

Data Centers

Indonesia's Data Center Cost Edge Meets a Power Bottleneck

Neutral Now, Batam Holds the Upside

We remain Neutral on Indonesia's data center sector over the medium term, but positive over the long term. Lower construction and power costs are offset by a 36 month wait to energise 100MW, versus 12 months in Malaysia. Faster delivery keeps Johor ahead despite higher costs. Malaysia has over 1,300MW operational and 3,252MW in the pipeline, against Indonesia's 394MW and 1,221MW. Jakarta's tenant uptake trails new supply, while Batam remains our core growth opportunity but needs time to close the infrastructure gap. Investment commitments support future growth; grid delivery and tenant conversion will determine when returns materialize.

AI Fuels APAC's 1.7x Capacity Pipeline

AI is accelerating data center investment, with global power demand projected at c.945TWh and capacity above 200GW by 2030F. Hyperscaler capex is forecast to reach USD1.25tr in 2027F, supported by c.USD2.5tr in cloud backlog. AI workloads should account for c.65% of data center compute by 2027F and c.71% by 2030F, with inference overtaking training. APAC has 15.1GW operational, 4.8GW under construction and 21.7GW planned, a pipeline equivalent to 1.7x installed capacity. Johor's 0.7% vacancy and Singapore's limited 25MW construction pipeline highlight supply constraints. Johor leads the spillover, while improving connectivity and tax incentives strengthen Batam's appeal as an alternative hub.

Indonesia's Cost Edge: Project IRRs Up to 16.3%

Indonesia offers lower construction and power costs at USD8.9mn/MW and USDc6.3/kWh, against Malaysia's USD9.9mn/MW and USDc10.6/kWh, supporting yields on cost of 10% to 11%. Jakarta anchors domestic colocation, with capacity projected to reach 455MW in 2026E (+41.2% YoY) and exceed 2GW by 2030F. Batam targets regional hyperscale through cheaper land and latency <2ms to Singapore. Our 100MW scenarios deliver an estimated colocation IRR of 16.3% in Jakarta versus Kuala Lumpur's 16.2%, at USD200/kW/month. Hyperscale rent of USD150/kW/month yields 15.1% in Batam versus Johor's 13.4%. Indonesia's cost advantage supports attractive returns, but grid availability and connectivity determined the demand absorption.

Connectivity Arrives First, the Grid Arrives Late

Connectivity is moving fastest, with committed investment from Google, Meta and Microsoft lifting Batam's total subsea capacity over 1,750Tbps by 2029F, a +407.8% increase, positioning it alongside Johor to absorb inference workloads. Power remains the bottleneck. Indonesia's c.41TWh generation surplus and low tariffs are offset by weaker reliability and longer grid connection timelines, with PLN's Java to Sumatera link expected only in 2031F. Behind the meter solar and battery storage could ease grid dependence, but adoption remains limited.

Ten Proxies to Indonesia's USD13bn Buildout

DCII, EDGE, ISAT, TLKM and DSSA offer direct operator exposure, but we favor the infrastructure suppliers as our pick and shovel play. DMAS offers land backed by 993MVA of committed power, TOTL has c.39% of projects in data centers, POWR captures recurring electricity demand, and KETR and MORA provide Rising-8 connectivity with up to 400Tbps of design capacity. Jakarta's 20.4% vacancy reinforces our preference for monetizing construction and energisation over waiting for tenants.

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I. AI Reshapes the Demand Curve

Demand is global, delivery is local

AI is becoming the main driver of incremental compute demand. The IEA projects global data center electricity consumption to rise from c.415TWh in 2024 to c.945TWh by 2030F, or nearly 3% of global demand. Goldman Sachs forecasts 170% growth between 2025 and 2030F, up from 117% previously. The forecasts use different base years, but both point to a sustained increase in power requirements.

Power, rather than construction alone, increasingly determines delivery. Large facilities can be built in 18 to 24 months, while grid connections, transmission and new generation often take several years. Delays defer revenue and extend payback. AI also raises rack density: the cited benchmarks indicate power draw of roughly 17 times that of conventional racks, with liquid cooling increasingly important above c.30kW per rack.

For Indonesia, the investment question is how much demand can be converted into occupied, powered capacity. Lower construction costs are valuable, but insufficient without dependable electricity, network access and customers. This supports our Neutral medium-term view and a more positive longer-term outlook as infrastructure investment progresses.

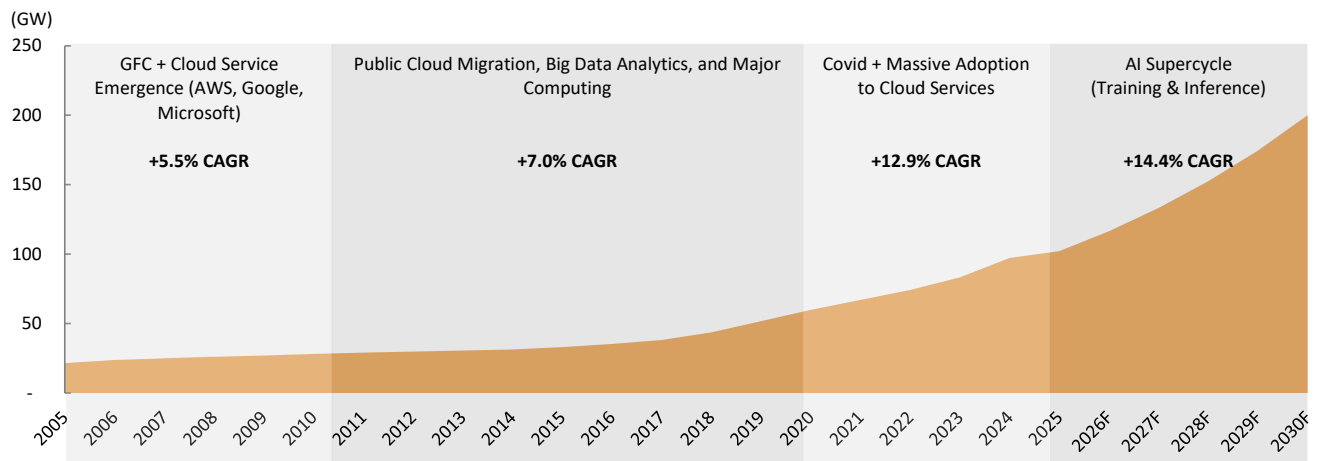
AI extends the capacity cycle

Global capacity is projected to expand by c.97 to 110GW between 2025 and 2030F, lifting the installed base above 200GW. Hyperscale cloud expansion and rising AI workloads account for the bulk of that growth.

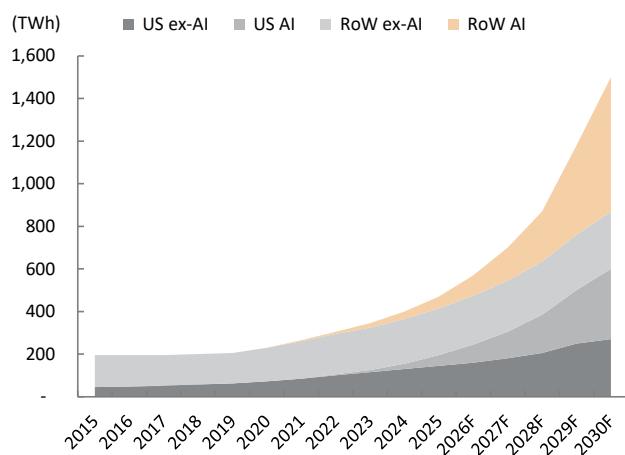
Adoption is running ahead of every previous cycle. Generative AI reached c.38% penetration within three years, against c.14% for personal computers and c.20% for the internet, pulling compute demand forward and lengthening the investment cycle.

The first inflection arrived around 2019 with big data and cloud migration, then accelerated through COVID 19, delivering a c.12.9% demand CAGR through 2025. Generative and agentic AI now drive the next phase at a +14.4% CAGR through 2030F, with materially higher compute and power intensity.

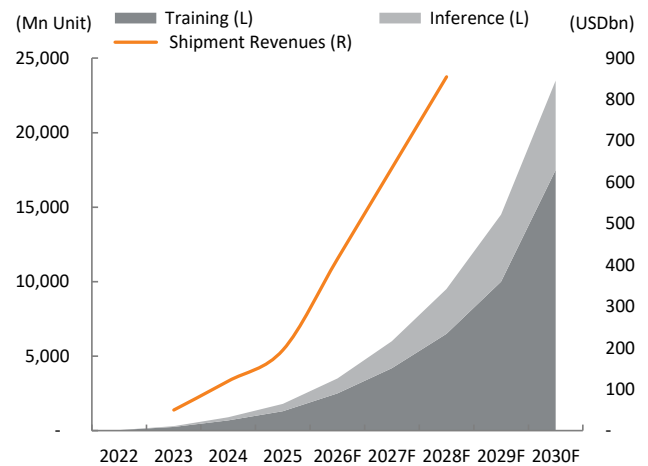
Goldman Sachs expects global data center power demand to rise c.170% between 2025 and 2030, with more than 60% of the increment landing in the US. JLL and McKinsey both see inference overtaking training as the dominant workload by 2027F, at c.34% of compute demand versus c.30% for training. Combined AI workloads should reach c.65% of global data center compute by 2027F and c.71% by 2030F.

Figure 1. Global historical data center capacity trend

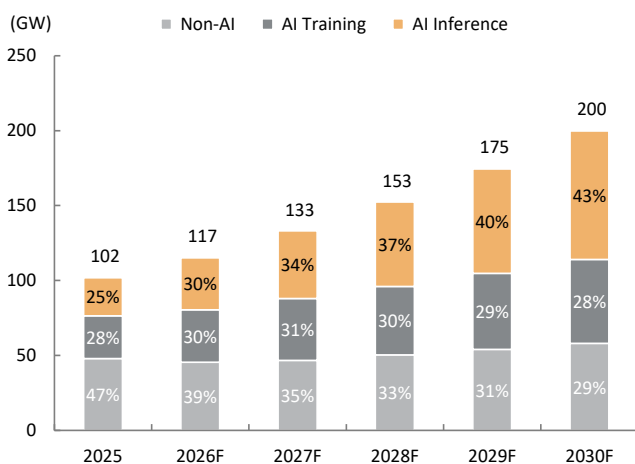
Sources: IEA, JLL, Mirae Asset Sekuritas Indonesia Research

Figure 2. Global data center demand split

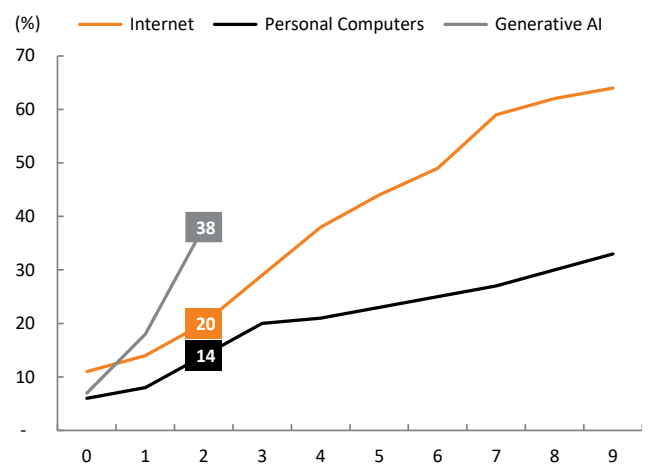
Sources: Goldman Sachs, Mirae Asset Sekuritas Indonesia Research

Figure 3. AI servers in operation, training vs inference

Sources: Goldman Sachs, Mirae Asset Sekuritas Indonesia Research

Figure 4. Demand by workload type

Sources: JLL, McKinsey, Mirae Asset Sekuritas Indonesia Research

Figure 5. GenAI adoption outpaces the PC and internet cycles

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Capital follows the AI workload

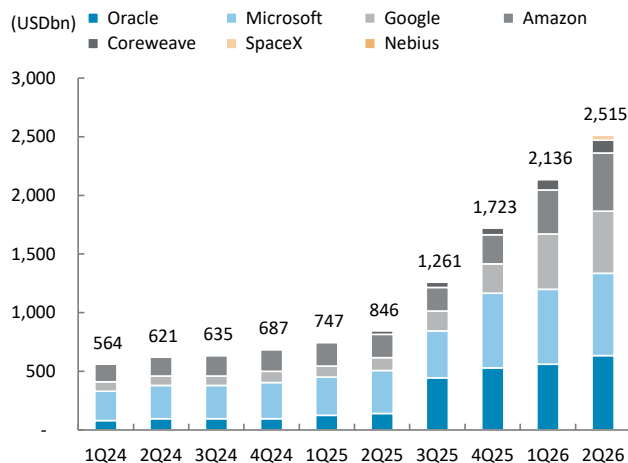
The investment cycle is visible in both spending and contracted demand. Capex across our expanded hyperscaler sample, including SpaceX, is forecast to rise c.95% in 2026F to USD847bn and reach USD1.25tr in 2027F. Capacity expansion serves internal AI workloads and external cloud customers.

Demand visibility is equally strong. Aggregate backlog across the major cloud hyperscalers has reached c.USD2.5tr, with Amazon up 36% YoY and Google up 11% YoY on rising AI infrastructure commitments and agentic demand.

Capital intensity is at a record. The major hyperscalers are now spending around 50% of revenue on capex, while off balance sheet commitments have jumped to c.USD2.6tr (+352.7% YoY).

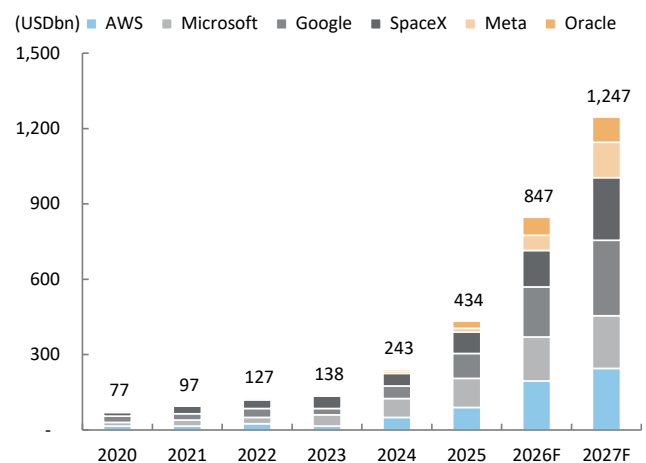
At the application layer, the forecast shows GenAI software spending reaching c.USD318bn by 2032F. Agentic applications and coding workflows should support usage, but monetization and utilization will determine returns on the infrastructure already being built.

Figure 6. Hyperscaler backlog keeps building



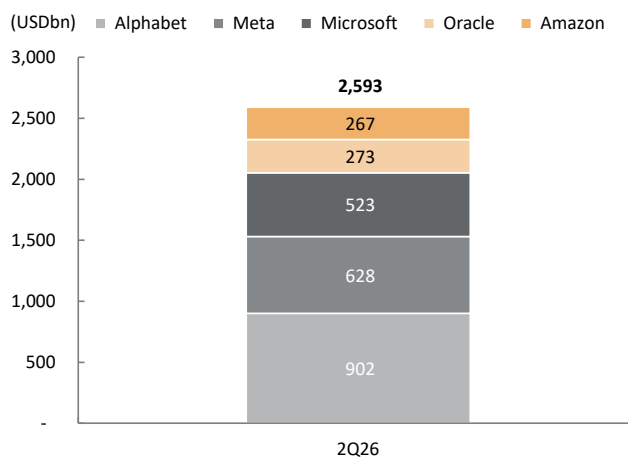
Sources: Company Data, Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 7. Hyperscaler AI capex



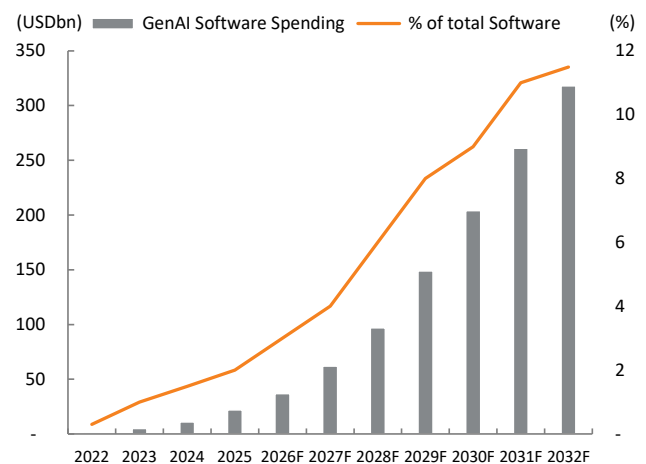
Sources: Company Data, Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 8. Off balance sheet commitments surge in 2Q26



Sources: Company Data, Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 9. GenAI software spending through 2032F



Sources: Bloomberg, IDC, Mirae Asset Securities Research

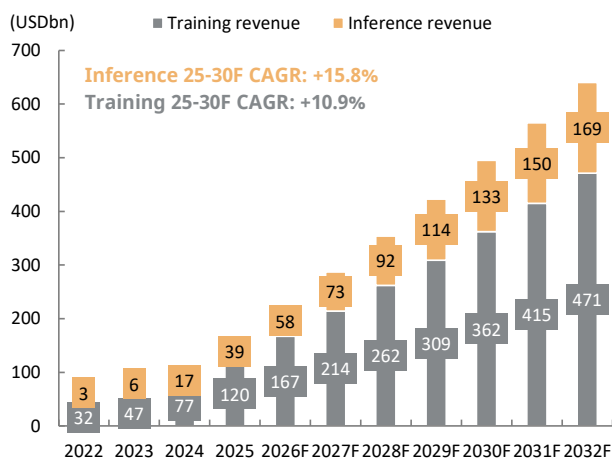
Inference broadens the cloud opportunities

Inference is broadening the cloud growth opportunity. Reasoning models consume more compute per interaction, while agents run longer workflows and draw on databases, cybersecurity and monitoring services. The revenue trajectory shown below implies growth approaching 50% in 2027F, above the historical pace in the high teens.

Bloomberg's cited forecasts put inference revenue growth at 15.8% annually through 2030F versus 10.9% for training. Providers are expected to deploy inference across distributed facilities to manage latency, rather than concentrate on every workload in the largest training clusters. For operators, this widens the addressable market but makes customer location, network quality and utilization increasingly important.

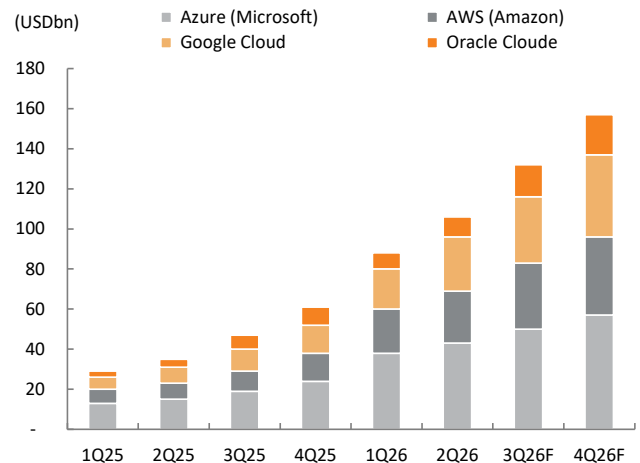
From a USD570bn combined revenue base this year (excluding SpaceX), that pivot implies a step up in growth as compute demand builds through 2027F. Most hyperscalers should expand GPU inference capacity across distributed sites to optimize latency rather than concentrate spend in single pre training clusters, a shift that should also ease margin pressure from infrastructure and power costs.

Figure 10. Inference overtakes training on revenue



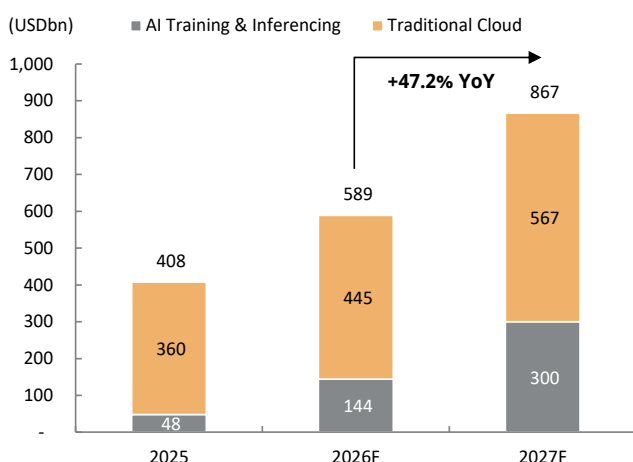
Sources: Bloomberg, IDC, Mirae Asset Sekuritas Indonesia Research

Figure 11. Cloud AI revenue run rate by hyperscaler



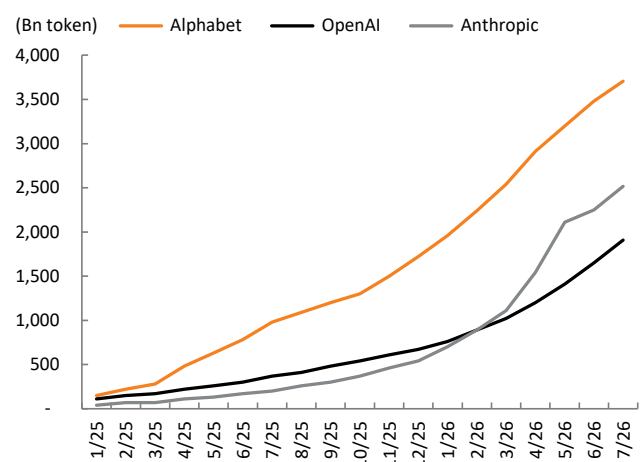
Sources: Company Data, Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 12. Hyperscaler growth reaccelerates toward 50%



Sources: Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 13. Token consumption across frontier labs



Sources: Bloomberg, Mirae Asset Sekuritas Indonesia Research

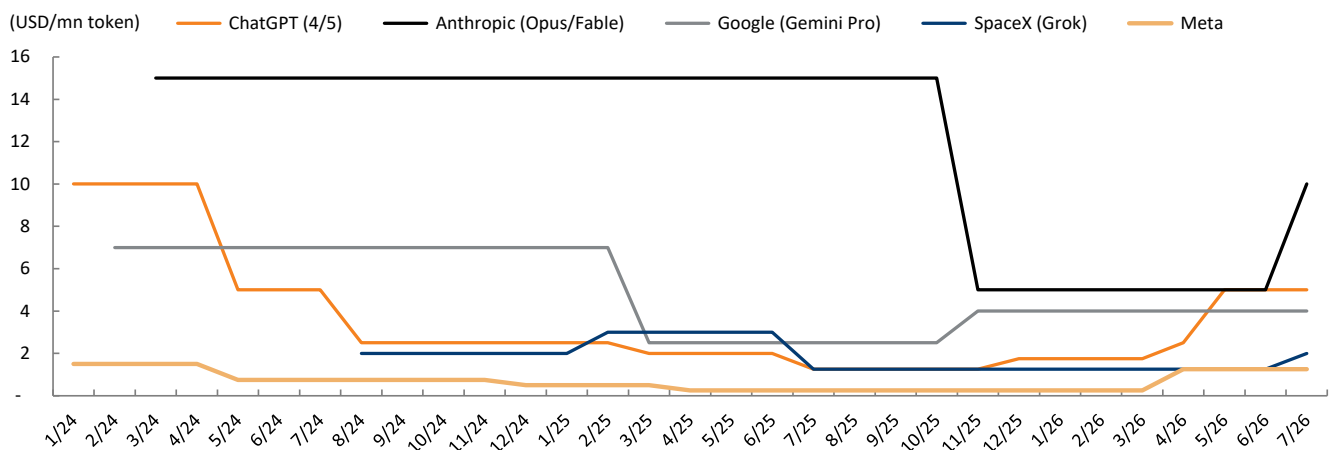
More tokens, a sharper focus on monetization

The rise of reasoning models over the past year has shifted the compute burden toward inference time scaling, driving a step change in token consumption. Google's token generation has expanded c.3.8x over twelve months to c.3.7bn tokens/month across its apps ecosystem and Cloud segment, while Anthropic posted a c.12.6x increase on rapid innovation within the Claude ecosystem. We expect AI infrastructure demand to stay elevated as use cases broaden beyond customer service and coding agents.

As workloads mature across hyperscalers, GPU utilization should improve, with inference efficiency gains lifting useful tokens per GPU. Critically, inference pricing has stopped deflating, with frontier API input prices stabilizing. Per token pricing now tracks compute scarcity rather than competitive discounting, supporting both utilization and revenue generation.

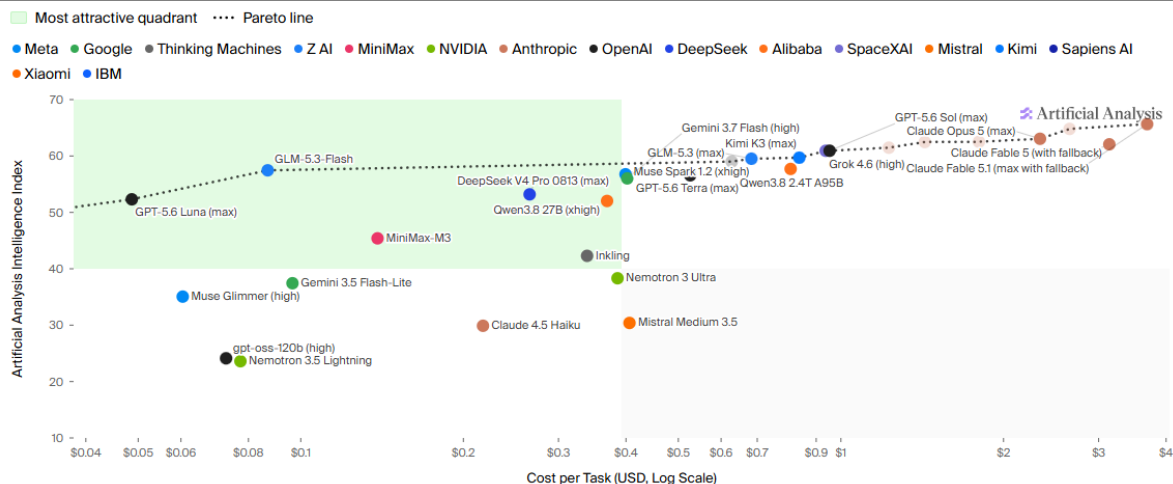
The efficient frontier is dominated by lightweight open weight models such as GLM 5.3 Flash, DeepSeek V4 Pro and Qwen3.8, which deliver low cost per token, while heavier workloads remain the preserve of proprietary models including Claude, GPT and Grok. We expect this bifurcation to persist as usage spreads across a wider mix of models.

Figure 14. Token efficiency in focus for agentic workflows



Sources: Company Data, Bloomberg, Mirae Asset Sekuritas Indonesia Research

Figure 15. Intelligence versus cost per task: the efficient frontier



Source: Artificial Analysis

II. APAC and Indonesia: Where the Capacity Lands

APAC's 21.7GW pipeline: the capacity gap is the opportunity

APAC runs 15,135MW of operational capacity, still a third of the Americas' 50,382MW, but the forward book tells a different story. The region has 21,691MW planned against the Americas' 42,035MW, plus a further 4,764MW already under construction, leaving a committed pipeline equivalent to 1.7x its entire installed base. Colocation dominates that build at 19,004MW planned versus just 2,688MW hyperscale, a mix that favors third party operators over self build. Regional vacancy of 10.3% sits above the Americas' 3.8%, but that headline masks a market splitting sharply by city.

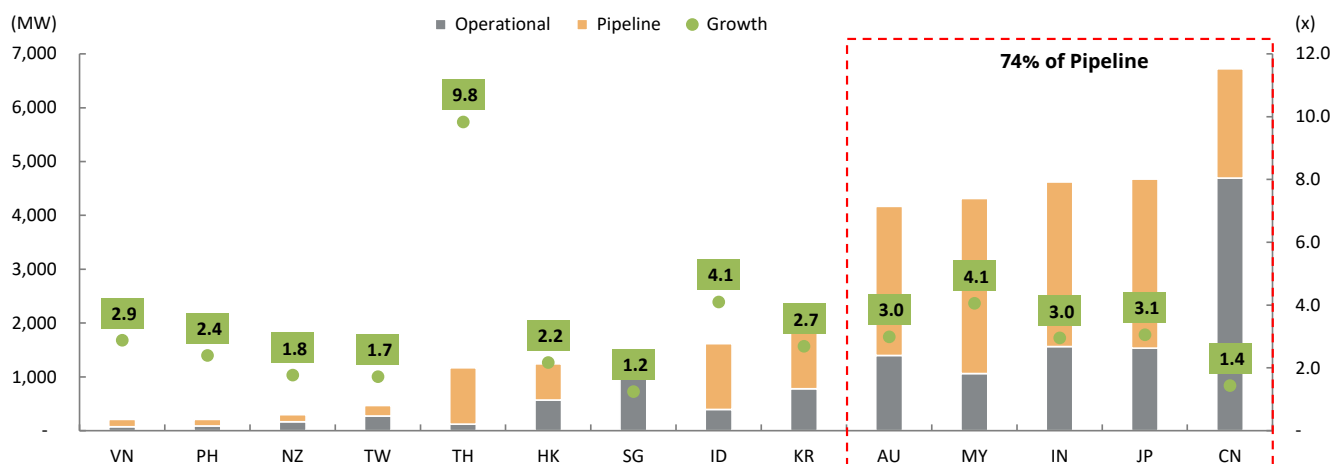
The tightest markets are effectively sold out. Johor holds 1,110MW live at 0.7% vacancy with 2,486MW planned, while Singapore's moratorium legacy leaves 1,068MW live against just 25MW under construction and 207MW planned. That supply block is what redirects demand into the second tier. Cushman's Established cohort, which includes Jakarta, Kuala Lumpur and Bangkok, holds only 32% of APAC's operational capacity but 51% of the under construction pipeline, with cumulative vacancy tightening to 9.6%. Jakarta itself carries 356MW live across 62 facilities and 34 operators, with 395MW under construction and 1,304MW planned, the largest forward pipeline in Southeast Asia outside Johor.

Table 1. APAC data center capacity and size comparison

Metrics	Tokyo	Singapore	Sydney	Mumbai	Hongkong	Johor	Seoul	Jakarta	Bangkok	Manila
No. of DC	123	51	51	54	49	22	56	62	56	28
Operators	33	26	21	20	21	12	26	34	27	16
In Operation	1,397	1,068	917	890	592	1,110	663	356	134	90
Under Construction	220	25	116	281	185	602	231	395	859	5
Planned	1,724	207	2,018	1,445	675	2,486	686	1,304	1,225	92
Colo Vacancy	4.4%	4.8%	2.2%	7.9%	15.6%	0.7%	1.1%	20.4%	22.1%	43.6%

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 16. APAC data center capacity growth, 2030F

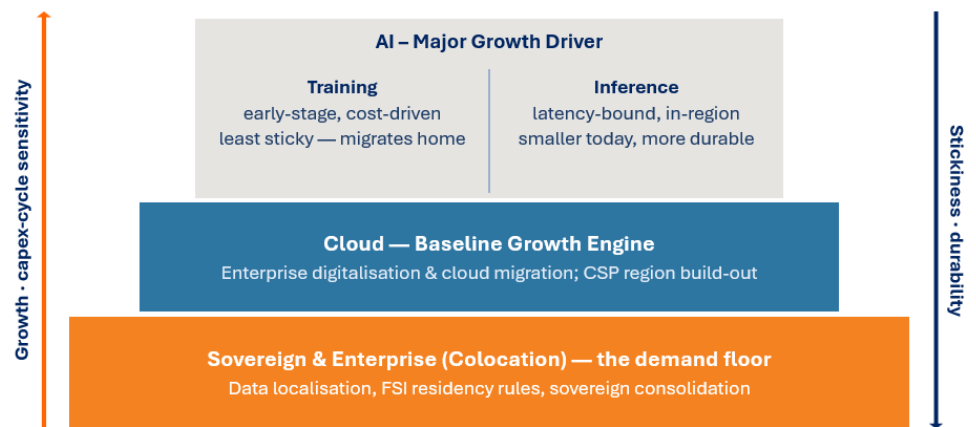


Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

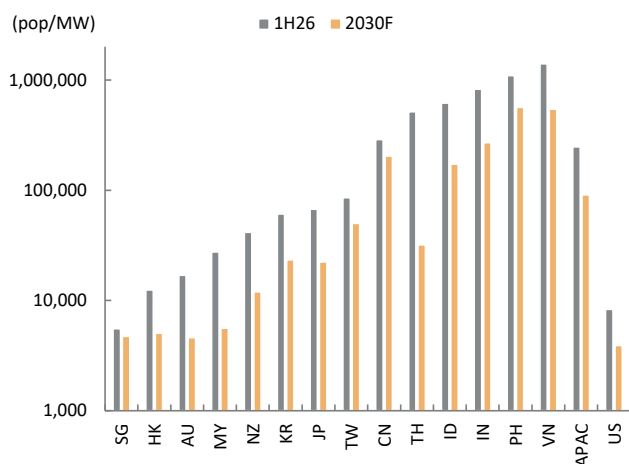
Table 2. Regional data center projected growth

Metrics	Americas	EMEA	APAC
Operational Capacity (MW)	50,382	12,004	15,135
Colocation (MW)	21,722	8,485	13,078
Hyperscale (MW)	28,661	3,019	2,057
Vacancy (%)	3.8	9.3	10.3
Under Construction (MW)	37,699	2,675	4,764
Colocation (MW)	17,388	2,039	3,742
Hyperscale (MW)	20,361	655	1,022
Planned (MW)	42,035	12,149	21,691
Colocation (MW)	19,219	11,010	19,004
Hyperscale (MW)	22,816	1,945	2,688

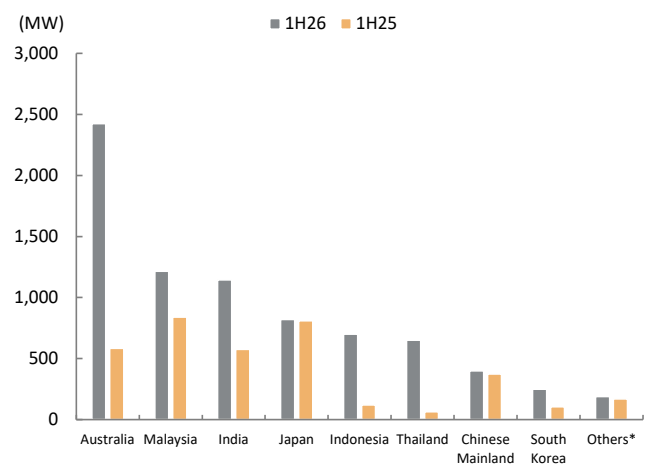
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 17. Three layers of ASEAN data center demand

Sources: Goldman Sachs, Mirae Asset Sekuritas Indonesia Research

Figure 18. APAC population density by market

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 19. APAC's pre-leased capacity comparison

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

The regional footprint is taking shape

Global operators have converged on a small set of Southeast Asian nodes, and the map is now largely drawn. Singapore, Johor and Kuala Lumpur carry the densest operator and hyperscaler coverage, with Jakarta close behind; Bangkok and Ho Chi Minh City remain thinner, served more by committed or under-development capacity than by live facilities. Batam sits at the earliest stage of the set. The implication is that scale decisions have already been made, the contest from here is over which of these nodes absorbs the next wave of capacity, not over which cities are on the list.

Table 3. Regional global data center operator and hyperscaler presence

Global Operator	Jakarta	Batam	Singapore	Kuala Lumpur	Johor	Bangkok	HCMC
Equinix	✓	-	✓	✓	✓	●	-
NTT Global Data Centers	✓	-	✓	✓	-	✓	✓
STT GDC	✓	-	✓	✓	✓	✓	✓
Princeton Digital Group	✓	●	✓	-	✓	-	-
DayOne	-	✓	●	●	✓	●	-
BDx	✓	✓	✓	-	-	-	-
EdgeConneX	✓	-	-	✓	-	-	-
Digital Edge	✓	-	-	-	-	-	-
AirTrunk	-	-	✓	-	✓	-	-
Digital Realty	-	-	✓	-	-	-	-
Global Switch	-	-	✓	-	●	●	-
Iron Mountain	-	-	✓	-	-	-	-
Bridge Data Centres	-	-	-	✓	✓	✓	-
Vantage Data Centers	-	-	-	✓	✓	-	-
STACK Infrastructure	-	-	-	-	●	-	-
Telehouse / KDDI	-	-	✓	-	-	✓	-
Keppel Data Centres	-	-	✓	-	-	-	-
Hyperscale CSP	Jakarta	Batam	Singapore	Kuala Lumpur	Johor	Bangkok	HCMC
AWS	✓	-	✓	✓	-	✓	-
Microsoft Azure	✓	-	✓	✓	●	●	-
Google Cloud	✓	-	✓	✓	-	✓	-
Alibaba Cloud	✓	-	✓	✓	✓	✓	-
Oracle OCI	-	✓	✓	-	✓	-	-
Tencent Cloud	✓	-	✓	-	✓	✓	-
Huawei Cloud	✓	-	✓	✓	-	✓	-

Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research, ●=committed/under development

Table 4. APAC markets by maturity tier

Category	Markets	Share of APAC's operational capacity
Powerhouse	Johor, Tokyo, Beijing, Sydney, Mumbai	53% of operational capacity
Established	Melbourne, Bangkok, Kuala Lumpur, Jakarta , Shanghai, Seoul, Hong Kong, Singapore	32% of operational capacity but 51% of the under-construction pipeline, the region's primary growth engine. Cumulative vacancy improved to 9.6%
Developing	Osaka, Hyderabad, Chennai, Delhi NCR, Guangzhou	8% of operational capacity; 19.7% vacancy; hyperscalers only 7.8% of capacity
Emerging	Pune, Batam , Taipei, Auckland, Perth, Bengaluru, Manila, Busan, Ho Chi Minh City, Hanoi, Brisbane	7% of operational capacity across 208 facilities. Vacancy improved sharply to 18.0% from 26.0%

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Capital has already underwritten the build

Capital is already underwriting the build. Announced regional commitments total USD39.2bn, led by AWS at USD9.0bn in Singapore, Oracle at USD6.5bn in Johor and AWS again at USD6.2bn across Selangor and Johor. Debt markets have matched that appetite, with USD43.4bn raised by operators between 2025 and August 2026, anchored by AirTrunk's USD16.0bn green loan across 60 lenders and Firmus's USD10.0bn facility from Blackstone and Coatue. Indonesian paper is beginning to clear the same channel, with BDx securing USD320mn from Bank Permata, BCA and KB Bank, and DayOne raising USD410mn from DBS and UOB. For investors, the entry point is the gap between where APAC's capacity sits today and the 21.7GW it has already committed to build.

Table 5. Announced regional commitments total USD39.2bn

Date	Country	Investor	Category	City / site	Value (USDbn)	Status / Timeline
2025-10-10	Malaysia	Government of Malaysia (MCMC)	Sovereign AI programme	National	0.5	Announced
2025-08-19		AMD	Chip / semiconductor	Penang + Cyberjaya	n/d	Live
2024-10-02		Oracle	Hyperscaler	Johor	6.5	Under Construction
2024-08-22		Amazon Web Services	Hyperscaler	Selangor / Johor	6.2	Live
2024-06-10		ByteDance	Hyperscaler / AI-native	Johor	n/d	Live
2024-05-30		Google / Alphabet	Hyperscaler	Selangor	2.0	Under Construction
2024-05-02		Microsoft	Hyperscaler	KL + Johor	2.2	Live
2024-04-24		Malaysia MITI / MIDA	Market aggregate	Johor	n/d	2021-2025
2023-12-11		NVIDIA + YTL Power International	Chip / AI hardware	Johor	4.3	Partly Operational
2021-12-16		Intel	Chip / semiconductor	Penang + Kulim	n/d	Under Construction
2026-01-24	Singapore	Government of Singapore (MDDI / NRF)	Sovereign AI programme	National	1.6	Partly Operational
2024-06-03		Google / Alphabet	Hyperscaler	Jurong West	n/d	Live
2024-05-07		Amazon Web Services	Hyperscaler	Singapore	9.0	Partly Operational
2026-03-31	Thailand	Microsoft	Hyperscaler	Thailand	1.0	2026-2028
2026-01-20		Thailand BOI	Market aggregate	National	n/d	FY2025 applications
2025-01-08		Amazon Web Services	Hyperscaler	Bangkok	5.0	Live
2024-09-30		Google / Alphabet	Hyperscaler	Chonburi + Bangkok	1.0	Under Construction
2024-12-05	Vietnam	NVIDIA	Chip / AI hardware	Hanoi / Ho Chi Minh City	n/d	Under Construction
2024-09-03		Google / Alphabet	Hyperscaler	Ho Chi Minh City	n/d	Live 2027
Total Announced					39.2	

Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Table 6. Operators raised USD43.4bn of debt since 2025

Date	Location	Operator	Debt Size (USDbn)	Debt Type	Lenders	
Apr-26	Indonesia	BDx	0.32	Debt Facility	Bank Permata, BCA, KB Bank	
Jun-25		DayOne	0.41	Project Financing	DBS, UOB	
Aug-26	Malaysia	STT GDC	1.37	Green Loan	UOB, OCBC, StanChart, CIMB	
May-26	Thailand	Digital Edge + B.Grimm Power	0.88	Green Loan	Syndicated Loan of 9 Lenders	
Aug-25	Singapore	AirTrunk	1.75	Green Loan	Syndicated Loan of 23 Lenders	
Feb-25		Nxera	0.48	Green Loan	DBS, OCBC, StanChart, HSBC, UOB	
Mar-26	Japan	AirTrunk	1.24	Green Loan	Syndicated Loan of 12 Lenders	
Feb-26	Australia	Firmus	10	Debt Facility	Blackstone, Coatue	
May-26	APAC	Digital Edge	0.58	HoldCo Financing	Syndicated Loan of 7 Lenders	
May-26		NEX TDC	1.3	Senior Debt	Syndicated Loan of 7 Lenders	
Mar-26		PDG	0.35	HoldCo Loan	Syndicated Loan of 7 Lenders	
Sep-25		Bridge DC	2.80	Senior Secured Bank Loan	Syndicated Loan of 24 Lenders	
Aug-25		AirTrunk	16.0	Green Loan	Syndicated Loan of 60 Lenders	
Aug-25		NEX TDC	2.30	Senior Debt	Syndicated Loan of 31 Lenders	
Jun-25		NEX TDC	1.43	Senior Debt Facilities	ANZ, CommBank, MUFG, NAB, RBC	
May-25		PDG	0.40	HoldCo Loan	Syndicated Loans	
Jan-25		Digital Edge	1.00	Debt Financing	Syndicated Loans	
May-25		India, China, Japan	PDG	0.80	Project Financing	Syndicated Loans
Total Debt Raised			43.4			

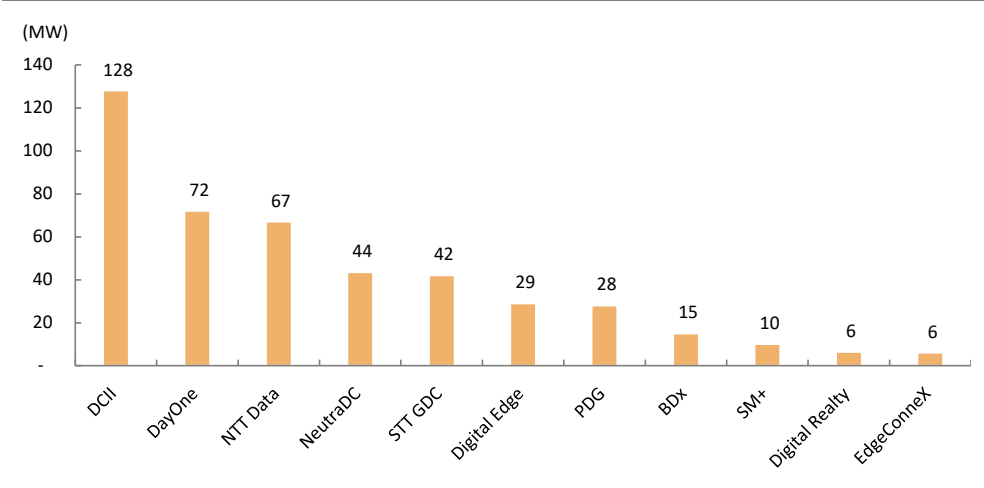
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Indonesia scales from a concentrated base

Indonesia's data center market is scaling fast but remains narrowly held. Jakarta capacity should reach 455MW in 2026E (+41.2% YoY) from 356MW in 1H26, and exceed 2GW by 2030F, a 36.2% CAGR from 2025. Jakarta hosts 107 facilities, 52.5% of the national count and c.53% of the pipeline, with colocation at 63.9% of facility type. Ownership is concentrated: DCI Indonesia leads on 128MW live and a 1,872MW pipeline, followed by DayOne at 72MW and NTT Data at 67MW, while BDx, Digital Edge and PDG each carry 350 to 625MW of pipeline against under 30MW live.

USD13.0bn has been committed since 2024, led by Digital Edge's USD4.5bn 500MW CGK campus and EDGNEX/DAMAC's USD2.3bn 144MW build, both in Cikarang and both going live from 3Q26 to 4Q26, plus the USD1.6bn Ooredoo, Indosat, Nokia and NVIDIA AI Factory delivering 200MW in its 2027 first phase. Jakarta captures most of this but carries 20.4% colocation vacancy alongside subsidence and seismic exposure. Batam is the emerging alternative at 82MW live and c.28% of national pipeline, with latency under 2ms to Singapore via the Nongsa Changi cable and free trade zone fiscal treatment.

Figure 20. Indonesia data center live capacity by operators



Sources: Company Data, Data Center Map, Mirae Asset Sekuritas Indonesia Research

Figure 21. Indonesia data center locations



Sources: Data Center Map, Mirae Asset Sekuritas Indonesia Research

Jakarta anchors demand, Batam extends reach

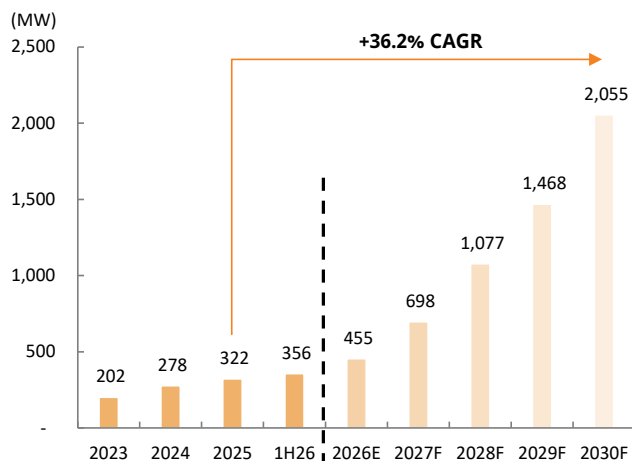
Jakarta and Batam address different demand pools. Jakarta combines established cloud and enterprise demand with proximity to domestic users. Batam offers a regional expansion location close to Singapore. Neither market is exclusive to one workload: Jakarta also has large hyperscale projects, while Batam's growth depends on power readiness as much as connectivity.

Table 7. Jakarta versus Batam at a glance

	Greater Jakarta	Batam
Category	Established	Emerging
Live IT load	356MW	82MW
Share of national pipeline	c.53%	c.28%
Latency to Singapore	15–20ms	<2ms via the Nongsa–Changi cable
Advantage	Domestic demand, regulated onshore workloads, all six global clouds live	Latency, free-trade-zone fiscal treatment, sovereignty-compliant capacity for regional users
Weakness	Subsidence and seismic exposure; 20.4% vacancy	Small unsubsidised island grid; no live scale yet

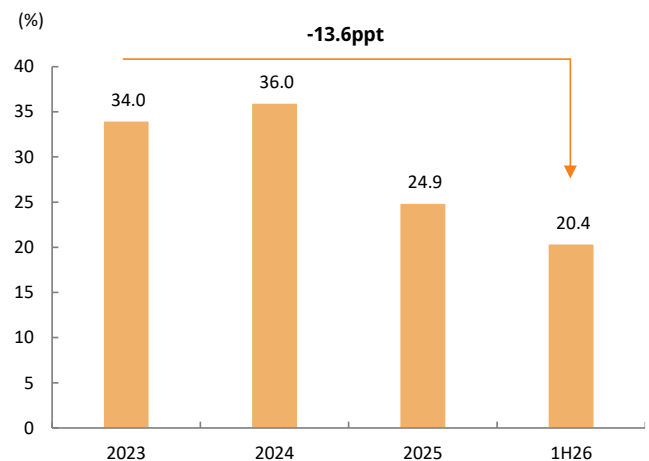
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 22. Jakarta capacity heads past 2GW by 2030F



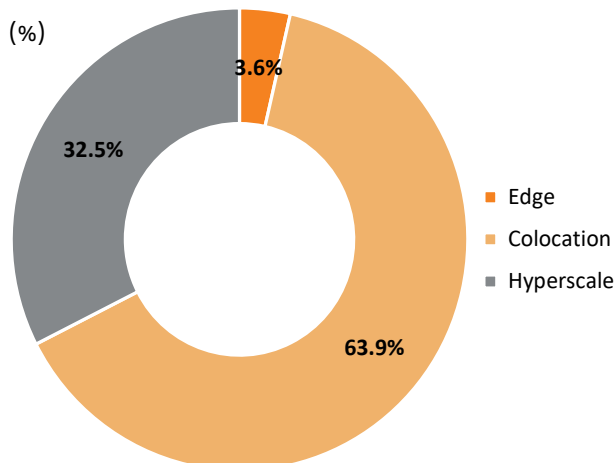
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 23. Jakarta colocation vacancy stays elevated



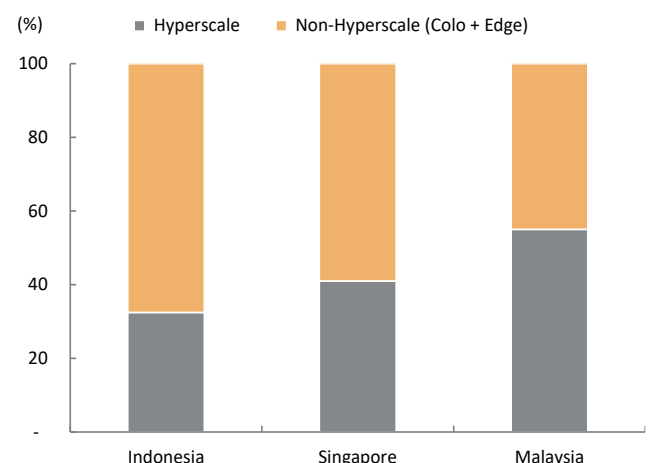
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 24. Indonesia IT load skews to colocation...



Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Figure 25. ...unlike its regional peers



Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Table 8. Indonesia operator landscape

Operator	Facilities	Live Capacity	Pipeline	Tier Profile	Ownership
DCII	9	128	1,872	Tier IV	Local
DayOne	1	72	450	n/d	Foreign
NTT Data	3	67	n/d	Tier III	Foreign
NeutraDC	31	44	18	Tier III & IV	Local (SOE)
STT GDC	2	42	332	Tier III	Foreign
Digital Edge	3	29	500	Tier III	Local + Foreign
PDG	7	28	360	Tier III	Local + Foreign (JV)
BDx	4	15	625	Tier III	Local + Foreign (JV)
SM+	24	10	53	n/d	Local + Foreign (JV)
Digital Realty	2	6	27	Tier III & IV	Local + Foreign (JV)
EdgeConneX	3	6	194	Tier III	Foreign
Microsoft	4	n/d	n/d	n/d	Foreign Hyperscale
Amazon AWS	3	n/d	n/d	n/d	Foreign Hyperscale
DAMAC	2	n/d	156	n/d	Foreign

Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Table 9. USD13.0bn committed to Indonesia since 2024

Date	Investor	Project	Value (USDbn)	Capacity (MW)	Location	Category	Status
Aug-26	Ooredoo, Indosat, Nokia, NVIDIA	1GW AI Factory	1.6	200	n/d	Hyperscale	1st Phase 2027: 200MW
Jan-26	Digital Edge	CGK Campus	4.5	500	Cikarang	Hyperscale	1st Phase Live: 4Q26, Initial Capacity up to 500MW
Jun-26	Firmus Technologies	AI Factory	n/d	360	Batam	Hyperscale	Live 1Q27
2026	Arm / Danantara	Sovereign AI partnership	0.1	n/d	National	Sovereign AI	Announced
Nov-25	Princeton Digital Group	JC3	1.0	120	Cikarang	Hyperscale	1st Phase Live: 4Q26
May-25	Equinix	JK1 IBX	0.1	n/d	Jakarta	Foreign operator	Live
Mar-25	EDGNEX / DAMAC	Cikarang Campus	2.3	144	Cikarang	Hyperscale	1st Phase Live: 3Q26
2025	DayOne	Nongsa Data Center	0.4	72	Batam	Hyperscale	Live
2025	Worldvuer	iBeyond Batam	0.4	n/d	Batam	Hyperscale	Announced
2025	SM+ / LG CNS	SMX01 Jakarta	0.3	60	Jakarta	Colo & Hyperscale	1st Phase Live: 2H26, Initial Capacity 18MW
2025	Telkom / Singtel / Medco	NeutraDC Batam	0.1	6	Batam	Hyperscale	Live 2H26
2025	DCI Indonesia	E2 Surabaya	n/d	9	Surabaya	Colocation	Live
Nov-24	Tencent Cloud	Third Indonesian DC by 2030	0.5	n/d	Jakarta	Hyperscale	Under construction
Apr-24	Microsoft	Indonesia Central Cloud Region	1.7	n/d	n/d	Hyperscale	Live
Total Announced			13.0	1,471			

Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

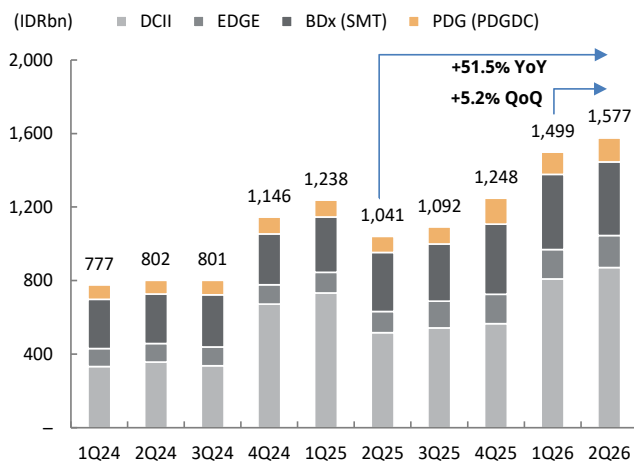
Indonesia wins on returns, Malaysia on execution

Indonesia's data center market continues to scale rapidly, supported by firm demand and an expanding pipeline. Aggregate revenue across DCII, EDGE, BDx and PDG reached IDR1.6tr, up 5.2% QoQ and 51.5% YoY. EBITDA margins have held resilient above 50%, while ROIC trends continue to point to healthy underlying project economics.

In our 100MW colocation scenario, rent of USD200/kW/month produces a 16.3% IRR in Jakarta versus 16.2% in Kuala Lumpur. At USD150/kW/month, the hyperscale scenario yields 15.1% in Batam/Nongsa SEZ versus 13.4% in Johor. Lower modeled construction and electricity costs support Indonesia's returns.

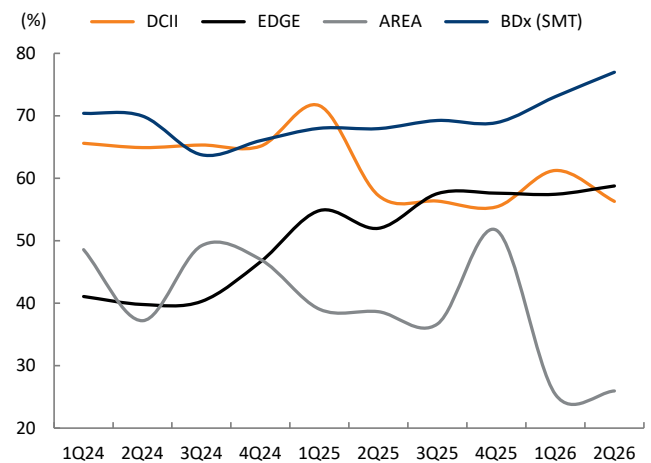
The distinction is returns versus deliverability. Malaysia offers faster power access and stronger operating readiness. Indonesia's higher modeled returns remain conditional on occupancy, project timing, tax assumptions and terminal value.

Figure 26. IDX listed data center revenue



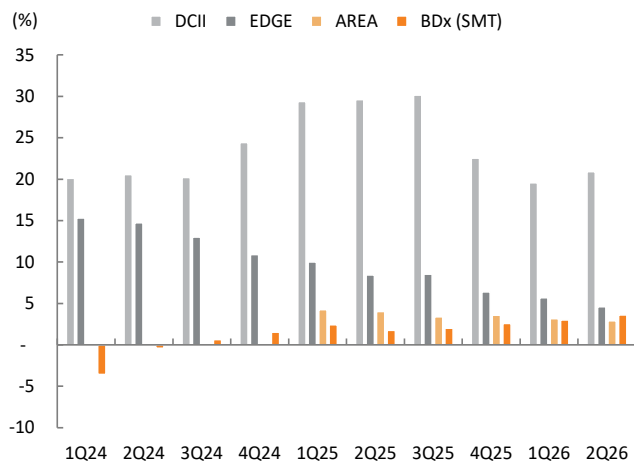
Sources: Company Data, Mirae Asset Sekuritas Indonesia Research

Figure 27. IDX listed EBITDA margins hold above 50%



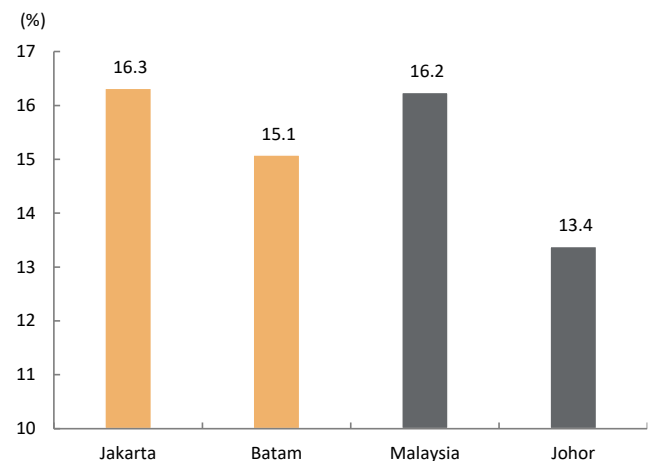
Sources: Company Data, Mirae Asset Sekuritas Indonesia Research

Figure 28. IDX listed ROIC trend



Sources: Company Data, Mirae Asset Sekuritas Indonesia Research

Figure 29. Indonesia out earns Malaysia on project IRR



Source: Mirae Asset Sekuritas Indonesia Research

Table 10. Indonesia vs Malaysia 100MW data center project assumption

Assumption	Units	Jakarta	Batam	Malaysia	Johor	Notes
IT capacity	MW	100	100	100	100	Assumed new capacity build
CAPEX / MW	USDmn/MW	8.9	8.9	9.9	9.9	C&W benchmark (fig.31)
Speed-to-power	months	36	18	12	12	C&W benchmark (fig.35)
Base colocation rent	USD/kW/Month	200	150	200	150	Channel Check, colocation tends to have higher rates
Electricity cost	USD/kWh	0.065	0.065	0.1	0.1	PLN, Malaysia government (fig.65)
PUE	x	1.35	1.35	1.3	1.3	IEA, Malaysia slightly more effective (fig. 61)
Depreciation life	years	12	12	12	12	Assumed
Incentive cash tax rate	%	22	0	24	5	Government data (tab. 12)
Project period	years	15	15	15	15	Assumed project pipeline
Terminal multiple	x	20	20	20	20	Global data center REITs multiple

Source: Mirae Asset Sekuritas Indonesia

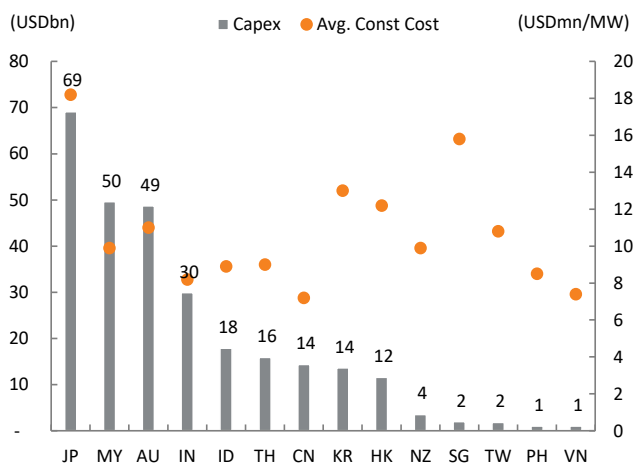
Indonesia screens cheap in a concentrated APAC's buildout

APAC colocation remains concentrated, with Japan, Australia, Malaysia, India and China accounting for c.71% of regional rent revenue by 2030F. Pipeline capacity rose +70% YoY to 22.7GW through 2030F, implying cumulative annual rental potential above USD66.3bn. Indonesia should generate USD3.4bn in annual colocation rent at a c.6 to 7% yield, above the APAC average of 5.9%, placing it among the region's more attractive growth markets. Cost economics reinforce the case, with construction at USD8.9mn/MW against Malaysia's USD9.9mn/MW and Thailand's USD9.0mn/MW, alongside stable c.5% inflation.

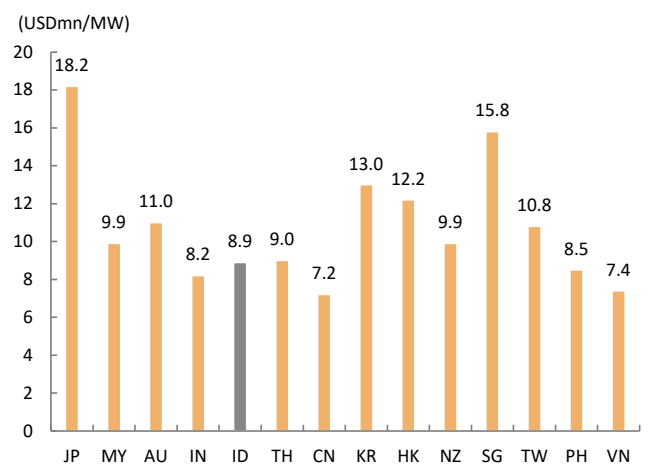
Table 11. APAC colocation rent pool by region, 2030F

Region	Total Colocation Rent (USDbn)	APAC's share (%)
North-east Asia (NEA)	20.8	31.4
South-east Asia (SEA)	20.8	31.4
Australia and New Zealand (ANZ)	11.0	16.5
India	7.1	10.7
China	6.6	10.0
Total Colocation Rent, 2030F	66.3	100.0

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

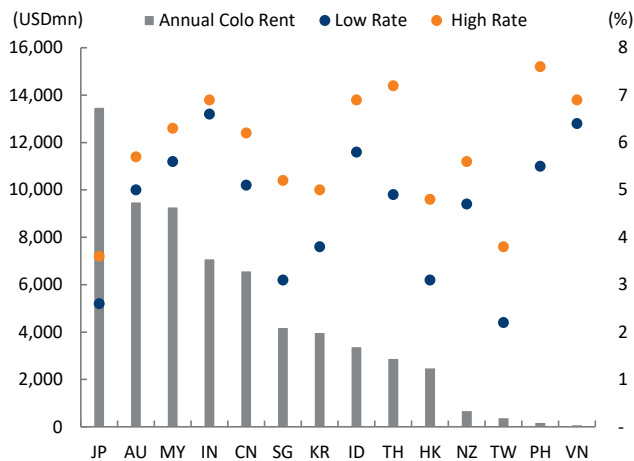
Figure 30. APAC capex build through 2030F

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 31. Indonesia builds cheapest in ASEAN

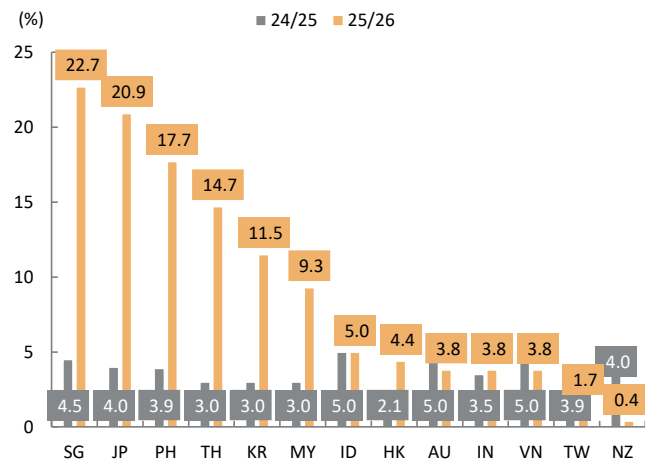
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 32. Colocation rent and cap rates by market



Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 33. Construction cost inflation by market



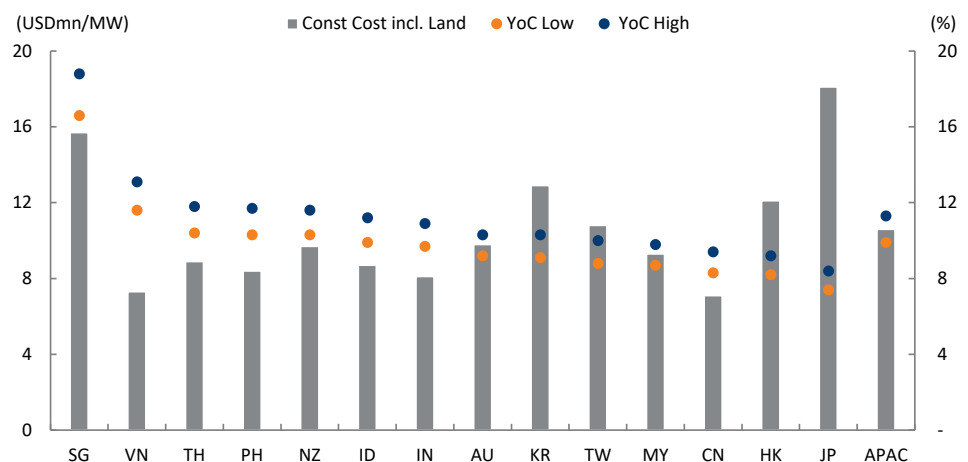
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Segment specialization drives wide yield dispersion across APAC

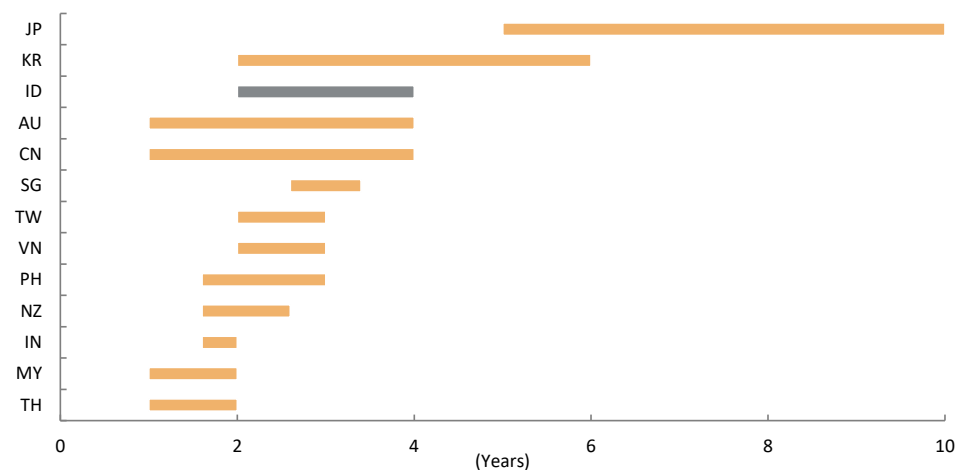
Rapid AI adoption is pushing APAC's data center market toward specialization, with capacity increasingly purpose built for distinct use cases spanning hyperscale cloud, AI training, AI inference, GPU as a Service (GPUaaS), enterprise colocation and edge computing. Each segment carries different power densities, cooling systems, resiliency standards and commercial structures, feeding through to materially different yields on cost (YoC).

Singapore leads the region at 16.6 to 18.8% YoC, where a restricted development pipeline and firm occupier demand sustain meaningful rental premiums. Emerging markets also screen above the regional average of 7 to 13% (excluding Singapore), with Vietnam at 12 to 13%, Thailand and the Philippines at 10 to 12%, and Indonesia at 10 to 11%. These markets remain colocation dominated, which carries higher yields than hyperscaler contracts, though the latter absorbs capacity growth far more effectively.

Figure 34. Yield on cost comparison



Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 35. Time to build 100MW: Indonesia waits longest

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

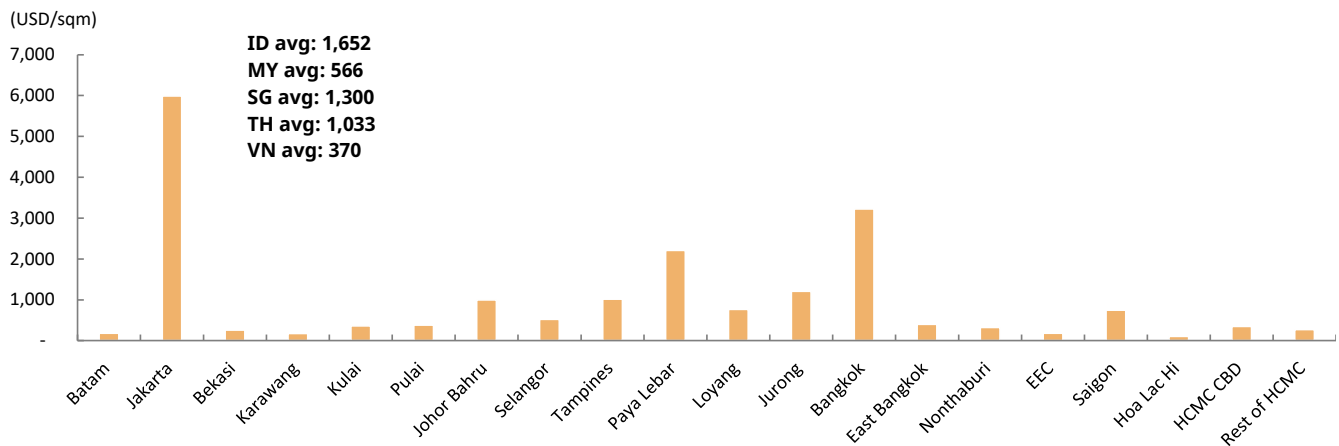
Yields also diverge on technology and system readiness. Captive markets such as Malaysia benefit from shorter lead times, supported by government backing and infrastructure preparedness. The comparison is instructive: Indonesia wins on headline construction cost, but our build timeline runs two to four years against Malaysia's one to two, reflecting a shortage of skilled labor and particularly of systems specialists. Malaysia's pipeline consequently stays buoyant, as providers increasingly prioritize speed to market over cost per MW.

Batam is Indonesia's answer to Malaysia

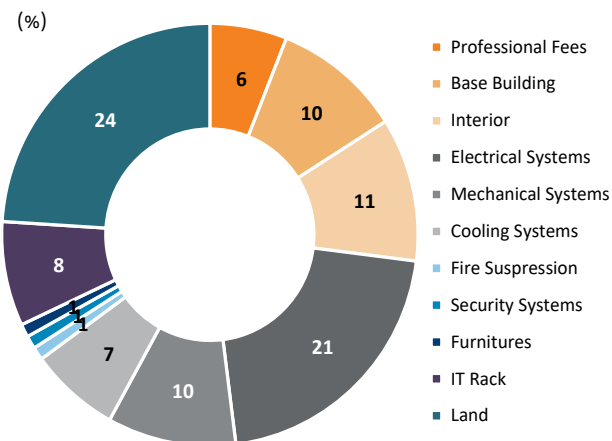
Indonesia is cheaper to build, but Malaysia is easier to execute. Construction runs around USD8.9mn/MW here, below Malaysia at USD9.9mn and Thailand at USD9.0mn. Blended land acquisition averages around USD1,652/sqm in Indonesia versus USD566/sqm in Malaysia, with Central Jakarta reaching USD5,991/sqm. Land therefore accounts for 24% of development cost for a 50MW hyperscale facility here, against only 9% in Malaysia. Indonesia screens cheaper on construction, while Malaysia carries the more balanced cost structure.

Batam is the key exception and Indonesia's strongest answer to Malaysia. Land at around USD180/sqm sits well below both Jakarta and Malaysia, while proximity to Singapore supports latency under 2ms. That suits hyperscale and AI training workloads, where land, power and connectivity matter more than proximity to domestic users. Greater Jakarta remains better positioned for enterprise colocation and latency sensitive domestic demand. We therefore expect Batam to compete for large scale hyperscale investment while Jakarta retains higher value domestic workloads.

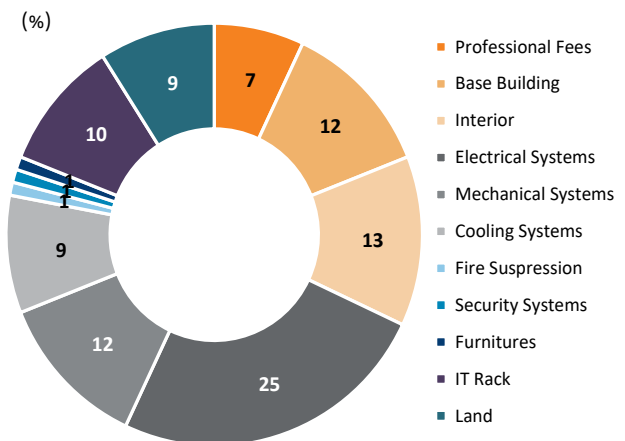
Malaysia's main advantage is execution speed. It runs more than 1,300MW of operational capacity and 3,252MW of pipeline through 2030F, against 394MW and 1,221MW in Indonesia. Power delivery for a new 100MW load takes roughly two years there versus two to four here, while project delivery runs one to two years against two to four. Hyperscalers therefore continue to favor Malaysia despite higher costs. For Indonesia to close the gap, Batam must convert its land and location advantage into faster power access and more reliable project delivery.

Figure 36. Land/site purchases cost comparison across ASEAN countries

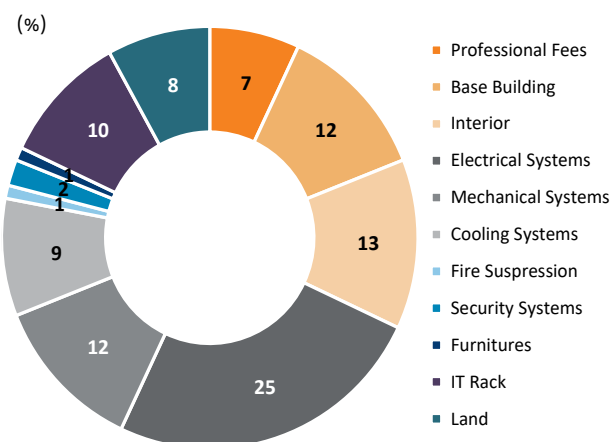
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 37. Indonesia cost stack: land takes 24%

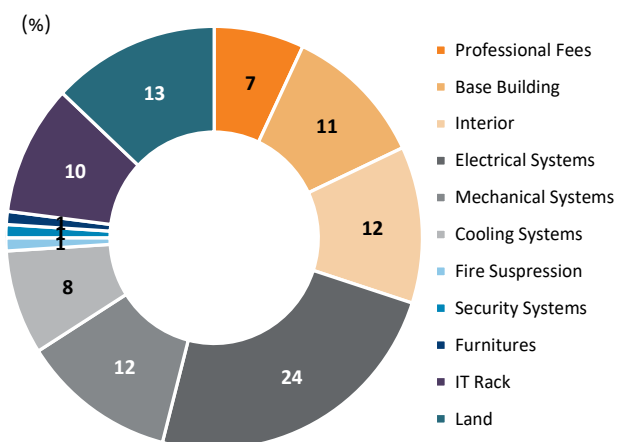
Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 38. Malaysia cost stack: land takes 9%

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 39. Thailand construction cost breakdown

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Figure 40. Singapore construction cost breakdown

Sources: Cushman & Wakefield, Mirae Asset Sekuritas Indonesia Research

Johor wins on incentives, Batam is Indonesia's answer

Singapore leads on ecosystem depth, Johor on execution, and Batam is emerging as Indonesia's strongest hyperscale alternative. Singapore remains the region's most developed hub, supported by the strongest connectivity and an AI readiness score of 76, but land and power constraints keep costs high. Johor combines tax incentives, latency under 2ms to Singapore, renewable access and faster power delivery, making it the strongest spillover market for hyperscale demand. Jakarta remains competitive on connectivity, but high land costs, grid delays and limited renewable access weaken its position.

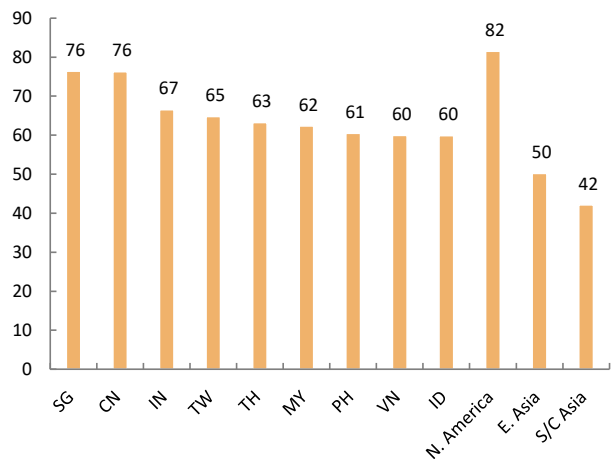
We expect Johor to become the next major hyperscale hub alongside Singapore, supported by stronger infrastructure readiness and an AI readiness score of 62 against 61 for Indonesia. Batam should be Indonesia's closest competitor, supported by improving connectivity, renewable power and tax incentives, positioning it to capture hyperscale demand that would otherwise flow to Johor.

Table 12. Incentives and regulation across ASEAN hubs

Market	Incentives	Regulation	Infrastructure	Risks
Indonesia/ Jakarta	Tax holiday from IDR100bn investment, with duration PSEscalating by project size under PMK No.130/PMK.010/2020	Personal-data processing governed separately under PP No. 71/2019	Major international subsea cable hub while renewables power still relatively low (15.6GW installed in 2025)	High Jakarta land cost; grid connection and renewable-power access remain constraints
Batam FTZ/ Nongsa SEZ	Batam FTZ: tax holiday + customs/import-duty relief under PP No.23/2026 Nongsa SEZ: additional income-tax, VAT and customs facilities under PP No. 68/2021	National personal data protection under Permenkominfo No. 5/2020	Direct Nongsa-Changi cable reduce latency to <2ms combined with PLN targets 24-25 RE mix by 2026-2027	Ecosystem still developing with power and network depth still below Johor/Singapore
Singapore	Project-specific EDB incentives: 0% PC or 5–15% DEI on qualifying income; RIC supports up to 50% of qualifying expenditure. No automatic DC-specific tax holiday under EEI Act 1967	Data privacy under Personal Data Protection Act 2012 — Act 26 of 2012	Major data center hub with extensive subsea cable network and 2.1GWp solar installed in 2025, targeting 3GWp by 2030	Limited land/power and highest capex/MW
Malaysia/ Johor	Up to 0-15 tax rate for 15 years or 30-100% ITA for 10 years under PoI Act 1986 + Income Tax Act 1967	Personal data governed by PDPA 2010 Act 709	<2ms latency to Singapore with RE is c.28% of installed capacity, targeting 40% by 2035. CRESS allows DCs to procure RE directly from generators via the grid	Power and water availability tightening as capacity ramps
Thailand	Up to 8-year CIT exemption plus machinery-import incentives under IPA B.E. 2520 (1977)	Data privacy: PDPA B.E.2562 (2019)	Strong regional/subsea connectivity with EGAT has 3.14GW renewables capacity, with another c.7.0GW of renewables projects are under procurement	Raising oversupply risks with massive project pipeline
Vietnam	CIT incentives of 5% for 37 years and tax holiday for the first 6 years with AI DCs require >VND6tr investment under LoI No. 143/2025/QH15	Data centers/cloud are explicitly regulated under telecom law. Legal: Law on Telecommunications No. 24/2023/QH15 + Decree No. 163/2024/ND-CP	International subsea capacity targeted to rise from c.34Tbps to >134Tbps by 2027. 22.4GW RE installed (27% of system capacity)	High power and regulatory execution risks, as foreign ownership are strictly permitted

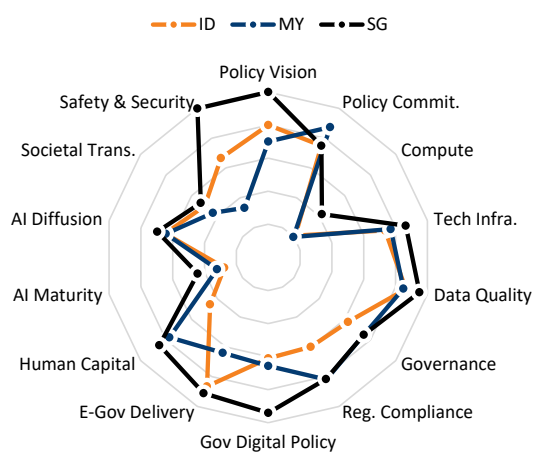
Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Figure 41. AI readiness remains uneven across APAC



Sources: Oxford Insights, Mirae Asset Sekuritas Indonesia Research

Figure 42. Readiness depends on more than compute



Sources: Oxford Insights, Mirae Asset Sekuritas Indonesia Research

Data center taxonomy

AI training and inference need different buildings. Training is largely batch based and less latency sensitive, allowing workloads to sit where power, land and renewable energy are cheapest at scale. It is also more compute intensive, requiring larger GPU clusters, higher capex and greater power density.

Inference is less power intensive per workload, but can consume more energy in aggregate as demand runs continuously across multiple locations and fluctuates with user activity. Unlike training, it is latency sensitive and benefits from proximity to end users, cloud regions and network hubs.

Table 13. AI training vs inference comparison

Type	Training	Inference
Application	Learn from datasets to identify patterns	Develop an answer to the query by calculating from training data
Computing architecture	GPU-intensive	Heterogeneous processor mix (GPU/CPU/TPU/ASIC)
Power consumption	Energy-intensive	Relatively less energy-intensive
Latency sensitivity	Less latency-sensitive	More latency-sensitive
Power profile	High sustained consumption, with sub-second swings between training cycle stages	Rapid fluctuations in demand depending on user behaviour

Sources: Various Sources, Mirae Asset Sekuritas Indonesia Research

Table 14. Data center facility comparison by type

Data Center Type	Size (MW)	Power Density (kW/Rack)	Tier Requirement	Cooling System	Type of Clients	Commercial Model
Edge	0.05–1	5–15	Often uncertified	Air	Telcos, CDNs, 5G, IoT, gaming	Network-owned or micro-lease; latency-driven siting
Retail colocation	0.1–1	5–10	Tier III typical	Air	SMEs, local enterprise, systems integrators	Rack or cage; short leases 1–3 yrs; highest revenue per MW, highest churn
Enterprise / captive	1–10	5–10	Tier III–IV for banks	Air	Banks, government, corporates for own workloads	Self-owned. Invisible to colocation market data
Wholesale colocation	1–5, 10,000–20,000 sq ft white space	8–15	Tier III, TCCF preferred	Air, increasingly liquid-ready	Cloud providers, large enterprise, SaaS	Whole halls; 5–15 yr leases; lower rent per MW, far stickier
Hyperscale	50–1,000+ campus; customers take 2–5 MW (tier-2) to 10–70 MW (mega)	10–40	Often uncertified self-build	Air and liquid	AWS, Microsoft, Google, Oracle, Alibaba	Build-to-suit or self-build; pre-leased before delivery
AI factory	500–2,000+	40–132	Tier IV	Direct liquid cooling mandatory	Neoclouds, NVIDIA partners, sovereign programmes	Anchor tenant or owner-operator; hardware refresh 2–3 yrs

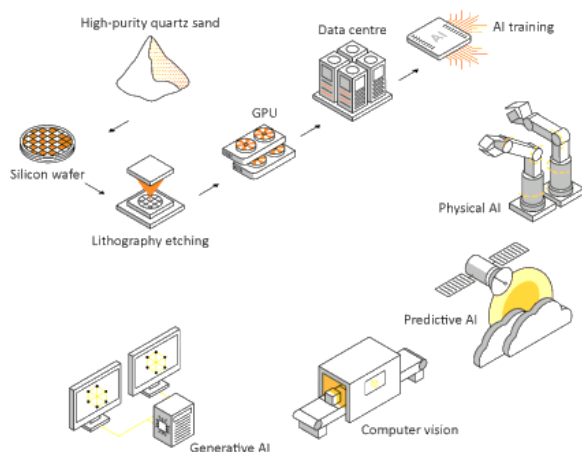
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Table 15. Tier certification comparison

Tier	Name	Capacity Components	Distribution Paths	Concurrently Maintainable	Fault Tolerant
I	Basic Capacity	N (non-redundant)	Single	No	No
II	Redundant Capacity Components	N+1	Single	Components only, not distribution	No
III	Concurrently Maintainable	N+1	Multiple, one active	Yes — any component can be serviced without downtime	No
IV	Fault Tolerant	N+1 or 2N	Multiple, all active	Yes	Yes — a single failure never reaches IT

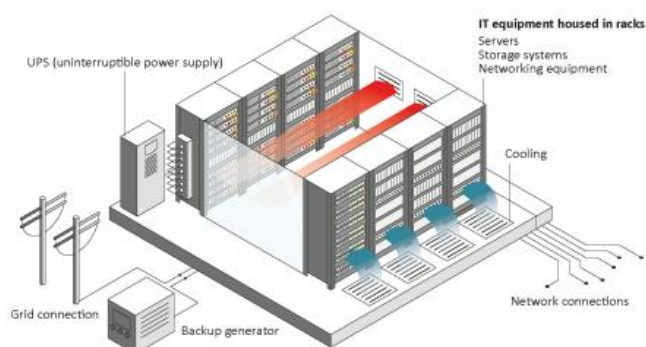
Sources: Uptime Institute, Mirae Asset Sekuritas Indonesia Research

Figure 43. AI infrastructure value chain



Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 44. Inside the data center cost base



Sources: IEA, Mirae Asset Sekuritas Indonesia Research

III. Connectivity, Power and the Grid

Batam is poised to become the next largest connectivity hub

Grid and international connectivity sit at the center of any siting decision, and subsea cable systems are the clearest expression of it. That is why we see Batam becoming the next regional captive hub alongside Johor: proximity to Singapore delivers low latency, while committed investment from Google, Meta and Microsoft should lift capacity to 1,762/347Tbps by 2029, a 407.8% increase on current live capacity.

Singapore remains the established regional hub, with 35 cable systems including Apricot, Bifrost, Echo and Asia United Gateway East, and that connectivity underpins its position for both AI inference and training. We expect Batam and Johor to absorb the spillover from Singapore for inference, given their location and connectivity, while Jakarta remains better suited to the domestic colocation market.

Table 16. Connectivity across ASEAN hubs

Subsea Cable Landing	Jakarta	Batam	Singapore	Kuala Lumpur	Johor	Bangkok	HCMC
Current	7	14	35	12	5	13	3
Upcoming	2	7	12	-	1	1	2
Total	9	21	47	12	6	14	5
Total Current Est. Capacity (Tbps)	340	347	2,216	476	67	1,029	107
Total Additional Est. Capacity (Tbps)	496	1,415	1,070	132	570	-	-
Latency to Singapore (ms)	14.3	2.0	-	8.4	2.0	22.8	35.5

Sources: Company Data, Submarine Cable Map, WonderNetwork, Mirae Asset Sekuritas Indonesia Research

Table 17. Jakarta's cable base and expansion plans

Cable System	Capacity (Tbps)	Length (km)	Owners/Consortium	RFS
Live System				
Bifrost	260	19,888	Keppel, T&T, Meta, Telin	Dec-25
INDIGO-West	38	4,600	AAARNET, Google, Indosat Ooredoo, Singtel, Superloop, Telstra	May-19
IGG System	32	5,300	NEC	May-18
B2JS	0	759	Triasmitra	2Q13
B3JS	4	1,031	Moratelindo	Nov-12
JaSuKa	n/a	n/a	NEC	2006
Matrix Cable	6	1,055	Matrix NAP Info, Matrix Networks	Aug-08
Planned/ U/C				
ACC-1	256	19,000	Indigo Networks	2029
Hawaiki Nui 1	240	10,000	BW Digital	2027

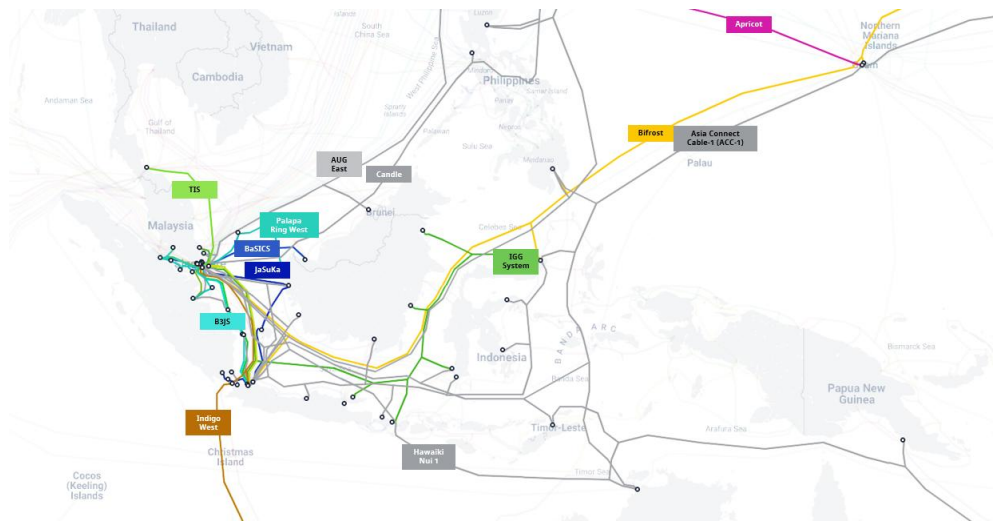
Sources: Company Data, Submarine Cable Map, Mirae Asset Sekuritas Indonesia Research

Table 18. Batam's subsea cable pipeline

Cable System	Capacity (Tbps)	Length (km)	Owners/Consortium	RFS
Live System				
Apricot	251	11,972	Chunghwa Telecom, Google, Meta, NTT, PLDT	4Q25
BDM	3	353	Moratelindo, Telekom Malaysia	Nov-09
BaSICS	48	762	Irix Sdn Bhd	1Q21
BSCS	0	73	Telkom Indonesia	Jul-05
IGG System	32	5,300	NEC	May-18
B2JS	0	759	Triasmitra	2Q13
B3JS	4	1,031	Moratelindo	Nov-12
JaSuKa	n/a	n/a	NEC	2006
Matrix Cable System	6	1,055	Matrix NAP Info, Matrix Networks	Aug-08
MIC-1	0	70	Moratelindo	Jan-08
Palapa Ring West	0	1,980	Indonesian Government	Feb-18
PGASCOM	n/a	264	PGASCOM	2010
SEAX-1	2	250	SEAX	May-18
TIS	0	968	National Telecom, Singtel, Telkom Indonesia	Dec-03
Planned/ U/C				
TGCS	60	1,200	Trans Indonesia Supercorridor	4Q26
ICS1	288	1,041	ION Network	Jan-27
Hawaiki Nui 1	240	10,000	BW Digital	2027
Candle	570	8,000	Globe Telecom, IPS, Meta, SoftBank, Telekom Malaysia, XLSmart	2028
BTI-2	1	11,600	Super Sistem	TBD
AUG East	n/a	8,900	AWS, Arteria, Chunghwa Telecom, Dreamline, Globe Telecom, Microsoft, Singtel, Telekom Malaysia, UNN	4Q29
ACC-1	256	19,000	Indigo Networks	2029

Sources: Company Data, Submarine Cable Map, Mirae Asset Sekuritas Indonesia Research

Figure 45. Jakarta & Batam subsea cable landing systems



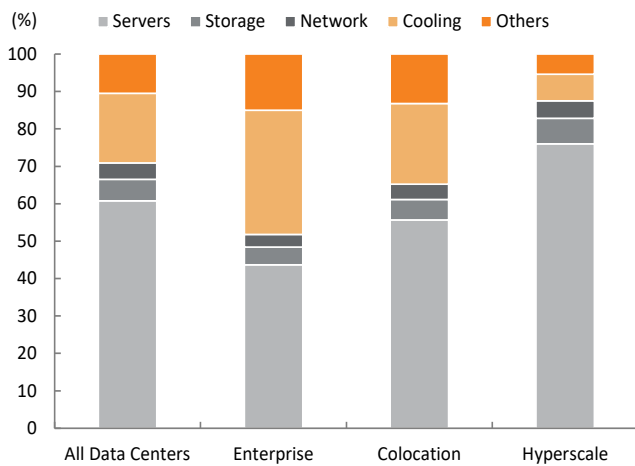
Sources: Submarine Cable Map, Mirae Asset Sekuritas Indonesia Research

AI turns power into the binding constraint

Power is the critical input for data center operations. Colocation facilities typically direct c.40 to 60% of available power to compute, while hyperscale can exceed 60%, with servers accounting for c.60.8% of total electricity consumption. Global data center electricity demand should reach c.945TWh by 2030F, just under 3% of global consumption, growing at a c.15% CAGR from 2024. That is more than four times faster than electricity demand growth across other sectors, making data centers one of the fastest growing sources of global power demand.

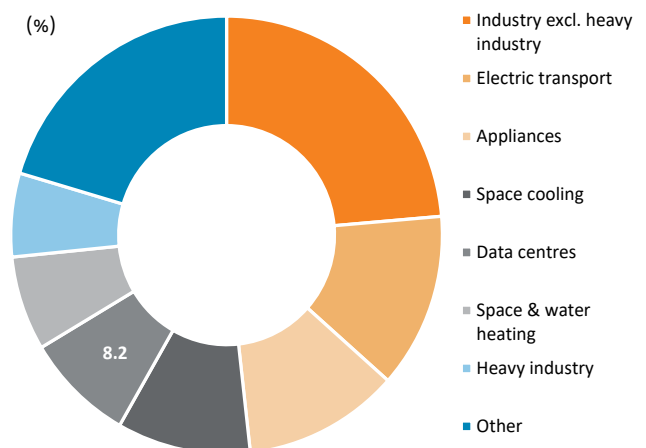
AI is the main driver. Electricity consumption from accelerated servers should grow c.30% annually, far above c.9% for conventional servers, contributing c.62.3% of total data center electricity demand growth through 2030F. As adoption scales, power availability and grid access will increasingly determine where new capacity can be deployed at all.

Figure 46. Servers take 61% of data center power



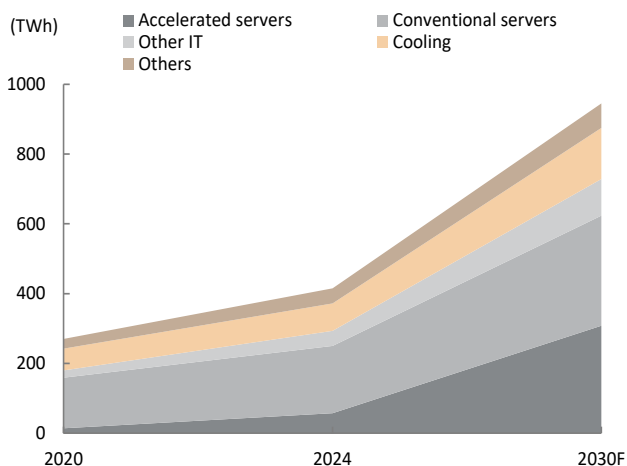
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 47. DC outgrow every other demand source, 2024-2030



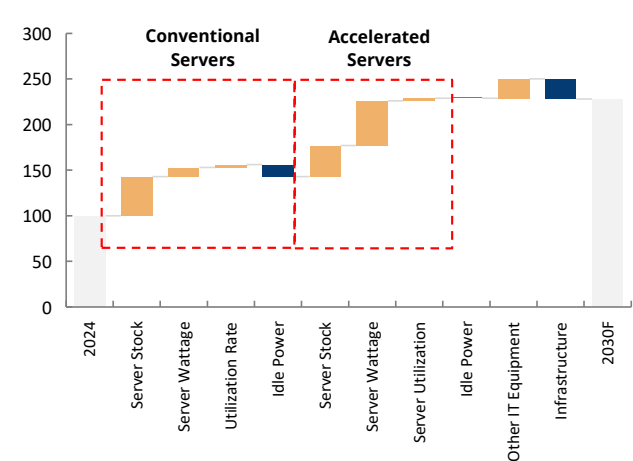
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 48. DC power demand nearly doubles by 2030F

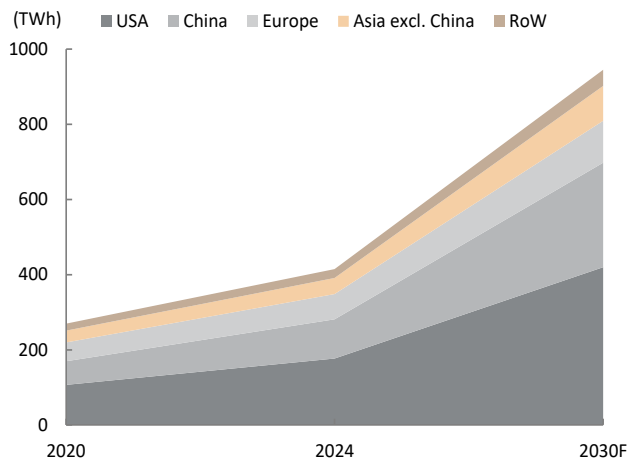


Sources: IEA, Mirae Asset Sekuritas Indonesia Research

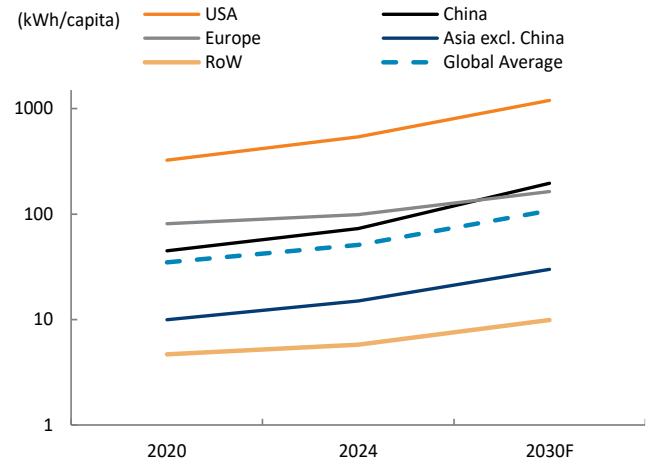
Figure 49. What drives the power demand curve (2024=100)



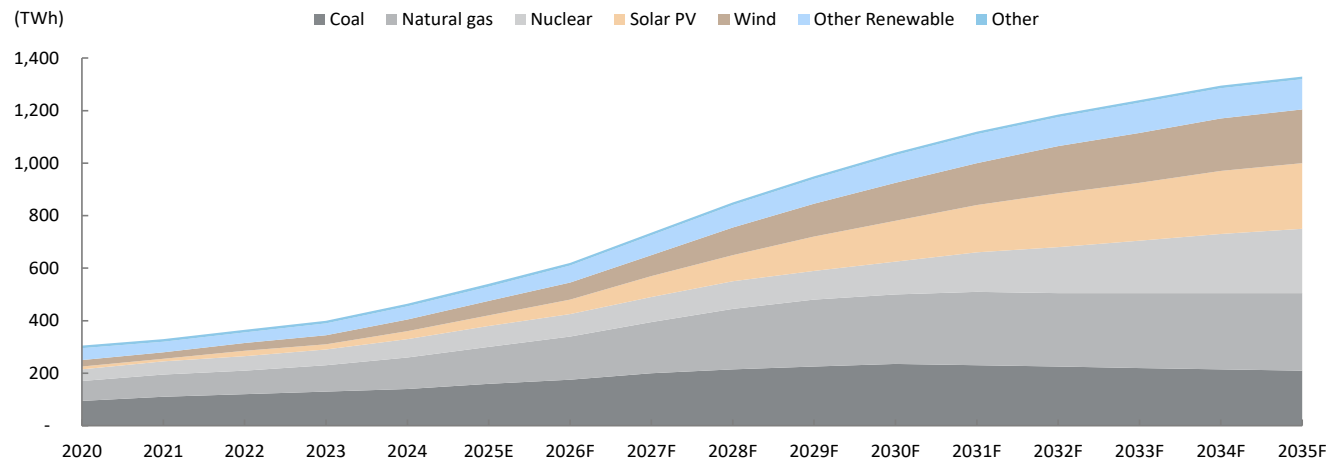
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 50. Data center power consumption by region

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 51. Data center power consumption per capita

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 52. Global electricity generation for data centers

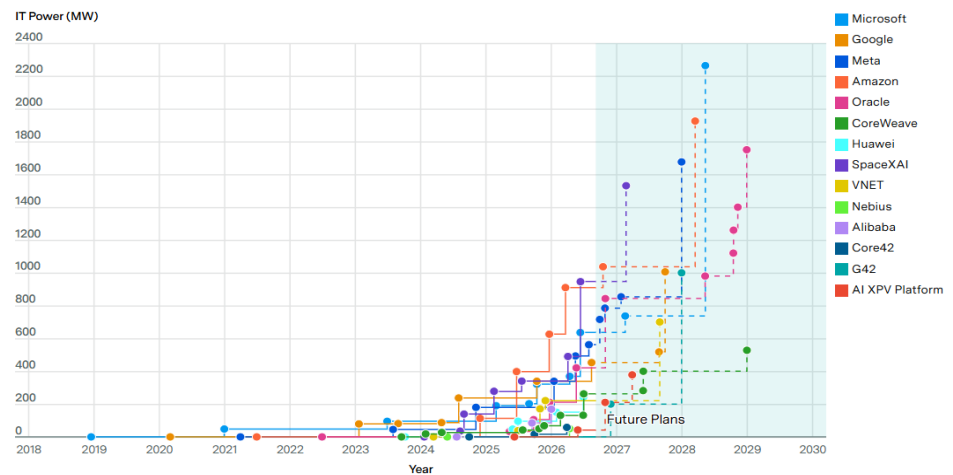
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Compute is scaling faster than the grid

AI model capability continues to accelerate. OpenAI's recently released GPT 6 Astra now ranks first on Epoch AI's Capabilities Index, scoring 97.6% on FrontierMath Tier 4 and 99.9% on ARC AGI 3, another step change in reasoning and scientific capability. As models improve, compute requirements rise, driving larger GPU clusters and higher power density. The largest AI data center, xAI's Colossus 2, already carries an estimated IT load of c.950MW, and the record for frontier data center power capacity has doubled roughly every ten months since mid 2024. On that trajectory, individual AI campuses move into multi GW scale within a few years.

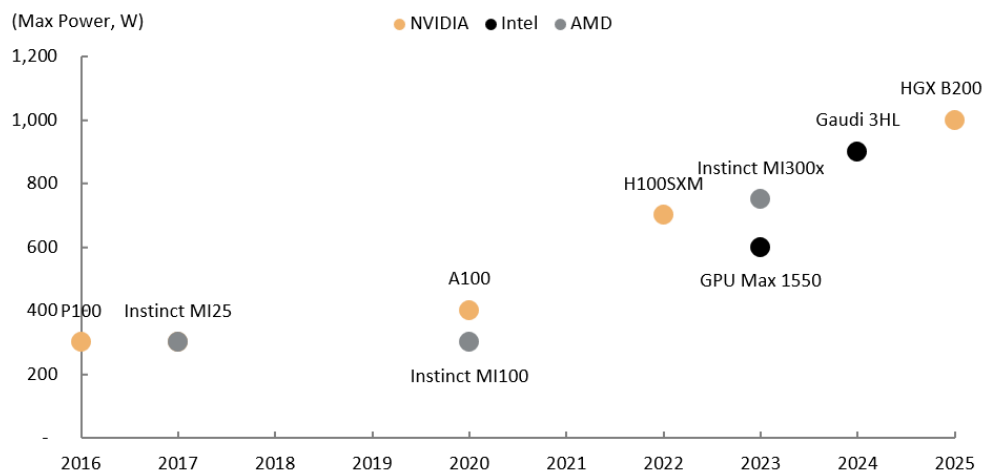
Power infrastructure is therefore emerging as the next major AI bottleneck. Larger GPU clusters need materially more electricity, but grid infrastructure is not expanding at the same pace. Interconnection queues across major US power markets already run c.60 to 84 months, with PJM at 84. This widening gap between compute deployment and power availability shifts the binding constraint from access to capital and GPUs toward speed to power, grid capacity and generation availability.

Figure 53. US AI campus power doubles every ten month

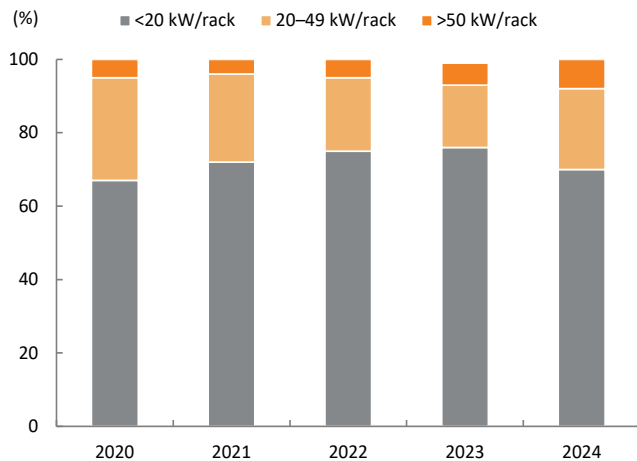


Source: Epoch AI

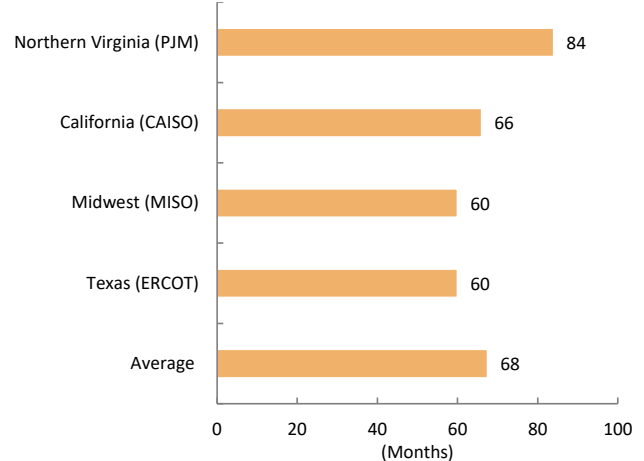
Figure 54. GPU power draw keeps climbing



Sources: Various sources, Mirae Asset Sekuritas Indonesia Research

Figure 55. Distribution of maximum rack density in DC

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 56. US interconnection queues run 60 to 84 months

Sources: Verse Analysis, Mirae Asset Sekuritas Indonesia Research

Table 19. Clean energy commitments across global technology

Company	Estimated Data Centre Capacity (MW)	Net Zero Target Year	Corporate Clean / Green / Renewable Electricity Target	Current Share	Hourly Matching Target
Meta	9,780	2030	100% renewable since 2020	100%	—
Google	8,960	2030	100% renewable since 2017	100%	100% by 2030
Amazon	7,660	2040	100% renewable since 2023	100%	—
Microsoft	6,970	2030	100% renewable by 2025	100%	100% by 2030
Digital Realty	2,740	—	—	66%	—
Equinix	1,850	2030	100% renewable by 2030	96%	—
Tencent	1,760	2030	100% green by 2030	12%	—
Alibaba Cloud	1,660	2030	100% clean by 2030**	56%*	—
Aligned	1,290	2040	100% renewable since 2020	100%	—
Huawei	1,260	2040	—	>50%	—
Apple	1,240	2020	100% renewable since 2018	100%	—
Vantage	1,180	2030	—	58%	—
CyrusOne	1,120	2030	100% carbon-free energy by 2030	62%	—
NTT Data	1,110	2035	100% renewable by 2030**	49%	—
QTS Data Centers	1,060	—	—	65%**	—
Baidu	980	2030	—	5%	—
GDS	980	2030	100% renewable by 2030	36%	—
Chindata	900	2060	100% renewable by 2040**	7%	—
Switch	660	2021	100% renewable since 2016	100%	—
Princeton Digital	620	2030	100% green by 2030	14%	—

Sources: IEA, Mirae Asset Sekuritas Indonesia Research, note: *only targets with specified years are included, **target covers data centers only, ***% of clean electricity consumed at Alibaba Cloud's self-build data centers, ****% of low-emissions electricity utilized by QTS' facilities

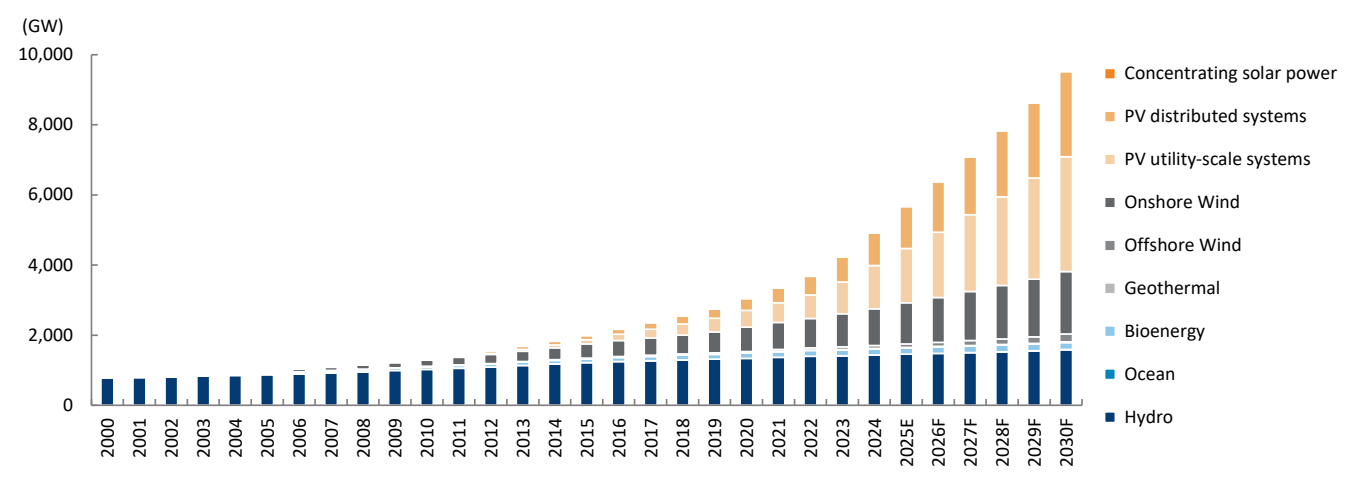
AI drives the race for clean and efficient power

Global power generation is shifting toward renewables as major technology companies pursue net zero targets. Renewables should rise from c.32% of global electricity generation today to c.43%, adding c.4.6TWh from a base of nearly 5.0TWh. Solar leads that expansion at c.3.5TWh, around 77% of total renewable additions.

Data centers are following the same path. Renewables already cover c.43% of their electricity consumption and should approach 50%. Efficiency is improving in parallel, with industry average PUE falling from c.2.5 in 2007 to c.1.4 in 2024 and expected to reach c.1.29 by 2030F, implying around 90TWh of energy savings.

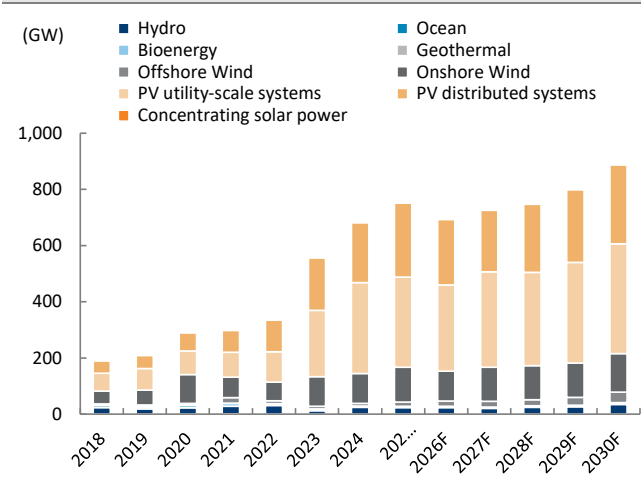
Hyperscale facilities remain the efficiency benchmark, with average PUE improving from c.1.14 in 2027F to c.1.09. Google already reported a trailing twelve month PUE of c.1.09 across its global fleet in 2024. As AI drives power demand higher, renewable access and superior PUE become competitive advantages rather than reporting line items.

Figure 57. Global renewable capacity build



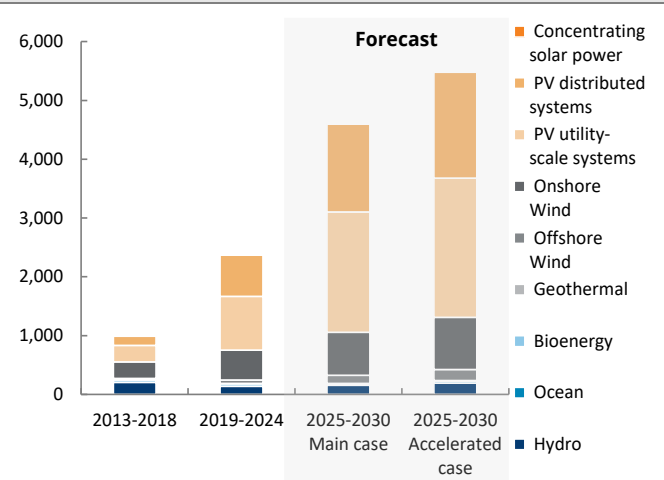
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 58. Global renewable capacity net additions

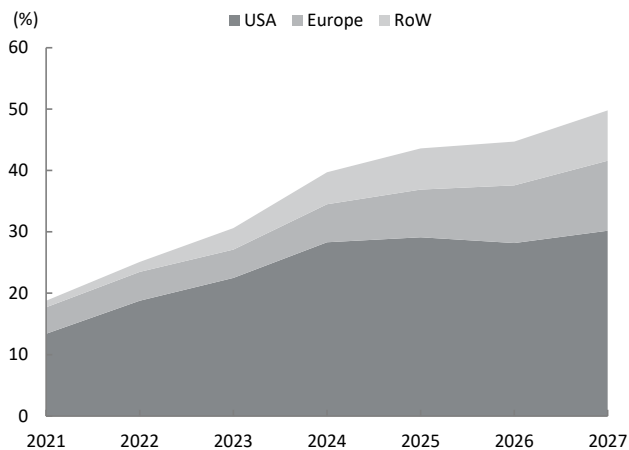


Sources: IEA, Mirae Asset Sekuritas Indonesia Research

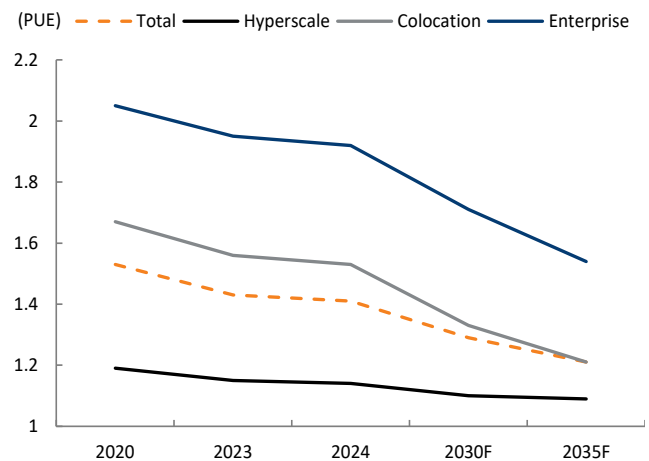
Figure 59. Solar leads the renewable build



Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 60. Renewables now cover 43% of data center power

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

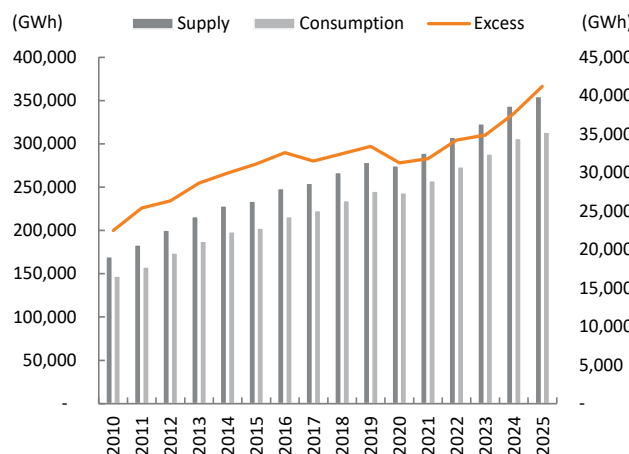
Figure 61. Data center PUE by type

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

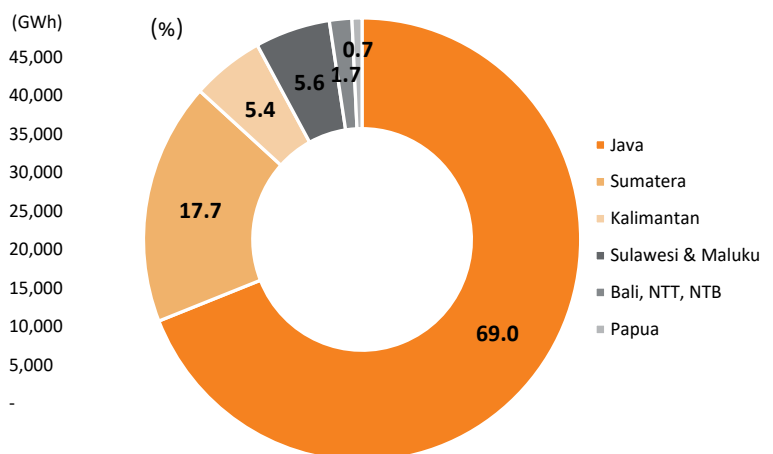
Low-cost power, high execution risk

Indonesia has ample and relatively low cost electricity supply, with excess generation reaching c.41TWh in 2025. Demand remains concentrated in Java, which accounts for c.69% of national consumption. Tariffs are among the lowest in the region at around IDR1,100/kWh, or USDc6.3/kWh, against USDc10.6/kWh in Malaysia and USDc21.3/kWh in Singapore, giving Indonesia a clear cost advantage for power intensive operations.

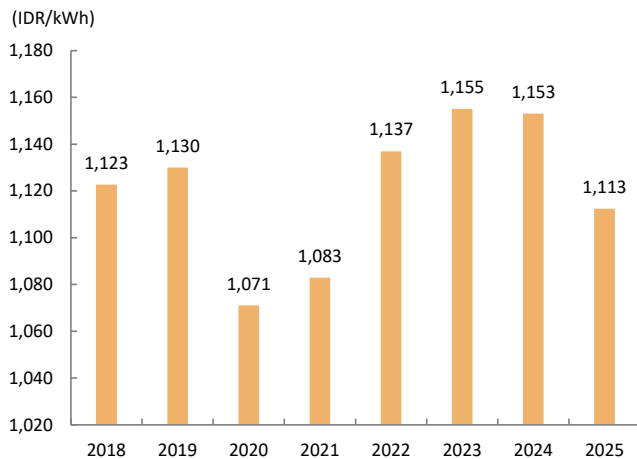
Reliability and grid readiness are the constraint. Indonesia trails regional peers on outage risk, grid connection timelines and renewable availability, which matters most for Batam, where we expect the next hyperscale cluster to form alongside Jakarta. PLN's latest RUPTL targets stronger inter island connectivity through the Green Super Grid, adding c.47,758ckm of transmission across four corridors including Sumatera to Batam and Bintan, Sumatera to Java, Java to Bali and Kalimantan to Tarakan. With major links such as Java to Sumatera not expected until 2031, execution and timing remain the key risks. Indonesia has the power cost advantage, but converting it into hyperscale capacity depends on faster and more reliable grid delivery.

Figure 62. Indonesia annual electricity consumption

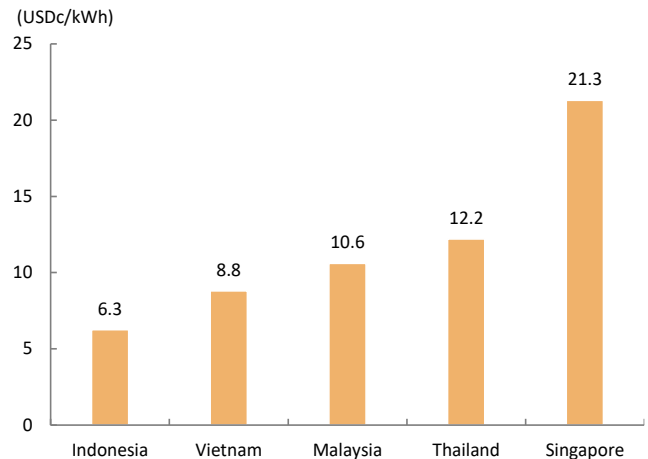
Sources: CEIC, Mirae Asset Sekuritas Indonesia Research

Figure 63. Java takes 69% of national consumption

Sources: PLN, Mirae Asset Sekuritas Indonesia Research

Figure 64. Indonesia's electricity tariff remains competitive

Sources: PLN, Mirae Asset Sekuritas Indonesia Research

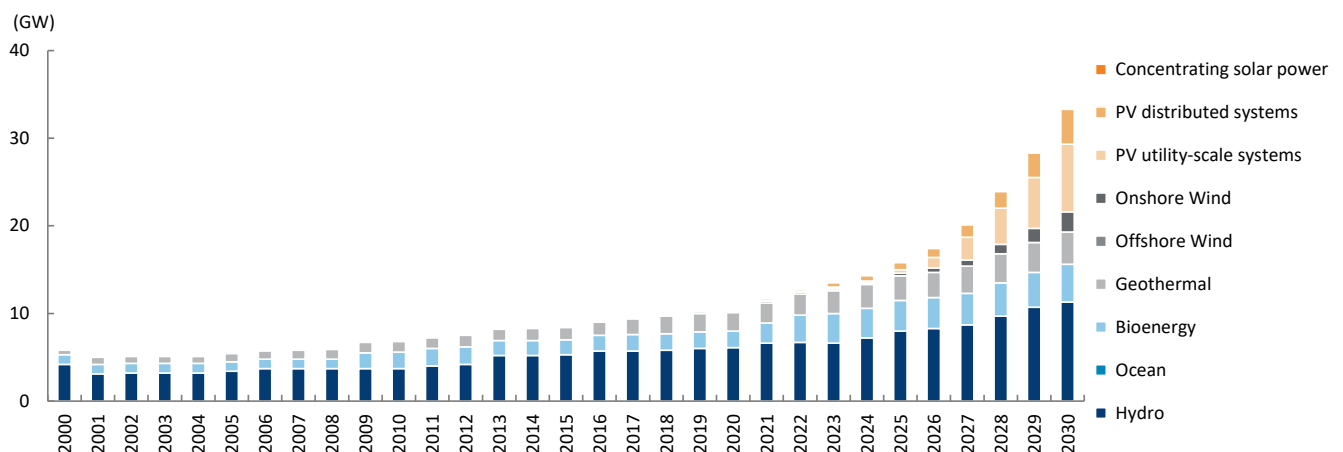
Figure 65. Indonesia leads the selected tariff comparison

Sources: Various sources, Mirae Asset Sekuritas Indonesia Research

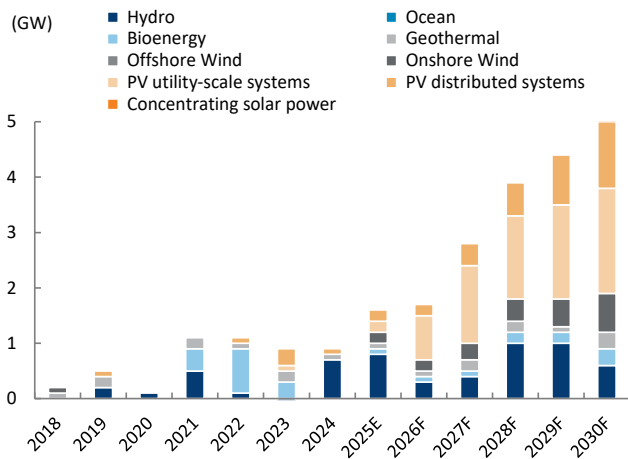
Behind the meter power could ease grid constraints

To shorten grid connection timelines, operators may increasingly adopt on site or behind the meter generation (BTM), pairing solar with battery energy storage systems (BESS) to improve energy independence and accelerate deployment. This could become a meaningful growth area for Indonesia's renewable market, though adoption remains limited while generation costs sit around IDR13,974/kWh.

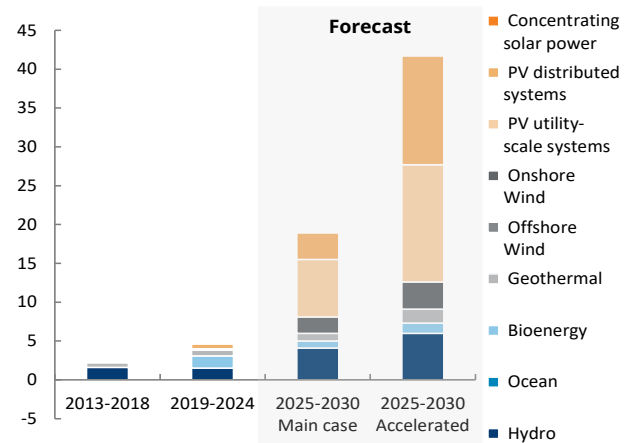
The government is also advancing its 100GWp national solar program, with floating solar projects under development adding around 46MWp of capacity. In parallel, PGEO is exploring geothermal solutions for data centers with the Indonesia Data Center Provider Organization (IDPRO) and Universitas Indonesia. Together these initiatives could broaden clean power options and reduce dependence on grid connection timelines.

Figure 66. Indonesia renewable capacity build

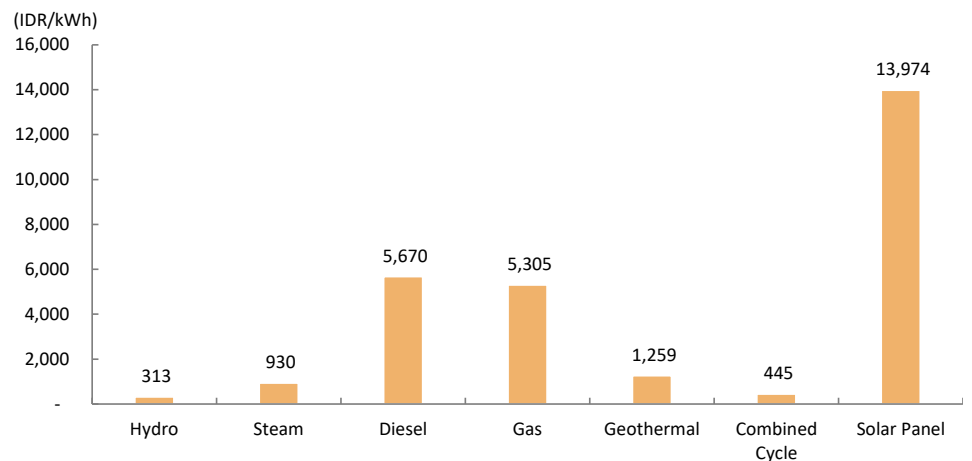
Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 67. Indonesia renewable capacity net additions

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 68. Indonesia renewable growth by technology

Sources: IEA, Mirae Asset Sekuritas Indonesia Research

Figure 69. Generation cost by source

Sources: PLN, Mirae Asset Sekuritas Indonesia Research

Table 20. Indonesia solar project pipeline

Project	Type	Province	Capacity (MWp)	Latest Status	Government / SOE Linkage
PLTS Terapung Tembesi	Floating Solar	Riau Islands	46.0	Under construction – 65%	Government program
PLTS Pulau Sembur	Solar	Riau Islands	0.9	Inaugurated / operational Aug-26	Government program
PLTS Pulau Rengit	Solar	Bangka Belitung	0.1	Inaugurated / operational Aug-26	Government program
PLTS Terapung Saguling	Floating Solar	West Java	92.0	COD: Nov-26	PLN Indonesia Power
PLTS Purwakarta	Solar	West Java	69.0	Ready for tender	Government program
PLTS Jatiluhur	Solar	West Java	1,688.0	Ready for tender	Government program
PLTS Cirata expansion	Solar	West Java	1,250.0	Ready for tender	Government program
PLTS Terapung Jatigede	Floating Solar	West Java	636.0	Ready for tender	Government program
PLTS Waduk Gajah Mungkur	Floating Solar	Central Java	134.2	Groundbreaking	Government / PLN program
PLTS Terapung Karangkates	Floating Solar	East Java	133.0	Under construction – 56.5%	Government program
PLTS Madura	Solar	East Java	605.0	Ready for tender	Government program
PLTS Pasuruan	Solar	East Java	132.0	Groundbreaking	PLN Indonesia Power
PLTS Banyuwangi	Solar	East Java	130.2	Groundbreaking	Government program
PLTS Site Gilimanuk	Solar	Bali	300.0	Groundbreaking	Government / PLN program
Total listed capacity			5,216.4		

Sources: MoEMR, Company Data, Mirae Asset Sekuritas Indonesia Research

Table 21. Indonesia renewable and grid project pipeline

Renewable Type	Project / Program	Location	Capacity	Status / Target	Government / SOE Linkage
Solar + BESS	PLTS 100GWp Program	Nationwide	100GWp	Launched / acceleration program	Government / ESDM
Solar	PLTS Mentari Nusantara I	Multiple locations	1,225MW	Tender launched Apr-26	PLN
Hydro	PLTA Kayan Cascade	North Kalimantan	up to 9,000MW	Development / strategic project	PSN / Govt-supported
Hydro	PLTA Mentarang Induk	North Kalimantan	1,375MW	Under development	Govt-supported / KIPPI
Hydro (Pumped Storage)	PLTA Upper Cisokan Pumped Storage	West Java	1,040MW	Under development	PLN + World Bank
Hydro	PLTA Merangin	Jambi	350MW	RUPTL project	IPP / PLN system
Geothermal	PLTP Wapsalit	Buru, Maluku	20MW	Exploration; target COD 2028	RUPTL
Geothermal	PLTP Tulehu	Ambon, Maluku	20MW (2x10)	Procurement; target COD 2031	PLN
Geothermal	Geothermal Co-generation Program	Multiple WKP	230MW	Target 2027–2029	PGE / PLN
Geothermal	PLTP Ulubelu	Lampung	30MW	Development; target COD 2027	PGE / PLN ecosystem
Geothermal	PLTP Lahendong	North Sulawesi	15MW	Development; target COD 2027	PGE / PLN ecosystem
Storage (BESS)	BESS Program	Nationwide	4.3GW	RUPTL 2025–2034	PLN
Storage (Pumped Hydro)	Pumped Storage Program	Multiple	6.0GW	RUPTL 2025–2034	PLN
Grid / Transmission	Green Super Grid	Nationwide	47,758 circuit-km	RUPTL 2025–2034	PLN

Sources: MoEMR, Company Data, Mirae Asset Sekuritas Indonesia Research

Indonesia Beneficiaries

The picks and shovels play

We favor infrastructure suppliers that monetize the data center build before operators reach full occupancy. APAC's 21.7GW pipeline and Indonesia's USD13.0bn of announced investment covering 1,471MW since 2024 support demand for land, construction, power and connectivity. Jakarta's 20.4% colocation vacancy reinforces our preference for earlier monetization over occupancy risk.

DCII offers the clearest operator exposure, with 128MW live, colocation contributing 94.5% of 1H26 revenue and more than 2GW planned in Bintan. **EDGE's** USD4.5bn CGK Campus targets 500MW, scalable to 1GW, with data centers accounting for 68.3% of 1H26 revenue. **ISAT** offers scale through BDx Indonesia's 1.2GW PLN power portfolio and up to 1GW of neocloud capacity with NVIDIA. **TLKM** combines NeutraDC's 49.9MW, with phased expansion to 200MW, and 211k km of fiber. **DSSA** pairs SMX01's planned 18MW from 2H26, scalable to 60MW, with Moratelindo's 57k km backbone.

DMAS, TOTL and **POWR** offer exposure to land, construction and recurring power demand. DMAS has a dedicated c.300ha data center zone at GIIC, more than ten tenants and 993MVA of committed PLN power. TOTL has six active data center projects, representing c.39% of its project portfolio. POWR benefits from long term Cikarang contracts, with data centers projected to account for 20% of industrial customer load by 2028F, up from 12% in 1H26. **KETR** and **MORA** provide connectivity along the Jakarta, Batam and Singapore corridor through Rising-8, with up to 400Tbps of design capacity. MORA also offers six data centers and a larger fiber network following the merger.

Table 22. Indonesian companies' beneficiaries

Stock	Impact	Notes	Summary
Data Center Operator			
DCII	High	- Most prominent and largest domestic data center player with 128MW live capacity - Large project pipeline with potential capacity of >2GW at its biggest data center park in Bintan (H5) 94.5% of total revenue is from colocation (1H26)	Pure-play and highly direct exposure to Indonesia's DC growth. Its existing 128MW platform, expanding campus footprint and >2,000MW potential capacity provide substantial operating leverage to rising hyperscale, cloud and AI demand. New capacity additions in Cibitung and Surabaya further broaden its addressable market.
EDGE	High	- Major hyperscale expansion through Digital Edge's US\$4.5bn CGK Campus at GIIC, Bekasi, with 500MW of planned IT capacity and scalability to 1GW - Provides connectivity backbone for data center businesses 68.3% of total revenue is related to the data center business (1H26)	Direct hyperscale DC exposure with one of the largest expansion pipelines in Indonesia. The planned 500MW CGK Campus, scalable to 1GW, materially expands its existing DC footprint and positions EDGE to capture hyperscale and AI workloads.
TLKM	High	49.9MW live capacity in 1H26 with phased capacity expansion of up to 200MW, following an Aug-26 MoU with PLN to secure power supply under NeutraDC - Provides extensive backbone connectivity with 211k+ km of domestic and international fiber network	Direct and strategically material DC exposure through NeutraDC, supported by a large domestic connectivity ecosystem. The planned Cikarang expansion of up to 200MW and continued Batam development provide meaningful capacity growth, while TLKM's fiber/network infrastructure strengthens its ability to capture integrated cloud and DC demand.
ISAT	High	- BDx Indonesia, a JV involving ISAT and Lintasarta, secured a 1.2GW power portfolio with PLN in Jun-26, claimed as Indonesia's largest DC power commitment - Partnering with NVIDIA to provide up to 1GW of neocloud services, adding further potential	Direct exposure through BDx Indonesia and IFT with substantial committed power capacity for hyperscale and AI infrastructure. The 1.2GW power portfolio, the large CGK4 development and Zankore's neocloud services provide significant potential operating leverage to rising AI/cloud demand, complemented by ISAT's connectivity infrastructure.
EXCL	Low	- PDG, a JV in which EXCL holds a minority stake, currently has 28MW of live capacity - Expanding through JC3 and JC4, which could add 360MW of capacity	Indirect DC exposure through a minority stake (10.7%) in Princeton Digital Group (PDG).

Stock	Impact	Notes	Summary
DSSA	High	- Currently has 10MW of live capacity across its edge data centers - Expanding into AI-ready capacity at the SMX01 facility, a JV with LG, which is scalable to 60MW (live 2H26) - Provides backbone connectivity through MORA with 57k+ km of fiber access	Direct exposure through SM+ Data Centers with a sizeable AI-ready expansion pipeline. SMX01's initial 18MW IT load is scalable to 60MW, and its backbone connectivity through Moratelindo (MORA) positions it to capture domestic and regional demand.
AREA	Mid	- Currently has three rated facilities in Jakarta with 25MW of power supply capacity 51.5% of total revenue is colocation-related (1H26) - A small-scale data center play	Pure-play listed DC exposure, despite its small scale. AREA's colocation-focused business and three DC facilities provide direct monetization from higher occupancy, power utilization and customer demand.
Cloud Player			
ELIT	Mid	- Certified Tier III DC offering colocation services - Managed cloud service provider, with 89.7% of total revenue (1H26) - AWS and Google MSP local partner	Beneficiary of rising enterprise AI, cloud and cybersecurity adoption. Indonesia's DC/AI expansion should support demand for ELIT's managed AI and cloud services, but its exposure is primarily service- and software-driven rather than through physical DC infrastructure.
MSTI	Mid	- Provides cloud services (private, hybrid and public) in partnership with AWS - Data center infrastructure solutions, including cabling systems - Data center and cloud contributed 70.3% of revenue in 1H26	Direct beneficiary of the IT infrastructure capex cycle generated by DC and AI expansion. Demand for servers, storage, networking and AI infrastructure can translate directly into system-integration and infrastructure implementation opportunities for Mastersystem, providing relatively strong monetization exposure despite not owning physical DC assets.
Connectivity			
MORA	High	- Provides domestic and international subsea cable across six assets - Extensive fiber and backbone network of 57k+ km	Direct exposure to both data centers and fiber connectivity. Following the MyRepublic Indonesia merger, MORA has a large fiber network and six data centers, while Rising 8 strengthens Jakarta-Batam-Singapore connectivity. DC and AI traffic growth should directly increase demand for bandwidth, interconnection, backhaul and colocation services.
KETR	High	- Provides domestic and international connectivity with more than 10k km of inland and subsea cable systems - Connects Jakarta and Bintan via the Rising 8 subsea cable, and is expanding its network with SKKL Median Ring Indonesia (RFS: 2028)	Direct beneficiary from submarine connectivity and DC-linked infrastructure. Rising 8 provides up to 400Tbps of design capacity and connects Jakarta-Batam, with the next phase extending to Singapore. Its integration with the Tanjung Pakis cable landing station/DC gives KETR direct exposure to rising cross-border DC and cloud traffic.
TOWR	Mid	- Extensive fiber access of >122k km of FTTH should provide further connectivity to DC business - Expanding its business model into power-as-a-service (PaaS) and solar to provide power connections	Strong fiber exposure, but data centers are not yet a material core business. TOWR/iForte's extensive fiber network should benefit from higher backhaul and interconnection demand, while its edge-DC presence and planned DC expansion provide additional optionality. However, its exposure remains more indirect than that of dedicated DC operators.
MTEL	Mid	- Indirect beneficiary through a fiber network of >59k km - Expanding its business model into power-as-a-service (PaaS) to provide power connections	Primarily an indirect beneficiary through fiber, edge infrastructure and tower connectivity. DC expansion should increase demand for backhaul, interconnection and edge computing, while MTEL is expanding its fiber footprint and Micro Data Center capabilities. However, hyperscale DC exposure remains limited and is not yet a major earnings driver.
Contractor			
TOTL	High	- Prominent local contractor for data center players - c.39% of total projects come from data center construction, with six ongoing projects	Direct construction beneficiary with proven exposure to multiple ongoing DC projects. Continued hyperscale/DC development can translate directly into additional construction contracts and order-book growth, while management has indicated a further DC project pipeline.
Power			
POWR	High	- A beneficiary of rapid data center growth in greater Jakarta, providing independent power supply alongside several renewable projects - Energized data center capacity is expected to reach 20% of total industrial customers by 2028F, from 12% in 1H26	One of the most direct power beneficiaries of Indonesia's DC expansion. DC customers already account for substantial contracted capacity, with energized DC demand expected to nearly double toward 2028F. Long-term power contracts and POWR's strategic Cikarang footprint provide strong visibility for recurring DC-driven electricity demand.
Landbank			
DMAS	High	- Hosts one of the most prominent data center complexes in greater Jakarta, with more than ten tenants in GIIC across a 300ha cluster - PLN has committed 993MVA of power supply dedicated to the data center complex	The most direct landbank beneficiary of Indonesia's DC expansion. GIIC has a dedicated c.300ha Data Center Zone, established DC tenants and substantial PLN power availability. DC customers have already contributed materially to industrial land sales and dominate the current inquiry pipeline.

Stock	Impact	Notes	Summary
BEST	Mid	- Established data center site in MM2100, hosting PDG's JC1 and JC2 and DCI's H1 campus - Currently has 825ha of total development area	Well positioned for spillover demand from the established Cikarang/Bekasi DC cluster. MM2100 already hosts major DC infrastructure and could capture additional demand as nearby dedicated DC zones become more absorbed. However, current evidence of DC-driven land sales and pipeline is less material than at DMAS.
KIJA	Mid	- DC exposure remains limited, with few DC players present - Has 5,089ha of landbank ready for development, supported by an independent power plant with 130MW of capacity	Strategically positioned through industrial land and captive-power infrastructure in the Cikarang DC corridor. Existing DC-related land demand and Bekasi Power provide advantages for power-intensive tenants, but DC demand has not yet contributed to land sales or the inquiry pipeline to the same degree as at DMAS.
SSIA	Mid	- DC exposure remains limited at c.3% of the total tenant mix in Suryacipta City - Further development of the BDx hyperscale CGK5 project should provide direct presence, alongside 23.6ha of landbank ready for development and c.1,400ha of land inventory	Emerging beneficiary with both existing DC exposure in Suryacipta and potential upside from Subang Smartpolitan. Recent DC-related inquiries indicate meaningful demand, but conversion into actual land sales and supporting power infrastructure remain key execution points, making its exposure less established than that of DMAS.
Renewables			
PGEO	Low	- Developing a 100%-geothermal-powered Green Data Center concept with 5MW of scalable initial capacity, PUE of ~1.25 and Tier III-ready architecture, targeting commissioning in 2028 - As of 1H26, PGEO has 727MW of installed capacity and 2,745GWh of production from stable geothermal generation	Current DC exposure remains largely prospective. Its geothermal-powered Green Data Center concept could create direct exposure if commercialized, but the project remains at the assessment/roadmap stage with no material operating DC capacity or contracted DC demand yet.
BREN	Low	- Geothermal installed capacity reached 926MW following the Wayang Windu retrofit and is targeted to exceed 1GW by 2026 through ongoing expansion projects - Its stable 24/7 geothermal generation could position BREN as a potential renewable-power beneficiary of growing DC electricity demand	Potential indirect beneficiary from rising demand for reliable renewable power, but no material dedicated DC contract has been identified. Its large geothermal portfolio provides strategic optionality, although the current earnings linkage to DC expansion remains limited.
Others			
MTDL	Mid	- Indirect beneficiary through IT infrastructure and cloud services via the Synnex Metrodata Indonesia platform - Adoption of agentic AI through knownngen.ai and Megarock helped lift data and AI revenue +52% YoY, while hybrid AI revenue grew +171% YoY, though the contribution remains <10%.	Indirect beneficiary through IT infrastructure, cloud and AI solutions. Rising DC/AI investment should support demand for servers, storage, networking and hybrid-AI infrastructure distributed and integrated by Metrodata.

Sources: Company Data, Mirae Asset Sekuritas Indonesia Research

IV. Valuation Metrics

Global data center operators and REITs' peer comparison

Table 23. Global data center operators and REITs: peer valuation

Ticker	Company Name	Market Cap. (USDmn)	P/E (x)		P/BV (x)		EV/EBITDA (x)		EBITDA Growth (%)		ROE (%)		Dividend Yield (%)	
			FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F
DCII J*	DCI Indonesia Tbk PT	27,225	328.6	N/A	N/A	N/A	231.0	N/A	34.9	N/A	30.8	N/A	N/A	N/A
EDGE J**	IndoInternet Tbk PT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	26.3	N/A	N/A	N/A	N/A	N/A
AREA J*	Dunia virtual Online Tbk PT	48	219.2	N/A	N/A	N/A	38.2	N/A	-23.4	N/A	1.6	N/A	N/A	N/A
Indonesia Average		27,272	328.4	0.0	0.0	0.0	230.7	0.0	34.8	0.0	30.7	0.0	0.0	0.0
NXT AU	NEXTDC Ltd	6,576	N/A	N/A	1.6	1.6	49.3	29.1	86.6	88.7	-2.9	-3.0	0.0	0.0
1686 HK	SUNeVision Holdings Ltd	1,651	20.8	15.9	3.6	3.2	12.2	11.0	16.0	17.5	19.0	21.3	2.9	3.7
6561 TT	Chief Telecom Inc	776	19.3	16.7	6.2	5.0	13.0	12.4	34.2	4.9	32.8	33.9	4.4	4.8
INET TB	Internet Thailand PCL	69	6.3	3.8	0.6	N/A	6.1	5.4	-12.2	14.0	10.2	14.3	5.0	7.6
APAC Average		9,072	5.5	4.4	2.3	2.1	39.1	24.2	68.5	68.0	4.2	4.7	1.0	1.1
300442 CH	Range Intelligent Computing Technology Group Co Ltd	14,932	33.9	24.9	6.0	4.9	22.3	17.5	55.4	27.8	21.0	21.5	1.0	1.0
603881 CH	Shanghai AtHub Co Ltd	3,014	90.9	80.3	5.4	5.1	18.2	17.4	11.1	5.2	5.9	6.5	0.3	0.4
300383 CH	Beijing Sinnet Technology Co Ltd	2,923	118.6	72.7	1.6	1.6	16.4	14.5	-2.7	13.0	1.5	2.4	0.4	0.4
300738 CH	Guangdong Aofei Data Technology Co Ltd	2,815	45.6	36.2	4.5	4.0	14.8	12.5	94.7	18.1	10.2	11.5	0.2	0.2
China Average		5,738	53.0	39.2	5.2	4.4	20.2	16.5	47.3	21.9	15.4	16.1	0.7	0.7
EQIX US	Equinix Inc	101,021	59.7	52.4	7.0	7.0	22.9	20.5	28.1	11.8	12.7	13.7	2.0	2.2
DLR US	Digital Realty Trust Inc	69,835	59.4	57.6	2.6	2.7	22.6	20.2	30.6	11.9	4.0	3.5	2.6	2.7
NBIS US	Nebius Group NV	65,617	N/A	N/A	6.8	7.9	49.1	10.2	-617.0	383.3	-5.4	-0.4	0.0	0.0
CRWW US	CoreWeave Inc	49,806	N/A	N/A	12.2	11.0	10.5	4.8	54.9	120.5	-55.7	-33.1	0.0	0.0
WULF US	Terawulf Inc	8,053	N/A	N/A	350.9	N/A	199.8	20.9	-15.2	855.1	-1,156.4	N/A	0.0	0.0
APLD US	Applied Digital Corp	7,514	N/A	N/A	3.6	2.7	126.7	37.7	563.5	217.4	-33.6	13.1	N/A	N/A
CORZ US	Core Scientific Inc	5,582	N/A	117.4	N/A	N/A	37.6	12.5	34.5	202.0	N/A	N/A	N/A	N/A
Global Average		307,429	33.1	32.4	15.6	6.4	33.9	16.0	-92.6	139.3	-36.2	0.2	1.3	1.3
KDCREIT SP	Keppel DC REIT	4,634	18.2	16.9	1.2	1.2	21.8	19.7	64.7	11.1	6.7	6.9	5.2	5.5
DGT AU	DigiCo Infrastructure REIT	1,050	24.4	32.4	0.6	0.6	29.2	30.5	N/A	28.1	2.4	3.1	4.1	4.9
DCREIT SP	Digital Core REIT Management Pte Ltd	483	13.7	10.2	N/A	N/A	19.2	17.6	43.1	9.0	3.5	N/A	7.5	8.8
Regional DC REITs Average		6,168	18.9	19.0	1.0	1.0	22.8	21.4	52.0	13.8	5.7	5.7	5.2	5.7
Global Average		355,679	57.8	31.1	13.9	5.9	49.7	15.9	-71.6	123.8	-27.7	1.4	1.3	1.3

Sources: Bloomberg, Company Data, Mirae Asset Sekuritas Indonesia Research, *annualized figures, **delisted

Global renewable energy company peer comparison

Table 24. Global renewable energy peers: valuation

Ticker	Company Name	Market Cap. (USDmn)	P/E (x)		P/BV (x)		EV/EBITDA (x)		EBITDA Growth (%)		ROE (%)		Dividend Yield (%)	
			FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F
BREN JJ	Barito Renewables Energy Tbk PT	24,613	184.0	184.0	23.0	20.4	47.5	44.5	7.1	6.7	11.0	12.0	N/A	N/A
PGEO JJ	Pertamina Geothermal Energy PT	2,404	0.0	0.0	1.1	1.4	7.0	6.5	3.9	7.7	7.5	7.9	0.0	0.0
ARKO JJ*	Arkora Hydro Tbk PT	763	183.6	N/A	N/A	N/A	228.7	N/A	69.5	N/A	13.2	N/A	N/A	N/A
KEEN JJ	Kencana Energi Lestari Tbk PT	190	5.2	4.0	0.9	0.7	3.9	3.0	-22.7	28.1	17.1	18.3	N/A	N/A
Indonesia Average		27,971	167.0	161.9	20.3	18.1	48.6	39.7	8.4	6.8	10.8	11.4	0.0	0.0
NTPC IN	NTPC Ltd	33,945	13.6	12.9	1.7	1.5	10.0	9.2	17.0	9.2	11.9	12.0	2.8	3.0
ADANIGR IN	Adani Green Energy Ltd	22,119	109.0	80.7	10.5	9.6	28.8	20.8	64.1	36.8	12.4	18.3	0.0	0.0
600905 CH	China Three Gorges Renewables Group Co Ltd	15,595	25.1	22.2	1.1	1.1	14.1	12.8	-7.4	10.2	3.7	4.4	0.9	1.1
916 HK	China Longyuan Power Group Corp Ltd	13,646	9.5	8.0	0.5	0.5	12.0	11.0	-9.3	8.7	5.3	6.1	2.7	3.3
YTLP MK	YTL Power International Bhd	12,187	26.4	22.3	2.1	2.0	14.1	11.9	10.2	12.7	10.0	10.8	1.5	1.6
ACEN PM	ACEN Corp	1,650	13.1	11.3	0.7	0.6	17.2	14.4	37.1	20.0	5.1	5.4	2.1	2.4
Regional Average		99,142	37.7	29.9	3.4	3.1	15.7	13.0	19.6	16.1	9.5	11.2	1.7	1.9
ORSTED DC	Orsted AS	27,836	17.0	14.0	1.3	1.2	7.5	7.1	16.9	6.5	7.8	8.4	N/A	N/A
EDPR PL	EDP Renewables SA	16,012	29.3	27.5	1.2	1.2	11.6	11.7	-55.3	-0.6	4.5	4.4	1.4	1.5
ANE SM	Corp ACCIONA Energias Renovables SA	8,156	25.7	36.1	1.2	1.1	9.5	10.5	8.8	-9.0	6.1	3.5	0.6	1.2
ERG IM	ERG SpA	3,887	19.0	18.8	1.6	1.6	10.0	9.8	5.9	2.3	8.6	8.6	4.6	4.7
GRE SM	Greenergy Renovables SA	2,952	25.0	17.0	4.2	3.4	15.6	10.6	-95.1	47.4	20.9	22.3	0.0	0.0
SCATC NO	Scatec ASA	1,704	36.6	13.2	1.6	1.5	11.4	8.2	-17.5	40.2	3.1	9.1	0.1	0.4
VLTA FP	Voltaia SA	742	N/A	88.5	0.6	0.6	13.9	10.3	-3.8	34.8	0.5	3.0	0.0	0.0
Europe Average		61,287	22.2	21.8	1.4	1.3	9.6	9.1	-10.3	5.6	7.2	7.3	0.7	0.9
NEE US	NextEra Energy Inc	171,968	20.3	18.7	2.5	2.2	15.9	13.8	14.0	15.6	12.7	12.9	3.0	3.2
BEP US	Brookfield Renewable Partners LP	20,761	N/A	N/A	2.6	3.3	28.6	25.6	21.7	11.9	-6.1	-10.3	5.1	5.4
CWEN US	Clearway Energy Inc	6,485	N/A	108.9	1.3	1.5	13.7	11.9	18.2	15.4	-1.8	4.3	6.0	3.6
NPI CN	Northland Power Inc	5,518	26.8	15.3	1.3	1.2	8.0	6.9	N/A	15.0	7.9	14.4	3.4	3.4
North America Average		204,732	17.8	19.6	2.4	2.3	16.9	14.7	14.5	15.2	10.2	10.3	3.3	3.4
Global Average		393,132	34.1	32.7	3.8	3.5	17.7	15.2	11.5	13.3	9.6	10.2	2.3	2.4

Sources: Bloomberg, Mirae Asset Sekuritas Indonesia Research, *annualized figures

Global power energy generation peer comparison

Table 25. Global power generation peers: valuation

Ticker	Company Name	Market Cap. (USDmn)	P/E (x)		P/BV (x)		EV/EBITDA (x)		EBITDA Growth (%)		ROE (%)		Dividend Yield (%)	
			FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F
POWR	Cikarang Litrindo Tbk PT	909	N/A	N/A	N/A	N/A	5.4	5.0	-7.3	7.9	10.8	12.1	N/A	N/A
Indonesia Average		909	0.0	0.0	0.0	0.0	5.4	5.0	-7.3	7.9	10.8	12.1	0.0	0.0
1816 HK	CGN Power Co Ltd	29,760	12.8	11.5	1.0	1.0	16.5	14.9	-4.2	10.2	8.1	8.5	3.0	3.3
902 HK	Huaneng Power International Inc	14,831	7.4	6.9	0.7	0.7	8.9	8.4	2.6	6.1	10.0	10.1	5.3	5.7
836 HK	China Resources Power Holdings Co Ltd	12,438	7.9	7.6	0.8	0.8	8.5	8.0	3.1	6.5	10.6	10.5	5.1	5.3
AP PM	Aboitiz Power Corp	5,166	9.1	8.5	1.4	1.3	8.7	8.2	4,016.8	6.0	15.9	15.8	5.1	5.7
FGEN PM	First Gen Corp	1,359	8.2	8.2	0.4	0.4	5.8	5.5	-67.1	4.4	6.6	5.3	1.8	1.2
YTLP MK	YTL Power International Bhd	792	26.5	22.3	2.1	2.0	14.1	11.9	306.0	12.7	10.0	10.8	1.5	1.6
APAC Average		17,604	10.4	9.5	0.9	0.9	12.3	11.3	324.1	8.1	9.6	9.8	4.1	4.4
ADANI IN	Adani Power Ltd	42,037	38.2	31.4	6.0	5.1	21.5	19.4	12.9	22.5	17.4	16.1	N/A	N/A
NTPC IN	NTPC Ltd	33,998	13.6	12.9	1.7	1.5	10.0	9.2	17.0	9.2	11.9	12.0	2.8	3.0
TPWR IN	Tata Power Co Ltd/The	12,203	27.9	24.4	3.0	2.7	13.1	11.4	26.3	13.7	11.2	11.3	0.8	0.8
JSW IN	JSW Energy Ltd	10,017	40.2	39.1	3.0	2.6	15.8	13.2	2,481.6	22.0	7.1	8.1	0.4	0.5
India Average		56,218	28.6	24.9	3.8	3.3	15.9	14.2	267.7	16.7	13.7	13.3	1.1	1.2
CEG US	Constellation Energy Corp	101,321	24.0	21.5	3.9	3.6	15.1	14.6	76.9	3.2	20.1	17.6	0.6	0.6
VST US	Vistra Corp	49,355	17.2	14.5	10.6	6.7	9.7	8.8	N/A	10.3	55.5	44.4	0.6	0.7
NRG US	NRG Energy Inc	23,470	12.3	10.1	4.9	3.5	8.6	7.8	47.5	9.6	51.1	42.0	1.7	1.9
TLN US	Talen Energy Corp	14,927	15.4	10.6	6.7	4.6	11.3	9.0	175.7	26.6	57.7	56.5	0.0	0.0
North America Average		174,146	20.1	17.4	6.0	4.5	12.6	11.8	61.0	7.7	36.1	30.7	0.7	0.8
Global Average		248,877	29.2	25.5	6.3	4.9	19.0	17.5	235.8	14.6	35.4	31.1	2.0	2.2

Sources: Bloomberg, Mirae Asset Sekuritas Indonesia Research

Regional telecoms operator peer comparison

Table 26. Regional telecoms peers: valuation

Ticker	Company Name	Market Cap. (USDmn)	P/E (x)		P/BV (x)		EV/EBITDA (x)		EBITDA Growth (%)		ROE (%)		Dividend Yield (%)	
			FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F
TLKM IJ	Telkom Indonesia Persero Tbk PT	14,628	12.9	12.3	1.7	1.6	3.6	3.2	4.3	4.5	13.1	13.2	6.4	6.2
ISAT IJ	Indosat Tbk PT	4,451	13.6	12.4	1.9	1.8	4.7	4.5	6.9	6.7	14.3	14.9	4.2	4.4
EXCL IJ	XLSMART Telecom Sejahtera Tbk PT	2,739	N/A	20.3	1.7	1.6	5.2	4.8	17.7	8.2	-10.4	9.1	0.0	0.0
Indonesia Average		21,817	11.4	13.3	1.7	1.6	4.0	3.7	6.5	5.4	10.4	13.0	5.1	5.1
CDB MK	CELCOMDIGI BHD	7,812	18.8	17.4	2.0	2.0	7.9	7.7	-1.3	2.5	10.5	11.6	5.3	5.7
T MK	Telekom Malaysia Bhd	7,508	18.0	16.4	2.8	2.7	7.1	6.7	-4.7	6.1	15.3	16.4	4.2	4.7
MAXIS MK	Maxis Bhd	6,822	17.0	16.8	4.4	4.3	8.2	8.1	6.5	1.3	25.8	25.5	4.9	5.1
AXIATA MK	Axiata Group Bhd	3,794	20.2	14.6	0.8	0.8	5.7	5.5	-47.2	3.9	3.2	4.9	6.5	6.9
Malaysia Average		25,936	18.3	16.5	2.7	2.6	7.4	7.2	-6.9	3.4	14.9	15.7	5.1	5.4
ST SP	Singapore Telecommunications Ltd	57,879	24.1	23.6	2.7	2.6	20.7	20.3	5.7	6.1	10.9	12.4	4.4	4.8
STH SP	StarHub Ltd	1,498	25.0	28.9	3.9	4.4	8.3	8.3	-22.0	-0.5	16.3	25.0	5.5	5.5
Singapore Average		59,378	24.1	23.7	2.8	2.6	20.4	20.0	5.0	5.9	11.0	12.7	4.4	4.8
ADVANC TB	Advanced Info Service PCL	31,949	19.9	18.6	19.1	15.0	10.0	9.6	17.4	3.8	61.2	85.3	4.8	5.1
TRUE TB	True Corp PCL	13,592	17.4	15.3	5.4	4.7	7.6	7.3	16.5	3.6	31.8	31.1	4.2	4.8
THCOM TB	Thaicom PCL	335	N/A	46.3	1.1	1.1	15.0	11.2	1.4	34.1	0.4	2.3	0.0	0.5
Thailand Average		45,875	19.0	17.9	14.9	11.8	9.3	8.9	17.0	4.0	52.0	68.6	4.6	5.0
BHARTI IN	Bharti Airtel Ltd	120,137	40.3	29.4	8.1	6.5	11.3	9.7	49.0	13.8	22.8	26.1	1.8	2.3
728 HK	China Telecom Corp Ltd	80,777	11.6	11.0	0.8	0.7	3.8	3.7	-3.7	2.7	6.3	6.4	5.7	6.0
017670 KS	SK Telecom Co Ltd	14,494	14.9	14.1	1.4	1.3	5.1	5.0	-1.5	0.5	9.8	9.8	3.8	3.9
IDEA IN	Vodafone Idea Ltd	17,080	N/A	N/A	N/A	N/A	18.8	16.3	19.4	20.5	36.5	23.3	0.0	0.0
030200 KS	KT Corp	9,881	8.9	8.2	0.7	0.7	3.9	3.8	21.9	2.0	8.2	8.4	4.7	5.0
TCOM IN	Tata Communications Ltd	5,296	41.8	30.9	14.0	11.6	12.9	11.3	17.9	16.0	39.6	43.7	1.2	1.6
Other Asia Average		247,666	25.5	19.7	4.6	3.7	8.7	7.7	25.1	9.5	17.3	18.2	3.2	3.5
Regional Average		400,672	23.3	19.5	5.2	4.3	10.2	9.4	18.1	7.7	19.8	22.7	3.7	4.1

Sources: Bloomberg, Company Data, Mirae Asset Sekuritas Indonesia Research

Global tower and connectivity peer comparison

Table 27. Global tower peers: valuation

Ticker	Company	Market Cap. (USDmn)	P/E (x)		P/BV (x)		EV/EBITDA (x)		EBITDA Growth (%)		ROE (%)		Dividend Yield (%)	
			FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F	FY26F	FY27F
MTEL IJ	Dayamitra Telekomunikasi	2,287	18.2	16.6	1.2	1.2	7.1	6.7	5.5	2.8	6.5	7.0	4.1	4.5
TBIG IJ	Tower Bersama Infra	1,904	22.1	21.7	2.5	2.3	10.7	10.6	2.4	1.3	11.1	10.6	1.8	1.9
TOWR IJ	Sarana Menara Nusantara	1,517	6.0	5.7	1.1	1.0	6.2	5.9	2.1	2.0	16.0	15.0	5.1	5.3
Indonesia Average		5,709	16.3	15.4	1.6	1.5	8.1	7.8	3.6	2.1	10.6	10.3	3.6	3.8
788 HK	China Tower Corp Ltd	20,267	9.0	8.5	0.6	0.6	3.7	3.8	-6.5	-0.3	7.5	7.4	5.8	7.1
INDUSTOW IN	Indus Towers Ltd	10,742	14.4	13.8	2.8	2.4	6.6	6.4	-8.6	6.5	18.0	18.3	4.4	4.9
APAC Average		31,009	10.9	10.4	1.4	1.2	4.7	4.7	-7.2	2.1	11.1	11.1	5.3	6.3
AMT US	American Tower Corp	80,602	24.7	24.5	12.9	13.6	16.8	16.3	4.4	3.4	90.5	108.0	4.1	4.4
CCI US	Crown Castle Inc	31,428	31.2	25.4	N/A	N/A	18.0	17.7	-35.5	2.1	-40.8	-40.4	5.8	5.8
CLNX SM	Cellnex Telecom SA	19,473	N/A	N/A	1.5	1.5	11.0	10.5	8.2	4.9	-0.9	-0.2	3.0	3.4
SBAC US	SBA Communications	19,247	22.4	21.3	N/A	N/A	16.4	15.9	2.1	3.3	-19.0	-20.0	2.8	3.1
INW IM	Infrastrutture Wireless	6,671	16.1	17.6	1.7	1.8	11.6	11.4	2.0	1.5	10.4	10.4	8.7	8.7
HTWS LN	Helios Towers PLC	2,767	26.7	17.2	24.3	11.3	8.7	7.7	26.3	12.9	152.1	96.8	0.0	0.0
IHS US	IHS Holding Ltd	2,842	10.1	7.5	N/A	N/A	5.2	4.9	13.5	5.3	N/A	N/A	N/A	N/A
Global Average		163,030	22.2	20.6	7.0	7.2	15.8	15.3	-2.7	3.4	37.5	45.3	4.2	4.4
Regional Average		199,748	20.3	18.9	6.0	6.1	13.8	13.4	-3.2	3.2	32.7	39.0	4.4	4.7

Sources: Bloomberg, Mirae Asset Sekuritas Indonesia Research

Appendix 1

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