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The Solution to The Problem of Gas Vehicles

Emissions from gas powered vehicles are destroying our atmosphere and damaging life. The gasoline dependent machine is poisoning the earth with an increase in carbon, and is making human life less enjoyable. Urban places like China has smog from all of the emissions and is hard to breathe . Many people wear masks to keep the toxic air out of their lungs. Gas powered cars are also taking away out fossil fuels that can not be regenerated for millions of years. The increasing emissions coming from gas powered vehicles are causing greater issues than ever. Car manufacturers are solving this problem through the development of more efficient vehicles that utilize alternate fuels.

In today's society, the amount of emissions being produced is as high as it has ever been. Vehicles alone “account for nearly one-fifth of *all* US emissions” (Kerns 43). The average car, which gets 19 mpg, produces 24 pounds of emissions per gallon of gas. Five of those pounds comes from the production of gasoline (Kerns). Not only do we have to worry about emissions from cars, but also the emissions from the transportation of the fuel. Electricity it is made from a solar panel, windmill, dam, etc, and then transported through the power grid with no emission. Gasoline has to be extracted from the ground on the other side of the world, and brought to each gas station.

In addition to the harmful carbon that being produced, fossil fuels that are used to power the gas cars are running out. Gasoline is a non replenishable product of oil. Oil is created deep down in the earth taking millions of years to create. At the rate of which we are using it, “we will run out of oil in 55 years” (Brodner 3). Right now without oil we will have no way to get from place to place without an alternative fuel. In the short amount of time we do have oil, we need to find an alternate way of powering our vehicles.

Emissions coming from the engines are carbon dioxide, which is a toxic gas that is becoming more and more of a problem in some areas more than others. When driving through the countryside there is no sign of any emission, but when you get into larger cities, especially in traffic, with the right lighting or in the winter time, you can see the carbon dioxide fill the atmosphere. In extremely high populated areas like China, you can see smog all of the time. “The smog in China has contributed to aproximatly 1.6 million deaths per year” (Fengjie 13). Many people wear masks over their mouth and nose to filter toxins out of the air. Without the mask, your lungs would gather those toxins, and turn into problems down the road. This is similar to smoking, the tar from cigarettes and cigars build up in your lungs and cause problems down the road. Instead of smoking every once in a while, you are breathing this air in 24/7. Getting rid of vehicles that emit will allow people to live better, and live healthier lives throughout the world.

The first solution is switching to hybrid vehicles. A hybrid vehicle uses a smaller, more efficient gas engine, and has one or two electric motors. “Hybrid vehicles produce up to 50% less pollutants than gas vehicles” (Turrentine 7). The car runs like a normal car, but the electric motors help out when accelerating. The electric motors are powered off of one battery that does

not need to be recharged and recharges itself. The battery is recharged when coasting or braking. This is possible because the electric motors spun by the wheels send electricity back to the battery when there is resistance. Although you still need to fuel the car, the amount of fuel is much less because of the increased mpg. Hybrid vehicles have a reputation to be smaller like the Toyota Prius, but companies are also making larger SUVs like the Toyota Highlander. Because hybrid vehicles still use a gas powered engine, there are still emissions being produced. Even though hybrids aren't totally emission free, it is a step forward towards solving the problem.

A second solution would be electric vehicles. "Electric Vehicles produce zero emissions" (Sperling 12) besides the creation of the car. Because it is run off of electricity, there are no emissions from getting or using the electricity. Electricity can be produced by using renewable resources like solar or wind, and can be accessed from almost anywhere. Instead of hauling gas from the oil rigs to gas stations, electricity can be transferred through the the power grid without emitting carbon. Another benefit of electric cars is the tax credit. "Chevy currently offers a \$4,000 rebate and -- for those who qualify -- the federal government kicks in a \$7,500 income tax credit each year" and "a Ford rebate of \$2,000" (Healey 2). This means that if you buy an electric Chevy, you will get \$4,000 off, and an additional \$7,500 each year in tax credit. When you are driving long distances and need to recharge, instead of buying gas, Tesla has free charging. If you did pay to charge, "electrified vehicles would spend an average \$1.14 to go as far as owners of gasoline cars do on one gallon of gas, which averages about \$3.63 nationwide, according to travel consultant AAA" (Healey 4). The proportion of the cost of electricity per gallon of gas is almost a third of the price. Although charging your electric vehicle takes longer than refueling a car, when you start your drive you have a full tank from charging at your house.

If your battery gets low while driving, there are over tens of thousands of chargers throughout the United States to recharge. To fully recharge it may take 2 hours depending on your vehicle. Tesla's superchargers, which are car chargers throughout the world that have an accelerated charge rate, can charge batteries from empty to 50% in just 20 minutes (Brodner).

Electric vehicles store their energy in lithium ion batteries. Unlike hybrid cars, you will have to recharge the battery just like you would have to fill a gas tank. Although electric vehicles can charge their batteries by braking or going downhill like a hybrid, this is not enough to keep the batteries charged. Electric cars will take longer to charge than to fill up a gas tank but when you leave your house, your car will be fully charged every time because you can charge at home. The battery inside electric vehicles is a lithium ion battery. Lithium ion is a limited material just like gasoline. Although lithium is more abundant than gasoline, it will not last forever. At the rate we are using lithium ion, "We have 365 years worth of lithium ion left" (Fengjie 4). If the amount we use goes up, the number will go down. Because electric vehicles are becoming more of a demand, companies like Tesla are creating more factories. With more factories they can make more cars, and need more lithium. This means that later down the road we will run into the same issue we have today of running out of fuel.

Hydrogen powered vehicles is another possible solution. It is like an electric car, but is run off the hydrogen gas, and has no emission. "The Universe consists of 98% hydrogen" (Fengjie 6). This means we will not run out of hydrogen like we will gas or lithium ion. The downfall is that hydrogen isn't as efficient as gas or electricity. This is because there are more systems in the car. Hydrogen is a gas, and "can also be a liquid if stored at -253 degrees fahrenheit" (Fengjie). This allows the hydrogen to be stored with the most amount of energy

possible in the amount of space. The hydrogen gas has more energy when stored in a liquid state, but to maintain a temperature like that can be difficult on a moving vehicle. From the hydrogen tank it has to go through a series of systems to transfer the energy to the motors. After all of the systems the only byproduct is water. Just like electric cars 10 years ago, there isn't a lot of information about hydrogen cars. Right now major companies are not focused on hydrogen powered vehicles because electric vehicles are in the spotlight. Most major car manufacturers have a plan to change over their lineups to electric within 5-10 years. This will change a lot of things for companies because electric vehicles are so different than gas. Things like oil does not have to be changed, and less components means less things need to be fixed. Electric vehicles are going to bring a lot of new technology and knowledge to engineers and mechanics.

In conclusion, the solution is a combination of electric and hydrogen vehicles. Because hydrogen vehicles do not have the structure to be in full production, electric vehicles is the short term solution. Electric vehicles could be the long term solution if it wasn't for the limited amount of lithium ion used for the battery. It is a limited resource, limiting the life of the electric vehicle, just like how gas vehicles are now. Hydrogen is a much better option because it is the most abundant gas in the universe. The only things stopping it from becoming a solution now is the lack of technology. In years to come, engineers will come up with better, more efficient ways to power the car, and make it become an efficient, cheap, and available vehicle.

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