

# Plug-in Hybrid Electric Vehicle Factsheet

## **What is a plug-in hybrid electric vehicle?**

Plug-in hybrid electric vehicles (PHEV) combine the benefits of electric vehicles and hybrid vehicles. They have an all-electric range of 25 to 35 miles. If you need to go farther than that, then the drive system operates as a normal hybrid with the gasoline engine assisted by the electric motor as needed. Drivers can pre-charge the batteries through a standard wall socket. This efficient combination of gasoline and electricity can achieve greater than 80 miles per gallon of gasoline. However, auto manufacturers are also developing Flex Fuel PHEVs that can operate on biofuels like ethanol (E85). This further reduces emissions and petroleum use. Plug-in hybrids can get as much as 90% of their driving energy from the electric grid. And if this energy comes from renewable sources like wind or solar, then those all-electric miles are truly emission free.

## **What types of plug-in hybrid electric vehicles are available?**

Plug-in hybrid electric vehicles are still on the automakers' drawing board. At this time, only DaimlerChrysler is nearing completion of a production-ready plug-in hybrid model for a fleet customer. Potentially, all sorts of cars and trucks can be built as PHEVs or Flex Fuel PHEVs.

The Plug-in Partners Coalition, comprised of municipalities, electric utilities, and other organizations concerned about air quality and oil dependency, is urging auto manufacturers to build more PHEVs and Flex Fuel PHEVs. The campaign urges citizens to sign on-line petitions to automakers and it urges fleet operators to make "soft" commitments to purchase these vehicles when they become available as a way to help jumpstart the market.

## **How do basic hybrids and plug-in hybrid electric vehicles differ?**

Basic hybrids receive all their energy from gasoline. Electricity generated by the engine or recovered during braking is stored in the batteries. Plug-in hybrids get their electricity from those sources as well as the power grid. PHEVs have a larger battery than the basic hybrids and can pre-charge from a standard home outlet. PHEVs will be able to operate several miles solely on electric power before switching into hybrid mode and using energy from the liquid fuel. Drivers will notice the engine starts running, but the transition from all-electric to hybrid will be seamless.

## **What are the benefits of using plug-in hybrid electric vehicles?**

- No need for new infrastructure because outdoor plugs and liquid fuels are readily available.
- Reduced operating costs - estimated to equal 75 cents/gallon of gasoline.
- Dramatically reduced petroleum consumption by switching to domestically produced electricity.
- Zero tailpipe emissions while running on electricity, and higher gas mileage when running on gasoline.
- As battery technology improves, plug-ins will have greater all-electric range, further reducing the need for traditional fuel.

## **Resources**

Plug-In Partners National Campaign

[www.pluginpartners.org](http://www.pluginpartners.org)