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Problems with Non-Renewable Sources: A Survey

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Abstract
About 70% of energy is generated from non-renewable sources of energy. The resources of oil and coal are limited in scope and generation of energy from these sources is having so many drawbacks. It is expected that we have already seen or experiencing the peak of oil extraction. With this in mind, it is expected that fossil fuels will become increasingly expensive to continue to recover and use as major fuel sources. Next, due to the geographic distribution of fossil fuel reserves, certain countries control the extraction and distribution of fossil fuels as burning of these fossil fuels causes global warming due to the emission of greenhouse gases. Therefore many countries instead of fossil fuel resources, finding alternative energy sources as a matter of national autonomy and, potential of national security.

Keyword
Disadvantages of Non-Renewable, Non-Renewable, Drawbacks 0f Non-Renewable, Coal, Oil, Natural Gas.

I. Introduction

A non-renewable resource is also known as a finite resource. It is a resource that doesn't renew itself at a sufficient rate for sustainable economic extraction in meaningful human time-frames. A non-renewable resource are some things that we have a tendency to utilize and after there will be nothing left to harvest. Once we have a tendency to use it, it's gone. Resources like minerals that get exhausted. They cannot renew themselves. There is a limit to their accessibility on the earth. After the time we can't realize any longer minerals.

Non renewable energy sources include fossil fuels and nuclear power. Non renewable sources are already in short supply. But it is not possible to store renewable sources like wind and sunshine and use them whenever we need energy. Fuels that were formed from the remains of dead plants and animals are called fossil fuels. These were produced by complex processes with the help of a series of natural events over millions of years. The most widely used fossil fuels are oil, coal and natural gas.

A. Coal

Coal is a flammable black or brownish-black rock composed principally of carbon and hydrocarbons. Coal is a solid kind fuel that is classified into 3 types: lignite, anthracite, bituminous. Lignite coal is found near the earth surface, creating it straightforward to mine, however it's high sulphur content. The most typical coal is bituminous coal we tend to burn, and it's less polluting than lignite. Anthracite is the good quality of coal. It is dark and glossy and available very deep within the Earth. Coal mining creates problems for the surroundings as the coal should be dug from the ground. The steps concerned in generating electricity from coal contain mining, transportations and burning of the coal in power plants. First coal is extracted from underground mines or surface. The coal is usually washed and cleaned at the coal pit to get rid of impurities before it is transported to the power plant by train, barge, or truck. Finally, at the power plant, coal is burned in a boiler to supply steam. The steam is run through a turbine to generate electricity. Fig 1 shows the burning of coal.

Fig 1: Coal Firing

Drawbacks:

(a) When coal is burned sulphur dioxide, carbon dioxide, nitrogen oxides, and mercury compounds are discharged
(b) Mining, cleaning, and transporting coal to the power plant area generate further emissions.
(c) Large quantities of water are often required to remove impurities from coal at the mine
(d) If the water used in the thermal power plant is discharged to a lake or river, the pollutants within the water are harmful to fishes, plants, animals and people living there.
(e) The burning of coal creates solid waste called ash, that consists primarily of alkali and metal oxides

B. Oil

Oil is a liquid fossil fuel. It is dark brown, yellow or even green in colour. It is easy to mine once it is found. Being a liquid, it will flow through pipes, which makes it easier for transport. But it is difficult to locate oil forms in reservoirs. Once oil is found, a hole is drilled and it is then piped to the surface. This form of oil is called 'crude oil'. This Crude oil is sent to a refinery. Here it is refined into number of fuel products. These fuel products are gasoline, kerosene, petrol and diesel etc. The oil is transported to power plants by pipelines, ship, truck, or train. In power plants, different methods are used to generate electricity from oil. One of the methods is to burn the oil in boilers to produce steam. This steam is used by a steam turbine to generate electricity. Another

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method is to burn the oil in a combustion turbine. Then use the hot exhaust to make steam to drive a steam turbine. This method is called "combined cycle" .It is more efficient because it uses the same fuel source twice.

Drawbacks:

(a) Burning of oil release sulfur dioxide, carbon dioxide, nitrogen oxides and mercury compounds.
(b) Oil wells and oil stored equipment are a source of emissions of methane
(c) Oil-fired power plants need very large amount of water for steam production and cooling.
(d) Waste water produced by power plants have pollutants and is hotter than the water in lakes and rivers that harm fish and plants
(e) Drilling of earth cause underground water supplies to contaminated with oil.
(f) Oil refining produces waste water sludge and other solid waste that have high quantity of metals and toxic compounds. that require special handling and disposal.
(g) Oil spills degrade soils

C. Natural Gas

Natural gas is a fossil fuel in the form of a gas. It's found under the oceans and close to oil deposits. Natural gas reservoirs are surveyed similar to oil. When a natural gas field is detected, the drilling is done like oil. Gas will be piped from the supply and hold on for later use. Some of the gases that are created along with methane series like butane and propane also referred to as "by-products". These by products are separated and cleaned at a gas process plant. The by-products once removed are utilized in variety of applications. Propane is an energy-rich gas, It is a liquefied petroleum gas (LPG) .It is a mixer of natural gas and oil. Propane is used in cooking on gas grills.

After extracted the impurities are removed from the natural gas. The impurities are helium, carbon dioxide, hydrogen sulphide, hydrocarbons and moisture. Next it is sent to power plants. It is combusted in boilers to produce steam. This steam is used to rotate turbine to produce electricity.

Fig 2: Shows the burning of natural gas

Fig 2: Fire from Natural Gas

Drawbacks:

(a) The burning of natural gas release nitrogen oxides and carbon dioxide.
(b) Methane is a main component of natural gas which is dangerous.
(c) Greenhouse gases are emitted into the air if natural gas is not burned completely.
(d) Water discharge from plant to lake or river may kill fish and other aquatic animals and affect people who depend on these aquatic resources.
(e) Land resource of natural gas has erosion, loss of soil productivity and landslide problems.

II. Conclusion

The resources of oil, coal and natural gas are limited in scope. Generation of energy from these sources is having so many drawbacks as coated in the paper. In order to have clean and green energy it is necessary to give importance to renewable sources for the generation of energy.

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