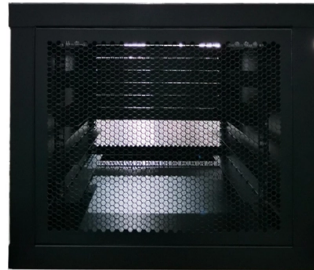


Data Center Energy



AI Overview

Data centers are major energy consumers, using roughly 176 TWh annually in the U.S. alone, with demand expected to double by 2030 due to AI and digital growth. Current Energy Use Data centers are physical facilities housing servers, storage, and networking equipment that support digital services. In 2023, U.S. data centers consumed approximately 176 terawatt-hours (TWh) of electricity, about 4.4% of total U.S. electricity use. Globally, data centers consumed around 460 TWh in 2022, representing roughly 2% of worldwide electricity consumption. The majority of this energy—over half—is used directly by IT equipment, while the remainder powers cooling systems to manage heat generated by servers. Cooling and Water Use Cooling is a critical component of data center energy demand. Centralized cooling systems either circulate chilled air or chilled water to remove heat, while smaller facilities may use computer room air conditioners (CRACs). Water-intensive cooling can consume significant resources; for example, a 100-megawatt U.S. data center may use as much water as 2,600 households annually, depending on the cooling method. Growth Drivers The rise of AI, cloud computing, and digital services is accelerating energy demand. In 2025, electricity demand from data centers increased by 17%, with AI-focused centers growing even faster. Projections indicate that overall data center energy use could double by 2030, and AI-specific centers may triple their power consumption. This growth is outpacing general electricity demand, highlighting the need for efficiency and renewable integration. Energy Efficiency and Sustainability Efforts to improve efficiency include: Optimized cooling strategies and hot/cold aisle containment Energy-efficient server hardware and virtualization Renewable energy procurement, including solar, wind, and small modular nuclear reactors Monitoring and demand response programs to reduce peak loads The U.S. Department of Energy and Federal Energy Management Program (FE...

Article Content

DOE Releases New Report Evaluating Increase in

WASHINGTON, D.C. — The U.S. Department of Energy (DOE) today announced the publication of the 2024 Report on U.S. Data Center Energy

US lawmakers introduce bipartisan bill to shield ratepayers from data ...

Ratepayers should not have to subsidize wealthy corporations" growing energy demands, especially from AI data centers," said Castor. "The Ratepayer Protection Act safeguards consumers

2025 ESG Report: Data centre environmental impact

The 2025 ESG Report finds that while data centre energy usage continues to rise – now accounting for more than 1.1% of global energy consumption – average carbon emissions per unit of energy

AI Data Center Growth Hinges on Solving Both Power Constraints and ...

Bloom Energy, a global leader in power solutions, today released a mid-year update to its annual Data Center Power Report, which surveys decision-makers across the data center ecosystem.

How Data Centers Redefined Energy and Power in 2025

In 2025, AI demand drove data centers toward on-site power, BESS, and nuclear options, while grid delays increased. Here are the top trends that mattered.

Review of energy efficiency and technological advancements in data ...

The first section, overview of data centers, introduces the importance of energy efficiency in data centers and discusses the design considerations for improving power usage effectiveness

Crusoe secures 5 gigawatts of data center contracts, pauses

Crusoe Energy Systems, the company that once powered Bitcoin miners with flared natural gas, just announced it holds contracts for nearly 5 gigawatts of AI data center capacity.

Data Center Energy Consumption: How Much Energy Did/Do/Will

Data Center Energy Consumption: How Much Energy Did/Do/Will They Eat? Plumes of steam rise above the cooling towers at Google's data center at The Dalles, Oregon. Source: Google.

Google and Intersect to build Meitner Energy Center in Texas

Google and Intersect are announcing construction of the Meitner Energy Center, a new data center and new energy generation in Texas.

Energy performance of data centres

The Commission's energy efficiency package for data centres will complement existing EU rules for data centres under the Energy Efficiency Directive.

Data Centers and Their Energy Consumption: Frequently Asked

U.S. data center annual energy use in 2023 (not accounting for cryptocurrency) was approximately 176 terawatt-hours (TWh), approximately 4.4% of U.S. annual electricity consumption

Data centres account for 23% of electricity usage

The percentage share of total metered electricity consumption used by data centres rose to 23% in 2025 up from 22% in 2024 and just 5% in 2015.

SoftBank's SB Energy to build and operate OpenAI's 1.2GW Stargate data ...

SoftBank subsidiary SB Energy has partnered with OpenAI to build and operate the previously announced 1.2 GW Stargate data center in Milam County, Texas. SB Energy will provide

2026 Data Center Power Report

Executive Summary One year ago, Bloom Energy's inaugural Data Center Power Report documented an emerging reality: AI-driven compute demand was beginning to outpace the grid's ability to deliver

Bloom Energy 2025 Data Center Power Report

According to new Power Report, AI Needs Are Driving Data Centers to Adopt Energy Sources Beyond the Grid | Unlock the 2025 Data Center Power Report now!

Data centre electricity use surged in 2025, even with

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

US data centers' energy use amid the artificial intelligence boom | Pew ...

With the rapid development of data centers in the United States, Pew Research Center conducted this study to learn more about energy use at these facilities and its potential impact on

Data Center Moratorium: Balancing Energy, Community, and Growth

AI Data Center Moratorium: Balancing Energy, Community, and Growth Risks Industry leaders analyze the proposed pause on AI data centers and the need to balance growth,

In focus: Data centres – an energy-hungry challenge

Data centres are a vital infrastructure supporting our ever-growing use of cloud storage, social media, AI, streaming services and more. They're also an increasingly hot topic of the clean

Data centers: Catalyzing innovation in energy

Data centers are reshaping the energy sector, straining power systems but also sparking innovation across generation, grid design, and business models.

Amazon Secures 1,920MW Nuclear Power Deal with Talen Energy

Talen Energy Susquehanna nuclear power station with the first completed building of the data centre in foreground. Courtesy: Talen Energy. The long-term agreement runs until 2042 to

Brookfield and Bloom Energy Scale AI Data Center Power

Brookfield and Bloom Energy expand their AI power partnership to \$25B, bringing fast on-site electricity to data centers facing grid delays.

Economic costs of data-centers?

Costs of data-centers are \$10M/MW of capex, and \$100M pa for a 30MW-scale facility, of which 40% is maintenance, 15-25% electricity costs.

Data Centers and AI Energy Consumption: The Surge

Data centers represent critical infrastructure for the modern economy, enabling everything from streaming services and e-commerce to financial transactions

PNNL/ASHRAE/NEMA AI Data Center Energy Performance Framework

The AI Data Center Framework is a collaborative initiative between ASHRAE, NEMA, and Pacific Northwest National Laboratory (PNNL) to guide the design, operation, and optimization of next

Data Centre Energy Use: Critical Review of Models and Results

Chapter 3 summarises the critical review of data centre energy estimates from a range of available sources, including government data and reports, peer-reviewed journal articles, industry data and

Data Center Infrastructure Management (DCIM) Tools

Data center infrastructure management (DCIM) tools monitor, measure, manage and/or control data center resources and energy consumption of both IT-related equipment (such as servers, storage

Data Center Power Demand | MIT Energy Initiative

A single hyperscale data center can consume as much electricity as 50,000 homes. To address this complex challenge, the MIT Energy Initiative brings together MIT faculty members and scientists to

Contact Us

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