УДК 620.95=111

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Fossil Fuels

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The term «fossil fuels» is usually used to define a number of substances of organic origin that were formed from organisms and plants nearly 340 to 270 million years ago even before the age of dinosaurs. At those times the swamps inhabited by many different microorganisms and filled with plants occupied a significant part of the land. Dead plants sank to the bottom of swamps and seas and subsequently underwent a long process of decomposition that lasted millions of years. The formation of a particular type of fossil fuels depends on a number of factors: the combination of organic materials involved in the process, climate, pressure, temperature, and, of course, time [1].

Oil, Coal and Natural Gas

There are three main types of fossil fuels, such as coal, oil and natural gas.

Plants, especially ferns, and trees which hardened due to pressure and heat are the basis of coal. Oil is a natural, thick, flammable liquid of dark color with a specific smell. It was formed from small organisms like zoo plankton, and algae where pressure caused the more complex organic matter to decompose. Natural gas is colorless and odorless. It was formed by the same process as oil, only it was exposed to more heat and pressure forcing it to transform later and turn into a gaseous form [2].

Initially, the development industry preferred such fossil as coal. It is a solid substance that is relatively easy to mine and transport. Only at the end of the XIX century the popularity of oil began to grow. It is much difficult to get it, but you can also receive more energy from it. In the XXI century gas is the most common energy resource. Its important advantage is environmental friendliness.

Furthermore, fossil fuels are sought after energy sources because they have a high energy density. They are the world's key energy source. Fossil fuels provide around 80% of the world's electrical power, and 95% of the world's total energy demands (including heating, transport and electricity generation) [3]. They can also be used to make a variety of common products from plastics to cosmetics not to mention even some medicines.

So why are fossil fuels such an influential, but ultimately problematic, source of energy? It has taken hundreds of millions of years for nature to create enough of the special conditions to form the fossil fuels we use. That’s why fossil fuels are considered non-renewable resources. It means that once they are used, the resources will not be replenished in a human lifetime.

But there is a bigger problem with fossil fuels. As we have seen, primarily they are made of carbon, and when we burn them, oxygen is added and that makes CO_2 that goes in the air. And we are reversing the process by which they formed. And if we keep doing this, it must change the composition of the Earth's atmosphere.

CO_2 Goes in the Air

A greenhouse gas which causes climate change in addition to their production causes both environmental and human health issues. Now let's have a look at pros and cons of fossil fuels.

Advantages:

1. Fossil fuels are the fuels with high energy potential;
2. The transportation of fossil fuels isn't difficult;
3. Power plants, fueled by natural gas, have a relatively high efficiency;

4. The location of power plants that use fossil fuels as the main combustible does not depend on the area of the fossil fuel deposits.

Disadvantages:

1. It is harmful to the planet's ecology because the burning of fuel produces so-called greenhouse gases.

2. Open-pit coal mining is a dangerous and difficult business. It destroys large areas of the natural landscape.

3. Due to the high fuel consumption of power plants, it is necessary to ensure the uninterrupted flow of the required amount of fuel. For this reason, a large area near such facilities is occupied by fuel depots, since the costs of starting and stopping the power plant are big. This is applied mainly to power plants that use coal as fuel.

These concerns have triggered society to look at alternative sources of energy that are more environmentally-friendly, sustainable and renewable.

References:

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