# ASEAN CCS UPDATES 2024

**Vol 2: August – November 2024**

JOGMEC

ASEAN Centre for Energy
One Community for Sustainable Energy

# Acknowledgements

This ASEAN CCS (Carbon Capture and Storage) Updates publication has benefitted from the overall guidance of ACE's Acting Executive Director, Beni Suryadi.

This publication was led by Aldilla Noor Rakhiemah, prepared by Lintang Ambar Pramesti and Adeline Hyansalem Wicaksono from the Power, Fossil Fuel, Alternative Energy and Storage (PFS) Department. ACE colleagues, Suwanto, Shania Esmeralda Manaloe and Muhammad Anis Zhafran Al Anwary provided helpful reviews and feedback.

Publication was supported by ACE Communications Team, Aurelia Syafina Luthfi and Amara Zahra Djamil. The design of this publication was supported by Fadhiel Handira Ishaq and Muhammad Bayu Pradana Effendy of ACCEPT II Team.

This edition is funded by **JOGMEC** and this collaboration is organised by **Mitsubishi Research Institute, Inc. (MRI)**. ACE and JOGMEC have a longstanding partnership. In April 2021, JOGMEC launched the "JOGMEC Carbon Neutral Initiative," focusing on clean resources, decarbonised fuels, and essential decarbonisation systems. In May 2024, they co-authored a report on $CO_2$ cross-border transportation opportunities and challenges in ASEAN, with the support of national experts and MRI.

Mitsubishi Research Institute

JOGMEC

# Regional Highlights

The period from August to November 2024 has been marked by significant advancements in Carbon Capture and Storage (CCS) and Carbon Capture, Utilisation, and Storage (CCUS) across ASEAN. Regional collaboration on CCS/CCUS technology was a focal point at major events, such as the ASEAN Ministers on Energy Meeting (AMEM) and the Asia CCUS Network Forum.

## The Fourth Asia CCUS Network Forum 2024: Advances in Carbon Capture and Utilisation [ENG]

15/08/2024

### Summary

*The 4th Asia CCUS Network Forum 2024 focused on ASEAN cooperation in CCS/CCUS, highlighting legal frameworks, carbon recycling policies, and ongoing projects like Enhanced Oil Recovery (EOR) and Enhanced Gas Recovery (EGR), while noting CCS in saline aquifers is still in the demonstration stage.*

## Joint Ministerial Statement of the 42nd ASEAN Ministers on Energy Meeting (AMEM) [ENG]

26/09/2024

### Summary

*At the 42nd AMEM, held in Lao PDR, ministers highlighting coal decarbonisation through CCUS, biomass co-firing, and Integrated Gasification Combined Cycle (IGCC), alongside welcoming the ASEAN CCS Deployment Framework and Roadmap to attract investments and support cross-border CCUS projects.*

## ASEAN Joint Statement on Climate Change to the 29th Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP-29) [ENG]

09/10/2024

### Summary

*At the 44th and 45th ASEAN Summits, ASEAN emphasised advancing CCUS technology development and implementation as a key strategy for addressing climate change, fostering collaboration among member states, and facilitating transboundary clean energy projects to support a just transition.*

## JOGMEC published a handbook for $CO_2$ cross-border transport CCS – Toward the realization of $CO_2$ cross-border transport in the Asia-Pacific region – [ENG]

17/10/2024

### Summary

*JOGMEC published a handbook on $CO_2$ coss-border transport for CCS in Asia-Pacific, based on a February 2024 workshop, detailing legal frameworks, international standards, and projects to support $CO_2$ transport and storage across borders.*

# Country Highlights – Indonesia

## Regulation of the Minister of Energy and Mineral Resources Number 13 of 2024 concerning Gross Split Production Sharing Contracts.

[ID] [ENG]

06/08/2024

### Summary

*Chapter 3 of the **New Gross Split** outlines regulations concerning EOR and CCS/CCUS activities, which may be taken into account for additional revenue-sharing arrangements.*

## The DPR and the Ministry of Energy and Mineral Resources (ESDM) Approve the Draft Regulation on the National Energy Policy (KEN).

[ID]

06/11/2024

### Summary

*The Draft Government Regulation on the National Energy Policy **(RPP KEN)** has entered the harmonisation stage. **CCS technology** is mentioned as one of the measures to mitigate emissions in power generation.*

[Presentation Material]

## Indonesia Pavilion on COP29 UNFCC in Baku, Azerbaijan, Delivers Session on Country's Prospects for Climate Action through CCS and BECCS.

[ENG] [ENG]

15/11/2024

### Summary

*Indonesia discuss the CCS methodology and its possibilities of standardisation for implementation in a **tropical archipelagic countries** such as Indonesia **(C9 session)** and bioenergy production with CCS (**BECCS**) as an emerging green technology combining CCS in Indonesia's forestry and land use (FOLU) sector **(B6 session)**.*

# Country Highlights – Malaysia

## Malaysia's CCUS legislative framework will adhere to MA63 decision on state boundaries [ENG]

07/08/2024

### Summary

*The Ministry of Economy has assured Sarawak that the **upcoming legislative framework** for CCUS will adhere to the discussions on state boundaries outlined in the **Malaysia Agreement 1963 (MA63).***

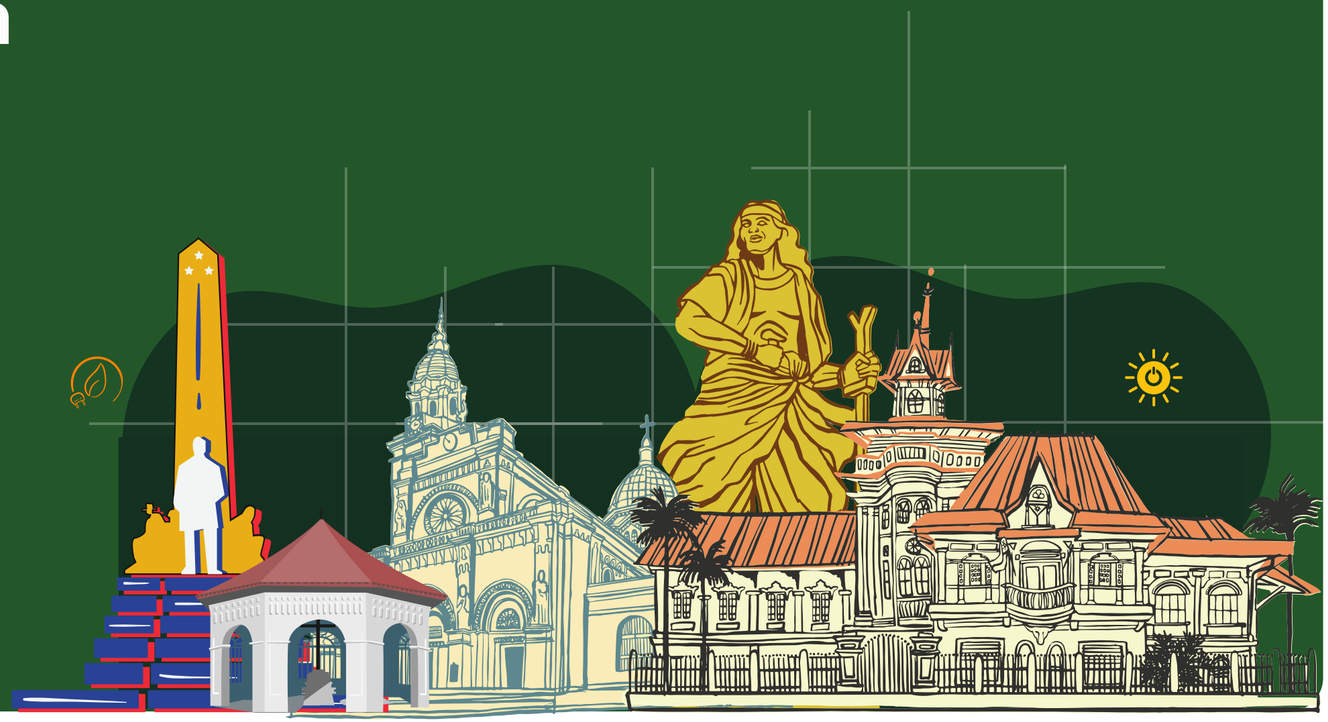
# Country Highlights – Philippines

## Saudi Arabia and Philippines Sign Energy Cooperation Agreement. [ENG]

15/10/2024

### Summary

*The **MoU** between Saudi Arabia and the Philippines plans to enhance cooperation in energy sectors, including oil and gas, renewable energy, and **CCS technologies**.*



# Country Highlights – Singapore

## Power Sector Carbon Capture and Storage Grant Call [ENG]

21/10/2024


### Summary

*EMA (Energy Market Authority) of Singapore has issued a grant call to collaborate with power generation companies and industry partners to conduct site-specific CCS feasibility studies.*


# Country Highlights – Viet Nam

## PM urges swiftly refine mechanisms to facilitate green development [ENG]

03/10/2024


### Summary

*During the fifth session of the national steering committee, the Prime Minister highlighted the strategic role of CCUS technologies.*


# News Details

# Joint ASEAN CCS/CCUS Cooperation

During the **4th Asia CCUS Network Forum 2024**, held on August 15, 2024, in Bangkok, significant discussions centered on enhancing joint ASEAN cooperation in CCS and CCUS initiatives.

Key topics included the commercialisation of CCS/CCUS businesses through **the establishment of appropriate legal and regulatory frameworks**, a focus on **policy and economic aspects** related to **Carbon Recycling (CCU)**, and collaboration with the **Carbon Management Challenge.**

The forum highlighted ongoing CCUS projects in Asia, particularly in oil and gas production countries like Indonesia and Malaysia, where techniques such as **Enhanced Oil Recovery (EOR)** and **Enhanced Gas Recovery (EGR)** are being implemented by international oil companies like BP and national oil companies such as PERTAMINA, often with support from developed nations' specialised organisations in CCUS.

However, despite these advancements, actual CCS projects aimed at **storing $CO_2$ in saline aquifers remain largely in the demonstration stage**, primarily reliant on governmental support to progress beyond initial phases.

At the **42nd AMEM**, held on September 26, 2024, in Lao PDR, Ministers underscored the critical importance of advancing ASEAN's sustainability and energy connectivity initiatives. The Meeting highlighted the substantial progress made in achieving the energy priorities set for 2024, particularly in promoting innovative solutions related to CCUS.

## AMEM's Highlights

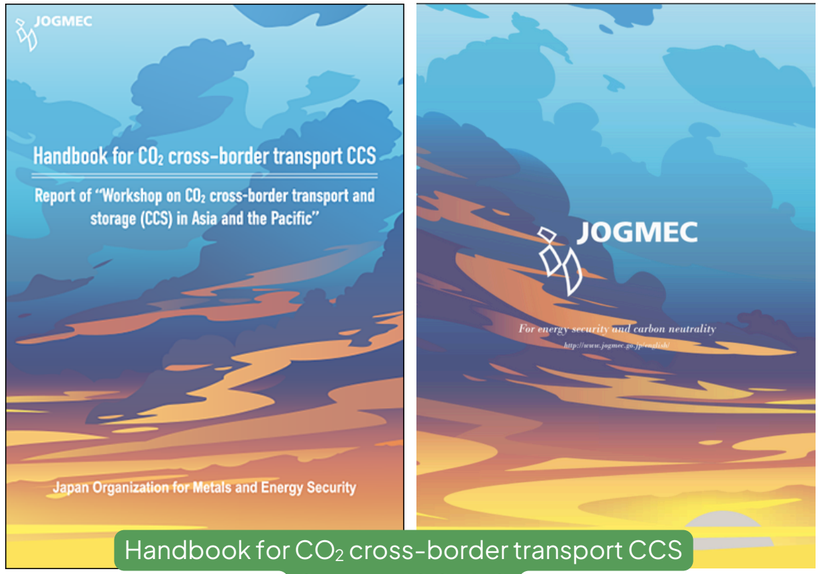
**Role of Coal and Clean Coal Technologies (CCT)**: The Meeting acknowledged coal's significance in ASEAN's energy mix while urging a phasedown of coal power through decarbonisation technologies, including CCUS, co-firing with biomass, and IGCC. The importance of advanced coal technologies, such as Supercritical and Ultra-Supercritical coal-fired plants, was also emphasised to enhance efficiency and reduce environmental impact.

**The ASEAN CCS Deployment Framework and Roadmap report** highlight the urgent need for stronger policy and regulatory frameworks to attract investments and mitigate risks related to CCUS. To facilitate this, an **ASEAN CCUS Working Group** will be established to enhance cross-sectoral collaboration, promote knowledge exchange, and support cross-border CCUS projects among member states.

Source: asean.org

# JOGMEC's Handbook for $CO_2$ Cross-Border Transport and CCS

- Japan Organization for Metals and Energy Security (JOGMEC) has published a "Handbook for $CO_2$ cross-border transport CCS - Toward the realization of $CO_2$ cross-border transport in the Asia-Pacific region."
- This handbook is based on the contents and results of the "Workshop on $CO_2$ cross-border transport and storage (CCS) in Asia and the Pacific" internationally hosted by the Ministry of Economy, Trade and Industry of Japan (METI), JOGMEC, and Asia CCUS Network on 8 February, 2024.
- This document comprehensively covers legal framework, international standards, and individual projects to realize $CO_2$ cross-border transport in the Asia-Pacific region.




Handbook for $CO_2$ cross-border transport CCS
**Source: JOGMEC**

## Key findings from the workshop

1. **Mandatory Legal Frameworks:** ASEAN countries must establish robust CCS and $CO_2$ cross-border transport regulations to enable project development.
2. **Model Case Studies:** Bilateral collaboration is essential for model studies, promoting shared $CO_2$ accounting standards and industrial best practices.
3. **Public-Private Collaboration:** Strong public-private partnerships and stakeholder engagement are crucial for implementing CCS projects and ensuring public acceptance.

# Indonesia's Ambitious CCS Frameworks and Projects

The Indonesian government has introduced **Gross Split Profit Sharing Contracts** based on the ***Peraturan Menteri ESDM Nomor 13/2024*** and ***Keputusan Menteri ESDM Nomor 230.K/MG.01.MEM.M/2024***. **This PSC** outlines regulations concerning Enhanced Oil Recovery (EOR) and CCS/CCUS activities, which may be taken into account for additional revenue-sharing arrangements.

## Gross Split Profit Sharing Contracts

- The Minister may adjust the profit-sharing percentage, increasing the Contractor's share if field commercialisation falls short of economic feasibility or allocating more to the state if it exceeds reasonable economic expectations.
- Enhanced oil/gas recovery (EOR) and CCUS initiatives may qualify for additional profit-sharing as part of the field development plan.

## Key Insights

- Rancangan Peraturan Pemerintah Kebijakan Energi Nasional (RPP KEN) has entered the harmonisation stage with the Ministry of Law and is currently awaiting presidential approval. The KEN strategy **relies on CCS technology** to mitigate emissions in power generation.
- Another noteworthy Indonesian CCS initiatives, include the Sukowati $CO_2$ Injection Pilot, in collaboration with Japan's JOGMEC, and multiple enhanced recovery projects, such as the **Minas field in Sumatra.**
- Agreements like the September 2024 MoU between **SKK Migas and China's Sinopec** underscore Indonesia's strategic push to lower the carbon footprint of its energy sector, with projects like Tangguh Train 3 already in motion.
- At **COP29 Indonesia's Pavilion**, during the C9 Session, Indonesia discussed standardising CCS methods for tropical archipelagic countries, with a focus on establishing a **national competence standard (SKKNI) for GHG Project Validators/Verifiers** in the energy sector, and a convention planned for December 2024.
- In Session B6, Indonesia's Ministry of Forestry showcased its BECCS innovation for climate action, while Marubeni, Pertamina, and Japex began a feasibility study in August 2024, targeting carbon-negative outcomes via $CO_2$ storage and utilization in decarbonisation efforts.

# Malaysia's CCS Legal Framework and Projects

- The Ministry of Economy, led by Rafizi Ramli, assured Sarawak that the proposed **legislative framework for the carbon capture, utilisation, and storage (CCUS)** industry will align with the ongoing Malaysia Agreement 1963 (MA63) discussions on state boundaries.
- The Ministry will stay updated on the MA63 platform's progress regarding the interpretation of federal and state boundaries to ensure the CCUS legislation accurately reflects the outcomes of these discussions.
- The development of the CCUS framework for Malaysia will follow the Attorney General Chamber's guidance, adhering to existing laws on boundary interpretation, including the Continental Shelf Act (1966), Exclusive Economic Zone Act (1984), and Territorial Sea Act (2012).

The Ministry of Economy proposed legislative framework for the CCUS.
**Source: New StraitsTimes**

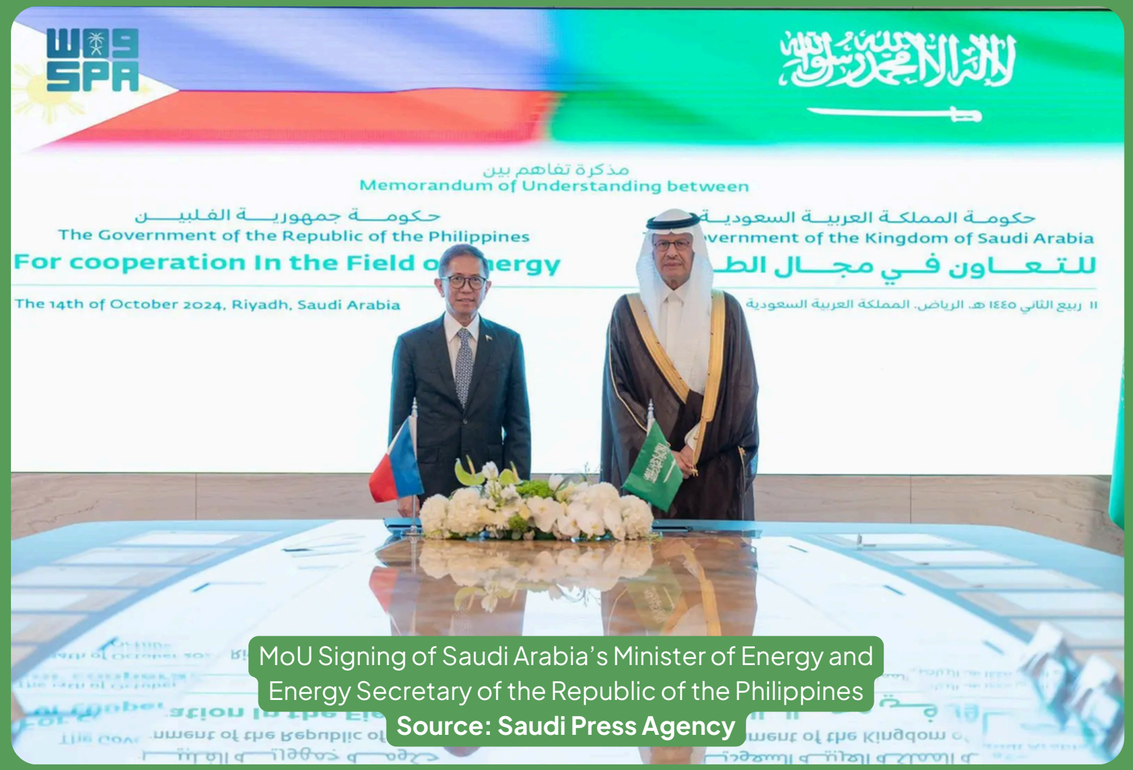
## Key Insights

- Malaysia is set to introduce **a carbon tax by 2026** ,with **revenue allocated for research and development** in decarbonisation technologies, including CCS and biochar solutions.
- The government aims to establish Malaysia as a **global hub for CCUS** by introducing a **sustainable regulatory framework** in Parliament this **November**, with plans to accelerate CCUS integration and create over 200,000 jobs, generating approximately US$250 billion in gross value over the next 30 years.
- Additionally, Malaysia is **collaborating** with Korean firms on liquefied natural gas (LNG) , hydrogen, and **CCS projects**, including the **Shepherd CCS Project**, which will transport carbon dioxide from Korea to Malaysia for storage.

# Philippines CCS/CCUS Vision

Recently, the Philippines signed a **MoU with Minister of Energy Prince Abdulaziz bin Salman bin Abdulaziz** to boost cooperation in oil and gas, petrochemicals, electricity, renewable energy, and circular carbon economy technologies.

This agreement underscores a **shared commitment** to climate change mitigation, with **CCUS** as a pivotal tool in reducing emissions, positioning the Philippines as a key player in Southeast Asia's transition toward sustainable energy solutions.




MoU Signing of Saudi Arabia's Minister of Energy and Energy Secretary of the Republic of the Philippines
**Source: Saudi Press Agency**

## Key Insights

The Philippines is advancing its climate action through CCUS technologies, with projects like the **P80-million Comprehensive Provincial Waste Management and Carbon Capture System Utilising Bio-Methanation No-Burn Project.** This initiative addresses waste management and carbon emissions by breaking down organic waste to produce biogas, thus avoiding incineration and reducing harmful emissions.

# Viet Nam's CCS Efforts

Prime Minister chairs the fifth session of the National Steering Committee.
**Source: Viet Nam News**

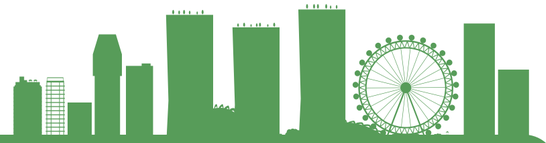
- Viet Nam's Prime Minister has called for accelerated efforts to **refine mechanisms** that support green development, emphasising the need for advancements in scientific research, technology, and innovation.
- During the fifth session of the national steering committee, the Prime Minister highlighted the strategic role of **CCUS technologies** as essential to achieving Vietnam's environmental goals, underlining a vision for the nation to lead in sustainable energy and climate action initiatives in Southeast Asia.

## Key Insights

- **A CCS Business Workshop** was also held in Danang, Vietnam, on October 30, 2024, organized by by JOGMEC and PetroVietnam, with co-sponsorship from JX-NOEX, with around 150 participants.including government officials and energy sector stakeholders.
- This was the **first workshop in Vietnam focusing on CCS business environment** by discussing legal frameworks, business models, and public awareness strategies. This initiative is part of a long-term collaboration, with the goal of launching CCS projects by the 2030s to support carbon neutrality.


Participants of Viet Nam CCS Business Workshop
**Source: JOGMEC**

# Singapore CCS/CCUS Initiatives



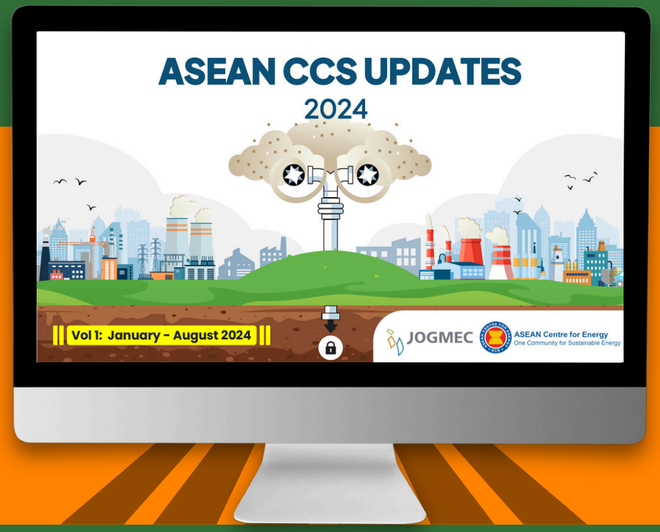
As Southeast Asia intensifies its efforts against climate change, Singapore's Energy Market Authority (EMA) has announced a **grant to explore CCS technologies,** focusing on both post-combustion methods (capturing $CO_2$ from exhaust gases of CCGTs) and pre-combustion methods (capturing $CO_2$ during hydrogen production from natural gas) to mitigate industrial emissions. The grant supports feasibility studies for CCS technologies, with a funding cap of S$350,000 or 50% of the study cost, whichever is lower. EMA has discretion to adjust the funding amount.

## To be eligible for the EMA grant for CCS technologies, participants must meet the following criteria:

- Must operate or plan to operate an H-class Combined Cycle Gas Turbine (CCGT) on Jurong Island or Tuas by 2035.
- A completed pre-feasibility study (within 12 months) for post-combustion or pre-combustion carbon capture must demonstrate technical feasibility and economic viability, with a $CO_2$ capture rate of at least 90%.
- The full original report of the pre-feasibility study must be submitted with the grant proposal.
- Proposals will be assessed based on their quality, including land requirements and the requested funding from EMA.
- The study must include AACE Class 5 cost and land footprint estimates for the proposed CCS technologies.

## Key Insights

- A flagship project on **Jurong Island,** slated to commence operations by 2030, epitomises Singapore's commitment, as it plans to capture and sequester significant emissions from major industrial sectors.
- Additionally, Singapore has signaled a **strong interest in investing** in **Indonesia's CCS and CCUS projects**, as indicated by recent dialogues between Singaporean Prime Minister Lee Hsien Loong and Indonesia's Minister of Investment.




Check out
**ASEAN CCS Updates 2024 Vol. 1**
through the barcode & link below

*go.aseanenergy.org/ASEAN-CCS-Updates-Vol1*

To learn more about the latest ACE publications you can download them from

*aseanenergy.org/publications*



For future information to provide feedback
Please contact ACE at
**secretariat@aseanenergy.org**