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Solar Energy: India's Position In The Field Of Solar Energy

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Abstract

Sun is a divine power source, due to its peaceful and eco-friendly nature; people have found renewable solar energy similar to their culture and way of living. Through the integration of science and culture and the use of culture and technology equipment, solar energy is going to prove to be a source of renewable energy for the future. Energy obtained directly from the sun has many special features. This makes this source attractive. Solar energy, which is available in the form of both light and heat, can be used in many ways. Solar heat can be used for grain drying, water heating, cooking, refrigeration, water treatment and electrical power generation. Light can be obtained by converting sunlight into electricity by photo voltaic system, work of cooling can be done, telephone, television, radio etc. can be run, and fans and water-pumps etc. can also be run. .

Key Words:-Solar System, Sun, Solar energy, society.

Introduction

On the one hand, the shortage of oil and electricity, and on the other hand, due to global warming, today when the whole world is facing a serious threat in terms of environment, it is necessary to turn everyone's attention towards alternative and safe sources of



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energy. In such a situation, the immense store of solar energy, which is available free of cost from sunlight, is going to prove to be the biggest gift given to this earth by nature. In terms of energy, the sun is the most ideal source of fuel.

There are two ways to harness this energy. First, by generating steam through parabolic canals or drains or ditches. This is the method used in Nevada or computer operated flat mirrors called heliostats. In this process, sunlight is focused on a receiver located at the top of a power tower. In the second method, sunlight is directly converted into electricity by silicon semiconductor silicon photovoltaic panels. Each method has its advantages. Steam generation is also known as solar thermal. It is more efficient than photovoltaic. In this, maximum part of the light coming from the sun can be converted into electricity.

The most important thing is that the sun has infinite energy; this energy is omnipresent and pure. India's dense population and high solar insulation make solar energy an ideal energy source for India. But solar energy is always expensive and requires huge investment. The nature of solar energy is volatile, which makes it difficult to integrate into the grid. Lack of public awareness, high production cost and limitations of the existing power generation and transmission network have been considered as the main hindrances towards full exploitation of solar energy potential across the country.

Solar Cooker/Oven

Solar cookers or ovens are devices that use direct sunlight to cook or heat food. It does not use any type of fuel. Thus it is also very cheap to operate them. It uses a cooking pot; most places in India receive sunlight for 275 days with its high level of solar radiation. Obviously the solar cooker can be easily used on these days from one hour after sunrise to one hour before sunset.

Solar lantern

A solar lantern is a lightweight portable photo voltaic system. This includes the lantern, maintenance-free battery, electronic control system, and a 7-watt small fluorescent lamp module and a 10-watt photo voltaic module. It is capable of giving light for 3 to 4 hours daily inside and outside the house.

The use of solar energy has now become possible even in the villages and cities of India. There was a time when there was no electricity in many villages of India. But with the help of technological development and solar energy, today there is electricity in many villages of India. Although even today there are many villages in India where there is no electricity, but with the help of solar energy, electricity generation has increased rapidly in villages and cities and people have been able to light their homes with the help of solar energy. The government is also helping Indians a lot on solar energy or solar panels.

India is a tropical country, one of whose benefits we get in the form of sunlight. Being a tropical country, we receive solar radiation throughout the year, which includes about 3000 hours of sunlight, which is equal to 5000 trillion kWh. Almost all regions of India



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have 4 – 7 kWh per square meter, which is equivalent to 2300 – 3200 hours of sunlight per year. Since most of the population of India resides in rural areas, there is a lot of utility of solar energy. Along with this, there are possibilities of development and if the use of solar energy starts, then there will be a decrease in the use of tubers and wood in domestic works. Due to which there will be no air pollution.

Benefits of solar energy in India

This seems even more justified because of the benefits of solar energy. Some of the benefits of this are listed below -:

- 1-Solar energy is an inexhaustible resource and it is the best replacement for non-renewable resources.
- 2-Solar energy is also beneficial for the environment. When it is used, it does not release carbon dioxide and other harmful gases into the atmosphere, so the atmosphere is not polluted.
- 3- Solar energy is a non-renewable energy resource. Therefore, in countries like India where energy production is expensive, then these resources are the best option there.
- 4-Solar energy is used for many purposes, such as -: for heating, for drying, for cooking food and in the form of electricity, etc. It is suitable to use solar energy in cars, airplanes, big boats, satellites, calculators and other devices.
- 5- Solar power equipment can be installed at any place. Even it can be installed in the house, because it is cheaper than other sources of energy.

Solar power disadvantages

- 1-To generate solar energy, apart from solar equipment, we need inverter and battery for its storage. Although solar equipment is cheap, but together with useful inverter and battery make it expensive.
- 2-We cannot do the work of electricity generation from solar energy at night.
- 3- At the same time, even during the day, when it is rainy or cloudy, the work of electricity generation through solar energy cannot be done. For this reason we cannot completely rely on solar energy.
- 4-Only those areas can be capable of producing solar energy, where sufficient amount of sunlight comes.
- 5-Solar devices are large in size, so a large area of land is required to install them, and once these devices are installed, that land is used for this purpose for a long time and it is used. Can't be done in any other work.

India's position in the field of solar energy



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1-India, located in the tropical belt, receives a high amount of solar energy for 300 days a year, which is equivalent to more than 5,000 trillion kWh for 2300-3,000 hours of sunshine. Solar Energy Enterprises in India is a fast growing industry as part of renewable energy in India.

2- There is immense potential for creating new jobs in this sector; The 1 GW solar manufacturing facility creates around 4000 direct and indirect jobs.

3- In addition solar deployment, operation and maintenance creates additional recurring employment in this sector.

4-Advances are being made for storage, which has the potential to revolutionize the sector globally, until the dependence on fossils can be reduced by gradually increasing the share of renewable energy.

5- With solar energy of about 5000 trillion kWh per year, India has the potential to generate 35 MW/sq km using solar PV and solar thermal energy.

Conclusion

Sun is an inexhaustible source of energy. There is no limit to use it. The prevalence of solar energy is such that it is most available in the world's least developed countries in the tropics. In this situation it is a blessing for the South Asian countries. Also, it is a safer source as compared to some other alternatives like the danger of radioactive leakage caused by nuclear power. With the help of solar energy, electricity production has increased rapidly in villages and cities and people have been able to illuminate their homes with the help of solar energy. The government is also helping Indians a lot on solar energy or solar panels.

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