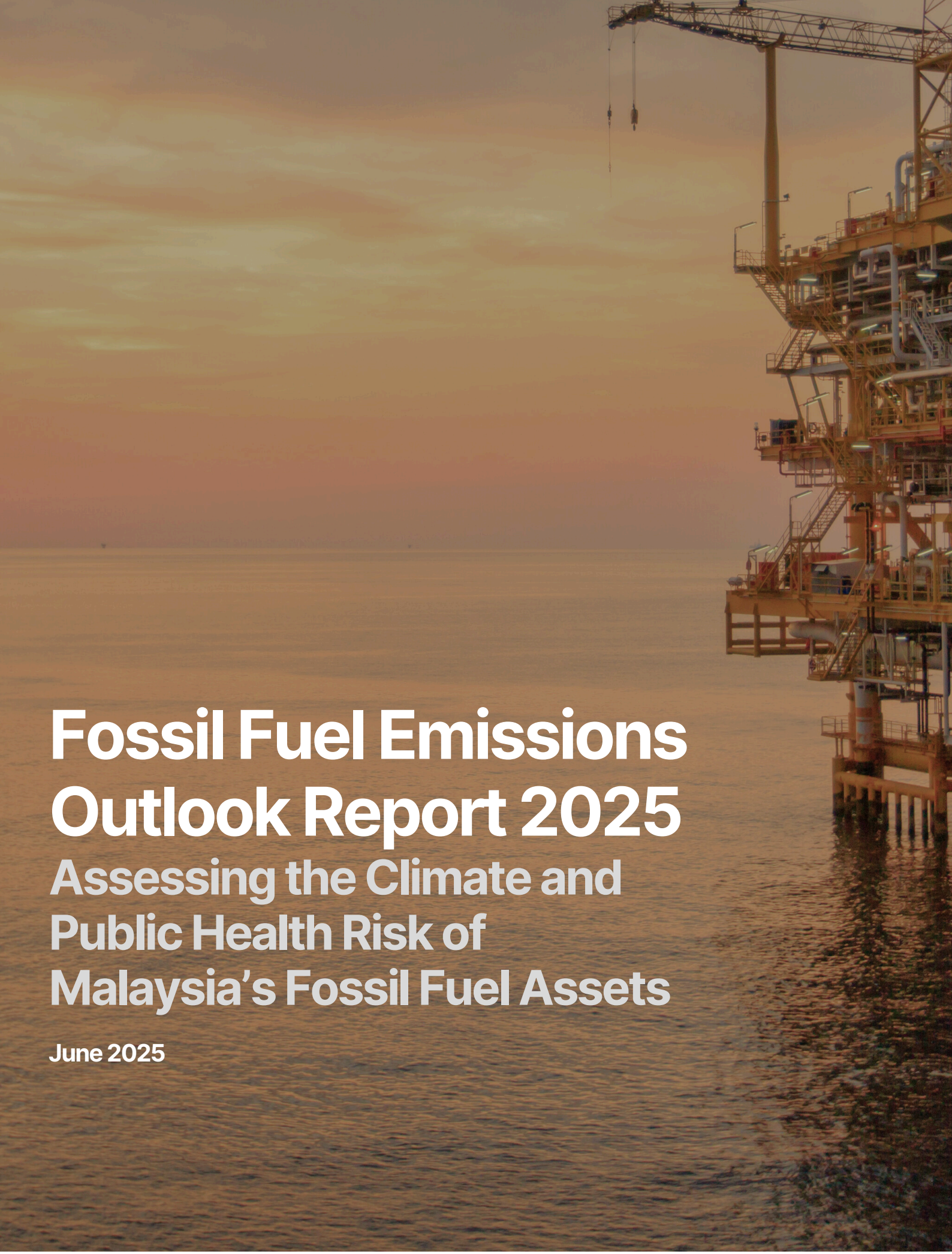

Fossil Fuel Emissions Outlook Report 2025

Assessing the Climate and Public Health Risk of Malaysia's Fossil Fuel Assets

June 2025

rimbawatch

CREA
Centre for Research on Energy and Clean Air

About RimbaWatch

RimbaWatch is an environmental think-tank conducting research and advocacy on climate-related issues in the Maritime Southeast Asian region.

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The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution.

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This analysis is the first in a series of reports on the environmental impact of fossil fuels in Malaysia.

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Fossil Fuel Emissions Outlook Report 2025

Assessing the Climate and Public Health Risk of Malaysia's Fossil Fuel Assets

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Key Abbreviations and Terms

bbl – Barrel of Oil
bboe – Billion Barrels of Oil Equivalent
bcf – Billion Cubic Feet
boe – Barrels of Oil Equivalent
bn - Billion
CCUS – Carbon Capture, Utilization and Storage
CH_4 – Methane
CO_2 – Carbon Dioxide
CO_2e – Carbon Dioxide Equivalent
CREA – Centre for Research on Energy and Clean Air
DOSM – Department of Statistics Malaysia
EDGAR – Emissions Database for Global Atmospheric Research
EIA – U.S. Energy Information Administration
GEM – Global Energy Monitor
GHG – Greenhouse Gas
GWP – Global Warming Potential
ICE – Internal Combustion Engine
IEA – International Energy Agency
IISD – International Institute for Sustainable Development
IPCC – Intergovernmental Panel on Climate Change
JDA – Joint Development Area
LLA – Late Life Asset
N2O – Nitrous Oxide
NDC – Nationally Determined Contributions
NETR – National Energy Transition Roadmap
NOC – National Oil Company
NZCE – Net Zero Carbon Emissions Pathway (PETRONAS)
PDA – Petroleum Development Act 1974
PETRONAS – Petroliam Nasional Berhad
PETROS – Petroleum Sarawak Berhad
PSC – Production Sharing Contract
PRA – Petroleum Regulation Act
RRR – Remaining Recoverable Reserves
SST – State Sales Tax
tCO_2e – Tonnes of Carbon Dioxide Equivalent
$mtCO_2e$ – Million Tonnes of Carbon Dioxide Equivalent
$btCO_2e$ – Billion Tonnes of Carbon Dioxide Equivalent
TJ – Terajoule
WBA – World Benchmarking Alliance

Executive Summary

TThis report assesses the emissions lock-in risk associated with Malaysia's fossil fuel assets. Malaysia's economy is deeply intertwined with fossil fuel production, with PETRONAS, the national oil company, playing a pivotal role. However, Malaysia's heavy reliance on fossil fuels raises significant climate risks amid global efforts to limit the global temperature rise to 1.5°C.

Malaysia holds approximately **9.84 billion barrels of oil equivalent (boe)** in committed recoverable fossil fuel reserves, predominantly fossil gas. These reserves are concentrated in Sarawak, with key fields such as Kasawari, Kertang, and Lang-Lebah holding over half of total reserves. The continued extraction and use of these assets would lock in an estimated **4.15 billion tonnes of CO2 equivalent (tCO_2e)** emissions to the global atmosphere.

Methane emissions, a potent greenhouse gas, are another critical concern. The committed reserves are projected to lock-in **10.9 million tonnes of methane ($mtCH_4$),** equivalent to about 9% of global fossil fuel-related methane emissions in 2023. Methane has a far greater short-term global warming potential than CO_2, exacerbating climate risks significantly. Through an analysis into the public health impacts of methane emissions, it is estimated that over **8,200 premature deaths** will occur globally as a direct consequence of the extraction of these reserves.

Malaysia's energy transition plans, such as the National Energy Transition Roadmap (NETR) and PETRONAS's Net Zero Carbon Emissions Pathway, are largely insufficient and counterproductive towards addressing these risks. The NETR **envisions fossil gas becoming an even larger share** of Malaysia's energy mix by 2050, while renewable energy growth remains marginal. PETRONAS's climate strategies **exclude Scope 3 emissions** (representing 80% of fossil fuel emissions) and focus on carbon capture and storage (CCUS) technologies, which risk enabling further fossil fuel expansion rather than generating meaningful emissions reductions.

This report stresses that Malaysia's fossil fuel industry is a significant contributor to global anthropogenic emissions, both historically and currently. Despite rhetoric downplaying Malaysia's responsibility, climate science is clear: fossil fuel expansion is inconsistent with a global pathway to limit the temperature rise to 1.5°C, and large producers including Malaysia must **urgently reduce fossil fuel production in line with this.**

Background

Historical Setting and Legal Background

The first hydrocarbons were discovered in Malaysia in 1910 by Shell, on "Canada Hill" in Miri, Sarawak. On 10th August of that year, Shell began production from the well "Miri No. 1", and was producing 83 barrels per day by December of that year. Between 1910 and 1929, Malaysia's first refinery and pipeline had been constructed in Miri, Kuala Lumpur's first petrol pump was installed, and production had increased to 15,000 barrels per day (Shell, n.d and Kumar et al., 2020).

Domestic production remained stagnant until 1963, when Shell led the discovery of Malaysia's first offshore field, Baram, with first oil being achieved in 1968. In that year, exploration activities commenced in Peninsular Malaysia. By 1974, four of 19 discovered reserves across Malaysia were in commercial production, producing almost 100,000 barrels per day, with the industry primarily run by foreign companies, including Shell, Esso and Conoco (BPMP, n.d).

In July 1974, the Petroleum Development Act (PDA) was enacted, with the aim of regulating the nation's oil, gas and petrochemical industry:

"*An Act to provide for exploration and exploitation of petroleum whether onshore or offshore by a Corporation in which will be vested the entire ownership in and the exclusive rights, powers, liberties and privileges in respect of the said petroleum, and to control the carrying on of downstream activities and development relating to petroleum and its products; to provide for the establishment of a Corporation under the Companies Act 1965 [Act 125] or under the law relating to the incorporation of companies and for the powers of that Corporation; and to provide for matters connected therewith or incidental thereto*."

This Act authorised the establishment of Petroliam Nasional Berhad (PETRONAS), and provided PETRONAS with exclusive ownership and rights and control over petroleum resources, and downstream activities and development. Additionally, in 1974 the Petroleum Regulation Act (PRA) was enacted, which established the licensing processes for upstream and downstream activities. Under these two acts, PETRONAS became the regulator of upstream licenses, and all upstream activities including exploration, development and production are conducted through production sharing contracts (PSCs).

PETRONAS therefore occupies a distinctive legal position, being both a company incorporated under the Companies Act 1965 but also provided with special regulatory powers under an Act of Parliament. This dual role as both a regulator and commercial actor poses a governance conflict that has significant implications for transparency and accountability.

Current Situation and Outlook

Since 1974, Malaysia has produced more than 9 billion barrels of oil and 50 trillion cubic feet of fossil gas. In 2023, Malaysia produced 2,862.0 billion cubic feet (bcf) of fossil gas and 188.8 million barrels of crude oil and condensate (DOSM, 2025), which translates to around 660,000 barrels of liquids per day and 7 bcf of gas per day (PETRONAS, n.d.). The remaining commercially recoverable reserves of the country are estimated at over 17 billion barrels of oil equivalent (bboe) over more than 400 fields, with fossil gas comprising roughly 75% of these reserves (PETRONAS, n.d).

Beyond PETRONAS, a number of multinational companies such as Shell, Exxonmobil, Conoco Philips and others have significant involvement in upstream production through Production Sharing Contracts (PSCs). As of 2016, 61% of fossil gas in Malaysia is produced in Sarawak, while Peninsular Malaysia contributes 26% and Sabah 13% (ST, 2019).

Today, PETRONAS is a Forbes 500 company with operations in over 100 countries and with an annual revenue exceeding USD60bn. As of 2024, Malaysia was the second largest crude and condensate producer in Southeast Asia and the world's ninth largest fossil gas producer (Offshore Technology, 2024). It is the fifth largest liquid fossil gas (LFG) exporter in the world, and the second largest LFG exporter in Asia (EIA, 2024).

Today, Malaysia's economy is strongly linked to fossil fuels. As of 2024, 81% of Malaysia's energy production was from fossil fuels, with only 16% coming from hydropower and 2% from solar (EMBER, 2025). As of 2020, the energy mix comprises 42.4% fossil gas, 27.3% crude oil and petroleum, and 26.4% coal (NETR, 2023). Further, as of February 2025 there were 36.3 million registered personal vehicles in Malaysia, the vast majority of which are international combustion engine (ICE) vehicles, and in 2022, it was estimated that Malaysia consumed 17.19 billion litres of gasoline fuel, which results in a figure of 520 gallons per capita annually (Statista, 2024).

The energy sector has been described by the Government of Malaysia (GoM) as "the main driver of growth for Malaysia's economy", contributing 28% of the GDP and 25% of the total workforce. Further, as of 2022 petroleum-related income contributed 31% of fiscal income while energy exports constituted 13% of total export value (NEP, 2022). Between 2019 and 2024, PETRONAS contributions constituted more than 20% of the Federal Government of Malaysia's revenue, and in 2022 this figure was 31.6%. However, this contribution has been on a downward trend since 2009 and is expected to drop to 18.3% in 2025 (FMT, 2024).

Excacerbating this downward trend, Malaysia's nationalisation of fossil fuel resources is at increasing risk of fragmentation due to the ongoing Peninsular-Sarawak gas rights dispute. The Government of Sarawak (GoS) has contended that, despite 61% of gas in Malaysia being sourced from Sarawak, the GoS only receives 5% of income generated from these reserves through the state sales tax (SST). Further, the GoS reports that, while it is estimated that Sarawak's reserves has generated RM1 trillion to PETRONAS, Sarawak only returned 5 per cent, or RM50 billion, in return. Additionally, 94% of gas extracted from Sarawak is processed by PETRONAS for export outside of the state (UKAS, 2024). This has led to significant contention from the GoS on the issue of equitable distribution of fossil fuel rights and reserves in Malaysia.

In 2023, the GoS passed the Sarawak Distribution of Gas (Amendment) Bill 2023, which appointed Petroleum Sarawak Berhad (PETROS) as the sole gas aggregator in Sarawak, responsible for procurement, distribution and supply of fossil gas within the state. Representatives of the GoS disclosed that this amendment was necessary to "address the existing inequitable arrangement", referring to PETRONAS (Dayak Daily, 2023). This sparked negotiations between the Federal and Sarawak governments on a mutual agreement to this end.

In an announcement made in February 2025, Prime Minister Anwar Ibrahim endorsed PETROS as Sarawak's sole oil and gas aggregator starting in March 2025, while also assuring that all existing PETRONAS contracts in Sarawak would be upheld (TheStar, 2025). A day after, Sarawak's Premier, Abang Johari, clarified that only contracts that "neither adversely affect Petros's role as gas aggregator nor contradict the provisions of the state's Distribution of Gas Ordinance 2018" would be upheld (MalayMail, 2025).

At the time of writing, PETRONAS and PETROS remain in negotiations, and details of an agreement, if any, remain opaque. However, these challenges have resulted in significant financial risks for PETRONAS. The company's net profit in 2024 dropped by 32%, and analysts have indicated that the loss of gas distribution rights in Sarawak could further shave off 11% of net profits (TheEdge, 2025; TheStar, 2025b). Further, at the same time Anwar Ibrahim's endorsement was made, PETRONAS announced plans to "rightsize" its workforce, as a response to an "increasingly challenging global operating environment" (TheEdge, 2025b).

Energy Transition Plans

The GoM has acknowledged that the energy sector is Malaysia's largest driver of greenhouse gas (GHG emissions). According to official reporting, in 2019 the sector drove 259,326.11GgCO2eq of emissions, or 78.5% of gross national emissions (NETR, 2023). For PETRONAS, between 2019 and 2022 they reported Scope 1, 2 and 3 (scope 3 being 'Category 11' emissions, or those from the use of sold products) emissions averaging 354mtCO2e/yr, which in 2022 stood at 361.64mtCO2e. The majority of these emissions are from domestic operations in Malaysia, with an average ratio of 94% between 2019 and 2022 (PETRONAS, 2023) for Scope 1 and 2 emissions.

Taking PETRONAS's gross GHG emissions into account, their 2022 emissions are roughly equivalent to Iraq's total GHG emissions in 2022. If PETRONAS was a country, it would be the 28th highest emitting country in the world for that year, contributing roughly 0.7% of global GHG emissions (EDGAR, 2024).

PETRONAS is listed in the Carbon Majors database of the world's 100 highest CO2 emitting entities. As of 2023, PETRONAS was listed as the 36th highest emitting entity in the world, contributing 0.43% of all global fossil fuel and cement-related CO2 emissions since the beginning of the Industrial Revolution in 1751. This is comparable to other Global North-based carbon majors such as Equinor, Eni, Rio Tinto and RWE (Carbon Majors, 2025).

An Oxford Net Zero Tracker Report (2023) finds that, while delivery of the Paris Agreement's emissions goals would require an end to fossil fuel exploration, production and use, only 7% of global net-zero commitments involve explicit phase-out plans. Malaysia is part of this 93% grouping of laggards.

Malaysia ratified the Paris Agreement in 2016 and, as outlined in Malaysia's Climate Change Policy 2.0, has an explicit commitment to achieve net-zero emissions by 2050. Malaysia's updated nationally determined contributions (NDCs) target to cut carbon intensity against GDP by 45% by 2030 compared to 2005 levels does not specifically target mitigation in the energy sector. Further, the Climate Change Policy 2.0 mentions the need to "*study the usage of fossil fuel sources for the transition (…), such as natural gas*", and has no targets to reduce fossil fuel production.

In terms of climate-specific legislation, while there is a Climate Change Act in development, the draft circulated for public consultation did not establish a carbon budget, nor requirements for emissions reductions, nor any binding targets in general, let alone targets on phasing out fossil fuels. Further, the draft Act has been criticised for severely restricting the ability of the public to file climate litigation as an accountability mechanism for the Act and for providing legal immunity towards any actions deemed to contribute to the implementation of the Act (Nyon and Kumaresan, 2025).

Individually, states such as Penang, Sabah and others have established sustainable development blueprints, but these do not explicitly address fossil fuel expansion either.

Meanwhile, the National Energy Transition Roadmap (NETR), published in 2023, aims to set "*the goal to accelerate energy transition and change the way energy is generated to improve climate resilience*", and establishes a "Responsible Transition (RT) Pathway 2050 to shift Malaysia's energy systems from fossil fuel-based to greener and low-carbon systems".

However, while the NETR does aim to phase out coal by 2050 and plans for a 70% renewable energy (RE) installed capacity by 2050, these plans do not translate into significant RE shares in the projected total primary energy supply (TPES). The NETR plans to increase the share of fossil gas in the TPES by 16% from 2023, to 57% in 2050, making it the primary energy source for the country. The NETR only aims for a 14% increase in renewables, from 4% in 2030 to 18% in 2050.

While PETRONAS, in 2021, established their Net-Zero Carbon Emissions by 2050 Pathway (NZCE), this pathway excludes their Scope 3 emissions, which represent roughly 80% of a fossil fuel entity's emissions, and focuses on reducing the emissions intensity of fossil fuel extraction, shipping and processing, including through carbon capture, utilization and storage (CCUS). Further, the NZCE does not identify any absolute caps for emissions or production for PETRONAS. The World Benchmarking Alliance has awarded PETRONAS a rating of 4.5/100 for the climate credibility of their NZCE (WBA, n.d.)

In relation to this, in 2025 the Malaysian Parliament passed a CCUS Bill, despite widespread civil society criticism of the Bill, including a RimbaWatch analysis which found that the majority of CCUS projects in Malaysia are targeted at enabling sour gas extraction, therefore exacerbating fossil fuel production and emissions.

Separately, representatives of the GoM, PETRONAS and other lobbyists have defended the growth of the fossil gas industry. In 2023, Prime Minister Datuk Seri Anwar Ibrahim emphasized that fossil gas is the "cleanest burning fuel" and will continue to play an important role over the coming decades, facilitating the transition towards a lower carbon future (NST, 2023). Further, he also claimed that "*the need to transition to clean energy was a mandate from the West rather than a plea from scientists to reduce greenhouse gas emissions and avoid catastrophic climate change*" (EcoBusiness, 2025).

In 2025, the Minister of Economy, Rafizi Ramli, himself a PETRONAS alumni, was promoting fossil gas as not a transition fuel but a "destination fuel", and planned to establish a "*Natural Gas Roadmap*" by the end of the year. Meanwhile, PETRONAS claims that fossil gas is the "cleanest and most energy efficient fossil fuel", and has committed to growing fossil gas production (PETRONAS, 2024). These statements are made despite established scientific evidence that fossil gas is primarily composed of methane, a greenhouse gas with 84 times the global warming potential of carbon dioxide over a 20-year period, and that the lifecycle emissions of fossil gas are still more than 10 times higher than those of renewables such as solar power (IPCC, 2018). Further, fossil gas infrastructure is highly prone to difficult-to-detect leakages, and at a leakage rate of just 0.2%, the emissions of fossil gas become comparable to those of coal (RMI, 2023).

Additionally, continued endorsement of fossil gas has raised eyebrows amongst commentators concerned over energy security risks posed by over-dependence on the fuel source, as domestic production is expected to have peaked in 2024, and Malaysia could become a net gas importer in the next 10-15 years (Reuters, 2023; NST, 2025).

Report Rationale

There is an increasing need to scrutinise the climate performance of NOCs. Since the Paris Agreement in 2015, a significant portion of scientific, journalistic, legal and regulatory initiatives have been directed towards holding public-listed Carbon Majors, primarily in the Global North, to account. For example, common targets of climate litigation against fossil fuel producers have been BP, Chevron, Eni, Exxonmobil, Shell and TotalEnergies (ZCA, 2024). More recently, however, national oil companies (NOCs) are being increasingly identified as more significant drivers of global emissions.

NOCs produce around half of global oil and gas, as opposed to globally listed companies such as Shell which produce roughly 12% (EDF, 2023). NOCs are estimated to hold more than 85% of global remaining fossil fuel reserves, and most of the world's undiscovered reserves are located in jurisdictions where NOCs have privileged access (KPMG, 2018). However, an analysis by Columbia University found that NOCs have significantly poorer performance on ESG indicators than their non-NOC counterparts. As of 2019, 12 of the world's 20 top emitting entities were NOCs (The Guardian, 2019).

Malaysia's and PETRONAS's contributions to climate change are significant. A number of anti-mitigation narratives have been raised by prominent lobbyists and commentators, arguing that because Malaysia's contribution to climate change is small, it does not have a responsibility to mitigate emissions compared to the Global North. However, these narratives ignore the fact that PETRONAS has a significant historical responsibility for emissions, being the 36th highest CO2 emitting entity in the world since the Industrial Revolution. Further, while such lobbyists often proclaim Malaysia's annual emissions contribution of 0.77% as negligible, (EcoBusiness, 2025) it must be noted that only 16 countries in 2022 had an emissions contribution of more than 1%, and many Global North economies such as France (0.8%), the United Kingdom (0.79%), Italy (0.73%) and Spain (0.61%) had similar, or lower, annual emissions contributions than Malaysia. Further, Malaysia's per capita GHG emissions are on par with those of China and are nearly twice the global average (EDGAR, 2024).

Because Malaysia and PETRONAS have a significant contribution to climate change, there is a need to phase out its fossil fuel sector according to the consensus of climate science. The IPCC's (2022) Sixth Assessment Report states that "Projected cumulative future CO2 emissions over the lifetime of existing and planned fossil fuel infrastructure, if historical operating patterns are maintained and without additional abatement are approximately equal to the one for 2°C (83%) (high confidence)", underlying the fact that fossil fuel expansion is inconsistent with a global 1.5 degree target. Studies such as those by the IEA (2021) and the IISD (2021), which reviewed feasible pathways to meeting the Paris Agreement, concluded that expanding fossil fuel production is incompatible with 1.5 degrees. Further, the IISD (2022) found that Malaysia would need to reduce fossil fuel production by 43% by 2030 in order to meet its obligations under the Paris Agreement.

There is an urgent need for improved climate data to support transition initiatives. While there are a number of existing and upcoming initiatives to track the fossil fuel sector globally, such as the Global Energy Monitor and Environmental Defense Fund (EDF's) MethaneSat and Climate TRACE, there has been no initiative to track the cumulative environmental impact of Malaysia's fossil fuel expansion plans. While there has been acknowledgment by the GoM that fossil fuels are the primary drivers of emissions in Malaysia, there is little visibility on the scale of emissions lock-in from the sector, and on whether this lock-in threatens both the very foundational assumptions underpinning, and the achievement of, Malaysia and PETRONAS's climate initiatives.

Responding to the four rationales above, this report aims to:

- Document all upcoming upstream production plans at an asset-level.
- Document the emissions lock-in of each of these assets for all three emissions reporting scopes.
- Document the cumulative environmental and social costs of planned operations of these assets.

Interpreting CO2e Emissions

The global temperature rise occurs as a result of the greenhouse effect, which is the process by which greenhouse gases (GHGs) absorb infrared energy, which slow down or prevent the heat re-entering into space. The primary GHGs in the Earth's atmosphere include water vapour (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) and ozone (O3) (IPCC, 2018).

CO2 is the most prevalent GHG. Hence, CO2 equivalence (CO2e or CO2eq) is a common metric used in general reporting to discuss overall emissions. CO2e is obtained by multiplying the emissions by their global warming potential (GWP), which accounts for the efficiency of the GHG in capturing heat compared to CO2 (CCAFS, 2023) over a particular time period, usually 100 years (IPCC, 2021). For example, the 100 year GWP for methane is 25, which means that emissions of 1 million tonnes of methane is equivalent to emissions of 25 million metric tonnes of carbon dioxide, and can therefore be reported as 25 million tons of carbon dioxide equivalent, or CO2e.

Quantities of carbon emissions can appear arbitrary and unscalable. The equivalence table below demonstrates tonnes of carbon emissions in relation to tangible activities.

1t CO_2e	Emissions from driving a gasoline vehicle from Singapore to Guangzhou and back (8000km) (Anthesis, 2025)
4.4t CO_2e	Emissions per passenger of flying from Kuala Lumpur to London and back (myClimate, n.d)
7.1t CO_2e	Malaysia per capita emissions, 2022 (IEA, 2025)
157.5t CO_2e	Emissions from deforestation of one hectare of Malaysian rainforest (Raihan et al., 2021)
325,410,000t CO_2e	Malaysia GHG emissions, 2023 (EDGAR, 2025)
361,640,000tCO_2e	PETRONAS Scope 1, 2 and 3 emissions, 2022 (PETRONAS, 2025)
1,200,000,000tCO_2e	Shell Scope 1, 2 and 3 emissions, 2024 (Shell, 2025)
37,400,000,000t CO_2	Global fossil-fuel related CO_2 emissions, 2024 (WMO, 2024).
52,962,000,000tCO_2e	Global GHG emissions, 2024 (EDGAR, 2025)
250,000,000,000t CO_2e	Global remaining carbon budget as of January 2023 for a 50% change of limiting warming to 1.5 degrees (Lamboll et al., 2023)

Methodology and Materials

This report conducts an assessment of emissions lock-in from proposed upstream fossil fuel expansion in Malaysia through a combination of in-house accounting methodologies.

Collecting Asset Data

Firstly, a list of assets with committed reserves within the sector was collated. This list comprises assets involving gas, oil and condensate production, with proven (1P) reserves that are covered by a production commitment, such as demonstrated through the existence of a production sharing contract, inclusion in a Bid Round, or where geotechnical studies are being conducted to enhance production. This necessitates the exclusion of assets which remain in the discovery or exploration phases. A cut-off date of 1st January 2022 is adopted, and assets are only included within this list where they are expected to, or have achieved, first production after that date. This includes Late Life Assets (LLAs), where production will be renewed after that date. Based on this criteria, 44 assets were shortlisted.

For each asset, data on the associated commodity, the asset's daily production capacity and remaining recoverable reserves (RRR) were identified through desktop research. Only RRR prior to, or at, the expected start date of production is collected. A number of data sources were used, including disclosures from operators themselves, press releases, news coverage, presentations to investors and third-party datasets such as the Global Energy Monitor (GEM). Of the 44 shortlisted assets, data on RRR was only available for 26 assets. For an additional three assets, due to data limitations, RRR were approximated from available data, such as assuming that RRR was equivalent to five-years of consistent production, based on daily production numbers. Combined, data on RRR was made available for 29 assets, representing 66% of the 44 shortlisted assets.

Asset-Level CO2 Equivalent Emissions Accounting

To calculate emissions lock-in from these assets, methodologies 4A.2 and 4A.3 from the RimbaWatch Carbon Accounting Guide (2023) were utilised, which are specific to oil and gas production respectively. These methodologies are derived from the formulas and tools prepared by the GHG Protocol, which is in turn derived from the IPCC Guidelines for National Greenhouse Gas Inventories.

Methodology 4A.2 Formula F2
Total Asset Emissions **CO2e** = $(EI_{1+2}RRR) + E_3$
Where: EI_{1+2} = Operator-specific Scope 1 and 2 Emissions Intensity RRR = Remaining Recoverable Reserves E_3 = Asset specific Scope 3 emissions, the result of section 4.2 and section 4.3 of methodology 4A.2

Methodology 4A.2 Formula F2
Total Asset Emissions **CO2e** = $(EI_{1+2}RRR) + E_3$
Where: EI_{1+2} = Operator-specific Scope 1 and 2 Emissions Intensity RRR = Remaining Recoverable Reserves E_3 = Asset specific Scope 3 emissions, the result of section 4.2 and section 4.3 of methodology methodology 4A.3

The GHG Protocol is directed at institutions (e.g governments or companies) who have access to granular activity data. As most of this activity data is not published, the guide accompanies methodologies 4A.2 and 4A.3 with a number of sub-formulas which derive the required activity data from available information. For example, the sub-formulas:

1. Converts agnostic RRR data for oil and condensate production into production data for specific commodities, i.e diesel, petrol and aviation gasoline, to account for different emissions factors for these commodities.
2. Converts RRR data from different units into a standardised unit, terajoules (tJ)
3. Inputs RRR data into a GHG Protocol Tool for calculating emissions from stationary and mobile combustion to calculate Scope 3 emissions (utilizing 2006 IPCC default emissions factors)
4. Inputs RRR data into a formula referring to operator-specific Scope 1 and 2 emissions intensities to calculate operational emissions (for this analysis, PETRONAS's 2022 emissions intensity was adopted for all assets).

These calculations are conducted individually for each asset, and presented as tonnes of CO2 equivalent (tCO2e), accounting for default IPCC global warming potentials (GWPs).

Asset-Level Methane Emissions Accounting

PETRONAS does not publish a Methane emissions intensity per production unit. To estimate such a number, we adopted averages from the International Energy Agency (IEA) Methane Tracker and Malaysia's annual production numbers.

According to the IEA's Methane Tracker, Malaysia's 2023 methane emissions from offshore gas and oil were 619 kt, including emissions from flaring, venting and fugitive emissions. Of this, 329kt were from gas, and 290kt from oil (IEA, 2024).

According to PETRONAS, Malaysia produced an average of 500,000 barrels per day of liquids and 7,000 million standard cubic feet per day of gas (2024). This translates to 182.5 million barrels per year of liquids and 425 million barrels of oil equivalent (boe) of gas (assuming a conversion factor of 1 boe = 6,000cbf).

Therefore, for operational emissions, by dividing the annual emissions by the production, **Malaysia's Scope 1 methane emissions intensity is estimated at 0.77kg per boe of gas, and 1.6kg per barrel of oil.** This roughly correlates with the "weighted average estimate of emissions in the IEA's Methane Tracker", which is "about 1.20 kg per boe" (Fossil Fuel Registry, 2024).

According to the IEA's Methane Tracker, Malaysia's 2023 methane emissions from gas pipelines and LNG facilities were 80 kt, including venting and fugitive emissions. As established above, Malaysia produced 425 million boe of gas in 2023. Therefore, for Scope 2 emissions, by dividing the annual emissions by the production, Malaysia's Scope 2 emissions intensity is 0.188 kg per boe gas.

According to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the default emissions factor for the stationary combustion of "natural gas liquids" in the energy industry is 3kg of CH4 per TJ (IPCC, 2006a). Therefore, assuming that 100% of Malaysia's gas production will be processed and consumed for energy production in a fossil fuel fired-power plant, Malaysia's **Scope 3 methane emissions intensity is 0.018kg per boe gas.**

The 2006 IPCC Guidelines for National Greenhouse Gas Inventories do not provide CH4 emissions intensities for the mobile combustion of oil, and therefore **no Scope 3 methane emissions intensity is provided per barrel of oil.**

The Scope 1, 2 and 3 methane emissions intensity of gas, therefore, is **0.976kg CH4 per boe gas.** Meanwhile, the Scope 1 emissions of oil are **1.6kg CH4 per boe.**

Based on these emissions intensities, the CH4 emissions of each asset are calculated individually using the following formula:

Estimating CH4 Emissions
Total Asset Emissions **CH4** = RRR x EI
Where: RRR = Remaining Recoverable Reserves, in boe EI = Scope 1, 2 and 3 CH4 intensity of gas and oil respectively Note: 6,000cbf = 1boe

Data Transparency

Methodologies 4A.2 and 4A.3 from the RimbaWatch Carbon Accounting Guide (2023) are viewable at this link: https://docs.google.com/document/d/1am-CjQSbhc0Kgs7CGLqP749LCDu1GhMih5hP_45NpJo/edit?tab=t.0

All raw and processed data is available at this link as a spreadsheet: https://docs.google.com/spreadsheets/d/1bdHm_u90udvIrPWdya8MXV1jfNNE9R93p3a4t_-j7yc/edit?usp=sharing. This spreadsheet includes the sources for production and reserve data, explanations for approximations, and omissions, for each of the 44 assets.

Data Limitations and Use of Data Disclaimer

Neither PETRONAS, nor any other entity with operations in Malaysia, disclose asset-level emissions, either before or after their production start-date. The report calculates asset-level emissions in lieu of official disclosures.

The figures displayed in this report must be treated as estimations based on best available data and strictly subject to the methodologies described above. There are numerous gaps in data sources which direct us to use certain proxies, factors and assumptions. These are listed below:

Table 1: Methodological Proxies, Assumptions and Factors		
Assumptions		
Attribution of Commodities for Gas Reserves	All gas reserves are assumed to be subject to stationary combustion.	N/A
Attribution of Commodities for Oil Reserves	All oil reserves, including condensates, are assumed to be subject to mobile combustion, with reference to the ratio 51.85% diesel, 29.63% petrol and 18.52% aviation gasoline.	Energy Commission 2018 statistics.
Exported Emissions	All emissions scopes, including Scope 3, are attributed to Malaysia for the purpose of this analysis; on the basis that they represent the cumulative impact of **Malaysian** production on **global** atmospheric GHG levels.	N/A
Global Warning Potentials, 100yrs		
CO^2	1	IPCC, 2021
CH^4	25	IPCC, 2021
N20	298	IPCC, 2021

Emissions Factors		
Gas	56,100kgCO2/TJ (Direct)	IPCC, 2006b
Diesel	74,100kgCO2/TJ (Direct)	IPCC, 2006
Petrol	69,300kgCO2/TJ (Direct)	IPCC, 2006
Aviation Gasoline	70,000kgCO2/TJ (Direct)	IPCC, 2006
Operational	0.07t CO2e/boe	IPCC, 2006
Gas, Methane (operational)	0.77 kg/boe	IPCC, 2006
Gas, Methane (combustion)	3.0 kg/TJ (Direct)	IPCC, 2006b
Oil, Methane (operational)	1.6 kg/boe	RimbaWatch, 2025 and Fossil Fuel Registry, 2024
Conversion Factors		
Cubic feet of gas to barrel of oil equivalent	6,000cbf = 1 boe	United States Geological Survey, n.d.
MJ to TJ	1 MJ = 0.000001 TJ	N/A
TJ to PJ	1 TJ = 0.0001 PJ	N/A
1 boe to TJ	0.006119 boe = 1 TJ	BP, 2022
1 boe to Litre	1 boe = 159 litres	DEFRA, 2022

These estimates must be treated as **indicative** and **conservative** figures, based on reserve data from a minority-share of total assets. Further, these estimates are presented as total emissions lock-in on an asset-level, and annual figures are unavailable due to incomplete annual production figures.

Finding 1: 9.84 Billion boe Committed Reserves in Malaysia

We estimate that, as of 1st January 2022, the total committed remaining recoverable reserves (RRR) in Malaysia are **48.62 trillion cubic feet** (cbf), of gas and **1.74 billion barrels of oil equivalent** (boe) of crude oil and condensates. When converted to cbf, this results in a total of **9.84 billion boe of committed reserves,** of which 82% are gas, and 18% are crude and condensate reserves, held by 29 assets.

Of this list, just five assets hold more than 50% of committed reserves. These are Kasawari, Kertang, Lang-Lebah, Bunga Tanjung Merah, Ular and Kuda and the Joint Development Area (JDA), which hold a combined 5.6 billion boe of reserves, or 57% of total committed reserves. The full list of assets is displayed below, in Table 2.

Table 2: Committed Reserves in Malaysia by Asset

Asset Name	Reserves (gas), cbf	Reserves (crude), boe
Kasawari Phase 2	10 trillion cbf	-
Kertang	9.1 trillion cbf	-
Lang-Lebah	6 trillion cbf	20.4 million boe
Bunga Tanjung Merah, Ular and Kuda fields.	400 billion cbf	669 million boe
JDA Phase 6	4.46 trillion cbf	-
BIGST	4 trillion cbf	-
Pegaga SK320	3.09 trillion cbf	-
GKGJE Phase 4 and 3.	-	400 million boe
B14	2.329 trillion cbf	-
Rosmari-Marjoram	2.29 trillion cbf	-

Jerun SK408	2.11 trillion cbf	-
Raja Cluster		290 million boe
PM 302 and PM325 NMB Phase 3	1.44 trillion cbf	-
Bambazon	1.26 trillion cbf	-
Rhu Ara and Diwangsa Cluster.	-	166.41 million boe
Timi	785.19 billion cbf	-
Limbayong Deepwater Development Project (Block G and J)	783.28 billion cbf	139 million boe
Dewa Complex	500 billion cbf	-
Pertang, Kenarong, Noring and Bedong fields	273 billion cbf	1.8 million boe
Salam-Patawali	182.5 billion cbf	5.48 million boe
MLNG FaS (F27, F22 and Selasih) Gas Field Development Capacity	182.5 billion cbf	-
Tembakau	160 billion cbf	
Seligi Field	155 billion cbf	-
Bunga Aster-1	-	21 million boe

Puteri, Padang, Penara, and North Lukut fields	-	15 million boe
South East Collins Cluster PSC	-	10 million boe
Abu Cluster	30 billion cbf	-
Bunga-Lavatera	9.6 billion cbf	-

Accounting for the fact that these figures are based on a minority percentage of total assets, this number, representing committed assets, is compared with estimates of confirmed reserves, as published by selected official sources, as displayed in Table 3 below.

Table 3: Reserve Estimate Comparisons

Source and Year	Reserves (gas), boe	Reserves (crude), boe
RimbaWatch and CREA, start-2022	8.1bn	1.74bn
US Energy Information Administration, end-2023	5.3bn	2.7bn
PETRONAS, n.d.	12.75bn	4.25bn

Finding 2: 4.15 Billion tCOE2e Lock-In

We estimate that the total Scope 1, 2 and 3 emissions lock-in from these committed reserves are **4.15btCO2e.** Of these emissions, 16.7% of the emissions, comprising 691.3mtCO2e, are Scope 1 and 2 emissions. **83.3% of emissions are Scope 3 emissions**, which comprise 3.46btCO2e.

To illustrate the size of this figure, the average Malaysian emits 7.1tCO2e per annum. This figure is roughly 13 times the amount Malaysia emitted in that same year, and nearly twice the amount all ASEAN member states emitted in that year, combined (EDGAR, 2025). It is also approximate to the amount India emitted in 2023, which was the year's third highest emitter by jurisdiction.

From this list, just five assets will be responsible for more than 50% of emissions lock-in. These are Kasawari, Kertang, Lang-Lebah, Bunga Tanjung Merah, Ular and Kuda and the Joint Development Area (JDA), which will emit 2.4btCO2e, or 57% of the total. The full list of assets by their emissions is displayed below, in Table 4.

The majority of emissions lock-in, comprising 67%, are from assets located in Sarawak, while Terengganu, Kelantan and Sabah assets are responsible for 23%, 7% and 2% respectively.

Table 4: CO2e Lock-In by Asset and State

Asset Name	State	Scope 1.2 emissions (mtCO2e)	Scope 3 emissions (mtCO2e)	Total Asset Emissions (mtCO2e)
Kasawari Phase 2	Sarawak	116.9	572.6	689.5
Kertang	Sarawak	106.38	521.07	627.45
Lang-Lebah	Sarawak	70.14	343.56	413.7
Bunga Tanjung Merah, Ular and Kuda fields.	Terengganu	51.51	285.48	336.99
JDA Phase 6	Kelantan	52.14	255.38	307.52
BIGST	Terengganu	46.76	229.04	275.8
Pegaga SK320	Sarawak	36.12	176.93	213.05
GKGJE Phase 4 and 3.	Sarawak	28	157	185
B14	Sarawak	27.23	133.36	160.59
Rosmari-Marjoram	Sarawak	26.77	131.13	157.9

Jerun SK408	Sarawak	24.67	120.82	145.49
Raja Cluster	Terengganu	20.3	113.83	134.13
PM 302 and PM325 NMB Phase 3	Terengganu	16.83	82.45	99.28
Bambazon	Sabah	14.73	72.15	86.88
Rhu Ara and Diwangsa Cluster.	Terengganu	11.65	65.32	76.97
Timi	Sarawak	9.18	44.96	54.14
Limbayong Deepwater Development Project (Block G and J)	Sarawak	9.16	44.85	54.01
Dewa Complex	Sarawak	5.85	28.63	34.48
Pertang, Kenarong, Noring and Bedong fields	Terengganu	3.19	15.63	18.82
Salam-Patawali	Sarawak	2.5	12.6	15.1
MLNG FaS (F27, F22 and Selasih) Gas Field Development Capacity	Sarawak	2.13	10.45	12.58
Tembakau	Terengganu	1.87	9.16	11.03
Seligi Field	Terengganu	1.81	8.88	10.69
Seligi NAG	Terengganu	1.81	8.88	10.69
Bunga Aster-1	Terengganu	1.47	8.24	9.71
Puteri, Padang, Penara, and North Lukut fields	Sabah	1.05	5.89	6.94

South East Collins Cluster PSC	Terengganu	0.7	3.92	4.62
Abu Cluster	Terengganu	0.35	1.71	2.06
Bunga-Lavatera	Terengganu	0.11	0.55	0.66

Finding 3: 10.9mtCH4 Lock-In

Methane (CH_4) is the second highest driver of greenhouse gases from anthropogenic activities after CO2. Methane's global warming potential (GWP) is higher than CO2; over a 20-year period, the IPCC (2021) estimates that methane's GWP is 82.5 times higher than CO2, or 29.8 times higher over a 100-year period. Methane is responsible for roughly 20% of anthropogenic emissions since 1750, with roughly 30% of this amount currently resulting from fossil fuel-related activities (ACE, 2024).

We estimate that the total Scope 1, 2 and 3 methane lock-in from these committed reserves are **10.9mtCH4.** Of this amount, 98% of the emissions, comprising 10.7mtCH4, are Scope 1 and 2 emissions. 0.2% of the emissions are Scope 3 emissions, comprising just 142,000tCH4.

To illustrate the gravity of this figure, **10.9mtCH4 is equivalent to 9%** of global fossil fuel-related methane emissions in 2023 (ACE, 2024).

From this list, just five assets will be responsible for more than 50% of emissions lock-in. These are Kasawari, Kertang, Lang-Lebah, Bunga Tanjung Merah, Ular and Kuda and the Joint Development Area (JDA), which will emit 2.4btCO2e, or 57% of the total. The full list of assets by their emissions is displayed below, in Table 5.

Table 5: CH4 Emissions Lock-in by Asset

Asset Name	Scope 1.2 emissions (tCh4)	Scope 3 emissions (tCh4)	Total Asset Emissions (tCh4)
Kasawari Phase 2	1,599,860	3,060	1,602,920
Kertang	1,456,160	27,360	1,483,520

Lang-Lebah	1,134,270	1,200	1,135,470
Bunga Tanjung Merah, Ular and Kuda fields.	990,640	18,000	1,008,640
JDA Phase 6	712,110	13,380	725,490
BIGST	638,670	12,000	650,670
Pegaga SK320	640,000	-	640,000
GKGJE Phase 4 and 3.	493,370	9,270	502,640
B14	464,000		464,000
Rosmari-Marjoram	371,867	6,987	378,854
Jerun SK408	365,639	6,870	372,509
Raja Cluster	347,467	2,350	349,817
PM 302 and PM325 NMB Phase 3	336,900	6,330	343,230
Bambazon	266,256		266,256
Rhu Ara and Diwangsa Cluster.	229,920	4,370	234,290
Timi	201,180	23,780	224,960
Limbayong Deepwater Development Project (Block G and J)	125,373	2,356	127,729
Dewa Complex	79,801	1,499	81,301
Pertang, Kenarong, Noring and Bedong fields	46,469	817	47,286

Salam-Patawali	37,910	548	38,458
MLNG FaS (F27, F22 and Selasih) Gas Field Development Capacity	33,600	-	33,600
Tembakau	29,142	548	29,690
Seligi Field	25,550	480	26,030
Bunga Aster-1	24,716	464	25,181
Puteri, Padang, Penara, and North Lukut fields	24,000	-	24,000
South East Collins Cluster PSC	16,000	-	16,000
Abu Cluster	1,533	29	1,562
Bunga-Lavatera	-	90	90

Finding 4: Estimating The Public Health Impacts of Methane Emissions

Overview

Methane contributes to human health impacts indirectly by acting as a precursor to tropospheric ozone (O_3), a harmful air pollutant associated with respiratory and cardiovascular diseases and premature mortality. The relationship between methane emissions and health outcomes is quantified through ozone exposure-response functions and methane-to-ozone conversion metrics, as described in the methodology below.

Methane-to-Ozone Methodology

To estimate the public health impacts of methane emissions, we use the following established values for the global average increase in ozone exposure due to a given amount of methane emissions:

- The Global Burden of Disease (GBD) 2019 and Shindell et al. (2012) estimate that every 1 million tonnes (Mt) of CH_4 emitted leads to approximately 1.4 parts per billion (ppb) increase in global surface ozone concentrations over 20 years.

- Ozone-related mortality per Mt of methane: McDuffie et al. (2023) estimate ~760 (95% confidence interval (CI): 330-1200) deaths globally per Mt CH_4 emitted (over 20 years), based on this pathway.

Methane emissions per asset (in tonnes) is then converted into estimated premature deaths using the derived health impact factor:

$$Health\ Impacts\ (deaths) = Asset\ CH_4\ emissions\ (t) \times (760\ deaths / 1{,}000{,}000\ t\ CH_4)$$

Results

Based on asset-level methane emissions data and the health impact factor of 760 deaths per million tonnes of methane emitted, we estimate that the 287 assessed gas projects will be responsible for approximately **8,234 premature deaths globally** over their operational lifetimes due to ozone exposure.

The largest contributors to health impacts are:

- Kasawari Phase 2, with estimated emissions of over 1.6 million tonnes of methane and an associated 1,218 premature deaths;
- Kertang, with 1,127 premature deaths;
- Lang-Lebah and Bunga Tanjung Merah/Ular/Kuda fields, associated with 863 and 767 premature deaths, respectively.

Several additional assets—such as JDA Phase 6, BIGST, and Pegaga SK320 are each linked to more than 450 premature deaths.

While a small number of large-scale projects dominate the total death toll, smaller fields including Seligi, Tembakau, and the Puteri/Padang/Penara/North Lukut cluster still contribute significantly to cumulative health impacts.

A full breakdown of estimated mortality by asset is provided in **Table 6** below.

Table 6: Estimated Mortality Attributable to Lifetime Methane Emissions, by Asset

Asset	Total Asset Methane Emissions (tCh4)	Estimated premature deaths (95% CI)
Kasawari Phase 2	1,602,920	1,218 (529-1,924)
Kertang	1,483,520	1,127 (490-1,780)
Lang-Lebah	1,135,470	863 (375-1,363)
Bunga Tanjung Merah, Ular and Kuda fields.	1,008,640	767 (333-1,210)
JDA Phase 6	725,490	551 (239-871)
BIGST	650,670	495 (215-781)
Pegaga SK320	640,000	486 (211-768)
GKGJE Phase 4 and 3.	502,640	382 (166-603)

B14	464,000	353 (153-557)
Rosmari-Marjoram	378,854	288 (125-455)
Jerun SK408	372,509	283 (123-447)
Raja Cluster	349,817	266 (115-420)
PM 302 and PM325 NMB Phase 3	343,230	261 (113-412)
Bambazon	266,256	202 (88-320)
Rhu Ara and Diwangsa Cluster.	234,290	178 (77-281)
Timi	224,960	171 (74-270)
Limbayong Deepwater Development Project (Block G and J)	127,729	97 (42-153)
Dewa Complex	81,301	62 (27-98)
Pertang, Kenarong, Noring and Bedong fields	47,286	36 (16-57)
Salam-Patawali	38,458	29 (13-46)
MLNG FaS (F27, F22 and Selasih) Gas Field Development Capacity	33,600	26 (11-40)
Tembakau	29,690	23 (10-36)
Seligi Field	26,030	20 (9-31)

Bunga Aster-1	25,181	19 (8-30)
Puteri, Padang, Penara, and North Lukut fields	24,000	18 (8-29)
South East Collins Cluster PSC	16,000	12 (5-19)
Abu Cluster	1,562	1 (1-2)
Bunga-Lavatera	90	< 1
Total Estimated Mortality:		**8,234 (3,575-13,001)**

Notes and Limitations

This analysis excludes the potential indirect health impacts of methane as a potent greenhouse gas. As a major driver of global warming, methane intensifies heatwaves, spreads vector-borne diseases like malaria and dengue, increases the frequency of extreme weather events, and disrupts food and water systems. These climate-related effects can significantly raise the risk of illness, malnutrition, and mortality—especially in vulnerable populations. As such, the total health burden associated with methane emissions is likely underestimated when these climate pathways are not included.

Conclusion

While some progress has been made by Malaysia in strengthening environmental laws and policies to align with international climate priorities, the promotion of fossil gas as both a transition and destination fuel, coupled with the omission of any regulatory targets or restrictions on a fossil fuel phase out, warrants coordinated and science-based action from responsible bodies to create enforcement mechanisms to act on fossil fuel emissions. Specifically, we recommend the following immediate actions be taken to align the country's energy transition strategy with scientific consensus to limit the global temperature rise to 1.5°C.

Set a Sectoral Carbon Budget

A carbon budget defines the remaining amount of GHG emissions that can be emitted to limit the global temperature rise to a certain figure. As of 2023, the global remaining carbon budget is 250b tCO2e. A number of jurisdictions, including France, New Zealand and the United Kingdom have set binding carbon targets in legislation as a regulatory mechanism to define binding, time-based climate targets.

It is recommended that the Ministry of Natural Resources and Environmental Sustainability define a carbon budget for Malaysia, aligned to 1.5°C targets and Malaysia's 2050 net-zero commitment, based on our fair-share contribution to climate change. A fair-share allocation takes into account equity, and can be defined based on a number of factors, including historical emissions responsibility and proportion of global population. Examples of methodologies that can be adopted to account for a fair-share carbon budget include those proposed by du Pont and Nicholls (2023). The Ministry should ensure complete transparency in the establishment of this carbon budget, including participation of CSOs, independent scientists and the public.

Based on this carbon budget, the Ministry should set a sectoral carbon budget for the domestic energy sector, taking into account both production and consumption, and cement this budget in the upcoming Climate Change Act; including a provision that this budget can only be further constricted in response to improvements in data, but not made less ambitious.

Establish Interim Targets, Regulatory Body and Monitoring System

The upcoming Climate Change Act should further define interim emissions targets for the energy sector by establishing gradually reducing carbon budgets for the sector with the aim of gradually reducing emissions from the sector until it reaches zero, or a similar figure, by 2050. This can be achieved by setting, for example, milestone targets, such as a 25% reduction in budget by 2030, 50% by 2040, 75% by 2045 and 100% by 2050.

To monitor performance against these targets, a regulatory authority should be established, with the Ministry commencing studies into whether an existing public body can perform these functions, or if a new regulatory body needs to be established, and if so how the powers of this regulatory entity are to coexist or complement with existing regulatory bodies; and, and if offences are to be established under RUUPIN or separate pieces of legislation.

Further, the Ministry should consider requiring emissions data for the sector to be calculated and monitored by the National Integrated Climate Data Repository ("NICDR"), already proposed under RUUPIN, including placing timelines for compiling data on GHG emissions from the stipulated sectors, a duty to publish emissions data and table such data in Parliament; and to communicate an indication for the sector as to whether the emissions data are higher or lower than the annual emission budgets.

Endorse and Act on the Call for a Fossil Fuel Non Proliferation Treaty

The Fossil Fuel Non-Proliferation Treaty (Fossil Fuel Treaty) is a proposed international mechanism to complement meeting the Paris Agreement's goal of 1.5°C, through fostering a
global effort to accelerate and finance a just transition to renewable energy sources, end fossil fuel expansion, and support an equitable phase out of existing production. Echoing past treaties such as the Nuclear Non-Proliferation Treaty, the FFNPT is centered around three pillars: 1) a global just transition for every country, worker and community, including support to transition away from fossil fuel dependence and scaling up access to renewable energy. 2) Non-Proliferation, preventing the proliferation of coal, oil and gas by ending all new exploration and production. 3) A fair phase out, to phase-out existing production of fossil fuels in line with the 1.5°C global climate goal in a manner that is fair and equitable, where wealthy producers with the capacity and historical responsibility for emissions transition fastest.

16 nations are currently participating in development of a Fossil Fuel Treaty, with an intention to push toward a negotiating mandate in the near future and a call for other governments to join their coalition if willing. They have the support of 135 subnational governments including Paris, London and Kolkata, 101 Nobel laureates, over 3,000+ scientists and academics, 4,000+ civil society organisations, and 1,000+ parliamentarians from 85 countries.

It is recommended that the Government of Malaysia, including subnational governments such as states, districts and municipal councils, endorse the Fossil Fuel Treaty, to define local priorities, particularly related to ensuring a just transition for workers and communities, and to support global cooperation on reaching the goals of the Paris Agreement.

Notably a number of other major fossil fuel producers - Colombia, Pakistan and Timor-Leste - have joined this initiative as they seek greater international cooperation, finance and support to transition and diversify their economies away from the risks of fossil fuel production, which brings increased economic volatility with the potential of stranded assets, air pollution, conflict, and a dangerously warming world. Malaysia could show leadership on the global stage by joining this bloc of 16 Global South governments seeking a framework to manage a truly global just transition that leaves no one behind.

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