



Analysis

Climate Impacts of Malaysia's Data Centre Expansion

Malaysia is increasingly becoming an investment hub for data centres. In response to environmental concerns raised by CSOs and state agencies, this analysis establishes the greenhouse gas lock-in of new data centres in Malaysia in order to guide future decision making on the issue.

Key Takeaways:

- There are 14 'new' data centres in Malaysia, of which three were completed in the last year and the remaining ten are currently under construction or proposed.
- These 14 data centres result in a combined 2.2GW of capacity.
- Due to Malaysia's fossil fuel-powered grid, the estimated annual carbon lock-in of these data centres is 9.9 million tonnes of CO₂e. This is equivalent to the annual emissions of entire countries such as Papua New Guinea.

Recommendations:

- The Ministry of investment, Trade and Industry should develop a 1.5 degree-aligned sectoral-level carbon budget and decarbonisation pathway for data centres.
- The Ministry's upcoming Incentive Framework and Sustainable Development Guidelines should ensure that data centres conform to this budget, and limit approvals to data centres committed to using renewable energy for 100% of their operations.
- The Federal Government should commit to a phase out of all coal and gas-fired power plants.

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RimbaWatch Analyses investigate urgent environmental and social issues, adopting technical methodologies to develop data on the impacts of activities to produce recommendations to inform ongoing policy debates.

**This Analysis has been prepared by
RimbaWatch**

Introduction

Data centres are facilities that house computer systems and related components, including telecommunications and storage infrastructure. It is designed to store, manage, and process large amounts of data, offering services such as data hosting, cloud storage, website hosting, and enterprise application support. In recent years, investments in data centres in Malaysia have risen, attributed to factors such as low electricity tariffs, availability of land and government incentives. Such incentives have included a 100% tax exemption on certain eligible centres.

Despite this, concerns over the environmental and social impact of data centres remain, such as their high energy and water consumption. For example, Sahabat Alam Malaysia has warned that Tenaga Nasional has received applications for data centres exceeding 11,000MW, and such centres could become a significant source of emissions (2024).

Recently, the Ministry of Investment, Trade and Industry announced that a new Investment Incentive Framework for data centres would be developed by 2025, including sustainable development guidelines that would include indicators on carbon emissions and water usage (The Edge, 2024).

Methodology

Responding to the concerns and proposed regulatory developments above, this analysis establishes the greenhouse gas (GHG) lock-in of new data centres in Malaysia in order to guide future decision-making on the issue.

To calculate the GHG lock-in of new data centres in Malaysia, RimbaWatch collated a list of individual data centres with either committed investments, or which were already under construction, as of 1 January 2025 based on publicly available data (see appendix). The capacity of each data centre is then calculated. This capacity is multiplied by the number of hours per year to produce a figure representative of the total energy consumption of new data centres in a single year, in GWh. This annual figure takes into account an average load factor of 86% (ETthree, 2024). Next, this energy consumption is multiplied against Peninsular Malaysia's 2022 Grid Emissions Factor (GEF) of 0.774 GgCO₂e/GWh (Energy Commission, 2024). This GEF is the latest official figure available at time of publication.

This list excludes data centre capacity covered by an explicit plan to utilise renewable energy for their operations, which meant the following centres were excluded: the YTL Green Data Center Park in its entirety, and 5MW of the AirTrunk JHB1. Further, this list is limited to the scope outlined above, and may not represent the full extent of data centre development plans.

“In recent years, investments in data centres in Malaysia have risen, attributed to factors such as low electricity tariffs, availability of land and government incentives.”

Greenhouse Gas Lock-In

According to data collected by RimbaWatch, there are 14 ‘new’ data centres in Malaysia. This consists of three which were completed between 2023 and November 2024, two under expansion works, five which are currently under construction and four which are proposed. This results in 2220.5MW of ‘new’ data centre capacity, of which 1715MW have no immediate renewable energy plans. This 1715MW will therefore increase demand on Malaysia’s primarily fossil fuel-powered grid by 12,920 GWh per year, taking into account average load factors.

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Table 1. New Data Centres, Malaysia			
Name	Completion Date	Capacity (MW)	Renewable Energy
GDS Nusajaya Tech Park (NTP) Data Center Campus	August 2023	69.5	N/A
NTT Cyberjaya Campus - CBJ6	October 2023	7	N/A
Infinaxis Data Center	November 2024	12	N/A
Bridge Data Centres - Sedenak	Under expansion works	110	N/A
Mah Sing DC Hub@Southville City	Under expansion works	200	N/A

Vantage Data Centers (KUL2)	Under construction	256	"Renewable energy strategies similar to existing facilities"
Yondr Data Centre Campus	Under construction	300	N/A
Princeton Digital Group Campus Phase 1	Under construction	150	N/A
Vantage Data Centers (KUL12)	Under construction	16	"Actively incorporates sustainable practices, aiming for carbon-neutral operations across its campuses"
AIMS @ Cyberjaya	Under construction	50	N/A
AirTrunk JHB1 (JHB1)	Proposed	150	"equipped to add 5MW of solar panels"
EdgeConneX Data Center Campus	Proposed	200	"Part of EdgeConneX's global commitment to 100% renewable energy"
YTL Green Data Centre Park	Proposed	500	"which will be powered by up to 500MW of renewable energy through solar farms planted within the site."
Google Facility, Elmina	Proposed	200	N/A
Total MW	2220.5		
Total MW (minus renewable capacity)	1715MW		

Taking into account Peninsular Malaysia's GEF, these data centres will have a carbon lock-in of 9,992,975 tCO₂e. In comparison, 9.9 million tonnes of additional annual emissions are equivalent to adding more than 2 million passenger vehicles to the road (EPA, n.d). This is equivalent to the 2023 emissions of entire countries such as Papua New Guinea (EDGAR, 2024).

It must be noted that one primary reason for this high figure is the high fossil fuel intensity of Malaysia's energy grid, which in 2022 was estimated to constitute 81% of its energy production (Ember, 2024). In June 2025, it was reported that Malaysia plans to increase its gas-fired power plant capacity by 50% to meet demands from data centre (Pipeline Journal, 2025).

Fossil fuels, including fossil gas, are currently the leading driver of global emissions. In 2023, the Intergovernmental Panel on Climate Change (IPCC) concluded that any new increase in fossil fuel capacity is inconsistent with a global 1.5°C pathway, and the Panel also established that gas is the third most emissions-intensive method of generating energy.

Recommendations

Noting that other organisations, including SPAN and Sahabat Alam Malaysia, have proposed recommendations addressing the high water consumption of data centres, the following recommendations highlight specific actions that should be taken by the relevant authorities to address the greenhouse gas risks of this sector:

- **The Ministry of Investment, Trade and Industry (MITI)** should develop a 1.5 degree-aligned sectoral-level carbon budget and decarbonisation pathway for data centres.
- **The new Incentive Framework and Sustainable Development** guidelines should ensure that all new data centres conform to this carbon budget, such as through limiting the approval of data centres to those committed to 100% renewable energy-powered operations and which will generate additional renewable capacity to sell back to the grid.
- **MITI**, with input from relevant stakeholders, should further develop a near and long-term water budget for the data centre sector, taking into account demand from householders, other economic sectors and climate risks, and ensure that data centres do not exceed this budget.

“these data centres will have a carbon lock-in of 9,992,975 tCO₂e (...) This is equivalent to the 2023 emissions of entire countries such as Papua New Guinea”

- The budgets and decarbonisation pathways proposed above should further serve as an assessment guide for the financing of data centres.
- All data centre developments should be conducted in transparency. For example, all budgets and pathways proposed above should be subject to a public consultation process and be publicly available post-publication. Further, **the Department of Environment** should ensure that, due to their high contribution to GHG emissions and water consumption, all data centres should require Schedule 2 EIAs which are open to public consultation.
- **The Federal Government** should align the energy sector with Malaysia's net-zero ambitions by committing to a phase out of all coal and gas-fired power plants. Further Malaysia should join other Global South producers such as Colombia in endorsing calls for a Fossil Fuel Non-Proliferation Treaty, which will establish a global framework for an equitable energy transition.

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SPAN (2025) *DEVELOPMENT OF DATA CENTRE: MEASURES TO ENSURE SUSTAINABLE AND CONTINUOUS WATER SUPPLY*. Press Release.

Appendix: List of Data Sources

Name	Source
GDS Nusajaya Tech Park (NTP) Data Center Campus	https://investors.gds-services.com/news-releases/news-release-details/gds-expands-platform-south-east-asia-plans-develop-hyperscale/
NTT Cyberjaya Campus - CBJ6	https://datacenterreview.com/2023/10/ntt-opens-new-facility-in-malaysia/
Infinaxis Data Center	https://www.datacenterdynamics.com/en/news/infinaxis-breaks-ground-on-cyberjaya-data-center/
Bridge Data Centres - Sedenak	https://www.datacenterdynamics.com/en/news/bridge-data-centres-launches-new-facility-in-johor-malaysia/
Mah Sing DC Hub@Southville City	https://www.nst.com.my/business/corporate/2024/10/1126497/mah-sing-bridge-dc-add-200mw-southville-citys-data-centre-hub
Vantage Data Centers (KUL2)	https://www.digitalnewsasia.com/business/vantage-data-centers-breaks-ground-256mw-cyberjaya-campus
Yondr Data Centre Campus	https://www.datacenterdynamics.com/en/news/yondr-powers-up-data-center-in-johor-malaysia/
Princeton Digital Group Campus Phase 1	https://datacentremagazine.com/technology-and-ai/microsoft-to-expand-data-centre-hub-in-johor-malaysia
Vantage Data Centers (KUL12)	https://www.digitalnewsasia.com/business/vantage-data-centers-opens-2nd-cyberjaya-data-center-third-under-construction
AIMS @ Cyberjaya	https://www.datacenterdynamics.com/en/news/malaysias-aims-completes-second-expansion-in-cyberjaya-announces-third-expansion/
AirTrunk JHB1 (JHB1)	https://airtrunk.com/airtrunk-enters-malaysia-with-new-150mw-hyperscale-data-centre-in-johor-bahru/

EdgeConneX Data Center Campus	https://techwireasia.com/2023/09/why-is-edgeconnex-building-a-new-data-center-campus-in-cyberjaya/
YTL Green Data Centre Park	https://ytldatacenters.com/about/
Google Facility, Elmina	https://www.nst.com.my/business/corporate/2024/12/1143410/buy-call-retained-sd-property