CLIMATE POLICY INITIATIVE

POLICY BRIEF

Spotlight: Financing Oil & Gas Methane Abatement in Southeast Asia

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ABOUT CLIMATE POLICY INITIATIVE

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, India, Indonesia, the United Kingdom, and the United States.

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1. BACKGROUND

Building on the findings from the Landscape of Methane Abatement Finance 2023, and How to Start Scaling Methane Abatement Finance, which identify methane abatement finance gaps and entry points for stakeholders to close the investment gap, this **spotlight offers an overview of methane abatement-related activities and opportunities in the oil and gas industry in Southeast Asia.**

In Southeast Asia, the fossil fuels sector is the second-largest contributor to methane emissions, following Agriculture, Forestry and Other Land Use (AFOLU). The region's energy sector was responsible for 275 million metric tonnes of methane (CO_2e) in 2020 alone (Bhaskoro, Ahmad, & Suryadi, 2023). Southeast Asia has experienced an explosion of economic growth in the past 20 years, with most countries' economies doubling in size. Energy consumption has also grown dramatically in the region, increasing by 3% per year since 2000 (Broom, 2022). The region still relies heavily on oil and gas, which accounted for approximately 56% of its total primary energy supply in 2020 (ASEAN Centre for Energy, 2022).

While countries are striving to eliminate reliance on fossil fuels, this transition will take several years. In the meantime, methane abatement offers a low-cost and quick-win opportunity to reduce emissions in the sector while countries work on deep decarbonization through just transition. In contrast, if business-as-usual continues, methane emissions from the energy sector in Southeast Asia could quadruple by 2050 (Bhaskoro, Ahmad, & Suryadi, 2023).

Most methane emissions in fossil fuel operations are caused by leaks, for which abatement measures are simple and cost-effective. For example, the lead time for measures such as repairing equipment to eliminate fugitive emissions is typically less than two years (Saunier & Haugland, 2021). The IEA estimates that, about 80% of options to reduce emissions in oil and gas operations worldwide could be implemented at no net cost, and together could avoid 40% of methane emissions from fossil fuel operations (IEA, 2023).

There is even a strong business case for oil and gas companies to invest in methane abatement. Methane capture and reuse is estimated to bring an additional 80 billion cubic meters of natural gas online, which at 2022's oil prices would yield USD 20 billion in net income (IEA, 2022). Therefore, there is no reason why methane leaks should continue to make up most of the sector's greenhouse gas footprint. Yet, methane abatement finance is disproportionately lacking in the oil and gas sector.

2. CHALLENGES

Of methane abatement finance flows tracked by CPI for 2019/2020 and 2021/2022, there was no tracked financing targeting oil and gas in Southeast Asia (CPI 2021, 2023). It should be noted that this may be partly due to data gaps and tracking limitations.

Regardless, there is an opportunity and need for finance to be scaled drastically. Methane abatement for oil and gas will be critical to mitigate near-term climate impacts as the region uses more energy for its development, and will also provide many co-benefits, such as improved air quality, improved health outcomes, and greater agricultural productivity (CCAC & World Bank, 2013). Methane capture can even offer additional energy sources to meet growing energy demand (IEA, 2023). Therefore, advancing methane abatement finance for oil and gas in Southeast Asia represents an immense opportunity in the energy transition to enact highly effective measures for mitigating near-term warming at low or even net-negative costs.

However, persistent barriers hinder methane abatement in the oil and gas sector, as described in Table 1.

Table 1: Methane abatement challenges in the oil and gas sector in Southeast Asia

Barrier	Description
Limited capacity	Individual operators may lack the capital or know-how to implement methane abatement measures, or lack awareness of the scale and impact of methane emissions in their operations. Availability of accurate data on methane emission inventories is very limited. Limited monitoring, reporting, and verification makes showing viability of methane abatement projects difficult, decreasing the attractiveness of methane abatement project investment.
Lack of infrastructure	The absence of an established market for captured gas in the region, as well as lack of infrastructure for transportation of methane gas, pose barriers to abatement measures targeting fugitive emissions.
Underdeveloped regulations	Throughout the region, there is a lack of country-level regulatory frameworks guiding or compelling operators to implement methane abatement solutions or best practices.
Lack of definition for transition finance	High-emitting industries need finance to transition to low-carbon futures. However, due to reputational issues and lack of clear definitions around credible transition finance, that may well include reducing methane emissions, there is a general reluctance to invest in high emissions industries.

Source: Bhaskoro, Ahmad, & Suryadi, 2023

3. STAKEHOLDERS

The structure of the oil and gas sector varies throughout The Association of Southeast Asian Nations (ASEAN) Member States (AMS), ranging from fully state-owned, such as Petrovietnam in Vietnam, to highly privatized national sectors, as is the case in the Philippines. Table 2 gives an overview of the composition of the oil and gas sectors throughout AMS and notes important stakeholders.

Table 2: Oil and gas sector composition in Southeast Asian countries

Country	O&G ownership and key stakeholders
Brunei	**Private/Public:** Brunei Shell Petroleum, a 50:50 joint venture between Shell and the Brunei government, has 90% market share (Shell, 2020). Petroleum Authority of Brunei Darussalam is the regulatory body for the oil and gas industry in Brunei (Petroleum Authority of Brunei Darussalam, 2023).
Cambodia	Reserves have not been exploited; Cambodia relies on imports of from other Southeast Asian countries (Vietnam, Singapore, and Thailand) (ERIA Study Team, 2022).
Indonesia	**Private/Public:** State-owned PETRAMINA has a 60% market share (Budiartie & Umah, 2020). Private multinational operators, such as Exxon, Chevron, Shell, and TotalEnergies are also prominent players (SKK Migas, 2018).
Laos	Relies on imports of oil and gas from Thailand, Malaysia, China, Vietnam, and Spain (OEC, 2023).
Malaysia	**Public:** State-owned PETRONAS is the main operator and owner of all oil and gas reserves. Nevertheless, private companies also operate within the country, including Shell, Exxon, and BP (Statista Research Department, 2023a).
Myanmar	**Private/Public:** Government body Myanma Oil & Gas Enterprise organizes tenders for private companies (Privacy Shield, 2023).
Philippines	**Private:** 42% of industry is owned by the 'big three' private companies: Shell; Petron; Chevron (Statista Research Department, 2023b). Upstream operations are all around the Malampaya oil and gas field, owned by a consortium of Shell Philippines, Chevron, and the state-owned Philippine National Oil Company. Downstream refining is operated by Petron, Shell, and Chevron (ITA, 2021).
Singapore	**Private:** approximately 1.5 million barrels/day of oil are refined in Singapore, by private operators ExxonMobil, Singapore Petroleum Company, and Shell. These are primarily exported to Asia (Japan, South Korea, and Thailand are key markets) (Koons, 2023).
Thailand	**Private/Public:** Mixture of state oil companies and regional and multi-national energy companies (Exxon; Chevron; Bangchak; Thai Oil). State-owned oil company PTT operates both upstream and downstream (Mordor Intelligence, 2023).
Vietnam	**Public:** state-owned Petrovietnam controls most crude oil production, and is the first and only enterprise to conduct liquified natural gas activities (Statista Research Group, 2023c).

3.1 PUBLIC SECTOR ACTORS

In many states, large portions of the oil and gas industry are state-owned, giving regulators ample opportunity to influence and lead the sector towards methane abatement. For instance, Malaysian state-owned oil company PETRONAS is one of the earliest adopters of methane reduction targets in ASEAN, having announced its intention to reduce methane emissions by 50% by 2025 (Bhaskoro, Ahmad, & Suryadi, 2023).

However, government action on methane in oil and gas in the region has been limited to date. All AMS have included methane abatement in their Nationally Determined Contributions, and several[1] have joined the Global Methane Pledge. While most countries in the region have implemented policies for reducing methane in the waste or AFOLU sectors, strategies specific to oil and gas methane emissions are ostensibly missing (Bhaskoro, Ahmad, & Suryadi, 2023).

Figure 3: Summary of AMS' updates to NDCs on methane emissions

Country	Methane in the GHG Coverage	Methane Reduction Strategies		
		Oil and Gas	Waste	Agriculture
Brunei Darussalem	✓	N/A	✓	
Cambodia	✓	N/A	✓	✓
Indonesia	✓	N/A	✓	✓
Lao PDR	✓	N/A	✓	✓
Malaysia	✓	N/A		
Myanmar	✓	N/A	✓	
The Philippines	✓	N/A		
Singapore	✓	N/A		
Thailand	✓	N/A		
Vietnam	✓	N/A		✓

Source: Bhaskoro, Ahmad, & Suryadi, ASEAN Centre For Energy, 2023

Approaches for domestic policy makers on emissions reduction will vary throughout the region depending on the structure of each country's oil and gas industries and reserves (see Table 2). For instance, Indonesia, Malaysia, and Brunei are major exporters of natural gas, together accounting for 12% of global liquid natural gas exports in 2021 (Wells, 2021). These countries' overall methane emissions are primarily caused by fossil fuels, with the majority of emissions caused the intentional venting or flaring of natural gas, followed by unintentional fugitive emissions (Jiahui & Wong, 2022). In these countries, governments should prohibit all non-emergency flaring of natural gas and can also set operational standards for oil and gas production, requiring upstream leak detection and repair (LDAR) or the installation vapor recovery units for vented

1 Malaysia, Indonesia, Philippines, Vietnam, and Timor Leste have all signed the Global Methane Pledge

emissions. In Malaysia alone, implementing upstream LDAR could mitigate up to 1,413 ktCO2e of methane emissions per year (Jiahui & Wong, 2022).

On the other hand, countries that are primarily oil and gas importers, like Cambodia or Laos, may consider setting methane-related import standards on oil and gas imported in the region.

Countries with nationally- or partially nationally-owned oil and gas companies, such as Brunei, Vietnam, Malaysia, and Thailand, can leverage expertise within the state-owned entities to support policies that promote methane abatement in the region through training and capacity building with relevant ministries (Bhaskoro, Ahmad, & Suryadi, 2023).

Governments should take immediate action to address major challenges to methane abatement in the oil and gas sector. An overview of available options is described in Section 3.1 of our accompanying report, How to Start Scaling Methane Abatement Finance.

3.2 PRIVATE SECTOR ACTORS

While some oil and gas companies in Southeast Asia are state-owned or partly state-owned, private operators still make up a substantial portion of the industry. Large oil and gas operators in the region have committed to reducing methane emissions. For example, Shell, BP, Chevron, Eni, ExxonMobil, and TotalEnergies are all signatories to the Methane Guiding Principles to include principles for methane abatement along the natural gas supply chain (Methane Guiding Principles, 2023). Private companies have also improved monitoring by installing supporting devices (Bhaskoro, Ahmad, & Suryadi, 2023).

Given the untapped potential for cost-effective methane abatement in the oil and gas industry, private sector action could be scaled significantly. The private sector does not need to wait to be compelled by the public sector to implement methane abatement solutions. Upstream LDAR, vapor recovery units, and replacing conventional pumps could all bring cost savings for Brunei and Malaysia, for example (Jiahui & Wong, 2022).

Private actors can also collaborate with the public sector to reduce methane emissions. The ASEAN Energy Sector Methane Roundtable, established in 2021, is a platform for private and public actors in AMS to discuss key barriers and solutions. The Roundtable led to the launch of the ASEAN Energy Sector Methane Leadership Program (MLP) in June 2023. Led by PETRONAS in collaboration with other oil and gas operators, government agencies, and international organizations,[2] the 18-month MLP initiative focuses on capacity building for ASEAN energy companies and other stakeholders. It will offer training for companies on reduction targets, mitigation opportunities, and financing options for methane abatement (PETRONAS, 2023).

Opportunities for voluntary action from the private sector in Southeast Asia mirror those described for the private sector globally, such as methane net zero strategies and tracking Scope 1, 2, and 3 methane emissions. These actions are described further in Section 3.3 of the accompanying policy brief, How to Start Scaling Methane Abatement Finance.

2 Other stakeholders include: ASEAN Centre of Energy (ACE), ASEAN Council on Petroleum (ASCOPE), Environmental Defense Fund (EDF), Japan Organization for Metals and Energy Security (JOGMEC), Methane Guiding Principles (MGP), PERTAMINA, PETRONAS, PTTEP, The World Bank, United Nations Environment Programme International Methane Emissions Observatory (UNEP IMEO), United States Agency for International Development (USAID), United States Department of Energy and United States Trade and Development Agency (USTDA)

3.3 PUBLIC INTERNATIONAL FINANCE

Although there was no tracked methane abatement finance to the oil and gas industry in Southeast Asia, there were small flows from public international financial institutions (IFIs), such as multilateral and bilateral development banks, to methane abatement in other sectors in Southeast Asia during 2021/2022. For instance, water and wastewater methane abatement projects received USD 97 million per year, exclusively from the Export-Import Bank of Korea. The Asian Development Bank provided USD 18 million per year in the same period for methane abatement for AFOLU. As such, there is an opportunity for existing financiers to further expand and pursue methane reduction projects in the region.

International finance for methane abatement for oil and gas in Southeast Asia could be significantly accelerated, as an integral part of a just energy transition until the region moves away from fossil fuels. IFI programs aimed at reducing methane emissions from oil and gas should prioritize Southeast Asia, given the region's projected growth in the future.

For instance, the World Bank's Global Gas Flaring Reduction Partnership (GGFR), which engages governments, oil companies and multilateral organizations to end routine gas flaring, could develop country-specific flaring reduction programs in the region (World Bank, 2023). Currently, no Southeast Asian countries are engaged in GGFR, but Brunei and Malaysia may be good candidates.

Other options for advancing international methane abatement finance can be found in Section 3.2 of the accompanying report.

4. CONCLUSION

While there is need for significant action on all fronts to curb methane emissions and advance methane abatement finance for oil and gas in Southeast Asia, there are promising signs of the industry moving in the right direction.

However, while important during the interim of an energy transition, having the oil and gas industry reduce methane is only the first step. At the same time, countries need to see significant action in other high-methane sectors, such as AFOLU and waste, as well as concrete progress towards a decarbonized energy sector.

Stakeholders must also continue to prioritize knowledge sharing and collaboration as they continue strive towards methane reduction in the region.

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