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WHO BENEFITS FROM CCUS IN MALAYSIA?

The Edge, Malaysia



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The recently passed Carbon Capture, Utilisation and Storage (CCUS) Bill has drawn different responses from stakeholders. What role does CCUS play in Malaysia's low-carbon transition, and are the laws robust enough to protect the country's interests while opening up new revenue streams? **PG6**

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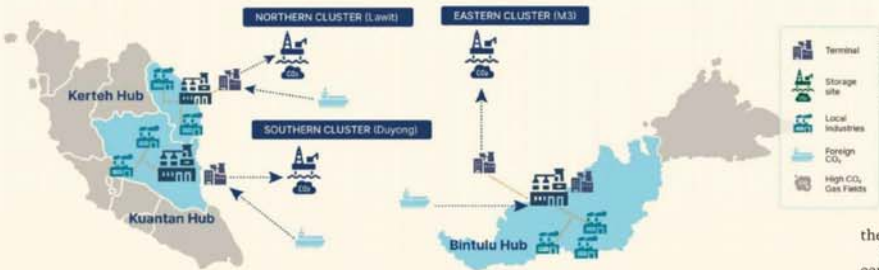
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Major CCUS projects planned by Malaysia



Pieter Stek, senior lecturer at the Asia School of Business, says: “For the oil and gas industry, CCUS is one of the ways they can reduce their emissions ... Injecting CO2 can also be a way to enhance gas or oil recovery. Basically, you inject it and it increases production.”

Petroleum Sarawak Bhd’s (Petros) announcement of its Sarawak Bid Round (2024) underscores this relationship. Alongside the state’s commitment to “driving CCUS innovation and contributing to the region’s net zero goals”, the state-owned company is “committed to rejuvenating onshore oil and gas potential in Sarawak, and advancing early commercialisation of onshore oil and gas discoveries”.

Some would argue that CCUS may be enabling more oil and gas extraction, but in a manner that is less carbon-intensive.

According to IEA, however, if the goal is to achieve net zero emissions by 2050, no new oil and gas fields should be approved after 2021. CCUS will still have a role in that journey in factories and plants, as well as sectors with few transition options, and through direct air capture.

As such, the main beneficiary of CCUS in Malaysia would seem to be the oil and gas industry, Stek observes.

In addition, the high cost of carbon storage is likely to deter local industries — especially in the absence of clear details on the proposed carbon tax — from pursuing CCS. Infrastructure for the capturing and transportation of carbon domestically will also need to be developed.

The NETR points out that commercially viable opportunities to use the captured CO2 are still lacking and deserve exploration, especially in sectors such as precast concrete and urea production.

In the shorter term, therefore, Malaysia will most likely be a storing ground for other countries’ CO2, says Stek, which is reflected in current agreements with foreign oil and gas companies (see table).

He stresses the importance of learning from other countries’ experience with CCUS and the need for independent agencies.

“Having an independent agency as a watchdog and reporting transparency on accidents is part of the Australian bill, so it’s something the Malaysian agency needs to make.”

At press time, Petros had not responded to ESG’s requests for comments.

A RUSHED BILL AND CONCERNS ON IMPORTING ‘WASTE’

Several NGOs say the implementation of the CCUS Bill was rushed, as it was passed before the Climate Change Bill and after only one public consultation session.

“In an ideal world, the bill would come out for consultation first, the public sees it and then public hearings are held. Afterwards, there would be amendments before heading to the legislative floor,” says Stek.

Kieran concurs, saying that further consultation should have been undertaken, especially given that the final bill differed significantly from what was



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Stek, Asia School of Business

presented during earlier consultations.

“While the Ministry of Economy is said to have conducted consultation with public interest on the bill, there are multiple accounts of its being an inadequate process. The outline presented was very preliminary and incomparable to the final bill presented during the readings,” says Kieran.

The frustration came to a head when Minister of Economy Rafizi Ramli stated that the ministry wanted to pass the bill by March 31 to secure long-term investment opportunities.

“If Malaysia cannot enforce this [bill] by March 31, we will be out — we cannot enter the bid,” Rafizi said when the bill was passed.

This narrative by the government has raised concerns that the push for CCUS is primarily an economic decision that is being masked as an environmental one. It has also elicited criticism from NGOs that Malaysia is importing waste and is not prepared for accidents that may occur, such as a leak.

The London Protocol was enacted in 1996 to prohibit disposal of waste at sea, and it was amended two decades ago to enable safe and secure sequestration of CO2 streams in geologic formations under the seabed.

According to the Protocol, CO2 streams from capture processes may be considered for dumping only if the disposal is made into a sub-seabed geological formation and consists overwhelmingly of CO2, and no wastes or other matter are added.

“Two countries we’re dealing with — Japan and South Korea — are signatories to this convention, and the NETR also makes references to it in designing transboundary CCUS provisions. Thus, CO2 storage should be viewed in this lens, as a potential source of pollution that must be subject to stringent regulation,” says Kieran.

The risk of pollution to water sources from leakage of CCUS sites to adjacent geological formations is a concern often brought up by NGOs.

SAM, for instance, issued a statement highlighting potential harmful geochemical reactions and mobilisation of polluting elements from these sites. The NGO finds that the bill does not contain sufficient safeguards for environmental protection and public health at the moment.

Proper and effective regulation, monitoring and reporting would be needed to prevent such incidents from occurring. Some of these points are mentioned in the CCUS Bill and in Sarawak’s Land (Carbon Storage) Rules, 2022.

Under the CCUS Bill, the CCUS agency must report to the minister on any matters concerning leakage or significant irregularity. If there are leakages or irregularities, the operator must carry out corrective measures and remediation measures.

The CO2 stream shall consist overwhelmingly of the gas, and no waste can be added. The concentration must also be below levels that would adversely affect the integrity of the storage site or pose significant risks to human health or the environment.

Sarawak’s Land (Carbon Storage) Rules, 2022, goes further and says the authority may reject the application from a CCUS operator if it decides that the licensed area is “not suitable, safe or in the public interest”. The storage permit can be revoked if “any scientific finding or technological development makes the continued use of the storage site unsafe, or would adversely affect the environment in and around the site”.

An Environmental Impact Assessment (EIA) report, approved by the state’s Natural Resources and Environmental Board, is needed to obtain a storage permit. Applicants must also provide audited financial statements for the last two financial years to demonstrate its ability to manage the project.

It is not clear whether these reports and, in Sarawak’s case, EIAs will be made public. This is another point of contention. SAM has called for clarity on which CCS projects require EIAs and demanded that the ruling should come under the Second Schedule, which makes it mandatory for public display and public comment.

CCUS initiatives in Malaysia

PROJECT	STATE	COMPANIES INVOLVED	STATUS
M3	Sarawak	Petronas, Petros, eight Japanese companies	Undergoing a feasibility study to turn the depleted gas field into a carbon storage site
Kasawari	Sarawak	Petronas	The gas field, which commenced production in 2023, is also being developed for CCS. Carbon dioxide will be captured from flaring, to be stored in the site.
Lang Lebah	Sarawak	Petros	Undergoing a study for CCS in the huge gas field, which is expected to come onstream in 2027
Southwest and Western Luconia	Sarawak	Petros	Offered during the Sarawak Bid Round (SBR 2024), which will enable sour gas fields development and decarbonisation of industries
Balingian	Sarawak	Petros	Offered during SBR 2024, comprising depleted fields near their end of life. Its location close to shore allows for potential development of a new onshore gas plant.
Central Luconia	Sarawak	Petros	Offered during SBR 2024, featuring saline aquifers and depleted fields, with potential nearby sour gas field development
BIGST Field	Terengganu	Petronas and JX Nippon Oil & Gas Exploration	Production Sharing Contract signed for development and production of high CO2 gas fields, which will incorporate CCS technology
Lauvit Field	Terengganu	Petronas and ExxonMobil	Evaluation of potential for carbon storage in the active gas field operated by ExxonMobil, where extraction is expected to continue to 2031
Penyu Basin	Pahang	Petronas, ADNOC, Storennga	Undergoing study to store captured carbon in its saline aquifer. In 2021, Petronas awarded Small Field Asset Production Sharing Contracts to develop some small oil fields in the Basin.
Duyong Field	Pahang	Petronas, TotalEnergies, Mitsui	Undergoing a pipeline site survey to turn the mature gas field into a storage site for carbon dioxide captured onshore