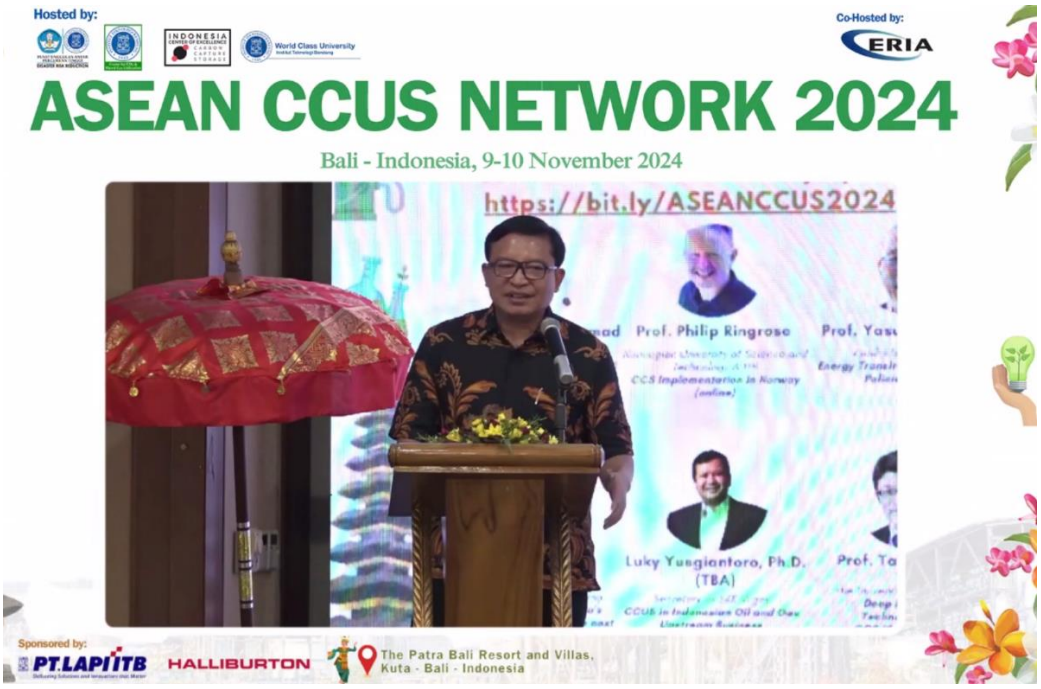
Volume 12, Quarter IV-2024
Asia CCUS Network Newsletter

A. Summary of Past Events

[ASEAN CCUS Network 2024: Business Value Chain of CCS & CCUS in Indonesia, Southeast Asia, and Worldwide]



Bali, 9-13 November 2024: The Economic Research Institute for ASEAN and East Asia in partnership with Institut Teknologi Bandung (ITB) has successfully hosted the 'ASEAN CCUS Network 2024" at the Patra Bali Resort & Villas, Bali, Indonesia. The event focused on key issues on CCUS technologies, such as policy and regulatory frameworks, carbon management, economics, and project case studies from across the globe. The event was conducted in conjunction with the 28th Regional Symposium on Chemical Engineering 2024.

The event brought together 50 offline participants and around 50 online participants, ranging from engineers, academia, researchers, students, policymakers, and professionals. The event was held within two parts; 1. Symposium of ASEAN CCUS Network conducted on 9-10 November, and 2. Technology courses on fiber optic sensing for CCS and CCUS monitoring, and Microbubble CO2-injection conducted on 11-13 November.

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The 16th ACN Knowledge Sharing Conference

23 August 2024

ERIA and Stella Maris Impart Expertise in Developing Stella Maris Project to Advance CCUS in Asia

Virtual Conference, 23 August 2024: The Economic Research Institute for ASEAN and East Asia (ERIA), as the secretariat for the Asia CCUS Network (ACN), invited Altera Infrastructure to share their expertise and insights on their Stella Maris CCS project, a large-scale and scalable CO2 capture solution during the 16th ACN Knowledge Sharing Conference, entitled "Developing CCUS Hub in Asia: Lesson Learned from Stella Maris CCS System." The event focused on the opportunities, obstacles, and solutions of establishing cross-border CCUS hubs of which there are currently two in the world: the Northern Lights System and the Stella Maris System.

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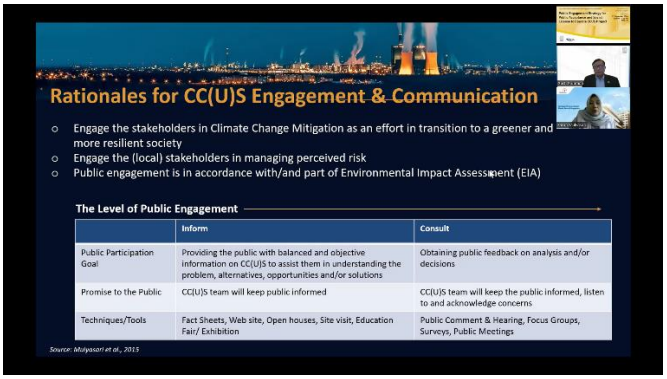
The 17th ACN Knowledge Sharing Conference

27 September 2024



ERIA Discuss Role of Public Engagement and Communication in Advancing CCUS Success in Asia

Virtual Conference, 27 September 2024: Southeast Asian countries are moving forward in their commitment to a carbon-free world by continuously developing Carbon, Capture, Utilisation, and Storage (CCUS) projects in the region. Indonesia, Thailand, and Malaysia are expected to begin CCUS operations before 2030, with Indonesia and Malaysia aiming to serve as a regional hub. Improvements in the public's understanding of this emerging technology are essential to support the ongoing development of this carbon-reducing innovation. Public acceptance is also a significant factor in driving the success of CCUS projects in Asia along with government and private sector support.

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18th ACN Knowledge Sharing Conference

30 October 2024

ERIA Showcases Norway's Northern Lights CCS Project to Deepen CCUS Technical Insights Across Asia

Virtual Conference, 30 October 2024: The Northern Lights project is pioneering the advancement of Carbon, Capture, Utilisation, and Storage (CCUS) in the world in which it has achieved numerous breakthroughs in its execution. Boasting a storage capacity of 1.5 million tonnes per annum (MTPA) of carbon dioxide (CO2) at the Aurora storage site, this Norwegian government project is scheduled to commence injection in 2024. Reaching this milestone required an unwavering ability to overcome challenges related to engineering, procurement, and construction (EPC). However, Norway's successes offer a wealth of in-depth technical insights that can greatly benefit Asian countries striving to accelerate CCUS development and deployment.

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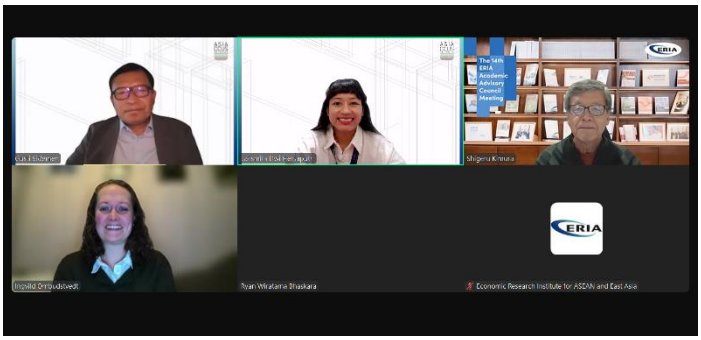
19th ACN Knowledge Sharing Conference

14 November 2024



ERIA and IOM Law Discuss Global Regulatory Practices for CCS Development

Virtual Conference, 14 November 2024: In a significant step towards advancing Carbon Capture, Utilization, and Storage (CCUS) technologies across Asia, the 19th Asia CCUS Network Knowledge Sharing Conference convened on 14 November 2024. The virtual event brought together policymakers, legal experts, and industry representatives to discuss the critical elements of crafting effective CCUS regulations. The conference opened with remarks by Mr. Shigeru Kimura, ERIA's Senior Policy Fellow on Energy Affairs. He emphasized the vital role of regulatory frameworks in facilitating CCUS deployment, particularly as the sector transitions from demonstration projects to full-scale commercial activities.

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B. Publications (Report, Journal & Article)

COP 29 Open Wider Opportunity for CCS Development

By Dr I Gusti Suarnaya Sidemen (CCS/CCUS Fellow, ERIA)

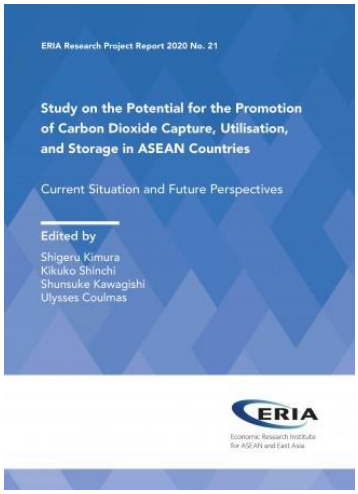
The Conference of the Parties (COP) 29 held in Baku Azerbaijan on 11-24 November 2024 opened a wider opportunity for Carbon Capture and Storage (CCS) technology deployment to meet the net zero emission target. The Intergovernmental Panel on Climate Change (IPCC) special report "Climate Change 2023: Synthesis Report" noted that in the 1.5 0C scenario, CCS plays a crucial role. An estimated 350 to 1,200 gigatonnes of CO2 storage will be required within this century through the use of CCS technology. Imperatively, CCS technology is required to mitigate emissions from hard-to-abate industries such as the power sector, cement, and chemical production. The report noted that recent CCS technology deployment lags behind the projected capacity needed to meet the IPCC CCS pathway scenario. COP 29 success in setting rules for the carbon market and a US$300 billion annual New Climate Finance Goal (NCQG) open an opportunity for the acceleration of CCS technology.

Article 6 of the Paris Agreement provides an option for countries to use voluntary cooperation in the implementation of Nationally Determined Contribution (NDC). Under Article 6.2 of the Paris Agreement, countries may use other countries' CO2 emission reduction or removal through Carbon credit transfer. However, only one county can use emission reduction or removal of designated projects. No double counting allowed. Article 6.4 established a market for the trading emission reduction credit under the supervision of a Designated Supervisory Body. This emission trading is known as the Paris Agreement Crediting Mechanism (PACM). Through PACM, countries that are party to the IPCC can approve registered activities that mitigate emissions, represented in the PACM registry by A6.4ERs. Read More...

Study on the Potential for the Promotion of Carbon Dioxide Capture, Utilisation, and Storage in ASEAN Countries: Current Situation and Future Perspectives

Edited by Shigeru Kimura (ERIA), Kikuko Shinchi (Mitsubishi Research Institute, MRI), Shunsuke Kawagishi (MRI), and Ulysses Coulmas (MRI)

This 'Study on the Potential for the Promotion of Carbon Dioxide Capture, Utilisation, and Storage in ASEAN', uses a multi-aspect survey approach. The study covers findings on recent trends in policies, technologies, and business development from countries with experience in Carbon Dioxide Capture, Utilisation, and Storage (CCUS). It also looks into the potential for CCUS development in the Association of Southeast Asian Nations (ASEAN) and the East Asia Region. Based on discussions held at the 3rd East Asia Energy Forum, the report reiterates the important role CCUS can play in the region to achieve both energy transition and decarbonisation objectives. It also explores the potential and benefits of a regional collaborative approach, which is proposed as the Asia CCUS Network to create an enabling environment for business cases of CCUS.



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Study on the Potential for Promoting Carbon Dioxide Capture, Utilisation, and Storage (CCUS) in ASEAN Countries Vol. II

Edited by Shigeru Kimura (ERIA), Kikuko Shinchi (Mitsubishi Research Institute, MRI), Ulysses Coulmas (MRI), and Ayami Saimura (MRI)

This report was prepared under the Asia CCUS Network umbrella and focuses on the cost of Carbon Capture and Storage (CCS) and the legal framework of CCUS. To analyse the cost of CCS, we use a model case in central Java, Indonesia with the following assumptions: a) capture of CO2 emitted from a 500MW coal power plant (ultra- supercritical) applying chemical absorption using amine, b) transport of CO2 to the storage site through a 50km long pipeline, and c) storage of CO2 in sandstone formation of about 1000m. Costs of capture, transport, and storage – both capital and operation costs – are surveyed referring to existing publicly available literature. The cost of this model case is estimated at US$60–US$70 per CO2 ton and 70% of the cost results from the capture of CO2. The legal framework emphasises that deployment of CCUS will be implemented under appropriate regulations. Hence, surveys of the existing CCS regulations of European countries, Australia, and the United States are undertaken to come up with appropriate CCUS regulations for the Asia region. Finally, as an important regional policy framework, this report suggests an Asia Collective CCUS Initiative to start design of a business model of the CCUS value chain in the Asia region.

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Estimating Basin Scale CO2 Storage in Indonesia

Edited by National Research and Innovation Agency (BRIN), LEMIGAS Ministry of Energy and Mineral Resources Indonesia, Shigeru Kimura

Indonesia offers promising opportunities for CCUS deployment due to its vast sedimentary basins suitable for CO_2 storage, including oil and gas reservoirs and deep saline aquifers. This study assesses CO_2 storage potential across Indonesia's sedimentary basins, estimating storage resources in saline aquifers and hydrocarbon reservoirs. Using advanced methodologies, it ranks basins in terms of CO2 storage suitability and integrates results into a GIS-based tool for visualisation.

The study reveals Indonesia's significant CO_2 storage potential, with estimated resources of 680.57 Gt in deep saline aquifers and 10.14 Gt in hydrocarbon fields. These resources are categorised as prospective and contingent storage resources, respectively, indicating substantial prospects for CCUS development. A GIS-based tool has been developed for visualising CO_2 storage resources, positioning Indonesia as a key player in the regional CCUS landscape.

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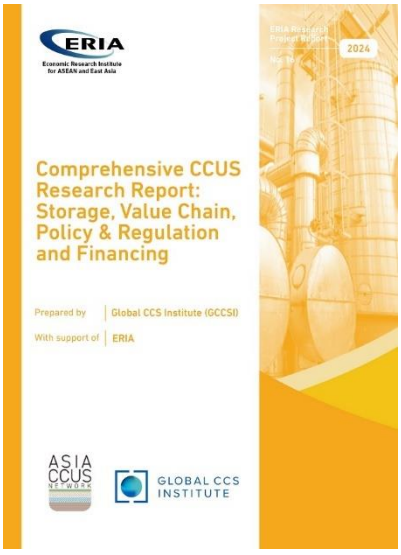
Comprehensive CCUS Research Report: Storage, Value Chain, Policy & Regulation and Financing

Edited by Global CCS Institute, ERIA



The Economic Research Institute for ASEAN and East Asia (ERIA) commissioned the Global CCS Institute (GCCSI) to study these four critical areas, leveraging GCCSI's extensive experience and expertise in CCS and CCUS.

This report highlights:

1. The significant CO_2 storage capacity in the ASEAN region,
2. The need for appropriate and regionally harmonised CCUS regulations,
3. The development of financing mechanisms, especially through public–private partnerships like the Joint Credit Mechanism (JCM), and
4. The establishment of an institution to support cross-border CO_2 trade within the Asia region.

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C. List of Registered Members (as of Dec 2024)

Advisory Members

- Department of Industry, Science, Energy and Resources, Australia
- Ministry of Economy, Trade, and Industry, Japan
- Department of Energy, Philippines
- Ministry of Industry and Trade, Viet Nam
- Ministry of Mines and Energy, Cambodia
- Ministry of Energy and Mines, Lao PDR
- Energy Market Authority, Singapore
- Ministry of Energy and Mineral Resources, Indonesia
- Energy Commission of Malaysia, Malaysia
- Ministry of Energy, Thailand
- Ministry of Science and Technology, India
- Oil and Gas Planning Department, Ministry of Electricity and Energy, Myanmar
- Department of Energy, United States of America

Supporting Members

Academia/ Research Institute (54 members)

- Universitas Indonesia
- PARTIDO STATE UNIVERSITY
- Energy Studies Institute
- Pandit Deendayal Energy University
- Kyushu University
- Environmental Law Centre of Meiji University
- R & D Institute, Hokkaido Electric Power Co., Inc.
- Read more.

Finance – Banking (17 members)

- Sumitomo Mitsui Banking Corporation
- Japan Bank for International Cooperation (JBIC)
- Citigroup Global Markets Japan Inc.
- MUFG Bank, Ltd.
- SPARX Group Co., Ltd.

Read more.

Private – Public (230 members)

- Toyota Tsusho Corporation
- Eni
- Osaka gas
- Toyota Tsusho Corporation
- IHI Corporation
- IHS Markit
- JOGMEC
- PT. PERTAMINA (PERSERO)

Read more.

Regional/ International Organizations (35 members)

- International Finance Corporation
- International Association for Hydrogen Energy (IAHE)
- Oil and Gas Climate Initiative (OGCI)
- Clean Energy Ministerial (CEM) CCUS Initiative

Read more.

D. Recommended Links

1. IEA's Report on CCUS in Southeast Asia: https://www.iea.org/reports/carbon-capture-utilisation-and-storage-the-opportunity-in-southeast-asia

2. JOGMEC's New Website 'CLEAN FUTURE ENERGY': https://mirai.jogmec.go.jp/en/

3. National Energy Technology Laboratory Training Resources: https://www.netl.doe.gov/LCA/co2u/Training

E. Upcoming Events (Knowledge Sharing Conference, CCUS Workshop and Capacity Building)

Further details will be announced later

- **The 21st ACN Knowledge Sharing Conference,** 23 January 2025 (Online)

  Topic: **Realizing Cross Border CCUS Projects in Asia: Mapping Instruments needed by Government Agencies** by **Ms Hanh Le**, ANGEA
- **The 22nd ACN Knowledge Sharing Conference,** February 2025 (Online)

  Topic: **Regulating and Managing CCUS Projects: lesson learned from NOPTA Australia** by **Mr Jagath Munasinghe**, Greenhouse Gas Title Manager, NOPTA

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