

# ELEMENTARY ARTICLE: Will Your First Car Be An EV?

Today, most people in the United States drive cars that run on gasoline. By the time you're ready to buy your first car, you will have lots of choices. You will be able to choose from cars that run on electricity, natural gas, ethanol, propane, or a mixture of fuels.

## Electric Vehicles (EVs)

In 1891, William Morrison of Des Moines, Iowa, built the first electric car. By the turn of the century, there were twice as many electric vehicles (EVs) as gasoline-powered cars. Today, there are about 10,500 EVs in use in the United States, mostly in the West and South. Researchers are still working on the same problem that plagued those early electric vehicles—an efficient battery.

## The Battery is the Challenge

Electric vehicles must have batteries that can be recharged over and over again. Since most batteries can't store large amounts of electricity, an EV must carry as many batteries as possible. In some EVs, the batteries make up almost half the weight of the car. The batteries must be replaced every 20,000 to 30,000 miles, which is expensive.

The batteries limit the range of an EV—how far it can go on a charge. The more batteries an EV has, the more range it has, to a point. Too many batteries can weigh down a vehicle, causing it to use more energy. The typical EV can only travel 50 to 130 miles between charges. EVs can only go this far with perfect driving conditions. Weather, hills, and air conditioning can reduce the range. Even listening to the radio or turning on the lights can reduce the range.

Electric vehicles are not for people who must drive long distances. They are best as neighborhood or low speed vehicles for drivers going short distances at speeds of 30 mph or less.

Research is being done to develop advanced batteries that will increase the range. Some of these are like the batteries used in portable computers. These advanced batteries could double the range of EVs, and last longer before they have to be replaced.

## Environmental Impacts

Electric vehicles produce no tailpipe emissions, but making the electricity to charge them can. EVs are really coal, nuclear, hydropower, oil, and natural gas cars, because these fuels produce most of the electricity in the U.S. Coal alone generates more than half of our electricity. When fossil fuels are burned, pollutants are produced like those from the tailpipe of a gasoline-powered car. Power plant pollution, however, is easier to control than tailpipe pollution. Emissions from power plants are controlled and monitored carefully. And power plants are usually located outside major cities.

## Maintenance

The low maintenance of electric vehicles is appealing to many people. EVs need no tune-ups, oil changes, water pumps, radiators, injectors, or tailpipes. And no more trips to the service station. EVs can be refueled at home at night when electric rates are low, making the fuel cost about the same as gasoline. There are also 602 refueling stations, mostly in California and Arkansas.



*This is the second elementary article in a series on future transportation options - see the Nov/Dec issue for the first article.*