a project to conduct CCS into the Pelican site of the offshore Gippsland Basin, Australia.
- The project is
 - ✓ to store 5 million tons of CO₂ per year for 25 years.
 - ✓ the world's first international blue hydrogen value chain derived from lignite coal.
 - ✓ attained jointly by Japan and Australia for the first time in the world.



<http://www.hystra.or.jp>

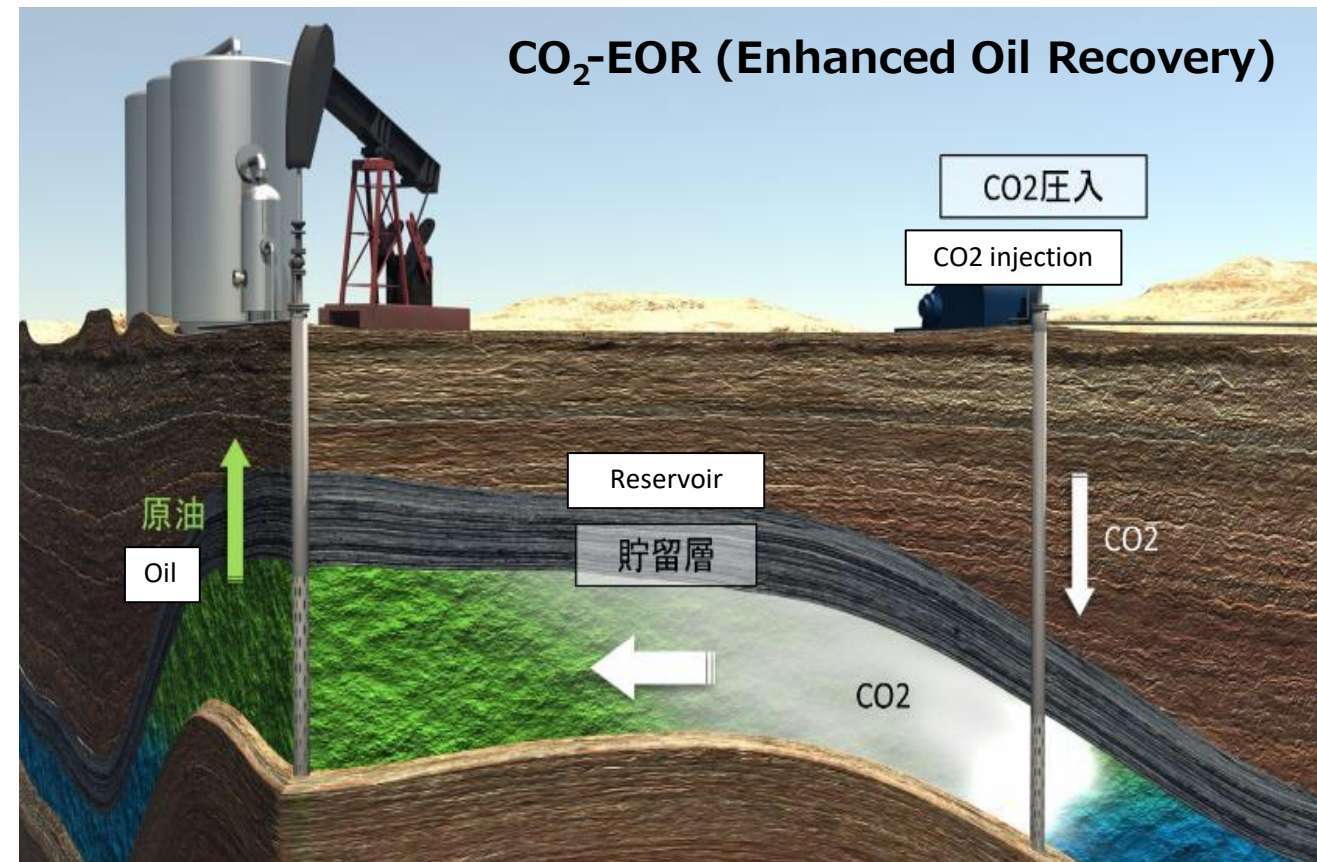
Concept of the **Blue** Hydrogen Value Chain

Support & Joint Project in Progress

-CO₂-EOR/CCUS Pilot Test in Agano City, Niigata Prefecture-



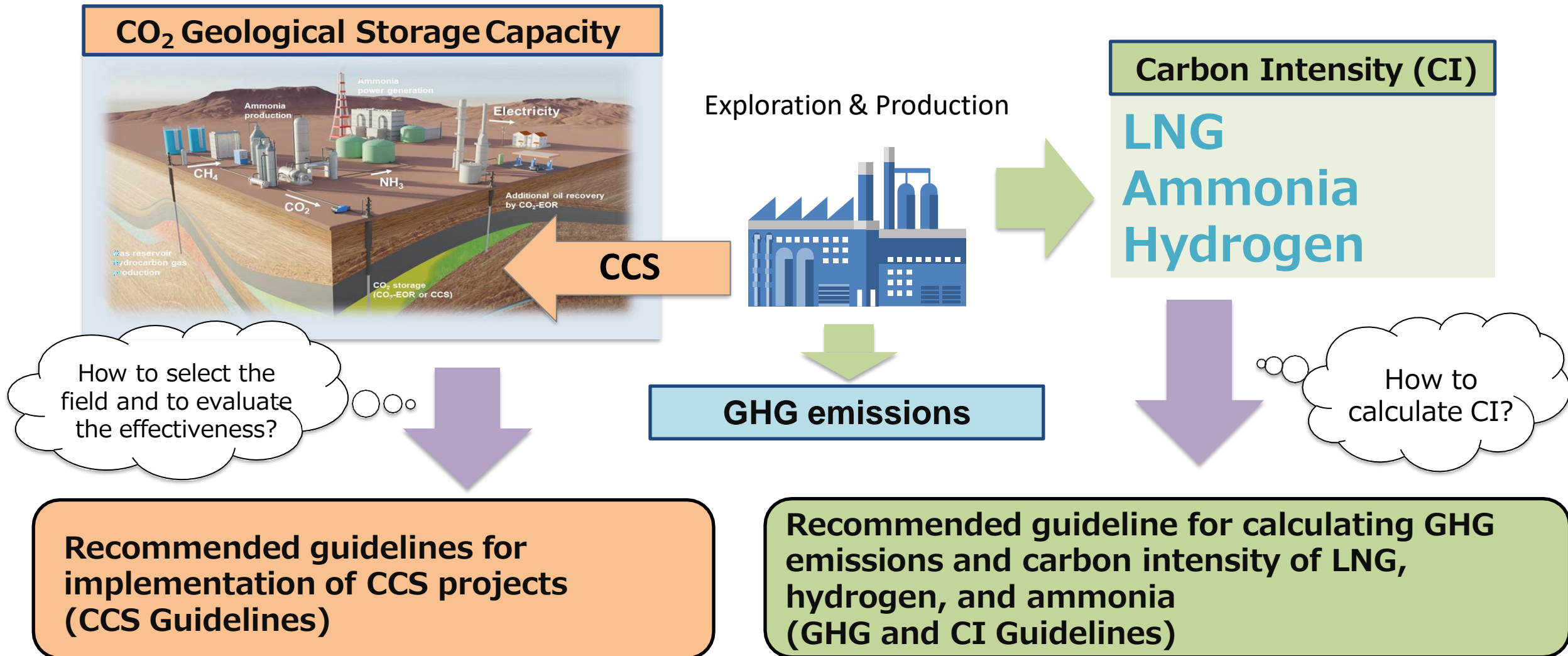
- Jointly with INPEX, JOGMEC conducts a CO₂-EOR/CCUS pilot test at the Minami-Aga Oil Field in Niigata.
- The pilot test is
 - ✓ to demonstrate the improvement of CO₂-EOR efficiency currently under development at the INPEX Minami-Aga Oil Field.
 - ✓ to verify the CO₂ behavior in the reservoir.
- Preparatory work including formulating a detailed test plan and drilling two new wells will be carried out in 2022.



Source: <http://www.agano-spot.com/english/access/index.html>

Leading the Way Forward for CN Achievement

- ✓ Published “Recommended guidelines” for Japanese companies
JOGMEC CCS Guideline Executive Summary (En) <https://www.jogmec.go.jp/content/300378207.pdf>



Leading the Way Forward for CN Achievement

✓ Features of the guidelines

CCS guideline (Published on May 2022)

- Specialized in technical recommendations and GHG calculation methodologies to evaluate GHG reduction amount for CCS projects.
- Present a method to determine CO₂ storage resources with referring to SRMS (*1) as an example which provides internationally comparable classification of storage resources.
- Provides a guideline from project planning until closure, including the evaluation of CO₂ storage resources and GHG reduction amount.

GHG/CI guideline (Published on May 2022)

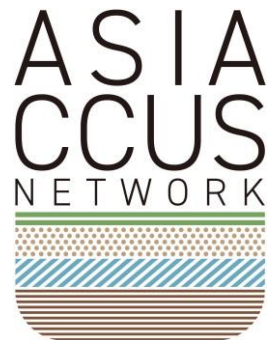
- Provides a recommended guideline to calculate GHG emission and product carbon intensity for LNG/Hydrogen/Ammonia projects.
- Includes countermeasures for methane emission, which is under international discussion, and recommends calculation methods (*2) according to the emission source.
- Proposed method will be reviewed and verified through the application at actual projects.

(*1) CO₂ Storage Resources Management System, provided by the Society of Petroleum

(*2) Example; Recommendation for direct measurement, especially for main emission sources

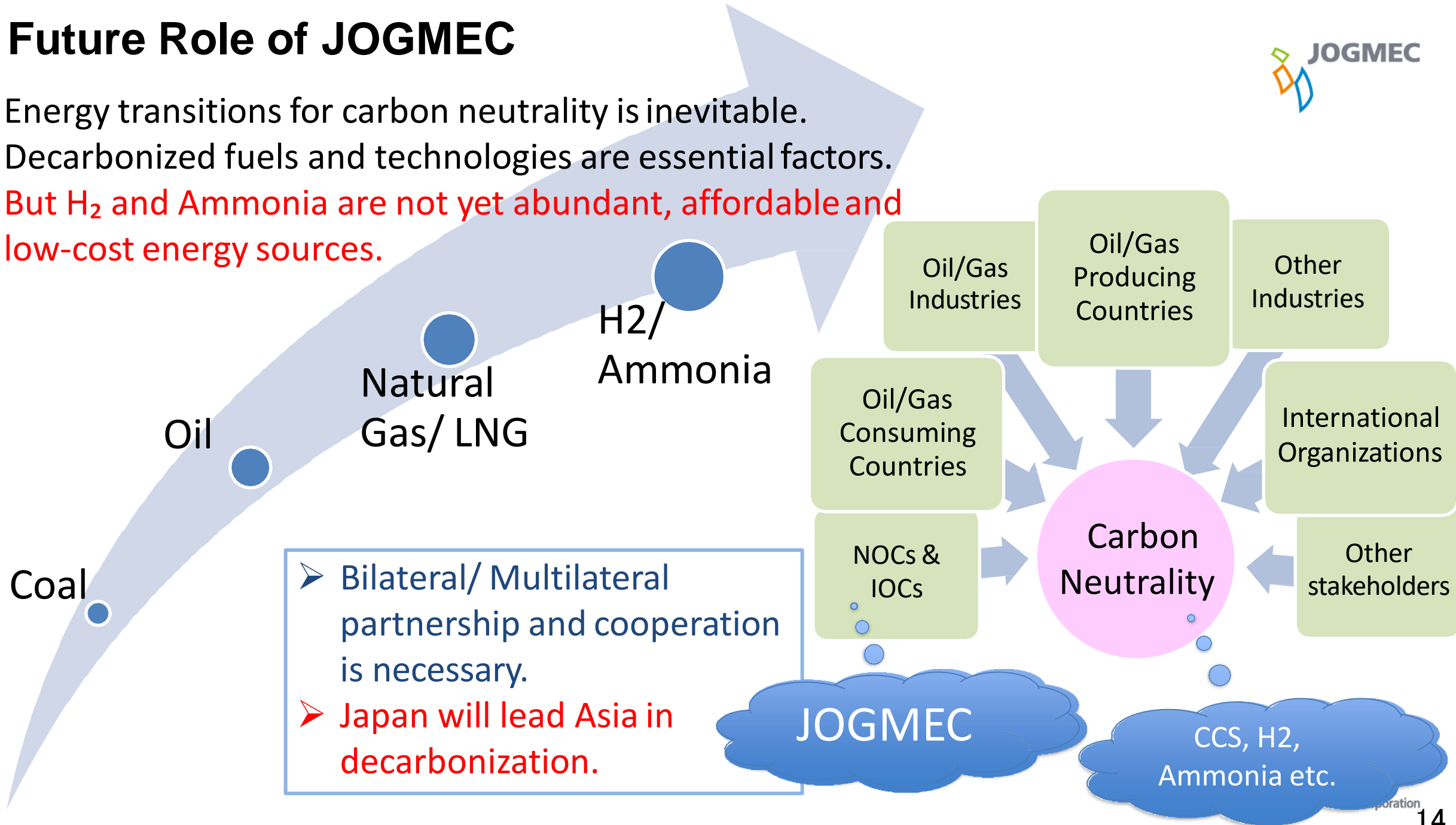
Leading the Way Forward for CN Achievement

- ✓ Expanding our CCS initiatives through international cooperation
- International cooperation is important to develop and commercialize CCS. JOGMEC cooperates with various countries including Canada and Australia through existing programs and institutions.
- JOGMEC has participated as an advisory member of the Asia CCUS Network where we contribute technical expertise to CCS deployment in Asia.
- JOGMEC contributes to an economical solution including the generation of carbon credits from CCS project.



Future Role of JOGMEC

- ✓ Energy transitions for carbon neutrality is inevitable.
- ✓ Decarbonized fuels and technologies are essential factors.
- ✓ But H₂ and Ammonia are not yet abundant, affordable and low-cost energy sources.



➤ Bilateral/ Multilateral partnership and cooperation is necessary.

➤ Japan will lead Asia in decarbonization.

JOGMEC

CCS, H₂, Ammonia etc.

Thank you for your attention!

For more information, please visit the following website.

資源三ライ関発

<https://mirai.jogmec.go.jp/>