

Data, power, and the next investment frontier



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Executive Summary

Cloud computing and artificial intelligence are driving an unprecedented surge in hyperscaler investment and reshaping the geography of global digital infrastructure.:

- **Record Expansion:** U.S. and European data center absorption continues at record levels, over 10.2 GW in 2024 alone, with capital expenditures from the four largest hyperscalers projected to exceed \$400 billion globally in 2025.
- **The Power Bottleneck:** Transmission congestion, permitting delays, and energy scarcity are restricting supply pipelines, especially in primary hubs like Northern Virginia, Frankfurt, and Dublin.
- **Market Shift:** These power constraints are redirecting development toward emerging data center markets with available capacity, favorable regulation, and lower costs.
- **Investor Implication:** The persistent supply-demand imbalance in data center power and capacity is creating outsized opportunities for investors, developers, and operators that are able to deliver scalable, power-secure solutions.

The Hyperscaler Arms Race

The past decade transformed cloud computing into a foundational component of the global economy. Amazon Web Services, Microsoft Azure, Oracle, and Google Cloud have turned digital infrastructure into a core utility, with combined cloud revenue run rates at \$440 billion annually, and growing at a compounded 22% rate since 2016.¹

These companies are at the forefront of the generative-AI era, leveraging unmatched compute scale and proprietary datasets to power next-generation applications. As generative AI is exponentially more compute-intensive, computational requirements should continue to accelerate. A single large-language-model query consumes roughly ten times the power of a standard web search. Adoption of AI tools has increased substantially, from 8% of the U.S. population in 2023 to 38% in 2025, with those self-classifying as “heavy users” increasing from 3% to 21% over the same period.² Enterprises are embedding AI into their core operations, causing demand for high-performance, low-latency infrastructure to soar. This has prompted hyperscalers to expand capital expenditures dramatically to keep pace with demand.

- Total capital expenditures from the top four hyperscalers³ are projected to surpass \$400 billion in 2025, nearly double the \$218 billion from 2024, and Q3 2025 earnings reports commentary suggests 2026 expenditures will range from “notably larger” to “significant increase expected” from 2025 levels. Other companies are also ramping up spending; Oracle announced FY 2026 capex is expected to be around

\$35 billion, primarily for revenue-generating equipment for data centers rather than land/buildings.

- The U.S. economy is increasingly driven by AI. The market capitalization of the “Magnificent 7” passed \$22 trillion, and comprises over 37% of the total market capitalization of the S&P 500.⁴ It is estimated that capital expenditures to build out digital infrastructure contributed more to U.S. GDP growth than consumer spending in the first half of 2025.⁵

This investment wave is global and driving demand for data centers. Across the U.S. and Europe, data center net absorption was 10.2 GW in 2024, and tracking at similar levels in 2025. On both continents, absorption is breaking records, and the total commissioned power has more than doubled since the end of 2022 (see Exhibit 1). The combined vacancy rate is below 2%, and below 1% in major global markets such as Northern Virginia, Dallas/Ft. Worth, Frankfurt, Columbus, Paris, and Dublin.

Power Scarcity & Move to Emerging Data Center Markets

In the face of record-high absorption and historically low vacancy rates, supply remains constrained. Power is the gating factor for new development. The U.S. grid supports roughly 36 gigawatts (GW) of data center load today, yet demand through 2030 is expected to require nearly 80 GW, an additional 47 GW of generation and transmission capacity. Similar dynamics are emerging in Europe, where local utilities in Ireland and the Netherlands have imposed moratoriums or caps on new connections. Across the top eight U.S. data center markets, power scarcity has emerged as the defining constraint on growth. Interconnection queues have lengthened, utilities are rationing available capacity, and transmission networks are struggling to keep pace with surging electrification. Lead times to secure power are now estimated at four to seven years in most major markets, extending to five to ten years in Northern Virginia, Columbus, and Northern California.⁶ **These delays are forcing hyperscalers and developers alike to reassess traditional location strategies, catalyzing a structural shift toward markets where energy availability, infrastructure readiness, and regulatory agility offer a faster path to deployment.**

Pennsylvania is emblematic of this shift, and has rapidly emerged as a promising alternative. The state combines abundant, affordable energy, strategic proximity to major population centers, a skilled workforce, and an increasingly supportive regulatory environment. Pennsylvania’s legacy as one of America’s top energy producers gives it a decisive edge. As the second-largest natural-gas-producing state and home to substantial nuclear and hydro resources, it offers a diversified, reliable, and competitively priced energy mix. Hyperscalers are capitalizing on this strength through direct investments:

- Amazon purchased land adjacent to the Susquehanna nuclear plant for \$650 million, securing up to 1.9 GW of carbon-free power.
- Microsoft entered a 20-year, \$16 billion deal to restart Three Mile Island, adding 835 MW of clean energy.
- Google signed a \$3 billion, 20-year PPA for 670 MW of hydropower from the Holtwood and Safe Harbor dams.

It is not just PA. Across the U.S. and Europe, emerging data center markets with strong energy profiles, such as Indiana, Milan, Madrid, and Warsaw, are capturing hyperscaler investment once concentrated in primary nodes. These regions offer land availability, favorable cost structures, and regulatory support for renewable or nuclear power integration.

¹Through Q3 2025, per company financials.

²<https://sparktoro.com/blog/new-research-20-of-americans-use-ai-tools-10x-month-but-growth-is-slowing-and-traditional-search-hasnt-dipped/>

³Amazon, Alphabet, Meta, Microsoft.

⁴As of October 27, 2025.

⁵<https://www.forbes.com/sites/randywatts/2025/08/14/capital-spending-as-the-key-market-driver/>

⁶Eastdil Secured, as of Q3 2025.