

Nonrenewable fuel origin and formation of petroleum (oil)

[Science](#), [Physics](#)



**ASSIGN
BUSTER**

Nonrenewable fuel Origin and formation of petroleum (oil) Petroleum is formed from organic aquatic sediments such as lipids, proteins and carbohydrates which are derived from algae and zooplanktons (White, 2006). These materials get deposited at the bottom of seas or lakes. As more sediment get deposited, the materials are exposed to tremendous pressures, and through compaction, microbial action and chemical reaction, water is forced out of the material, and the carbohydrates, lipids and proteins are broken down to form kerogen which is waxy in nature (White, 2006). Bitumen is also formed in this step. This process is diagenesis and is considered the first step of petroleum formation (White, 2006). The second step of petroleum formation is known as the Catagenesis. In this step the kerogen formed in the first step is exposed to increasing temperatures and pressures, and is broken down thermally to form hydrocarbons (petroleum) (White, 2006).

It is important to note that even though both petroleum and coal are fossil fuels and are nonrenewable, the raw materials and their formation processes are quite different (White, 2006). While petroleum is formed from algae and zooplanktons, coal is formed from higher terrestrial plants (these plants are rich in lignin and cellulose) (White, 2006).

Major petroleum reserves and its extraction

The world's major petroleum reserves are located in Venezuela, United Arab Emirates, Iran, Saudi Arabia, Canada, Iraq and Kuwait among others (Click, 2010).

Petroleum is normally found within the reservoir. For a reservoir to hold recoverable oil it must be porous and permeable, while at the same time

reservoir must have seal or trap to prevent the accumulated oil from escaping (White, 2006). During extraction a well is normally drilled through the reservoir. Oil then flows from the reservoir to the drilled well from where it flows to surface under the influence of natural underground pressure. When the pressure is so low that the oil cannot flow to surface or the oil so thick that it cannot flow, natural gas or hot water may be pumped into the well to enhance flow (White, 2006).

Environmental impacts caused by extraction of oil

Extraction of oil is normally associated with several cases of environmental degradation such as oil spills, and waste chemical run-offs oil producing companies among others (Moss, 2010). These cases of environmental degradation as a result of oil production have reported in Nigeria, Azerbaijan, Kazakhstan, Columbia and Ecuador among others (Moss, 2010). For example, oil extraction companies have brought down trees in the rain forest of Ecuador (Moss, 2010). It is estimated that these trees are being brought down at a rate of about 340, 000 hectares per year (Moss, 2010).

Energy production from oil and associated environmental degradation

Energy is mainly produced from petroleum through combustion. Oil may be combusted to heat steam power plants, and to drive engines such as generators and motor vehicles among others (Moss, 2010). The combustion of oil produces substances which are hazardous to the environment such as sulfur dioxide and Nitrogen oxide among others (Moss, 2010). These substances are responsible for the destruction of ozone layer thereby enhancing global warming.

Review of two peer's work

Michele Taylor's response is more comprehensive and detailed as compared to the response by Cole. Michele Taylor has addressed all the questions sufficiently in the response Cole's response on other hand did not address all the questions; the only areas addressed are coal formation and mining.

Oil and the society

Regardless of the above environmental challenges, oil is has been used as the main source of energy since time in memorial. This is due to the fact that it is the most flexible and convenient source of energy. For example, a diesel generator can be taken to provide electrical energy in almost all locations without necessarily installing expensive equipment. Other sources of energy such as hydro and solar energies are limited to places in which they can operate or may require expensive installations.

Role politics in the demand for oil

Politics have played greater roles in the demand for oil. For example, governments of oil producing nations may create artificial shortages of oil so as to increase oil prices (Click, 2010).

Political and economic ramifications if Alternative sources of energy are to be used

Total adoption of alternative sources of fuel may not be welcomed by many nations such as UAE, Iraq, Saudi Arabia and Nigeria among others since the economies of these nations are funded by oil (Click, 2010).

References

Click, R. W. (2010). Resource nationalism meets the market: Political risk and the value of petroleum reserves. *Journal of International Business Studies*, suppl. Part Special Issue: Conflict, Security, and Political Risk, 41(5), 783-803.

Moss, N. (2010). Ecuador pays a high environmental price for extracting its oil: New pipelineew pipeline plans are not being helped by a big spillage that has polluted rivers and scarred the landscape. Financial Times, 10.

White, A. (2006). Fossil fuel, low CO₂ too? Oil & Gas Journal, 104(24), 17.