

## Article Overview

Data centers are major electricity consumers, using hundreds of terawatt-hours annually, with demand projected to double by 2030 due to AI and digital growth.

## Current Energy Usage

Globally, data centers consumed approximately 460 TWh in 2022, representing about 2% of worldwide electricity consumption . In the U.S., data centers used 176 TWh in 2023, equivalent to 4.4% of national electricity consumption . Energy use varies by facility size: small data centers (5,000-20,000 sq. ft.) consume 1-5 MW, medium facilities 5-20 MW, and large hyperscale centers can exceed 100 MW . Roughly half of this energy powers IT equipment, while the remainder is largely for cooling systems .

## Regional and Sectoral Trends

Certain regions experience concentrated energy demand. For example, Northern Virginia hosts 4,000 MW of data center capacity, and in Ireland, data centers consume 22% of total electricity . U.S. states like Virginia, Texas, and New York see data centers using over 10% of local electricity, creating grid challenges . Globally, AI-focused servers are driving rapid growth, projected to rise from 93 TWh in 2025 to 432 TWh by 2030, representing a significant portion of incremental demand .

## Projected Growth

Electricity demand for data centers is expected to grow 16% in 2025 and double by 2030, reaching 980 TWh worldwide . The International Energy Agency projects global consumption could reach 650-1,050 TWh by 2026, with AI and accelerated computing as major drivers . In the U.S., data center electricity usage may rise from 4% to 7.8% of regional consumption by 2030, while Europe could increase from 2.7% to 5% .

## Cooling and Water Use

Cooling is a major energy component. Data centers use chilled air or water systems, and a 100 MW facility may consume as much water as 2,600 households . Efficient cooling strategies, including computer room air conditioners (CRACs) and advanced liquid cooling, are critical for reducing energy and water consumption .

## Sustainability and Efficiency

The energy-intensive nature of data centers has environmental implications, including CO2 emissions and electronic waste . Efforts to improve efficiency include renewable energy adoption, waste heat reuse, and energy efficiency certifications like ENERGY STAR . In 2025, the tech sector accounted for 40% of corporate



# Power Consumption for Data Centers

renewable power purchase agreements, and small modular reactors (SMRs) are being explored for on-site generation .

## Key Takeaways

- o Data centers are rapidly growing energy consumers, with AI accelerating demand.
- o Cooling and IT equipment are the primary energy drivers.
- o Regional concentration can strain local grids, requiring careful planning.
- o Efficiency measures and renewable energy are essential to mitigate environmental impact.
- o By 2030, global electricity use by data centers could nearly double, highlighting the need for sustainable infrastructure planning .

Explore data center energy consumption statistics and key trends. Learn efficiency benchmarks and insights shaping

According to the International Energy Agency, data centers are projected to consume

Hyperscale data centers are massive IT and CPU warehouses that facilitate large-scale cloud computing. They have

By 2030, data centers are expected to account for around 2.5-3% of total global electricity consumption. The growth

Curious about data center power? This article covers everything you need to know, from how it's generated to why it's essential for

Data centres are responsible for about 1.5%, or 415 Terawatt-Hours (TWh), of the world's total yearly electricity consumption.

Of the predicted growth in consumption, developing economies will account for around 5% by 2030, whereas

Data centers consume 176 TWh annually in the US (4.4% of electricity). Learn consumption by size, AI impact, and

Electricity demand for data centers worldwide is projected to grow 16% in 2025 and to double by 2030, according to

The share of cooling systems in total data centre consumption varies from about 7% for efficient hyperscale data centres to over 30%

# Power Consumption for Data Centers

Electricity demand from data centres soared by 17% in 2025, and that of AI-focused data centres climbed even faster

Electricity consumption in data centers poses one of the biggest decarbonization challenges of our time. On one

Moreover, data centers often have special requirements as they need 24/7 power supply with high levels of

Leveraging energy community opportunities to re-use infrastructure at retired coal facilities

Data center electricity usage is set to double by 2026 according to a new report, which blames the rise of power

Chapter 3 summarises the critical review of data centre energy estimates from a range of available sources, including government

Web: <https://www.kremgroup.co.za>

