

ASEAN Data Centre

Keep calm and carry on

ASEAN in infant stage of DC race; unlikely to see meaningful impact from US restrictions

Following stringent new US export controls to limit access to advanced AI technologies, we choose not to be overly negative and rather see some pockets of potential optimism. While AI provides long-term growth optionality within ASEAN, we see medium-term growth being driven by ASEAN catching up on traditional data centers for cloud computing and storage. We estimate ASEAN is 55-70% behind evolved markets on data center infrastructure on a per capita or adjusted for GDP basis. Large AI-led data center announcements in ASEAN are US hyper scaler-led, which we see as relatively better placed to navigate Tier-2 market sanctions. Additionally, we see potential for greater demand for GPUaaS in ASEAN if access to advanced GPUs in China is curtailed.

ASEAN markets far below country caps

Under new US restrictions, companies headquartered in Tier-1 countries can deploy no more than 7% of their total computing power in any Tier 2 country. Large investments in ASEAN are announced by US based hyperscalers and we estimate those investments are in the 2-3% range per market of their expected AI-linked investments globally. As an example, Microsoft has pledged USD2.2b cloud & AI investment in Malaysia whereas its planned FY25 global investment is USD80b. Tier-2 headquartered companies, through national VEU, can deploy 690,000-equivalent H100 GPUs over 2025-27. We estimate this will entail total investment of USD17b whereas we estimate the largest deployment in ASEAN is USD4.3b by YTL power. Given this, we think the US restrictions are accommodative and announced data-center builds are unlikely to be impacted even in Malaysia which has attracted the bulk of the investments.

What about AI model training and inferences?

The US framework introduces controls on exporting AI model weights, focusing on extremely advanced models that require over 10²⁶ FLOP for training (costing at least USD70m to develop). BIS estimates that fewer than five models globally currently exceed this threshold (refer to Fig 3). Open-weight models are excluded from these controls. Based on our understanding, model controls are to restrict advanced AI models from training and inferencing in Tier-2 markets. While access controls are placed on model training/access, however, with a bigger restriction on AI GPU exports to China, we think Chinese companies may still use ASEAN infrastructure focusing on less advanced AI systems or leverage public/open-weight models that fall outside of US controls.

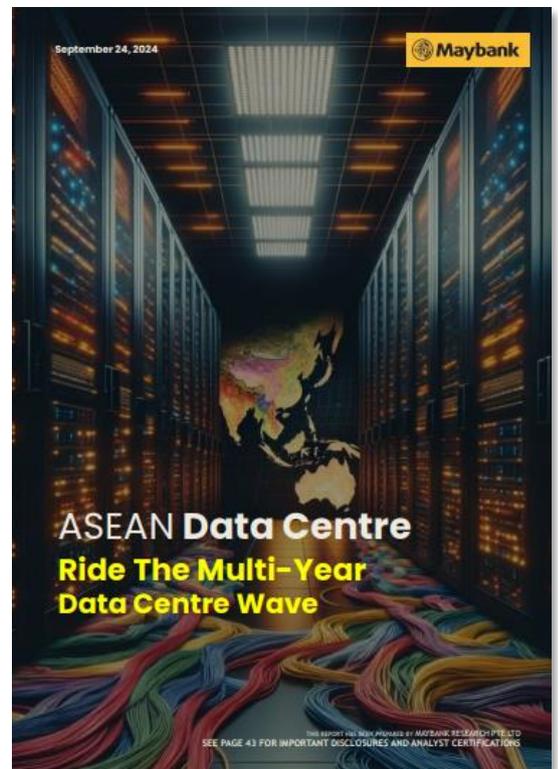
Not a fall from the cliff - demand could slow from 20% to 17% CAGR in worst-case scenario

We estimate ASEAN data center growth at 20% revenue CAGR by 2028. Of this, we estimate ~14% is driven by ASEAN's own needs and 6% to be driven by global demand as we see ASEAN could emerge as a data center hub on the back of its favourable cost economics and power/water infrastructure. Assuming half of the 6% global demand comes from China and assuming China is totally banned from hosting data or running LLMs in ASEAN, overall demand growth would reduce to 17.2% - as such demand doesn't fall off the cliff. While China company led investments in ASEAN may face increased regulatory hurdles, we think this will be small at ~10% of total investments.

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[Link to our last ASEAN DC report - 24 Sep 2024](#)



Abbreviations:

- DC - Data center
- GPU - Graphic processing unit
- GPUaaS - GPU as a Service
- FLOP - Floating point operations per second
- BIS - The Bureau of Industry and Security (BIS) is an agency of the United States Department of Commerce
- LLM - Large language model

Fig 1: Summary of US AI Diffusion Framework by location of recipient company’s headquarters and location of deployment

		Location of recipient company’s headquarters				
		Tier 1: United States and key partners	Tier 2: Controlled access countries	Tier 3: Arms-embargoed countries		
Location where recipient will deploy indicated item	Tier 1 (except the United States)	AI chips: Allowed Controlled model weights deployment and development: Allowed with model storage and security requirements				
	Tier 2	AI chips: a) Through universal authorization granted to a company: up to 7% of the company’s total AI computing capacity to single Tier 2 country (while maintaining 75% in Tier 1 countries and for US companies 5% in US) b) Exemption for small exports: Up to 1700 H100 equivalent per company per year c) Individual export license granted for a company: up to 50,000 H100 equivalent in 2025-27 overall per country of deployment (all deploying companies combined) Controlled model weights deployment : Allowed with model storage and security requirements Controlled model weights development: Not allowed			AI chips: a) Through country-specific authorization granted to a company: up to 100,000 H100 equivalent in country of authorization in 2025, 270,000 H100 equivalent in 2026, 320,000 H100 equivalent in 2027 b) Exemption for small exports: Up to 1700 H100 equivalent per company per year c) Individual export license granted for a company: up to 50,000 H100 equivalent in 2025-27 overall per country of deployment (all deploying companies combined) Controlled model weights deployment and development: Not allowed	AI chips, controlled model weights deployment and development: Not allowed
	Tier 3	AI chips, controlled model weights deployment and development: Not allowed				

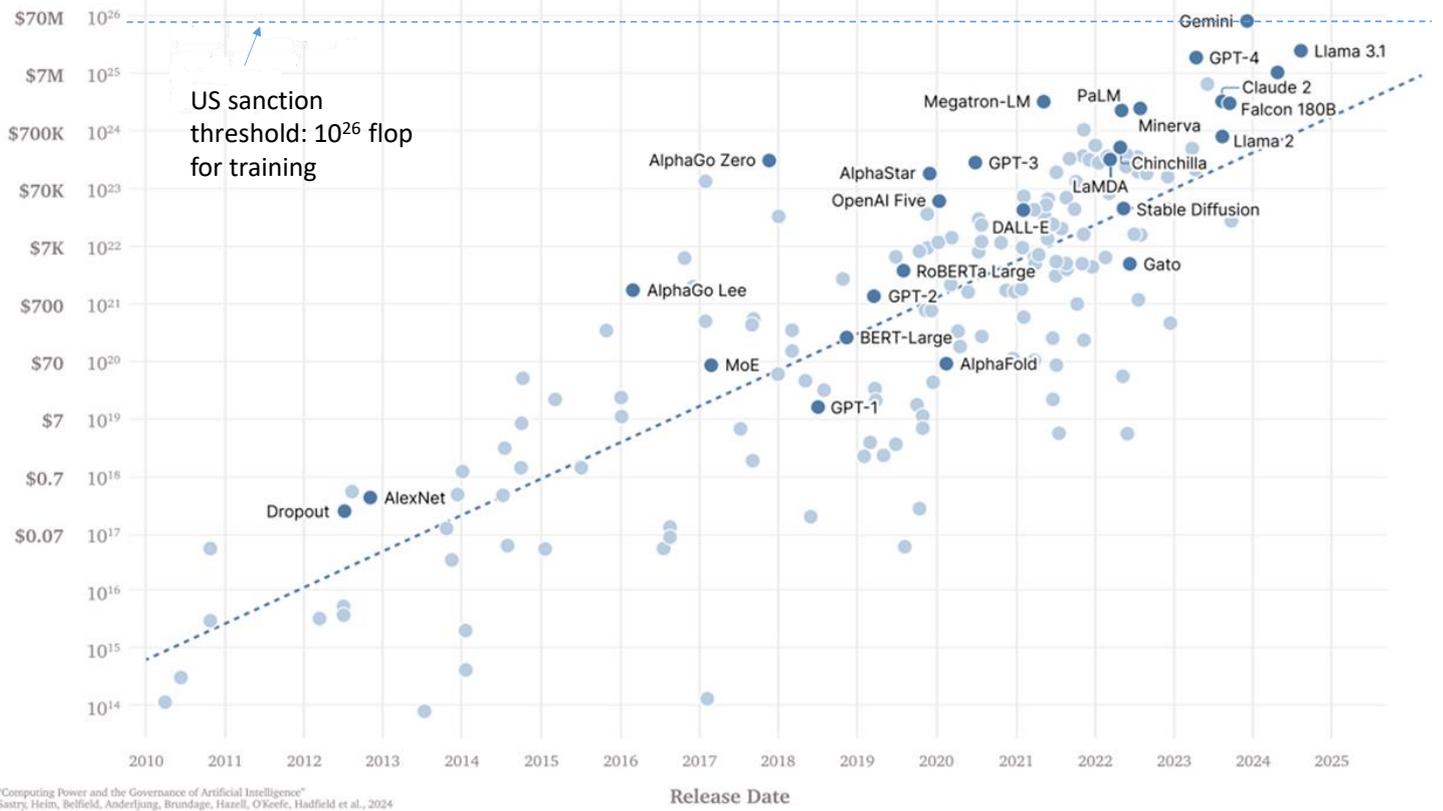
Source: Maybank IBG Research, Rand.org

Fig 2: Major announcement by US hyperscalers in ASEAN and how it compares to their annual budget (Not an exhaustive list)

Market	Tech Giants	Projects	Location	Relative to its FY2025 global investments
Malaysia	Nvidia	Nvidia & YTL Power partner for USD4.3bn AI data centers project announced in Dec 2023	Johor	N/A
	Microsoft	Investing USD2.2B in cloud computing & AI services starting Jun 2024	Johor	2.4%
	Google	USD2B project announced in May 2024	Greater Kuala Lumpur	3.8%
	AWS	AWS plans to invest USD6.2B in Malaysia through 2038	N/A	<1.0%*
	Oracle	Oracle to Invest More Than USUSD6.5B in AI and Cloud Computing in Malaysia	N/A	N/A
Singapore	AWS	AWS will expand and strengthen cloud and AI adoption with a USUSD12bn investment	Singapore	2.5%*
	Google	Spended USD5B and Completed 4th Data Center in Singapore	Singapore	1.0%*
	Open AI	Set up it's Asia office in Singapore	Singapore	N/A
Thailand	Google	Announced USD1B project to build a data center	Chonburi	1.9%
	AWS	Plans to build a data center with a budget of USD5B over 15 years	Bangkok	5.2%
	Microsoft	Announced to build the first Thailand data center in May 2024	N/A	2.4%
Vietnam	Microsoft	Team up with Viettel to build data center	Hanoi	N/A
	Google	Considering setting up large data center in Vietnam	HOM	N/A
	AWS	Plans to build regional data center in Vietnam	HCM	N/A
Indonesia	Nvidia	Plans to establish a USD200M AI Center with local telco giant Indosat Ooredoo Hutchison in Indonesia	Surakarta	N/A
	Microsoft	Will invest USD1.7B over the next four years into cloud and AI infrastructure	Greater Jawa Barat region	1.9%

*As a % of annual capex. Source: Maybank IBG Research, Company announcements

Fig 3: Estimated compute cost and total training compute used to train notable AI models - measured in total flops



"Computing Power and the Governance of Artificial Intelligence"
Sasry, Heim, Belfield, Anderjung, Brundage, Hazell, O'Keefe, Hadfield et al., 2024
Further adapted by Lennart Heim.

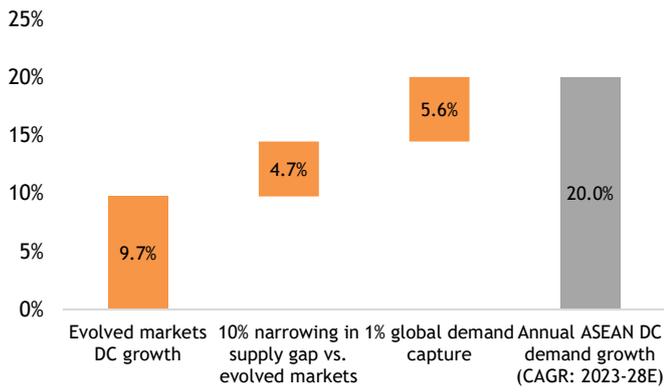
Source: Maybank IBG Research, Heim and Koessler

Fig 4: Selected data centre investments in Malaysia (current and pipeline) - Excludes US hyperscale investments

Entity	Location	State	Power (MW)	Commission Year	Headquarter/Major operations
Bridge*	Sedenak	Johor	110	2022	China
GDS	Nusajaya	Johor	70	2023	China
SIPP YTL	Kulai	Johor	500	2024	Malaysia
AirTrunk	Nusajaya	Johor	150	2024	Australia
Yondr	Sedenak	Johor	300	2024	Ireland
K2 Strategic	Sedenak	Johor	200	2024	Malaysia
Princeton Digital Group	Sedenak	Johor	150	2024	Singapore
DC-Science	Sedenak	Johor	120	2024	China
ST Telemedia	Nusajaya	Johor	120	2025	Singapore
Bridge*	Bukit Jalil	Klang Valle	300	2025	China
Vantage	Cyberjaya	Klang Valle	256	2025	US
edgeconnex	Bukit Jalil	Klang Valle	70	2026	US
edgeconnex	Cyberjaya	Klang Valle	200	2026	US
TM-Nxera	Nusajaya	Johor	200	2026	Malaysia/Singapore
NTT	Gelang Patah	Johor	48	2027	Japan
Total			2794		
Investments from Chinese headquartered companies			600		
% of investments from Chinese headquartered companies			21%		

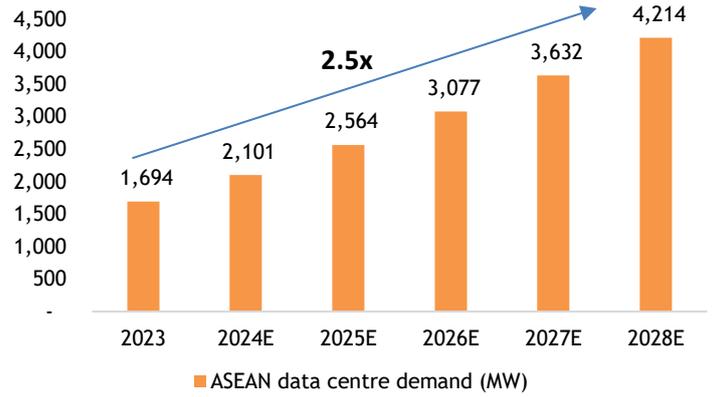
Source: Maybank IBG Research, Talen Energy

Fig 5: ASEAN data centre demand growth drivers



Source: Maybank IBG Research, Company, Bloomberg

Fig 6: ASEAN data centre demand by 2028E



Source: Maybank IBG Research, Company, Bloomberg

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