

Data Centre Commercial & Beyond

A Global View

Development Costs and Space Market
for First-Time Investors

Authors



Jay Chen Juefeng, MRICS

Assistant Vice President,
Development Advisory

+65 81766652

jay.chen@cpghcorp.com.sg



Karthik Karkal

Head, Development Advisory

+65 91252452

karthik@cpghcorp.com.sg

Contents

2	Development Cost
12	Space Market
16	Investment
20	Beyond Commercial

DISCLAIMER

This material has been prepared by CPG Corporation and is intended solely for general information and capability demonstration purposes. It aims to illustrate our market understanding, analytical approach, and data-interpretation capabilities. The information, statistics, and insights contained herein are derived from publicly available sources and research.

While CPG Corporation has exercised reasonable care in compiling and analysing the information, we make no representation or warranty, express or implied, as to the completeness, accuracy, or reliability of the data. Any assumptions, estimates, or forward-looking statements are based on information available at the time of preparation and are subject to change without notice.

This material does not constitute investment advice, financial advice, professional advice, or a recommendation to make any investment, commercial, or business decision. It should not be relied upon as the sole basis for evaluating any transaction or opportunity, and parties are encouraged to conduct their own independent research and seek professional advice where appropriate.

This document does not create, and shall not be construed as creating, any contractual relationship, obligation, or commitment. CPG Corporation accepts no responsibility or liability for any loss or damage that may arise, directly or indirectly, from the use of or reliance on the information contained in this document, save to the extent such liability cannot be excluded under applicable law.

01. Development Cost

Global Cost Comparison

Data centre total development costs varies significantly across global markets — ranging from approximately USD 6 million per MW in cost-efficient markets such as China and India, to USD 14 million per MW in mature, high-cost hubs like Tokyo and Singapore.

As a high-level benchmark, we recommend the following indicative ranges:

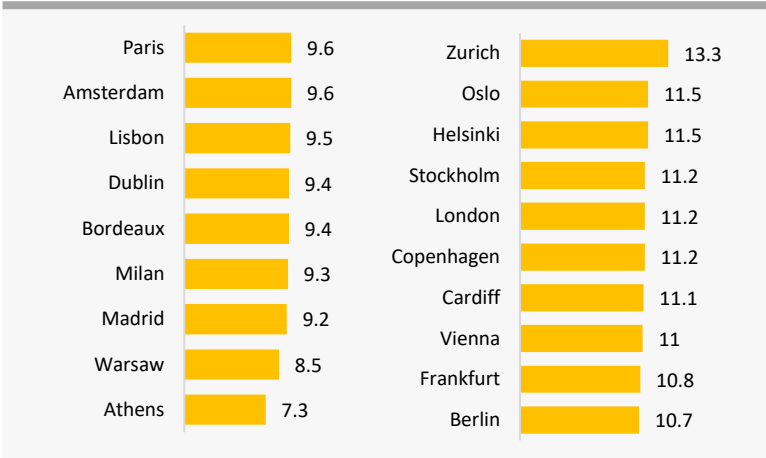
- Medium-cost benchmark: ~USD 10 million/MW
- Budgetary benchmark: ~USD 8 million/MW
- Premium benchmark: ~USD 12 million/MW

Across Europe, lower-cost markets include Greece and Poland, while Switzerland and Norway represent the upper end of the cost spectrum. In North America, competitive markets like Dallas and Toronto sit at the lower end, whereas New Jersey and Silicon Valley represent premium markets with higher development costs.

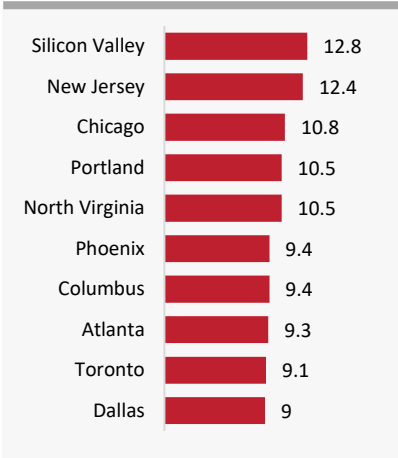
Asia demonstrates the widest cost spread globally, with both the most cost-competitive markets and the most expensive tier-one digital hubs.

On the next page, we will explore in-depth into the APAC region, including Asia and ANZ. The full list of cost benchmarks is provided in the Annex.

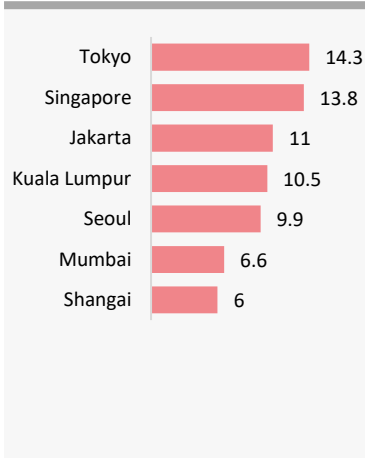
Total Development Cost (TDC) - European Cities
(Million USD per MW)



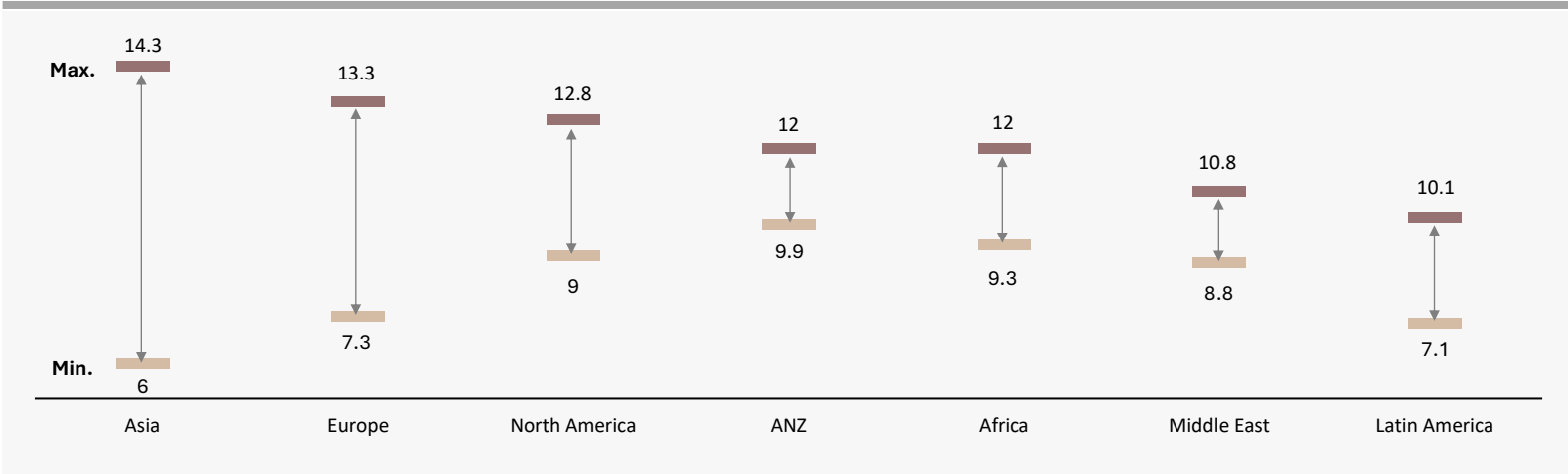
TDC - North American Cities
(Million USD per MW)



TDC - Asia Cities
(Million USD per MW)



Total Development Cost - Global Overview
(Million USD per MW)



Source: T&T DCDI 2024 Report, exclude liquid cooling and land cost

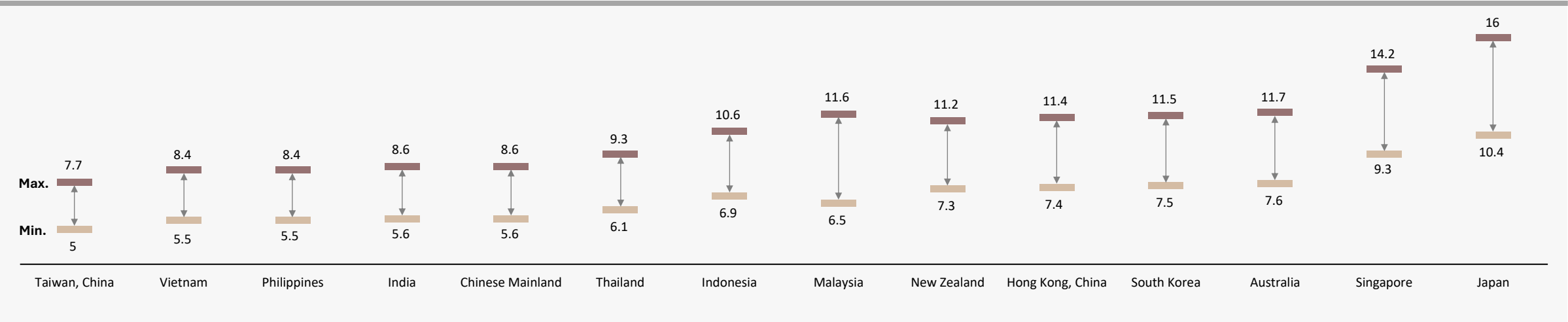
01. Development Cost

APAC Cost Comparison

Data from Cushman & Wakefield (C&W) differs slightly from Turner & Townsend (T&T) due to variations in data points and collection methodologies. However, after cross-referencing and validating both sources, we derive the following consistent insights:

- **Japan and Singapore remain closely aligned and rank among the most expensive data centre markets globally.**
- Within ASEAN, Vietnam and the Philippines are the most cost-competitive markets, while **Indonesia and Malaysia represent the higher-cost tier in the region** (excluding Singapore).
- **Taiwan emerges as one of the most cost-efficient markets in APAC**, offering the lowest benchmark costs among major markets.

Total Development Cost - Global Overview
(Million USD per MW)



Before analysing the cost breakdown to identify the drivers behind the differences, we first assessed the implications for global investors when considering location selection based purely on development cost:

- **Malaysia remains as an attractive alternative to Singapore** while offering 15-20% cost savings.
- **Tokyo’s elevated development costs are likely to continue driving activity towards second-tier Japanese cities.**
- **Jakarta’s high cost base appears less sustainable** given current market purchasing power and demand fundamentals, suggesting cost pressure risks if economic growth does not pace accordingly.
- Taiwan’s competitive cost profile strengthens its position as a strategic location for subsea cable landing and connectivity infrastructure, potentially enabling routes linking Japan/South Korea to ASEAN while bypassing China.

Source: C&W DC Cost Study APAC 2025

01. Development Cost

Cost Escalation

The 2024 DCDI Survey shows that approximately 60% of operators experienced 0% – 5% annual cost inflation, while 20% reported cost increases exceeding 15% — highlighting persistent pricing pressure in data centre development.

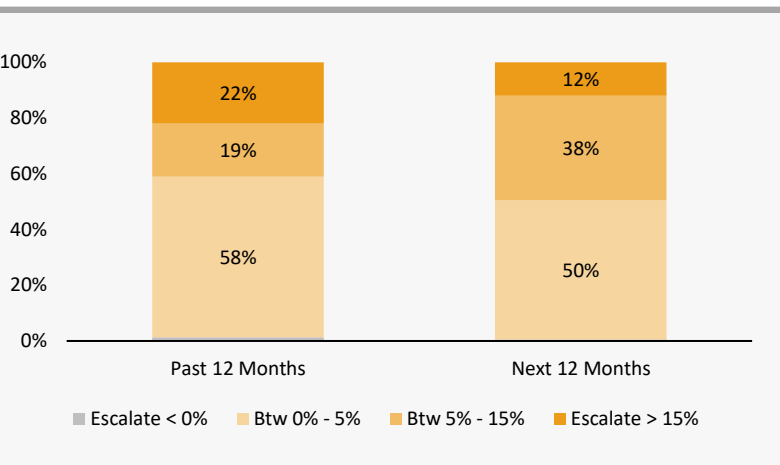
Across APAC, our cost index data indicates inflation ranging from 0.8% in China to 5.8% in India. Notably, Japan (2.7%) and Singapore (1.8%), despite being two of the highest-cost markets globally, also experienced continued cost escalation.

The Philippines (3.0%) and Vietnam (3.3%) showed moderate inflation, whereas even Taiwan recorded ~2%, reflecting broad-based cost pressure across the region.

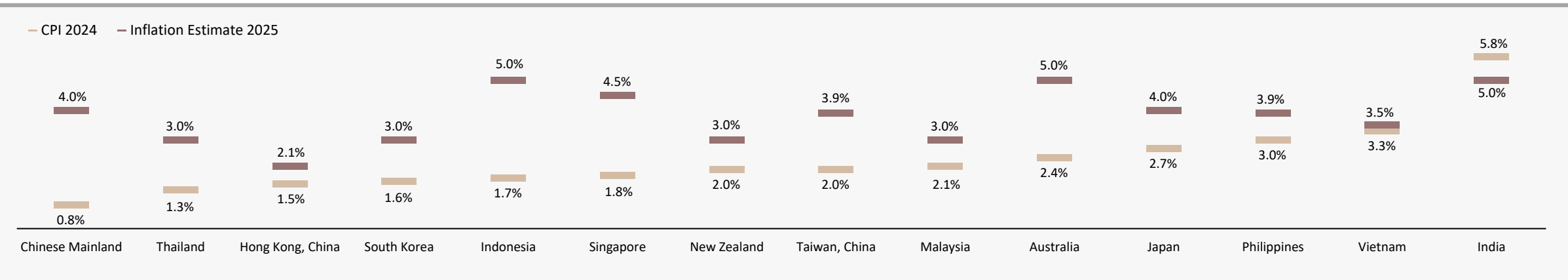
Looking ahead to 2025, we expect higher inflation levels compared with 2024, with estimates ranging from ~2.1% in Hong Kong to ~5% in Indonesia, Australia, and India — particularly in markets facing supply chain constraints and strong hyperscale demand.

In the U.S., construction-related cost pressures remains pronounced, with building costs up ~36% between 2019–2024, common labour up ~12%, and skilled labour up ~8%. While these labour dynamics do not directly affect operating expenditure, **workforce shortages in data centre construction are a key contributor to development cost escalation.**

Development Cost Escalation Consensus (DCDI Survey 2024)



Development Cost Inflation – Key APAC Cities (C&W & CPG)



01. Development Cost

Cost Breakdown

By comparing the cost breakdowns between APAC and the Americas, two of the most capital-active regions, we see a lower bricks-and-mortar cost share in APAC due to more competitive labour costs, **benefiting powered-shell models such as those used by Goodman in Australia.**

APAC

Pre – Contract	7%
Shell	13%
MEP + Security	53%
<hr/>	
Total (Cost to Powered Shell)	73%
Interior & IT Equipment	27%
<hr/>	
Total (Cost to Colocation)	100%

Construction Cost Breakdown, APAC Region (Exclude Land)

Construction Cost Item	Percentage Of Cost	Cumulative Percentage	
Professional Cost	7%	7%	
Base Building	13%	20%	
Electrical System	28%	48%	
Mechanical System	13%	61%	
Cooling System	9%	71%	
Fire Suppression & Lift Safety System	1%	72%	
Security System	1%	73%	Powered Shell
<hr/>			
Interior Fit-out	14%	87%	
Furniture And Fixture	1%	88%	
IT Rack, Equipment And Cabling (Excl. Active IT Equipment)	12%	100%	Colocation

North America

Pre – Contract	10%
Shell	21%
MEP + Security	57%
<hr/>	
Total (Cost to Powered Shell)	88%
Interior & IT Equipment	12%
<hr/>	
Total (Cost to Colocation)	100%

Construction Cost Breakdown, North America Region (Exclude Land)

Construction Cost Item	Percentage of Cost	Cumulative Percentage	
Site Preparation & Ready	10%	10%	
DC Shell	21%	31%	
Back of House	4%	35%	
Critical Capacity	53%	88%	Powered Shell
<hr/>			
White Space Buildout	10%	98%	
Office Buildout	2%	100%	Colocation

Source: C&W APAC, CPG

01. Development Cost

Land Cost - APAC

Location selection is a key consideration for investors at the early sourcing stage. In assessing markets and sites, investors typically evaluate:

- Access to reliable, scalable power
- Connectivity to subsea cable landing stations / major ISP networks
- Proximity to urban clusters and end-users

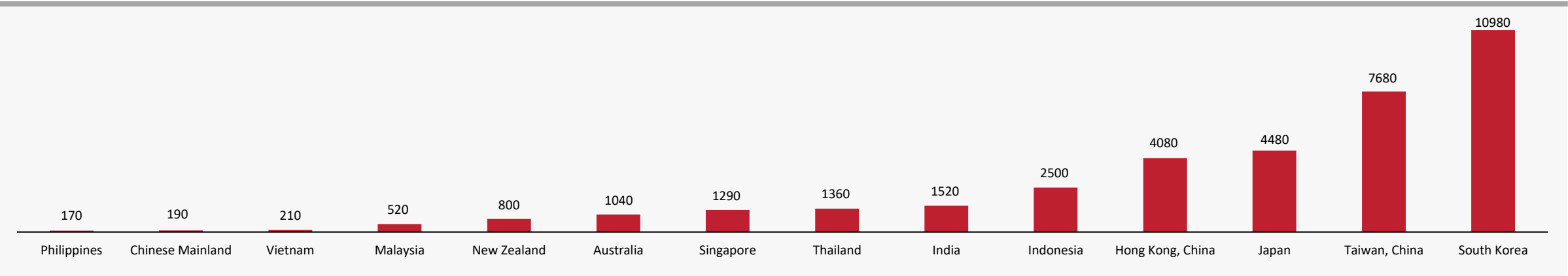
A major financial factor is land cost, which varies widely across markets. While land rates are not tenure-adjusted and may not be fully comparable, meaningful country-level trends are evident:

- **Vietnam, China, and the Philippines remain the most cost-competitive markets after land cost.**
- India’s land pricing is significantly higher than China, and combined with higher inflation, **may lag China in overall cost competitiveness.**
- Taiwan’s and South Korea’s elevated land values suggest a more opportunistic, high-barrier market.
- **Indonesia’s industrial land prices have risen rapidly, raising bubble concerns;** we expect pricing moderation or slower pipelines as sentiment adjusts.

Land Cost Range, APAC Region (USD per M2 Land Area)

Country	Minimum	Maximum
Vietnam	80	500
Philippines	110	200
Malaysia	200	1,600
Chinese Mainland	40	700
New Zealand	570	1,000
Singapore	550	2,900
Thailand	80	3,000
Australia	180	2,700
Indonesia	140	13,900
India	120	3,900
Hong Kong, China	1,480	6,700
Taiwan, China	1,500	18,600
Japan	750	15,000
South Korea	450	148,600

Land Cost Comparison, APAC Region (Average Rate, USD per M2 Land Area)



02. Space Market

Inventory & Absorption

North America hosts two of the largest data centre markets globally — Northern Virginia and Atlanta, with 3GW and 1.3GW of capacity respectively in 2025. Most other major markets in APAC and the Americas fall within the 500MW – 1GW range.

Recent supply additions remain heavily concentrated in Northern Virginia (900MW) and Atlanta (1.2GW). Outside North America, new supply is materially lower, totalling ~1.4GW across 14 cities in 2024 and declining further to ~550MW in 2025.

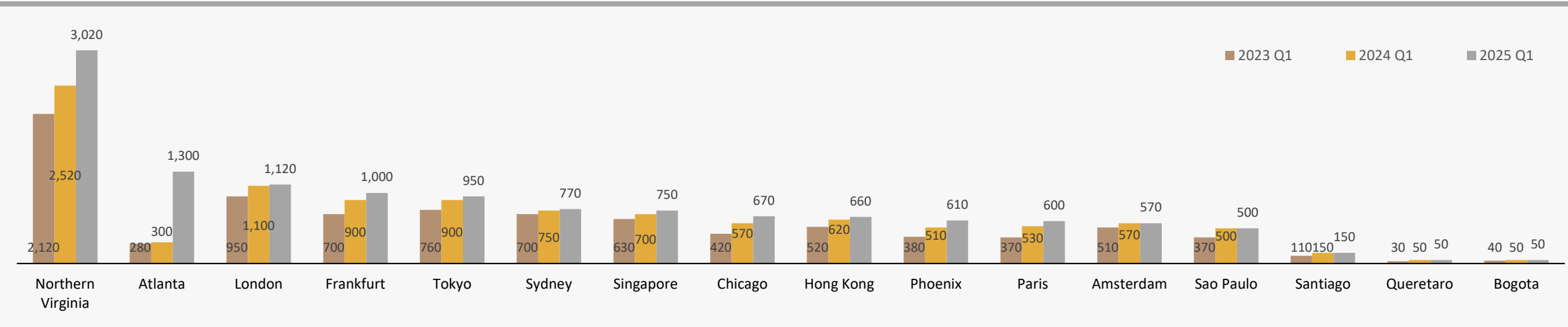
Net take-up largely tracks new supply, **indicating data centre development is rarely speculative and typically supported by pre-committed demand**, with the exception of Hong Kong’s 100MW addition in 2024, which did not see comparable absorption.

We measure excess take-up over net additions as a proxy for colocation demand flowing into existing stock. London is the only market showing positive colocation absorption in both years; **in most other locations, such inflows are sporadic or absent.**

Net Addition vs Net Absorption, Key Cities, 2024 & 2025

City	2024		2025	
	Net Addition	Net Take up	Net addition	Net Take up
Northern Virginia	400	416	500	499
Atlanta	20	13	1,000	981
London	150	177	20	51
Frankfurt	200	181	100	102
Tokyo	140	108	50	43
Sydney	50	48	20	44
Singapore	70	67	50	42
Chicago	150	160	100	94
Hong Kong	100	0	40	49
Phoenix	130	132	100	106
Paris	160	120	70	109
Amsterdam	60	94	0	9
Sao Paulo	130	120	0	15
Santiago	40	42	0	-4
Queretaro	20	20	0	0
Bogota	10	7	0	-1

Data Centre Inventory, Key Cities, 2023 – 2025 (MW)



02. Space Market

Rental Price

We reviewed asking rents across major cities in 2025 for medium wholesale colocation (250–500 kW), noting that the data primarily reflects seller sentiment.

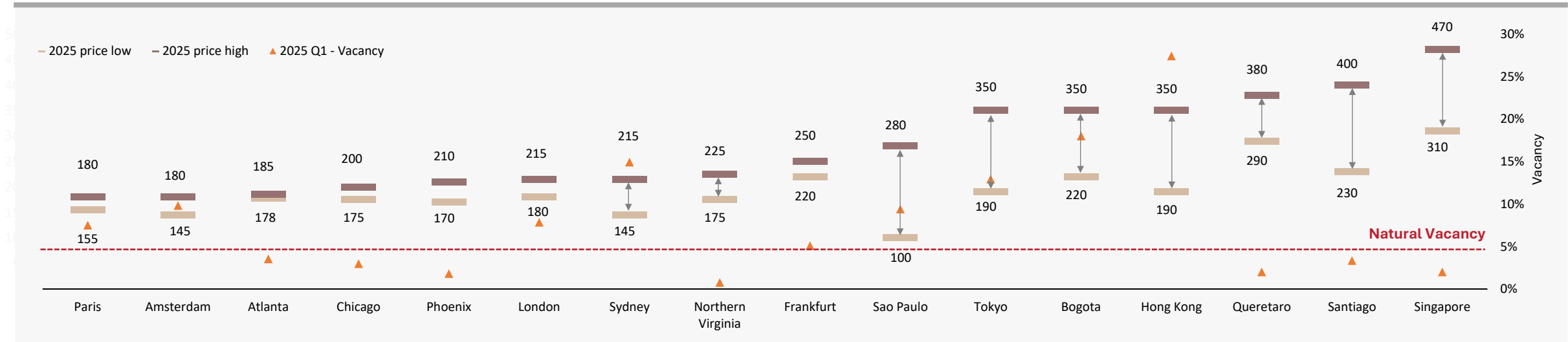
- In mature markets such as Paris, London, Northern Virginia, and Atlanta, **rents typically fall in the USD 150–250/kW/month range.**
- In emerging markets across Latin America and APAC, rents can rise meaningfully, reaching **~USD 350/kW in Hong Kong and above USD 450/kW in Singapore.**

That said, high rent levels do not necessarily indicate a pricing bubble but rather signal that **new development will explore alternative locations, as seen in markets like Tokyo and Singapore.**

By comparing rent levels and vacancy rates across key cities, we note the following:

- **High rent + low vacancy** markets represent the most attractive space conditions today, including Queretaro, Santiago, and Singapore.
- **Moderate rent + low vacancy** markets signal potential for rental uplift, such as Atlanta, Chicago, Phoenix, and Northern Virginia.
- **High rent + high vacancy** markets are likely to face pricing pressure and adjustment, as seen in Tokyo, Bogota, and Hong Kong.

Data Centre Rental Price & Vacancy, Key Cities, 2025 Q1 (USD per KW per Month)*



* for 250 - 500kw capacity, a small to medium colocation asking price, assumed gross rent (wholesale colocation)

Source: CBRE DC REMA 2025 & CPG

03. Investment

Investment Return

We compiled the Net Property Income (NPI) Yield against Total Development Cost across selected cities with available data for comparison, with data assumptions below:

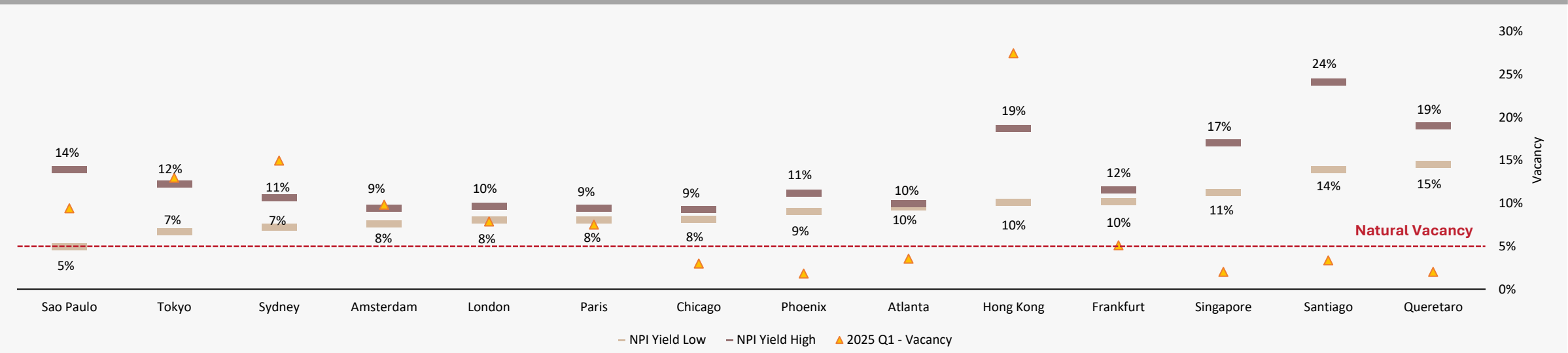
- Construction costs as per T&T 2024 data.
- 20% addition cost has been added onto construction cost for land cost allocation
- Rental revenue is based on Global Commercial Real Estate Services (CBRE) asking rent data 2025 for medium wholesale colocation
- 50% NPI margin is assumed across all cities.

The yield data reflects the asking yield and is provided for comparison purposes only. A more detailed study can be conducted for accurate results. Cities with incomplete data are not included in the comparison.

Based on data extracted, we are able to make the following observation:

- **Singapore, Santiago and Queretaro are Optimistic capital markets** for investors with entry opportunity for asset recycling, supported with healthy vacancy rates below natural vacancy that push for further rent hike.
- **Chicago, Phoenix and Atlanta are favourable capital markets** for investors as well. Although these markets signals strong vacancy data, asking yields are at the low end suggesting matured capital cycle, leaving little room for asset recycling.
- **Sao Paulo, Amsterdam, London and Paris remains as conservative capital markets** for investors due to moderate vacancy and yield data that limits recycling opportunity
- **Hong Kong, Tokyo and Sydney are pessimistic markets** with elevated vacancy rate that might have short term impact on capital value.

Net Property Income Yield & Vacancy, Selected Cities (2025 Data)



Source: T&T, CBRE, CPG

03. Investment

Investment Rationale

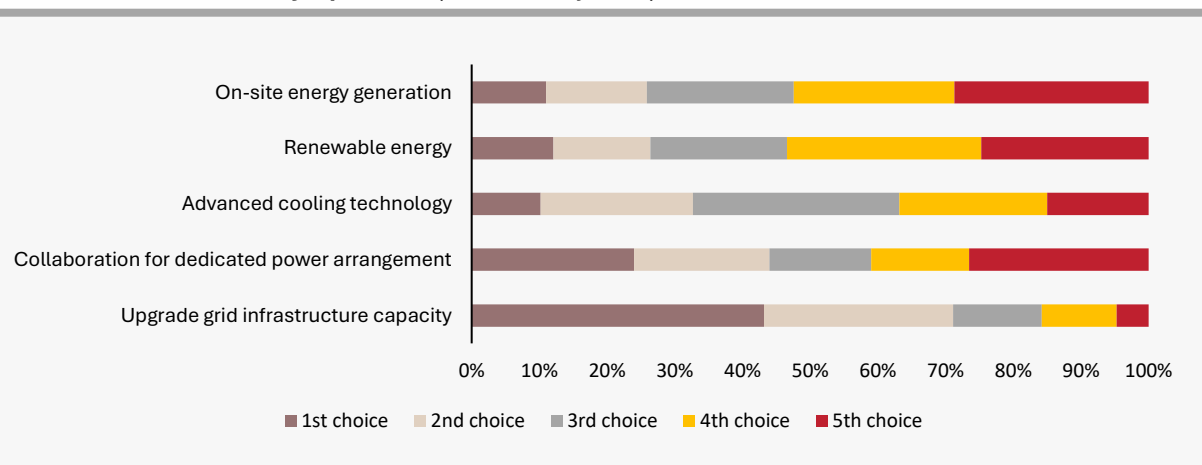
The DCDI survey conducted in 2024 indicates that **the primary driver of data centre investment is the rising capacity demand** from technology companies, largely driven by LLM training, followed by digital adoption needs in colocation markets such as AI deployment, cybersecurity, IoT, and related upgrades.

When asked about preferred solutions to address energy challenges, **operators showed a clear preference for upgrading grid capacity** first, followed by dedicated power arrangements.

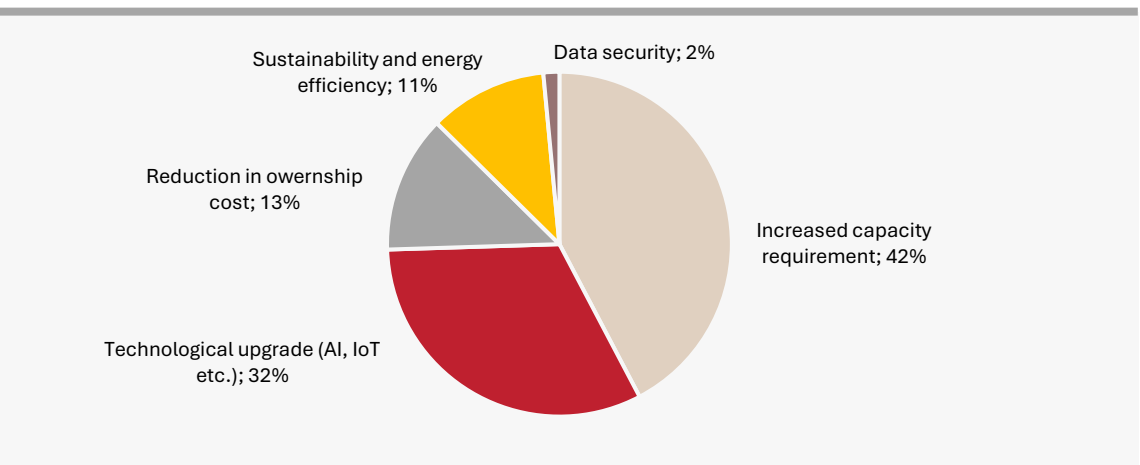
The survey also highlights that the **top concern for data centre investors and operators is energy availability** and cost, followed by redundancy requirements to mitigate disruption risks and address security considerations.

Taken together, future market growth potential is expected to be shaped by the ability to overcome energy supply bottlenecks.

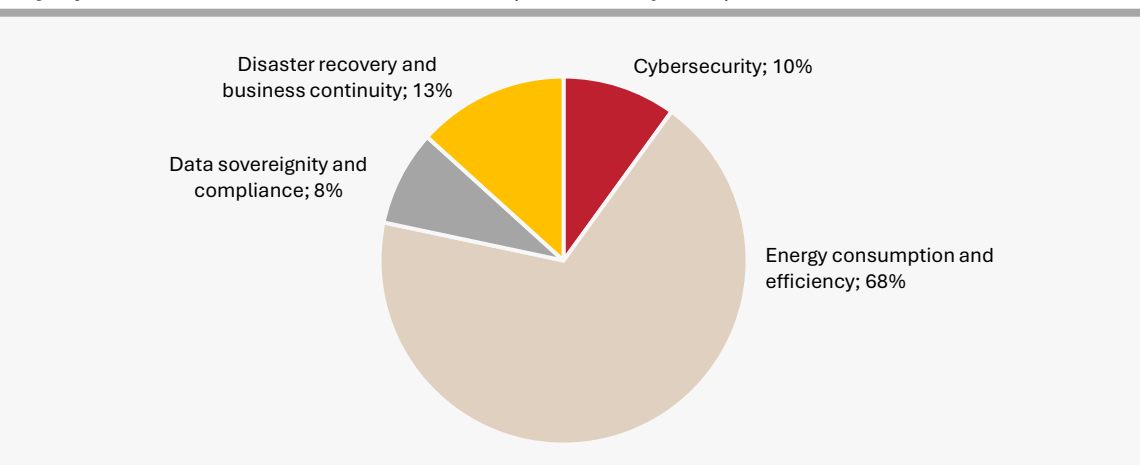
Solution Preferences by Operators (DCDI Survey 2024)



Key Investment Rationale for DC Mandates (DCDI Survey 2024)



Key Operation Concerns for DC Mandates (DCDI Survey 2024)



04. Beyond Commercial

Other Considerations

Developing data centres is a multi-faceted decision; commercial viability is only one part of the equation. The broader considerations include:

Environmental Concerns

- How will data centre power demand impact the grid and electricity costs?
- How can operators meet rising energy-efficiency and ESG requirements?
- What technologies can improve heat-recovery for sustainability?
- How can data centres reduce water use in water-cooling systems?

Economic Impact

- Do data centres generate enough jobs and value to justify land use vs. industrial alternatives?
- How should tax residency and taxation rights be defined for data centres and digital activity?
- How should economic output (e.g., value per MW) be measured and linked to GDP and societal benefits?

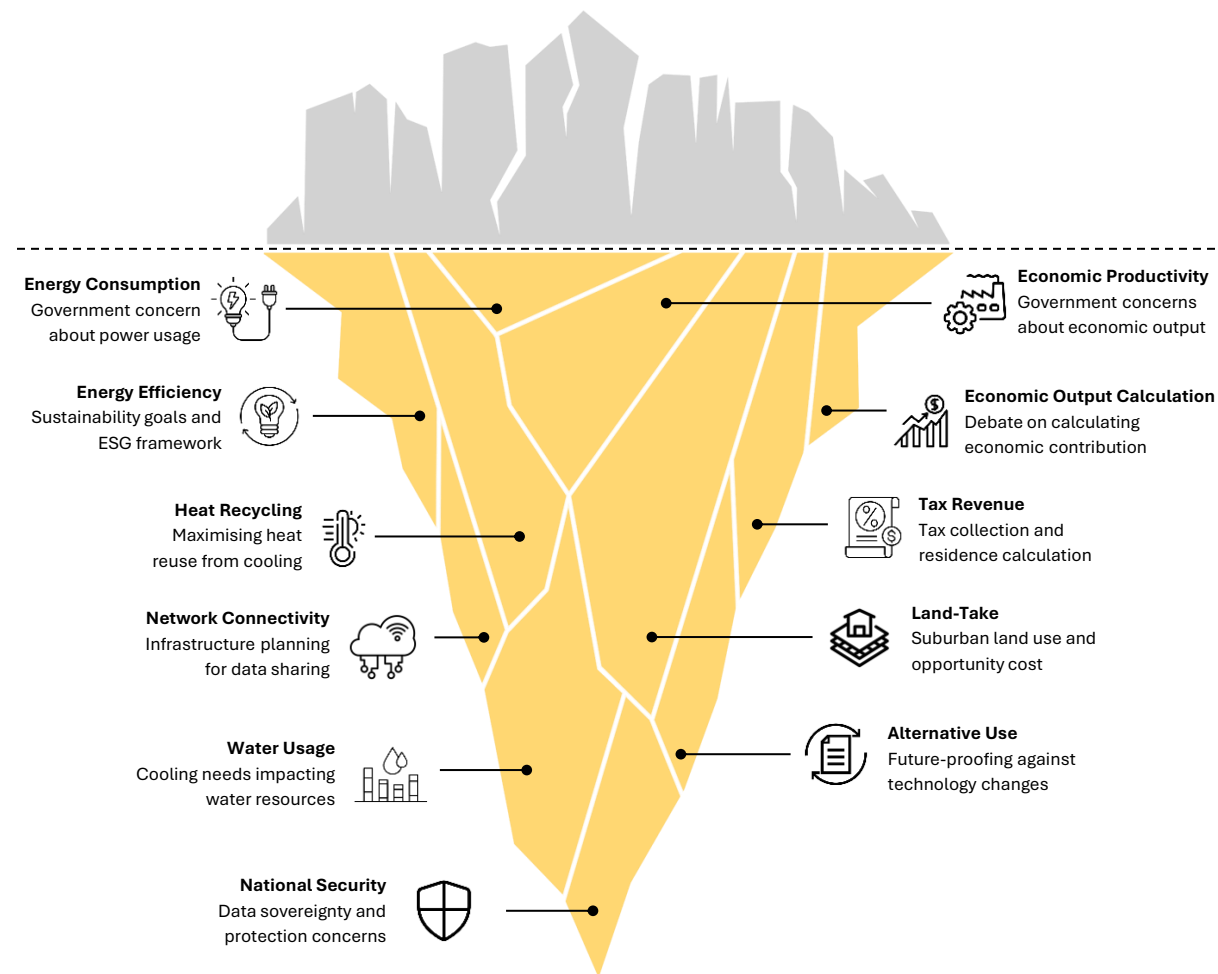
Infrastructure Planning

- How should network and cross-border infrastructure (e.g., subsea cables) align with hyperscale data strategies?
- What power-generation and grid upgrades are required for sustainable growth?
- How should governments balance suburban land for data centres vs. higher-value uses?
- If technology reduces large-scale data centre needs, how can stakeholders avoid stranded assets?

National Security

- How should data centre policy address national security needs like data sovereignty and infrastructure control?
- How can countries allow foreign capital while protecting critical digital assets?

Data centre development is more than just commercial considerations



04. Annex I

List of cities with construction cost (T&T, 2024)

City	Region	Country	Dev Cost (Million USD/MW)
Tokyo	Asia	Japan	14.30
Singapore	Asia	Singapore	13.80
Zurich	Europe	Switzerland	13.30
Silicon Valley	North America	United States	12.80
New Jersey	North America	United States	12.40
Auckland	ANZ	New Zealand	12.00
Lagos	Africa	Nigeria	12.00
Helsinki	Europe	Finland	11.50
Oslo	Europe	Norway	11.50
Copenhagen	Europe	Denmark	11.20
Stockholm	Europe	Sweden	11.20
London	Europe	United Kingdom	11.20
Cardiff	Europe	United Kingdom	11.10
Jakarta	Asia	Indonesia	11.00
Vienna	Europe	Austria	11.00
Chicago	North America	United States	10.80
Frankfurt	Europe	Germany	10.80
KSA	Middle East	Saudi Arabia	10.80
Berlin	Europe	Germany	10.70
Portland	North America	United States	10.50
Kuala Lumpur	Asia	Malaysia	10.50
North Virginia	North America	United States	10.50
Sao Paulo	Latin America	Brazil	10.10
Sydney	ANZ	Australia	10.10
Queretaro	Latin America	Mexico	10.00
Seoul	Asia	South Korea	9.90
Melbourne	ANZ	Australia	9.90
Cape Town	Africa	South Africa	9.60

City	Region	Country	Dev Cost (Million USD/MW)
Paris	Europe	France	9.60
Amsterdam	Europe	Netherlands	9.60
Lisbon	Europe	Portugal	9.50
Montevideo	Latin America	Uruguay	9.50
Phoenix	North America	United States	9.40
Columbus	North America	United States	9.40
Johannesburg	Africa	South Africa	9.40
Bordeaux	Europe	France	9.40
Dublin	Europe	Ireland	9.40
Atlanta	North America	United States	9.30
Nairobi	Africa	Kenya	9.30
Milan	Europe	Italy	9.30
Madrid	Europe	Spain	9.20
Toronto	North America	Canada	9.10
Dallas	North America	United States	9.00
UAE	Middle East	United Arab Emirates	8.80
Warsaw	Europe	Poland	8.50
Santiago	Latin America	Chile	8.30
Athens	Europe	Greece	7.30
Bogota	Latin America	Colombia	7.10
Mumbai	Asia	India	6.60
Shanghai	Asia	China	6.00

04. Annex II

List of cities with land cost (C&W, 2025)

Country	City	Cluster	Low (\$/m2)	Mid (\$/m2)	High (\$/m2)
South Korea	Seoul	Gangnam	28448	59266	148641
Taiwan, China	Taipei	Neihu District	9746	13923	18635
Japan	Greater Tokyo	Central Tokyo	7519	11278	15038
Indonesia	Greater Jakarta	Central Jakarta	4871	9393	13916
South Korea	Seoul	South West Seoul	3594	8750	12565
Japan	Osaka	Central Osaka	4511	7268	10025
Taiwan, China	Taipei	Sanchong District	6426	6962	7390
Japan	Greater Tokyo	Kawasaki	5013	6266	7519
Taiwan, China	Taipei	Banqiao District	4927	6105	7390
Hong Kong, China	Hong Kong	Hong Kong Island	5173	5912	6651
		Incheon / West Gyeonggi	1826	5256	10381
South Korea	Seoul	South Gyeonggi	453	4936	11768
Hong Kong, China	Hong Kong	Sha Tin	3991	4434	4877
Hong Kong, China	Hong Kong	Tsuen Wan	3695	4138	4582
South Korea	Seoul	Seongnam	1136	4135	11595
Hong Kong, China	Hong Kong	Fanling	3547	3991	4434
Japan	Greater Tokyo	Sagamihara	3008	3759	4511
Taiwan, China	Taipei	Taoyuan	1499	3749	5355
India	Hyderabad	West Hyderabad	2048	3151	3781
India	Mumbai	Powai	2520	3151	3939
Japan	Greater Tokyo	Saitama	2506	3133	3759
South Korea	Busan	Dong-gu	853	2607	9071
Australia	Sydney	Sydney CBD	2163	2433	2650
India	Delhi (NCR)	Gurugram	1518	2363	2838
Singapore	Singapore	Paya Lebar	1447	2170	2894
India	Mumbai	Thane	1178	2035	3320
Hong Kong, China	Hong Kong	Tseung Kwan O	1478	1921	2217
South Korea	Busan	Rest of Busan	521	1892	10194

Country	City	Cluster	Low (\$/m2)	Mid (\$/m2)	High (\$/m2)
Thailand	Bangkok	East Bangkok / Samut Prakan	747	1868	2990
Thailand	Bangkok	Bangkok	955	1832	2772
Japan	Osaka	North Osaka	1253	1629	2005
Australia	Sydney	North Shore	1460	1622	2055
India	Bangalore (Bengaluru)	Peripheral East	525	1607	2892
India	Bangalore (Bengaluru)	Peripheral South	945	1553	2999
Thailand	Bangkok	Nonthaburi	747	1495	2616
Australia	Sydney	Western Sydney	1298	1406	1568
Japan	Greater Tokyo	Inzai	752	1253	1754
Japan	Osaka	Keihanna Science City	1003	1253	1504
Singapore	Singapore	Sunview - Jurong	771	1157	1542
Australia	Sydney	Greater Western Sydney	919	1082	1352
Malaysia	Johor Bahru	Johor Bahru (City Fringe and City Centre)	579	1037	1583
Singapore	Singapore	Bedok - Tampines	672	1007	1343
South Korea	Busan	Gurang Dong	465	1003	1285
New Zealand	Auckland	Central	905	939	1006
New Zealand	Auckland	North	771	872	1039
India	Chennai	Ambattur	503	857	1339
Singapore	Singapore	Loyang	548	823	1097
Australia	Melbourne	Eastern Melbourne	703	779	963
New Zealand	Auckland	Takanini	731	771	872
India	Chennai	Siruseri	343	750	1339

04. Annex II

List of cities with land cost (C&W, 2025)

Country	City	Cluster	Low (\$/m2)	Mid (\$/m2)	High (\$/m2)
Australia	Melbourne	Northern Melbourne	465	725	919
India	Delhi (NCR)	Noida	514	696	1928
New Zealand	Auckland	Westgate	570	637	704
Australia	Melbourne	Western Melbourne	357	606	719
Chinese Mainland	Greater Beijing	Changping	397	466	536
Malaysia	Kuala Lumpur	Cyberjaya and Greater Selangor	382	453	519
Australia	Perth	Northbridge - EW	216	379	541
Chinese Mainland	Greater Beijing	Fangshan - Daxing	305	359	413
Malaysia	Johor Bahru	Pulai / Nusajaya	306	349	393
Chinese Mainland	Greater Beijing	Shunyi	261	345	437
Vietnam	Ho Chi Minh City	HCMC CBD - Tan Thuan EPZ	213	344	515
Australia	Perth	Malaga - Wangara	178	292	406
Vietnam	Ho Chi Minh City	Rest of HCMC	240	281	336
Chinese Mainland	Greater Shanghai	Pujiang - Zhoupu	235	272	644
India	Hyderabad	South	118	268	482
Malaysia	Johor Bahru	Kulai & Sedenak	202	257	322
India	Mumbai	Panvel	129	246	375
Chinese Mainland	Greater Shanghai	South Shanghai	187	234	279
Chinese Mainland	Greater Beijing	Beijing E-Town	191	231	354
Thailand	Bangkok	EEC	84	229	252
Chinese Mainland	Greater Shanghai	Shanghai Baoshan & Jiading	156	213	341
Indonesia	Batam	Central Batam	174	209	243
Indonesia	Greater Jakarta	Bekasi	174	205	237
Philippines	Manila	Laguna	165	204	243
Philippines	Manila	Cavite	163	196	228
Philippines	Manila	Batangas	149	176	204

Country	City	Cluster	Low (\$/m2)	Mid (\$/m2)	High (\$/m2)
Indonesia	Greater Jakarta	Karawang	139	174	209
Philippines	Manila	Pampanga	146	172	198
Philippines	Manila	Cebu	110	141	171
Philippines	Manila	Davao	110	130	149
Chinese Mainland	Greater Beijing	Tianjin	95	126	204
Chinese Mainland	Greater Shanghai	Jiaxing-Pinghu	84	115	166
Chinese Mainland	Greater Beijing	Langfang	63	112	186
Vietnam	Hanoi	Hoa Lac Hi-Tech Park	87	109	131
Chinese Mainland	Greater Shanghai	Changshu	78	102	311
Chinese Mainland	Greater Shanghai	Nantong	56	102	655
Vietnam	Ho Chi Minh City	Saigon Hi-tech Park	76	102	125
Chinese Mainland	Greater Beijing	Zhangjiakou	42	95	146
Chinese Mainland	Greater Beijing	Huailai	37	71	105
Chinese Mainland	Greater Beijing	Zhangbei	36	48	56



Headquartered in Singapore, CPG Corporation (CPG) is a multidisciplinary consultancy offering integrated solutions for the built environment. Specialising in infrastructure design, development, and management, CPG has a strong track record in creating iconic landmarks. Our solutions, driven by sustainability, resilience, and technology, aim to create more resilient cities globally. With our international offices, we consistently adapt to changing market demands while exporting the Singaporean expertise.

