

# How fossil fuels affect the environment essay sample

[Environment](#)



Describe and explain how the use of Fossil fuels may affect the environment and discuss measures, which could be taken to reduce the harmful consequences Fossil fuels include gasoline, oil, coal, or natural gas. Whenever we burn them, more pollutant gases are emitted into the atmosphere. They are burned to run cars and trucks, heat homes and business and power factories and are responsible for about 98% of U. S carbon dioxide emissions, 24% of methane emissions and 18% of nitrous oxide emissions. Because of the harmful effects of these pollutant gases, produced when fossil fuels are burnt, they pose a major threat to the environment.

Almost all air pollutants are the result of fossil fuel combustion, either in the home, by industries or the internal combustion engine. Smoke is tiny particles of carbon suspended in the air, produced as a result of burning coal and oil. While smoke remains in the air, it can reduce the light intensity at ground level; hence reduce the overall rate of photosynthesis. Deposits of smoke, or more particularly, soot and ash, may coat plant leaves directly reducing photosynthesis by preventing light penetration or even by clogging stomatal openings.

The pollutants involved in acid rain are sulphur dioxide, oxides of nitrogen, ozone and various volatile organic vapours given off from gasoline stations. Fossil fuels contain between 1% and 4% sulphur and consequently around 30 million tonnes of sulphur dioxide is emitted from the chimneys of Europe each year. It's effect in high concentrations, are harmful to plants in that it reduces growth, especially in barley, wheat and lettuce and others such as lichens may be killed. Sulphur dioxide (SO<sub>2</sub>) dissolves in water forming <https://assignbuster.com/how-fossil-fuels-affect-the-environment-essay-sample/>

sulphurous acid ( $\text{H}_2\text{SO}_3$ ). This is then converted to sulphur trioxide ( $\text{SO}_3$ ) then to sulphuric acid ( $\text{H}_2\text{SO}_4$ ). Acid rain is harmful since it causes acidification of the soil. Changes in soil pH change the solubility of the ions present, in acid soil; essential minerals like potassium, calcium, magnesium and trace elements start to be lost by leaching. In very acid soil (pH below 4.5) aluminium ions may appear in the soil at very poisonous concentrations. Aluminium ions may also be leached into lakes and rivers and kill fish and other marine life.

Since the industrial revolution,  $\text{CO}_2$  gases emitted into the atmosphere have increased by 27%. The pre- industrial concentration was in 1860 was 288ppm where as the present concentration is estimated at 368 ppm. Methane, another greenhouse gas has more than doubled. The main cause of the increased  $\text{CO}_2$  level is due to the combustion of coal and oil. For every tonne of carbon burnt, 4 tonnes of  $\text{CO}_2$  are liberated Scientist argue that this extra  $\text{CO}_2$  in the air, trap heat and produce a greenhouse effect, causing expansion of the ocean, melting of the polar icecaps with a consequent rise in sea levels. This would in turn cause flooding of low- lying land. The greenhouse effect is not entirely bad, since it maintains the average of the earth's surface at  $15^\circ\text{C}$  rather than  $-18^\circ\text{C}$ , in the absence of greenhouse gases.

$\text{CO}_2$  is transparent to short wave radiation from the sun, but strongly absorbs the long wave radiation that the earth reradiates into space. Global warming is responsible for an increase in  $0.5$  " "  $1.0^\circ\text{C}$  of average world temperature, since the late 19th century. If emissions of  $\text{CO}_2$  gases are not

reduced significantly, the average global temperature is expected to rise by 1.4-5.8 °C in the next century. Not only will this increase directly damage plant life, but evaporation will increase as the climate warms, which will increase average global precipitation. Soil moisture is likely to decline in many regions and intense rainstorms are likely to be more frequent. These are all serious repercussions of global warming.

The relatively inert oxide of nitrogen, dinitrogen oxide, is formed during fossil fuel combustion. In the stratosphere, in the presence of u. v. Radiation, dinitrogen oxide is no longer inert. It reacts with atomic oxygen to form two molecules of nitrogen monoxide radicals ( $\text{NO}^\bullet$ ). These then react with ozone molecules, converting them to molecular oxygen and reforming nitrogen monoxide radicals. Radicals speed up the destruction of ozone because they constantly re-emerge to trigger another reaction. The destruction of the ozone layer results in a significant increase in u. v. radiation reaching the earth's surface. Ultra violet radiation is absorbed by the purine and pyrimidine bases in DNA and modifies them, with consequences affecting the expression of genetic information. In humans this results in a higher incidence of skin cancer. In higher plants grown as crops the effect of increased exposure to u. v radiation is to reduce yields. Aquatic organisms including fish larvae and plankton are very sensitive to u. v light. Disruption in the ecological balance in the ocean may not only affect marine food chains, but the contribution of the ocean to the absorption of carbon dioxide.

In order to reduce the effects of fossil fuel combustion, the primary measure that should be employed is to find alternative energy sources. Renewable energy comes from the exploitation of wave power, wind power, tidal power, solar energy, hydroelectric power and biological sources including biomass (wood charcoal, crop residues, dung and other organic materials). Many of these forms of renewable energy have a low environmental impact hence may be relatively environmentally friendly. Biological fuels, for instance can be used to supply human's growing energy needs. The Gasohol programme in Brazil, where sugar cane wastes are used to produce a motor vehicle fuel, is such an example. This will reduce the effects of fossil fuel combustion emissions. International efforts can be established to control carbon dioxide emissions as well as implement usage of alternative sources of energy, instead of depleting the world's fossil fuel reserves, which is expected only to last another 500 years.

Governments can also educate the public on the dangers of energy inefficiency. They might choose to promote more efficient use of energy in homes and businesses, including electrical energy since burning fossil fuels generates most of the electricity. They can set energy efficient standards for domestic appliances. They could also change building regulations to ensure that new houses, offices and public buildings are more energy efficient, for instance in cold climates, measures can be taken to reduce heat loss to surroundings like double glazing windows. They may also increase duties on petrol and diesel fuel, to try to reduce their consumption.

Schemes may be considered to convert the industries' CO<sub>2</sub> emissions into liquids or solids. One present concept for capturing CO<sub>2</sub> from waste gases involves MEA (Monoethandiamine). Other techniques include physical absorption, chemical reactions to methanol, polymers and co-polymers aromatic carboxylic acids or urea.

Individuals can also conserve energy within the home. Re- using materials, like plastic bags are one such way. Recycling newspapers, glass bottles and plastic bottles can also be done in the homes and business. Other simple measures can be employed within the home like buying energy efficient compact fluorescent bulbs for the most used lights in the home. Whenever possible individuals should bike, walk, carpool, or use public transport to get to their destination. They can also buy minimally packaged goods, choose reusable products instead of disposable ones. If they live in hot climates, the house should be painted a light colour.

Fossil fuels provide 90% of the energy we use now, but at a price of urban air pollution, acid rain, potential global warming and ozone layer depletion. As we burn fossil fuels and continue to use gasoline dependent transport, we increase the level of CO<sub>2</sub> in the earth's atmosphere and continue to harm the environment.