

Drawbacks of hybrid and electric autos

[Entertainment](#), [Movie](#)



Hybrid vehicles, electric motors and ethanol - substitutes for conventional gasoline powered vehicles are not better for the environment or the consumer. Hybrids, electrics, and ethanol are all apparent in the United States today. The different substitutes for conventional vehicles are readily available to all consumers if the decision to switch from gasoline is made by them. However, the switch can have a negative effect on the environment, and it can be less beneficial for the consumer than a gasoline vehicle. Hybrid and electric vehicles (HEVs) are less popular to consumers because of the price of investment compared to ethanol, but the negative aspects of the car's existence are evident.

Cars are the largest polluter in most cities within the United States, and release greenhouse gases into the atmosphere such as carbon dioxide, nitrous oxide, carbon monoxide, and sulfur oxide in substantial quantities which negatively impact the environment (Roos). These days, car companies are looking for ways to give their customer the satisfaction of knowing that they are doing their part to preserve the environment and our natural resources. Their solution? Hybrid and electric vehicles or HEVs. To the modern car enthusiast, the mere thought of driving a vehicle without eight cylinders thrashing as the accelerator is mashed to the floor is a joke in and of itself. Ignoring the loss of fun factor, throaty exhaust, and gas guzzling power, environmentalist today argue that HEVs are better for the environment because they have a second electric motor. In theory, this proposal seems plausible, but the increased technology needed during the production process of these vehicles produces a substantial amount of greenhouse gases and burns fossil fuels (Roos). The total environmental

impact of a vehicle is affected by a variety of different factors such as location, manufacturing techniques, and the consumer's actions. (Palmer). In fact, a commissioned report in 2007 exposed that a Hummer is actually greener than a Prius if you factor the waste generated during production. According to the California Energy Commission, 10 to 20 percent of greenhouse gas emissions in a car's lifetime is released during the production of the vehicle. Even after the production stage, plug-in hybrids and electric vehicles obtain their power from electricity. 45 percent of all the electricity produced in the United States is an effect of burning coal at a power plant. Using this form of energy, plug-in hybrids and electric vehicles could potentially emit 10 percent more pollutants than a standard gas vehicle, and 60 percent more than non-plug-in hybrids (Roos). According to a study by Jeremy Michael, a mechanical engineering professor at Carnegie Mellon University, the most common source of energy in the United States is coal, and carbon dioxide emitted by coal is 27 percent more than oil per unit of energy produced. This being said, it is important to understand where electricity is coming from when contemplating the purchase of a HEV (Palmer). If most of the electricity used to charge an electric car comes from coal, it can have a negative impact on the environment; however, if electricity comes from wind or water, owning an HEV could be benefiting the environment for the generations to come.

Batteries are a significant component in an HEV which can reduce emissions, but for that battery to be in existence many processes must be completed that are harmful to the environment. Modern batteries in these cars require "rare earth metals" such as nickel and copper to be mined (Roos). Mining for

nickel is a complicated process that can either be completed underground or by mining using open pits. The open pit option is “ basically an earth-moving operation” using heavy machinery to remove large rocks and waste material while collecting the nickel (Wise). These massive operations can transform once beautiful landscapes into a polluted wasteland. Today, these metals have been mostly imported from China due to the low prices offered by the country. Because China has ignored the potential risks of mining metals and safety standards, mining has destroyed some of their land. In one instance, an acid was used to extract metals and it ended up entering the groundwater, destroying land used for agriculture nearby. After the metals have been extracted, they need to be combined with other materials to form a battery to power the vehicles. This process accounts for approximately 2 to 5 percent of the hybrids total emissions. These batteries also produce a higher sulfur oxide emission with an astounding 22 pounds for the hybrid vehicle vs only 2.2 pounds for a gas car (Roos). These statistics are very concerning when considering the environmental impact of the batteries.

Despite the stereotype that consumers believe regarding hybrids, owning an HEV doesn't actually save the owner any money. The increased cost for the technology doesn't compensate for the amount of money saved on fuel. Mathematically, the average hybrid owner would have to own their car for six years with gas prices staying steady at eight dollars a gallon for the extra money spent during purchase to pay off. For example, a buyer who chose the hybrid Nissan Leaf instead of the gasoline powered Versa would have to own and drive regularly for nine years if today's gas prices held constant, and a Chevrolet Volt owner would have to own that vehicle for up to 27 years

for it to pay off even with the \$7500 federal tax credit compared to the Chevrolet Cruze Eco. However, 93 percent of Volt owners were satisfied and would buy the car again - though only 12, 000 of these vehicles are in use by consumers. These gas savings compared to purchase price statistics are concerning because the average person only owns a car for six years before they trade it off for something newer (Bunkley). The other concern for potential buyers of HEVs is the limited availability. The total market is composed of only 3 percent HEVs even though sales have increased tremendously over the past few years. Since hybrids are such a small part of the vehicle market, companies are less interested in developing the electric and hybrid technologies because they can make larger profits expanding their research elsewhere. General Motors is a great example due to the low demand, they have completely stopped production of the Volt for now to focus their resources on vehicles that are selling well. The supply of hybrids from Japan where most are from have also been cut due to the 2011 tsunami that caused major damage to infrastructure and economic health (Bunkley). Production of hybrids dramatically decreased after the major disaster causing a shortage.

Some major drawbacks for owners of HEVs are lack of infrastructure for charging, limited range, heavier curb weight, lack of performance in colder climates, and the price of the batteries - these are all factors involving the battery. First, the price of batteries can be a significant financial investment. A brand new battery can cost up to \$2500. The big fear among owners is that they don't know how long their batteries would last. Just like the batteries in flashlights, they will eventually be incapable of holding a charge

and will need to be replaced. The life of the battery in a car depends on the brand, some can last over 100, 000 miles while some will barely make it through the miles covered under warranty before they fail (Demure). Cold weather can be detrimental to any vehicle's performance, but to HEVs specifically, it's almost crippling. For starters, batteries are less capable of holding a charge in colder temperatures which greatly reduces a vehicles range. Second, the occupants of the vehicle need to stay comfortable during the ride, this requires the heater to be running. The extra strain on the battery in order to run the heater takes a great deal of power and reduces battery life. Lastly, in icy conditions it is almost certain that the vehicle's wheels are going to slip at some point. When this occurs, the battery is supplying energy to the wheels, but the car is not traveling any distance. It is unsurprising that HEVs are heavier than conventional vehicles because batteries and the components to convert that electric power into energy are heavy (Hunting). To most buyers this isn't a big concern, but to those enthusiasts concerned about performance and beating that V8 next to them at the stoplight, this could be a deal breaker. The range on HEVs is what keeps most consumers away. Although they can be acceptable commuter cars, if the consumer has a 30 mile one way trip to work, and their range is only 50 miles, the driver has the potential of not making it home for supper because his or her car ran out of energy. This is without factoring colder weather, driving habits, air conditioning, and heat. The simple solution would be to charge the car while it is sitting in the parking lot at work. Well, the infrastructure to do that hasn't developed yet, so the nearest charging station to a workplace could be miles away. Even if there is a station near

the workplace, the batteries take hours to charge completely. This is a major inconvenience for the owner because he or she can only use the car for a certain amount of time before waiting hours for it to be ready again, while most conventional vehicles can fill up with gasoline in less than 5 minutes. Those factors considered, owners of a HEV have many more physical and financial obstacles to overcome.

Ethanol is a fairly new type of fuel that converts renewable resources into fuel to power engines; however, there are many environmental impacts of this fuel. Ethanol is only compatible with vehicles that have been specifically designed to be a flex fuel, meaning they can run on either gasoline or an ethanol-gasoline mixture. Corn or sugar is used to produce ethanol which can be beneficial for the agricultural industry, but detrimental to environmental well-being. Considering the production process of ethanol, a diesel tractor harvesting corn, a diesel truck transporting the corn, a processing plant heating the corn to produce ethanol, and then another diesel truck transporting the fuel, ethanol could increase greenhouse gases by almost 8 percent. Furthermore, after the ethanol is in a vehicle it produces less energy than conventional fuel, so it requires more fuel to travel the same distance. If ethanol takes off, farmers will have an incentive to produce more of it and make environmentally unfriendly decisions to produce the most possible (Chadwick). This is apparent in the Red River Valley of North Dakota where farmers are taking out tree claims that were originally intended to reduce soil erosion after The Great Depression of the 1930s in order to obtain just a few extra acres of farmland. This will cause problems in the future because there is nothing to stop the harsh wind from

blowing away the topsoil without these trees. The loss of precious topsoil will reduce crop yields, and force farmers to make budget cuts in order to make up for the loss. An environmental hazard and economic degrader – ethanol is a type of fuel that shouldn't become mainstream.

As far as consumer satisfaction, ethanol will not produce positive results. The decreased fuel efficiency, the higher price, and limitation on vehicle types are all reasons that consumers shouldn't use it. Fuel efficiency is a major consideration for most car buyers. But running a car on ethanol can reduce the efficiency by 20 percent of the EPA's estimated miles per gallon (Giametta). The lack of efficiency requires more fuel over time, which will increase the overall pollution a car emits. The price of ethanol is a major concern also. In the Midwest ethanol is slightly cheaper than straight gasoline, but in other parts of the country ethanol can be significantly higher in price (Giametta). Because of its lack of efficiency, the consumer ends up paying more for less. Lastly, the availability is very limited in some parts of the country. Even if a car is capable of running ethanol, there isn't always a fuel station in the area that provides the fuel. So the satisfaction of customers is hard to obtain when a fuel such as ethanol has so many drawbacks to consider.

HEVs do have some positive aspects to them such as better fuel mileage, no idling, instant torque, and a high resale value. Miles per gallon is a great selling point for dealers when trying to attract new customers. The amount saved on fuel is especially applicable if the owner has long commutes or puts a significant amount of mileage on the vehicle (Hunting). The savings are

very noticeable when filling at the pump and the amount of time between each filling interval. Idling is a waste of fuel because it produces zero miles per gallon, but it is also a contributor to smog and pollution. Vehicles with a battery have an advantage in this situation because it can run the car entirely off of electric power. Most also have the ability to shut off the combustion motor completely when stopped at a stoplight, and start back up when the driver is ready to move again (Hunting). This feature does give the driver a satisfied feeling of thinking they are saving money, but in reality they really aren't as proved earlier. One issue with the combustion engine shutting off at stoplights is that there have been some cases when the gasoline engine hasn't turned back on. This is a serious safety concern because the driver could become stranded in a busy intersection or in stop and go traffic. Torque is a common term used among car enthusiasts referencing the turning or twisting force of the wheels. In a conventional vehicle the engine must rev up in order to produce maximum torque; however, electric motors have a unique characteristic that provides instant torque as soon as the accelerator is depressed (Hunting). While that feeling of instant power can be exhilarating for the modern car enthusiast, the sound a combustion engine produces under hard acceleration is not matched by the electric motor's subtle humming noise. Price is typically the main consideration when buying or selling a vehicle. Hybrid cars are much more likely to hold their value during resale because of their sophisticated technology, strong reliability, and abundant features (Hunting). Therefore, the confidence of the consumer making a safe and informed purchased is inflated. Knowing the resale value will be fair and that the vehicles have a

higher demand, forms peace of mind if they don't like it and decide to trade it off. Ethanol can have a significant increase in production for the agricultural industry as well as reduce our dependence on foreign oil. The tradeoff for using ethanol has significant effects on consumers, but for farmers the production of the fuel has increased the demand for grain that can be converted into ethanol which makes the industry boom. The dependence on oil from other countries could be reduced if we produced more ethanol fuels and stopped relying on other countries (Rinkesh). Farmers are dependent on how many bushels they can produce and how much they can sell it for. If the demand was higher for grains such as corn farmers would have the opportunity to expand their farm and operations due to higher income. Reliance on foreign oil is a big economic question in our society today. The large scale production of ethanol in the United States could enable the country to halt foreign oil imports. This would keep more money in America, and continue to put money back into the economy. Alternatives to conventional vehicles have a few benefits that should be considered, and they have some positive aspects that can't be denied.

Hybrid and electric vehicles are not better for the environment due to their environmentally unfriendly production process, their unclean usage of electricity, and their inefficiency compared to conventional vehicles. Also HEVs are not beneficial to the consumer because of their high purchase price, their lack of range, and their unlikeliness to make a return on the consumer's investment. The consequences can be overshadowed by the low cost at the pump and no emissions while the electric motor is running, but in the long run they are not better. Lastly, ethanol is not better for the

environment or the consumer because of its higher price in some areas, its lack of availability in some areas of the country, and its loss in fuel mileage per gallon. Therefore, these substitutes to conventional vehicles are not better for the consumer or the environment, so if you care about the environment or your financial health you will stay away from conventional substitutes and buy a gasoline powered car.