

Amazon bets \$150 billion on data centers required for AI boom

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Credit: AI-generated image

Amazon.com Inc. plans to spend almost \$150 billion in the coming 15 years on data centers, giving the cloud-computing giant the firepower to handle an expected explosion in demand for artificial intelligence applications and other digital services.

The spending spree is a show of force as the company looks to maintain its grip on the cloud services market, where it holds about twice the share of No. 2 player Microsoft Corp. Sales growth at Amazon Web Services slowed to a record low last year as business customers cut costs and delayed modernization projects. Now spending is starting to pick up again, and Amazon is keen to secure land and electricity for its power-hungry facilities.

"We're expanding capacity quite significantly," said Kevin Miller, an AWS vice president who oversees the company's [data centers](#). "I think that just gives us the ability to get closer to customers."

Over the past two years, according to a Bloomberg tally, Amazon has committed to spending \$148 billion to build and operate data centers around the world. The company plans to expand existing server farm hubs in northern Virginia and Oregon as well as push into new precincts, including Mississippi, Saudi Arabia and Malaysia.

Amazon's planned outlay on server farms dwarfs the public commitments from Microsoft and Alphabet Inc.'s Google, though neither company discloses data center-related spending as consistently as Amazon. Microsoft and Google spokespeople declined to provide comparable figures and added that each company likely includes different costs in their estimates.

Amid broader cost-cutting at Amazon, AWS's capital expenditures on data centers shrank 2% in 2023—for the first time—even as Microsoft boosted its own spending by more than 50%, according to the research firm Dell'Oro Group. But Amazon's chief financial officer said last month that capital expenditures would increase this year to support AWS growth, including AI-related projects.

Much of Amazon's data center expansion is geared toward meeting a rise

in demand for corporate services like file storage and databases. But the facilities, along with advanced and expensive chips, will also provide the massive computing power required for an expected boom in generative artificial intelligence.

Microsoft, close partner OpenAI and Google are widely seen as leaders in commercializing software capable of generating text and insights. But Amazon is building its own tools to rival OpenAI's ChatGPT and has partnered with other companies to power AI services with its servers. As a result, Amazon expects to reap tens of billions of dollars in AI-related revenue.

AWS put its first server farms in Virginia, on the fringes of metropolitan Washington. Home to the first commercial interchange for web traffic, the area remains a crucial hub for video streaming and corporate and government data. Amazon later opened data centers in rural eastern Oregon, taking advantage of cheap hydroelectric power and ample tax breaks. Virginia and Oregon have since received about four of every five dollars AWS spends on U.S. infrastructure.

Amazon plans to spend tens of billions more in those states, but it's getting harder to secure electricity there. Data centers require lots of power, and their growing ubiquity is putting pressure on utilities. For a few months in 2022, Dominion Energy Inc., which powers Virginia's data center alley, couldn't keep up, pausing connections to facilities that were otherwise ready to come online. The utility expects demand to nearly double over the next 15 years, with the growth driven primarily by data centers.

In Oregon, electricity use by Amazon server farms exceeds the local utility's share of hydroelectric power, forcing it to buy electricity generated by natural gas, the Oregonian newspaper reported earlier this year.

"There's a lot more vetting that is occurring upfront and detailed planning that is required from the utility companies to understand how real the project is because there's so much demand out there that was not there five years ago," said Ali Greenwood, an executive director at the data center practice of Cushman & Wakefield, a commercial real estate firm.

So Amazon is getting creative.

In February, the company said it would spend about \$10 billion on two data center campuses in Mississippi. Billed as the largest corporate project in state history, AWS's effort will plant roots in the southern U.S., a region that has seen comparatively little data center spending outside of major cities like Dallas and Atlanta.

Earlier this month, the operator of a 40-year-old nuclear power plant on the Susquehanna River in Pennsylvania said AWS had agreed to spend \$650 million to acquire a data center campus connected to the facility.

In Round Rock, Texas, AWS recently won zoning approval to build a data center and electrical substation next to a delivery depot on a slice of a former ranch the company acquired during a pandemic-era spending spree. If the project proceeds, it will be the first time the company has put such facilities on the same piece of land.

"Right now it's just a mad scramble for any place that has power any time soon," said Charles Fitzgerald, a former Microsoft manager and Seattle-based investor who tracks cloud company spending.

Even as it ramps up, Amazon and other companies are encountering growing opposition to data centers. Much of the current animus is centered in Virginia, where residents complain about server farms' incessant hum and preservationists lament the sprawling facilities'

encroachment on Civil War battlefield sites. But pockets of resistance are popping up in other parts of the U.S. and could grow as more and more data centers come online—whether they are built by Amazon or not.

Renewable energy advocates also say the rush to build new facilities has given new life to old plants powered by planet-warming fossil fuels, and even helped make the case to build new ones. In Mississippi, for example, Amazon will pay to help the local utility to build solar farms, but the company will also operate the data centers with a new natural-gas power plant that will probably operate for decades.

"Companies like Amazon are going to have to use their buying power to actually force the utilities to change their behavior," said Daniel Tait, research and communications manager with the Energy and Policy Institute, a utility watchdog that backs renewables. "Not only are they inducing more fossil fuel use, but they are creating the precedent that everybody who comes after them will do the same."

In recent years, Amazon has been the world's largest corporate buyer of [renewable energy](#), part of a pledge to power all of its operations with renewable electricity by 2025. But those projects can be far from its data centers, a mismatch between supply and demand that bedevils the fractured and aging U.S. power grid.

Amazon data center chief Miller said the company was continuing to evaluate clean energy projects beyond wind and solar farms, including battery storage and nuclear power, that can substitute for fossil fuel plants. He pledged to work with utilities and find a way to "match our need for energy with renewable, carbon-free power."

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