Amazon Data Center Overview

Madison County, Mississippi

Amazon plans to invest at least $21 billion in Madison County, Mississippi, to build new data center campuses to support advanced cloud computing technologies. These investments will create opportunities including data center engineers, network specialists, operations managers, and security specialists, while supporting thousands more jobs in construction and the supply chain across the Magnolia State.

What is a data center?

Data centers are secure facilities filled with powerful computers that store and process information. They're the engine rooms of the internet and today's digital economy, keeping local and global communication active, critical information flowing, and basic services used by billions highly available, powering everything from online banking, GPS navigation, health care services, core transportation applications, and first responder services.

Amazon's data centers serve millions of customers including small businesses, government agencies, public safety, transportation, healthcare systems, and more, while keeping information safe and instantly available.

Artificial intelligence and data centers

AI helps computers learn from information and make decisions, like when your phone suggests the fastest route home on GPS or enhanced diagnostics in healthcare. Data centers provide the computing power needed to train and run these AI tools. They use specialized equipment, cooling systems, and AI to optimize these workloads while meeting environmental standards and conserving water.

Amazon Economic Impact

Data centers generate sustained local revenue that supports schools, public safety, and critical infrastructure. Their development creates construction and skilled trades jobs, followed by long-term technical roles once operational. Local suppliers, contractors, and service providers also benefit as they grow alongside these facilities.

$21B investment in infrastructure

~1,700 direct jobs in Madison County

~Thousands of indirect jobs in Mississippi

Water

Amazon's data centers are engineered to use as little water as possible. In Madison County, we rely on outside natural air cooling for about 91% of the year and only use water-based cooling during the hottest periods, which is less than 9% of annual operations.

Besides cooling, data centers use water for everyday needs like bathrooms, cleaning, and fire suppression systems.

Amazon is working with agricultural technology leader Arable and Mississippi State University to equip farmers with AI-powered sensors that analyze real-time data on soil moisture, weather conditions, and crop water requirements. This smart irrigation solution is expected to reduce agricultural water withdrawals by 150 million gallons annually—enough to supply over **1,600 Mississippi households for a year**.

Key Takeaways

- Amazon designs data centers to significantly reduce water usage compared to industry averages.
- Amazon data centers use natural air cooling [filtered ambient air] for 91% of the year and only use water-based evaporative cooling during peak heat periods, minimizing water consumption.
- Our discharges meet all applicable local and state water quality standards, and the water is treated by the city's wastewater facility before returning to the environment.

FAQs

Q. What is the source of the water used for cooling?

A1. **Canton:** Currently, we use cooling water from the Canton Municipal Utilities water system. In 2027, we will transition to using reclaimed water from the Madison County Wastewater Authority's Beatties Bluff Wastewater Treatment Plant for all cooling needs. This shift to reclaimed will directly reduce demand on the region's drinking water supply.

A2. **Ridgeland:** At full buildout, the annual water use at the Ridgeland campus is expected to be 93 million gallons per year, which represents less than 3% of the annual utility capacity.

Amazon is investing over $37 million in public water infrastructure improvements to enhance system efficiency and strengthen resilience. This investment is expected to increase Ridgeland's capacity by over 23%, providing approximately 1 billion gallons of new capacity annually to meet both our needs and the needs of the community. That is 10 times the amount of water we will use on an annual basis.

Q. How is Amazon responsible with the community's water?

A. We design and operate our data centers to achieve industry-leading efficiency in both water and power usage. In this region's climate, our design will use water for less than 9% of the year, during periods of peak summer temperatures. For the other 91% of the year, we will use natural air from the outside and push it directly to the servers for cooling. This approach reduces our electricity demand by 25-35% precisely when the grid experiences peak summer loads and regional power demand is at its highest.

Q. Will data centers impact my water rates?

A. No. Amazon pays directly for all water and sewer infrastructure required to support our development, creating an additional revenue stream for the utility rather than a burden on existing ratepayers.

Energy

Data centers require electricity to power servers that process and store data around the clock, ensuring applications and critical services remain available.

Amazon works closely with utilities and grid operators to plan for and invest in the regional power infrastructure required to reliably serve our load. This infrastructure, like new or upgraded substations, transmission lines and capacity assets, extends beyond our immediate needs and helps modernize and strengthen the broader electricity grid that serves all users.

An **independent study by Energy and Environmental Economics (E3)** found that Amazon pays the costs to power its data centers. We pay our full energy costs and are committed to ensuring Amazon data centers do not increase consumers' electricity bills. In some regions, Amazon pays more than the costs needed to power them, resulting in surplus revenues that utilities can use to further reinvest in the region.

Key Takeaways

- Modern data centers are increasingly becoming grid assets that enhance stability. Reliability is critical for Amazon's operations, and as such, we work closely with utility partners to evaluate innovative ways to support and enhance grid reliability.
- Our investments in new and upgraded transmission lines and substations typically benefit reliability for all grid consumers.
- Amazon is investing billions in **carbon-free energy projects** that can help power our operations, including our data centers. This includes more than 700 renewable energy projects worldwide, with the capacity to generate 40-plus gigawatts of electricity.
- Amazon measures data center energy efficiency through Power Usage Effectiveness (PUE) and is constantly working to increase the power efficiency of our data centers to reduce the total energy use. The closer this number gets to 1.0, the more efficient the facility, meaning less energy wasted to deliver the same computing power to customers. Amazon's data centers achieved a global PUE of 1.15, lower than the industry average of 1.25.

FAQs

Q. Will the data center impact my electricity rates?

A. Amazon pays its full electricity costs while making substantial investments in building new energy generation and transmission infrastructure that benefits everyone in our communities. We're working with grid operators, utilities, and other partners to ensure the grid is prepared to meet future demand and that costs are not passed on to ratepayers.

Q. Will the data center impact my electric reliability?

A. Reliability is critical for Amazon's operations. Amazon works closely with utility partners to evaluate innovative ways that our data centers can support grid reliability, such as our investments in new and upgraded transmission lines and substations.

Environment

Amazon is committed to environmental responsibility in building and operating our data centers. Prior to site selection, Amazon conducts thorough assessments evaluating wetlands, waterways, protected species and their habitats, and sensitive ecosystems - with flood risk, air quality, and cultural resources also assessed where applicable. These findings directly shape site selection and design decisions, ensuring environmental impacts are avoided or reduced as much as possible, and all regulatory requirements are met from initial planning through the full data center lifecycle. We work closely with environmental agencies to ensure we meet and often exceed all applicable environmental and public health standards.

Key Takeaways

- We conduct comprehensive ecological studies, including wetlands and protected species habitat surveys in an effort to avoid environmentally sensitive areas in site planning.
- Our backup generators are used rarely (average less than 15hrs per generator per year) and are well-maintained and meet all regulatory requirements. We also invest in advanced Tier 4 emission control systems - reducing NOx emissions by more than 90% compared to Tier 2 generators – ensuring the cleanest, most compliant backup power available.
- Amazon maintains full compliance with all environmental regulations through dedicated on-site environmental professionals. Their primary focus is compliance, delivering rigorous training programs, systematic data collection, comprehensive environmental reporting, and proactive compliance management to meet every local, state, and federal regulatory requirement.

Sound

Some data centers may produce sound primarily from cooling systems which circulate air to keep servers at safe operating temperatures. Amazon designs and operates our data centers in compliance with local ordinances. We take several measures to minimize sound, including conducting extensive acoustic modeling, implementing sound mitigation techniques and systems, working with suppliers to design equipment to reduce sound, and performing regular maintenance to ensure all systems operate as designed.

Key Takeaways

- Amazon implements comprehensive sound solutions by developing site-specific acoustic mitigation strategies tailored to each data center location.
- We take a scientific approach to sound management through detailed sound assessments that follow industry standards and best practices.
- Amazon also provides an educational program that delivers scientifically grounded acoustic facts to communities and addresses common misconceptions about data center sound.

FAQs

Q. Is the sound regulated?

A. Yes. Many jurisdictions have noise ordinances, and Amazon data centers comply with local sound level limits.

Q. Do you use sound and visual buffers?

A. Yes. We include thoughtful sound and visual buffers as part of our design. This often includes landscaped berms, trees, and other screening features that help reduce noise and soften the visual presence of the facility, so it blends naturally with the surrounding area.