



A. Highlights

Research Activities for 2026

For fiscal year 2026, two research studies will commence: an analysis of the CO₂ reduction potential and economic feasibility of CCU in East Asia Summit (EAS) countries for decarbonization, and a study on the acceleration of cross-border CCS in AZEC countries. Both research studies will begin in October 2026.

The study titled Analysis of CO₂ Reduction Potential and Economic Feasibility of CCU in EAS Countries for Decarbonization will assess the role of Carbon Capture and Utilization (CCU) in emission reduction across EAS countries and develop tools to appropriately measure the technology's contribution to decarbonization. CCU is a pivotal technology being implemented globally to achieve the goals of the Paris Agreement. However, its actual deployment remains relatively limited compared to renewable energy and other technologies. Several factors contribute to this limited scale, including uncertainty, a lack of transparency, and inconsistencies in evaluating the effectiveness of CCU (e.g., CO₂ reduction) and its economic viability (costs and benefits) during social implementation.

To address these issues, recent efforts have focused on developing global evaluation guidelines, such as those by IEA-GHG (IEA, 2018). Nevertheless, many of these guidelines have been primarily led by Europe and the United States, with limited involvement from EAS countries. Therefore, this project aims to analyze the CO₂ reduction potential and the economic feasibility of CCU in EAS countries, significantly contributing to SDGs 7, 9, 12, and 13 by balancing energy supply and demand with CO₂ reduction.

The outcomes will support the EAS energy research roadmap (Pillar 3: Climate Change Mitigation and Environmental Protection), correspond to the ASEAN Plan of Action for Energy Cooperation (APAEC), and contribute to the AEC Blueprint (B.8 Sustainable Economic Development). Building on these objectives, the project will be conducted from FY2026 to FY2027 to provide concrete analysis for future CCU scenarios. The target EAS countries include Thailand, Indonesia, the Philippines, Malaysia, Vietnam, and Australia. The specific research objectives and methodologies are as follows: (1) collect region-specific data for Life Cycle Assessment (LCA) and Techno-Economic Assessment (TEA) to evaluate the potential and economic feasibility of CCU within EAS countries. (2) Establish standardized LCA/TEA methodologies to assess the CO₂ reduction potential and economic viability of CCU technologies for EAS countries.

The study on the Acceleration of Cross-Border CCS in AZEC Countries aims to comprehensively review the current state of policies and regulations in countries involved in cross-border CCS

and to present measures to facilitate early implementation, including the development of MRV systems, standardization of infrastructure and CO₂ quality, and bilateral arrangements on liability and CO₂ ownership. This study further seeks to establish a framework to enable cross-border CCS and to develop a template for standard multilateral agreements. The study plans to adopt the following methods: 1) Survey of existing regulatory instruments for cross-border CCS operations; 2) Literature survey of private contracts utilized in the cross-border CCS value chain, where available; 3) Cost analysis of cross-border CCS and identification of cost reduction opportunities; 4) Interviews with government and industry officials working in relevant fields; 5) Benchmarking against LNG supply chain contracts; 6) Focus group discussions (FGD) on the suitability of existing regulatory instruments for implementation in ASEAN and East Asia; 7) FGDs to formulate a template for regulatory instruments for cross-border CCS projects in ASEAN and East Asia.

B. Summary of Past Events

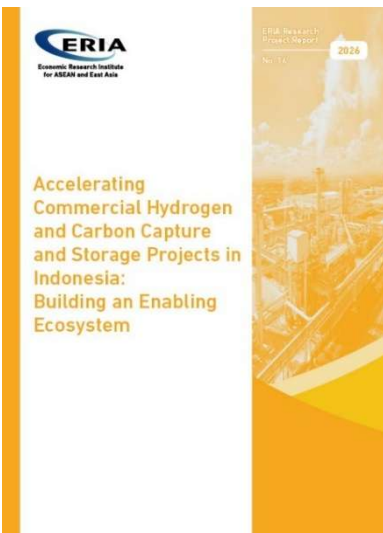
The 25th ACN Knowledge Sharing Conference – Joint Crediting Mechanism for CCUS Projects: An Overview of the Opportunity and Methodology

Virtual Conference, 28 September 2026.

Economically, the capital intensity of CCUS projects remains a substantial barrier. Perceived risks, along with low or uncertain returns, have limited private-sector participation. However, over the past two years, investors and financial institutions have shifted their perspectives on CCUS. Some banks and other financial institutions have begun financing CCUS projects. In addition, collaborative financing models are emerging, such as the Joint Crediting Mechanism (JCM). The JCM is a bilateral carbon crediting mechanism implemented in line with Article 6 of the Paris Agreement. During the conference, Mr Toshiki Ichikawa from the Ministry of Economy, Trade and Industry, Japan, provided an overview of the mechanism and shared recent discussions on CCS under the JCM. Ms Kikuko Shintchi from Mitsubishi Research Institute delved into the technical aspects of the JCM, particularly the development of CCS methodology. Ms Reza Radityastuty from bp Indonesia showcased Tangguh CCUS, a concrete example of a JCM project that is currently developing a methodology. Speakers and participants also had lively exchanges on JCM insights, such as leakage and credit allocation.

[Accelerating Commercial Hydrogen and Carbon Capture and Storage Projects in Indonesia: Building an Enabling Ecosystem](#)

By ERIA



ERIA published “Accelerating Commercial Hydrogen and Carbon Capture and Storage Projects in Indonesia: Building an Enabling Ecosystem” on 26 August 2026.

Despite significant resource potential, the deployment of hydrogen and carbon capture and storage (CCS) remains limited. Most projects are still at the feasibility study or memorandum of understanding (MoU) stage, with few progressing to commercial investment. Focusing on Indonesia, this study examines the factors underlying this slow progress and proposes pathways to accelerate implementation through a bifocal approach that combines private sector perspectives with enabling government policies, drawing on actual project case studies. To this end, interviews were conducted with private sector actors, government agencies, and other relevant stakeholders.

Using a policy and market ecosystem assessment, the study analyses cost structures, market readiness, fiscal frameworks, and institutional challenges. It identifies weak demand signals, limited revenue models, evolving regulatory frameworks, and insufficient financial de-risking as the principal barriers to investment. The study recommends positioning hydrogen and CCS as strategic national investments, strengthening the financial ecosystem, enabling carbon monetisation, and promoting cross-border business models. It also advocates a no-regret strategy, prioritising actions that generate value across a range of future scenarios.

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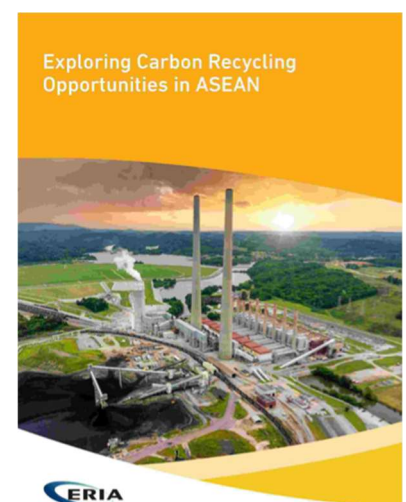
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[Exploring Carbon Recycling Opportunities in ASEAN](#)

By ERIA

ERIA published “Exploring Carbon Recycling Opportunity in ASEAN” on 16 September 2026. The book is the result of a collaborative study that applies a combination of desktop research, technology assessment, benchmarking, comparative analysis, and expert judgment to examine technological, policy and regulatory, and socio-technical aspects of carbon capture and utilisation (CCU).

The research study conducted as a Fiscal Year 2024/2025 activity assesses policies and strategic documents from various countries to identify insights into the broader application of CCU technologies and pathways for accelerating decarbonisation. The study highlights the potential of CO₂



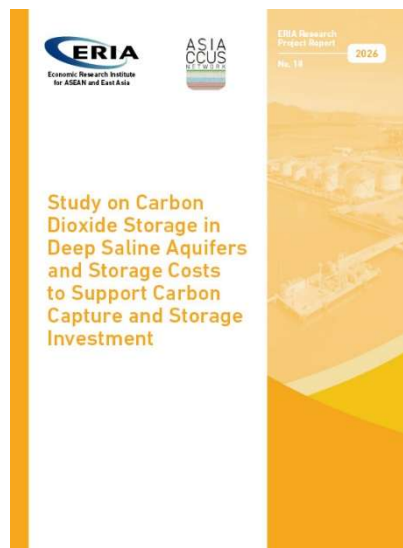
conversion technologies to support eco-innovation, including biomass-derived chemicals, synthetic fuels, mineralisation, and the direct use of CO₂ across various industries. It also examines the socio-economic and environmental implications of adopting these technologies in Asia, with a particular focus on Viet Nam, Indonesia, and India.

Overall, the study concludes that integrating renewable energy, negative-emission technologies, carbon recycling, and supportive policy frameworks is essential to advancing Asia's transition towards a carbon-neutral future. [Read more....](#)

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[Study on Carbon Dioxide Storage in Deep Saline Aquifers and Storage Costs to Support Carbon Capture Storage Investment](#)

By ERIA



ERIA published “Study on Carbon Dioxide Storage in Deep Saline Aquifers and Storage Costs to Support Carbon Capture and Storage Investment” on 29 September 2026. This study assessed the potential of East Java to serve as a CCUS hub for storing industrial CO₂ emissions from the industrial clusters of Surabaya, Gresik, and Lamongan. The assessment used geological and geophysical analyses, including well logs, seismic interpretation, static modelling, and dynamic simulation. Petrophysical analysis was used to determine key parameters such as porosity. The Prupuh Formation, located at depths of more than 1,000 metres and overlain by a strong seal, was identified as a prime candidate, with simulations indicating secure storage and good injectivity. While the Prupuh Formation shows favourable reservoir quality, thick marl in the Tuban and OK Formations provides sealing integrity. Geomechanical assessment found no critical risks of fault reactivation. Lifecycle costs were estimated using industry analogues.

The study confirms the feasibility and substantial capacity of deep saline aquifers in the East Java Basin, specifically the Nona Structure. Dynamic simulations of 30-year injection using seven vertical wells estimate a storage capacity of 27.61–48.10 million tonnes. Techno-economic analysis indicates that costs depend on the number of wells and infrastructure sharing. Pilot-scale unit costs are approximately US\$22.8/tonne, including MMV, while full-scale operations reduce costs to US\$4.5–11.1/tonne, demonstrating significant economies of scale. These figures are broadly consistent with global benchmarks, supporting the competitiveness of CO₂ storage in Indonesia.. [Read more....](#)

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D. Country Updates

Indonesia

First Tangguh UCC Jacket Completed

On 8 May 2026, bp and its contractors announced that the first of four offshore jackets for the Tangguh Ubadari, CCUS, Compression (UCC) project is complete. Built at Saipem's Karimun Yard, the 994-metric-ton structure is loaded on a barge for a roughly 5,800 km journey to Fakfak, Papua Barat. bp described it as built in Indonesia, by Indonesians, for Indonesia.

The project carries a 45% local content commitment and includes what would be Indonesia's first large-scale CCUS facility, with initial potential to sequester about 15 million tonnes of CO₂. It also develops around 3 trillion cubic feet of additional gas to support the country's long-term energy needs.

Asri Basin Aimed to be a Regional Carbon Storage Hub

PT Pertamina Hulu Energi (PHE) plans to develop the offshore Asri Basin as a regional carbon storage hub. Asri Basin is accounted for roughly 2.9 gigatons of CO₂ storage potential, with its offshore location near domestic emission centers and strategic shipping access. PHE and ExxonMobil are developing the first regional-scale CCS hub there, covering liquid CO₂ shipping, a receiving terminal, offshore pipelines, injection wells, and storage.

PHE has a wide range of CCUS project portfolio: 10 CCUS programs with a total injection of 5,671 tons of CO₂ equivalent, including the first CO₂ injection at the Sukowati field in December 2023.

Source:

- https://www.bp.com/content/dam/bp/country-sites/en_id/indonesia/home/news/press-releases/Press%20Release%20-%20UBA%20Jacket%20completed%20and%20ready%20for%20sail.pdf
- <https://phe.pertamina.com/id/media/perkuat-kemitraan-strategis-di-forum-kccus-korea-pertamina-hulu-energi-dorong-asri-basin-sebagai-hub-penyimpanan-karbon-regiona>

Japan

METI & MOE hold joint 5th CCS Business Working Group to advance regulatory guidelines

Ahead of full enforcement of the **CCS Business Act**, a joint METI–MOE expert committee met to draft essential operational guidelines. Key regulatory focus areas include:

- **Safety & Monitoring:** Leakage prevention, subsurface monitoring, and closure/termination protocols.
- **Business Governance:** Financial assurance requirements, permit procedures, and standard contract terms.

The secretariat will draft the guidelines based on committee deliberations, aiming for public consultation and final publication expected by the end of 2026.

Source:

https://www.meti.go.jp/shingikai/enecho/shigen_nenryu/carbon_management/ccs_business_system/005.html

METI funds 11 new JCM feasibility studies—including CCS projects in Indonesia & Malaysia

Japan's Ministry of Economy, Trade and Industry (METI) announced the first round of selected proposals for FY2026 infrastructure studies to secure future Joint Crediting Mechanism (JCM) credits.

Read full announcement: [METI FY2026 Selection Details \(In Japanese\)](#)

Bilateral Approval Granted for Tangguh CCUS under Japan–Indonesia JCM Framework

The Japan–Indonesia JCM Joint Committee has granted formal approval in August to a new portfolio of proposed carbon reduction projects. The selection features the "*Decarbonization of Ofaweri Gas Field Development Using Tangguh CCUS*," marking a significant expansion of cross-border carbon management collaboration.

Official announcement:

<https://www.jcm.go.jp/jc/information/20260814-2/>

Malaysia

Malaysia is advancing the plan for the deployment of CCUS by conducting offshore site investigations

PETRONAS CCS Solutions Sdn. Bhd. (PCCSS) signed a three-year contract with a possible two-year extension with Helms Geomarine Sdn Bhd (HELMS) in June 2026 to conduct offshore soil investigations for carbon capture and storage developments across Malaysia.

The contract covers geotechnical work for carbon storage facilities, injection wells, platforms, subsea pipelines, and monitoring equipment. Helms will deploy its new geotechnical vessel, Keyfield Itqan, for drilling, sampling, and laboratory testing to support engineering design.

The geotechnical data collected will be critical for ensuring safe and effective CO₂ injection and storage,

including the installation of offshore facilities such as pipelines, platforms, wells, and monitoring equipment.

The scope of the contract consists of a comprehensive range of offshore geotechnical services, including offshore drilling and sampling, downhole CPTu testing, laboratory testing, pile capacity and jack-up assessments, drivability analysis, and geotechnical reporting to support engineering design and project execution.

The awarded contract is a positive signal and a step forward toward Malaysia's target of the first injection of CO₂ by 2029 to achieve the 3.3 MTPA target.

Source: <https://helmsgeomarine.com/helms-awarded-offshore-soil-investigation-contract-for-petronas-ccs-business/>

Thailand

Thailand's CCUS Development and Potential

In its third NDC, submitted in 2025, Thailand aims to reduce its GHG emissions by 47% from 2019 levels by 2035. It also raises its ambition to achieve net zero emissions by 2050. CCUS plays a significant role in achieving these goals. Because two-thirds of emissions come from the power, transport, and industry sectors, in addition to introducing renewable energy and increasing energy efficiency, Thailand is considering CCS/CCUS as part of the solution to reduce emissions. (Thailand's NDC)

Thailand is already advancing several major CCUS initiatives across different sectors. It includes upstream natural gas processing, power generation, cement production, and industrial clusters. These initiatives range from the Arthit CCS project, expected to begin operation in 2028, to larger-scale CCUS hubs currently under development, including the Eastern Thailand CCS Hub, which could provide cross-border CCS services. (TCCA <https://tcca.nstda.or.th/potential-ccus>).

According to a review presented by ERIA, existing studies estimate that Thailand has substantial CO₂ storage potential, which ranges from approximately 7,000 Mt to over 79,000 Mt CO₂. Establishing a regulatory framework for CCUS deployment would help utilise this potential to the fullest.

Source:

- <https://unfccc.int/sites/default/files/2025-11/TH%20NDC%203.0.pdf>
- <https://tcca.nstda.or.th/potential-ccus>
- <https://www.eria.org/research/carbon-capture-storage-and-utilisation--ccus--development-in-thailand>

Timor Leste

Timor Leste CCUS Outlook

Timor-Leste, which formally joined the Association of Southeast Asian Nations (ASEAN) on 26 October 2025 as its 11th member state, possesses significant potential for CCUS development. To realize this potential, Timor-Leste has identified suitable sites, established a regulatory framework, and conducted feasibility studies for project deployment.

1. Potential Storage

Timor-Leste's storage potential is distributed across four areas, both offshore and onshore. The most geologically advanced assessment has been conducted on the Bayu-Undan Field. This depleted gas field is estimated to hold 10 million tons of CO₂ per year, with a total capacity of around 250 million tons. The site is considered a potential CCUS hub for storing emissions from Australian industry and Asia.

The second potential storage area is the offshore Bonaparte Basin, located along the maritime boundary between Australia and Timor-Leste. The storage capacity is situated in deep saline formations that offer high porosity and permeability, with a theoretical capacity exceeding that of depleted reservoirs.

The third promising site is the Greater Sunrise Complex, which is currently being developed as a gas project. The future depleted reservoir and its location adjacent to the Timor-Leste industrial complex make this site prospective for domestic CO₂ storage.

Other potential storage areas include onshore southern coastal regions, where sedimentary thickness is greatest. Since this region has been minimally assessed, it can be considered a site with future storage potential.

2. Regulatory Framework

The Timor-Leste Government, in cooperation with the IFC, is developing a dedicated legal framework for CCUS development following an agreement signed in 2023. This legislation is expected to cover the entire life cycle of CCUS projects, including site selection, characterization, testing, injection, and post-closure monitoring.

Currently, the most significant regulations governing CCUS activities in Timor-Leste are Decree-Law No. 62/2023 of September 6, 2023, which amends the legal framework of the National Petroleum Authority, and Decree-Law No. 59/2023, the Organic Law of the Ministry of Petroleum and Mineral Resources (MPRM).

The MPRM and ANP are the two regulatory authorities mandated to administer CCUS laws. First, the Ministry of Petroleum and Mineral Resources (MPRM) is the primary

government body responsible for formulating policies related to the energy sector and carbon management.

Second, the Autoridade Nacional do Petróleo (ANP), as the designated regulatory authority, oversees the technical implementation of the CCUS Decree-Law. It is responsible for issuing exploration and storage licenses, approving technical plans, and ensuring compliance with safety and environmental standards.

Furthermore, all CCUS activities must comply with the general Environmental Licensing Decree-Law No. 5/2011, which requires conducting rigorous Environmental Impact Assessments (EIA) and obtaining environmental licenses before operations commence.

3. Recent Development

The Timor-Leste Government and Santos have been exploring the utilization of the depleted Bayu-Undan gas field as a CCUS hub to store 10 MTPA of CO₂ over a 20-year period. Preparations, including the completion of the technical Front-End Engineering Design (FEED) and the establishment of bilateral agreements with regional partners such as Australia for cross-border CO₂ transport, have been finalized. It has been reported that Santos, the developer of the Bayu-Undan CCUS project, will reach a final investment decision (FID) in 2027. The CCUS project, which targets CO₂ from Ichthys LNG, Northern Territory Power, and Darwin LNG, is expected to be capable of storing 14 million tons per year by 2040. The development of Bayu-Undan as a "Carbon Hub" model aims to provide storage services for hard-to-abate industries in Southeast Asia and Australia.

Future expansion of CCUS in Timor-Leste could potentially include saline aquifer storage and the integration of Direct Air Capture (DAC) technologies.

Source:

- <https://timor-leste.gov.tl/wp-content/uploads/2011/07/Timor-Leste-Strategic-Plan-2011-20301.pdf>
- Decree-Law No. 59/2023 Organic Law (Framework Law) of the Ministry of Petroleum and Mineral Resources (MPRM)
- Decree-Law No. 62/2023 third amendment of Decree-Law No. 20/2008, of June 19, which established the National Pétroleuse Autorité
- <https://disclosures.ifc.org/project-detail/AS/607385/timor-leste-carbon-capture-storage>
- <https://www.argusmedia.com/en/news-and-insights/latest-market-news/2789881-australia-s-santos-plans-bayu-undan-ccs-fid-in-2027>

Viet Nam

Vietnam Establishes Legal Basis for CCUS Activities

Viet Nam established a legal foundation for CCUS activities by revising the Petroleum Law in 2022. The amended legislation was officially passed by the National Assembly on August 23, 2026. The Petroleum Law 2026 provides a comprehensive regulatory framework for CCS/CCUS projects, facilitating investment, permitting, and integration with existing petroleum operations. This law permits CCS/CCUS activities within petroleum contracts, including provisions for cost recovery and carbon credit ownership and trading.

The regulation of CCS/CCUS is expected to bolster Vietnam's 2050 net-zero target and enhance energy security. The Petroleum Law 2026 covers the entire CCUS project cycle, ranging from geological assessment and development planning to facility construction, operation, monitoring, decommissioning, closure, and project handover. The operational details, such as specific rights and responsibilities, liability, monitoring requirements, post-closure stewardship, risk management, financial obligations, and technical standards for site selection and permitting, will be regulated through government decrees and ministerial guidelines.

The Ministry of Industry and Trade is currently drafting a decree to guide the implementation of the law, ensuring it takes effect on March 1, 2027.

Petroleum Vietnam estimated that in Vietnam, the total available CO₂ storage capacity from depleted reservoirs and saline aquifers is estimated at 71 gigatons, distributed across the Song Hong Basin (39 gigatons), the Nam Con Son Basin (22 gigatons), and the Cuu Long Basin (10 gigatons).

Source:

- <https://moit.gov.vn/en/news/new-points-in-vietnam-s-amended-petroleum-law.html>
- https://archive.jccp.or.jp/international/conference/docs/LP3-1%20Dr.%20Phan%20Minh%20Quoc%20Binh_presentationpdf0111.pdf

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