

Chris Walters
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<http://static.ddmcdn.com/gif/indoor-air-pollution-1.jpg>

The Benefits of Developing Alternative Fuel Vehicles

We live in a time of fast food, immediate answers and focusing on the here and now. It is no wonder that whenever someone mentions preparing for the future many will shut down. Many of us don't think too much about air pollution and what we need to do about it. Many people feel that the air quality is not a large enough problem to get involved. While others feel that it is all up to them to save the earth and everyone around them. The effects of air pollution affect everyone, with serious health conditions to damage to the environment. So what can we do to protect our health and to keep the world in which we live clean and more enjoyable? My purpose in writing is to persuade readers that there are ways that we can reduce our impact on the environment and on our health. As air pollution is a worldwide issue it will not be fixed by the few, we must all pull together to fix the problem at hand. Specifically we can do this by cutting



<http://beijingwideopen.org/2007/08/27/po 1>

dangerous emissions from our cars. First I will highlight some of the negative effects of pollution.

Effects of Air Pollution

There are many known side effects that come from living in high concentrations of air pollution. One of the most prevalent and commonly known effects of air pollution is damage to our respiratory system including asthma, bronchitis and emphysema (Macnair 4). Also, higher levels of air pollution have been linked to cardiovascular disease (Air 3). There are many other harmful effects of air pollution including higher diabetes risk, increased risk of cancer, and abnormalities in fetal development. Clearly we are all exposed to air pollution in various degrees; it is not possible to avoid the dangers. It is not my intent to force people into underground bunkers to protect themselves but rather to show we still have hope.

Air pollution also causes damage to the environment. Air pollution has also been linked to low level ozone which causes a significant drop in our yield of crops (Effects of Ozone Air Pollution on Plants 7). The ozone produced by our vehicles is also making it a lot harder for the plants to complete photosynthesis which causes a decrease in the amount of oxygen being produced (Brennan 1).

Possible Alternatives to Traditional Gas Engines

The ways to reduce our emissions and thus protect ourselves and the environment are growing and becoming more available. There are many possible ways to reduce our effect on the earth from hydrogen powered cars to cars that run on ice. However, I have chosen to focus

on a few of the more well known solutions, including hybrid, biodiesel, E85 (flex fuels), natural gas, and electric. This article will look at the pros and cons for each of the alternate fuel sources.

Biodiesel

What is biodiesel? Biodiesel is a type of biofuel or a fuel that is manufactured from biological ingredients rather than fossil fuels (Hess 3). To put it simply, biodiesel is fatty oil either from plants (more common) or animals that has been chemically modified to mimic standard diesel fuel. Biodiesel is normally blended with standard diesel fuel but can also be used in its pure form. Although biodiesel can be used alone most people choose to use the blended biodiesel. Biodiesel can be mixed with any level of standard diesel fuel but the most common is B20 or 20% biodiesel and 80% standard diesel fuel (Hess 6).

Biodiesel, like all alternative gasoline sources, is not a perfect solution but it is a step in the right direction. Like all fossil fuel emissions, biodiesel still produces harmful greenhouse gases like carbon monoxide, carbon dioxide and nitrous. Nitrous oxide is one of the main factors that contributes to low level ozone or smog (Lerche 3). Nitrous oxides also have been linked to damaging plant life and causing acid rain (Chandler 1). However, one of the most attractive reasons to use biodiesel is that it is more environmentally friendly than normal diesel (Hess, par.21). In addition to creating less air pollution, biodiesel is also biodegradable. Unlike most other alternative energy sources almost all newer diesel engines can run on biodiesel with little or no engine modifications (Hess 21). Another pro of biodiesel is that the fuel itself acts as a natural lubricant. Biodiesel acts as a solvent which can be both a positive and a negative. Basically, biodiesel dissolves all the nasty gunk that can build up in engines. While cleaning the engine out is generally a good thing it is actually hard on the fuel filters and fuel lines. However,

that can be fixed fairly simply by just replacing the filter. While biodiesel cleans it also doesn't leave harmful deposits in the engine and may cause longer engine life (Hess 26).

Biodiesel users have reported on average that they have noticed a 10% decrease in power since switching to biodiesel (Hess 31). Another downside to biodiesel is the cost. The current cost of biodiesel at the pump is hovering right around the average for normal diesel. Biodiesel is considered a renewable energy source and may help reduce our dependence on foreign oil.

E85 (Flex Fuel Vehicles)

E85 or flex fuel technology is quite similar to biodiesel as both are derived from plants. E85 is a mixture of regular gasoline and ethanol or grain alcohol. In the United States the ethanol we use comes from corn. One of the main concerns for mass produced ethanol is a potential shortage of corn for food (Layton 9). Nearly all gasoline from the gas stations has some ethanol mixed in (90% gasoline to 10% ethanol). Flex fuels are different because it contains 85% ethanol to 15% gasoline (Vacarro 10). One criticism of flex fuel (E85) is that you must have a flex fuel vehicle. The auto industry has done well to ensure that flex fuel vehicles are not more expensive than their fossil fuel counterparts. The gas mileage has been shown to have a significant drop in flex fuel vehicles (Giametta 1 and 2). E85 has very similar positive points to biodiesel including less greenhouse gasses and it may help lessen our dependence on foreign oil.

Natural Gas Vehicles (NGV)

Natural gas is quickly becoming one of the more popular alternate power sources for vehicles, despite complaints that natural gas vehicles are smaller and less comfortable due to their large and bulky fuel cells. Recently, car makers have been able to make the fuel cells

smaller which allows for more space in the vehicle. Another negative about NGVs is a limited driving range (Harris 22). With more and more natural gas pumps being installed at local fueling stations this problem is slowly disappearing. The main drawback is that natural gas is still a fossil fuel and as such is a non-renewable energy source. Although we have abundance now as more and more people make the change to NGVs it will strain our supply (Harris 23). A few of the advantages include that it reduces emissions, lower operating costs, convenience, is more abundant than fossil fuels, cost stability, and lower maintenance costs (Harris 19 and 20).

Electric Cars

Electric cars are no longer the wave of the future, but in fact are becoming more and more popular. One potential problem is that most electric cars will take around 10 hours to fully charge from normal 120 volt household outlets (Brian 39). Some electric car owners have overcome this by charging their cars using a 208 volt circuit, which cuts the charge time in half. One main drawback is all electric vehicles have a low mileage per charge, around 40 miles per full charge. If you only drive 40 miles a day, then you are in great shape (Hall-Geisler 4). The benefits and advantages of all electric cars are quite clear. First and foremost, you will never have to spend an arm and a leg to fill your car up with gasoline or diesel fuel. The cost of charging an electric car is far less than that to fill up your car. Also, there is the fact that you can “refuel” your car anywhere there is an electrical outlet.

Hybrid Vehicles

Hybrid vehicles to me are the best option at the present time, although I will admit that the current hybrid vehicles are not perfect. There are a few disadvantages of hybrid cars, first of which is the initial cost. Most Hybrid vehicles are somewhat more expensive than their gasoline “equals.” A potential downfall of hybrid vehicles is they will not have the same acceleration as



<http://www.hybridcars.com/compacts-sedan 1>

traditional gasoline engines. Hybrid vehicles use the best of electric and traditional gasoline engines. They allow the long mileage we all love from our gasoline powered cars and give us more mpg. Hybrid vehicles

have generators that help turn the motor and can have smaller engines (Nice and Layton 11) which reduce weight. Less weight means that the engine doesn't have to burn as much fuel and thereby cuts greenhouse gasses down.

Let's Get Started!

As you can tell, all of the alternate energy sources I have discussed have a vast array of drawbacks and pitfalls but are steps in the right direction. Many researchers and scientists are working tirelessly to find ways to make alternative fuels more efficient and more prevalent, but they cannot do it all, they need our help. I have come to the conclusion that we have made great advances to lessen our dependence on fossil fuels but much more needs to be done. It is only a matter of time until our situation becomes truly dire. My plan to get more alternate fuel vehicles on the road includes helping the market grow, increasing tax breaks, and more research.

Step 1- Educate people of the effects of air pollution.

The general public needs to be more educated on the adverse effects of traditional gasoline fueled cars. As the public becomes more educated about the effects of car pollution on their health and the environment, people will be more likely to want to change. One way to help inform of the dangers is through pamphlets, flyers or brochures. This will help generate more concern for the problem at hand. I am planning on distributing brochures on the effects of air pollution as well as one on alternative fueled cars.

Step 2- Create a higher demand for alternate fuel vehicles.

We have a great influence on those close to us whether for good or bad. I hope we can help have a positive influence on those who are in charge of making our vehicles. As we demand more effective alternatives for gasoline powered vehicles the car manufacturers will continue to make great progress in this field. Now is the time to make our view known. Gas prices are continuing to rise and there are more drivers on the roads. If we wait to show our desire for alternative fueled vehicles the problem will continue to get worse until it is too late.

Step 3- Continue in research plans.

Countless hours have already been invested in the advancement of alternate energy sources for our cars, but I argue that we still need more. We need to research ways to make alternate fueled vehicles more inexpensively and thus making them more widely available. Our research needs to focus on minimizing the drawbacks and pitfalls of the current cars available. There is already an incentive for car makers to be working on this research, but our country could benefit if the government sponsored programs for research to accelerate the process. The cost will be well worth it if fuel costs can go down for the country as a whole. High fuel prices affect the price of everything because it all has to be delivered. The increase in the price of food and other commonly purchased items is directly linked to high fuel costs. More money in the pockets of Americans would help our country have a better economy.

Step 3- Increase tax breaks for those purchasing and owning more efficient vehicles.

The government has issued tax breaks for those who purchase the new more efficient vehicles in the past, but I must say that this needs to continue. Most people on the fence deciding whether or not to buy an alternative fuel vehicle need all the help they can get to be swayed. As more people buy these types of vehicles it will help our situation greatly as it will

help reduce our affects on the environment and on our health. In addition to continuing to provide tax breaks, we need to make sure that the public is aware of the tax breaks available. If this were advertised more people may be more inclined to pay the additional money for an alternate fuel vehicle. As the demand for these types of vehicles increases the auto industry will put more money into development and research. As the demand increases so will the options available and the quality with which the cars are made.



<http://indianapharmgirl.blogspot.com/2011>

Also, as more cars are purchased cost should go down, and then eventually tax breaks won't be necessary to incentivize people to purchase alternatively fueled vehicles.

Conclusion

While there have been great advances in the field of alternate gasoline energy sources, much more needs to be done. Whether you feel that biodiesel, natural gas or hybrid vehicles are the strongest solution, each has room to improve. Each alternate fuel source has many positive and negative points but progress is being made and it is a good start. In order to make this change to alternate fuel vehicles happen faster we need further research and tax breaks for those purchasing these vehicles. This will in turn help the environment, our health, and decrease our dependence on foreign oil. As advancements continue to be made in this field of alternate energy sources our quality of life will improve. We will have clean air to breathe and be able to enjoy the beauties around us for many years to come.

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