

The Future of Energy Big Data Centers



Overview

Below, we summarize hard data, statistics and trends from 2024-2025 as well as forecasts for 2026, focusing on energy consumption by data centers (both AI model training and their inference), the impact of this phenomenon on the energy sector (energy mix). Below, we summarize hard data, statistics and trends from 2024-2025 as well as forecasts for 2026, focusing on energy consumption by data centers (both AI model training and their inference), the impact of this phenomenon on the energy sector (energy mix). As argued in the Brookings Press book, "Turning Point: Policymaking in the Era of Artificial Intelligence," it is powering applications in finance, health care, education, transportation, defense, and e-commerce, among other sectors. AI's ability to process large amounts of information and act. Data centers, where AI models are trained and run, are becoming some of the largest new electricity consumers in the world. In 2024-2025, record investments in data centers were recorded – it is estimated that in 2025 alone, as much as USD 580 billion was spent globally on AI-focused data center. The International Energy Agency (IEA) projects that data center electricity consumption could double by 2030, potentially reaching 600-800 TWh annually. This surge is driven primarily by the explosive growth in artificial intelligence workloads, which require significantly more computational power. Global electricity demand from data centers is set to more than double to 945 TWh by 2030, equivalent to Japan's current total power consumption, as artificial intelligence drives unprecedented growth in the sector's energy needs, the International Energy Agency said April 10.



Article Content

Growing Energy Demand of AI – Data Centers

AI is driving a surge in data center energy demand. Explore key data from 2024–2025 and forecasts for 2026, including infrastructure, costs, and

MIT Technology Review

MIT Technology Review's authoritative overview of the 10 technologies, emerging trends, bold ideas, and powerful movements in AI in 2026.

Tesla Megapacks for 1% of AI Data Center Spend for

Battery energy storage is also needed to unlock 100+ Gigawatts of power without waiting a decade for new giant power plants and energy grid to be

Galaxy Data Center Infrastructure

We invest in and operate cutting-edge data center infrastructure to power artificial intelligence (AI) and High-Performance Computing (HPC), to help meet the

Meta bets big on space solar power as it plans to beam energy from ...

Meta partners with Overview Energy to turn space into a constant power source for data centers and future AI infrastructure

Inside the First Stargate AI Data Center

Lochmiller on the roof of the data center in Abilene. Photographer: Bobby Scheidemann for Bloomberg Businessweek

What Role Do Data Centers Play In Rising Energy

The global AI craze has given energy-intensive data centers yet another boost. But how big is their role in rising global electricity demand really?

Tiny data centers may be coming into American homes in the future

As public support for large-scale data center buildouts declines across the U.S., a new type designed to operate inside individual homes is coming.

AI, Data Centers and Energy Demand

The growing energy demands of cloud services first, and now AI workloads (10% of today's data centers electricity demand), have exacerbated this trend. In the future, hyperscale data centers will gain

Data Centers and AI Energy Consumption: The Surge in

The International Energy Agency (IEA) projects that data center electricity consumption could double by 2030, potentially reaching 600-800 TWh

Global data center power demand to double by 2030 on AI surge: IEA

The surge in AI-driven power demand could reshape electricity markets in advanced economies, with data centers projected to account for over 20% of total demand growth through 2030, according to

Virginia's "data center alley" gives glimpse into America's

{beacon} Technology Technology The Big Story Virginia's "data center alley" gives glimpse into America's AI future As data centers hurtle to the

Data centre electricity use surged in 2025, even with tightening ...

New IEA report explores AI's growing energy footprint, options for meeting data centre power demand, and impacts on energy affordability, security and wider economy

Big Tech Has An Opportunity To Reshape Our Energy

"We're very committed to adding capacity as we continue to build our data centers," said Ruth Porat, president and chief investment officer at Alphabet

US data centers' energy use amid the artificial

Data centers accounted for 4% of total U.S. electricity use in 2024. Their energy demand is expected to more than double by 2030.

The future of data centers

Nicol Turner Lee and Darrell West discuss various considerations around data centers, including energy, workforce, and climate implications.

AI Demand to Drive \$600B From the Big Five for GPU

AI is driving GPU demand and straining grids. Explore how data centers, power supply, and nuclear deals fuel the next tech revolution.

Inside the First Stargate AI Data Center

Oracle was looking for partners for the future complex in Abilene and was talking with Musk before Altman came in, says a

Data Center Power Demand | MIT Energy Initiative

With over 10,000 data centers worldwide—more than 5,000 of them located in the United States—and new facilities being built every day, the energy demand from data centers is growing rapidly. Much of

Elon Musk on why technology could shape a more

Elon Musk and Larry Fink take the stage at Davos 2026 to explore how breakthroughs in AI, sustainable energy, and space exploration are shifting

US power demand rises as data centers spread but

US retail power prices have surged 13% since 2022, outpacing the Consumer Price Index (CPI) and driving higher costs for consumers. While many

How Meta's Data Centers Support American Energy,

Our AI-optimized data centers are an investment in the future of the US economy, and we're committed to supporting the communities where we have

8 partners set to transform the future of energy consulting

Consulting firms like Boston Consulting and McKinsey see AI-driven electricity demand surge, complicating energy transition efforts.

Data Center World 2025: Industry Gathers to Tackle

With the global data center market expected to hit \$1 trillion by 2030, leaders at Data Center World 2025 are confronting the sector's biggest roadblocks.

How Data Centers Redefined Energy and Power in 2025

In 2025, data centers evolved from passive utility customers to active energy planners, investing in on-site generation, battery storage, and flexible

AI to drive 165% increase in data center power demand

The explosion in interest in generative artificial intelligence has resulted in an arms race to develop the technology, which will require many high

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