

# Data Center Energy Platform



## Summary of Content

Modern data center energy platforms combine on-site generation, storage, and flexible power management to ensure reliable, low-carbon, and cost-efficient operations.

### Core Components of Data Center Energy Platforms

**On-site Generation:** Data centers increasingly rely on behind-the-meter power systems, including natural gas, renewable natural gas (RNG), biogas, diesel, and hydrogen-ready gas engines. These systems provide fast-start, reliable power and reduce dependence on constrained utility grids, enhancing resilience and uptime for critical operations . **Battery Energy Storage Systems (BESS):** Batteries store energy for peak shaving, backup, and load balancing. They allow data centers to manage energy costs, integrate intermittent renewables, and provide grid services while supporting AI compute workloads . **Combined Cooling, Heat, and Power (CCHP):** CCHP systems capture waste heat from power generation to provide cooling and heating, improving overall system efficiency up to 95% and reducing utility costs and carbon emissions . **Microgrids and Decentralized Systems:** Modular microgrids enable off-grid autonomy or hybrid operation, integrating renewable energy sources and providing operational flexibility. These systems can scale from edge to hyperscale facilities and adapt to evolving IT demand .

### Operational Flexibility and AI Workloads



## Article Content

Energy performance of data centres

A European database, prepared by the Commission, collects and publishes data, which is relevant for the

Data centers and AI: How the energy sector can meet

The growth of data centers and AI rely on the availability of electric power. Opportunities for

Energy and Thermal Efficiency | AI Data Center Energy Performance

This page is part of the PNNL/ASHRAE/NEMA AI Data Center Energy Performance Framework and focuses on energy and thermal

Datacenter & Energy Intelligence | S& P Global

The platform provides insight into how energy availability, grid capacity, and infrastructure constraints impact data center

From Grid Strain to Grid Gain: How Data Centers Are Rewiring the Energy ...

In the U.S., firms like Camus Energy and GridUnity are deploying AI-driven platforms to coordinate large flexible loads

Data Centers | Keeping Data Alive | Clarke Energy | Rehlko

Clarke Energy, a Rehlko Company, designs and delivers modular energy platforms tailored to the specific demands of data Centers,

Meta signs deals to source more solar, wind power for data centers

Renewable energy developer Invenergy and social media giant Meta Platforms have signed four deals to supply 791

How Data Centers Are Driving The Renewable Energy

The argument could be made that data centers are a major driving force in the energy

Cleanview — See the Energy Transition in Real-Time

Track clean energy projects, data centers, and developers across the U.S. in real-time.

Toward sustainable data center operation: A review on existing ...

Toward sustainable data center operation: A review on existing infrastructures, integrated smart energy management

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

“Now, we see that while AI is still an energy taker, it is also becoming an energy maker – driving forward innovative

Energy storage for data centers

Whether a data center is grid-tied, fully islanded, or seeking future grid interconnection, our controls and optimisation software,

Data centres & networks

As the world becomes increasingly digitalised, data centres and data transmission networks are emerging as an important source of

Data center sustainability | Deloitte insights

AI-driven data center power consumption will continue to surge, but data centers are not—in fact—that big

Schneider Electric debuts platform to unify data center energy and ...

Power technology vendor Schneider Electric has launched a single platform to control energy and building

Homepage - Google Data Centers

Discover how Google's data centers help build better for everyone around the world.

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

Data centre electricity use surged in 2025, even with tightening bottlenecks driving a scramble for solutions - News

Data Center Energy Management: Microgrid Control & Grid Balancing

Gain intelligent insights across your data center complex using Emerson's innovative, integrated Ovation Automation Platform that

How data centres can avoid doubling their energy use by 2030

Data centres consume immense energy but leading facilities use around 84% less than the norm; however,

Best Practices Guide for Energy-Efficient Data Center Design

This guide concludes with a section on metrics and benchmarking values by which a data center and its systems energy efficiency

Powering Data Centers | Megawatts to Megabytes:

This guide examines practical strategies for powering data centers amid grid constraints and clean energy

How Data Centers and the Energy Sector Are

In 2025, data centers and energy providers are forming powerful partnerships to support grid

Energy and AI Observatory – Data Tools

This first-of-a-kind platform is developed and maintained by the IEA, with valuable contributions of data and insights

Next-generation data center energy management: a

Abstract In the era of society's ongoing digitization and the exponential growth in data

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

Using demand response to reduce data center power consumption

Google is expanding our use of demand response technology to temporarily reduce power consumption at our data

Data Center Solution

Monitor data center pipelines, power demand, and supply chains to benchmark projects, assess grid impacts, and spot energy

Data Center Power Solutions | Siemens Energy

Power up your data center with Siemens Energy! From boosting efficiency to hitting sustainability targets,

DC Energy Intelligence

An advisory energy intelligence and governance layer that sits above existing DCIM, BMS, and IT systems to transform approved

Cadence Reality Digital Twin Platform | Data Center Design, Modeling ...

Cadence provides innovative data center solutions using digital twin technology and physics-based modeling and simulation for

From Energy Demand to Grid Support: ENTSO-E Explores Data

It examines how data centres consume electricity, what this means for secure grid operation, and how connection

## Contact Us

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