
# COUNTRY ASSESSMENT REPORT MALAYSIA

# Contents

## 1.1 Country Assessment Report Template

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|---|---|
| Country Name | Malaysia |

## 1.2 Production and Demand of Natural Gas, Biogas and Biomethane

| **Production** | **Source** | **Number of plants or facilities** | **Annual production[1] (MM BTU or Nm³)** |
|---|---|---|---|
| Natural Gas | • Malay Basin<br>• Sarawak Basin<br>• Sabah Basin<br>• Gulf of Thailand | | ~2,95 billion MMBtu[2] |
| Biomethane | • Palm Oil Mill Effluent (POME)<br>• Sewage wastewater | 4 (2024) | ~670,000 MMBtu[3][4][5][6] |
| Biogas | • Palm Oil Mill Effluent (POME)<br>• Sewage wastewater<br>• Landfill gas | 80 (2023) | 155.26 MWe[7]<br>No official data on annual production |
| | **Total** | | ~3.62 billion MMBtu |
| **Demand** | **Sector** | **Demand (MM BTU or Nm³)**[8] | |
| *(2022)* | Residential | | N/A |
| | Commercial/Service/Public Sector | | N/A |
| | Transport | | N/A |
| | Industrial | | 921.09 million MMBtu |
| | Agriculture | | N/A |
| | Electricity | | 633.39 million MMBtu |
| | Other Primary Activities | | N/A |
| | **Total** | | 1.55 billion MMBtu |

Malaysia has traditionally been a producer and exporter of oil and natural gas, with large reserves spread across the offshore waters of Peninsular Malaysia and the two states of Sabah and Sarawak on the island of Borneo, and existing gas pipelines interconnected to Singapore, part of Thailand, and part of Indonesia and to

[1] Clear conversion between volume and energy units enhances interoperability and enable global trade. For biomethane two key unit systems are commonly used:

Volume-based units: normal cubic meters (Nm³), adjusted for methane purity, reflect physical quantity and infrastructure compatibility.

Energy-based units: MMBtu or GJ measure standardized energy content, according to the methane specific lower or higher heating value. According to the International Energy Agency, biomethane has a lower heating value (LHV) of around 36 MJ/m³.

[2] https://www.dosm.gov.my/site/downloadrelease?id=mining-of-petroleum-and-natural-gas-statistics-first-quarter-2025&lang=English&admin_view=

[3] https://johorplantations.com/what-we-do/

[4] https://thehub.mmc.com.my/2023Q1/gmb030223.html

[5] https://fedepalma.org/conferenciainternacional/wp-content/uploads/2022/09/Cartagena-Conference-September-2018_Reza-Dzulkiflee_compressed.pdf

[6] https://biogascommunity.com/2025/02/19/palm-oil-refinery-wastewater-biogas-upgrading-to-cng-project/

[7] https://www.seda.gov.my/wp-content/uploads/2025/04/SEDA-AR2023_ENG_FINAL_S.pdf

[8] https://www.eia.gov/international/analysis/country/MYS

LNG export facilities to overseas markets.[9]

## 1.3 Gas Grid Interconnections and General Import/Export Activity

| **Connected country** | **Associated Infrastructure** | **Annual import from country** (MM BTU or $m^3$) | **Annual export to country** (MM BTU or $m^3$)[10] |
|---|---|---|---|
| Singapore | Natural gas pipeline | | 85 million MMBtu |
| Japan | LNG terminal | | 540 million MMBtu |
| China | LNG terminal | | 351 million MMBtu |
| Korea Rep. | LNG terminal | | 311 million MMBtu |
| Thailand | LNG terminal | | 94 million MMBtu |
| Taiwan | LNG terminal | | 27 million MMBtu |
| Total LNG exports | | | 1.32 billion MMBtu |

All the above are fossil gas exports. No biogas/biomethane export has been recorded at the moment. However, as a side note, MY is expected to export biomethane to SG by 2028 onwards as part of the SG Biomethane Sandbox (the expected volume is up to ~16 million MMBtu per year).

## 1.4 Market Structure

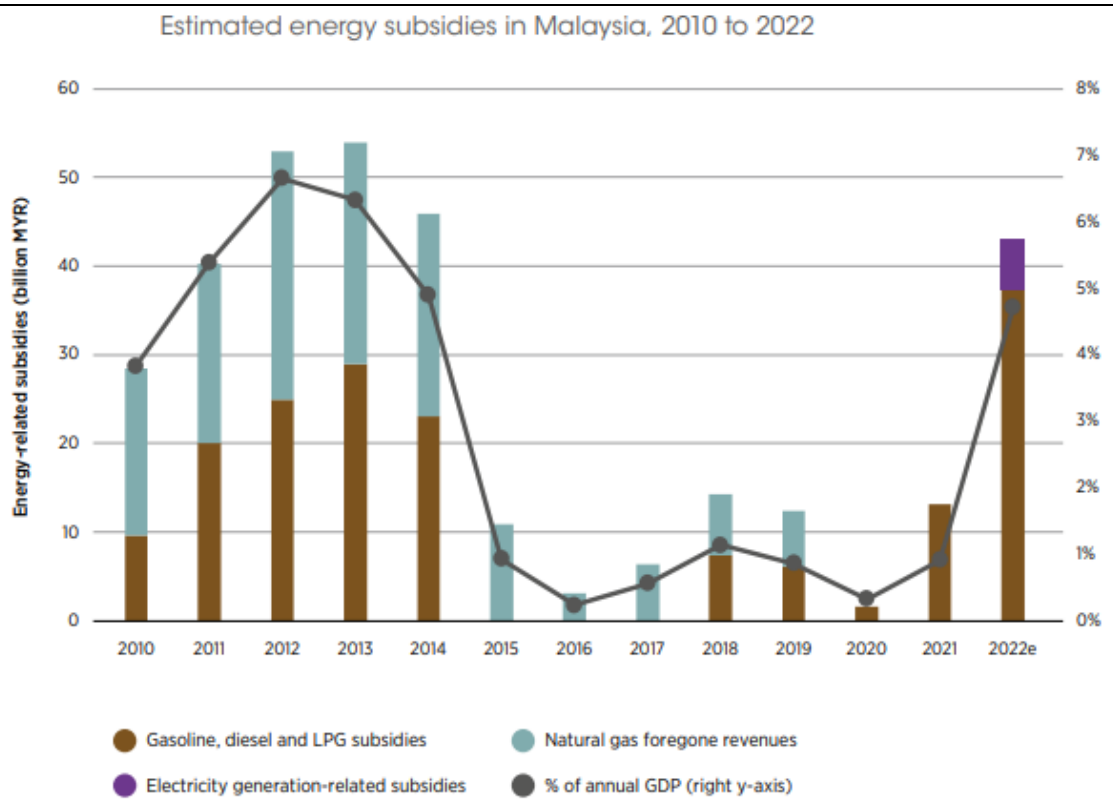
**Energy support policies**

Malaysian policy has provided direct and indirect fuel subsidies for decades, which have kept energy prices low to spur economic growth. The largest subsidies currently are in the transport sector, and consumer prices at petrol and diesel stations in Malaysia are among the lowest globally[11].

[9] De, Prabir & Kumarasamy, Durairaj. (2020). ASEAN-India Energy Cooperation: Current Status and Future Scope of Cooperation. 10.13140/RG.2.2.30188.31363.

[10] https://www.eia.gov/international/analysis/country/MYS

[11] IRENA (2023), Malaysia energy transition outlook, International Renewable Energy Agency, Abu Dhabi.




Malaysia has implemented a POME biodiesel blending programme in the transport sector under the National Biofuel Policy enforced in 2006. Blending biofuels for road transport started in 2010, and in five years the biodiesel blending rate reached 7%. Malaysia's biodiesel now caters to both the domestic market and the export market, and a blending mandate of B10 (10% biodiesel) is used for the road transport sector and B7 for industrial use [12].

**Natural Gas Industry**

Malaysia's natural gas market is undergoing reform through the Gas Supply (Amendment) Bill 2016, which came into force on 16 January 2017. This Act promotes market liberalization by enabling the participation of third parties in the gas supply industry via third-party access[13,14]. In the past, the gas market was characterized by significant subsidies in the local market with a monopolistic supply side by PETRONAS and Gas Malaysia. The former serves the wholesale market through domestic output supplies via either LNG or natural gas transmission networks in both Peninsular Malaysia, Sabah, and Sarawak, and the latter serves the retail market via either natural gas distribution networks (NDGS) or CNG virtual pipeline in Peninsular Malaysia.

**Biomethane industry**

Biomethane is still a relatively niche industry in Malaysia, however there is an increasing interest especially from palm oil mills to produce biomethane in the last few years despite no direct financial incentive schemes in the country. Malaysia's first commercial biomethane plant was commenced in Peninsular Malaysia in October 2015, using POME as a feedstock and Bio-CNG as the final output. By the end of 2024, Malaysia had four commercial biomethane plants in operation. Two plants produce Bio-CNG, operated by Felda Global Venture (FGV) and ADEKOM, respectively. This Bio-CNG is consumed and/or sold directly by the producers. The remaining two plants, operated by Johor Plantations Group (JPG) and Kian Hoe Plantations, respectively,

[12] IRENA (2023), Malaysia energy transition outlook, International Renewable Energy Agency, Abu Dhabi.
[13] https://malaysiangas.com/marketreforms/
[14] https://ijbel.com/wp-content/uploads/2022/02/IJBEL25.ISU-2_34.pdf

produce biomethane injected into the NDGS. Gas Malaysia as the network operator and gas shipper is the long-term offtaker of the physical molecules from both grid-injected plants and sells it to consumers in Peninsular Malaysia. Moreover, both plants are certified under ISCC PLUS as of 2024. As of November 2025, there was no national biomethane certificate registry in Malaysia.

**Biogas Industry**

Malaysia's biogas industry has taken off since 2016, driven primarily by the requirement of digesting all palm oil mill effluent (POME) by 2020 as a part of the National Transformation Programme and introduction of feed in tariffs (FIT) for electricity generated from renewable resources, including biogas, that connects to the national electricity grid. At the time of writing, all new approved FIT applications will be paid the FIT for 21 years, regardless of the RE resources. However, FIT holders that were awarded the Biogas quota before 28th January 2019 and Biomass quota before 23rd December 2019 will be paid the FIT for 16 years.[15] The FIT rates vary depending on several factors such as size and technology, for instance 0.28-0.32 RM/kWh electric for biogas power plants[16]. In addition, the FIT is not an exclusive revenue as the FIT holders are not restricted to apply for the United Nations Clean Development Mechanism (CDM) projects.[17] It is worth mentioning that the FIT scheme only pertains to electricity generation from renewable resources such as biogas, while no such support scheme exists for the biogas/biomethane molecules at the time of writing.

In 2023, Malaysia had 80 plants with approximately 155 MWe of total installed biogas power capacity under the FIT scheme with most production coming from the anaerobic digestion of POME and landfill gas. Besides those under FIT, there are numerous plants which simply flare their biogas to generate carbon credits, however the exact number of such plants is not officially available.

**Bioenergy resource potential**

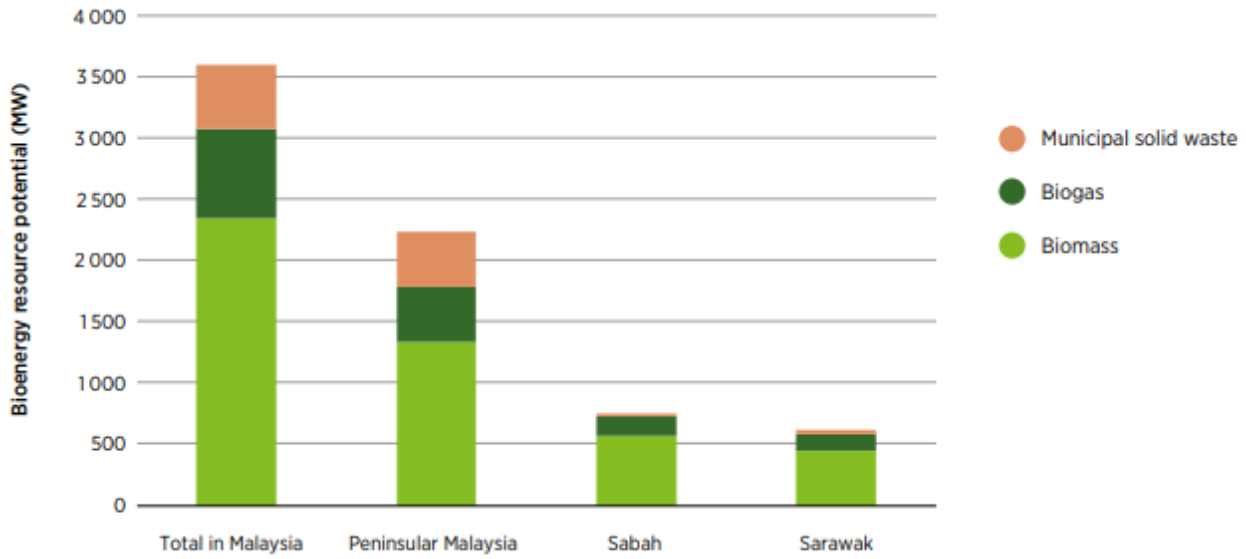
As one of the largest biofuel suppliers globally, Malaysia has large areas of palm oil plantations, covering *ca.* 6 million hectares in 2021. Over the past six decades, the palm oil plantation area has expanded more than a hundred times. Mills span the entire territory, including 76 large-scale mills that can process 250,000 tonnes of fresh fruit bunches annually. Biogas could offer large potential, coming mainly from municipal solid waste, food waste, cattle manure, sewage and palm oil mill effluent (POME). With approximately potential of 2.3 GW, biomass constitutes the largest bioenergy resource in Malaysia. Peninsular Malaysia accounts for 1.3 GW, Sabah with 561 MW and Sarawak with 448 MW. Biogas and municipal solid waste also have promising potential, with total of 736 MW and 516 MW respectively[18].

[15] https://www.seda.gov.my/reportal/fit/

[16] 1 RM = 0.24 USD as of 02 Dec 2025.

[17] https://www.seda.gov.my/misc/frequently-asked-questions/feed-in-tarif-fit-faq/

[18] IRENA (2023), Malaysia energy transition outlook, International Renewable Energy Agency, Abu Dhabi.




## 1.5 Responsible Government Department

Malaysia's natural gas, biogas, and biomethane sector is regulated by a combination of government ministries and regulatory bodies with different roles to oversight the market and ensure relevant regulation and incentive. Below are the key entities in the sector:

i. **Ministry of Energy Transition and Water Transformation (PETRA)**

PETRA is responsible for leading the governance in transforming Malaysia's energy and water sectors. PETRA manages and regulates the electricity supply industry strategically by optimizing renewable energy such as biogas/biomethane. State agencies relating to natural gas, biogas, and biomethane under PETRA includes ST and SEDA.[19]

ii. **Suruhanjaya Tenaga (ST, *Energy Commission*)**

A statutory body established under the Energy Commission Act 2001, ST is responsible for regulating the energy sector, specifically the electricity and piped gas supply industries, in Malaysia and covers economic, technical, and safety regulations. This includes, among others, Electricity Grid Code, Guidelines on Green Electricity Tariff, and Third-Party Access Code for Gas Distribution Pipelines.[20]

iii. **Sustainable Energy Development Authority (SEDA) of Malaysia**

SEDA is a statutory body formed under the Sustainable Energy Development Authority Act 2011 [Act 726]. The key role of SEDA is to administer and manage the implementation of the feed-in tariff (FIT) mechanism which is mandated under the Renewable Energy Act 2011 [Act 726].[21]

[19] https://www.petra.gov.my/
[20] https://www.st.gov.my/eng/details/aboutus/
[21] https://www.seda.gov.my/about-seda/overview-of-seda/

## 1.6 Existing/Planned Legislation

Below are the core legislative documents covering biogas/biomethane that may impact the market operation. There are no legislations that explicitly cover the environmental attributes of biogas/biomethane.

i. **National Energy Transition Roadmap (NETR)**
Updated in 2024, NETR is a policy roadmap which includes bioenergy (i.e. a combination of biomass and biogas) power generation capacity target of 1.4 GWe by 2050. POME, the main biogas/biomethane feedstock in Malaysia, could potentially account for 550 MWe.[22]

ii. **Renewable Energy Act 2011 (Act 725)**
This Act provides for the establishment and implementation of the FIT system to catalyse the generation of renewable energy, incl. biogas power, and to provide for related matters.[23]

iii. **SEDA Act 2011**
This Act provides the establishment of SEDA which administers FIT, Renewable Energy Quota, and other related programmes.[24]

iv. **Gas Supply Act 1993**
This Act regulates piped natural gas supply, including licensing of gas transportation, distribution, and retail, and third-party access to gas infrastructure. Although not explicitly specified, biomethane with pipeline-quality is operationally treated as natural gas under this Act.[25]

## 1.7 Existing/Planned Certificate or Support Systems

**EACs in Malaysia**
The Malaysian market is increasingly familiar with environmental attribute certificates (EACs). Historically, the market for electricity-related EACs was driven mainly by international standards such as the International Renewable Energy Certificates (I-RECs) issued under the I-REC(E) Code. In 2021, Malaysia took a further step by launching the Green Electricity Tariff (GET), which enables corporations and households to purchase renewable energy–based electricity directly from Tenaga Nasional Berhad. Each Malaysia Renewable Energy Certificate (mREC) is denominated in an International Renewable Energy Certificate (I-REC) and cleared through the Evident I-REC(E) Accredited Registry. This structure demonstrates how local market initiatives can successfully leverage established international standards, creating a scalable model that integrates domestic demand with global best practices.

At this juncture, there are no jurisdictional policies behind market-based instruments for biomethane. However, biogas is an eligible technology for the issuance of electricity based EACs, including I-REC(E). Voluntary Standards both with renewable energy (I-REC) and carbon (Verra, Gold Standard) are historically operational in Malaysia and as such the market for I-TRACK (G) is considered feasible.

## 1.8 Extent of Engagement and Response with Government

The government of Malaysia, largely through PETRA and ST, is engaged in monitoring and overseeing the implementation of voluntary EAC markets in Malaysia. Interactions to-date have focused on bilateral

[22] https://ekonomi.gov.my/sites/default/files/2023-08/National%20Energy%20Transition%20Roadmap.pdf
[23] https://www.seda.gov.my/policies/renewable-energy-act-2011/
[24] https://www.seda.gov.my/policies/sustainable-energy-development-authority-act-2011/
[25] https://www.st.gov.my/contents/2020/AKTA/Gas/Act%20501%20-%20Gas%20Supply%20Act%201993.pdf

discussions between government entities and independent standards, including the I-REC(E) team from the I-TRACK Standard Foundation. Further, given robust engagement of Malaysian utility actors in EAC markets, state owned utilities are both knowledgeable of and meaningfully engaged in domestic EAC ecosystems.

While Malaysia does not currently have an appointed Local Issuer for I-REC(E), policy discussions between standards and national actors are frequent, and have focused on ensuring that the engagement of voluntary EAC systems in the country are aligned with the preferences and priorities of both federal and subnational actors. The deployment of biogas tracking systems will follow a similar trajectory, whereby core documentation will be shared with relevant national actors for review, and will proceed into implementation provided no explicit objection is received. This follows aligned practices and established national engagement approaches used in the wider Southeast Asian region.

## 1.9 Proposed Restrictions

Risks of double counting the environmental attributes of biogas in Malaysia are relatively low, but several factors need to be considered carefully. First, to the knowledge of the authors, no tracking system is currently in place for biogas in Malaysia. This means that risks of double counting attributes against a domestic biomass registry are close to zero, unless a new system were to be deployed in the future. Second, while carbon credit systems are in place in Malaysia and are currently used for biogas/biomass assets, the coexistence of carbon credit and EAC registries is common globally, and avoidance of double counting is solved for by the issuance procedures of both the relevant carbon credit and the EAC standards. More details on the avoidance of double counting between EACs and carbon credit systems are provided below. Third, sustainability certification systems are in place for biogas in Malaysia (most notably ISCC). However, existing biogas certification systems are designed to identify sustainability features of biogas, rather than volumetric production and consumption. As such, ISCC and other sustainable certifications function as complementary certifications that can be used in conjunction with I-TRACK(G), without the occurrence of double counting. Fourth, the I-REC(E) system is active in Malaysia, and the interaction between I-TRACK(G) certificates and I-REC(E) issuance follow provisions under both product codes. This process has been specifically designed to protect against double counting as attributes from biogas are subsequently used for the production of electricity EACs, such as the I-REC(E). More details on each are presented as follows:

**(i)** **No domestic biogas EAC system:** At the time of writing, there are no specific regulations which cover the environmental attributes of biogas or biomethane in Malaysia; and there is no standard or registry used to denominate the production of biogas EACs.[26] As such, there is currently no identified risk of double counting against a national or independent biogas tracking system, as no such system exists in Malaysia.

**(ii)** **Interaction with carbon credit systems.** Currently, numerous biogas/biomethane plants in Malaysia are registered under voluntary standards such as carbon credits (Verra)[27] or sustainability label (ISCC EU/PLUS)[28]. These registrations are published on the respective standard's website. Under carbon standards, carbon credit methodologies focus on waste management and emission reduction from waste management focusses on methane avoidance.

[26] In its 2024 Sustainability Report, Gas Malaysia Berhad, a state-linked gas utility company, briefly mentioned the potential development of Guarantee of Origin (GO) scheme for clean gas. However, the authors are not aware of any further developments or publicly available information that indicate the establishment of such a system.

[27] https://registry.verra.org/app/search/VCS

[28] https://www.iscc-system.org/certification/certificate-database/all-certificates/

| | |
|---|---|
| | Meanwhile, a sustainability label such as ISCC EU or PLUS is a certification scheme designed to verifies compliance with certain sustainability requirements and greenhouse gas emissions savings criteria for renewable fuels, including biomethane. I-TRACK(G) could be a complimentary system to add traceability to the title transfers of the corresponding environmental attributes, guaranteeing that there is no double counting of credits or emissions from biogas/biomethane within either local or cross-border consumption. However, if a specific biogas/biomethane production facility owner decides to retain or assign the rights to emission reductions such information will be contained in the I-TRACK(G) certificates following relevant I-TRACK(G) Code provisions and further Issuer guidance. |

## 1.10 Any Other Relevant Information

Implementation of I-TRACK(G) will be achieved through the Green Certificate Company (GCC) as the accredited Issuer together with the Evident I-TRACK(G) Registry. As is the case in all active issuance countries, national government actors may request that the I-TRACK Standard appoint a specific Local Issuer at any time, and can do so by contacting the I-TRACK Standard through its Asia Support email: asiasupport@trackingstandard.org.

## 1.11 Authors and contributors

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