

Breathe Easier

with the right power decisions.



UTC Power's fuel cell powering a hybrid-electric bus



Replacing one diesel bus = the environmental benefits of planting 31 acres of forest and eliminating the NOx (nitrogen oxide) emissions from 71 cars.

The ultimate power trip.

A fuel cell is an electrochemical device that combines hydrogen and oxygen to produce nothing but electricity, heat and water pure enough to drink.

Doing more with less. This fuel cell bus is twice as fuel efficient as a diesel and operates for 350 miles without a fill-up. That's two days of travel for a normal city bus.

Goodbye dipstick. A fuel cell has no moving parts. No friction, no wear, no oil (or oil changes).

Don't miss the bus. UTC Power's fuel cells are ready to go. Right now. They have already helped transport more than 200,000 Californians to a cleaner world.

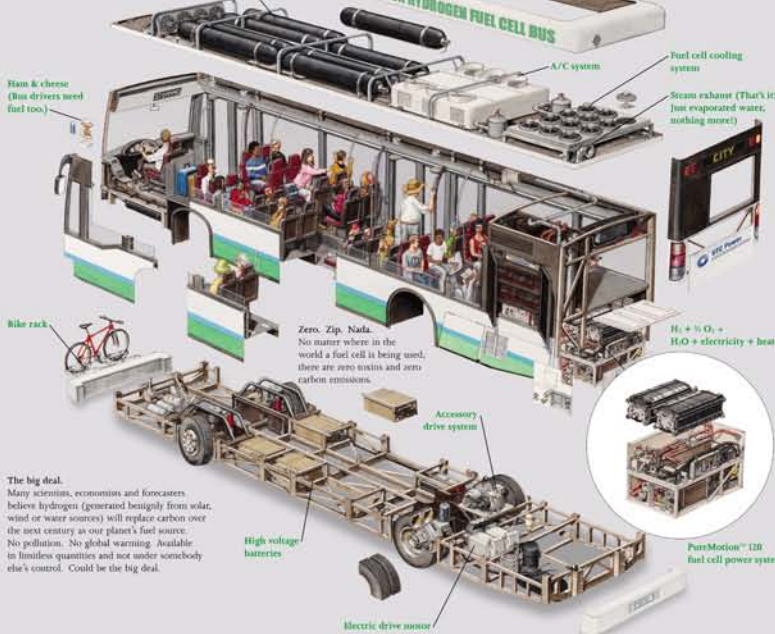
From the moon to the mall. UTC Power's fuel cells were first used in the Apollo space program and have been on every American manned space flight since. Today we fit 10 times the power into the same size unit.

"I'll be there in 10 minutes." There is no diesel engine, so it's as quiet as a luxury sedan. In fact, a bus driver in the front can hear you on your cell phone in the back.

Wherever it's critical. We don't provide fuel cells just for buses and manned space flight. We have them for cars, hotels, hospitals, universities, office buildings, even the New York City Central Park Police Station.

It's a bus! It's a generator! It's a bus! This bus can power a small office building in a blackout. Talk about emergency preparedness.

Supply, supply, supply and demand. Hydrogen is the most plentiful element on earth.



The big deal. Many scientists, economists and forecasters believe hydrogen (generated benignly from solar, wind or water sources) will replace carbon over the next century as our planet's fuel source. No pollution. No global warming. Available in limitless quantities and not under somebody else's control. Could be the big deal.

CAN THE RIGHT THING AND THE PROFITABLE THING BE THE SAME THING?

United Technologies has reduced energy consumption measured in Btu's by 19% over the last decade, on a company more than twice the size. We make more efficient products, like elevators that use 75% less energy and fuel cell buses whose emissions are water and waste heat, and nothing more. United Technologies: the 48 billion dollar company that proves you can be as conscientious as you are competitive at every turn. Learn more at utc.com/curious.



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PureMotion™ 120 Fuel Cell Power System

The Product

The PureMotion™ 120 Fuel Cell Power System from UTC Power, is a superior, efficient, quiet and compact low temperature fuel cell system. The PureMotion™ 120 power system is based on Proton Exchange Membrane (PEM) technology and maximizes the benefits of fuel cells by employing a compact, robust pressure, hydrogen fuel cell system. Advanced pressure technology delivers the highest level of fuel efficiency. In fact, UTC Power's PureMotion™ 120 power system will deliver nearly double the fuel economy of a standard diesel powered engine. In addition, the power system is designed to provide a quiet, more comfortable ride for passengers.

Ideally suited for transit vehicles, the PureMotion™ 120 power system generates up to 120 kW of power. The modular design is intended to maximize uptime and simplify routine maintenance. The PureMotion™ 120 power system is particularly well-suited for emergency use hybrid vehicle applications.

UTC Power has a strong history of providing fuel cell power plants for first transportation applications. Our first fuel cell powered bus began operating at Georgetown University in 1998, and continues to operate today. Since 2001, our fuel cells have also powered buses in the United States, Spain and Italy.

- Features**
- Ambient pressure operation
 - Simple air system
 - Zero emissions
 - Low operating costs
 - Simple integration

- Benefits**
- ~2X diesel fuel efficiency
 - Low noise
 - Environmentally friendly
 - High reliability
 - Simple integration

System Specifications

Power	Voltage Range	Efficiency	Transient Capability
120 kW net	200 to 500 VDC	~40% @ 120 kW	24 MWVA
Fuel Type	Cooling	Operating Temperature	Power System Dimensions
Genex by UTC Power	Liquid cooled (refrigerant not included)	0 to 40°C	10' x 100" x 11' (L x W x H)
Emissions	Noise	Electrical Input	Weight
None	< 70dB @ 1.13 m	> 1.2 kW @ 1.2 VDC	500 kg (1,100 lb)

*Low CO2 measurement
Non-flammable system at all times. For additional information, contact the manufacturer at 1-866-900-POWER (266-001-7662).



PureMotion™ 120 Fuel Cell Power System



PureMotion™ 120 fuel cell power system bus application, California



The hybrid electric fuel cell bus provides clean transportation at the United Nations World Government Day in San Francisco, June 2009



PureCell™ Solution | PureComfort™ Solution | PureCycle™ Solution | PureMotion™ Solution

Clearing the Way for a Healthier New England with the Latest Energy-Efficient Technology from UTC Power

Hartford, Connecticut – home to New England's first zero-emission fuel cell hybrid bus

The positive environmental impact of emission-free bus transportation in metropolitan areas and heavily populated commercial centers represents just 7 percent of the United States' vehicle miles traveled. However, when looking at overall vehicle emissions overall, these vehicles produce disproportionate shares of NOx (nitrogen oxide) and particulate matter emissions – 80 percent NOx and 50 percent particulates. Through visionary partnerships, UTC Power is revolutionizing the public transportation sector with hydrogen fuel cell systems. The end result is a zero-emission, quiet and ultra-quiet bus.

Zero Emissions

Zero. Zip. Nada. No matter how you say it, the UTC Power's fuel cell powered hybrid bus traveling around Hartford produces no smog-forming pollutants, soot or any other harmful emissions. In fact, the only thing coming out of the tailpipe is water vapor, nothing more. So go ahead and take a deep breath as the bus pulls away. Whether you are a passenger onboard or walking at the bus stop, you will enjoy the clean and quiet benefits of our technology.

Extremely Quiet Operation

The fuel cell used in this innovative bus is ultra quiet. It has no moving parts and operates at near-ambient pressure, so it does not require an air compressor. This unique design results in a cabin noise environment that rivals a luxury motor – ensuring a peaceful ride for passengers and reducing noise pollution in cities and communities.

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PureCell™ Solution | PureComfort™ Solution | PureCycle™ Solution | PureMotion™ Solution

Mass Transit Travels Clean with the Latest Energy-Efficient Technology from UTC Power

UTC Power's PureMotion™ fuel cell system drives a revolutionary new bus

The positive environmental impact of emission-free bus transportation would be considerable. While buses and heavy-duty commercial vehicles represent just 8 percent of the nation's vehicle miles traveled, they produce more than 45 percent of U.S. overall vehicle NOx emissions and almost 70 percent of particulate matter emissions. Through a visionary partnership, UTC Power in Connecticut, California-based AC Transit, SunLine Transit and IRI Corporation, and SunLine and Belgium are working to revolutionize the public transportation sector with hydrogen-fueled hybrid electric fuel cell buses. The end result is a zero-emission, super-efficient and quiet bus.

Zero Emissions

Zero. Zip. Nada. No matter how you say it, the SunLine A300 fuel cell bus produces no NOx, no particulates nor any other harmful emissions – contributing to a cleaner future.

High Efficiency

Fuel cell power systems are inherently more efficient than traditional technologies. A fuel cell is an electrochemical device that combines hydrogen fuel and oxygen from the air to produce electricity, heat and water. Since the fuel is converted directly to electricity, a fuel cell can operate at much higher efficiencies than internal combustion engines, extracting more energy from the same amount of fuel. Fuel cells also have no moving parts, so there are no mechanical losses caused by friction, which enables even greater efficiencies to be achieved.

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