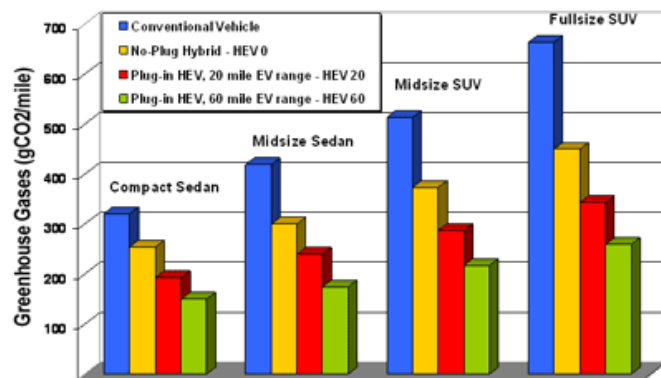


When and where can I buy one?

PHEVs are not yet available from major automakers, but should start arriving in 2010. Today there are kits and companies that will convert hybrids to PHEVs. Please see CalCars⁵ and PlugIn America⁶ for more information, and start telling car dealers "no-plug, no-deal".

Why do PHEVs reduce greenhouse pollution?

A study by EPRI, the California Air Resources Board (CARB), the National Renewable Energy Laboratory, Argonne National Laboratory, and others⁷ concluded that plug-in hybrids produced substantially lower greenhouse gas emissions than either conventional gasoline cars or unplugged hybrids. The reduction in emissions results from electric operation being much more efficient than gasoline operation.



References

1. www.calcars.org/vehicles.html
2. en.wikipedia.org/wiki/Plug-in_hybrid
3. www.pnl.gov/energy/eed/etd/pdfs/phev_feasibility_analysis_combined.pdf
4. epri.com
5. www.calcars.org/carmakers.html
6. pluginamerica.org
7. www.epriweb.com/public/000000000001000349.pdf
8. electricauto.org/Flyers/phev-notes.html



About the Electric Auto Association

The Electric Auto Association (EAA) is a non-profit educational organization founded in 1967 to promote the advancement and widespread adoption of Electric Vehicles.

The EAA's mission is to act as a public source of information about developments in electric vehicle technology, to encourage experimentation in the building of electric vehicles, and to organize public exhibits and events of electric vehicles to educate the public on the progress and benefits of electric vehicle technology.

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Plug in a Car?



What is a Plug-in Hybrid Electric Vehicle (PHEV)?



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What is a Plug-in Hybrid Electric Vehicle (PHEV)?

A PHEV is like a regular hybrid electric vehicle (HEV) but with a larger battery pack and a plug to charge the batteries from standard household current. The vehicle is dual-fuel: powered by either electricity, gasoline, or both. For more information, see CalCars¹ and Wikipedia². A number after the PHEV acronym indicates the all-electric range of the vehicle. A PHEV-20 can operate on electricity without gasoline for 20 miles.

Why would I want to plug in my car?



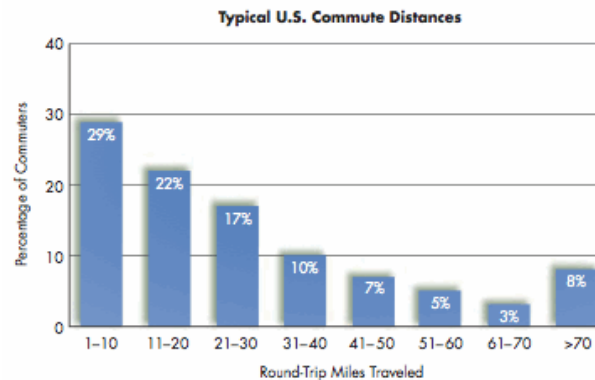
Fueling your car with electricity is about 5 times cheaper than fueling it with gasoline - equivalent to paying less than \$1 per gallon. Using electricity reduces greenhouse pollution and helps reduce crude oil imports.

If fueling my car with electricity is so cheap, why bother with gasoline?

Initially, PHEVs will be able to run 10-60 miles solely on electricity. For greater distances, the car seamlessly and automatically switches to gasoline. Charging the batteries by plugging in is optional (but much cheaper per mile).

Why can't PHEVs have a higher electric range?

Greater range increases the vehicle cost. Commute studies show most people drive less than 40 miles a day (see chart). Why increase the cost for range that is infrequently used? Pure Battery Electric Vehicles (BEVs) have ranges up to 250 miles, but large battery packs are expensive (though declining in price each year). For electricity, the fuel is cheap but the tank (the battery pack) is expensive. For gasoline, the fuel is expensive but the tank is cheap. PHEVs combine the best of both by using electricity for your everyday driving, and gasoline for the less common long trips.



What if I want to take a family vacation, and drive hundreds of miles?

Plug-in hybrid electric vehicles are exactly like hybrids when taken on long trips - they are powered by gasoline from the tank. They use much less gasoline than

conventional vehicles because of hybrid efficiency. The occasional family trip is one reason that PHEV-20s, for example, are projected to cut gasoline consumption *only* in half.

Won't PHEVs require us to build even more power plants?

Not at first. PHEVs will be programmed to charge at night, when electricity demand is low (and cheapest). You simply plug the car in when you get home, and the car will know when to charge. The U.S. Department of Energy's labs (Pacific Northwest National Laboratory) concluded that "73% of cars, pickup trucks, SUVs, and vans could be supported without modifying the existing grid infrastructure"³. This is made clear by the chart below (from the Electric Power Research Institute⁴ (EPRI), a utility-funded lab).

