

Air pollution reduction analysis

[Environment](#), [Air](#)



The average adult breathes over 3, 000 gallons of air every day. Children breathe even more air per pound of body weight and are more susceptible to air pollution. The elderly are also more sensitive to air pollution because they often have heart or lung disease (Schmidt 2000). Air pollution threatens the health of human beings and other living things on our planet.

While often invisible, pollutants in the air create smog and acid rain, cause cancer or other serious health effects, diminish the protective ozone layer in the upper atmosphere, and contribute to the potential for world climate change (Greenpeace UK).

Air pollution is the contamination of air by the discharge of harmful substances.

Air pollution can cause health problems including burning eyes and nose, itchy irritated throat, and breathing problems. Some chemicals found in polluted air can cause cancer, birth defects, brain and nerve damage, and long-term injury to the lungs and breathing passages in certain circumstances.

Above certain concentrations and durations, certain air pollutants are extremely dangerous and can cause severe injury or death (Easa 1998).

In response to this growing concern, many governments all over the world have conducted studies and implemented their own measures to reduce the level of atmospheric pollution (Walsh 2004). One of the main plans is to shift from gasoline powered vehicles and use alternative-fuel vehicles instead.

The first type of alternative-fuel vehicles are the Electric vehicles which do not burn gasoline in an engine. They use electricity stored on the car in

batteries. Sometimes, 12 or 24 batteries, or more, are needed to power the car. Just like a remote-controlled, model electric car, EVs have an electric motor that turns the wheels and a battery to run that motor.

Most EVs today, however, can only go about 100 miles before you need to plug them in and recharge their batteries (Faiz 1996). They are not like the Energizer Bunny(tm) that keeps on going, and going, and going. But, 50 to 100 miles is plenty for most people who only drive a short distance to and from work, to and from school, or to do some.

Some EVs with special batteries can go a longer distance. Economically speaking, Electric vehicles are more expensive to buy than gasoline cars, but when more and more EVs are made, the price of EVs should drop to about the same as gasoline cars (Easa 1998).

Another type of alternative-fuel vehicle is the natural gas powered vehicle. There are basically two (2) types of natural gas vehicles, the compressed natural gas (CNG) which is natural gas compressed into high-pressure fuel cylinders to power a car or truck and liquefied natural gas (LNG) which is made by refrigerating natural gas to condense it into a liquid (Faiz 1996).

The liquid form is much denser than natural gas or CNG. It has much more energy for the amount of space it takes up. So, much more energy can be stored in the same amount of space on a car or truck. That means LNG is good for large trucks that need to go a long distance before they stop for more fuel. LPG fueled engines can pollute less than gasoline and diesel engines.

From an economic perspective, LPG usually costs less than gasoline for the same amount of energy. In some countries LPG is used much more for vehicle fuel than in California. In the Netherlands over 10 percent of the motor fuel used is LPG (Walsh 2004).

One of the most interesting and in some ways promising, alternative transportation fuels is hydrogen (Faiz 1996). While only experimental vehicles are operating on this fuel now, the potential for this unique energy source is excellent.

It is easy to produce through electrolysis, simply splitting water (H₂O) into oxygen and hydrogen by using electricity. However, these days, nearly all hydrogen is made from natural gas.

Because hydrogen burns nearly pollution-free, it has been looked at as the ultimate clean fuel. When burned, it turns into heat and water vapor. When burned in an internal combustion engine (the kind of engine in gasoline cars today), the combustion also produces small amounts of other gases.

These other gases are mostly oxides of nitrogen because the hydrogen is being burned with air, which is about two-thirds nitrogen. Being a non-carbon fuel, the exhaust is free of carbon dioxide. Carbon dioxide, emitted from our burning of fossil fuels, is causing the world's climate to change (Walsh 2004).

Hydrogen's clean burning characteristics may, one day, make it a popular transportation fuel. For now, the problem of how to store enough hydrogen on a vehicle for a reasonable range, and its high cost, compared to gasoline, are critical barriers to widespread commercial use.

Since all hydrogen currently is made from natural gas. For that reason, hydrogen usually costs more than natural gas (Walsh 2004).