

**RENEWABLE ENERGY ADVANTAGES & DISADVANTAGES****Sawsan Ahmed Elhoury Ahmed\* & Areeg Abdelgader Mohamed Osman**

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**Keywords:** Renewable energy, Disadvantages of Renewable Energy, Energy**Abstract**

In this work we summarized the advantages and disadvantages of renewable energy, as well as the important role of this valuable source in our daily life, especially in Sudan.

**Introduction**

Energy plays a major role in economic activity and is considered an important indicator of the growth and development and the progress of nations and prosperity, where we find that the country's most energy-consuming is the advanced and developing countries, and where the industry is booming in the biggest developing nations, in general, energy resources, renewable resources such as solar, wind, water and other untapped after broadly, and other non-renewable, such as coal, natural gas, oil and energy non-renewable are causing climate change, which resulted in the escalation of the gases, increasing environmental pollution and causing the expansion of the ozone hole, and also coal production requires the use of forest resources resulting in scarcity and shortage of farmland. These changes have tended attention to the exploitation of energy from renewable sources and develop, because it is clean energy and preserve the environment and available, we live in an ocean of energy, nature operates around us without stopping to give us huge amounts of alternative and renewable energy, that man cannot be used for only a small fraction of them, the most powerful generators at all is the sun. And then water watershed alone is able to be produced from hydroelectric power as many as 80% of the total energy consumed by humans. Wind energy can produce electricity produced twice as much water today, and if we use tidal energy to generate power provided us with half our energy needs, as well as energy produced from biomass is one of the cheaper and simpler alternative energy resources. These entire productive if used properly these energies and high technology.

**Types of Renewable Energy**

Energy is a key component of the universe, and is one of the forms of existence. Energy, usually derived from natural sources and other non-natural, so it is divided into two main types: **Renewable energy**, which depends on natural resources, and **Non-renewable**, and it relies on non-natural sources, although it was formed over time and under the influence of a combination of factors.

And all kinds of this energy require the existence of mechanisms, tools, and techniques for special drawn [1, 2].

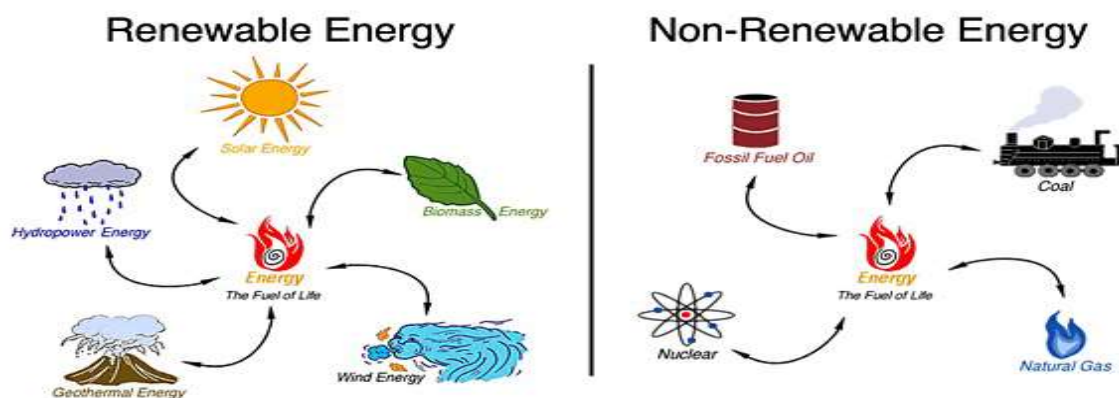


Figure (1) of the type of energy.



**Solar energy:** The radiation from the sun and carry it with them from the heat and the light source of solar energy; and can take advantage of the sun in thermal energy and mechanical and electrical generating, either electrical power can be generated by solar power using heat engines, and panels photovoltaic cells, transformers PV.

**Bio-energy:** bio-energy so-called biomass; and that is an organic working on solar radiation storage material, and then converted into chemical energy derived. Biomass contains stored energy, because plants absorb energy from the sun through the process of photosynthesis.

**Wind power:** In past windmills have been used for pumping water or grinding grain. Today, the windmill's modern equivalent - a wind turbine - can use the wind's energy to generate electricity. Human resort to rely on wind turbines to extract energy from wind, electric power generation ones, as wind power is used to produce mechanical energy in so-called windmills. Wind consider is a form of solar energy and nearly 2% percent of the sunlight that falls on the Earth's surface light turns into kinetic energy of the wind. This is a huge amount of energy can be utilized to produce electrical energy. Wind turbines, like windmills, are mounted on a tower to capture the most energy. At 100 feet (30 meters) or more aboveground, they can take advantage of the faster and less turbulent wind.

**Hydropower:** The term hydroelectric term comprehensive electricity and water together, and uses this type of energy in the exploitation of hydro power to generate electricity, is very clean energy, with a wide spread. In exploiting this energy process is completely rely on the potential of water energy, or the energy situation and turn it into kinetic energy through the water fall and allowing free from top to bottom, to be run generating turbines begins the electrical generator to rotate, and therefore works on electric power production. Flowing water creates energy that can be captured and turned into electricity. This is called hydroelectric power or hydropower.

**Tidal power:** Is a form of Hydropower that converts that energy of tides into useful forms of power, mainly electricity. Although not yet widely used tidal power has potential for future electricity generation.

**Geothermal energy:** Geothermal energy which are also called thermal underground energy is extracted this type of energy from the earth, and is one of the eco-friendly species, due to the cleanliness and renewal, and characterized by high temperature, and growing up as the depth increased in the underground, and relied upon heavily in the generation of voltage, this process and the need to access the depths of the underground, and through the drill pipe, can be tapped and harnessed for energy.

**Hydrogen gas:** Hydrogen is the simplest element. An atom of hydrogen consists of only one proton and one electron. It's also the most plentiful element in the universe. Despite its simplicity and abundance, hydrogen doesn't occur naturally as a gas on the Earth - it's always combined with other elements. For example, is a combination of hydrogen and oxygen (H<sub>2</sub>O) it outputs reaction water, it's can be useful

## Advantages and Disadvantages of Renewable Energy

### Advantages of Renewable Energy

- **Renewable energy is well renewable**  
This means it has infinity of sustainability and we will never run out of it. Other sources of energy like coal, oil and gas are limited and will run out some day [3, 4, and 5]
- **Environmental Benefits**  
It is clean and results in little to no greenhouse and net carbon emissions. It will not deplete our natural resources and have minimal, if any, negative impacts on the environment, with no waste products of CO<sub>2</sub> and other, more toxic take with different sources of energy.
- **Reliable Energy Source**
- **Economic Benefits**  
Renewable energy is also cheaper and more economically sound than other sources of generated energy.
- **Stabilize Energy Prices**

### Disadvantages of Renewable Energy

- **Reliability of Supply**



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One shortcoming is that renewable energy relies heavily upon the weather for sources of supply: [rain](#), wind, and sunshine. In the event of weather that doesn't produce these kinds of climate conditions renewable energy sources lack the capacity to make energy.

- **Difficult to Generate in Large Quantity**
- **Large Capital Cost**
- **Large Tracts of Land Required**

### Renewable energies in Sudan

Renewable energies are alternative solution to provide power after the consumption quantity of available fossil oil, coal and natural gas, and there became a great interest energy research to develop the possibilities of exploitation, the emphasis in Sudan to three energies of renewable energies, which solar energy and Biofuels (biogas) and the Hydropower

(Dams), the study proved the rate of solar radiation in Sudan is one of the highest in the world and large parts of lands and at a long time.

It also has a Nile River, which is one of the longest rivers in the world, which allows the use of hydropower especially the build Dams and Reservoirs, and if taken advantage of this energy efficiently can cover most of the needs of the Sudan, for this reason also Sudan has a large agricultural land which helped the existence of a huge animal wealth helped to use Biofuels energy (and there are taking place attempts in Sudan's Kenana including projects for the production of alternative energy using Biogases and Ethanol.

### Conclusion

Since renewable energy is the best choice in this century Sudan is characterized by a number of sources and the Fair is characterized by brightly the sun throughout the year, which almost encourages the use of solar energy (electrical and thermal conversion), And also it contains a multi-Red Sea water sources and the River Nile ( area of State along) and this energy has been used since the time of helping to build dams have been many of them building Sennar Dam and Roseires on the Blue Nile and Tank Mount Awleia on the White Nile, and recently Marawi Dam on the River Nile in northern Sudan. As for biomass energy are the energies that have not yet used the required level Although the Sudan is its first Agriculture, which can take advantage of agricultural waste are as great as in the State of India. If you found this energy additional attention by the government and largely it can be the first energy used in Sudan because it is the easy and available energies.

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