Air pollution and automobiles

Environment, Air

The cars that we travel in mundane play a critical function in our lives. They get us around from one topographic point to another on a day-to-day footing. The U. S. Environmental Protection Agency’s (EPA 2010) many surveies show that exhaust emanations from these vehicles are the figure one air pollutant in the United States. Air pollution causes many different issues that affect personal wellness every bit good as environmental factors. Over the old ages many different surveies have been done by different people and bureaus demoing how cut downing air pollution from cars can merely profit the Earth.

The authorities has been one of the largest advocators of take downing emanations from cars. Because inordinate fumes emanations created by cars is a major factor in air pollution. the authorities has enacted many Torahs and ordinances restricting the sum of emanations vehicles may bring forth. Cars are a major cause of air pollution around the universe. As the figure of vehicles on the route increases. the sum of emanations from these vehicles additions. As of 2003 Leslie Miller shows that the (World Almanac 2003) reported that there were more than 107 million families throughout the United States (U. S.) Leslie reported that the Bureau of Transportation statistics show that there are approximately 204. 000. 000 vehicles registered in the U. S.

That produces a ratio of 1. 9 autos to 1. 8 people per family in the U. S. The figure of vehicles registered in the U. S. has been duplicating every five old ages. If this tendency continues as it has over the past 30 old ages. by the twelvemonth 2030 there will be about 1. 200. 000. 000 (1. 2 Billion) vehicles bring forthing some type of toxic emanation into our earth’s

atmosphere. The vehicles that we drive produce many different toxic gasses impacting our Earth negatively.

These emanations affect our environment and damage the nursery consequence. The nursery consequence is the procedure in which infrared beams are emitted from the Sun into the earth’s atmosphere pin downing heat that keeps the earth’s temperature in a habitable scope. Toxic gasses from our cars released into the ambiance do much damage to this natural procedure. As the gasses release. the ambiance will deteriorate which allows the earth’s nucleus temperature to lift. This procedure causes trouble in farming every bit good as the thaw of the polar ice caps virtually deluging the Earth easy.

Carbon Dioxide (CO2) is the most emitted gas into the ambiance. The Environmental Protection Agency (2010) shows that autos let go of 76 % of the CO2 that is present in the earth’s atmosphere. For every gallon of gas used by an car there is about 20 lbs of CO2 released into the ambiance. CO2 is a heat-trapping gas released by the burning procedure by our vehicles. (Cakmak 2006) . Shows that CO2 is the largest lending factor to the smog in extremely congested countries around the U. S. The followers is an emanations chart interrupting down the beginning of the seven most common air pollutants.

As you can see highway vehicles are the largest beginning of air pollution in the geographic country of The United States. The major pollutants abbreviations are shown below and correlate with the graph that follows. Geographic Area: United States Pollutant: Carbon Monoxide (CO) . Nitrogen

Oxides (Nox) . Volatile Organic Compounds (VOC) . Sulfur Dioxide SO2. Particulate (size & lt ; 2. 5 microns) (PM 2. 5) . Particulate (size & lt ; 10 microns) (PM 10) . or Ammonia (NH3) [movie] Emissions by Category Chart (Environmental Protection Agency. 2002) .

The exhaust systems on our vehicles besides produce another pollutant known as hydrocarbons. Hydrocarbons are produced by our vehicles when fuel molecules in these vehicles do non to the full burn and so go through the fumes system. In add-on to these deathly hydrocarbons. Nitrogen Oxide (Nox) is another big subscriber of air pollution in the U. S. today. The EPA's (2010) surveies links about 30 % of the NOx in the ambiance to the vehicles on the route in the U. S. today. NOx has been linked by surveies to the formation of acerb rain in our in our environment.

Simply said the decrease of vehicle emanations will do the sum of nursery gasses emitted into the ambiance to take down making less negative effects on our earth's environment and our wellness. Cakmak. Dales and Jedek (2006) says that air pollution has many negative effects on the environment every bit good as our personal wellness. Many respiratory issues come from take a breathing in the gasses released from cars. CO2 affects us by take downing the sum of O our blood can transport throughout our organic structures doing decease in some instances.

Air pollution is linked to lung malignant neoplastic disease every bit good as lower birth rates that are common among people in metropoliss that record higher vehicle enrollments. The EPA has shown that these metropoliss are at a higher hazard for many wellness issues. Children shacking in countries with

higher concentrations of air pollution are three to four times more likely to develop wheezing conditions. Cars are a major cause of vehicle deceases in the signifier of vehicular accidents. EPA (2010) statistics show that about 120 people are killed by a vehicular accident with each twenty-four hours that goes by.

Many environmental issues caused by car emanations are overlooked by the mean individual. The acerb rain produced from vehicle emanations has caused many bad wellness jobs for worlds. Acid rain is has been shown to do oculus annoyance every bit good every bit coughing every bit good as asthma in more utmost instances. Urban smog in add-on to planetary heating are the most common factors in air pollution. Smog is a merchandise of different nursery gasses blending together which produces a seeable bed really near to the earth’s surface known as the land ozone bed.

The smog Acts of the Apostless like a cover around the Earth pin downing the harmful emanations leting us to take a breath them in each twenty-four hours. Over the old ages the effects of air pollution have been noticed by many from politicians to car makers. Many within these bureaus have worked to cut down the emanations that our cars produce. One of the major alterations in our society that created focal point on the issues of air pollution caused by cars was the Clean Air Act of 1963. This measure was introduced to let the authorities limited enforcement power over interstate pollution issues.

In 1965 a Motor Vehicle Act was introduced. Melosi (2004) explains that this act allowed car makers the ability to pattern stricter emanation criterions for

new vehicles with authorities support such as grants. In 1970 the moving president of the U. S. Richard Nixon. signed an amendment to the Clean Air act implementing stricter fuel ordinances on car makers. This Act was the most rigorous air pollution jurisprudence of all time passed in the U. S. The Clean Air Act has been revised throughout the old ages to conform to stricter guidelines as air pollution becomes more of an issue throughout the U.

S. The Clean Air Act was non originally designed to forbid pollution ; instead it was enacted to specify an acceptable sum of pollution allowed to be emitted from vehicles. Despite the fact that the Clean Air Act was passed there are still major issues that emanations from vehicles create including wellness and environmental issues. Crabb and Johnson (2010) wrote an article in The Energy Journal demoing the chief issue that does lend to the sum of emanations from cars is the fuel economic system that is attained by each vehicle.

The Energy Policy and Conservation Act established guidelines known as Corporate Average Fuel Economy (CAFE.) During President Nixon’s clip in office the 1975 CAFE ordinances were written to necessitate makers to obtain a corporate norm of 18 stat mis per gallon (MPG) or higher get downing with 1978 theoretical account twelvemonth vehicles. Between 1985 and 1992 multiple accommodations were made to do the cafe ordinances stricter. By the mid 1990’s the authorities increased the MPG demand to be raised to 27. 5 MPG corporate norm.

As we move frontward in clip the ordinances have merely become stricter for car makers. The twelvemonth 2009 brought on many new achievements for

the U. S. in that car makers began doing newer theoretical accounts that will take us into the following decennary. An article written by Tarlow (2009) shows that President Obama fought hard for his topographic point in the White House. one of his chief concerns being air pollution and the sum of emanations caused by cars. After being elected President Obama revealed a proposal for new CAFE ordinances that will cut down emanations and farther cut down the U. S.

dependence on imported oil. The ordinance that President Obama has proposed will necessitate car makers to run into the strictest guidelines for fuel economic system of all time. Obama’s proposal will necessitate car makers to run into a rigorous 35. 5 MPG by the theoretical account twelvemonth 2016. The undermentioned graphs show the lower limit combined stat mis per gallon that makers are required to run into and post on the vehicles. The graphs break down different types of fuel every bit good as the sum of CO2 released per stat mi driven. Chart 1 shows the demands prior to the EPA altering the manner they figure a vehicles MPG.

With model twelvemonth 2009 and newer the EPA became stricter when calculating MPG for different fuel types. Chart 2 reflects the new standards with the stricter guidelines enforced. As you can see. the Greenhouse gas (GHG) mark is higher as a vehicle produces less CO2 per stat mi. [pic] Chart 1 (Environmental Protection Agency. 2010) [movie] Chart 2 (Environmental Protection Agency. 2010) Meeting the rigorous guidelines does non come at zero cost. Meeting the guidelines will be car makers no affair how it is broken down.

The research and development in meeting rigorous ordinances does hold a cost attached to it. On the other terminal if car makers do non run into the CAFE guideline the authorities has allowed civil liabilities to be charged. The liabilities allowed by the authorities may be industries about $ 5. 50 for each ten percent of a stat mi that they are under the minimal demand set Forth. The EPA (2010) . studies that between the twelvemonth 1993 and 2004. assorted makers paid about $ 618 million in punishments. This study besides included the fact that in the same period no Asian or U. S. makers have of all time been charged any punishments.

Many have argued that the cost of run intoing progressively hard fuel emanations has added cost to the bottom line value of a vehicle every bit good as decelerating gross revenues and potentially seting smaller auto traders out of concern. Much research has been done in the country of gauging costs of integrating better emanations equipment on newer cars. Initially. when emanation ordinance were introduced in the U. S. around 1970. many makers were concerned that to run into the guidelines at that place would necessitate to be dearly-won research done to happen the most cost effectual patterns to take down emanations.

Crabb and Johnson (2010) show that many makers estimated initial costs for catalytic systems designed to cut down emanations would be about $ 3. 000. The authorities challenged the makers and discounted these findings turn outing that with some alterations to the procedures the cost can be cut down by two tierces the initial cost that was estimated. The authorities was

able to demo that the systems could be incorporated on motor vehicles for about $ 1. 300. . which is significantly less than estimated.

The EPA (2010) . studies that many other bureaus have conducted research sing any issues caused by stricter guidelines from the authorities every bit good as the cost factor included. The Northeast States for Coordinated Air Use Management (NESCAUM) has non been able to document any negative gross revenues because of the Clean Air Act or stricter guidelines. On the contrary. they have been able to demo that the gross revenues of new vehicles have fluctuated between 13 and 17 million new vehicles each twelvemonth for the past 20 old ages and ne’er worsening below these Numberss.

Much of the fluctuation has been attributed to the altering economical times throughout the history of the U. S. over the last 20 old ages. Many believe that because Diesel engines typically produce a higher rate of fumes emanation than gasolene engines. which may do it more hard to buy diesel vehicles in Clean Air States. Diesel engines are most normally used on vehicles with a Gross Vehicle Weight Rating (GVWR) of more than 8500. The CAFE ordinances do non impact the gross revenues or usage of these diesel vehicles.

The more common mundane on-road usage vehicles such as the GMC Sierra 2500 and 3500 series every bit good as the popular Dodge Ram 2500 and 3500 series vehicles are the vehicles that will experience the greatest impact on emanation ordinances. Passenger vehicles such as the Volkswagen Golf TDI are non presently certified under the California Air Resources Board

(CARB.) CARB is a set of criterions that the province of California has enacted to command the sum of emanations vehicles registered in the province may breathe. Many provinces followed California in following these rigorous criterions that go above and beyond the authorities demands.

Massachusetts. Maine. New York. New Jersey and Vermont are some of the provinces that have adopted CARB criterions for vehicles sold in those provinces. As more provinces adopt their ain criterions that are stricter than authorities guidelines. car makers have trouble selling certain new vehicles in certain provinces. Many of the Diesel engines used in vehicle applications do non run into the rigorous EPA and province ordinances. In 2010 most new trucks with Diesel engines will use Exhaust Gas Recirculation (EGR) to take down the NOx released by Diesel engines by shooting a urea compound that breaks down the NOx.

Cummins. the world’s 2nd largest Diesel engine maker has met all emanation guidelines that went into consequence for all 2010 and newer theoretical account twelvemonth vehicles since the theoretical account twelvemonth 2007. This is helped to profit gross revenues for the companies that use the Cummins Diesel engine. One such company is Chrysler Corporation that uses the Cummins Diesel in their Dodge Ram Heavy Duty line up. Hirata shows that by utilizing this engine Chrysler has been able to remain at the head in engineering. As others struggle to happen ways to run into ordinances. Chrysler will profit from the engineering because their vehicles run into all ordinances.

The lone alteration Cummins made was adding an cheap engineering called Selective Catalytic Reduction to further cut down NOx emanations into the earth’s atmosphere. Other makers using Diesel engines will be developing systems that require the add-on of carbamide at an extra cost to the client driving consumer cost through the roof. Cummins has the advantage that the monetary values for their system will non fluctuate as other Diesel engine makers monetary values will increase because of the cost associated with their new engineerings.

To cut down the emanations throughout the U. S. . non merely are the authorities and car makers responsible. we are each separately responsible to make our portion in cut downing the nursery gasses we contribute. The maker altering the design of car systems is a cardinal portion in the decrease. The manner we personally use our vehicles will besides lend to the decrease of nursery gasses. Thingss that can be done on our portion may include cut downing the allowable sum of vehicles in an country by publishing quotas and licenses for different countries. Many people have looked into the usage of intercrossed vehicles as options to to the full gas or Diesel powered vehicles.

Lowering the personal usage of our vehicles every bit good as take parting in auto pools will to the full cut down the sum of green house gasses that we separately let go of into the ambiance. In making the things necessary to take down emanation we must be proactive and take an involvement in the positive things that will profit us by cut downing the sum of emanations. Although the authorities has worked with car makers to cut down vehicle

emanations. our autos still produce toxic emanations into the air. With the increasing ordinances on fuel economic system we will merely profit from less emanations being released into the air.

Many things may be done on a consumer degree every bit good. We have entree to alternate fuels such as E-85 (ethyl alcohol) which comes from maize every bit good as tight natural gas which releases really small emanations if any. The authorities and car makers are ever looking for ways to cut down emanation farther. As clip goes on unless we wholly stop utilizing cars we will still be faced with the release of toxic emanations from car exhaust systems. The available resources will ever go better as clip goes on and companies create the following best thing to cut down the sum of emanations released by their vehicles.

The lone manner to guarantee that our kids have a cleaner environment is by educating them with the necessary information that will let a greener environment over the old ages to come.

Mentions Cakmak. S. . Dales. R E. & A ; Judek. S. (Jan-Feb 2006) . Respiratory wellness effects of air pollution gases: alteration by instruction and income. (Author abstract) . Archivess of Environmental and Occupational Health. 61. 1. p. 5 (6) . Retrieved January 22. 2010. from General OneFile via Gale: hypertext transfer protocol: //find. galegroup. com. ezproxy. apollolibrary. com/gps/start. make? prodId= IPS & amp ; userGrou pName= uphoenix Crabb. J. . & A ; Johnson. D. . (2010) . Fueling Invention: The Impact of Oil Monetary values and CAFE Standards on Energy-Efficient Automotive Technology.

The Energy Journal. 31 (1) . 199- 216. Retrieved January 22. 2010. from ABI/INFORM Global. (Document ID: 1942210741) . Environmental Protection Agency. (2010) [Graphs that show Greenhouse Gas Score Criteria that vehicles must run into as per the EPA ordinances on emissions.] Greenhouse Gas Scores. Retrieved from hypertext transfer protocol: //www. Environmental Protection Agency. gov/greenvehicles/Aboutratings. do Environmental Protection Agency. (2002) [This is a image of a chart interrupting down the beginnings of the 7 major air pollutants in the United States] Air Data.

Retrieved from hypertext transfer protocol: //www. Environmental Protection Agency. gov/cgi- bin/broker? _service= airdata & A ; _program= progs. webprogs. emcatbar. scl & A ; _debug= 2 & A ; geotype= us & A ; geocode= usa & A ; geoname= United+States & A ; epol= CO+NOX+VOC+SO2+PM 25+PM10+NH3 & A ; years= 2002 & A ; mapsize= zsc & A ; reqtype= viewmap Hirata. K. . Masaki. N. . Yano. M. . Akagawa. H. . Takada. K. . Kusaka. J. . & A ; Mori. T. . (2009) . Development of an improved urea-selective catalytic reduction-diesel particulate filter system for heavy-duty commercial vehicles. International Journal of Engine Research: SPECIAL ISSUE ON EXHAUST AFTER-TREATMENT SYSTEMS FOR DIESELS. 10 (5) . 337-348.

Retrieved January 22. 2010. from Research Library. (Document ID: 1873528061) . Melosi. M. (2004) . The Automobile and the Enviornment in American History. Retrieved from hypertext transfer protocol: //www. autolife. umd. umich. edu/Environment/E_Overview/E_Overview1. htm

Tarlow. S. (2009) . President Obama’s CAFE Standards Will Reduce Auto Emissions. Retrieved from hypertext transfer protocol: //personalmoneystore. com/moneyblog/2009/05/19/cafe-standards-car- emissions/ U. S. Enviornmental Protection Agency. (2010) . Air Pollution Effects. Retrieved from hypertext transfer protocol: //www. Environmental Protection Agency. gov/ebtpages/airairpollutioneffects. hypertext markup language.