CUSHMAN & WAKEFIELD

VANTAGE POINT

2025

Global Data Center Market Comparison

A PUBLICATION OF CUSHMAN & WAKEFIELD'S DATA CENTER ADVISORY GROUP

Contents

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Market Fundamentals

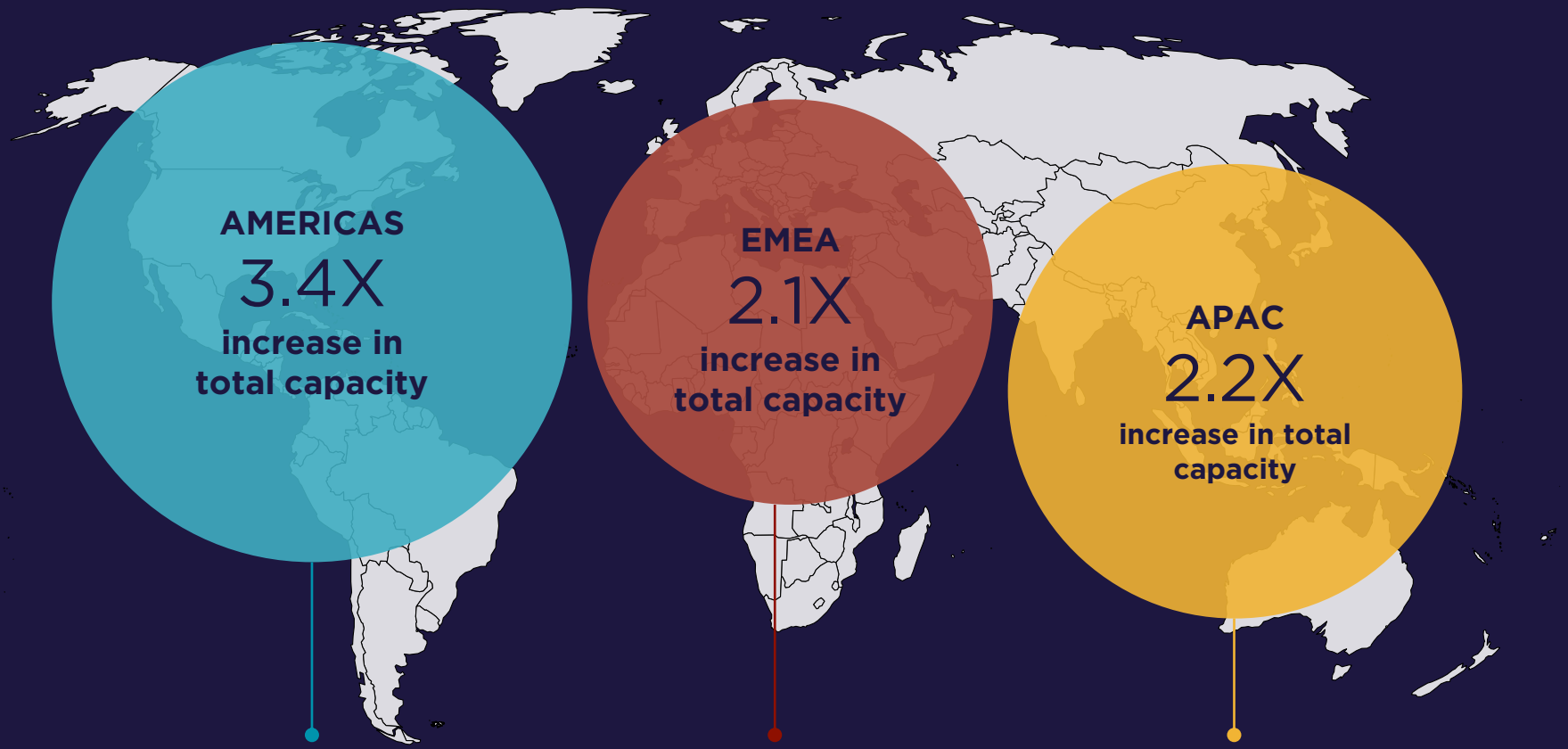
Terrestrial Variables

Power Variables

Political and Regulatory Variables

Regional Growth

Total capacity is expected to continue its growth across regions, with each expected to double or more with current pipelines underway.



KEY ASSUMPTIONS:

- Development pipeline excludes early stage projects
- Vacancy is only calculated on Operational Colocation Capacity
- The size of the bubble directly correlates to the size of the regional markets

- **Operational Capacity: 20,562MW**
  - Colocation: 12,269MW
  - Hyperscale: 8,293MW
- **Vacancy: 4.9%**
- **Under Construction: 6,423MW**
  - Colocation: 4,597MW
  - Hyperscale: 1,827MW
- **Planned: 46,077MW**
  - Colocation: 42,118MW
  - Hyperscale: 3,959MW

- **Operational Capacity: 9,582MW**
  - Colocation: 6,753MW
  - Hyperscale: 2,464MW
- **Vacancy: 8.0%**
- **Under Construction: 2,935MW**
  - Colocation: 2,303MW
  - Hyperscale: 612MW
- **Planned: 8,839MW**
  - Colocation: 7,580MW
  - Hyperscale: 1,191MW

- **Operational Capacity: 12,206MW**
  - Colocation: 10,424MW
  - Hyperscale: 1,782MW
- **Vacancy: 12.4%**
- **Under Construction: 3,087MW**
  - Colocation: 2,668MW
  - Hyperscale: 419MW
- **Planned: 11,252MW**
  - Colocation: 9,784MW
  - Hyperscale: 1,468MW

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Power Still Paramount, Pipeline Becomes Key

INTRODUCTION

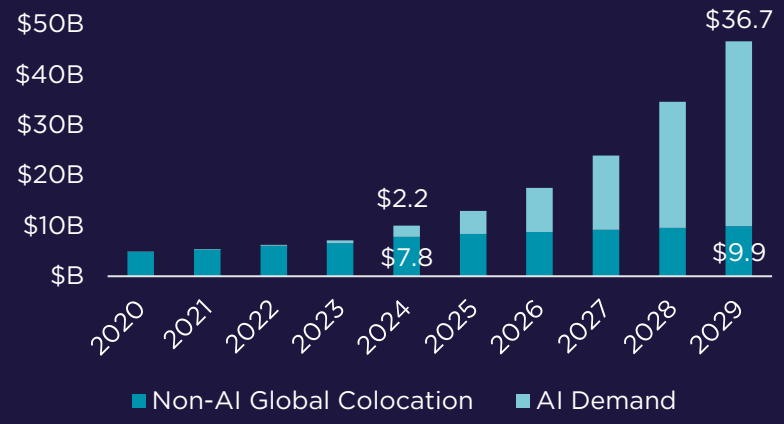
If the global data center industry in 2024 could be summed up in two words, they would be "accelerated growth." The industry experienced rapid expansion throughout the year, a trend expected to continue into 2025 and 2026. Artificial intelligence (AI) and machine learning (ML), which gained prominence in 2022, are key drivers of this demand now and into the future. While AI and ML are not the sole factors fueling data center growth, nor do they diminish the steady demand from foundational demand drivers like cloud computing, and data generation and storage, they act as powerful catalysts. Their widespread adoption across industries significantly contributes to the "accelerated" nature of this growth, driving the aggressive demand for its related services and infrastructure. AI has essentially become a rock to the data center windshield—its initial impact is undeniable, with effects rippling across all facets of the industry. The rising demand, emergence of new types of data center workloads, rapid absorption of existing and under-construction inventory, increased rack densities, advancements in cooling systems, innovations, and data center redesigns can all be directly attributed to AI.

Power availability remains the chief concern in the data center industry, and the best place to build a data center is wherever the required power can be secured. This holds true not only in the Americas but also globally. A key industry trend is **growing interest in emerging markets, as power delivery timelines in established markets lengthen, redirecting some traffic toward areas where power is more plentiful, land availability is a lesser concern, and economics are more favorable**. However, this is not to say that mature markets like Virginia, Tokyo or London lack demand—these established markets remain highly desirable. But power constraints are a significant roadblock for new development, with substantial proportions of the construction pipeline in many established markets already committed before completion.

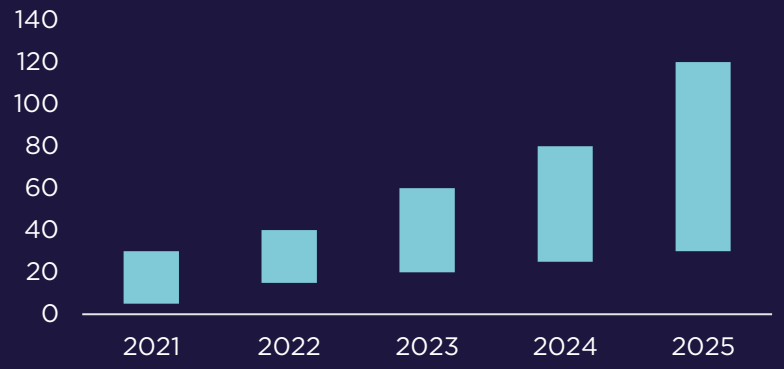
While power availability and capacity in the data center construction pipeline are key factors in identifying the top data center markets worldwide, the 2025 edition of Cushman & Wakefield's Global Data Center Market Comparison analyzes 20 critical variables tailored to hyperscale and colocation operators, occupiers and developers across 97 global data center markets.

Cloud & AI driving demand for power, increasing server densities, cooling requirements

Forecasted Annual Cloud & AI Revenues 2020 - 2029



Average Server Rack Density Ranges (kw / rack)



Source: Cushman & Wakefield Research, Structure Research

Included Markets

* New market in 2025 report

AMERICAS

- Atlanta
- Austin/San Antonio*
- Bogota
- Boston
- Carolinas
- Central Washington
- Chicago
- Columbus
- Dallas
- Denver
- Indianapolis
- Iowa
- Kansas City
- Las Vegas
- Los Angeles
- Minneapolis
- Montreal
- Nashville
- NY-Northern NJ
- Oregon
- Pennsylvania*
- Phoenix
- Querétaro
- Reno
- Salt Lake City
- SF Bay Area
- Santiago
- Sao Paulo
- Seattle
- Toronto
- Vancouver
- Virginia

APAC

- Auckland
- Bangkok
- Batam
- Beijing
- Bengaluru
- Brisbane
- Busan
- Canberra
- Chennai
- Delhi NCR
- Guangzhou
- Hanoi
- Ho Chi Minh City
- Hong Kong SAR
- Hyderabad
- Jakarta
- Johor
- Kuala Lumpur
- Manila
- Melbourne
- Mumbai
- Osaka
- Perth
- Pune
- Seoul
- Shanghai
- Singapore
- Sydney
- Taipei
- Tokyo

EMEA

- Abu Dhabi
- Amsterdam
- Athens
- Barcelona
- Berlin
- Brussels
- Copenhagen
- Dammam
- Doha
- Dubai
- Dublin
- Frankfurt
- Helsinki*
- Istanbul
- Jeddah
- Johannesburg
- Lagos
- Lisbon
- London
- Madrid
- Marseille
- Milan
- Munich
- Nairobi
- Oslo
- Paris
- Prague
- Reykjavik
- Riyadh
- Stockholm
- Tel Aviv*
- Vienna
- Warsaw
- Zaragoza
- Zurich

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Introduction to the Rankings

As the data center industry evolved throughout 2024, so too did Cushman & Wakefield's market ranking methodology. The 2025 Global Data Center Market Comparison ranking system has been refined to reflect the variables most relevant to the industry today. While all variables from last year's report remain, the following updates have been made:

- The development pipeline is now segmented into "under construction" and "planned."
    - A prelease rate has been calculated for each development pipeline segment and included for all markets.
- A general operator presence metric has been added, reflecting the number of different operators in a market.
- Variables have been grouped into four categories to better illustrate their inter relationships.

As the industry continues to evolve—fueled by increased AI adoption, growing demand for cloud computing and the exponential growth of data generation and storage—the 20 variables featured in this sixth edition shed light on why data center development and leasing activity are concentrated in certain regions. These variables also provide valuable context for the strategic decisions made by some of the industry's leading players. To reflect market sentiment, each variable has been carefully weighted based on its significance, leveraging Cushman & Wakefield's deep global expertise in supporting data center industry partners throughout 2024.

Methodology

HIGH-WEIGHT

- **Power Availability**
- **Land Availability**
- **Market Size**

MID-WEIGHT

- **Capacity Under Construction & Prelease Rate**
- **Planned Capacity & Prelease Rate**
- **Land Price**
- **Fiber Connectivity**
- **Vacancy & Absorption**
- **Regulations & Incentives**
- **Power Cost**
- **Cloud Availability & General Operator Presence**
- **Renewable Power Options**

LOW-WEIGHT

- **Environmental Risk**
- **Taxes**
- **Water Availability**
- **Political Stability**

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Investment Landscape

The data center industry experienced significant growth in 2024, marked by an increase in joint ventures, mergers and acquisitions, greater institutional capital commitments, and heightened capital expenditures from hyperscalers, solidifying its position as one of the fastest-growing asset classes in commercial real estate. This accelerated growth extends across various business lines, including retail colocation, wholesale colocation, edge, hyperscale and infrastructure.

While expansion strategies vary across organizations, core objectives remain consistent: capturing demand and expanding into new markets. Colocation operators are leveraging institutional capital to fund both intra- and inter-market expansions to bolster their pipelines. Meanwhile, developers specializing in adjacent asset classes are beginning to channel their expertise and capital into the data center sector, aiming to replicate their success. Similarly, hyperscalers are looking to ensure they have a pipeline of development available, expand their presence, establish new cloud regions, and further develop their digital infrastructure which enables them to serve their clients and meet growing demand.

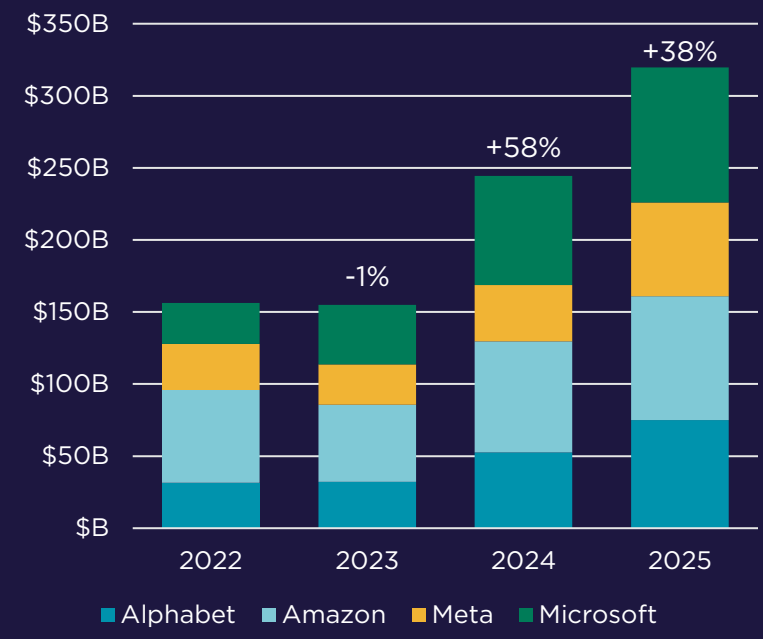
Capital spending across four of the major hyperscale data center operators reached an estimated $244 billion in 2024—a 58% increase from 2023—and is expected to grow by another 31% in 2025.[1] This underscores the competitive landscape of AI development, in which all four hyperscalers are directly involved, as a key driver of substantial investment in digital infrastructure across the globe. **Beyond hyperscalers, 2024 experienced strong investment interest in established data center operators, driven by the industry's current and projected demand profile, which highlights long-term growth potential**. Notable public announcements include:

- Vantage Data Centers $6.4 billion capital raise[2]
- Flexential's investment from Morgan Stanley Infrastructure Partners and GI Partners[3]
- DataBank's $1.5 billion funding secured from AustralianSuper[4]
- Digital Bridge's acquisition of Yondr[5]
- BlackRock, Global Infrastructure Partners, Microsoft, and MGX's launch of a $100 billion fund for data centers and power infrastructure[6]
- Blackstone's acquisition of AirTrunk at a $24 billion valuation[7]
- KKR and Energy Capital Partners' $50 billion partnership for data centers and power generation[8]

1 Wall Street Journal, Visible Alpha, company data
2 Vantage press release, 2024
3 Flexential press release, 2024
4 DataBank press release, 2024
5 DigitalBridge press release, 2024
6 Microsoft press release, 2024
7 Blackstone press release, 2024
8 KKR press release, 2024

Hyperscalers capital spending is escalating as they fuel expansion

Forecasted Hyperscale Spending



Source: Cushman & Wakefield Research, WSJ, Visible Alpha, company data

Emerging Markets Gain Steam, Established Markets March On

Widespread power constraints, including limited transmission capabilities, coupled with rising land values and availability challenges, are turning developers and self-builders into modern-day pioneers, as the ideal location for a data center has become anywhere capable of delivering the necessary power. This shift has pushed development further from urban cores in established markets, sparked a resurgence in secondary markets, and pioneered large-scale data center development in tertiary and rural areas. Hyperscalers often lead the charge on this front by becoming the first to act in emerging markets. In some cases, colocation operators follow, capitalizing on excess hyperscaler demand by offering quick expansion capabilities while also meeting the data center needs of local businesses, universities, healthcare systems, financial institutions and governments.

Emerging markets have experienced significant activity recently, building on their growing relevance highlighted in last year's report. Limited operational availability, heavy preleasing, and the ongoing search for power are driving developers away from established markets, which are largely tapped out in the near term. In some cases, demand from established markets is spilling over into nearby emerging markets.

Another factor fueling demand in emerging markets is the regulatory environment in established markets. As data center markets mature, regulations often become more stringent. Established markets across all global regions have experienced this to varying degrees, including development moratoriums, stricter sustainability standards, noise pollution thresholds, and restrictions on where data centers can be built.

Despite the growing interest in emerging markets, **established markets still capture the bulk of data center activity, often boasting significantly larger development pipelines**. While emerging markets are gaining traction, established markets still reign supreme. Unsurprisingly, the Virginia mega-market retained its position as the No.1 spot globally, with Phoenix climbing to No. 2. Oregon, Ohio and Chicago also advanced in the rankings compared to last year. Conversely, Tokyo, London, Mumbai and Sydney have dropped out of the global top 10 established data center markets, making way for new entrants Beijing and Shanghai. Much of the ranking movement in established markets this year revolves around power availability, land availability, land prices, and power costs. Established markets with less available, or more expensive, land and power saw their aggregate scores decline.

Global Established Markets Ranking

1. Virginia
2. Phoenix
3. Dallas
4. Atlanta
5. Oregon
6. Columbus
7. Beijing
8. Salt Lake City
9. Chicago
10. Shanghai

Global Emerging Markets Ranking

1. Austin/ San Antonio
2. Iowa
3. Pennsylvania
4. Abu Dhabi
5. Reno
6. Dubai
7. Minneapolis
8. Berlin
9. Helsinki
10. Munich

Emerging Markets Gain Steam, Established Markets March On

Established Markets Rankings

	AMERICAS	APAC	EMEA
1	Virginia	Beijing	London
2	Phoenix	Shanghai	Frankfurt
3	Dallas	Sydney	Amsterdam
4	Atlanta	Johor	Paris
5	Oregon	Melbourne	Madrid
6	Columbus	Guangzhou	Milan
7	Salt Lake City	Mumbai	Stockholm
8	Chicago	Osaka	Dublin
9	Carolinas	Seoul	Brussels
10	Sao Paulo	Singapore	Johannesburg

Emerging Markets Rankings

	AMERICAS	APAC	EMEA
1	Austin/San Antonio	Auckland	Abu Dhabi
2	Iowa	Brisbane	Dubai
3	Pennsylvania	Busan	Berlin
4	Reno	Pune	Helsinki
5	Minneapolis	Bengaluru	Zurich
6	Kansas City	Perth	Munich
7	Nashville	Canberra	Oslo
8	Indianapolis	Taipei	Warsaw
9	Central Washington	Batam	Reykjavik
10	Santiago	Hanoi	Tel Aviv

Market Fundamentals

Key Takeaways

- The amount of live capacity in a market reflects past demand and offers insight into market maturity. Typically, large markets experience steadier demand due to their established talent pools for building and operating data centers, robust infrastructure and scalability. Globally, 13 markets boast operational capacities exceeding 1GW.
- A market's development pipeline highlights investor interest, upcoming capacity and—when paired with prelease rates—unmet demand and the landscape of availability for large occupiers. There are nine markets where 100% of capacity currently under construction was already committed, and two where planned markets showed the same.
- Vacancy rates provide a snapshot of current availability in a market, but they don't paint the full picture. A deeper analysis of property-level availabilities within a market reveals deeper insight into whether vacancy rates are symptomatic of demand or untenantable space. Currently, only eight individual data centers offer 20MW or more of available capacity in a single data center.

HIGH-WEIGHT

Operational Market Size

Established data center markets offer plentiful benefits. **High levels of operational capacity indicate strength and overall market maturity, serving as testaments to captured demand and successful data center projects**. The advantages of large markets are highly appealing to both clients and operators, as they have steady demand, greater access to cloud service providers, the presence of known operators, a vast and diverse customer base, experienced talent pools, supportive and knowledgeable local governments, and scalability.

Emerging markets have their advantages as well. While competition for available power remains intense, the competitive and economic environment surrounding land and power acquisition is often more favorable. However, these markets face challenges such as unproven and less steady customer demand, utilities less accustomed to large-scale power requirements, smaller customer bases, and less robust infrastructure. For these reasons, you will often see hyperscalers as the first movers in an emerging market years before colocation operators enter.

Americas

Virginia remains the largest data center market in the world, with operational capacity at 5.9GW, approaching the 6GW mark. To put this in perspective, Virginia's operational data center capacity is larger than the combined capacity of the next three largest data center markets in the Americas. It also represents more than 25% of total operational capacity throughout North, Central, and South America. Beyond Virginia, demand has driven the growth of multiple large data center markets throughout the region. There are currently six established markets that have surpassed the 1GW operational capacity mark, with one expected to reach 2GW soon. Additionally, two more markets are expected to exceed 1GW within the next 12-24 months.

APAC

Operational inventory levels have continued to rise in major Asia-Pacific markets, which includes the second-largest data center market in the world and the only other market currently exceeding 2GW in operational capacity—Beijing. Alongside Beijing, Shanghai, Tokyo and Singapore each have at least 1GW of operational capacity. Additionally, six other APAC markets have the potential to become gigawatt markets over time, though this is unlikely to happen within the next three to five years. Regulatory, land and power challenges in many major APAC markets have become obstacles to near-term growth in operational capacities. Other established markets, such as Mumbai, Johor and Sydney, where these challenges are less significant, continue growing.

EMEA

FLAPD markets remain the largest in terms of operational market size, though growth in these markets has slowed as they mature[9]. In the EMEA region, London and Dublin have crossed the 1GW operational capacity threshold, with Frankfurt expected to join them in the next few years. Amsterdam is likely to approach this milestone but fall short due to lost market confidence following its 2020 moratorium on data center construction, regulatory environment and societal pushback. Growth in operational market size is expected to continue in both established and emerging markets in the Nordic and Mediterranean subregions. Meanwhile, Abu Dhabi and Dubai in the Middle East are poised for considerable growth as well.

9 FLAPD markets refer to Frankfurt, London, Amsterdam, Paris, and Dublin

Top Markets

Virginia

Beijing

Oregon

Columbus

Phoenix

Dallas

Shanghai

Chicago

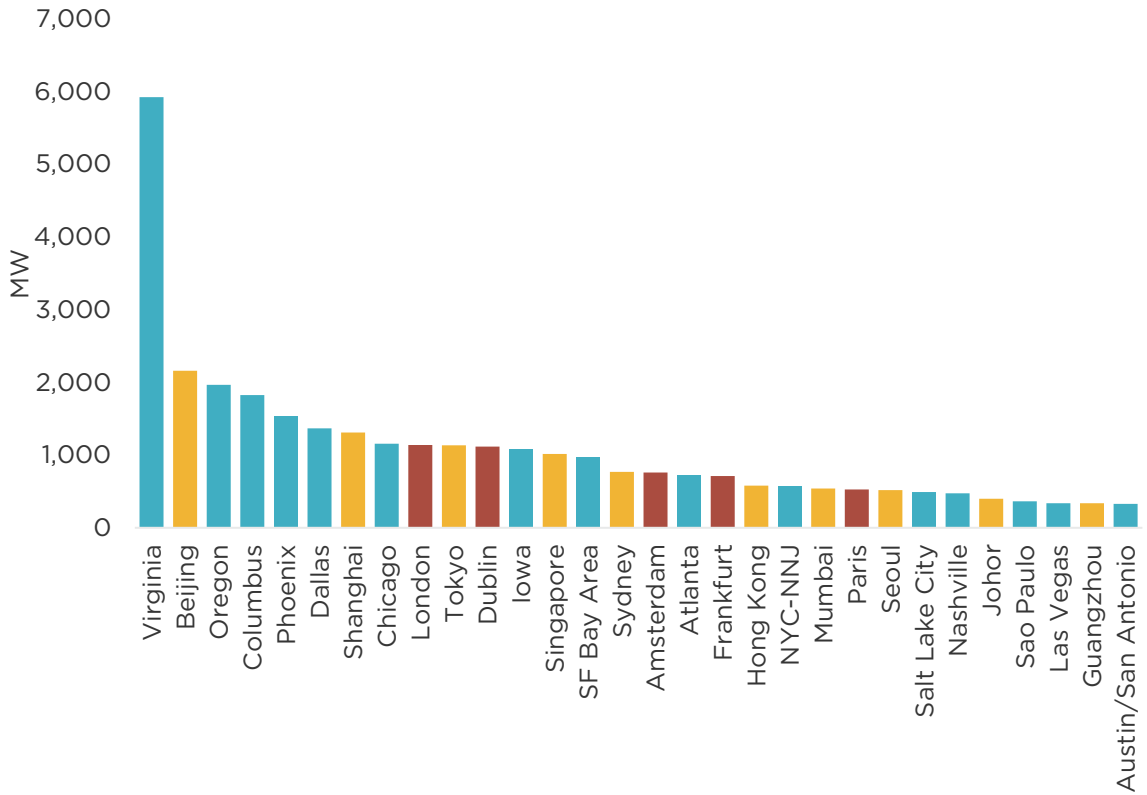
London

Tokyo

HIGH-WEIGHT

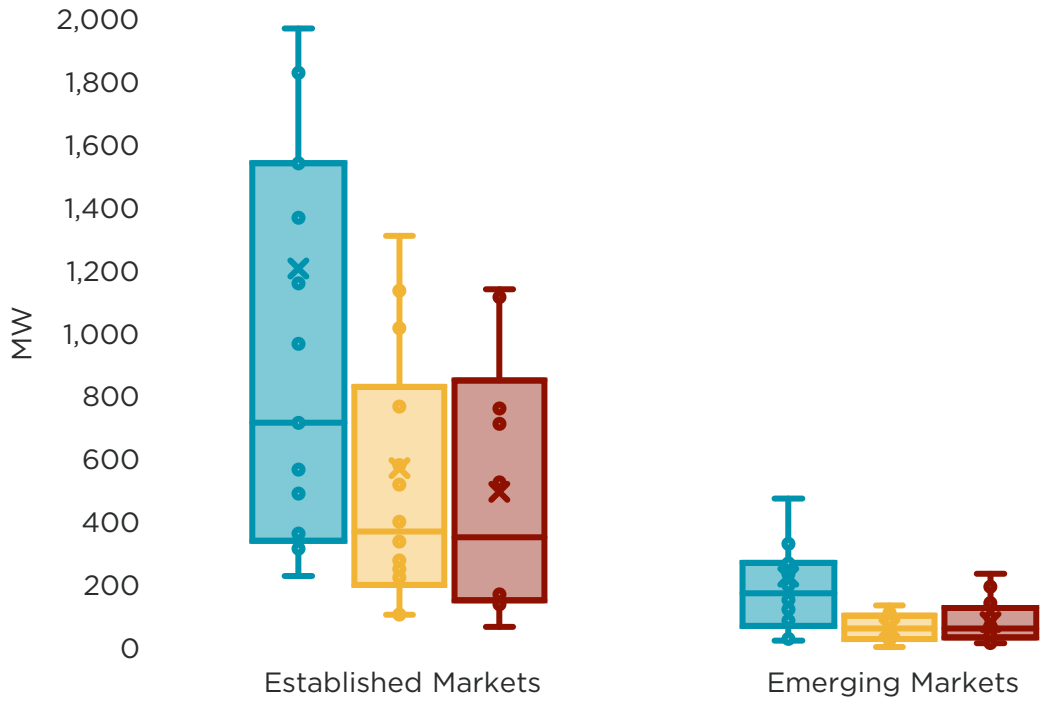
Operational Market Size

Top Markets by Operational IT Load



Source: Cushman & Wakefield Research, datacenterHawk, DC Byte

Operational IT Load by Quartile



Source: Cushman & Wakefield Research, datacenterHawk, DC Byte; Note: Virginia and Iowa not shown

Americas APAC EMEA

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MID-WEIGHT

Pipeline and Preleasing

Data center demand continued to grow rapidly worldwide, with the development pipeline highlighting unmet needs when considering capacity planned or underway alongside capacity that has been preleased.

Globally, the amount of capacity under construction nearly reached 12.5GW in 2024 across the 97 markets tracked by Cushman & Wakefield Research. This figure surpasses the current amount of operational capacity in EMEA and is nearly equal to APAC's total operational market size. Most of the current pipeline is concentrated in the Americas. Data center development costs, which were featured in standalone reports for the Americas and APAC, have not deterred construction activity either. The 12.5GW under construction in 2024 is slightly higher than the 12.0GW reported at the end of 2023. Approximately **80% of capacity under construction was in established data center markets**, a trend mirrored in the 66.2GW global planned development pipeline, despite growing interest in emerging markets over the past two years.

Supply chain challenges were still top of mind for the industry in 2024 and are expected to persist. Materials like lumber, PVC, plumbing components, gypsum and concrete have remained relatively immune to supply chain woes and can be sourced rather quickly, while copper wire, steel and light fixtures typically face two- to three-month wait times. The most critical components, like switchgear, chillers, generators and transformers, have lead times exceeding six months, with some taking more than a year to procure. Stockpiling of components, which became more common in 2024, is further exacerbating this issue, as construction speed became a significant competitive advantage for developers.

Top Markets

- Virginia
- Phoenix
- Dallas
- Atlanta
- Columbus
- Reno
- Austin/San Antonio
- Chicago
- Tokyo
- Salt Lake City

MID-WEIGHT

Pipeline and Preleasing

Under Construction Highlight

Capacity under construction serves as a strong indicator of investment substantiality in individual markets and, when paired with prelease rates, provides a good measure of existing unmet demand. The APAC region is set to grow its market by 25%, while both the Americas and EMEA regions are expected to increase by 31% in the near term.

Americas

Virginia leads globally in capacity under construction, with 1.8GW underway, reflecting its status as the world's largest data center market. With 1.1GW under construction, Atlanta is the only other market in the world with more than 1GW of capacity currently under construction, as interest in the market remains high. Both markets boast high prelease rates for capacity under construction (88.7% in Virginia and 88.9% in Atlanta) signaling high demand and limited tenantable availability in operational data centers.

Across the Americas, the prelease rate for capacity under construction is 76% when excluding hyperscale self-builds and 83% when including them. Established markets demonstrate stronger demand profiles, with preleasing rates of 79% for colocation operators alone and 85% when including hyperscale self-builds. In contrast, emerging markets show lower preleasing rates of 59% for colocation operators alone and 74% when including hyperscale self-builds.

APAC

Development activity in APAC is not as strong as in the Americas, which aligns with the region's operational capacity being 40% lower. However, APAC markets are still poised for significant growth relative to their size. **Established markets in APAC account for 92% of the new capacity under construction in the region**.

Mumbai leads APAC with 335MW under construction, which, once completed, would expand its operational market size by 62%. Johor follows as the second-largest market for capacity under construction, in APAC, with nearly 82% of its pipeline preleased, resulting in a 56% market size increase upon delivery. The three largest APAC markets—Tokyo, Beijing and Shanghai—are set to grow their operational capacities by 20%, 8% and 12%, respectively.

EMEA

Much like APAC, construction activity in EMEA is less prolific than in the Americas, reflecting the region's smaller operational capacity. However, "accelerated growth" remains an accurate description of EMEA's trajectory, with nine markets showing prelease rates above 50%, including Milan and Berlin at 100%. While higher prelease rates are easier to achieve in markets with smaller pipelines, some markets with significant capacity under construction that stood out. Milan (100%), Paris (87%), Frankfurt (74%) and Johannesburg (50%) all had under-construction pipelines exceeding 100MW of capacity. Berlin also deserves mention, with 97MW under construction (100% preleased), just shy of the cutoff. Emerging Middle Eastern markets, such as Abu Dhabi and Riyadh, further highlight the region's strong demand, as both markets had preleasing totals above 70%.

Top Markets

Capacity Under Construction	Pre-leased Rate
Virginia	Milan*
Atlanta	Iowa*
Columbus	Montreal*
Dallas	Berlin*
Phoenix	Reno
Mumbai	Minneapolis
Austin/San Antonio	Atlanta
Reno	Virginia
London	Dallas
Dublin	Columbus

Note: Markets with an asterisk following their name denote a tie

MID-WEIGHT

Pipeline and Preleasing

Planned Development Highlight

Planned development reflects longer-term growth potential than the three-to-five-year horizon of the under-construction pipeline. These projects are at various stages of planning and may not begin development soon—or at all. The minimum requirement for inclusion in the planned pipeline is land ownership and a track record of data center development. However, the planned data center pipeline highlights market interest, potential future investment as planned projects transition to under-construction status, and unmet demand through preleasing activity. Preleasing in the planned pipeline is particularly insightful, capturing demand that exceeds operational or under-construction capacity. The key distinction from under-construction projects is that planned projects, while often shovel-ready, have yet to break ground.

Americas

The planned pipeline in the Americas has seen a considerable degree of activity, swelling to levels much higher than have been seen in the past. Eleven markets, including three emerging markets, have planned capacities exceeding 1GW. Virginia leads with 15.4GW planned, which is followed by Phoenix (4.7GW), Dallas (4.0GW), Reno (3.4GW), and Columbus (3.3GW). Preleasing activity in the planned pipeline is led by Atlanta, where 27% of the 3GW planned capacity is already committed. Emerging markets show greater volatility in prelease figures, often due to market compositions that are highly biased toward hyperscalers. Hyperscale self-builds are inherently 100% pre-committed, as seen in Indiana's planned development prelease rate of 100% and Pennsylvania's 73.6%. In contrast, markets like Austin-San Antonio (3.4%) and Queretaro (3.1%) show much lower preleasing rates, reflecting the variability in planned demand across emerging markets.

APAC

Planned data center development in APAC is heavily concentrated in established markets, with prelease rates varying significantly. Regionally, 19% of planned developments already have occupiers signed, which is slightly below EMEA's 23% but above the Americas 17%. Notable markets for planned preleasing in APAC include Johor (49%) and Singapore (46%). Tokyo is at the top of the APAC chart in terms of total planned capacity, with 1.6GW earmarked for data center development, 35% of which has already been committed. Other markets with substantial planned pipelines include Mumbai, Johor, Sydney and Melbourne, each ranging between 700-900MW of planned capacity, signaling long-term investor interest in the markets.

EMEA

In EMEA, Amsterdam's planned pipeline reflects the lingering effects of the 2020 data center moratorium, showing reduced confidence in the market. However, all other FLAPD markets show planned development pipelines exceeding 500MW, including London, with 1.3GW planned, followed by Frankfurt, with 1.1GW. Typically, larger planned pipelines correlate with lower pre-committal rates, but Milan defies this trend with 69% of its 656MW planned capacity already secured by an occupier. Frankfurt also stands out, with 47% of its planned capacity preleased, amounting to 519MW that will be occupied after these projects move through the construction process and become operational.

Top Markets

Planned	Pre-leased Rate
Virginia	Indianapolis*
Phoenix	Dammam*
Dallas	Pennsylvania
Reno	Milan
Columbus	Johor
Atlanta	Frankfurt
Austin/San Antonio	Singapore
Chicago	Brussels
Pennsylvania	Batam
Salt Lake City	Tokyo

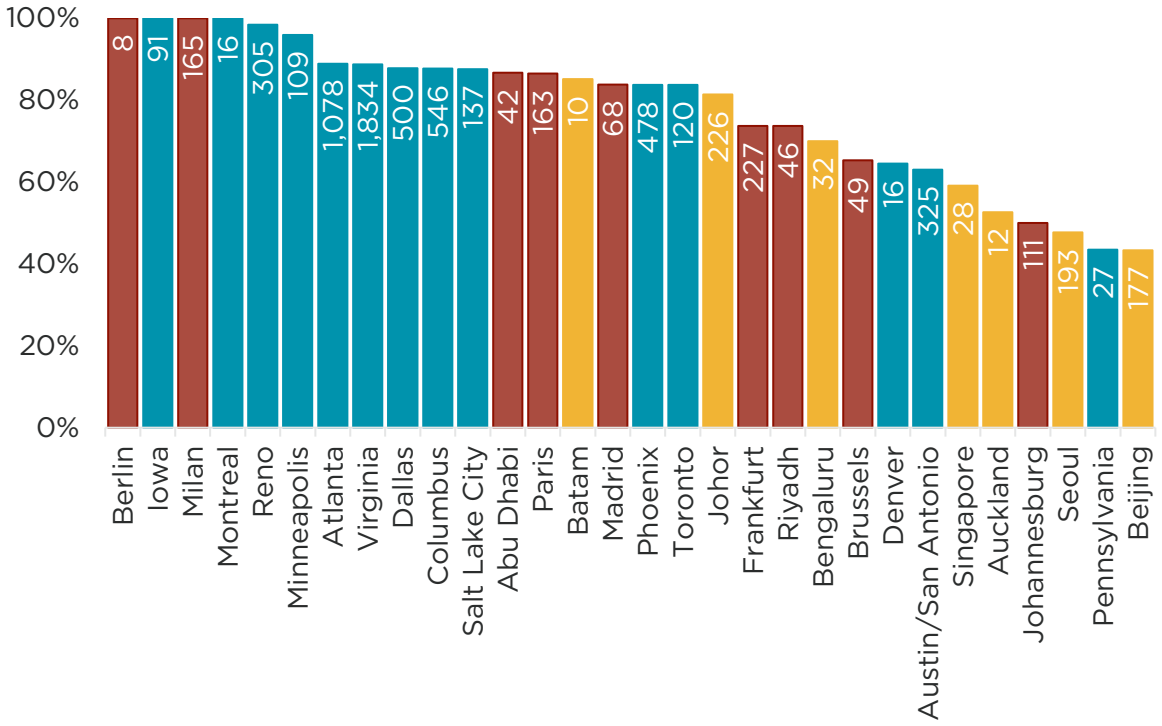
Note: Markets with an asterisk following their name denote a tie

MID-WEIGHT

Pipeline and Preleasing

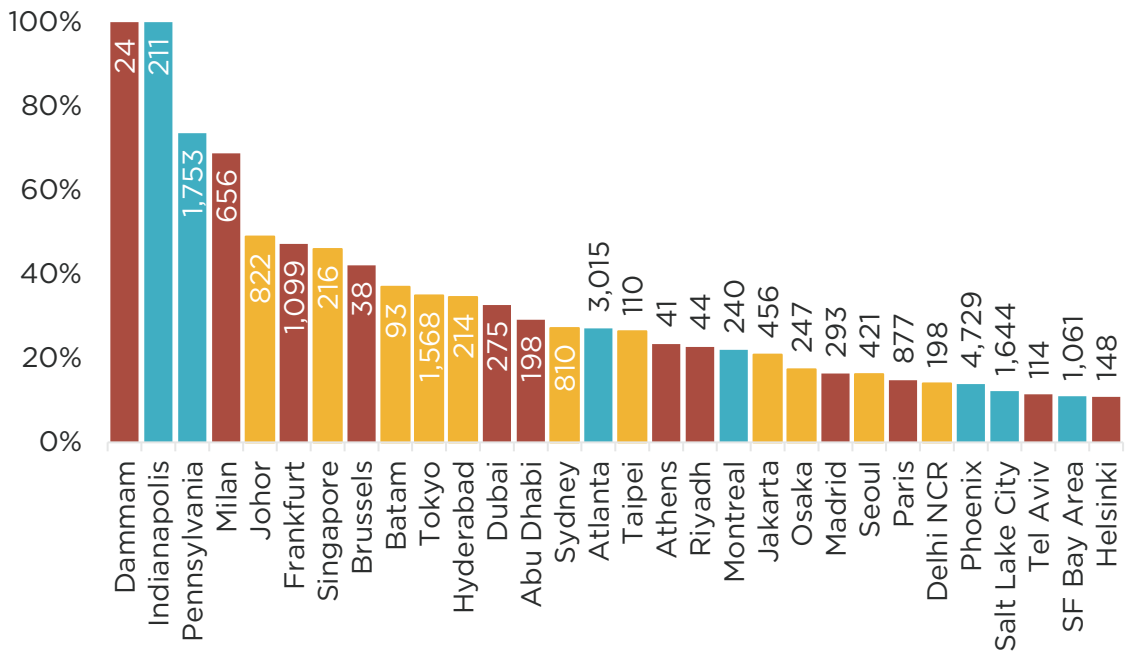
Preleasing Activity

Top 30 Markets: Under Construction Pre-Leased Rate



Source: Cushman & Wakefield Research Analysis of DC Byte and DC Hawk data
Note: Data labels indicate capacity under construction

Top 30 Markets: Planned Pre-Leased Rate



Source: Cushman & Wakefield Research Analysis of DC Byte and DC Hawk data
Note: Data labels indicate capacity planned

Americas APAC EMEA

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Vacancy and Absorption

While data centers are a unique commercial real estate asset class, they share some common indicators with traditional asset classes, such as vacancy rates. Low vacancy typically signals a strong data center market with development potential and appeal for new entrants. This was evident in 2024, though **vacancy rates may not always reflect the full reality of a market, which is why an emphasis on pre-leasing metrics has been made**. In markets with high vacancy rates, preleasing rates reveal whether available capacity is tenantable or if demand is lacking. For example, a high vacancy rate paired with strong preleasing of under-construction capacity suggests that the high vacancy rate is not due to a lack of demand but instead due to a lack of adequate capacity. Further analysis of individual availabilities often confirms this.

Finding contiguous space in a large data hall, or building-sized availability, has become increasingly difficult over the last few years. Clients requiring 10MW+ of capacity in a contiguous area have largely focused their search on the construction pipeline, while those with smaller capacity needs (under 2MW) will find more options in most data center markets across the world.

Absorption, a strong indicator of demand, is another metric shared by data centers and traditional commercial real estate asset classes. When paired with vacancy, it provides deeper insight into a market's historical performance.

As vacant available space is factored into the vacancy rate, it's important to realize precisely how tight the global data center market truly is. **Across the 97 global markets analyzed in this report, only eight individual operational data centers had enough capacity to accommodate occupiers needing 20MW or more in a single facility**. While this space is reported as immediately available, it's worth noting that move-in timelines of three to 12 months are not atypical outside of turnkey availability, as preparation and equipment installation are needed and right of first refusals for the space come into play. Moreover, there were 20 markets across the world where vacancy would be categorized as extremely tight, or below 5%—and seven of these markets had rates below 1%.

Top Markets

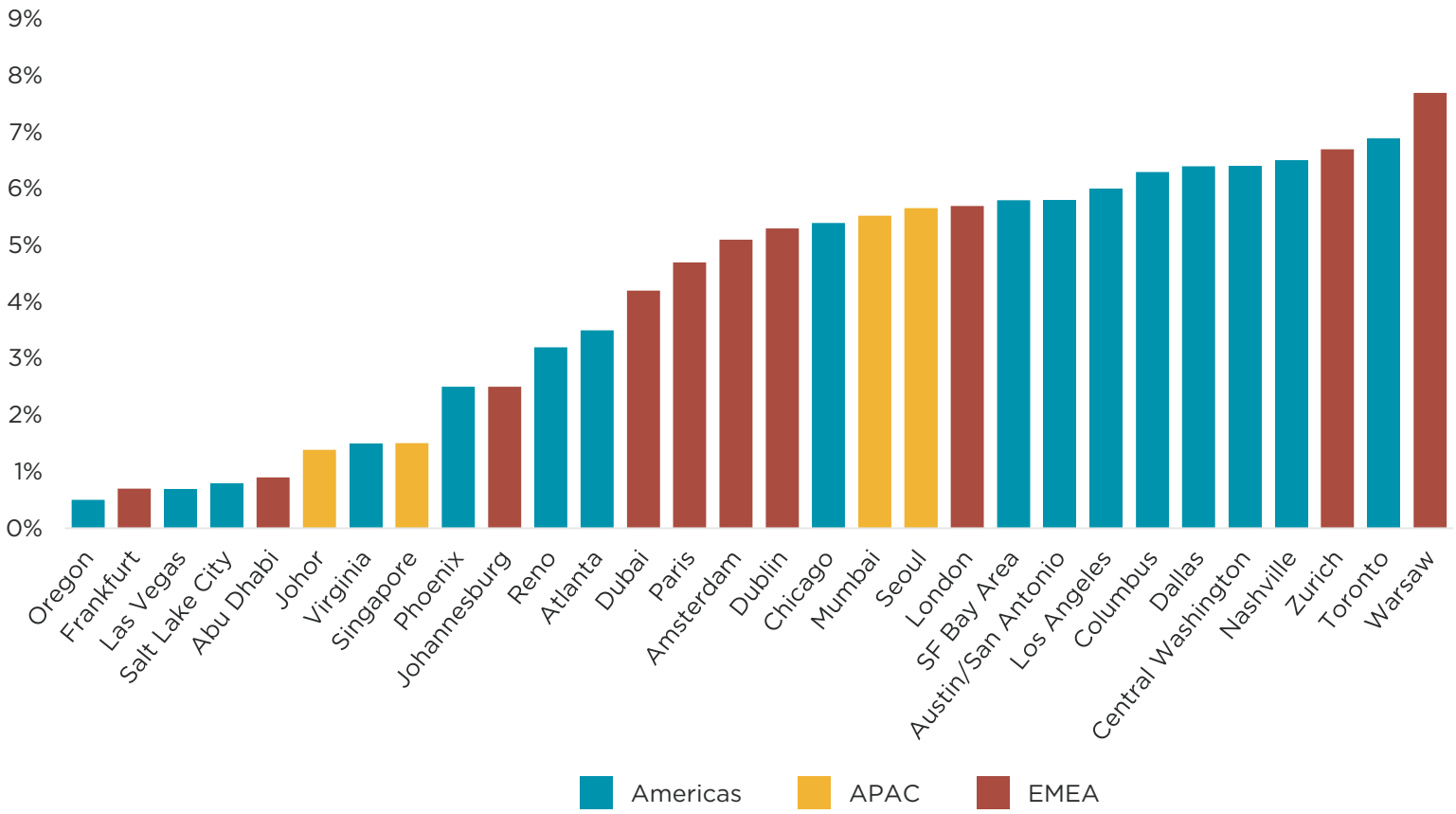
Vacancy	Absorption
Dammam	Virginia
Munich*(2)	Beijing
Oregon*	Oregon
Frankfurt*(3)	Shanghai
Las Vegas*	Columbus
Salt Lake City	Dallas
Abu Dhabi	Tokyo
Johor	London
Virginia	Dublin
Singapore	Iowa

Note: Markets with an asterisk following their name denote a tie

MID-WEIGHT

Vacancy and Absorption

Markets by Lowest Vacancy % with ≥100MW Operational Capacity



Source: Cushman & Wakefield Research, datacenterHawk, DC Byte, Datacenter Hawk

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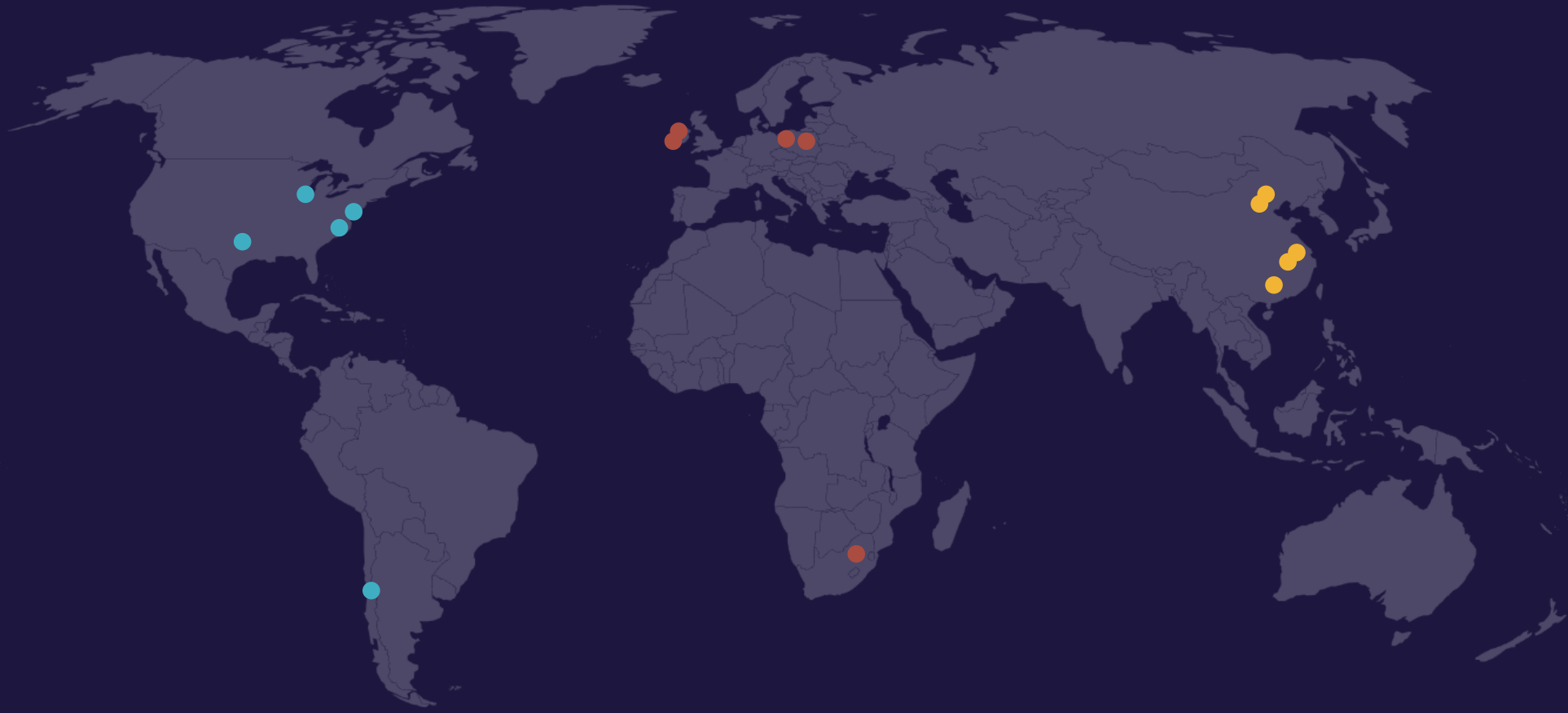
Regional Availability

5 largest availabilities in a single data center by region



Market	Available Capacity
NY-NNJ	23.5 MW
Chicago	18.0 MW
Dallas	13.7 MW
Santiago	13.3 MW
Virginia	10.0 MW

Market	Available Capacity
Poland	20.5 MW
Johannesburg	20.0 MW
Reykjavik	11.7 MW
Iceland	11.0 MW
Warsaw	9.5 MW

Market	Available Capacity
Beijing	43.7 MW
Shanghai	35.7 MW
Beijing	25.0 MW
Guanzhou	24.8 MW
Shanghai	21.0 MW

Note: Availabilities reflect capacity in a single data center and may consist of shell space requiring buildout. The 23.5MW availability in NNJ is shell capacity in a telecom building.

MID-WEIGHT

General and Cloud Operator Presence

Rounding out the market fundamentals section of this report are the *General* and *Cloud Operator Presence* variables. While robust growth in cloud platforms was a primary driver of data center demand in 2024, the addition of a general operator presence variable provides greater context to the strength of a market by measuring the diversity of colocation service providers. Cloud operators often rely on colocation providers to help with their scalability, while enterprises, governments, healthcare facilities, banks and universities depend on them to support hybrid IT strategies.

The three largest cloud operators by market size—Amazon Web Services, Microsoft Azure and Google Cloud —continue to innovate, adding an array of services at the edge to join with core hosting, storage and database options. This entrenches their usage among the largest enterprises and government organizations. **As more entities migrate workloads to the public cloud for scalability and ease of access, hyperscalers will drive growth across various markets as they continue to bring clients online.**

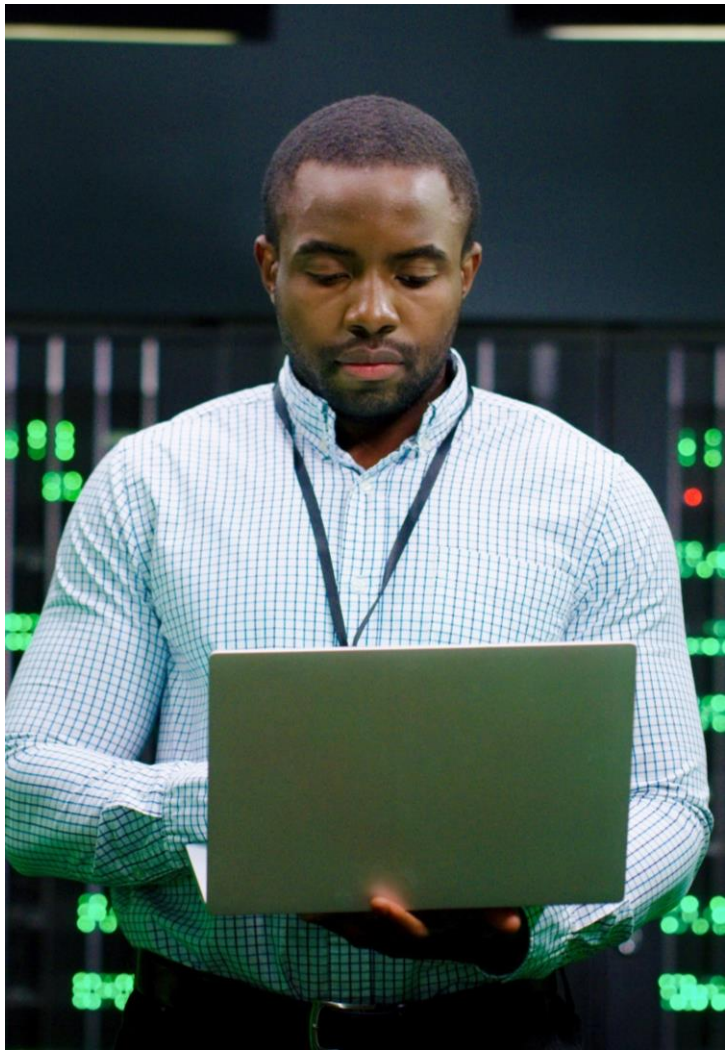
It is increasingly important for markets to offer multiple cloud services, as early adopters are now diversifying their workloads to create hybrid IT models. These strategies often include multiple public cloud instances for varying uses, along with private cloud in colocation environments for others. Many of these sophisticated organizations will be looking for access to a wide array of options and specialized applications. Markets that can offer peering opportunities and cloud on-ramps, along with other creative solutions, will be increasingly attractive.

Virginia once again leads the 97 markets analyzed with the largest variety of data center operators present in the market. However, Virginia is an outlier in many respects, including operator diversity. London ranks second, followed by APAC markets Tokyo, Shanghai and Seoul, rounding out the top five for operator presence. Established markets continue to dominate this category, with only one emerging market breaking into the top 25. While hyperscalers may not prioritize operator diversity as much as colocation occupiers, both groups often prefer specific providers. A high degree of operator diversity increases the likelihood of preferred providers being present in the market.

Top Markets

- Virginia
- London
- Tokyo
- Shanghai
- Seoul
- Paris
- Toronto
- Bangkok*
- NYC-Northern NJ*
- Madrid

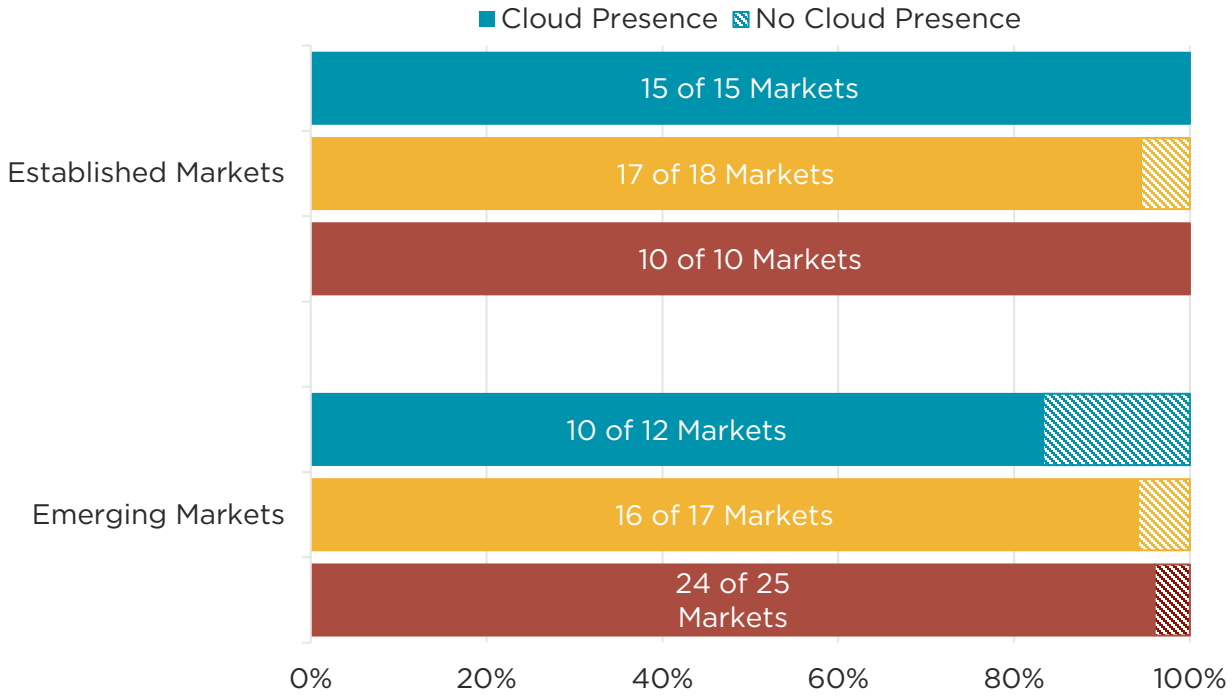
Note: Markets with an asterisk following their name denote a tie



MID-WEIGHT

General and Cloud Operator Presence

Cloud Presence by Region



Source: Cushman & Wakefield Research, DC Byte

Top 30 Markets: Number of Data Center Operators

Source: Cushman & Wakefield Research, DC Byte, Datacenter Hawk

Americas APAC EMEA

Terrestrial Variables

Key Takeaways

- Data center land transactions continued to grow throughout 2024 as campus-style developments took hold of the industry. The trend toward larger site acquisitions, which better accommodate phased development, has pushed operators farther from urban cores and into the suburbs of many major markets where land availability is higher.
- The price of land is one of the few areas of the data center development process where operators can exert some control. However, competition for land is high, and the data center industry often faces competition from other sectors in the land acquisition process. Powered land—sites with existing power commitments from the local utilities—grew in prevalence over the course of the year.
- Data centers must be constructed with high fault tolerances, minimizing or mitigating risks from natural disasters. At a minimum, they are expected to have no more than 29 hours of downtime per year. The most desirable data centers, however, have a high degree of redundancy and full fault tolerance, and experience annual downtime of less than 30 minutes.

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HIGH-WEIGHT

Land Availability

Cloud demand has surged in recent years and is expected to continue placing upward pressure on critical capacity. Similarly, AI has quickly become a key driver in data center demand worldwide. However, what may be less widely understood is how data center operators are responding to meet this growing demand.

Over the past two to three years, data center land transactions have increased in both size and frequency as operators build development pipelines to meet heightened demand. Developers continue to target larger acreages to control the future of their campuses, avoiding reliance on third-party landbanking and prospecting in active submarkets. **Many acquisitions now span hundreds of acres, with developers planning to phase the buildout of campuses over several years.** This trend has also shifted land acquisitions away from urban cores and into suburban and outlying areas. Larger parcels enable operators to phase development, expand without having to acquire new land at market rates, and provide space for on-site substations or renewable energy generation.

Established markets faced land constraints in 2024, though this varied by market. While land constraints are more common in established markets than in emerging ones, this isn't universal. For example, Johor, an established market, ranks first globally for land availability. The remaining markets in the top 10 include five other established markets and four emerging ones. Land availability is one of the key components that has driven increased attention across all regions to emerging markets, boosting their appeal. Another factor driving their desirability is lower competition for land as emerging markets often have less economic diversification than established markets, resulting in fewer competitors from outside of the data center industry.

This report ranks the top 10 markets for land availability based on acres traded in 2024. Notably, the EMEA region is absent from this list due to significant land constraints in its established markets. These constraints are largely attributed to the regulatory environment in many EMEA countries rather than a lack of land or overuse. Globally, Dubai ranks highest among EMEA markets for land availability in 2024, placing 26th.

Top Markets

Johor

Brisbane

Virginia

Phoenix

Atlanta

Sydney

Kuala Lumpur

Pennsylvania

Minneapolis

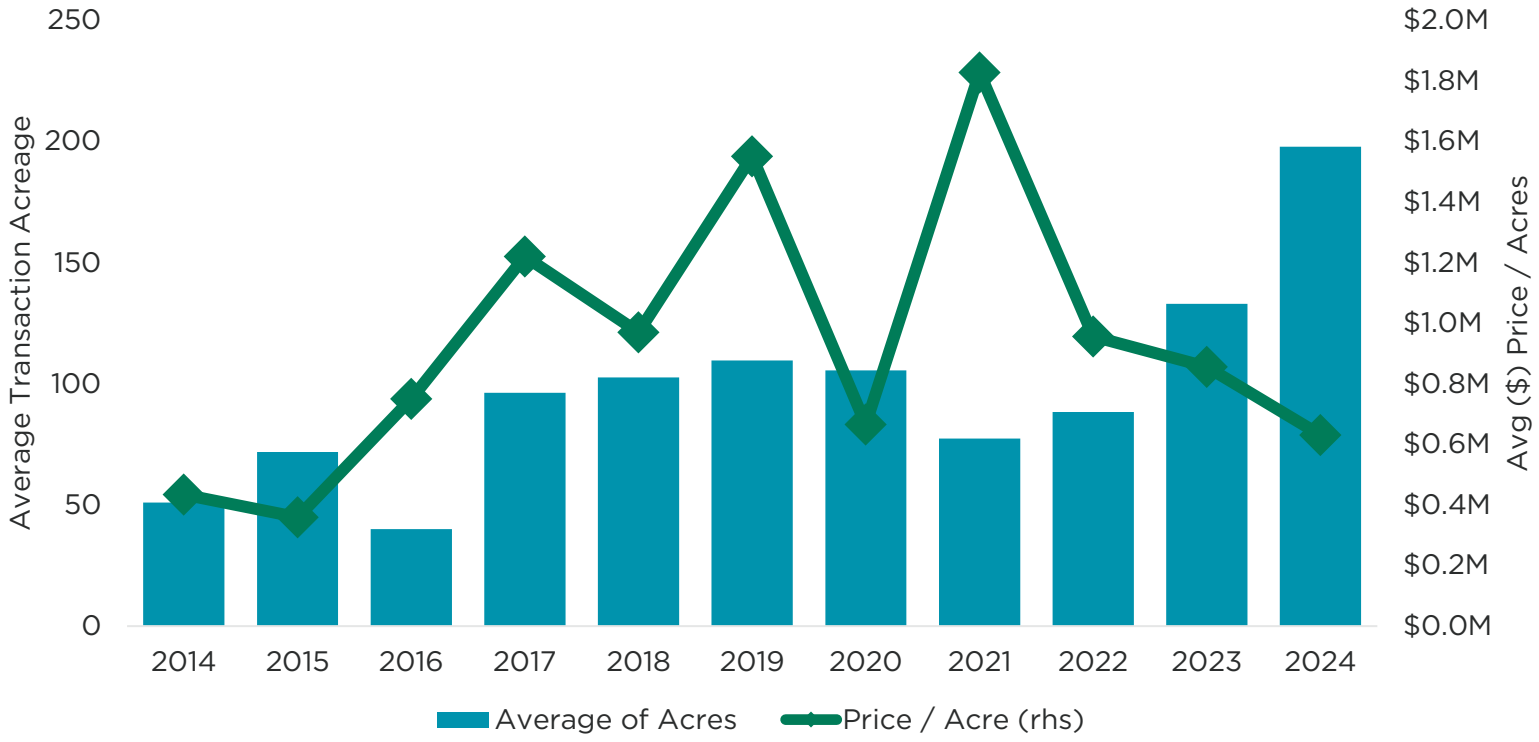
Los Angeles

Note: Markets with an asterisk following their name denote a tie

HIGH-WEIGHT

Land Availability

Case Study: North America Data Center Land Sales – Average Site Size & Pricing Trend



Source: Cushman & Wakefield Research, Real Capital Analytics, CoStar, Various Media Sources
Note: Transaction data is limited, and pricing does not include non-disclosure states.

MID-WEIGHT

Land Pricing

Land costs remain a key area for cost control. While they represent a smaller portion of overall costs, higher land prices can create entry barriers, particularly in key markets accustomed to the largest deployments. **A quality data center site involves more than traditional considerations like soil and topography, as noted throughout this report. Key factors include access to reliable power with a supportive utility, low natural disaster risk, strong network connectivity, water availability for cooling systems, proper zoning and potential incentive packages.** The best markets combine these elements while keeping land costs low, a tough balance to strike given the high demand.

Competition for suitable sites among data center developers and other asset classes has increased, and this is contributing to land constraints. The pool of prime sites with fiber connectivity, proper zoning, and utilities is dwindling, placing steady upward pressure on pricing. This scarcity has prompted acquisition of agricultural land in rural areas that often lack essential infrastructure, though many rural acquisitions are for AI developments.

Powered land transactions gained prominence in 2024, quickly becoming the most desirable and targeted land sites for developers facing widespread power constraints. These sites are especially desirable because they come with an established power purchase agreement with the local utility provider, ensuring power availability. It is critical for developers to confirm that these agreements include a contractual obligation for power delivery beyond the results of a power study. Competition for powered land extends beyond data center developers to include EV battery factories and advanced chip manufacturers, industries fueled by recent government incentives and significant power demands.

Americas

Land pricing in the Americas is generally lower than in other global data center markets due to lower population density and more developable land. While competition for land in established markets has driven prices up, they remain below the average levels seen in APAC and EMEA. Emerging markets truly shine in this category, with eight of the 10 most affordable markets for data center land in the Americas. Indianapolis, Iowa and Minneapolis are the three most affordable markets in the Americas, all located near each other in the Midwest and have been capturing spillover demand from the pricier Chicago market. Similar trends can be seen in Pennsylvania and the Carolinas, and in central Texas, which have experienced increased demand due to spillover from Virginia and north Texas, respectively.

APAC

Land prices in the APAC region remained high in 2024, with the most expensive markets being Seoul, Taipei, Tokyo, Hong Kong and Osaka. Hanoi and Manila were the most affordable, with land costs comparable to primary markets in the Americas. Overall, land pricing across APAC remained elevated. Emerging markets like Brisbane, Perth, Bengaluru and Ho Chi Minh City posted increased data center land acquisition activity, which could further drive up prices in their markets.

EMEA

European markets typically have higher land prices than Middle Eastern and African markets, though these costs have not slowed development activity in Europe. Lower-cost markets in Africa and the Middle East, including Johannesburg, Riyadh, Lagos and Jeddah, present cost-effective alternatives to established and emerging European markets.

Top Markets

- Indianapolis
- Iowa
- Minneapolis
- Reno
- Queretaro
- Nashville
- Carolinas
- Austin/San Antonio
- Columbus
- Dallas

MID-WEIGHT

Fiber Connectivity

Data center developers prioritize not just the quantity or density of fiber networks but also their connection quality. Though listed as mid-weight criteria, fiber connectivity is crucial in nearly every data center site selection process and is often among the first factors evaluated for potential sites. Even if nearby networks face bandwidth challenges, a higher number of networks is still preferred, as greater fiber diversity reduces latency and improves performance.

Bandwidth has become a growing focus due to the shift to remote work and the widespread use of videoconferencing platforms. Fiber networks are constructed in various forms, including short-haul fiber in metropolitan areas, long-haul fiber connecting multiple regions or countries, and undersea cables linking continents via landing points across oceans.

To assess fiber connectivity and speed, we again used the Ookla Speedtest Global Index for broadband speeds. This year, Singapore, Abu Dhabi and Hong Kong claimed top spots, displacing previous leading American markets except for Austin-San Antonio. The shifts reflect network improvements in the ascending markets rather than a decline in quality of those that moved down in the rankings.

Top Markets

- Singapore
- Abu Dhabi
- Hong Kong
- Beijing
- Marseille
- Reykjavik
- Shanghai
- Zurich
- Austin/San Antonio
- Bangkok

Fiber

Source: Cushman & Wakefield Research, Ookla

LOW-WEIGHT

Environmental Risk

Selecting data center sites with minimal natural disaster risk is crucial to ensure consistent uptime, particularly as many facilities aim for Tier 3 standards[10]. During the site selection process, a comprehensive environmental risk profile and failure analysis are conducted through engineering studies before acquisition and construction. If built in a high-risk area, risk mitigation and disaster recovery strategies are essential to protect operations or enable a seamless transfer to a different data center. Metropolitan areas, with their inherent risks, require additional precautions compared to rural locations.

Flood maps are reviewed for each site to determine if the building would be in a 100- or 500-year floodplain. A 100-year floodplain means there is a 1% chance of flooding in any given year, while a 500-year floodplain indicates a 0.2% chance. These figures represent probabilities, not the frequency of severe floods. Rising sea levels caused by climate change are expected to increase the risk of flooding in many coastal markets, putting data centers in these areas at greater peril. However, some cities have successfully placed data centers outside floodplains, including Dublin, Singapore, Mumbai, Denver, Columbus, Vancouver, Madrid, Johannesburg, Queretaro, Oslo, Osaka, Marseille, Lagos, Bengaluru, Kuala Lumpur and Nairobi. These examples demonstrate that with careful planning, data centers can be built in coastal cities while avoiding flood risks.

Earthquake risk poses another significant threat. Data centers constructed in areas prone to seismic activity require additional support structure. To mitigate risks, many organizations with main data centers in seismically active zones establish a full disaster recovery backup facility in a secondary market. This precaution is critical, as major earthquakes can be catastrophic for equipment and business operations. Locations with the lowest earthquake risk include Dallas, Hong Kong, Seoul and Lagos, as well as several established and emerging European markets, including Dublin, Amsterdam, Paris, Madrid, Warsaw, Oslo, Berlin and Stockholm.

Other natural disasters, including tornadoes, hurricanes and tsunamis, can bring equally catastrophic damage to an area, destroying buildings and crippling power grids for extended periods. For this reason, many organizations with facilities in such high-risk regions also often have a disaster recovery location outside the area to ensure continuity. Securing power or fuel for generators after such events can prove problematic. Most locations across Europe and the western United States are free of this risk.

10 Data center tiers range from 1 (least fault tolerant) to 4(most fault tolerant) and are a standardized system used to describe data center uptime and redundancy.

Top Markets

- Madrid*
- Oslo*
- Barcelona*(2)
- Berlin*
- NYC-Northern NJ*
- Perth*
- Prague*
- Brussels*(3)
- Denver*
- Melbourne*

Note: Markets with an asterisk following their name denote a tie

LOW-WEIGHT

Water Availability

A stable and reliable water supply is essential for maintaining the continuous operation of data centers as it is primarily used in cooling systems due to its higher heat capacity compared to air. This enables water to absorb and dissipate more heat, which prevents overheating and ensures optimal performance. As server rack densities continue to rise alongside new requirements for cloud and AI deployments, cooling requirements are also growing.

These changes are prompting data center operators to adapt to new cooling requirements. Direct-to-chip cooling is becoming more common; some operators are designing data centers with both liquid and air-cooling options, and others are exploring the efficacy of immersion cooling. Throughout 2024, hyperscalers have announced plans to reduce water usage to near-zero levels. New liquid cooling technologies aim to recycle water through a closed-loop system where evaporation does not occur. However, these systems are unlikely to be widely implemented in operational data centers before 2027.

Water availability is a key factor in data center site selection, often requiring an in-depth water stress analysis to evaluate the local water supply. While water availability is the chief concern of these analyses, water infrastructure and local resiliency planning are included to determine the ability of a locality to handle water supply stress, such as drought. Not only does this underpin the importance of water to data center operations, it demonstrates data center operators' commitment to sustainable water usage.

Even as technology shifts rapidly, access to water remains a key consideration as density requirements continue to rise. Operators in desert regions or areas with water scarcity may face challenges in acquiring sufficient water rights for cooling hyperscale data centers.

Power Variables

Key Takeaways

- The number and size of data center developments grew throughout 2024, along with their power consumption. As a result, power constraints in generation and transmission, have become the norm in many data center markets worldwide, with low power availability in several regions.
- Data centers remain committed to sustainable power and increasingly integrate renewable energy infrastructure into new developments. European markets lead in renewable energy as a percentage of total production, though opportunities exist in every global region.
- Power costs rose across numerous markets over the past year as consumption increased. With concerns over data centers causing residential rate hikes, some markets are considering rate classes with pricing based on consumption.

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HIGH-WEIGHT

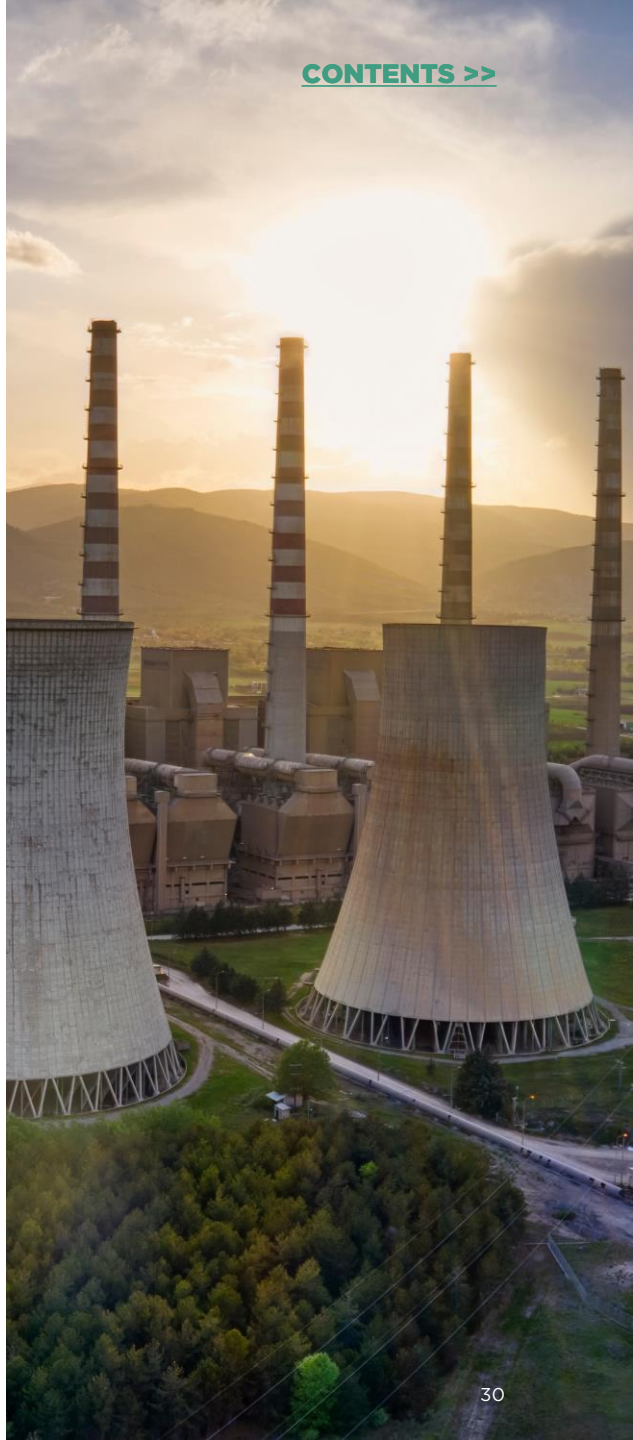
Power Availability

Over the past year, power has become the top priority for data center operators during site selection as they work to rapidly expand their portfolios. **Many utility providers estimated wait times of at least four years to deliver significant power to new developments.** As data center campus sizes grow, so do their power requirements. Power constraints are increasingly common as development pipelines continue to swell. Some markets, such as Ohio and Silicon Valley, have utility queues for power requests exceeding several gigawatts in total. Meanwhile, in a few markets with acute grid stress, such as Dublin, temporary moratoriums are in place for new large-scale power requests.

This has pushed the industry to develop creative solutions for managing power constraints, especially as demand surges in the generative AI era. Five years ago, a 200-400MW power requirement for a data center was rare. By 2023, it became more common, and by 2024, it is becoming standard for large-scale deployments. Utilities are struggling to meet this demand in both generation and transmission, and this is leading to new trends in the industry. These include leveraging behind-the-meter power, renewable energy, adopting on-site power strategies, exploring small modular reactors (SMR's), and even restarting legacy power plants. Another common strategy is the use of transitional power sources, such as natural gas-driven turbines, to power new developments until permanent power becomes available, at which point the transitional power becomes the redundant backup system. The common theme across these efforts is that utilities are unable to provide power at the scale needed to meet current data center demand.

Things are not all grim from a power landscape, and this is not the first time that power constraints have challenged the data center industry. From 2000 to 2005, data center energy use grew rapidly, raising concerns that the growth was unsustainable. This happened again in 2016 during the cloud computing wave, and now it is happening again with the rise of generative AI. While the number and size of data centers are set to increase significantly worldwide over the next few years, and electricity demand from data centers is expected to rise through 2030, there are factors that help balance this growth. **Data centers are not the primary driver of near-term global electricity demand growth. Efficiency improvements at both the hardware and software level will also help mitigate some of their energy impact**. However, at a local level, a high concentration of data centers and the rate at which they're being constructed can lead to strain on power grids. The challenge arises from the misalignment between data center development timelines and the speed at which utility providers can expand generation capacity and upgrade grid infrastructure.

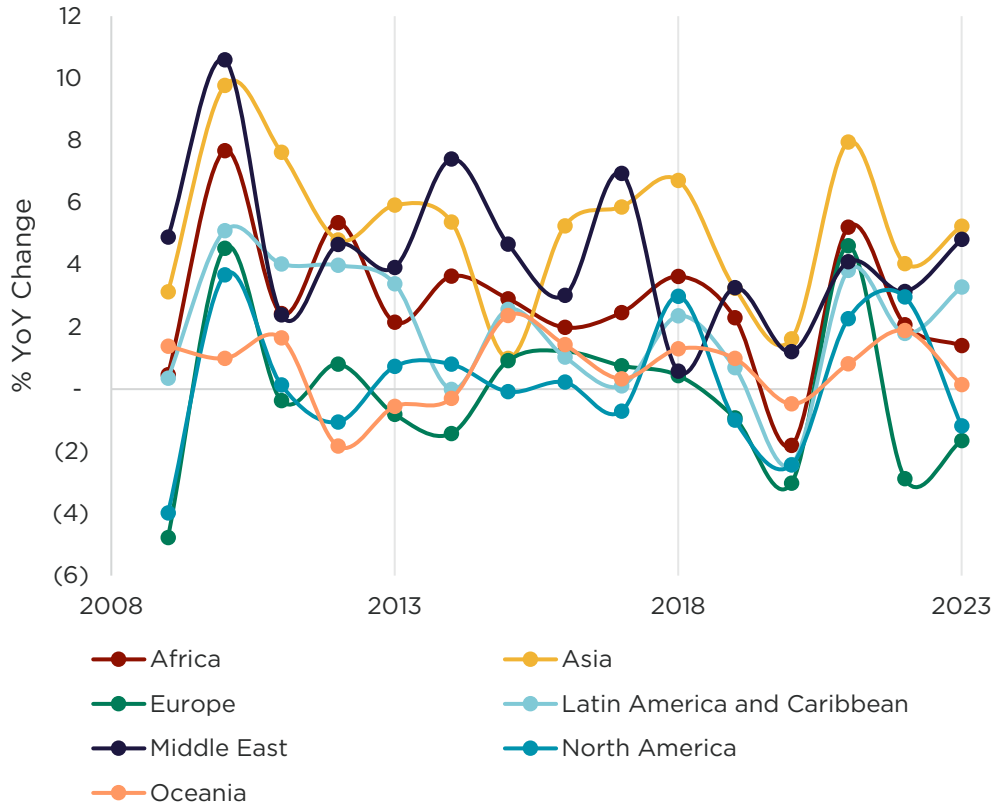
Note: Due to increased global power demand across multiple industries and rapidly changing power availability in each market, a list of top markets for this variable has been excluded from this edition of the report. However, power availability remains a critical high-weight variable, and related data has been collected, analyzed and included in our 97-market analysis.



HIGH-WEIGHT

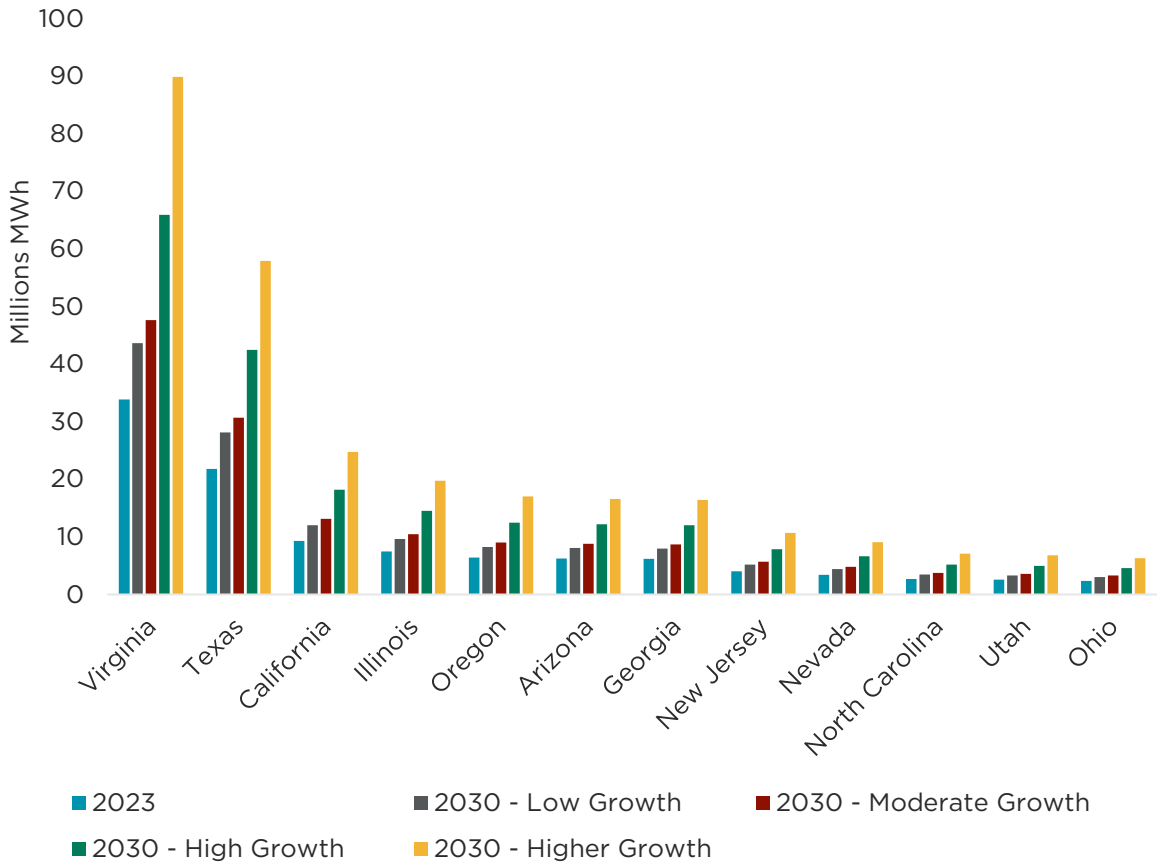
Power Availability

% YoY Change in Total Utility Demand by Global Region



Source: Cushman & Wakefield Research, Ember Climate, Electric Power Institute

US Data Center Electricity Consumption in Established Market States – 2023 & 2030



MID-WEIGHT

Renewable Energy

News about the slow progress on carbon emission reduction has heightened the global urgency to improve efficiency across all industries, with data centers playing a central role. Rising energy demands call for concerted efforts to reduce carbon impact. While many industries struggle to lower their carbon footprint, data centers do not face the same challenges. As a high-tech and multilayered asset class, **data centers have many opportunities to improve their sustainability metrics, including immersion or liquid cooling, using AI to optimize workloads, sourcing renewable construction materials, and more**. Such practices benefit the environment and deliver lower operating costs over the life of the asset, which can exceed nine figures in the largest data centers. Increasingly, creative methods are being discovered to better utilize all parts of a data center, such as reusing waste heat to warm nearby homes. A notable example is the Aquatic Centre at the 2024 Paris Olympics, where heat from an Equinix data center was repurposed to warm the swimming pools.

As highlighted in the 2024 Global Data Center Market Comparison, the largest hyperscale tenants are fully committed to reducing their carbon footprint in all facets of operations, with data centers being a key focus. With 2030 carbon net-zero goals rapidly approaching, many hyperscale self-builds and large-scale developments are now paired with renewable energy infrastructure and sustainability initiatives. Wind and solar farm developments are increasingly being planned alongside deployments over 100MW, reflecting the growing importance of energy infrastructure for the largest facilities. While heat reuse is a good example of sustainability trends in the industry, it is not new, and hyperscale data centers are increasingly trending in this direction with similar measures.

This report includes updated scoring to reflect renewable energy generation percentages for key markets across the globe. Reykjavik remains the only market powered by 100% renewable energy, while nine markets exceed the 70% mark, most of which are in EMEA. However, this represents the current landscape, and many markets across the world have pledged to improve renewable energy production and strive for 100% renewable energy over the next decade.

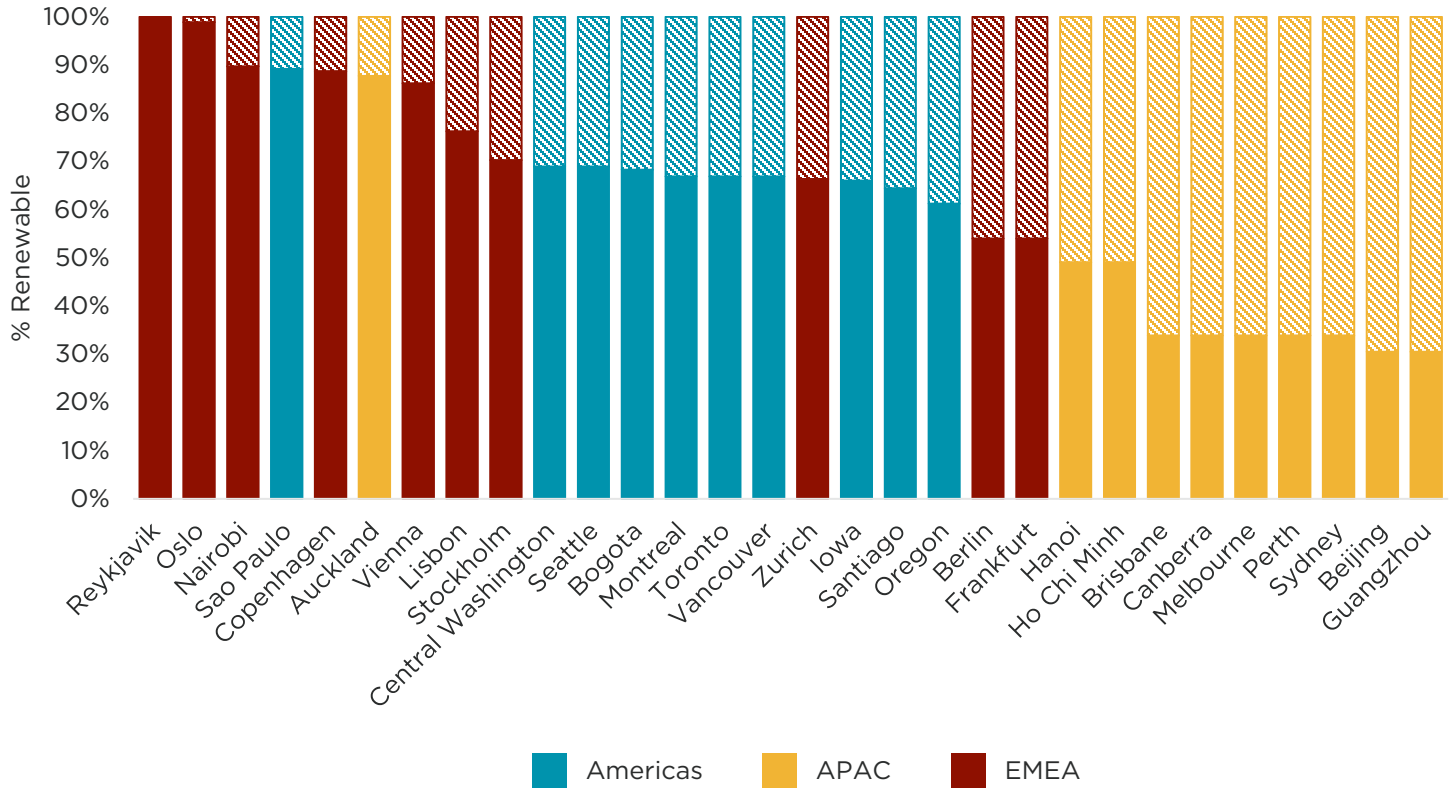
Top Markets

- Reykjavik
- Oslo
- Nairobi
- Sao Paulo
- Copenhagen
- Auckland
- Vienna
- Lisbon
- Stockholm
- Central Washington

MID-WEIGHT

Renewable Power Options

% of Total Energy Fuel Mix is Renewable (Solar, Wind, Hydroelectric, Geothermal, or Other)



Source: Cushman & Wakefield Research, International Energy Agency
Note: renewable % does not include nuclear

MID-WEIGHT

Power Costs

Analysis of data center costs often focuses on initial capital expenditure, including planning, permitting, land acquisition, construction, substations and fiber extensions, which create a considerable barrier to entry with total construction costs exceeding $10 million per MW. However, these initial costs represent only a small fraction of the overall operating expenditure over the life of the building, as the consistent need for increasing power over several phases of expansion can lead to spiraling power requirements.

As noted in other sections of this report, **advancements in technology, such as AI for workload prediction, and more sophisticated cooling systems, can help reduce power costs**, particularly for the increasingly dense workloads favored by the heaviest users. Some operators in cooler climates can also benefit from free cooling in the evenings, with many of these cooler areas also using lower-cost hydropower. The benefits of renewable hydropower are substantial; it not only reduces the total carbon footprint of a data center, but it is also more affordable, leading to lower overall operating expenditure.

Power costs continued to see increases across a multitude of markets over the past year as consumption continued to grow. Concerns about clusters of data centers causing residential rate hikes have led some markets to explore rate classes based on consumption. Thus far, this primarily affects new developments rather than existing data centers.

Renewable power is typically more cost-effective than power from non-renewable sources, and EMEA stands out on a global scale for power affordability. Reykjavik, with 100% renewable energy powering its grid, recorded the lowest power costs among the 97 markets analyzed in this report. The Americas showed moderate power costs, with two markets ranking in the global top 10, while APAC, which has power tariffs, typically saw higher power pricing with many markets exceeding 10 cents per kilowatt hour for industrial use.

Top Markets

Reykjavik

Doha

Dammam*

Riyadh*

Central Washington

Abu Dhabi*

Dubai*

Jeddah

Istanbul

Austin/ San Antonio

Note: Markets with an asterisk following their name denote a tie

MID-WEIGHT

Power Cost

Range of Power Cost by Region ($ USD / kwh)

Source: Cushman & Wakefield Research, findernergy.com, local utilities & government agencies.
Note: All are annual average prices as of EOY 2024. Industrial prices for larger-sized power tiers were utilized where available

Political and Regulatory Variables

Key Takeaways

- The regulatory landscape for data centers is both complex and multifaceted, reflecting the priorities and economic strategies of the different regions, countries, states and markets. While tax abatements or reductions have traditionally been the core of data center incentive packages, recent global trends have introduced incentives tied to specific areas within a market, strategically directing development.
- Sales and value-added taxes, which represent a relatively small portion of new development costs, present an opportunity for minor construction cost control and can provide a slight competitive advantage when comparing markets.
- Selecting a politically stable location for data center development is crucial. Stable regions provide reliable power, access to skilled labor, increased investor confidence, and reduced risks from political unrest.

Regulations and Initiatives

A robust package of data center incentives indicates local support for the industry but also existing relationships with local utilities and communities, enabling large-scale development. These incentives often include relief on property taxes, sales or value-added taxes, discounted renewable power and other financial benefits beyond standard packages for smaller-scale purchases. With data centers being extremely expensive to build, and the largest campuses reaching nine-figure costs—with some projects even entering the 10-figure range—such incentives are highly valuable to operators and developers and frequently play a key role in the site selection process. In 2024, the global average value of data center incentives per $1 million invested in new developments was $58,215.

The global regulatory landscape for data centers is complex and multifaceted, reflecting strict data security, privacy regulations, and environmental standards that vary widely across markets, countries and regions. Countries worldwide are increasingly implementing regulations to address the energy, water and land use of data centers, while simultaneously offering incentives to promote sustainable practices. Additionally, the rapid pace of technology and the growing demand for data services are driving continuous updates to compliance requirements, making it essential for data center operators to stay agile and proactive in their regulatory strategies. **Established markets face more regulations than their emerging counterparts, and as data center markets mature, regulatory frameworks are trending toward a stricter environment**.

Americas

Nearly every market in the Americas analyzed in this report, except for three, offers some form of incentive to attract data center development. Most commonly, these incentives involve sales and tax abatements. The regulatory environment varies significantly across markets, with some regions adopting policies to bolster energy resiliency and sustainability, while others establish no-development zones for data center developments. For example, Atlanta restricts data center development within a half-mile of MARTA, the city's rapid transit line.

APAC

Incentives are less common in APAC markets than they are in other global regions, but they can still be found. The incentives typically focus on renewable power use, green construction standards and reduced emissions. Additional incentives include tax reductions, rebates or discounts on high-efficiency components, and free enterprise zones. The region's rapid growth in internet usage and digital transformation efforts are driving regulatory changes that support data center expansion while enforcing compliance with environmental standards.

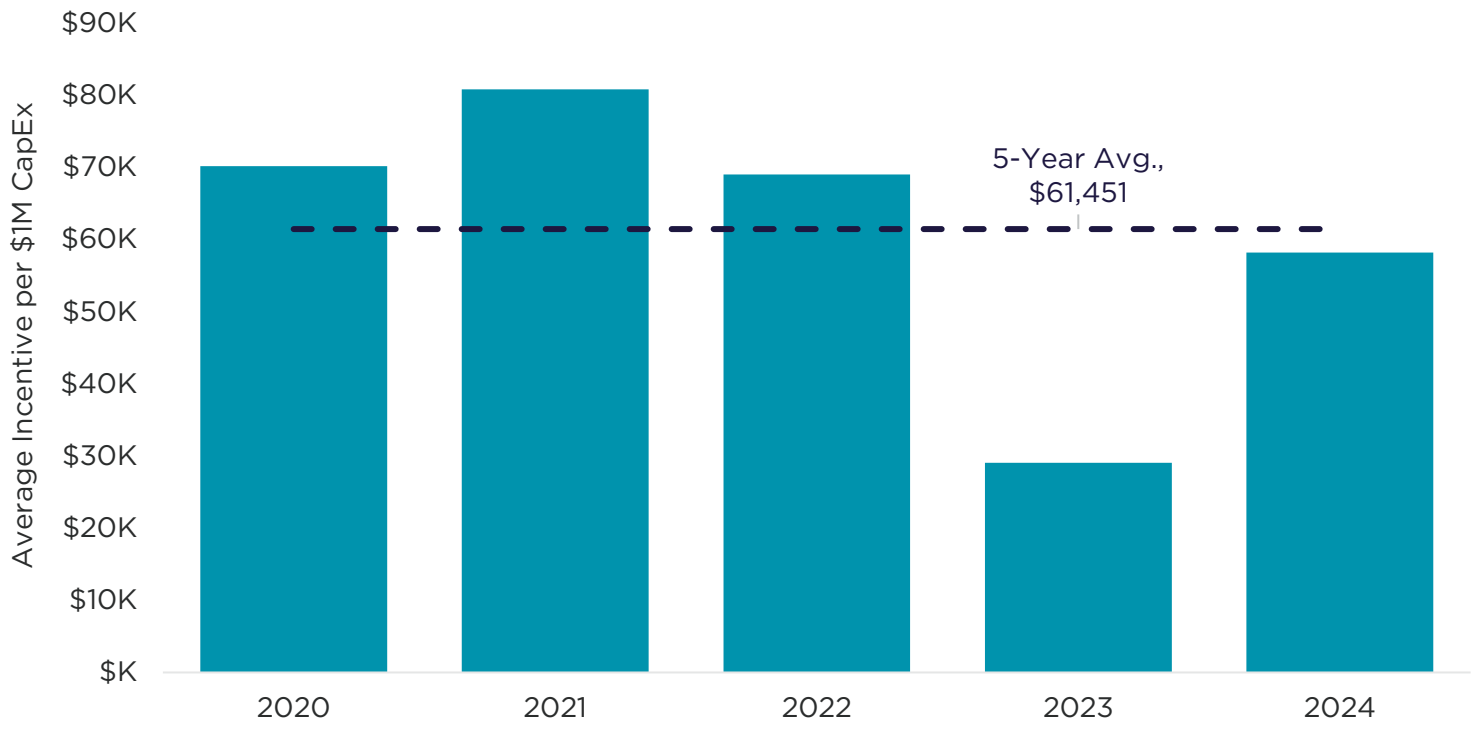
EMEA

The regulatory environment in EMEA prioritizes sustainability, data security and privacy. Europe, for example, has introduced new sustainability reporting requirements that mandate data centers to provide metrics on operational performance. This aims to boost transparency, promote innovative designs, increase energy efficiency, and encourage the use of renewable energy use. Similar to the Americas, nearly all EMEA data center markets analyzed offered some degree of incentives, with exceptions limited to two African markets. Incentives in this region are heavily focused on promoting renewable energy use.

MID-WEIGHT

Incentives Awarded

Average Value of Data Center Incentives per $1M Invested



Source: Cushman & Wakefield Research, FT Locations (Incentives Flow)

LOW-WEIGHT

Taxes

Tax incentives play a key role in attracting data center development, but new phases or smaller builds may not meet the minimum thresholds for tax relief. These projects still require the same materials and components, such as generators, cooling systems, servers and racks, but may face full sales or value-added taxes on purchases. Sales tax is applied to the total sales of goods by local or national governments, while a value-added tax is paid by the final user at the end of the value chain. While tax rate differences can be small between markets located near one another, the difference in costs can rapidly add up as materials, components, and equipment are purchased over the cost of a project.

Two markets highlighted in prior reports, Hong Kong and Oregon, have no sales or value-added tax. Hong Kong, a global financial hub, boasts a long history of pro-business policies and a robust data center sector. Oregon, an established data center market on the U.S. West Coast, features dense fiber infrastructure and sites available in the suburban Hillsboro cluster.

Other large markets also benefit from lower taxes, including Virginia, the largest data center market worldwide, as well as Singapore and northern New Jersey, both offering tax advantages over many primary data center locations.

Top Markets

Hong Kong*(1)

Oregon*

Abu Dhabi*(2)

Doha*

Dubai*

Taipei*

Iowa*(3)

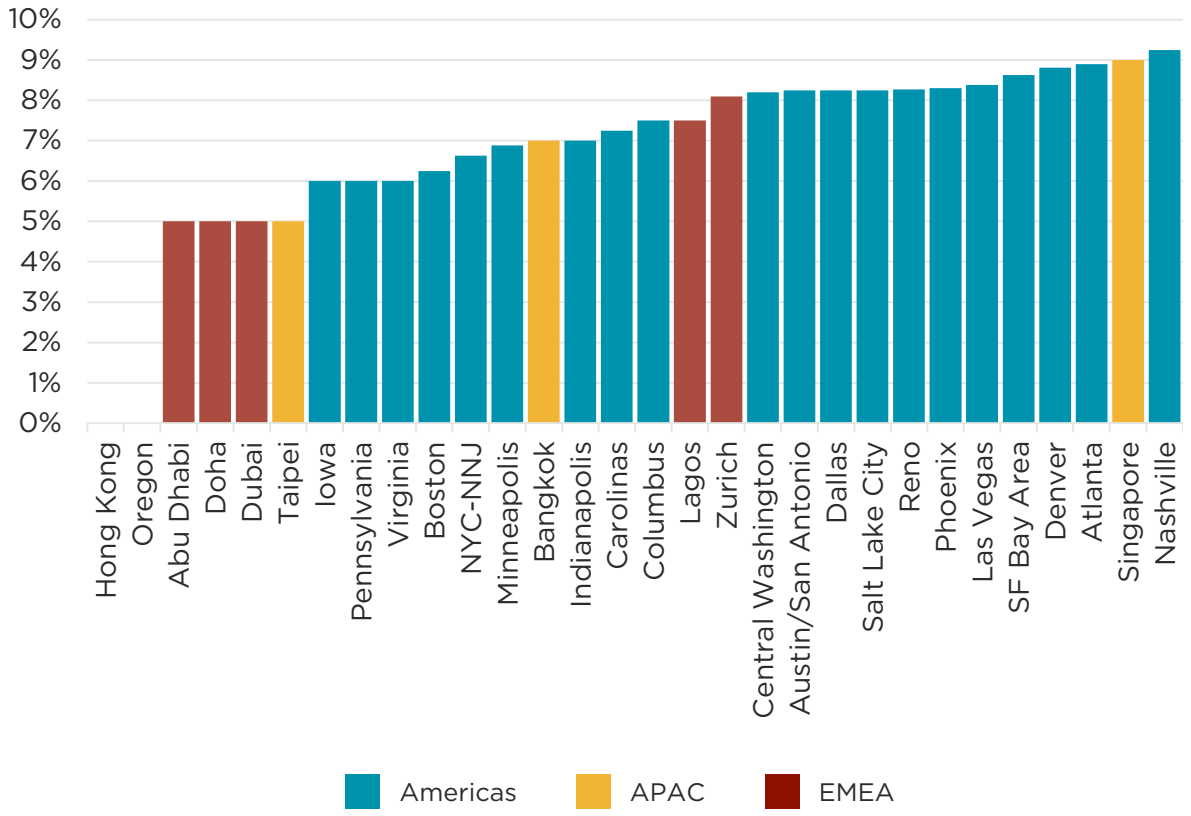
Pennsylvania*

Virginia*

Boston

Note: Markets with an asterisk following their name denote a tie

Top 10 Markets with the Lowest Sales or Value Added Tax (VAT) Rates by Region



Source: Cushman & Wakefield Research

LOW-WEIGHT

Political Stability

Political stability may not initially seem like a key factor in site selection processes, but in regions like APAC and EMEA, where countries vary significantly, it becomes a critical consideration. Developing a data center in a politically stable location increases the likelihood of consistent power, access to skilled labor, investor confidence, and reduced risk of disruptions from political unrest. Moreover, politically stable countries really allow data centers to thrive and expand without concerns over sudden regulatory changes or economic sanctions.

The World Bank's Worldwide Governance Indicators use the "political stability and absence of violence/terrorism" metric to gauge political stability across nations. This measure draws on data from households, businesses and citizens to assess perceptions of political instability.

Of the 97 markets analyzed, Singapore ranked as the most politically stable, followed closely by Auckland and Reykjavik. Singapore's stability stems from its efficient government, strong economy, and emphasis on social harmony. Additionally, its neutral geopolitical stance and consistent leadership contribute to a stable and peaceful environment.

Top Markets

- Singapore
- Auckland
- Reykjavik
- Zurich
- Doha
- Prague
- Japan
- Australia
- Dublin
- Oslo

All Rankings

Overall Rank	Operational Market Size (MW)	Under Construction (MW)	Under Construction Pre-leased Rate	Planned (MW)	Planned Pre-leased rate	Absorption	Vacancy (%)	General & Cloud Operator Presence	Land Availability	Land Price ($USD)	Fiber Connectivity	Environmental Risk	% of Power Generated that is Renewable	Power Cost (¢US/kWh)	Sales Tax/ VAT (%)	Political Stability
Virginia	Virginia	Virginia	Milan*	Virginia	Dammam*	Virginia	Dammam	Virginia	Johor	Indianapolis	Singapore	Madrid*	Reykjavik	Reykjavik	Hong Kong*(1)	Singapore
Phoenix	Beijing	Atlanta	Iowa*	Phoenix	Indianapolis*	Beijing	Munich* (2)	London	Brisbane	Iowa	Abu Dhabi	Oslo*	Oslo	Doha	Oregon*	Auckland
Dallas	Oregon	Columbus	Montreal*	Dallas	Pennsylvania	Oregon	Oregon*	Tokyo	Virginia	Minneapolis	Hong Kong	Barcelona*(2)	Nairobi	Dammam*	Abu Dhabi*(2)	Reykjavik
Atlanta	Columbus	Dallas	Berlin*	Reno	Milan	Shanghai	Frankfurt* (3)	Shanghai	Phoenix	Reno	Beijing	Berlin*	Sao Paulo	Riyadh*	Doha*	Zurich
Oregon	Phoenix	Phoenix	Reno	Columbus	Johor	Columbus	Las Vegas*	Seoul	Atlanta	Queretaro	Marseille	NYC-NNJ*	Copenhagen	Central Washington	Dubai*	Doha
Columbus	Dallas	Mumbai	Minneapolis	Atlanta	Frankfurt	Dallas	Salt Lake City	Paris	Sydney	Nashville	Reykjavik	Perth*	Auckland	Abu Dhabi*	Taipei*	Prague
Austin/ San Antonio	Shanghai	Austin/ San Antonio	Atlanta	Austin/ San Antonio	Singapore	Tokyo	Abu Dhabi	Toronto	Kuala Lumpur	Carolinas	Shanghai	Prague*	Vienna	Dubai*	Iowa*(4)	Osaka*(7)
Beijing	Chicago	Reno	Virginia	Chicago	Brussels	London	Johor	Bangkok*	Pennsylvania	Austin/ San Antonio	Zurich	Brussels*(3)	Lisbon	Jeddah	Pennsylvania*	Tokyo*
Salt Lake City	London	London	Dallas	Pennsylvania	Batam	Dublin	Virginia	NYC-NNJ*	Minneapolis	Columbus	Austin/ San Antonio	Melbourne*	Stockholm	Istanbul	Virginia*	Brisbane* (8)
Chicago	Tokyo	Dublin	Columbus	Salt Lake City	Tokyo	Iowa	Singapore	Madrid	Los Angeles	Dallas	Bangkok	Denver*	Central Washington*	Austin/ San Antonio	Boston	Canberra*

Americas APAC EMEA

ABOUT CUSHMAN & WAKEFIELD

Cushman & Wakefield (NYSE: CWK) is a leading global commercial real estate services firm for property owners and occupiers with approximately 52,000 employees in nearly 400 offices and 60 countries. In 2024, the firm reported revenue of $9.4 billion across its core service lines of Services, Leasing, Capital markets, and Valuation and other. Built around the belief that Better never settles, the firm receives numerous industry and business accolades for its award-winning culture. For additional information, visit www.cushmanwakefield.com.

CONTACT

John McWilliams
Head of Data Center Insights
john.mcwilliams@cushwake.com

Andrew Fray
International Partner, EMEA Data Center Lead
andrew.fray@cushwake.com

Pritesh Swamy
Head of Data Center Research & Insights, APAC
pritesh.swamy@cushwake.com

Vivek Dahiya
Head of Transactions & Advisory,
Data Center Group, Asia Pacific
vivek.dahiya@cushwake.com

Jessica Howe
Vice President, Global Growth Verticals
jessica.howe@cushwake.com