

Data Centers

EH Energy Fuel Cell Power: Fast, clean, onsite power to meet the primary power needs of AI data centers

The Challenge

AI is driving an unprecedented surge in data-center power demand, and the supply side cannot keep up through conventional routes. **Grid interconnection queues** now stretch to multiple years in the regions where hyperscalers want to build, and new **incumbent solutions carry multi-year lead times** and long backlogs. The result is that **power - not chips, land or capital - has become the binding constraint on data-center growth.**

The fallback options each fall short. Diesel generators are emissions-heavy, increasingly restricted by air-quality rules and only ever intended for short runs. Waiting on the grid cedes control of timing and cost to the utility and exposes the operator to interconnection volatility. Renewable solutions face intermittency and battery storage challenges, as well as long permitting challenges in many markets.

What operators need is a power source they can **site themselves, behind the meter, and switch on quickly** - one that delivers dispatchable, 24/7 baseload power for critical AI compute, follows the dynamic load profiles that AI training and inference create and does so with a credible path to zero carbon.

The EH Energy Solution

EH Energy provides **modular fuel cell power solutions co-located with the data center and independent of the grid**. Our 250 kW EH Energy System building block scales into our 3 MW EH Power Blocks and up to gigawatt-scale EH Power Plants, delivering **dispatchable primary power** for critical operations.

The systems are **fuel-flexible**: they run on natural gas today via a reformer - using the low-cost gas already available in many data-center regions - with a clean pathway to hydrogen as it becomes available. Optional **carbon capture** yields a near-zero-carbon system (reforming produces a concentrated, capture-ready CO₂ stream), and optional heat recovery turns waste heat into a resource for data-center cooling or district heat, lifting total efficiency.

Because the fuel cell responds almost instantly to load changes, it supports **dynamic AI power profiles with dramatically smaller batteries** than combustion incumbents or alternative fuel-cell systems require - reducing overall power-infrastructure cost and footprint. The containerized design includes the full balance of plant plus **AI-enabled telemetry** for fleet-wide monitoring and control. EH Energy works as a **design partner** - alongside real estate, IPP, EPC and integration partners - scoping the system to the data center's load, fuel strategy, uptime and emissions targets.

Key Differentiators

Fast time-to-power

deployable on the operator's timeline, bypassing multi-year grid interconnection queues and long incumbent lead times.

Onsite and grid-independent

co-located behind the meter, giving the operator control over its own power and removing grid bottlenecks and volatility.

Dispatchable 24/7 baseload with near-instantaneous ramp

follows dynamic AI loads while needing far smaller batteries.

Fuel flexible

Use gas, hydrogen or alternative fuels. Start with gas and develop a transition pathway as hydrogen infrastructure grows.

Clean by design

electrochemical, not combustion: no NO_x, SO_x or particulates at the fuel cell point of use; integrated carbon capture with reformer to offer low-carbon system

Modular and scalable

from a single 3 MW container to gigawatt-scale power plant, matched to phased build-outs.

Smaller footprint

high power density ($\approx 1.5\times$ competitor stacks) for space-constrained sites.

Heat recovery

usable heat for cooling or CHP.

Cost-competitive

in line with combustion incumbents on a total-cost-of-ownership basis.

Why EH Energy for Data Centers?

Onsite power without waiting for grid connections.

EH's fuel cell systems offer onsite power co-located with data centers and independent of the grid. This gives data centers control over their own power systems and removes bottlenecks and volatility associated with grid connections.

Dispatchable baseload power to ensure reliable operations.

EH's fuel cells generate consistent power as long as they are fed fuel. So naturally, they provide the dispatchable, baseload power that data centers need.

Modular and scalable systems to meet data center needs.

EH's modular and scalable systems offer data centers the flexibility to design their own power systems, select their fuel source and integrate carbon capture and heat recovery options. Our 250 kW boxes and 3 MW containers offer many options for data center power plant designs and needs.

Fast ramp time and reduced battery need.

EH's core PEM fuel cell IP operates at a comparably low temperature when compared to SOFC fuel cells. This means our fuel cells have near-instantaneous ramp times and are well-suited to support dynamic AI power profiles with dramatically smaller batteries than alternative systems require and incumbents offer.

Radically simpler design that reduces costs and increases production volume.

EH's patented microstructure design radically simplifies fuel cell operations reducing the historic cost, complexity and production capacity challenges of fuel cells. Our IP is patented and proven to deliver lower costs and dramatic production volume increases, which allows us to meet the needs of AI data centers.

Very competitive costs versus all alternatives.

Because of our microstructure innovation and production automation, our gross pricing is competitive with combustion incumbents and cheaper than alternative fuel cell options. Applying the 30% baseline US tax credit and 100% depreciation allowance for fuel cells makes EH Energy more affordable than nearly anything else in the US behind-the-meter power market.

Comparably fast time-to-power.

Compared with incumbents, new energy alternatives and grid connections, onsite EH fuel cells offer a faster route to power for data centers that need it quickly.

Why EH Energy for Data Centers? (Continued)

Scaling to multi-GW scale production capacity.

EH is currently expanding our manufacturing capacity. Our proprietary automated production line is designed for multiple gigawatts of annual production capacity for each line. Going forward, we can add additional lines, scaling rapidly to meet data center power needs.

Low emissions footprint and "clean gas" systems.

Fuel cells convert fuel to electricity using an electrochemical process instead of combustion. As such, fuel cells inherently do not release any air pollution and release far fewer carbon emissions than alternatives. Our integrated reforming module can be designed with optional carbon capture and with emissions efficiencies. Overall EH Energy's fuel cell power plants offer a cleaner energy solution than combustion incumbents with comparable costs.