



# Can Renewable Sources of Energy Help In Efficient Use of Fossil Fuel

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**Abstract:** What we should do about over usage of fossil fuels? Fossil fuels are the major and less expensive wellspring of vitality and aggregate earth's populace 85 % relying on the non-renewable energy source. Excessive uses of fossil fuel have a major impact on pollution level of environment. Burning the fossil fuel can affects the health of human, animal, birds and also produces the greenhouse gasses that lead to global warming. The rate of usage of non-sustainable power sources has extended logically. As indicated by a future expectation, non-renewable energy source stores would terminated till 2052. The present utilization of the petroleum product is comparable to 11 billion tones each year. The raw petroleum holds are vanishing at the rate of 4 billion tons per year. We can't utilize energy units since they gives water vapors as a deposit which are nursery gasses. Since the petroleum derivative is nearly annihilation and makes numerous dangers. This paper consists of generation of energy from different renewable sources (such as wind, hydropower, tidal energy, thermal energy, solar power), we can reduce the use fossil fuel. A country such as china generates 114609 megawatt through wind energy. The sustainable wellsprings of vitality can delay the elimination; henceforth there is more noteworthy degree towards utilization of inexhaustible wellspring of vitality and new techniques, (for example, biomass stoves, joined warmth and power, sunlight based cells and photoelectric cells and so on.) need to find to limit the heap from petroleum product and decrease in an unnatural weather change.

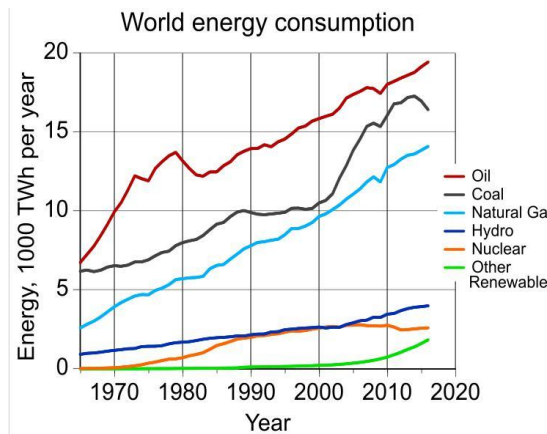
**KEYWORDS:** Fossil fuel, renewable energy, power, solar energy, wind energy, natural gases.

## I. INTRODUCTION

Fossil fuel is the fuel formed by decomposition of dead animals and other living organisms over long interval of time. Mainly it contains large quantity of carbon and our today's energy requirement is fulfilled by fossil fuel. Fossil fuel is commonly formed in the form of crude oil the essential five sorts of non-sustainable power sources are Coal, Natural gas, oil, softened oil gas. Petroleum derivative is effectively accessible and less expensive when contrasted with different energizes. Transporting and extricating the non-renewable energy source is simple. The Calorific estimation of petroleum derivative is high. Higher the calorific esteem, higher measure of vitality is acquired. We can store the fossil fuel for longer extended time period easily. In spite of its points of interest there are a few weaknesses of non-renewable energy source, for example, contamination. Fossil fuel on combustion releases various types of pollutants such as carbon monoxide, carbon dioxide, sulphur dioxide, hydrocarbons etc. We have to handle fossil carefully because fossil fuel is highly flammable. For extraction of fossil fuel mining take place over large scale which is hazardous to the surrounding eco system. The alternative options for replacing the fossil fuel are nuclear power (energy production in total is about 13.5%) and hydropower because they are reliable, low cost & lower failure rate.

## II. PRESENT SCENARIO OF FOSSIL FUEL CONSUMPTION IN THE WORLD

In present situation consumption of fossil fuels is take place on very large scale.. Over pass 200 years there has been tremendous increase in demand of energy and hence the requirement of fossil fuels to meet the energy demand has been increased rapidly. The demand for electricity is increasing at an alarming rate due to ever increasing population and industrial growth on large scale. Thus the great demand of energy had led to the scarcity of fossil fuel reserves in the world. Coming to power generation there are sixteen of the world's twenty largest oil field that have already reached their peak level of production. At present, our human progress expends around 17.7 Terawatts of energy taken from all wellspring of vitality, in particular oil, coal, petroleum gas. In the year 2016 the production of coal is 3411 million tons, oil is 5565000 million liters in the year 2014, and natural gas production is 3552 billion liters in 2016. According to U.S Energy - Information Administration the current world energy consumption will be increased by 56% till the year 2040 over the world's total energy 41% is produced by coal, 20% is produced by natural gas, 6% is produced by oil. We considerable amount of fossil fuel in 200 years and as population increases, demand of fossil fuel increases which also affect the environment. Hence run out of fossil fuel is the main concern at the movement. All around the world, we use 11 billion tons of oil every year. 4 billion tons of crude oil is used every year that means if we use crude oil this way then it will last till year 2052.



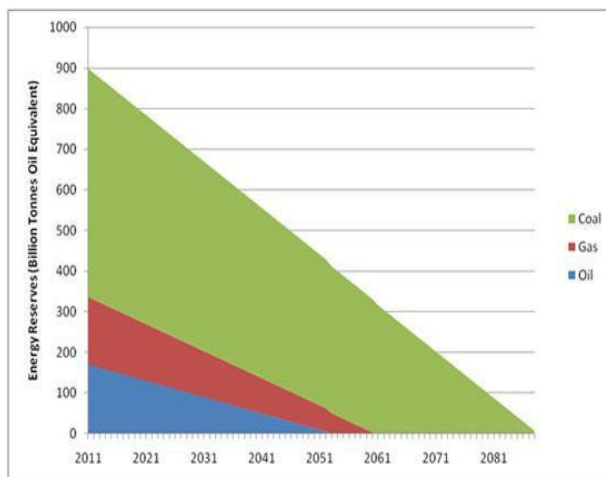
**III. PROBLEMS FACED DUE TO FOSSIL FUEL**

**A. Source of fuel**

The natural gas will run out till year 2060. the highest used fossil fuel which is coal will vanish till the year 2088. Finding new reservoirs are hard and they contain very low amount of fuel compared to the reservoirs which we found in the past. For avoiding the time bomb we must act fast and at the present movement renewable source of energy is the only way.

**B. Price fluctuations**

As we mentioned in previous point that as the population increases the demand of fossil fuel increase hence causes much more use of it. As the prices of fuel increases the price of food and other needs also increases because there is a rise in cost of fuel used for transportation. Price fluctuation can be explained considering the example of Mumbai. As we can see, average cost of petrol per liter in year 2002 was 33.454 rupees but in 2012 petrol cost were 78.574 per liter. In just 10 years there is such big difference in price of petrol due to increase in population and increase in demand.



**C. Overdependence**

Currently the five countries virtually depend upon the fossil fuel because they have excessive amount of fossil fuel available at very cheap price. These countries are Oman, Qatar, Kuwait, Saudi Arabia and Brunei Darussalam. All around the world over 90 million barrels of oil are produce for fulfilling the need of energy. The top ten produces over 60 percent of barrels every day. Consider the example of India to understand in better way. India has considerable amount of domestic fossil fuel. India was ranked fourth for energy consumption in the year 2011 following by the countries China, United States and Russia.

Table 1 Top ten oil producing countries



Oil producing countries	Millions of Barrels per day
1. Saudi Arabia	11.75
2. United states	10.59
3. Russia	10.3
4. China	4.19
5. Iran	4.13
6. Canada	3.92
7. UAE	3.23
8. Mexico	2.9
9. Brazil	2.8
10. Kuwait	2.75

#### A. Effect on health

Fossil fuel releases various types of byproduct in atmosphere after combustion such as carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxide, lead etc. Carbon dioxide is the main byproduct which is forms after combustion of fossil fuel having 60 to 90 % of mass of fuel which we use. In year, 2010 china produced all time highest record of producing the co2 by releasing 5610 million tons in atmosphere.

**Impact on environment:** Exercise amount of fossil fuels for power generation for longer period of time has greatly contributed in environmental damage. The power is mainly generated from coal. Coal control station creates vitality by consuming of coal, this produces oxides of nitrogen and oxides of sulfur which are discharged in condition as the essential contaminations. Additionally the inadequate burning of coal can cause in development of carbon monoxide. Non-renewable energy source is one of the primary purposes behind poor air quality. Likewise dissemination of ozone depleting substances, for example, carbon dioxide is in charge of keeping the surface of the earth sufficiently warm to help life. Impact on environment involves climate change; this is caused due to excessive emission of greenhouse gases in environment resulting in increase in temperature. Majority of these greenhouse gases are emitted from coal power station. In the year 2013 two third of the industrial greenhouse gases are emitted by the excessive use of fossil fuels, this amount of greenhouse gases are contributed by just ninety companies around the world. According to a report of IPCC on climate change 2007, the change in climate will result in shortage of water and food for growing population; also it will increase the risk of flooding and drought situation.

## IV. RENEWABLE RESOURCES ALTERNATIVES FOR THE DEPLETINGFOSSIL FUEL

#### A. Hydro power

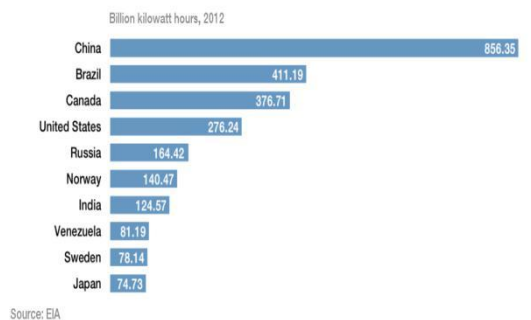
Power generated by using potential energy of water which is stored at certain height and allowed to flow or fall over the surface of turbine which makes the turbine in motion and hence the electricity is generated from kinetic energy of running water. China produces real measure of power from hydro control this incorporate aggregate 856.4 billion kilowatt hours a year.

#### B. Wind energy

Wind control is the use of twist stream through breeze turbines to normally control generators for electric power. Wind vitality can be dealt with as the considerable wellspring of sustainable power source. Production of electric energy does not cause any environment problem such as the greenhouse gas emission, do not consume any water. Wind turbine requires only some space of land. Production of energy through wind mainly takes Place in wind farm consisting of many individual wind mills. Wind energy can be used to produce electric energy with the help of wind turbines.



### These countries produce the most hydroelectric power



The maximum efficiency of wind turbines is 59.6%. For efficient use of energy, considering the example of china, the country has the largest wind market size as compared to other country. According to WWEA (world wind energy association) China had around 67.7 gig watts of wind capacity. That is equal to supplying energy to 29 cities as big as Mumbai.

#### C. Solar energy

Solar power is the conversion of sunlight into electricity, using solar panel. Solar energy is most readily available source of energy. Additionally the sunlight based vitality does not have any negative effect on the earth. 100 GW of sun oriented boards were introduced on the planet which created no less than 110TWh of power each year in 2012. Sunlight based vitality can be utilized as a part of two ways sun powered warming and sun oriented power. Solar-power plants proffer good choice for electrification of the areas of disadvantageous location such as hilly region, forest, deserts and island where other resources are not available. Major part of the globe have sunny climate throughout the year. In those regions, solar energy has a better potential of power generation as compared to wind and hydro power. Some of the countries use fossil fuel for generation of the power for commercial and industrial use.

#### D. Biomass

Biomass is natural and organic substance which is derived from plants and animals. Biomass is a renewable source of energy. Biomass contains energy which is collected from the sunlight. Plants can produce energy by the process known as photosynthesis. At the point when plants are scorched the vitality is discharged as warmth. Changing over biomass into fluid bio-fuels or biogas which can be utilized as fuel for transportation as substitute of petroleum derivative. Plant retains a similar measure of carbon dioxide that is discharged on copying of biomass; consequently it is carbon impartial vitality source.

## V. ECONOMICAL BENEFITS FROM RENEWABLE ENERGY SOURCES

In present situation the world greatly depend upon coal, oil, and natural gas to fulfill the energy demand. However, the over use of these vitality sources drastically affect condition. These energy sources are non-renewable and they will not last for eternity. In future the demand for the fossil fuel will increase and the supply of the fossil fuels would not be in adequate amount. Hence such a great demand will increase the cost of the fossil fuels. Green source of energy are the renewable source of energy. These energy sources are getting the overall attention of whole world as every nation in the world realizes the Responsibility towards the environment. Green or renewable source of energy include power generation through the wind, solar, and water. Green energy source do not have any negative impact on environment and these energy sources are renewable hence cannot be totally vanished. In the year 2010 estimated share of renewable energy in the global energy consumption is 16.7%. This contributes of \$224 billion. This value is expected to raise about \$331 billion by 2015. This can boost contribution of renewable energy sector from 20% to 32% up to the year 2035. whole world has seen the renewable energy as the new target to meet the increasing energy demands. Renewable energy also contributes in growth of economy in many other ways, such as increase in the jobs, and lower consumer energy.

## VI. CONCLUSION

Energy has been a backbone for technology and economic development in every country in the world. The current energy needs are fulfilled from the coal, oil, and natural gases. In past few decades there has been rapid growth in the demand of energy. This has created problem in adequate supply of energy. All the non-renewable energy sources mentioned in the paper have some limitations. Coal, oil, natural gas are fossil fuels and hence are available in limited amount. The non-renewable energy source contributes in the pollution level. Hence cannot help in building a sustainable society. Thus it is important to move on renewable source of energy also to preserve the amount of fossil



fuels uses in day to day life. Renewable energy sources mention in the paper have greater potential to reduce the excessive use of fossil fuels and to fulfill great energy demand. As the statement for the paper was “can renewable source of energy help in efficient use of fossil fuels?” the solution for this debate is yes, renewable energy source can help in efficient use of fossil fuels. The renewable energy can be taken as the solution for long-term energy needs. As mentioned in the paper solar energy can produce the amount of energy that is needed for the world in current situation. The source of renewable energy can sum-up in total energy production. The universal energy demand can be solved using renewable energy on larger scale. Thus every country should realize their responsibility towards the environment and should try to meet the energy demand through the power generated from renewable energy sources, also to preserve the reserves of fossil fuels left.

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