Principal Asset Management℠

Principal Real Estate

Where real estate meets infrastructure: The evolution of data center investing

AUTHORS:

SEBASTIAN DOOLEY, CFA
Senior Fund Manager

RICH HILL
Senior Managing Director
Global Head of Research & Strategy

MATT HACKMAN
Managing Director
Portfolio Management

JEFF MATHEWS
Managing Director
Origination and Structuring
Private Infrastructure Debt

We recently hosted a webinar, "Powering the future: Strategic data center investment in a capacity-constrained market." Given the level of interest it generated, we've distilled the discussion into this short piece.

EXECUTIVE SUMMARY

Data centers have rapidly moved from a niche real estate subsector to a critical pillar of the global economy. Driven by cloud computing, artificial intelligence (AI), digitalization, and onshoring of advanced manufacturing, demand for data center capacity has continued to accelerate globally. At the same time, the sector faces unprecedented constraints, most notably access to power, transmission infrastructure, land, and specialized labor.

This paper explores five key themes shaping today's data center investment landscape:

1. Whether current demand reflects a durable structural trend or an emerging AI bubble
2. How data centers are powered, and why power availability is now the binding constraint
3. Why all data centers are not created equal
4. What debt markets are signaling about risk, resilience, and capital structure
5. Whether data centers represent the convergence of real estate and infrastructure into a new hybrid asset class

While volatility and uncertainty persist, our assessment is that data centers, particularly those located in high-quality markets, supported by stable power access, and aligned with long-term cloud demand, remain strategically compelling investments in a capacity-constrained world.

1 Separating signal from noise: Is this an AI bubble?

Investor interest in data centers has surged alongside enthusiasm for AI. The big five U.S. hyperscalers are collectively projected to spend approximately $715 billion in capital expenditures in 2026, representing a 67% increase year-over-year. This scale of investment has inevitably raised questions about sustainability, timing of returns, and the potential for capital misallocation.

Public equity markets have already begun to differentiate across the AI ecosystem. While several AI-adjacent technology stocks have faced valuation pressure amid concerns about future free cash flow, publicly listed data center REITs have performed notably well. This divergence underscores an important distinction: predictable, contractual cash flows tied to physical assets are being valued differently from long-dated, uncertain earnings growth.

Crucially, demand for data center capacity remains structurally strong. Availability in key U.S. and European markets for 2026 and 2027 delivery is limited, and much of it is already pre-leased. While AI-driven demand may prove uneven or cyclical in the short term, broader digitalization trends, including cloud adoption, enterprise computing, and AI inference, provide a durable foundation.

We note that demand for data centers outpaces supply, given power and equipment constraints, among other factors, which suggests a limit to overbuild risk. And importantly, even in a hypothetical scenario where AI-related demand softens, high-quality data centers benefit from long-term, non-cancelable leases with investment-grade counterparties, creating a floor under cash flows and asset values.

2 Powering data centers: The real constraint

If demand is robust, supply is not. The single most important constraint facing the data center sector today is power availability.

Data centers require ultra-reliable baseload power. Data centers typically require coordination with the local utility and connection to the regional grid, while in some cases utilizing temporary or supplemental onsite power solutions during development or operations. However, power generation capacity, transmission infrastructure, and grid modernization have not kept pace with rising demand.

Compounding the challenge, neither the United States nor Europe operates on a single national grid. Instead, multiple regional grids, each with distinct regulatory frameworks, reserve margins, and development timelines, limit the ability to rapidly shift power across geographies. Building new power generation, especially combined-cycle gas turbines, can often require five to seven years or more.

In response, a multi-layered approach is emerging:

- Grid-connected baseload power remains essential
- Renewables, supported by batteries, offer speed-to-market but are intermittent
- Behind-the-meter solutions are gaining traction for incremental capacity
- Ongoing grid modernization solutions make more power resources available
- Over the long term, small modular nuclear reactors (SMRs) may provide scalable baseload power—pending cost, safety, and regulatory progress

This constrained environment does more than limit supply—it reshapes market dynamics. Power scarcity increases barriers to entry, supports asset values for existing facilities, and reinforces the importance of early-stage site selection and utility relationships.

3 Not all data centers are created equal

A central theme for investors is differentiation. Data centers serve a variety of workloads, each with distinct requirements for location, connectivity, cooling, and power density.

Three broad categories dominate today's market:

1. Traditional cloud and enterprise workloads, which prioritize low latency and proximity to population centers
2. Generative AI model training, which requires massive power and space but is less location-sensitive
3. AI inference, which integrates AI into everyday applications and typically occurs close to users and existing cloud infrastructure

While generative AI training facilities can be developed in non-traditional locations with cheaper land, they may face greater obsolescence or increased supply risk over time. By contrast, cloud-oriented and inference-ready facilities located within established availability zones—tight geographic clusters of interconnected data centers—benefit from network effects, redundancy, and long-term demand visibility.

Availability zones reinforce a real estate axiom: location matters. Facilities in Tier 1 and strong Tier 2 markets often enjoy greater tenant stickiness, pricing power, and adaptability as technology evolves.

From an investment perspective, targeting facilities that generate base returns from cloud demand with embedded optionality to capture AI-related upside offers a balanced approach to risk-adjusted performance.

4 What debt markets are telling us

Despite headlines around capital intensity, debt markets have continued to exhibit strong appetite for data center exposure. Senior secured debt financing for well-leased, investment-grade assets can often cover 75–85% of development costs, often structured with conservative loan-to-value ratios based on stabilized asset values. Further, subordinated debt positions added during or after construction can fund up to and exceeding 100% of the initial build cost but limited to approximately 75% stabilized loan-to-value (LTV) on a consolidated basis.

These transactions reflect several underlying realities:

- Data centers are viewed as hard asset, low-obsolescence (HALO) investments
- Long-term leases with hyperscalers reduce cash flow volatility
- Lenders place meaningful value on future cash flow coverage, stabilized value and underlying "dark value" of assets—what they might be worth even without a tenant

Project-level, off-balance-sheet financing through special purpose vehicles (SPVs) is standard and well understood in infrastructure and real estate. While refinancing risk over the next five to seven years warrants monitoring, capital markets have thus far remained supportive across bank, institutional, and private credit channels as well as increasingly in securitization markets.

The implication is clear: credit markets are validating the sector's resilience, even as they price risk thoughtfully.

5 A converging asset class: Real estate meets infrastructure

Data centers increasingly sit at the intersection of real estate and infrastructure. Like real estate, they are physical assets with location-specific attributes, leases, and redevelopment potential. Like infrastructure, they depend on long-lived systems, regulated utilities, complex financing structures, and critical-use demand.

This overlap has led to a convergence of investor bases, underwriting approaches, and exit strategies. Infrastructure capital, with its longer-duration horizons, may increasingly serve as a natural owner of stabilized data center assets developed within real estate frameworks.

From a portfolio construction standpoint, success in this sector requires integrated expertise: teams that understand real estate fundamentals, power markets, capital structure, and technological evolution simultaneously. Missing any one of these dimensions can materially alter risk outcomes.

Managing long-term risks

Over a 10-year horizon, key risks include:

- Shifts in hyperscaler capital allocation priorities
- Rising refinancing needs amid evolving capital markets
- Community and environmental opposition, including water usage constraints
- Technological change affecting density, cooling, and energy efficiency

Yet paradoxically, many of these challenges also reinforce value for existing, well-located assets. Increased permitting friction, NIMBYism, and infrastructure bottlenecks limit new supply, strengthening pricing power and long-term durability.

Active asset management—ongoing tenant dialogue, adaptive design, power optimization, and community engagement—remains essential.

CONCLUSION

Data centers are increasingly viewed not only as a growth story, but also a scarcity story.

In a world where digital demand continues to rise faster than the infrastructure needed to support it, disciplined investment in high-quality, power-secured, well-located data centers can offer durable income, inflation mitigation, and optional upside.

While uncertainty around AI adoption paths and capital intensity persists, the convergence of constrained supply, contractual cash flows, and essential-use demand suggests that data centers will remain a cornerstone of private markets for years to come.

Powering the future requires more than technology: it requires strategy, selectivity, and a deep understanding of what truly drives value.

For Public Distribution in the United States. For Institutional, Professional, Qualified, and/or Wholesale Investor Use Only in other Permitted Jurisdictions as defined by local laws and regulations.

Risk Considerations

Investing involves risk, including possible loss of principal. Past Performance does not guarantee future return. All financial investments involve an element of risk. Therefore, the value of the investment and the income from it will vary and the initial investment amount cannot be guaranteed. Potential investors should be aware of the risks inherent to owning and investing in real estate, including value fluctuations, capital market pricing volatility, liquidity risks, leverage, credit risk, occupancy risk and legal risk. All these risks can lead to a decline in the value of the real estate, a decline in the income produced by the real estate and declines in the value or total loss in value of securities derived from investments in real estate.

Data center properties will only be attractive to a unique type of tenant. A limited tenant base increases the risk of vacancy. Additionally, a property designed to be a data center property, may be difficult to relet to another type of tenant or convert to another use and will be more likely to become functionally obsolete when compared to other properties. For example, if converted to industrial use, the expected rents would be lower than that projected for data centers. Thus, if operating a data center were to become unprofitable, the liquidation value of properties may be substantially less than would be the case if the properties were readily adaptable to other uses.

Important Information

This material covers general information only and does not take account of any investor's investment objectives or financial situation and should not be construed as specific investment advice, a recommendation, or be relied on in any way as a guarantee, promise, forecast or prediction of future events regarding an investment or the markets in general. The opinions and predictions expressed are subject to change without prior notice. The information presented has been derived from sources believed to be accurate; however, we do not independently verify or guarantee its accuracy or validity. Any reference to a specific investment or security does not constitute a recommendation to buy, sell, or hold such investment or security, nor an indication that the investment manager or its affiliates has recommended a specific security for any client account.

Subject to any contrary provisions of applicable law, the investment manager and its affiliates, and their officers, directors, employees, agents, disclaim any express or implied warranty of reliability or accuracy and any responsibility arising in any way (including by reason of negligence) for errors or omissions in the information or data provided. All figures shown in this document are in U.S. dollars unless otherwise noted.

This material may contain 'forward looking' information that is not purely historical in nature. Such information may include, among other things, projections and forecasts. There is no guarantee that any forecasts made will come to pass. Reliance upon information in this material is at the sole discretion of the reader.

This material is not intended for distribution to or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation.

This document is issued in:

- The United States by Principal Global Investors, LLC, which is regulated by the U.S. Securities and Exchange Commission.
- Europe by Principal Global Investors (Ireland) Limited, 70 Sir John Rogerson's Quay, Dublin 2, D02 R296, Ireland. Principal Global Investors (Ireland) Limited is regulated by the Central Bank of Ireland. Clients that do not directly contract with Principal Global Investors (Europe) Limited ("PGIE") or Principal Global Investors (Ireland) Limited ("PGII") will not benefit from the protections offered by the rules and regulations of the Financial Conduct Authority or the Central Bank of Ireland, including those enacted under MiFID II. Further, where clients do contract with PGIE or PGII, PGIE or PGII may delegate management authority to affiliates that are not authorised and regulated within Europe and in any such case, the client may not benefit from all protections offered by the rules and regulations of the Financial Conduct Authority, or the Central Bank of Ireland. In Europe, this document is directed exclusively at Professional Clients and Eligible Counterparties and should not be relied upon by Retail Clients (all as defined by the MiFID).
- United Kingdom by Principal Global Investors (Europe) Limited, Level 1, 1 Wood Street, London, EC2V 7 JB, registered in England, No. 03819986, which is authorized and regulated by the Financial Conduct Authority ("FCA").
- This document is marketing material and is issued in Switzerland by Principal Global Investors (Switzerland) GmbH.
- United Arab Emirates by Principal Investor Management (DIFC) Limited, an entity registered in the Dubai International Financial Centre and authorized by the Dubai Financial Services Authority as an Authorised Firm, in its capacity as distributor / promoter of the products and services of Principal Asset Management. This document is delivered on an individual basis to the recipient and should not be passed on or otherwise distributed by the recipient to any other person or organisation.
- Singapore by Principal Global Investors (Singapore) Limited (ACRA Reg. No. 199603735H), which is regulated by the Monetary Authority of Singapore and is directed exclusively at institutional investors as defined by the Securities and Futures Act 2001. This advertisement or publication has not been reviewed by the Monetary Authority of Singapore.
- Australia by Principal Global Investors (Australia) Limited (ABN 45 102 488 068, AFS Licence No. 225385), which is regulated by the Australian Securities and Investments Commission and is only directed at wholesale clients as defined under Corporations Act 2001.
- Hong Kong SAR by Principal Asset Management Company (Asia) Limited, which is regulated by the Securities and Futures Commission. This document has not been reviewed by the Securities and Futures Commission. This document may only be distributed, circulated or issued to persons who are Professional Investors under the Securities and Futures Ordinance and any rules made under that Ordinance or as otherwise permitted by that Ordinance.
- Other APAC Countries/Jurisdictions, this material is issued for institutional investors only (or professional/sophisticated/qualified investors, as such term may apply in local jurisdictions) and is delivered on an individual basis to the recipient and should not be passed on, used by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation.

Principal Global Investors, LLC (PGI) is registered with the U.S. Commodity Futures Trading Commission (CFTC) as a commodity trading advisor (CTA), a commodity pool operator (CPO) and is a member of the National Futures Association (NFA). PGI advises qualified eligible persons (QEPs) under CFTC Regulation 4.7.

MM14960 | 04/2026 | 5396709-122027