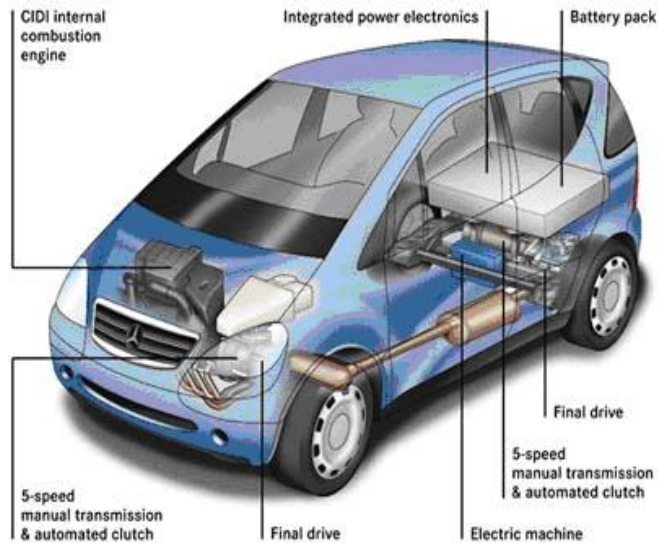


# Hybrid Cars -- Pros and Cons

January 19th, 2006 in Technology / Energy & Green Tech



If you listen to the makers, hybrid cars are the best invention since sliced bread. While there are many reasons to buy a hybrid car, including a new tax incentive for US owners, it helps to have a good understanding of how they work. This article explores the myths, benefits and drawbacks of owning one of these new “green” vehicles.

## What is a hybrid car?

First off: What is a hybrid car? Basically, it's a normal, fuel efficient car that has two motors - an electric motor and a gasoline powered motor. It also has a special system to capture braking energy to store in an onboard battery.

Why a hybrid? Why not a straight gas or electric powered car? After all, one of the basic rules of science is the more complex the system - two motors instead of one - the more often it will break down.

The reason for two motors is in the strengths and weaknesses of both types. Specifically, electric motors use no energy during idle - they turn off - and use less than gas motors at low speeds. Gas motors do better at high speeds and can deliver more power for a given motor weight. That means during rush hour stop and go driving, the electric motor works great and, as an added benefit, does not produce any exhaust thus reducing smog levels. At higher speeds - above 40 mph - the gas motor kicks in and gives that peppy feel so many car owners look for when driving on the highway.

## Charging the batteries

Another benefit of having the gas motor is it charges the batteries while it's running. Many an electric car owner has been stranded just out extension cord range of an outlet. Hybrid owners can forget about this annoyance; the gas motors starts automatically when the battery gets low and proceeds to charge the battery - a hybrid never needs to be plugged into an outlet.

## **Cost in repairs and fuel**

All this new technology comes at a price: a hybrid car is complex and expensive. It has two motors and all the computer systems to manage them plus a heavy battery and a regeneration system used to produce electricity during braking. So owners of hybrids can expect more time in the shop and larger repair bills.

Hybrids are the most gasoline efficient of all cars - they typically get 48 to 60 mpg (claimed). Not bad, but only about 20% to 35% better than a fuel efficient gasoline powered vehicle - like the Honda Civic, for example, that gets 36 mpg.

Indeed, the difference in average annual fuel bills - \$405 for a Honda Insight versus \$635 for a Honda Civic - means you may never recoup the added initial cost of a hybrid. Over a ten year period owning a hybrid will save you only \$2,300 - less than the cost difference for comparably equipped cars.

The motors and batteries in these cars do not require maintenance over the life of the vehicle. The engine doesn't need any more maintenance than in any other car. Because hybrids have regenerative braking, brake pads may even last longer than those in normal cars.

## **Go Green**

But hybrid cars offer more than just great fuel economy, they offer many green advantages as well. Also, in large cities where pollution is at its worst, they make an even larger difference since they produce very little emissions during low speed city driving and the inevitable traffic jams. The environment - always worth thinking about. A hybrid cuts emissions by 25% to 35% over even the most fuel efficient gas powered models.

With only a marginal savings on gasoline and a much higher initial cost, hybrid builders are relying on two main factors to sell: the "green" image and the "new" technology. Any marketer will tell you that "new" and "green" are good for any sales.

But what's a smart car buyer to do? Are the savings in gas worth the extra headaches and higher cost? Maybe, it depends on how you drive. If you drive mostly in the city, you may save enough to warrant the extra cost because you can use the electric motor. Heavy long-distance commuters and lead footers will see fewer savings because they will mostly use the gas engine.

The tax incentive in the U.S. is another powerful motive - it can reduce your cost up to \$3,400 depending on the cost of the vehicle.

Experts think in the end, hybrids are probably a transition technology. Hydrogen or methane fuel cell powered cars are probably the cars of the future. As for the environment, there are many ways to reduce emissions - using public transport, car pooling, riding a bicycle and even walking. Even just buying a smaller, fuel efficient car makes a big difference. So, think about what you are really trying to accomplish before buying a hybrid - don't just throw your hard earned dollars at new technology for its own sake because it may be fashionably "green".

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