LANDGATE

Q2 2025 Data Center Activity Report

LandGate

LandGate is the leading provider of data solutions for site selection, origination, development, financing, and market analysis of U.S. infrastructure projects and renewable energy project: solar, data centers, EV's, energy storage, wind, carbon, and CCS.

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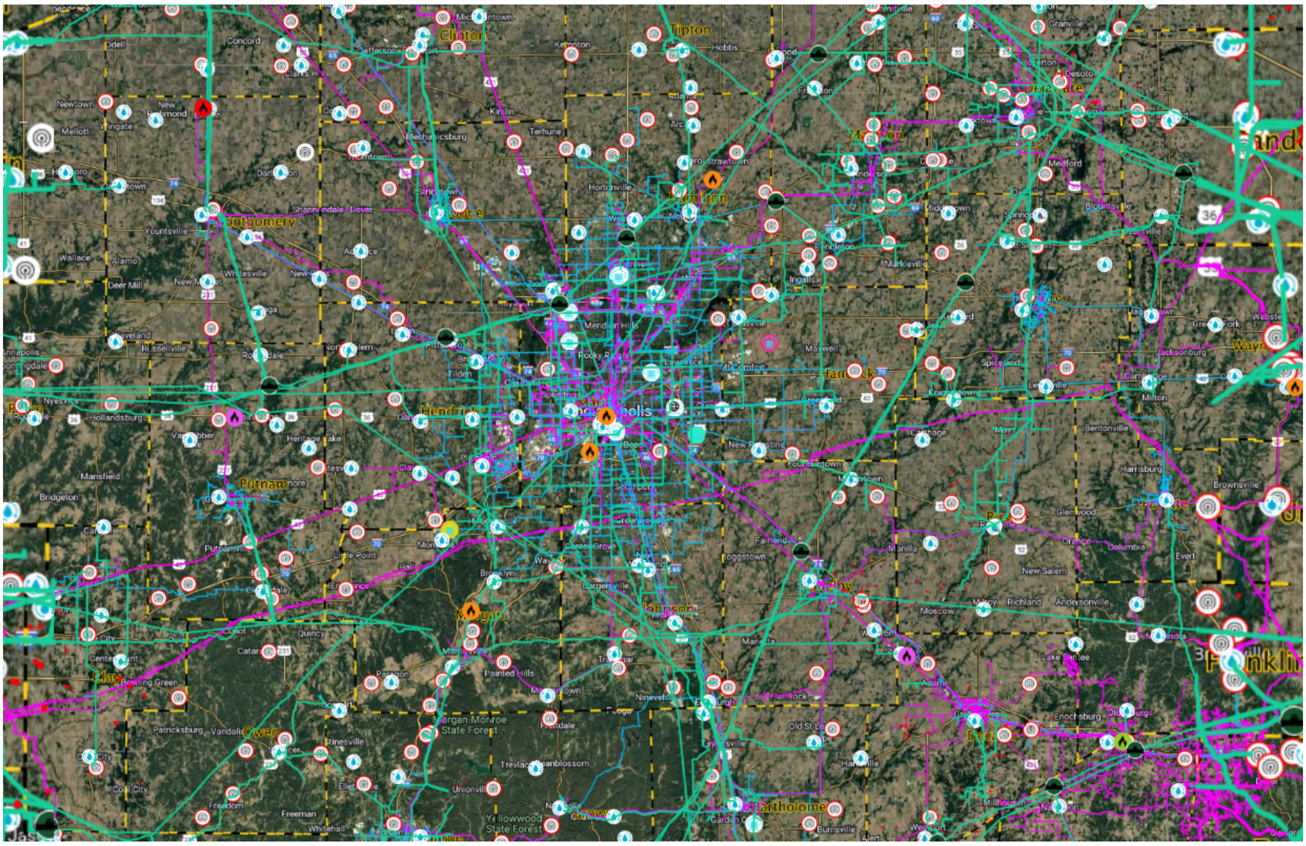
Industry Momentum Surges with AI Demand

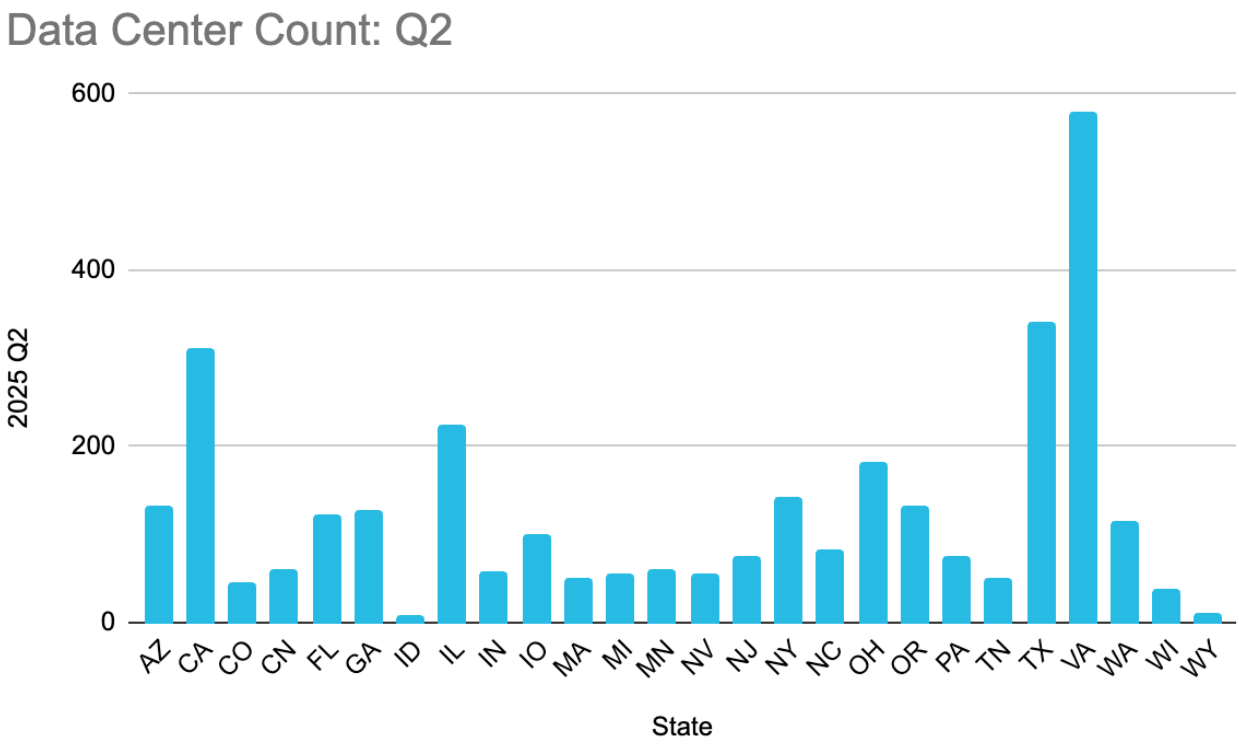
The U.S. data center sector accelerated in Q2 2025 as hyperscale operators ramped up AI training and inference workloads. **Total energy consumption for the quarter reached an estimated 224TWh** driven by new GPU dense pods and edge expansions. **Capital expenditures reached a growth rate of 17.7% in installed capacity** with hyperscalers accounting for over $300 billion in capital expenditures. Despite ongoing challenges which include workforce shortages and interconnection delays, developers found opportunity in new state-level incentives and deregulation tied to the “Big Beautiful Bill,” which helped unlock rural builds across key markets. Regional winners this quarter included Ohio, Georgia, and Texas.

This report dives into those market dynamics, key technology trends, energy and land shifts, policy impacts, and a deeper look at Ohio’s fast-growing corridor.



Capital Expansion & Policy Shifts

Data center capacity additions in Q2 surged to 11.44% year-over-year, driven by aggressive AI workload deployments and edge computing rollouts. Hyperscale campuses now routinely exceed 200 MW of nameplate capacity, with some dedicated to 10–20 MW GPU pods optimized for large language model training. The U.S. data center sector is estimated to consume an estimated 500 TWh of electricity in Q2 which is roughly 11.9% of national demand. Capital expenditures in AI infrastructure surpassed $35 billion this quarter, injecting demand across construction, electrical, and network equipment supply chains. Hyperscalers accounted for over 23% of total capex, reshaping procurement strategies across the industry. The passage of the “Big Beautiful Bill” marked a major energy policy pivot catalyzing a shift toward fossil-dispatchable power in red states. Relaxed permitting and accelerated pipeline approvals lowered barriers for rural siting, particularly in gas- and nuclear-friendly states, but also raised new questions about federal clean energy targets and long-term sustainability mandates.

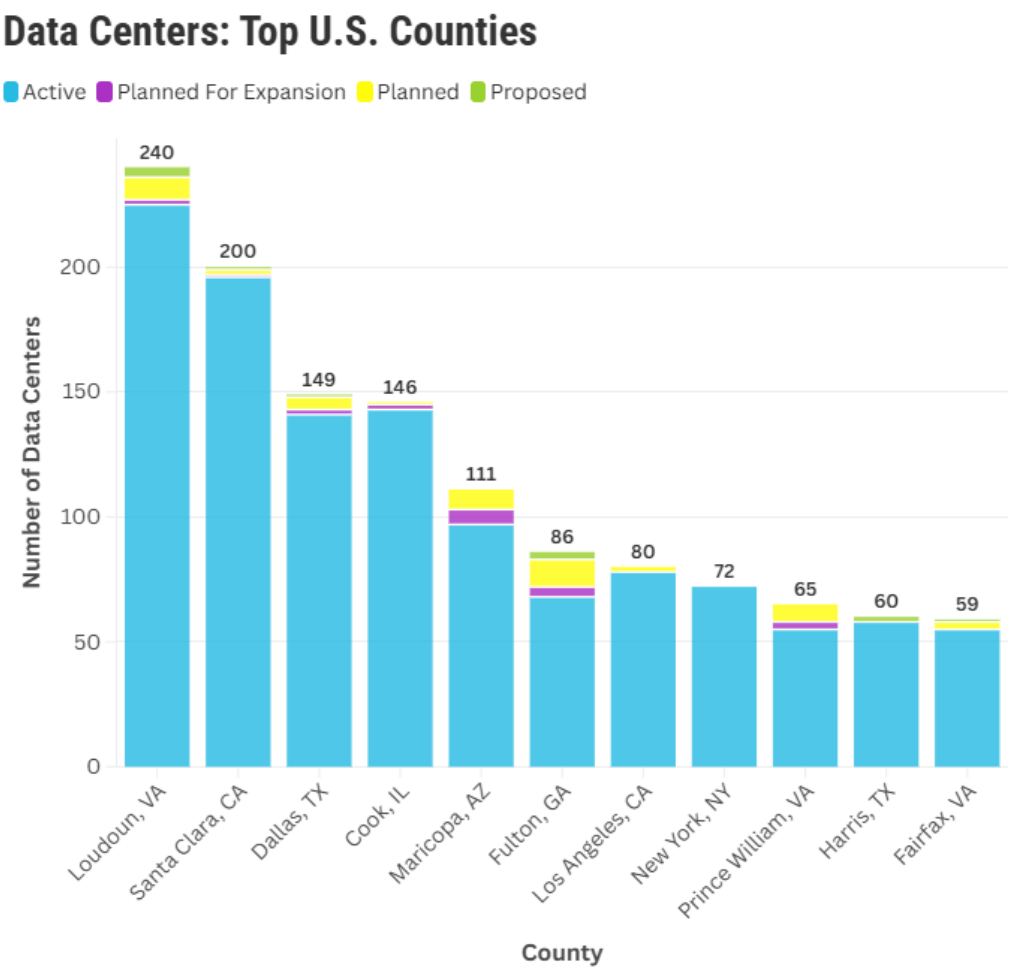


Evolving Energy Strategies

Hyperscalers are rapidly diversifying their energy stacks to ensure reliability, cost control, and alignment with carbon reduction goals. In Q2, a wave of new energy strategies emerged across major campuses, including mixed-source microgrids that blend on-site solar, small modular reactors (SMRs), and gas turbine peakers. These configurations are designed to meet the unpredictable and high density demands of AI computing. Increasingly, data centers are turning to private wire arrangements that connect directly to independent power producers, bypassing traditional utilities and avoiding lengthy interconnection queues. Behind-the-meter solar and storage arrays are also gaining traction, especially as operators pursue 24/7 carbon-free energy compliance. Notably, private wire deals in Indiana and Ohio set new benchmarks this quarter in both pricing and contract length, reflecting a broader shift toward long-term power autonomy. Still, the task of matching volatile AI load profiles particularly during training and inference surges with intermittent solar generation remains one of the most pressing engineering challenges facing the industry.

Emerging Data Center Hotspots

Traditional data center strongholds like Northern Virginia's Loudoun County and parts of Northern California have reached critical thresholds of grid congestion, zoning limits, and community resistance. As a result, developers are accelerating their shift toward emerging markets that offer more flexibility, lower costs, and fewer regulatory hurdles. States such as Georgia, Ohio, Indiana, Texas, Wisconsin, and South Carolina gained significant share in Q2, with many offering pro-growth incentives and improved access to power. Multi-state siting pipelines are becoming standard practice as operators seek to hedge against regulatory uncertainty and local permitting delays. The "Big Beautiful Bill" has further widened the gap, with red states now offering expedited permitting and fossil friendly policies, while blue states continue to tighten ESG guidelines and impose stricter water-use regulations. In response, developers are increasingly prequalifying land portfolios across energy forward jurisdictions, prioritizing parcels near substations, available capacity, and pre-approved transmission corridors to de-risk their build pipelines.



Strategic Land & Energy Alignment

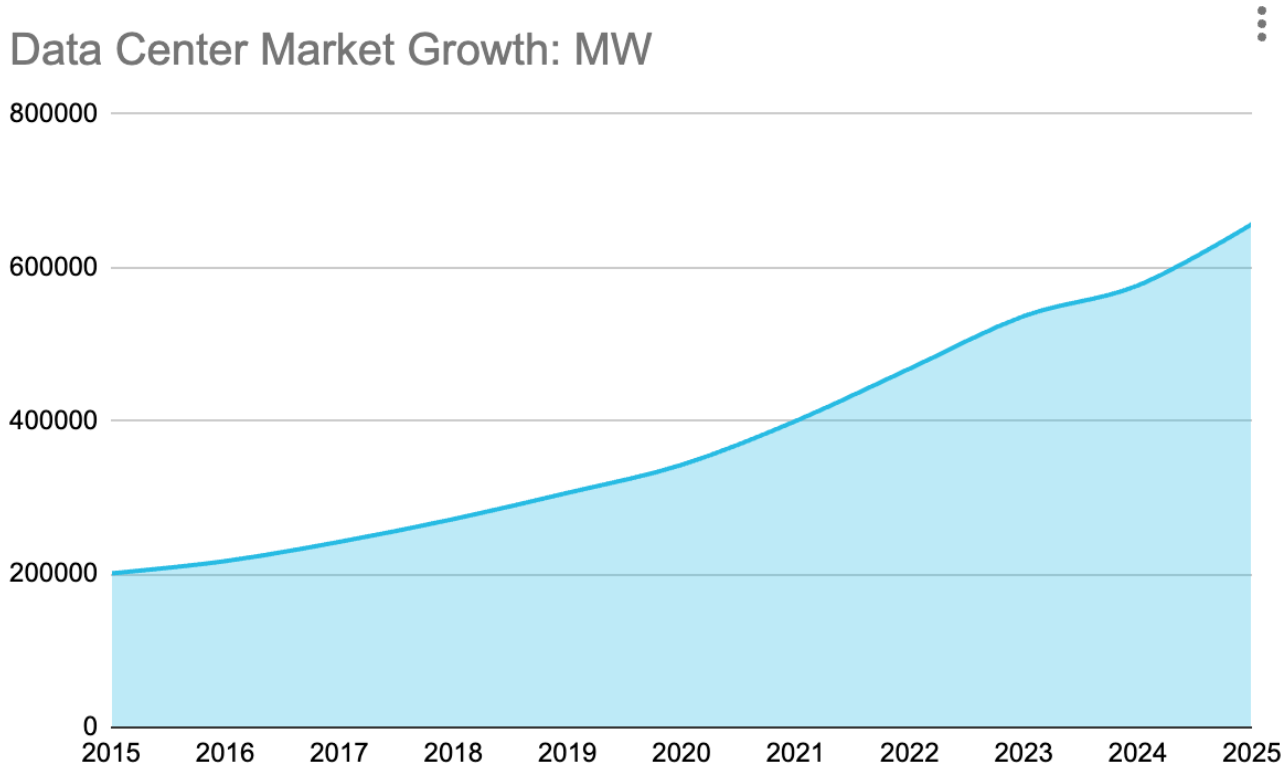
In Q2, land acquisition strategies evolved beyond simple acreage metrics to focus squarely on megawatt (MW) potential. Developers are increasingly prioritizing proximity to high-capacity substations, access to gas mains, and available interconnection capacity on nearby transmission infrastructure. Water rights and wastewater disposal options are also becoming critical variables in regions with limited supply or tightening environmental regulations. With energy emerging as the most constrained input, LandGate is playing a pivotal role in helping developers make data-driven site decisions. By connecting hyperscalers directly with solar developers, LandGate enables tailored solutions that match compute load profiles with solar farms in various stages of development. These connections allow for the structuring of private-wire or sleeved PPA agreements and, when needed, the aggregation of multiple solar sites to meet the stringent requirements of round the clock, carbon-free power. As land and energy constraints mount, aligning site selection with integrated power strategies is becoming a core competitive advantage.

Advances in Cooling & Power Technology

Innovations in both cooling and power are critical to managing the intense heat densities of AI workloads while meeting sustainability targets. Deployments of immersion and direct-to-chip cooling technologies are accelerating across new AI-focused campuses, offering significantly improved thermal management compared to traditional air cooling. Rear door heat exchangers are helping reduce power usage effectiveness (PUE) to impressive levels between 1.1 and 1.2, while also slashing water consumption which is a crucial benefit in drought-prone regions. Pilot projects combining battery storage, solar arrays, and small modular reactors (SMRs) are emerging to provide effective load balancing and grid resiliency. Additionally, the first hydrogen powered data center deployments such as EdgeCloudLink's (ECL) fully off-grid, fuel-cell based site in California and a 1 GW hydrogen-powered campus underway in Texas signals growing interest in alternative fuels to improve operational resilience and decarbonize backup generation. Together, these advancements reduce operational risk, boost energy efficiency, and address the escalating water scarcity challenges faced by data centers in arid environments.

Local Economic Impact & Job Growth

Data centers continue to serve as powerful economic engines for their host communities. In states like Georgia, Ohio, and Wisconsin, land values near major campus corridors have tripled, reflecting soaring demand for prime development sites. Property tax revenues are hitting record highs, with Loudoun County, Virginia, projecting data centers will contribute over 50% of commercial parcel revenue by fiscal year 2026. The surge in hyperscale and AI-driven builds has also spurred significant job growth, with millions of new roles emerging in construction, mechanical, electrical, and plumbing trades, as well as in AI-adjacent operations. Meanwhile, rural counties with abundant natural gas supplies have seen increased site inquiries and land purchases, buoyed by the deregulation and incentives introduced under the "Big Beautiful Bill." This dynamic illustrates how energy policy shifts are reshaping local economies alongside the data center boom.



Navigating Industry Headwinds

Despite the sector's robust growth, significant challenges persist. Workforce shortages remain acute, particularly for skilled electricians, HVAC technicians, and controls engineers critical to data center construction and operations. Transmission interconnection backlogs in key regional grids such as MISO, SPP, and PJM have caused queue delays stretching from three to six years, hampering project timelines. Compounding these delays, speculative load queue filings are inflating wait times and increasing grid congestion risks. The industry is also facing heightened ESG scrutiny, with growing concerns around water consumption, land use, and emissions associated with on-site power generation. Additionally, rising cybersecurity and geopolitical risks are beginning to influence siting strategies and investment decisions. Although upskilling initiatives through community colleges and union apprenticeship programs are expanding, these efforts continue to struggle to meet the rapidly growing demand for qualified labor.

Key Developments in Q2 2025

A multitude of developments have followed this quarter: key hyperscalers such as Microsoft, Amazon Web Services, Google, and Meta have changed market dynamics with hundreds of billions of dollars being globally committed to building AI facilities and infrastructure. **With a cumulative investment of $315 billion, the industry is seeing a stark increase in build-to-suit mega projects.** Additionally, increased interest in the sector has been seen in the development of supplementary infrastructure. Both Nvidia's development of superchips and Oracle's corresponding $40 billion investment, are expected to change data center development and AI infrastructure.

A rapid adoption of cooling technologies have also followed suit, with liquid cooling solutions becoming a default installation in most recent infrastructural plants to accommodate larger rack densities following an increase in AI workloads.

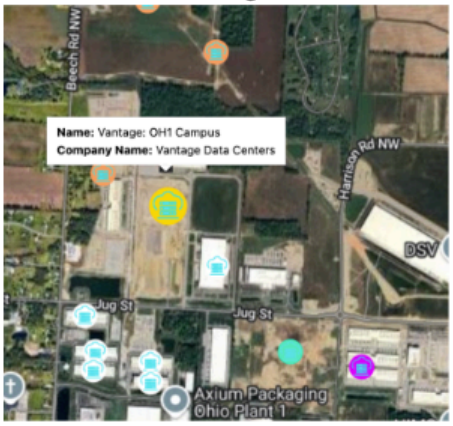
Following this year's data center boom, trends in construction have also significantly solidified over the last quarter with pre-leasing and underscoring an ongoing supply-demand imbalance. Large construction companies, now more than often, have agreements with data center companies before breaking ground on actual construction for space to be signed off to hyperscale campuses.

Furthermore, Q2 has seen a significant surge in behind-the-meter projects, with data center developers pushing for energy independence whilst tackling environmental sustainability and decarbonization. Changing the dynamics with on-site energy supply in the form of gas plants, cloudburst data centers, microgrids and hybrid systems, data centers are leaning towards becoming more self-sufficient.

Overall, significant investment from data center operators seeking energy autonomy, continued growth in distributed energy storage, and an ongoing navigation of evolving policy landscapes along with supply chain challenges have changed the development of the data center economy for the foreseeable future.

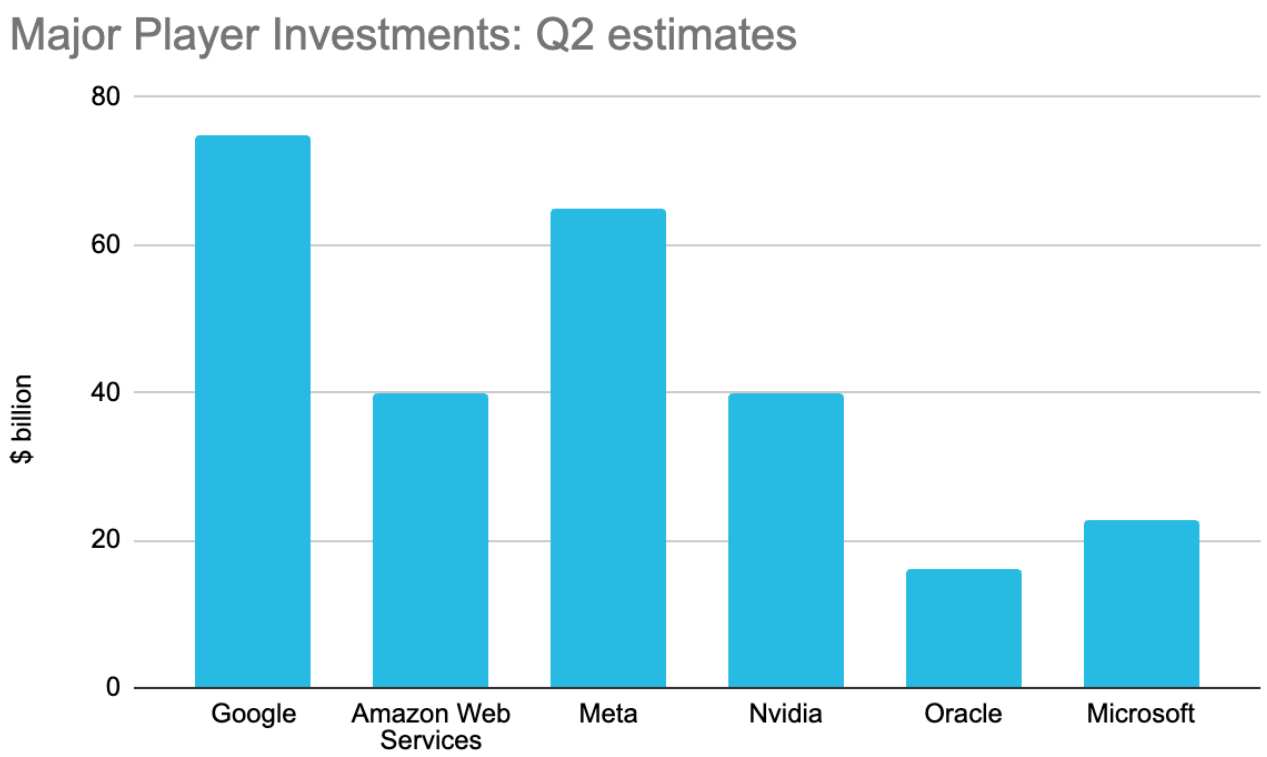
Spotlight on Ohio's Growing Corridor

Ohio's data center corridor has solidified its position as a premier hub for hyperscale growth in Q2 2025. AWS is investing $3.5 billion across Columbus and central Ohio, adding approximately 450 MW of new compute load. Intel is planning over 700 MW of campus adjacent facilities, combining high performance computing with advanced chip fabrication. Meta's central Ohio site is proactively pre-building 100 MWh of battery storage to enhance resilience and grid stability. Ohio's competitive wholesale power markets, abundant available land parcels, extensive fiber infrastructure, and proactive local incentives continue to drive this robust expansion, making it a go-to location for next-generation data center development.

Project	Status	Description
Vantage 	Planned	• 70 acre campus • Power: 192 MW • Whitespace: 139,395 m2
EdgeConneX 	Planned	• 297 acres in licking county • $137.2 million land investment • 120 MW behind the meter gas plant

Optimizing Connectivity & Latency

Network connectivity remains a cornerstone of AI performance as hyperscalers and developers work to reduce inference latency and optimize costs. New fiber backbones are rapidly forming key corridors such as the Texas Triangle, Chicago–Atlanta route, and the emerging Midwest Loop, enhancing regional interconnectivity. Simultaneously, edge micro-data centers ranging from 5 to 15 MW are emerging in Tier 3 and Tier 4 markets to serve latency-sensitive workloads closer to end users. Hyperscalers are increasingly co-locating computer infrastructure alongside connectivity hubs and renewable energy sources to strike an optimal balance between performance, cost, and sustainability. As a result, latency benchmarks for high-performance large language model (LLM) inference now hover between 5 and 8 milliseconds when communicating between edge nodes and core AI campuses.



Looking Ahead to the Second Half of 2025

Looking ahead to the second half of 2025, data center REITs are expected to deepen their exposure to AI-native builds, targeting average deal sizes between 50 and 100 MW. Growth will continue in solar co-location, modular energy pods, and private-wire contracts as operators seek to secure reliable and cost-effective power sources. Meanwhile, ongoing reforms at FERC and regional ISOs are anticipated to reshape interconnection priorities, streamline queue management, and reduce speculative filings that currently inflate wait times. Workforce development initiatives and ESG policy engagement will increasingly move to the forefront of corporate boardroom agendas, as companies address labor shortages and respond to rising environmental and social expectations. Together, these trends will shape a more resilient, sustainable, and competitive data center landscape heading into 2026 and beyond.

To learn more about LandGate's tools, data, and modeling for the data markets, book a demo with our dedicated energy team.

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