U.S. data center update

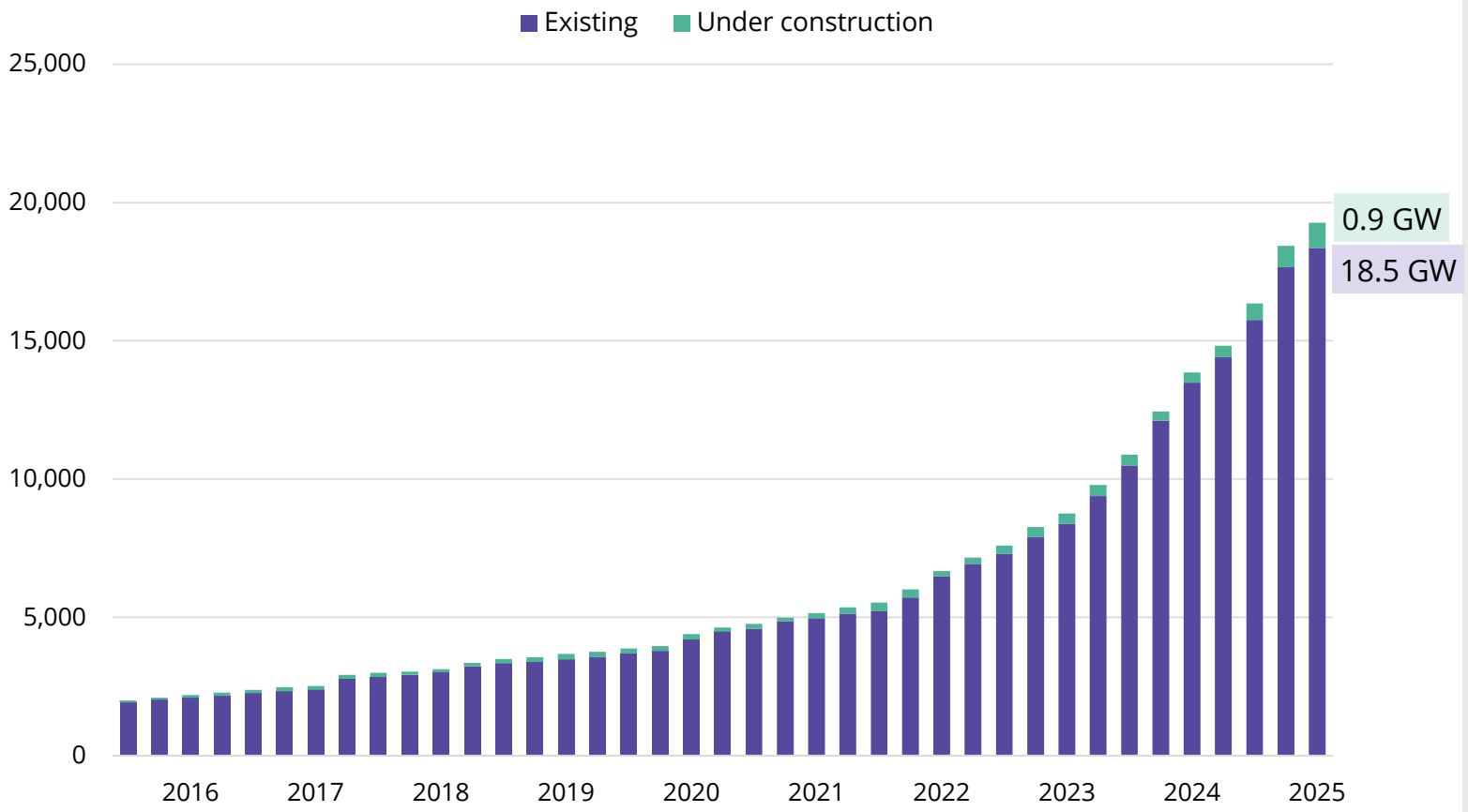
Leasing and Capital Markets trends

Q1 2025

AVISON YOUNG

Inventory

Colocation inventory by quarter (MW)



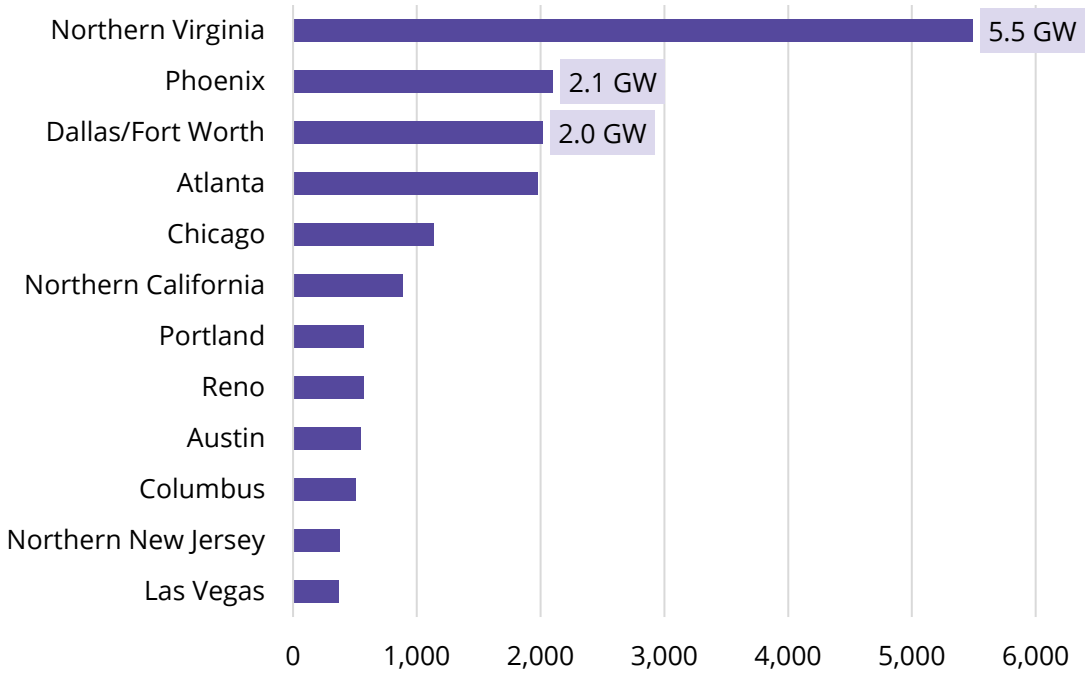
*Colocation inventory of U.S. primary and secondary markets.
Source: DatacenterHawk

Following a record-breaking Q4 2024, new colocation deliveries slowed in Q1 2025 as the market paused to absorb recent supply. Despite this temporary cooldown, construction pipelines continue to grow, signaling sustained long-term momentum.

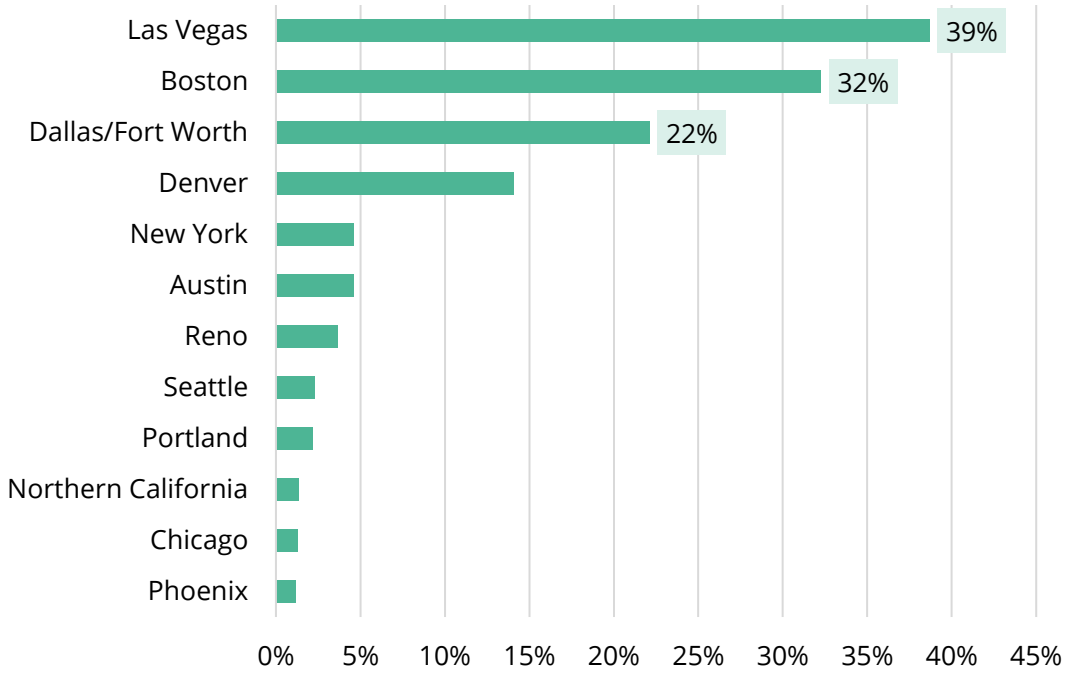
Inventory

Las Vegas posted the highest percentage growth in colocation inventory this quarter, setting a new record after its strong Q4 2024. While no market achieved triple-digit growth in Q1, Dallas/Fort Worth continued its rapid ascent—now becoming the third-largest U.S. data center market, surpassing Atlanta in total inventory. Boston, historically a smaller and slower-growing secondary market, also saw significant expansion driven by spillover demand from power-constrained Northern Virginia (which remains the largest data center market in both the U.S. and globally).

Colocation inventory of largest U.S. markets (MW)



Fastest-growing colocation markets (Q1 2025)

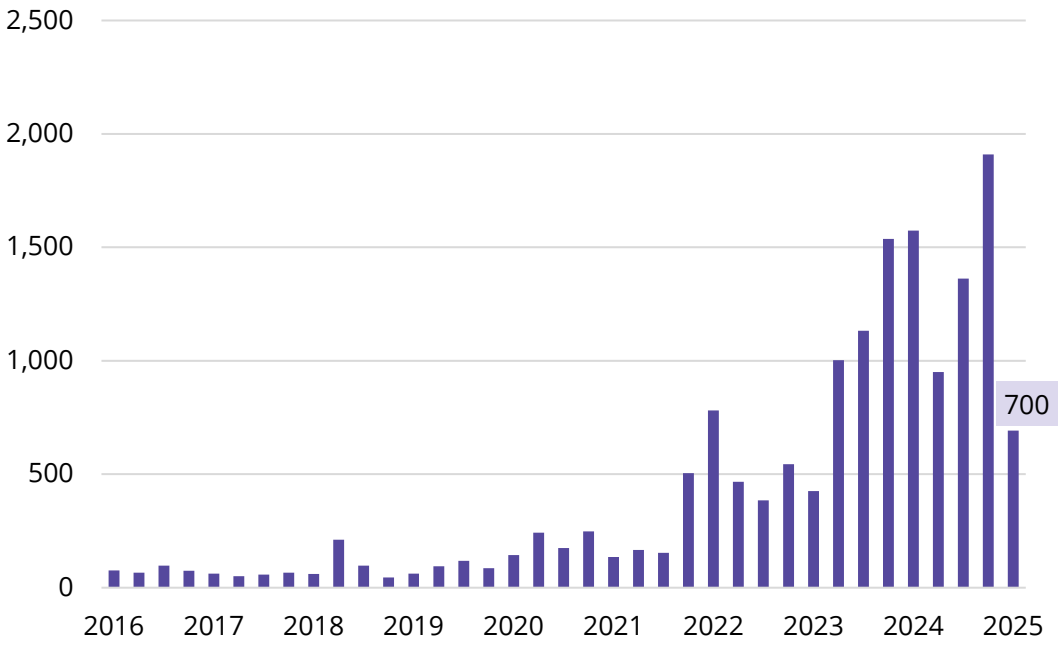


Top 12 North American markets; includes all facilities that have delivered or have a committed tenant.
Source: DatacenterHawk

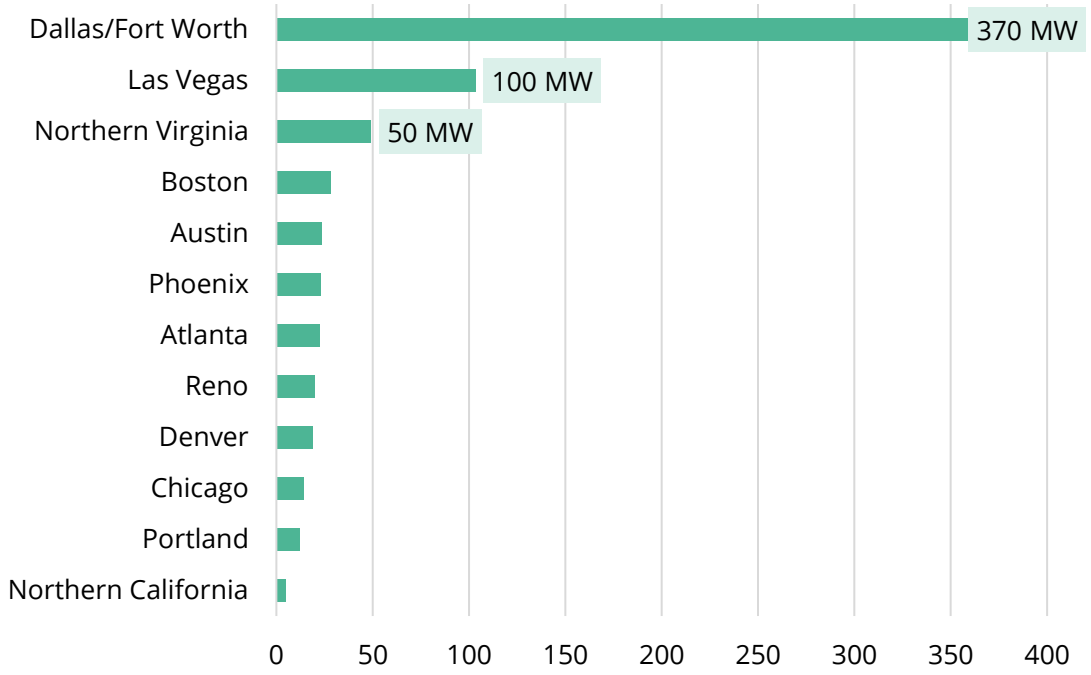
Absorption

National net absorption slowed in early 2025 amid a cyclical pause, but Texas continued to gain momentum. Dallas/Fort Worth led all markets in Q1, recording nearly 80% of its total 2024 absorption in just the first quarter. With hyperscale and AI users actively targeting the region, 2025 is shaping up to be a strong year for transactions in Texas. Las Vegas surged into second place, doubling its previous quarterly absorption record set in Q4 2024. In a rare shift, Northern Virginia was not the top absorption market, as power constraints continued to limit growth.

Net absorption (MW)



Highest net absorption markets (Q1 2025)

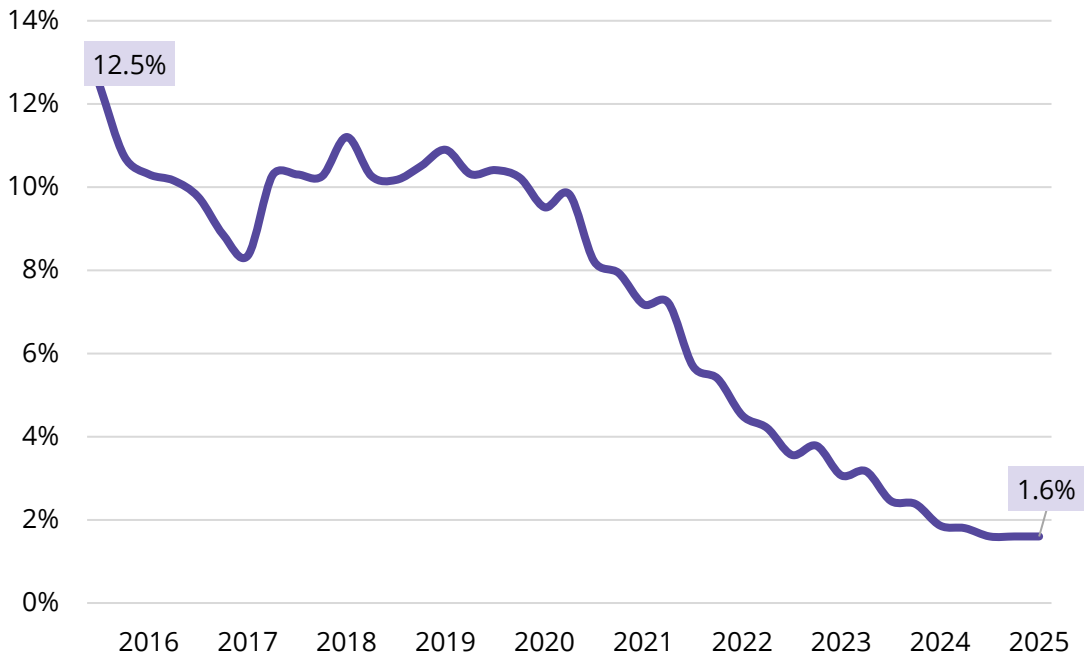


Top 12 North American markets; includes all facilities that have delivered or have a committed tenant.
Source: DatacenterHawk

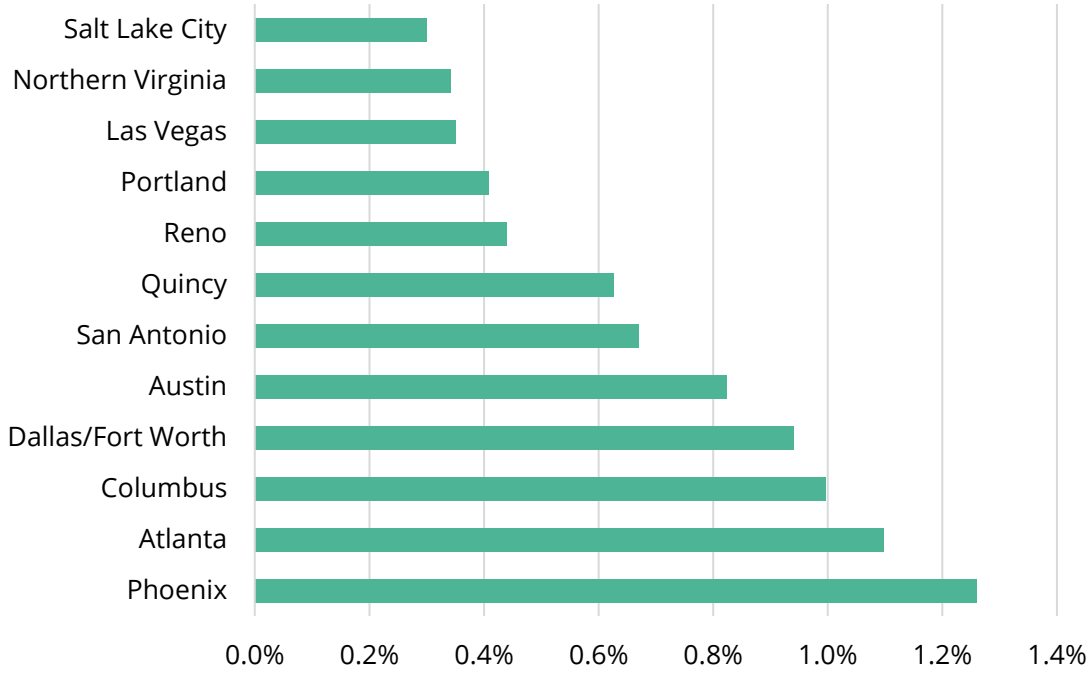
Vacancy

Data center demand remains exceptionally strong, with vacancy rates at historic lows. Major primary markets such as Northern Virginia, Las Vegas, and Dallas/Fort Worth all report colocation vacancy below 1%.

Vacancy rate by quarter



Lowest vacancy markets (Q1 2025)

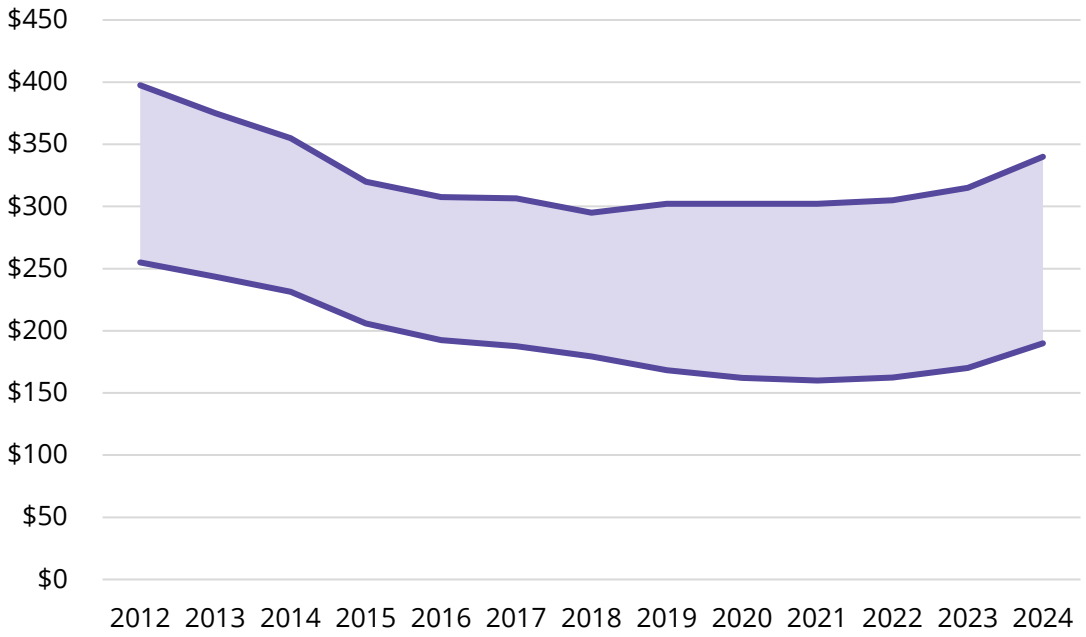


Top 12 North American markets; includes all facilities that have delivered or have a committed tenant.
Source: DatacenterHawk

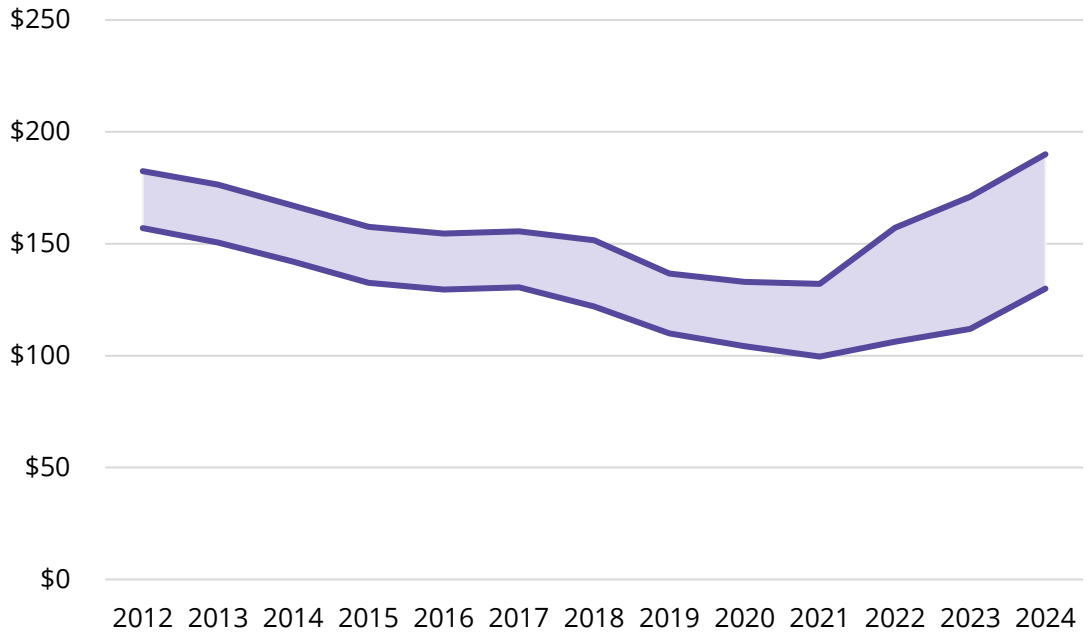
Historical pricing

Turnkey colocation rents have begun to rise in response to tightening market conditions. Pricing for large-scale requirements are increasing even more sharply, as large blocks of existing capacity are now few and far between in most mature markets.

Average retail range ($/kW)



Average wholesale range ($/kW)



Source: DatacenterHawk

Capital market trends

AVISON YOUNG

Capital markets trends

More M&As

Mergers and acquisitions in the data center sector are off to a strong start in 2025, driven by activity in the telecom space and growing institutional investment.

Power plays

Amid soaring demand for energy, developers and data center operators are moving upstream—targeting partnerships, joint ventures, and acquisitions directly within the power sector.

New players

As the sector matures, both private equity and institutional capital are increasingly entering the market. Their growing participation is expected to continue throughout 2025, capturing a larger share of data center ownership.

Speculative developers

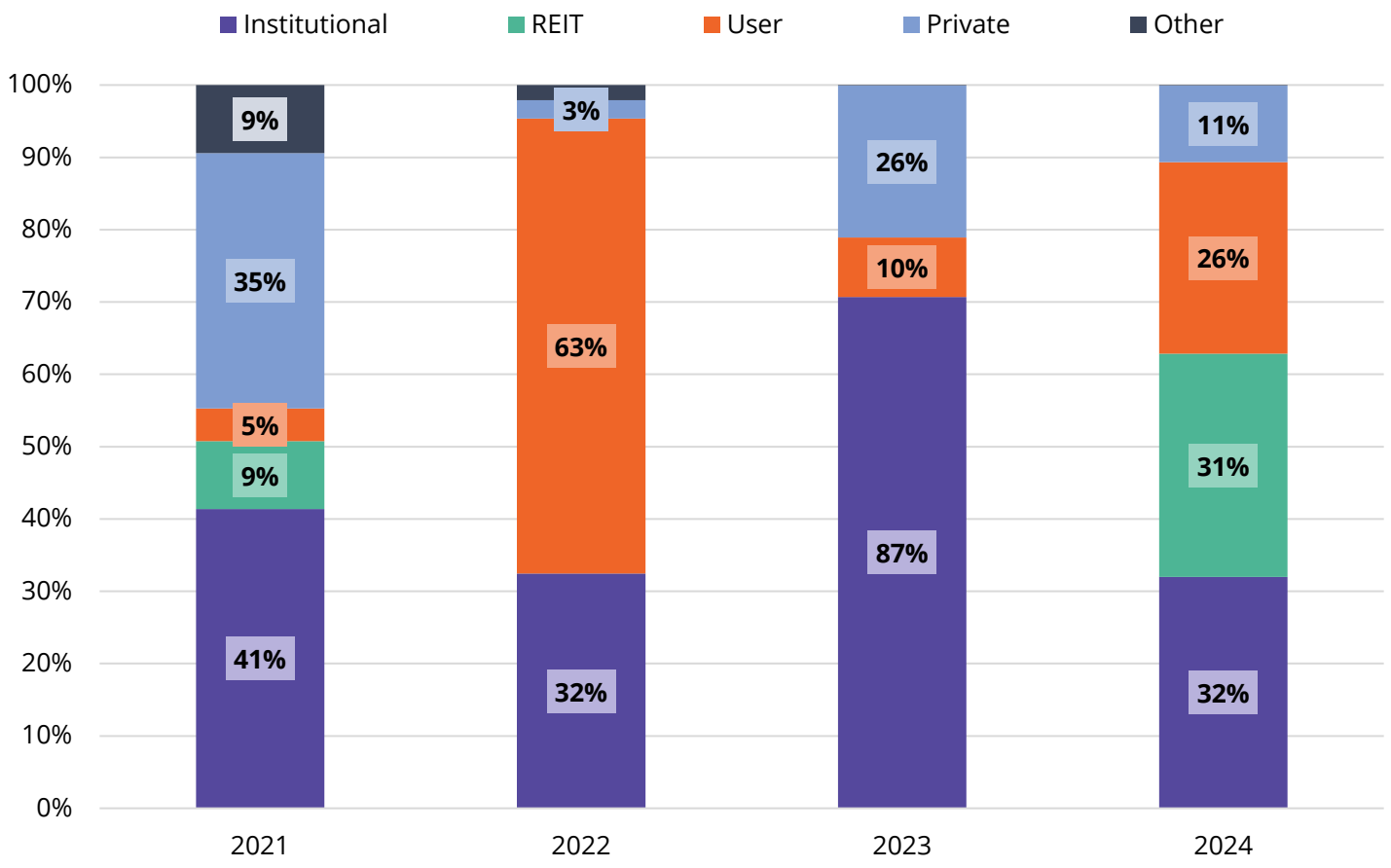
With demand for data centers surging, a wave of new, opportunistic developers—many with limited prior experience in the sector—are actively pursuing ground-up projects.

Major M&A deals

- **April:** Harrison Street and 1547 announced the acquisition of DRFortress, Hawaii's largest carrier-neutral data center, from GI Partners.
- **March:** Zayo Group announced its intent to acquire Crown Castle's fiber solutions business for $4.25 billion.
- **January:** AT&T signs a $850 million sale-leaseback of 74 telecom facilities to Reign Capital.
- **January:** Blackstone acquired Potomac Energy Center, a 774 MW natural gas plant in Loudoun County, VA for $1 billion.

Buyer composition

Data center buyer composition

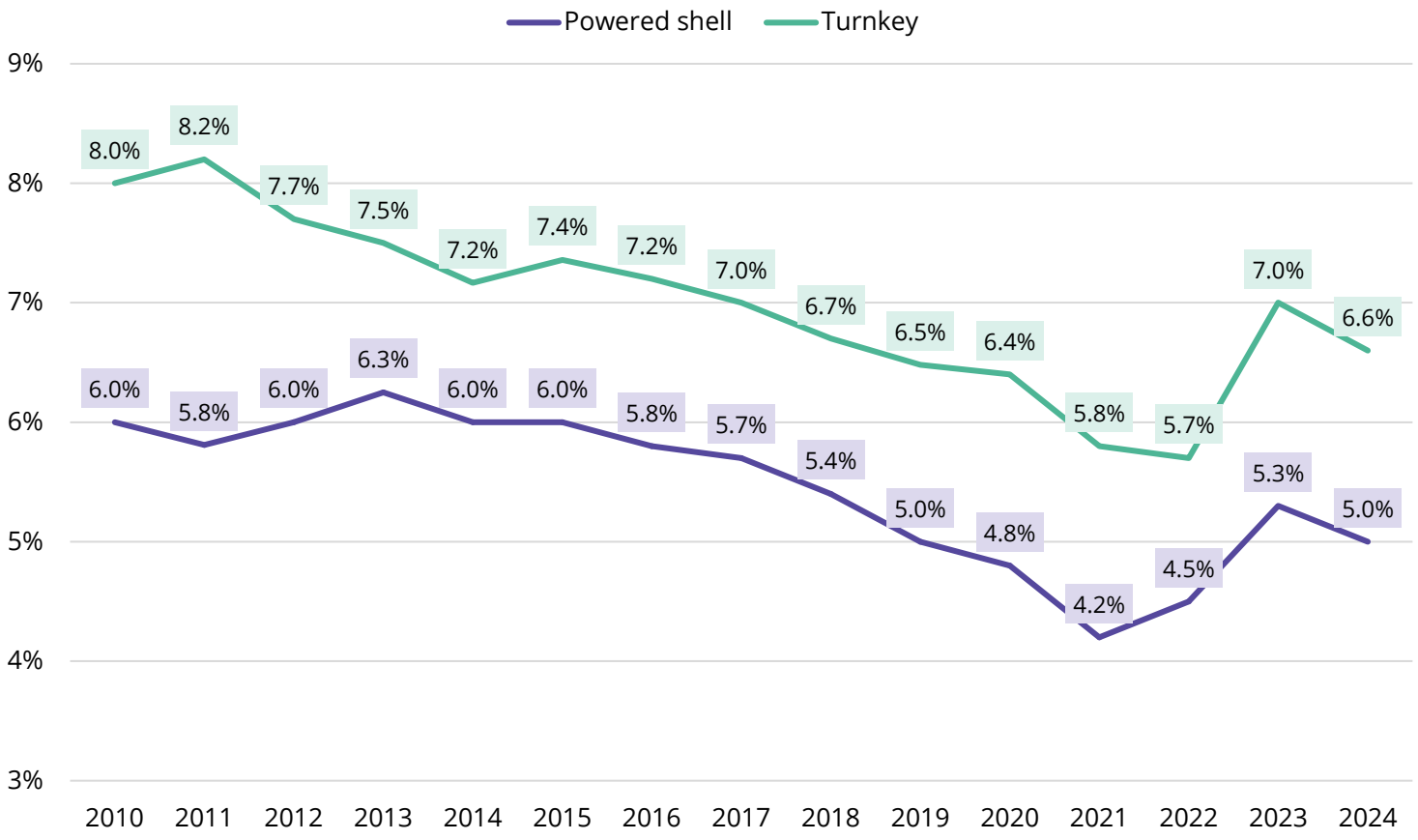


The data center market in 2024 has seen a shift toward more institutional and REIT buyers, with institutional investors making up a significant portion of the market. User buyers, such as colocation operators, continue to play an important role but with slightly less market share compared to previous years. Private buyers have decreased considerably, indicating a more mature market driven by large-scale, long-term investors.

Source: Real Capital Analytics, Avison Young Market Intelligence

Cap rates

Typical data center cap rate



Note: Typical cap rates are not necessarily averages of all market transactions; to handle small sample sizes, we have made adjustments to remove outliers and/or correct for deal nuances that may impact cap rates.
Source: Avison Young Market Intelligence

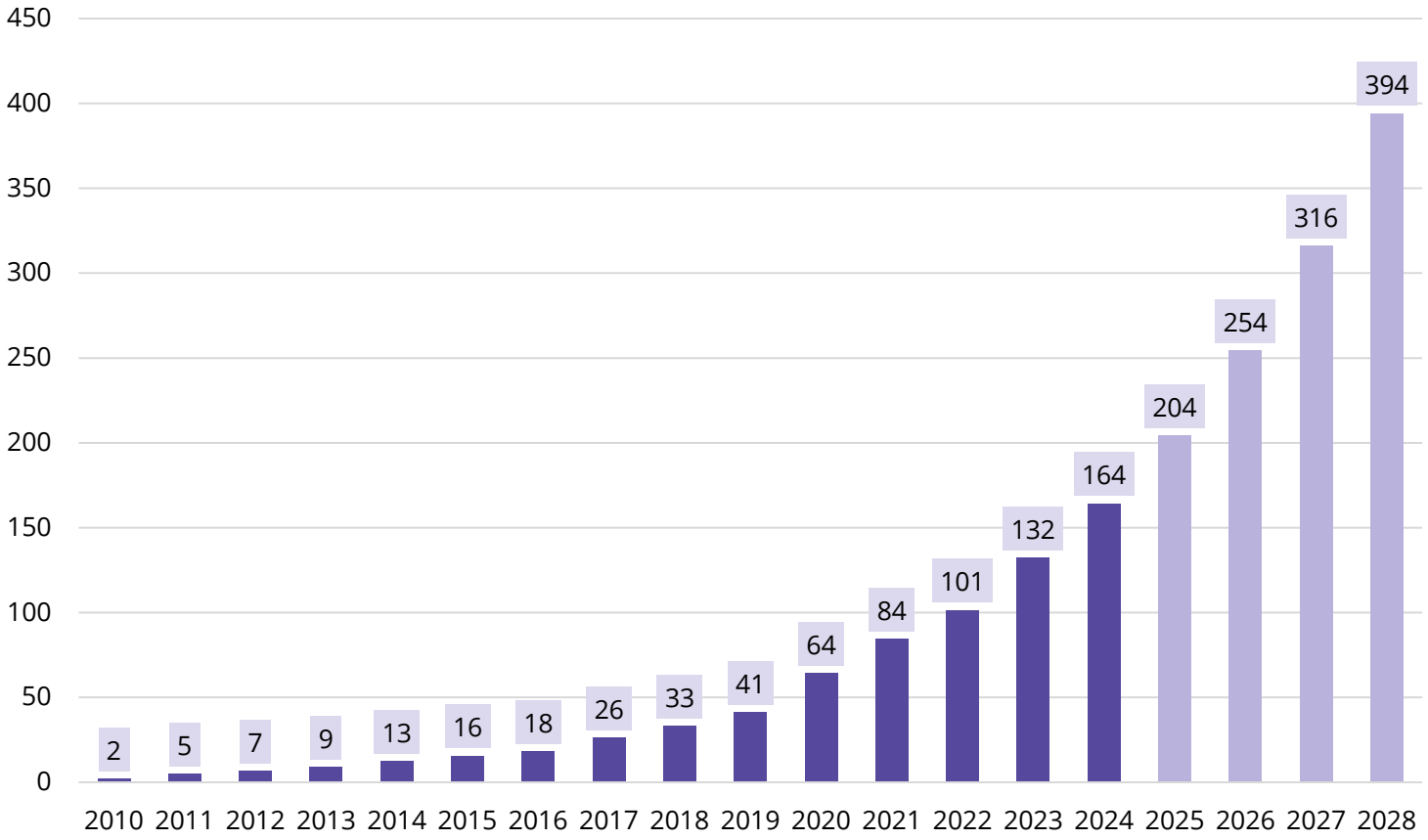
Cap rates for data centers have fallen to the mid-6% range for turnkey facilities and around 5% for powered shell properties. While future Fed rate cuts remain uncertain, strong investor demand is likely to keep pushing cap rates lower.

Looking ahead

AVISON YOUNG

Demand drivers – digitalization

Data created and replicated worldwide (zettabytes)



The global datasphere (data created/replicated worldwide) is growing rapidly, projected to double from 2025 to 2028. Several new technologies have the potential to consume significantly more data than typical applications today, including:

Artificial intelligence (AI): AI and machine learning (ML) necessitate the collection, storage and computation of massive data sets

Robotics and autonomous vehicles (AVs): the training, inferencing, and retraining of robots and AVs create large quantities of data

Internet of things: previously "dumb" devices are now connected and generating data

Advancing technology: existing technologies require more data as sophistication increases (e.g., photo file size)

Cloud storage and computing: increasingly more enterprises are shifting data storage and computation to cloud and hybrid solutions

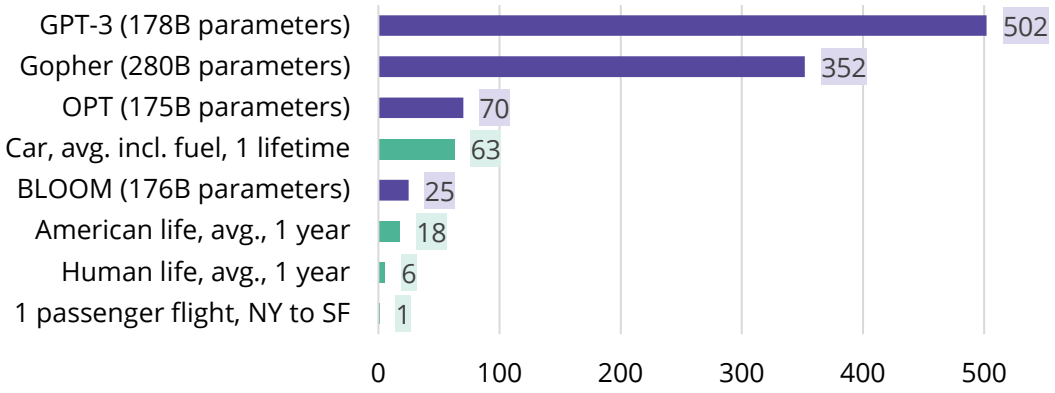
5G connectivity: enhanced mobile connection speeds have enabled new use cases that rely on quick communication with edge data centers (necessitating many more such edge data centers)

Source: IDC Global DataSphere Forecast, 2024-2028

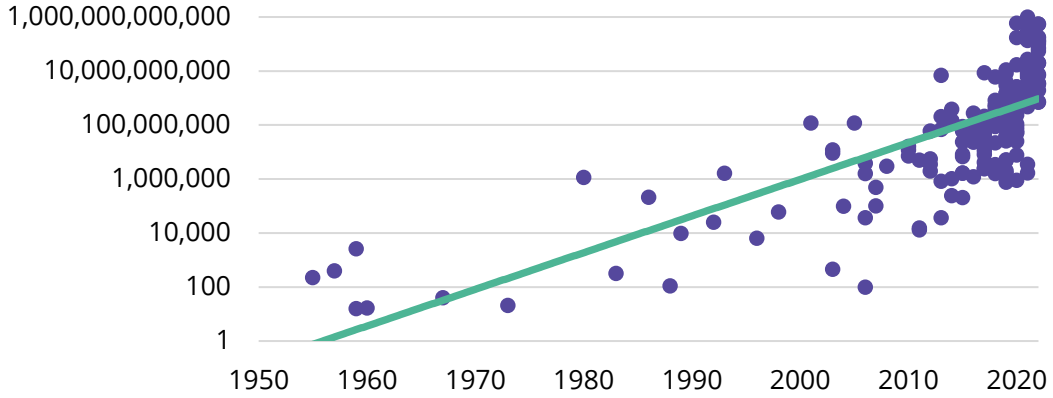
Demand drivers – AI

A host of factors will lead to an explosion in the amount of data being created, stored and processed worldwide, ensuring that today's exceptional pace of data center demand continues.

CO2e of training various AI models (kg)*



Number of parameters of significant ML systems**



AI training draws immense power

Training GPT-3, the language model powering OpenAI's ChatGPT, is estimated to have resulted in 502 tonnes of CO2 equivalent emissions from data center operations. This is roughly equivalent to the energy consumed by the average American over 28 years. GPT-4, the successor to GPT-3, is rumored to use over 1.7 trillion parameters. Additionally, LLM models are repeatedly trained on updated data to achieve improvements.

ML complexity is growing rapidly

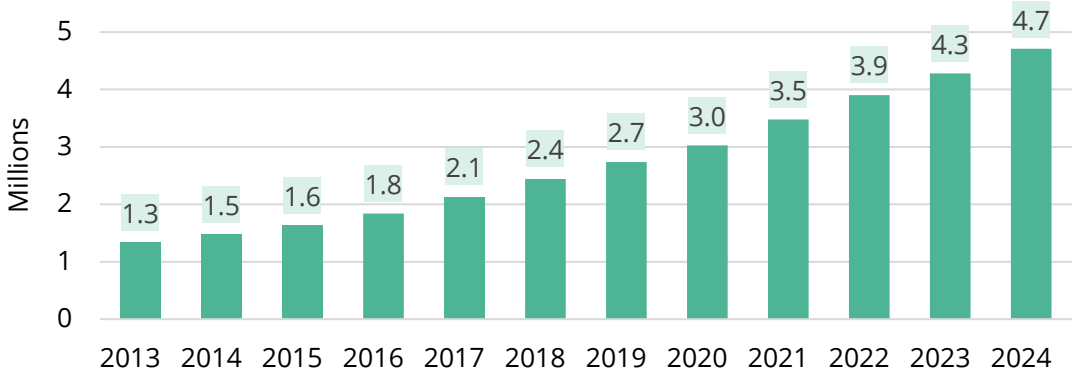
The number of parameters in significant machine learning models has grown exponentially. As AI technology grows in complexity, the requirement for computational power and data centers grows alongside it.

*Source: Epoch (2022)
**Source: Luccioni et al., (2022); Strubell et al., (2019)

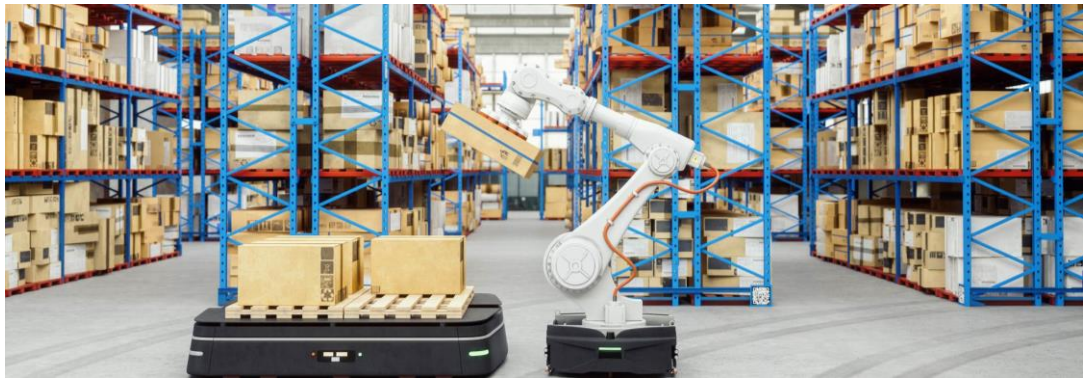
Demand drivers – robotics

Robotics is a rapidly advancing industry with the potential to profoundly transform society. Data centers play a critical role in this evolution: training, real-time inferencing, and continuous retraining of robotic systems generate vast amounts of data and require substantial computational power, fueling ongoing demand for advanced data center infrastructure.

Global operational stock of industrial robots*



Commercial use robotics is becoming more common



Robotics will be the next stage of the industrial revolution

From fully programmed assembly line machines to semi-autonomous collaborative robots and fully autonomous systems, robotics is driving major gains in production efficiency and cost reduction. Shifting demographics and the global shift from manufacturing-driven to service-driven economies have accelerated adoption, particularly in countries like China, which now accounts for more than 50% of global robot installations. Japan and South Korea are following similar trajectories, and continued advancements in robotics have the potential to reshape the future of manufacturing and logistics worldwide.

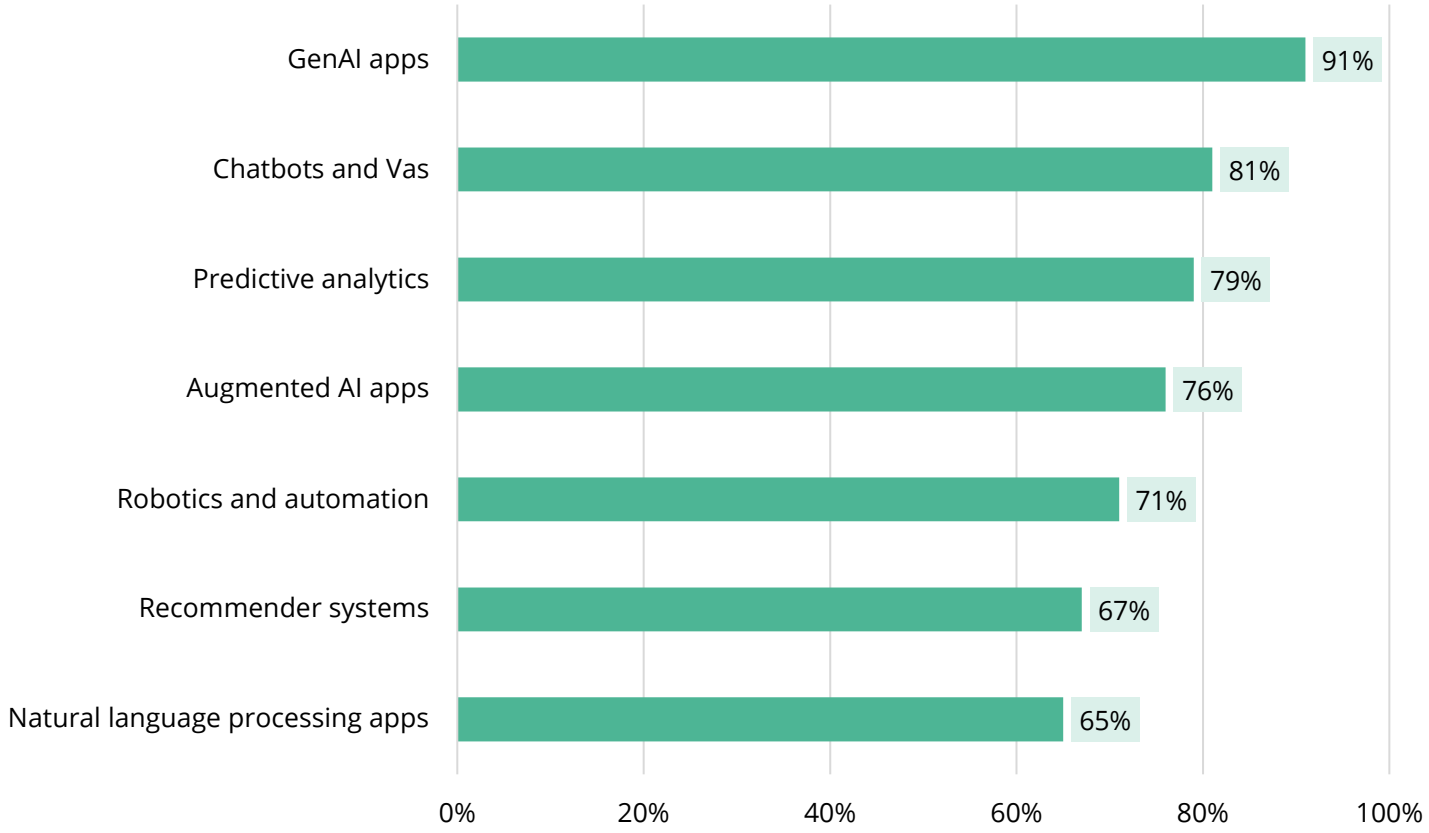
AI/ML is significantly accelerating robotics development

Just a few years ago, robotics training relied heavily on physical-world iterations—slow, costly, and labor-intensive. Today, companies like NVIDIA have created tools to revolutionize this process, enabling *digital twins* of the physical robots to train and iterate in fully virtual environments at massive speed and scale. Robotics is advancing faster than ever, and at every stage—training, real-time operation, data collection, and retraining—enormous volumes of data are generated, and massive computational resources are required. Data centers sit at the core of this transformation, and the infrastructure needed to power this evolution presents a major growth opportunity.

*Source: International Federation of Robotics

Demand drivers – AI workloads shift to colocation

Plans to migrate AI-related workloads from cloud to colocation



While many early adopters of AI/ML initially leveraged cloud services, a survey of IT leaders and business operators indicates a growing trend toward shifting these operations into colocation facilities. Colocation offers greater control over costs, scalability, and enhanced privacy, making it an increasingly attractive option for businesses looking to optimize their AI workloads.

Source: CoreSite. (2024). 2024 CoreSite State of the Data Center Report.

On-site generation – natural gas

Natural gas has emerged as a strategic option for data center developers aiming to expedite power availability. With abundant reserves in the U.S., particularly in states like Ohio, Texas, and Pennsylvania, natural gas offers a cost-effective alternative to traditional utility-supplied power. In some regions, it provides lower power pricing compared to wholesale rates from local utilities. However, the capital expenditure for constructing on-site natural gas power plants must be amortized over time.

For ESG-conscious users, the resulting energy can be cleaner than utility mixes that still include coal or oil. Natural gas also requires far less land than solar or wind which is often a challenge for site selection. However, on-site gas generation still requires grid interconnection for reliability—particularly for AI workloads with sharp load swings that gas turbines cannot quickly follow. Without grid support, substantial battery storage would be necessary to manage these fluctuations, potentially leading to increased costs.

Blackstone to acquire Potomac Energy Center power plant in $1B deal

In January 2025, Blackstone announced its agreement to acquire the Potomac Energy Center—a 774 MW natural gas power plant in Loudoun County, VA—from investment firm Ares Management.

Within just a few miles of the site are hyperscale campuses operated by Microsoft, Amazon, and Google, alongside dense clusters of colocation facilities.

Given the severe power constraints in Northern Virginia and the surging demand for capacity, Blackstone's move is almost certainly aimed at securing power for future data center developments.

This acquisition builds on Blackstone's growing data center strategy, following its 2021 purchase of QTS Realty Trust and its late-2024 acquisition of Asia-based provider AirTrunk, positioning Blackstone as the largest data center owner globally.

Sources: Power Magazine (2025, January 25*). Blackstone to Acquire 774-MW Virginia Gas Plant in 'Data Center Alley' in Reported $1B Deal.*
Blackstone (2025, January 24): *Blackstone Energy Transition Partners to Acquire Potomac Energy Center.*

On-site generation – microgrids

As data center construction surges, power generation and transmission timelines from local utilities have become a critical bottleneck, slowing scalability and speed to delivery. As a result, behind-the-meter solutions like on-site microgrids are becoming increasingly attractive to developers despite high upfront costs. Microgrids allow data centers to scale power on the developer's own construction timeline rather than waiting years for utility upgrades. Additionally, they enhance reliability by insulating operations from grid disruptions. When integrated strategically with local utilities, microgrids can also contribute to grid stability by supplying excess power or acting as a buffer during peak demand or emergencies. For the many data center operators aligning with ESG goals, microgrids allow greater control over renewable energy integration. On-site solar, battery storage, and fuel cells (e.g., Bloom Energy) are becoming common components of data center microgrids.

Bloom Energy and AEP partner for 1GW fuel cell deployment to power AI data centers

In November 2024, Bloom Energy entered into a significant agreement with American Electric Power (AEP) to supply up to 1 gigawatt (GW) of solid oxide fuel cells (SOFCs). AEP has placed an initial order for 100 megawatts (MW), with plans for expansion in 2025. These fuel cells will be colocated at AI data center sites to meet immediate power demands. Bloom's SOFCs, currently powered by natural gas, offer a scalable and efficient energy solution, with the potential to transition to hydrogen in the future.

This partnership exemplifies the growing commercial interest in microgrid technologies, providing data centers with reliable, on-site power generation that enhances grid resilience and supports the increasing energy needs of advanced computing applications.

Source: DataCenterDynamics (2024, January 29). *Bloom Energy secures 1GW fuel cell supply deal with AEP to support AI-driven data centers.*

Innovative solutions – Small Modular Reactors

The growing power demands of data centers have brought small modular reactors (SMRs) into the spotlight as a promising energy solution. When integrated into a microgrid, SMRs provide a scalable and efficient alternative to traditional power sources, offering data centers a reliable, independent energy supply. Unlike large-scale nuclear plants, SMRs can be rapidly deployed using prefabricated, certified designs, with the flexibility to scale alongside the data center's needs. While commercial SMR deployments remain a few years away, they present a compelling future of clean, stable, and abundant energy, making them an increasingly attractive option for the data center industry.

Oklo signs a 12GW nonbinding agreement with Switch

Oklo, a company focused on small modular reactor research and development, has entered into a nonbinding master power agreement with data center developer Switch, aiming to deploy up to 12 gigawatts (GW) of new reactor capacity over the next 20 years.

Initial installations of Oklo's 50-megawatt electric (MWe) Aurora powerhouses could commence as early as 2029, with plans to explore designs exceeding 100 MWe for future scalability. This collaboration reflects a growing trend of data center operators partnering with nuclear energy firms to meet increasing power demands driven by artificial intelligence and cloud computing.

Source: Utility Dive. (2024, January 23). *Oklo signs supply agreement for Aurora SMR with data center developer Switch.*

Looking ahead

Large scale requirements

Leasing requirements are scaling to unprecedented levels, with AI users now urgently seeking blocks of 100 MW—and in some cases, exceeding 500 MW.

Transformer shortage

The ongoing shortage of transformers in the U.S. has considerably extended lead times for deliveries. This will impact data center development, potentially causing delays of two to three years.

Pushing design limits

AI workloads are rapidly raising power density demands. While 15 to 20 kW per rack was considered high just a few years ago, next-gen GPU racks are expected to require up to 600 kW—forcing major shifts in cooling and facility design.

Outward push

Near-zero vacancy in urban primary markets are spilling to outlying suburban and rural markets due to availability of land and power. Logistics will become a significant bottleneck.

Alternative power

As power limitations drive innovation, data center operators are increasingly turning to alternative off-grid and hybrid power solutions, including microgrid solar, wind, natural gas and nuclear energy.

Pricing will keep rising

Low vacancy will persist as supply chain and utility constraints limit new deliveries, creating upward pressure on rents and sale prices for existing data centers and powered land.

For more market insights and information visit **avisonyoung.com**

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