



Carbon Neutrality Pathway: Roles of JOGMEC

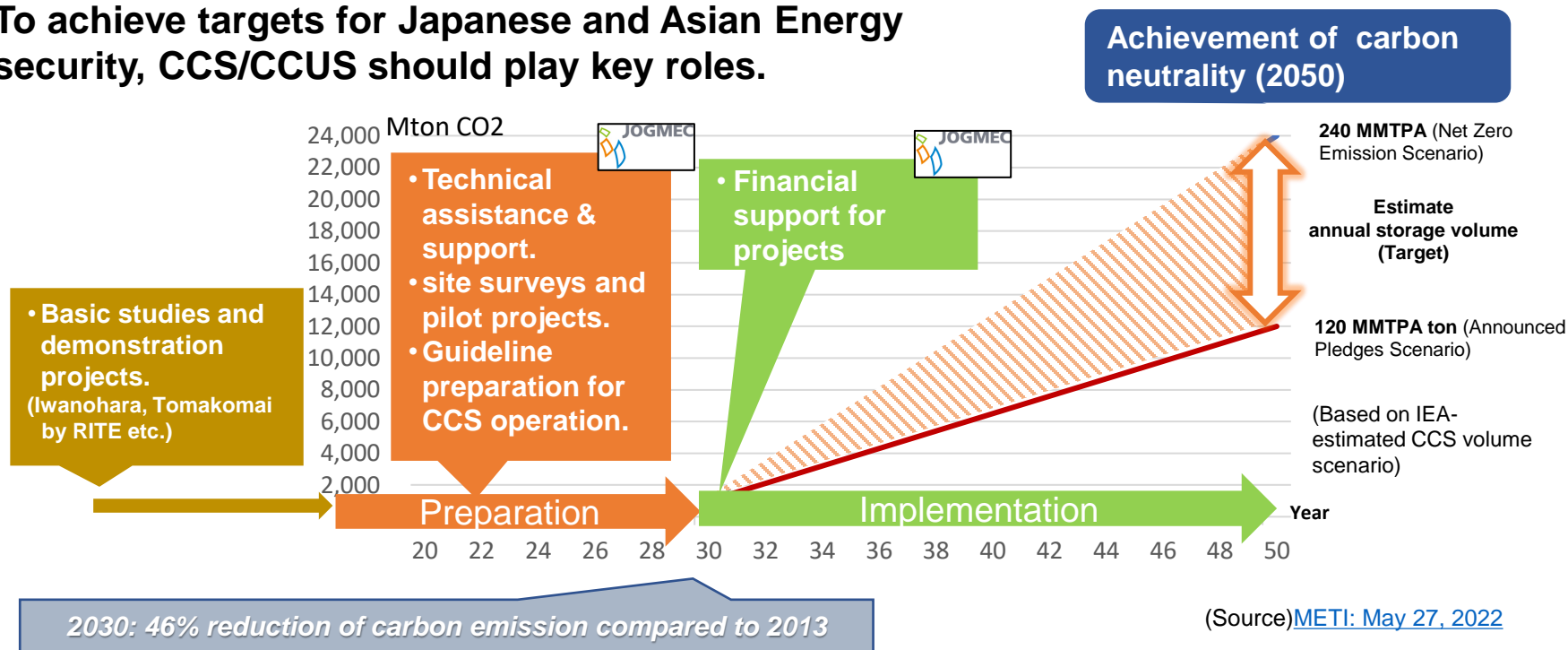
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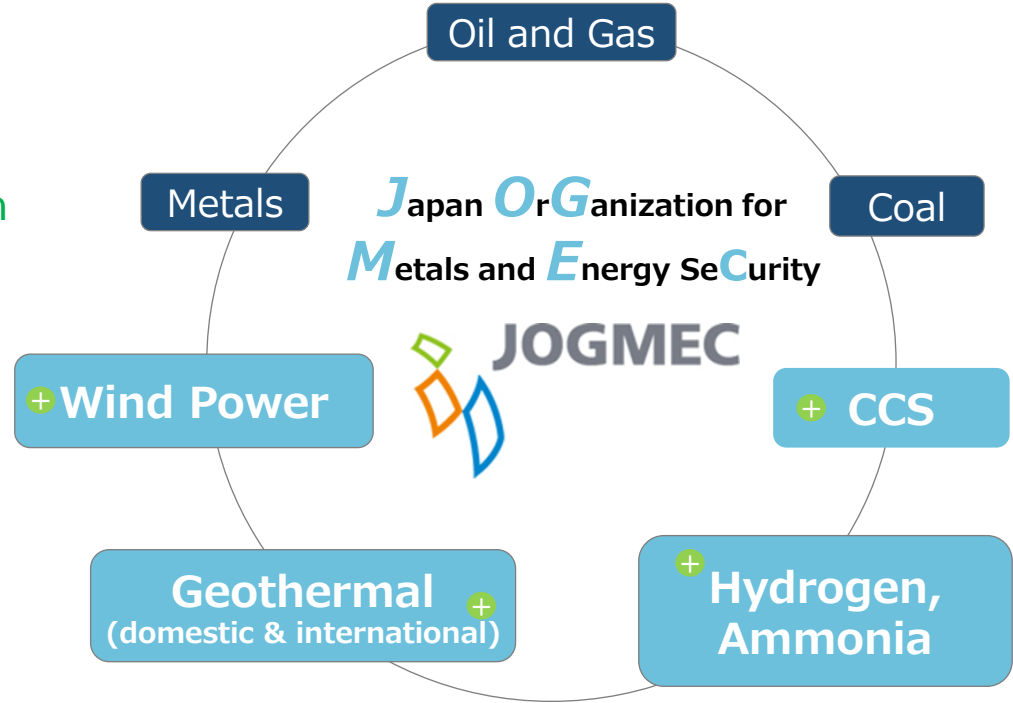
1. Japanese carbon neutrality target with CCS studies/implementations

- Former Prime Minister Suga stated “We hereby declare that by 2050, Japan will aim to reduce greenhouse gas emissions to net-zero (Oct. 26, 2020)”, “Japan aims to reduce its greenhouse gas emissions by 46% in 2030 from 2013 levels (April 22-23rd, 2021)”.
- **To achieve targets for Japanese and Asian Energy security, CCS/CCUS should play key roles.**

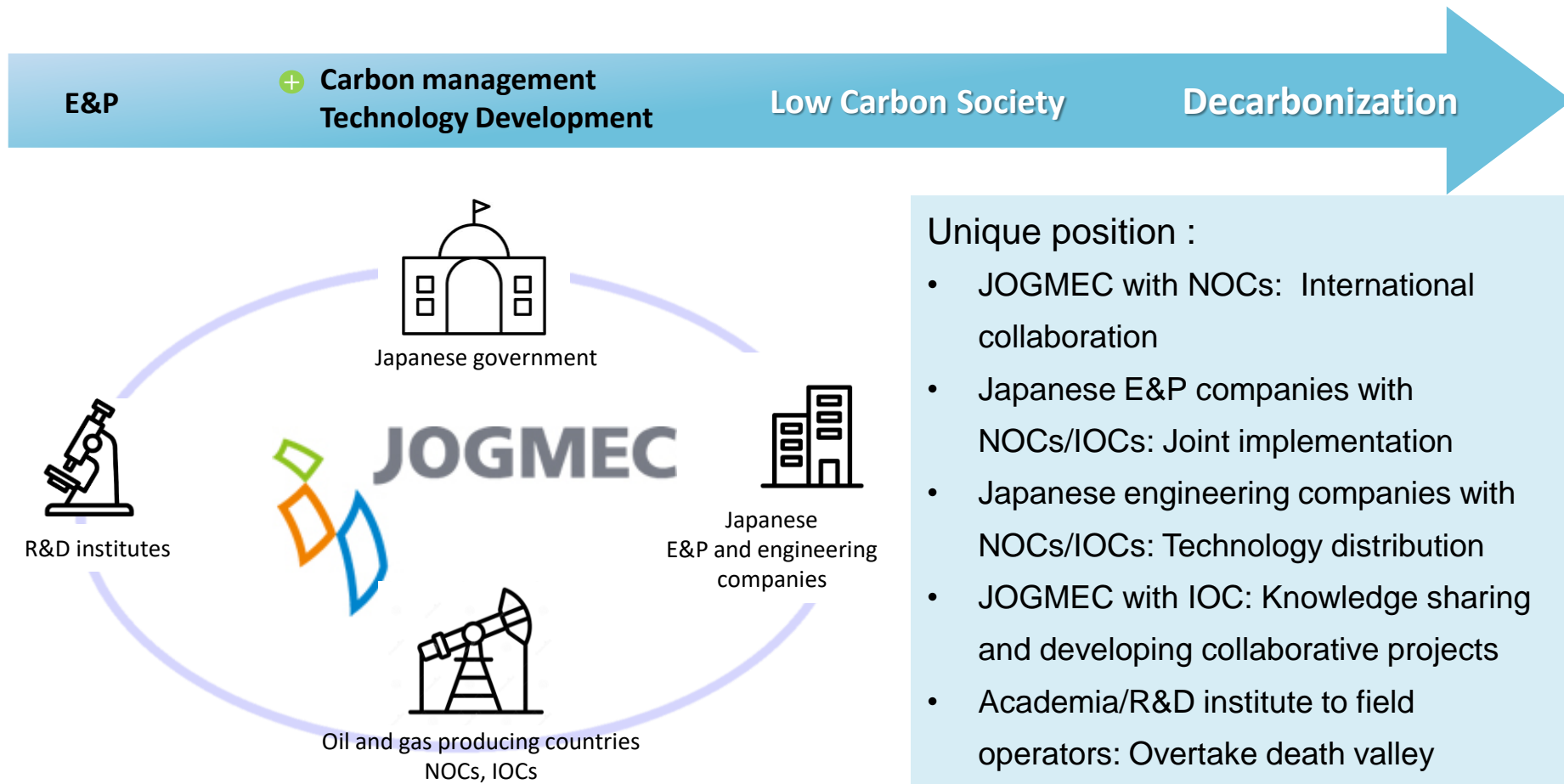


2. Expanding JOGMEC's function to simultaneously realize Energy Security and Carbon Neutrality

- Purpose of JOGMEC – **Energy and mineral resource securities**, to be amended to provide high priority to **decarbonization of the energy in Japan** through **CCS, low carbon fuels and renewable energies**
- Technical development and support
 - Survey, site characterization, modeling & monitoring, feasibility studies
- Project Finance
 - Equity financing and liability guarantee

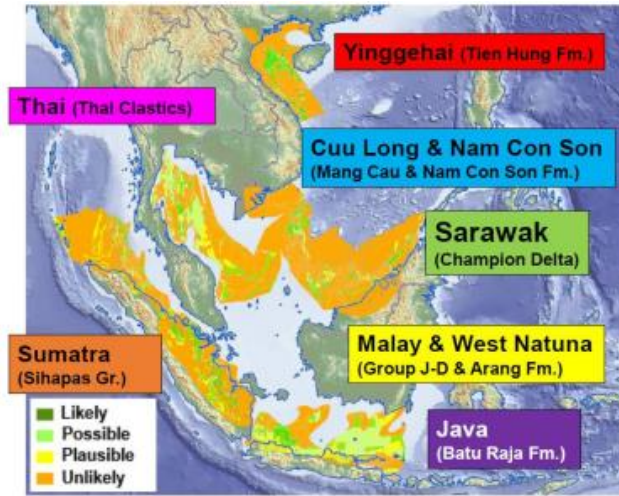


3. JOGMEC contribution to decarbonization in Asia – Interconnecting stakeholders

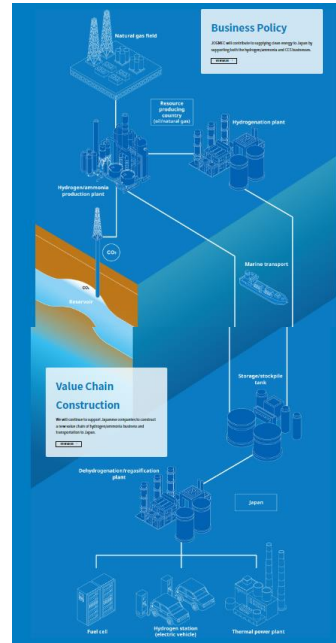


4. Fulfilling Gaps - Lifecycle of CCS Projects

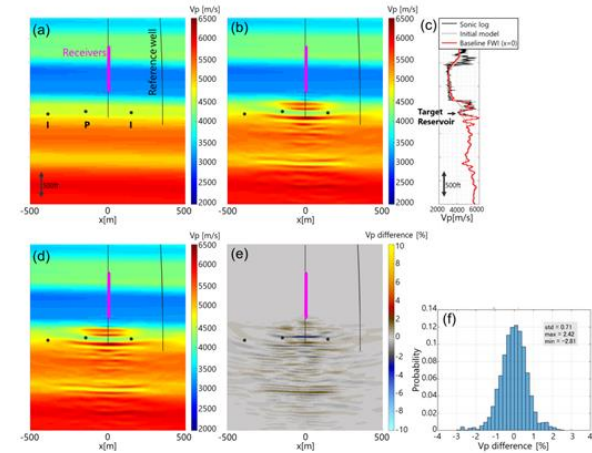
- Capacity, economics, value chains and source-sink matching, safety/stability
- Facts will persuade policymakers and the public to accept the concepts



CCS potential surveys in domestic and international scales



Blue Fuel ammonia value chain studies



Modeling and monitoring studies to understand the fate/behavior of injected CO₂

5. International collaboration to achieve zero emission

Exploring Commercial Potential of
Clean Ammonia Production Business



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



Joint Study of CO₂-EOR/CCUS in
the matured reservoir



Joint Study on the Development of
CCS at High CO₂ Gas Fields



CCS Joint Study for Clean Fuel
Ammonia Production



Feasibility on Establishing a Clean Fuel
Ammonia Supply Chain
From Australia to Japan



Feasibility on CCS for Creation of a
Supply Chain of Low Carbon
Ammonia



CarbonNet (Development of a CO₂
Specification for a CCS Hub Network)



6. CCS Joint Study for Clean Fuel Ammonia Production in Indonesia

- Mitsubishi Corporation(MC), Bandung Institute of Technology(ITB), PT Panca Amara Utama(PAU) and JOGMEC signed MOU in March 2021 .
- PERTAMINA, MC, ITB, PAU and JOGMEC signed JSA in September 2022 to enhance CCS study.
- Through this joint study, the feasibility of clean fuel ammonia production by treating the carbon dioxide generated during ammonia production will confirm



PAU Plant



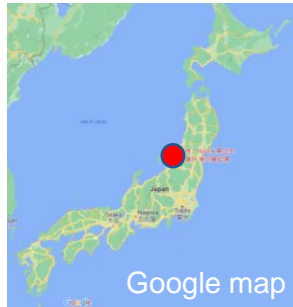
Map of Sulawesi

(Source) [JOGMEC](#)

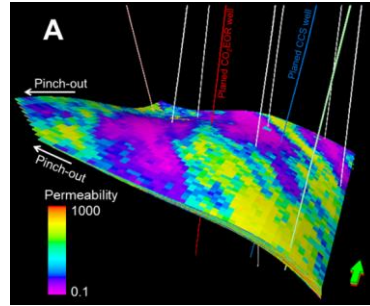
7. CO₂-EOR as CCUS pilots in Japan and Indonesia

➤ Minami Aga oil field, Niigata, JAPAN

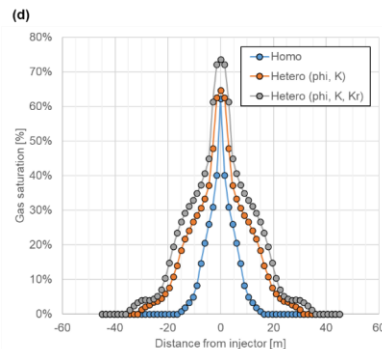
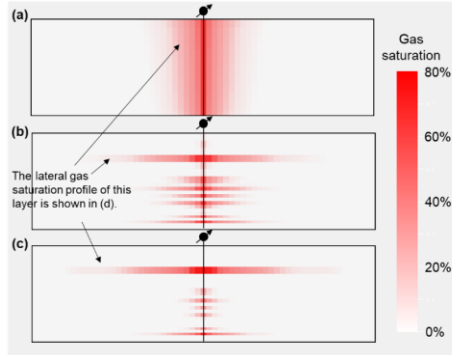
Huff'n'Puff CO₂-EOR pilot test planned in FY2022



Geological model of the pilot area



Simulated CO₂ distribution around the well



JOGMEC Annual report 2022

➤ Jatibarang oil field, Java island, INDONESIA

CO₂-EOR pilot test planned in FY2022

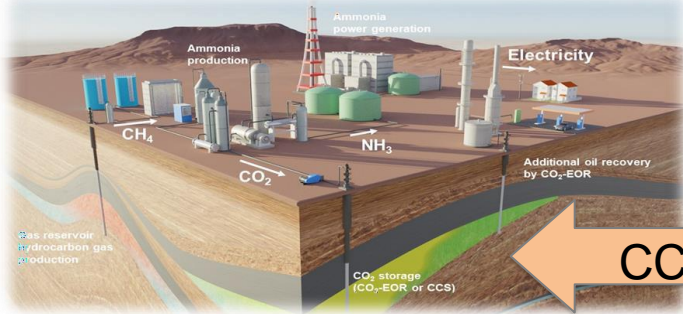


Signing agreement in Bali, August 2022

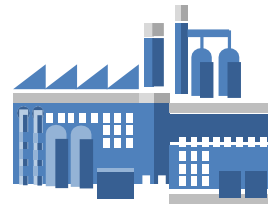
8. CCS Guidelines in Industry-friendly form

- Re-organize, edit, and explain existing CCS and Carbon Intensity accounting guidelines/standards for industries to promote CCS business and emphasize JOGMEC view

CO₂ Geological Storage Capacity



Exploration & Production



Carbon Intensity (CI)

LNG
Ammonia
Hydrogen

GHG emissions

How to select the storage site and evaluate reduced amount of CO₂?

Guideline for the implementation of carbon dioxide capture and storage projects (CCS guideline)

How to calculate CI?

Guideline for greenhouse gas and carbon intensity accounting framework for LNG/Hydrogen/Ammonia project (GHG/CI guideline)

9. Key messages/takeaway

- Energy security and carbon neutrality in Asia have the same priority
- CCUS is key to realize mandatory human security
- Asia-wide and multinational corporations involving resource exporters and importers are necessary to visualize valuable/meaningful CCUS projects to avert climate change and energy crisis
- JOGMEC will contribute to the lifecycle of CCUS projects to;
 - Fulfill gaps – storage capacity, economics, pilot scale to field implementation scale, stability and safety, etc. through technological and financial supports, guidelines for field implementation
 - Interconnect stakeholders – R&D to field operations, private and public sectors, and energy exporters and importers
- Asia CCUS network involving academia, industry, public and private sectors are unique and valuable, and JOGMEC will contribute to these networks.

➤ For more information

Visit our website
“Clean Future Energy”

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



➤ Inquiry

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