

Reading Passage (305 words): Advantages of Using Coal, Oil, and Natural Gas

Humans need energy for just about any type of function they perform. Houses must be heated, energy is required for industry and agriculture, and even within our own bodies a constant flow of energy takes place. There are three popular forms of non-renewable energy: coal, oil, and natural gas.

Coal is a non-renewable solid fossil fuel formed over millions of years by decay of land vegetation. When layers are compacted and heated over time, deposits are turned into coal. Coal is quite abundant compared to oil and natural gas; thus, it is easily distributed all over the world. Furthermore, comparatively speaking, coal is inexpensive to buy on the open market because there are large reserves of the energy source, and it is easily accessible.

Oil is a non-renewable liquid fossil fuel formed from the remains of marine microorganisms deposited on the sea floor. After millions of years, the deposits end up in rock and sediment where oil is trapped in small spaces. It can be extracted by large drilling platforms. Oil is an extremely powerful energy source when it is burned. No other fuel can move a vehicle at such speed and for such a distance as a cup of petroleum can. Very large amounts of electricity can be generated in one place using oil, fairly cheaply.

Like coal and oil, natural gas is a non-renewable energy formed from the remains of marine microorganisms. It is a gaseous fossil fuel that is versatile, abundant and relatively clean compared to coal and oil. Finally, 99% of the gas we use comes from North America — 84% from the U.S. Increased use of natural gas can reduce our dependence on oil imported from the Middle East.

Writing Prompt: How does the information in the lecture contrast with the information in the reading passage?

Lecture (425 words): Disadvantages of Using Coal, Oil, and Natural Gas

With every rose, there are thorns. And beyond the silver lining of coal, oil, and natural gas, there are some definite drawbacks to these three energy sources.

Burning coal emits harmful waste such as carbon dioxide, sulfur dioxide, nitrogen oxides, sulphuric acids, arsenic and ash. It also emits twice as much carbon dioxide when compared with natural gas to produce the same level of heat, which increases the levels of harmful greenhouse gases emitted into the earth's atmosphere. Carbon dioxide emissions from the burning of fossil fuels now account for about 65 per cent of the extra carbon dioxide in our atmosphere. The burning of coal by large-scale factories to power industry has led to acid rain in some regions. Coal mining can scar the landscape and the equipment used for mining is large and noisy which may affect local wildlife. Lastly, the mining industry can cause health difficulties for miners and fatalities due to the potentially dangerous nature of the work.

Oil is a non-renewable energy source that takes millions of years to form, and, therefore, once existing and any new reserves are depleted, there is no way to obtain more. While oil is relatively easy to transport, one of the more common transportation methods is shipping oil from port to port by 'supertanker' – massive purpose-built tanker ships capable of transporting enormous quantities of oil by sea. While spills are rare, they are by no means unheard of and the resulting inevitably catastrophic effect on marine life, birds and coastlines is evident for many years. Burning oil generates carbon dioxide, a 'greenhouse gas' – although to a slightly lesser extent than coal in terms of the energy extracted. Many of the countries where oil can be found are politically unstable – around 70% of the world's oil reserves are believed to be located in the Middle East. Developed nations with an oil-dependency have a vested interest in such countries and may seek to influence the politics of such countries to their own advantage.

Natural gas is highly flammable and many precautions have to be taken before using it. Pipelines to deliver the gas from the well to the site of use are very expensive. The pipelines need to be laid underground and checked for leakage, pilferage, etc. Thus, the maintenance cost of the pipelines becomes very expensive. In addition, critics point out that the extraction of natural gas leaves large craters within the earth, and, while it may give off lesser carbon dioxide than coal or oil, it is nonetheless damaging the ecosystem.