

Electric Battery from the Sun

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Abstract: This review paper describes a simplified definition of the system convert solar energy to electrical energy where the system demonstrates the ease of charging electric battery from solar energy, and that all the system components available and easily accessible. System definition of a simple way to know everyone the possibility of an alternative system in case of unstable voltage especially during the summer and autumn in water power plants or when lack of fuel in thermal power plants. So that shows the effectiveness of the system by applying the use of electric battery from the sun in the house In the case of a power outage.

1. Introduction

Possible convert solar energy into electrical energy through the phenomenon of the photoelectric conversion. Photoelectric conversion is to convert solar radiation into electrical energy by solar cells (module), component of semiconductor based editor electronics of the metal surface, Output current passes through the charge controller and stored in the battery, and we use the stored battery power to loads DC, or connect the battery with the inverter loads AC. The following figure shows the system scheme definition for conversion solar energy into electrical energy:

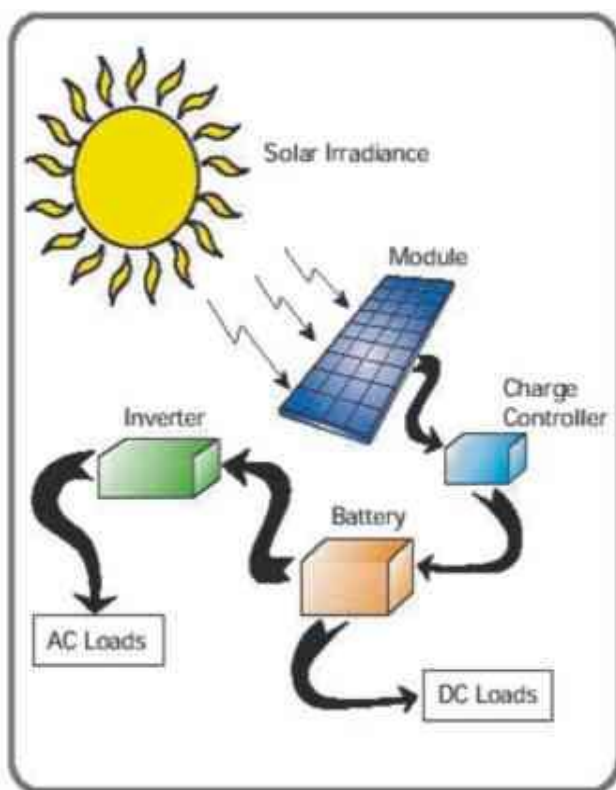


Figure 1: System Scheme

2. System Components

The solar irradiance

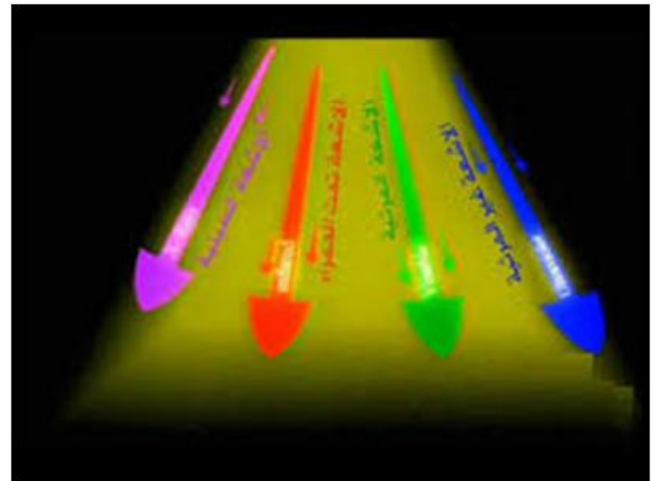


Figure 2: the solar radiation

The sun is the natural source of light and heat on the surface of the earth's, and provide the ground solar radiation the solar radiation is composed from many of the electromagnetic waves, we see some of them and others We do not see . we're see is called the visible light spectrum (the rainbow) and consists of colour from red to violet and rays wavelength ranges between 400 and 700 nm. Some of which we do not see with the naked eye is divided into two parts. The first section has a shorter wavelength of 400 nm is called ultraviolet radiation and the second section has a wavelength longer than 700 nm is called infrared waves.

The solar radiation fall on the ground after passing through the earth's atmosphere and can be take advantage to generate electric energy through various means, including solar panels.

3. Solar Panels



Figure 3: solar panels

The solar cells are Photovoltaic cells through which solar energy is converted into electrical energy by the photoelectric conversion of solar energy mechanism by using a semiconductor such as silicon, which is extracted from pure sand. Solar cells can produce electricity in a scientific manner and is characterized by solar cells that it does not include parts or moving parts, it does not consume fuel and air pollution and along life and does not require very little maintenance. And it achieved the best use of this technology under the unit of solar radiation applications without any concentrates or optical lenses and therefore can be installed on the roofs of buildings utilized in the production of electricity. Solar cells are also used in the operation of various communication system and road lighting and water pumping.

Solar cells generate electricity continuously and directly (as in dry batteries). Current intensity depends on the time of the brightness of the sun and the intensity of the sun's rays, as well as the efficiency of the photovoltaic cell itself in converting solar energy. These solar cells give hundreds of volts a DC power supply if reached these cells respectively. The resulting energy can be stored in acid batteries made from lead or basal made of metallic nickel and cadmium. It can convert DC volt to AC volt by the inverters for use household.

Charger controller

Charger controller through which the battery charge of electric power generated from solar energy and is characterized by the function of the organization intelligent effort and output power featuring the charger by its small size and high capacity and the length of his tenure.

Battery

Battery is the batteries its electrical power generated by the solar panels during the brightness of the sun during daylight hours in order to use this stored electrical energy stored in

the battery-hoc basis at her home after making a solo home he was not connected to any reverse connection the public electricity grid.

Battery is a tool that is where the electrical energy generated by solar energy storage, batteries used in the system ranging from 12 V (20 amp \ h) to 16850 amp \ h (2 volts) and ranges battery that designed it from 8-15 - 18 - Omar 20 years. HID lighting with solar cells appeared from manual Searchlight even lamp linear fluorescent For these bulbs wonderful features where it is possible to ship regular electricity in addition to the shipment of solar cells could be shipped out of the car battery could be shipped including a mobile phone and also there lighting columns works solar cells and batteries for night lighting.

Inverter

Electrical energy generated from solar energy is a DC voltage So that used inverter to convert it to AC voltage can be used in the home.

It is inverter power source to run household electrical appliances at once and without noise and works efficiently and safely high and is light weight and easy to deal with and does not need to experience in the installation, operation and does not need to fuel.

There are types of protection in inverter such as protection from overload and short circuit and excess heat and protection from the weakness of the battery when it reaches certain so not damage the battery.

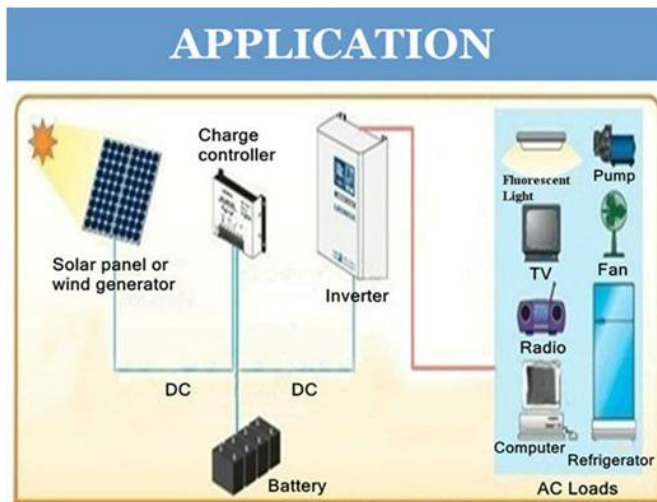


Figure 4: The electrical generated from the sun in the home application

4. Result

Can be applied to convert solar energy to electric energy system as an alternative system for hydroelectric generation when the fluctuation of the water level, as well as thermal power plants in order to preserve the environment from pollution from waste thermal conversion process and in the case of acute shortage in thermal resources.

Electric power generated from solar energy is clean energy so that the conversion process not containing residues harmful to the environment, and the sun is source natural can be exploit solar energy without any price.

5. Conclusions and Recommendations

Recommended supervisors to develop education curricula to add production of electrical energy from the sun as a system within the scientific courses

References

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