

What is a hybrid?

A hybrid is a vehicle that operates on a combination of a traditional motor, gasoline-powered motor and an electric battery-powered motor.

It is often seen as a compromise between the powerful but inefficient gasoline engines found in most cars and trucks today, and the relatively weak but highly efficient electric motors found in electric cars.

Will I need to plug in my hybrid?

No. Unlike an electric car, a hybrid does not need to charge at an electrical outlet.

A hybrid's battery is recharged by either its gasoline engine or by "regenerative braking." This means that when you brake, some of the car's kinetic energy is used to recharge the battery instead of being wasted.

Will hybrids work properly in hot weather (such as Texas summers)?

Yes. The batteries found in most hybrids today will function in temperatures ranging from 140 degrees Fahrenheit to -20 degrees Fahrenheit.

How does driving a hybrid save gas?

A hybrid vehicle runs on a combination of gasoline and electricity supplied by a battery. While travelling at low speeds or idling, the car is powered solely by its electric motor, and little to no gasoline is used.

Many hybrids also utilize other technologies to improve fuel efficiency, such as improved aerodynamics, a lighter body weight, and lower-rolling resistance tires.

How much fuel will I save by driving a hybrid?

Fuel savings will depend on the model, but hybrids usually get significantly better gas mileage than conventional cars. For example, a Honda Civic with a gas-only engine gets 24 miles per gallon (MPG) city, 36 MPG highway, while its hybrid counterpart gets 40 MPG city, 45 MPG highway.

On the Environmental Protection Agency's (EPA) and Energy Department's 2009 list of the most fuel-efficient vehicles available, the top four, lead by the Toyota Prius, were all hybrids.

Will buying a hybrid instead of a conventional car save me money in the long run?

Factors such as how much you drive and your driving style, which influences how much your car uses its gasoline engine, the particular model you drive, and the price of gasoline will affect how long it takes to make up the cost of buying a hybrid.

For example, a city driver who drives in traffic going to work each day (hybrids use their electric motors while idling and traveling at slow speeds) and pays \$4/gallon gas will benefit more from driving a hybrid than someone who primarily does highway driving or pays less for gas.

However, before calculating a hybrid's worth solely in terms of economics, you should consider the fact that driving a hybrid greatly reduces air pollution and damage to the environment while at the same time reducing our dependence on oil.

Do hybrid vehicles pollute the air?

Hybrids run partially on a gasoline engine and that engine does emit carbon dioxide and pollutants into the air like any normal car engine. However, because the car runs on its electric motor while idling and at low speeds and because that motor does not emit pollutants, a hybrid car will release far less pollution than a regular car.

Depending on one's driving style and the model, the emissions from a hybrid vehicle may be reduced as much as 90%!

Are discarded hybrid batteries harmful to the environment?

Many hybrid manufacturers have recycling or proper disposal programs in place for their batteries so environmental pollution is not an issue. Toyota even offers a \$200 bounty on all its batteries to ensure they are not thrown away.

Hybrid batteries today use mostly nickel-metal hydride (NiMH), which studies have found to be environmentally safer than the lead batteries found in conventional vehicles. And in the next few years, auto manufacturers are considering switching to lithium-ion batteries, which are even less polluting.

How often will I have to replace my hybrid's battery? How expensive will it be?

Hybrid batteries, especially those found in recent models, have very long lives, easily over 100,000 miles. Most manufacturers offer warranties of 8-10 years on their batteries.

If your battery does fail post-warranty, the cost of replacement can be pricey. A replacement battery for a Toyota Prius, for example, costs around \$3,000, and one for a Honda Accord costs \$2,400. However, it should be noted that out of the 100,000 Honda hybrids on the road, only 200 have needed replacement batteries post-warranty, and only 0.003% of Toyota's hybrids have needed a post-warranty replacement.

I've heard that despite the fuel savings and lower emissions, a hybrid is actually more damaging to the environment than a conventional car. Is this true?

Hybrid cars differ from conventional vehicles mostly in that they have an electric motor and a different sort of battery. However, a current generation hybrid battery (made of nickel-metal hydride) is actually *less* damaging to the environment than a conventional car's lead battery. Of course, this is not an issue as long as the batteries are recycled and properly disposed of.

Will a hybrid require extra maintenance?

Maintenance for a hybrid will be about the same as a regular car, and in some cases actually less. For example, wear on the brake system is reduced in a hybrid—the regenerative braking system means that the brake pads do not have to dissipate as much energy while stopping and therefore do not wear out as quickly—and there is less wear on the engine, since it does not continuously run.

Like a conventional vehicle, though, a hybrid will need regular maintenance—oil changes, tune-ups, etc. In addition, it will need its hybrid-specific parts, such as special filters, occasionally replaced.

Are there any government rebates or tax credits still available to hybrid-buyers?

Only a few. The energy bill that originally created the tax credits had a cap of 60,000 vehicles per manufacturer. The sales of many hybrid models, such as the Prius, have exceeded this cap, and therefore are no longer eligible for tax credits.