

MGE Hybrid Vehicles

A Greener Fleet

With 225 vehicles in our fleet, MGE is very aware of our environmental footprint. We continually seek ways to cost-effectively reduce our environmental impact while maintaining vehicle performance and reliability.

Hybrid Electric Vehicles (HEVs)

Over the past two years, MGE has begun to replace aging vehicles with hybrid electric vehicles. We currently operate 12 Ford Escape 4x4s. Three additional Ford Escape Hybrids have been ordered, as well as two HEV bucket trucks and one HEV pickup truck.

HEV Performance

During the past year, our 12 Escape hybrids have averaged 22.75 mpg, compared to similar gasoline-fueled small SUVs purchased at the same time with 16.73 mpg and half-ton pickup trucks at 13.69 mpg.

Plug-in Hybrid Electric Vehicles (PHEVs)

MGE purchased a standard Toyota Prius HEV and hired A123 Hymotion to add another, larger battery that we recharge from the electric grid. This PHEV



now draws power from the grid battery first. We also installed a fully automated monitoring device that communicates with the Idaho National Laboratory which provides us with monthly performance data.

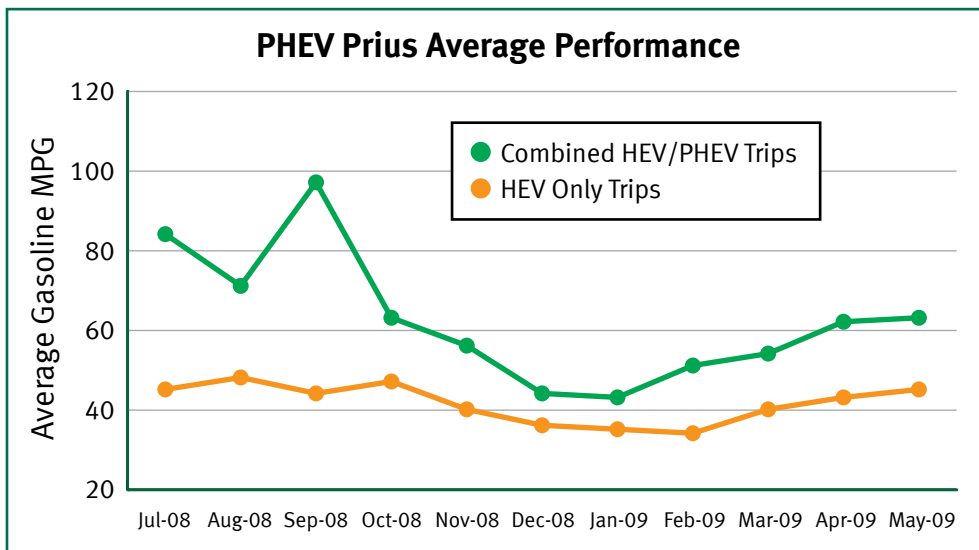
MGE recently purchased and converted a 2009 Ford Escape Hybrid to PHEV. Later this year we will add vehicle-to-grid technology (V2G) made by Hybrids Plus, called Inverger™, to make it “Smart Grid” ready. This will allow MGE to test the vehicle’s ability to

discharge power to the electricity grid during hours of peak demand and to recharge at low power demand times.

PHEV Performance

Our PHEV Prius has averaged close to 60 mpg over the past year. Visit mge.com/hybrid for more information.

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CNG

MGE currently uses 9 dual-fueled CNG vehicles in its fleet. According to the U.S. Department of Energy, use of CNG compared to gasoline reduces:

- Carbon monoxide emissions 90%-97%,
- Carbon dioxide emissions 25%,
- Nitrogen oxide emissions 35%-60%,
- Non-methane hydrocarbon emissions 50%-75%,
- Emits fewer toxic and carcinogenic pollutants, and
- Emits little or no particulate matter.

While fuel prices change dramatically, CNG is typically considerably less expensive (45%-60%) than the fuel it replaces.

Biodiesel

MGE uses B20 biodiesel fuel for 64 company fleet trucks and off-road equipment that refuel at its downtown Central Service Center, about 25% of the fleet. Over the past three years, MGE has purchased an average of over 11,000 gallons of B100 (100%) biodiesel fuel per year to blend and use in its vehicles. Biodiesel replaces 20% of the fuel used by the fleet.

According to the Environmental Protection Agency (EPA) data, replacing petroleum-based diesel fuel reduces:

- Carbon monoxide (CO) emissions by 10%,
- Particulate matter (PM) by 15%,
- Sulfates by 20%, and
- Hydrocarbons by 20%.

Historical hybrid use

MGE has a 30-year history of testing alternative-fueled vehicles in its fleet. Most have been hybrids, that is, dual-fueled vehicles. We have used:

- Electric
 - Beginning in 1975
 - Battery fire in 1978 ended the project
- Liquid Propane
 - Beginning in 1978
 - 60 vehicles at peak use
 - Switched to all CNG in 1988
- Compressed Natural Gas
 - Beginning in 1986 through today
 - 50 vehicles at peak use
 - CNG vehicles no longer readily available
- Biodiesel
 - Beginning in 1999
 - Switched to ultra-low sulfur biodiesel in 2006