

Manufacturing

EH Energy Fuel Cell Power: Reliable, affordable onsite power for manufacturing and industry

The Challenge

Manufacturers are caught between three pressures at once. **Electricity is expensive and volatile**, and demand charges penalize the peaky loads that heavy equipment creates. **Grid capacity is increasingly the binding constraint**: in many markets, interconnection queues and transmission upgrades now run several years, so a plant that wants to add a line, a furnace or a new building often cannot get the power when the schedule demands it. And **decarbonization pressure keeps rising** - from regulation, from customers auditing their supply chains and from a company's own Scope 1 and 2 targets.

At the same time, the cost of getting power wrong on a factory floor is unusually high. **Unplanned downtime** idles people and equipment, spoils in-process material and can take hours to recover from, while **poor power quality** - sags, surges, harmonics - quietly damages sensitive drives, robotics and electronics. What manufacturers actually need is affordable, dependable and lower-emission power they can site on their own land and bring online to their own timeline, without waiting on the grid.

The EH Energy Solution

EH Energy provides **affordable behind-the-meter fuel cell power** that sits on the customer's site and doesn't cut deeply into manufacturing margins. The systems convert fuel to electricity electrochemically, with **no combustion and no moving parts in the stack**, so they run quietly, cleanly and with low maintenance. They run on **natural gas through an integrated reformer today and on hydrogen as it becomes available**, so a site can start with low-cost gas and move to zero-carbon fuel without replacing the core system.

The EH Energy Solution (continued)

Our **250 kW EH Energy System is the building block**. Systems combine into our 3 MW EH Power Block that scales into our EH Power Plant design for large factories. Because EH's patented stack reaches **≈1.5× the power density of competitor stacks** with fewer parasitic loads, the same power fits in less space and converts more of the fuel into useful output.

Where a site can use it, our **CHP configuration recovers heat**: integrated liquid-to-liquid heat exchangers feed a hot-water loop into a building-heating, hot-water or thermal-management system, lifting total efficiency by roughly **20–30 percentage points**. This is warm-water-grade heat for space heating, service hot water and preheating, not high-temperature process steam. On natural gas, an **optional carbon-capture unit** removes CO₂ from the reformer stream for permanent storage or industrial reuse, taking emissions close to zero; on hydrogen, operation is **genuinely zero-carbon**, emitting only water and heat. Every system ships with telemetry, remote monitoring and an onsite HMI, and integrates with the facility's energy-management system for dispatch, monitoring and control.

Key Differentiators

Reliable power that protects uptime

dispatchable, reliable power with modular redundancy, shielding sensitive processes from grid disturbances and unplanned downtime.

Fast capacity that bypasses grid limits

onsite generation on your own timeline, enabling expansion where interconnection queues can't deliver in time.

A credible decarbonization path

no NO_x, SO_x or particulates; zero carbon on hydrogen, near-zero on gas with carbon capture - supporting Scope 1 & 2 and supply-chain goals.

Affordable costs that don't kill margins

costs in line with combustion alternatives so margins are not impacted by making a clean energy switch.

Competitive, predictable economics

a hedge against volatile electricity prices and demand charges.

Fuel-flexible

low-cost natural gas today, hydrogen tomorrow, without replacing the core system.

High power density in a compact footprint

≈1.5× the power density of competitor stacks, fitting MW-scale power into existing infrastructure with N+1/N+2 redundancy.

Low-maintenance and quiet

no combustion and no moving parts in the stack, so far less maintenance than diesel gensets and a low acoustic and emissions signature.

Power and heat from one system

CHP recovers warm-water-grade heat for space heating, hot water and preheating, lifting total efficiency by roughly 20–30 points.

Why EH Energy for Manufacturing?

Reliable power that protects uptime.

On a factory floor, the cost of an outage or a voltage disturbance is measured in idled lines, scrapped material and missed shipments. EH's systems deliver dispatchable, high-quality power and, in an N+1/N+2 configuration with modular redundancy, keep supplying it through a single-system fault or a grid disturbance - insulating sensitive drives, robotics and process electronics from the sags and interruptions a grid connection alone can't prevent.

Fast capacity that bypasses grid limits.

Where a utility interconnection or transmission upgrade would take years, onsite generation lets a plant add power on its own schedule. That turns "we can't expand until the grid catches up" into a site-level decision, and lets manufacturers build the line, furnace or building when the business needs it rather than when the grid allows it.

A credible decarbonization path.

EH's fuel cells produce no NO_x, SO_x or particulates and improve local air quality. On hydrogen, operation is genuinely zero-carbon - only water and heat leave the system; on natural gas, an optional carbon-capture unit takes emissions close to zero. The same platform therefore supports Scope 1 and 2 targets today and goes further as clean fuel and capture come online - increasingly important to customers auditing their supply chains.

Competitive, predictable economics.

Generating power onsite hedges a plant against volatile wholesale electricity prices and the demand charges that penalize peaky industrial loads, giving finance a more predictable energy cost to plan against. EH Energy's cost competitiveness with combustion incumbents ensures that cleaner doesn't mean more expensive.

Power and heat from one system.

A fuel cell rejects heat as it makes power, and EH's integrated liquid-to-liquid heat exchangers recover it as a hot-water loop - warm-water-grade heat suited to space heating, service hot water and preheating rather than high-temperature process steam. Feeding it into a building-heating or thermal-management system lifts total efficiency by roughly 20-30 percentage points - so the same fuel does more work.

Fuel-flexible and future-proof.

The core system runs on natural gas through an integrated reformer today and on hydrogen as supply and price allow, and can also take biogas and other reformer-compatible fuels. A site can start on low-cost gas and transition toward zero-carbon operation without stranding the asset or replacing the stack.

High power density in a compact, scalable footprint.

EH's patented stack, redesigned at the microstructure level, reaches $\approx 1.5\times$ the power density of competitor stacks with fewer parasitic loads, so the same power fits in less space. Our 250 kW EH Energy Systems combine into 3 MW EH Power Blocks and scale to large EH Power Plants for your full operations.

Why EH Energy for Manufacturing? (continued)

Low-maintenance, quiet operation.

With no combustion and no moving parts in the stack, EH's systems need far less maintenance than combustion incumbents and run with a low acoustic and emissions signature - an advantage for sites near communities or operating around the clock. Telemetry, remote monitoring and an onsite HMI give operators live visibility and control, and integrate with the facility's energy-management system.