Fuel Cells: Prime Power for Data Centers

Artificial intelligence (AI) continues to evolve and expand, and the power needed to run the data centers supporting AI and next generation digital technologies is growing immensely and at a rapid pace.

Energy analysts are forecasting a major demand surge from data centers over the next few years, increasing up to 10x when AI is implemented.

0% → **1.7%** → **2.4%**

Average US power demand growth in the last decade.

Our estimate for the US electricity demand CAGR through 2030 prior to AI/data center considerations.

Our latest estimate for the US electricity demand CAGR through 2030, factoring in expectations for data center and AI growth.

3% → **160%** → **8%**

Data centers' current share of US power demand.

The expected growth in data center power demand (excluding cryptocurrency) between 2023 and 2030.

Data centers' 2030E share of US power demand.

Source: *Generational Growth AI, Data Centers and the Coming US Power Demand Surge*, Goldman Sachs

For data centers, high-quality, continuous power is key!

As demand increases, stability and scalability are also key factors in finding power solutions.

The electric grid is aging, becoming more unreliable and strained every day. Diesel generators are loud, unpredictable, and dirty. Customers are looking at onsite power to meet their needs.

Fuel cells have a proven track record as a low-carbon, efficient, reliable, and scalable power solution for data centers to meet this energy challenge.

FCHEA
Fuel Cell & Hydrogen Energy Association

FCHEA represents leading companies and organizations advancing innovative, clean, safe, and reliable energy technologies. FCHEA drives support and provides a consistent industry voice to regulators and policymakers promoting the environmental and economic benefits of fuel cell technologies and hydrogen energy. Visit us online at www.fchea.org.

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Fuel cells utilize the chemical energy of fuel to generate electricity without combustion. The process is inherently efficient and clean - the only emissions from the fuel cell itself are water and waste heat, which can be captured and put to use.

For more than 25 years, fuel cells have been installed at data centers, banks, telecom sites, hospitals and other critical facilities.

Companies in the technology and financial sectors, are turning to fuel cells to reduce carbon emissions while ensuring constant, reliable, and secure service to employees and customers. This includes Adobe, Amazon, Apple, eBay, Equinix, Google, Intel, IBM, Microsoft, Panasonic, Verizon, Vertiv, Yahoo!, and many more!

Fuel Cell Benefits

There are many reasons these technology leaders are turning to fuel cells – no other power solution offers the **flexibility** that fuel cells provide.

- **Feedstocks**– fuel cells can run on natural gas, utilizing existing natural gas infrastructure, or other fuels, such as biogas and hydrogen generated from a range of domestic sources, including renewables.
- **Configurations** – fuel cells provide onsite power as part of a microgrid or set up to provide primary or backup power connected to, or independent of the electric grid. Utilizing byproduct waste heat and water for cooling increases the data center's efficiency.
- **Sizing** – fuel cells are available in a range of sizes and can be scaled to multi-MW and GW capacity.

Other benefits include:

- Efficient and reliable
- Generates premium, high-quality power
- Low to zero emissions
- Quiet
- Operate in water balance
- Can also serve as energy storage system

FCHEA has many members involved in the stationary fuel cell market, contact info@fchea.org to learn more!

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