IJPRSE
Progressive Research

International Journal of Progressive Research in Science and Engineering
Volume-1, Issue-3, June-2020
www.ijprse.com

Electricity Generation from Solar Energy

Chirag verma, Karan verma

Student, Dronacharya College of Engineering, Gurgaon, Haryana, India.

Corresponding Author: vermakaran5798@gmail.com

Abstract: - The Solar Energy is produced by the Sunlight is a non-vanishing renewable source of energy which is free from ecofriendly. Every hour enough sunlight energy reaches the earth to meet the world's energy demand for a whole year. In today's generation we needed Electricity every hour. This Solar Energy is generated by as per applications like industrial, commercial, and residential. It cans easily energy drawn from direct sunlight. So it is very efficiency & free environment pollution for surrounding. In this article, we have reviewed about the Solar Energy from Sunlight and discussed about their future trends and aspects. The article also tries to discussed working, solar panel types; emphasize the various applications and methods to promote the benefits of solar energy.

Key Words: — ***Renewable energy, Solar panel, Photovoltaic cell, Modelling of PV Panel, Solar Concrete Collector.***

I. INTRODUCTION

Nowadays, due to the decreasing amount of renewable energy resources, the last ten years become more important for per watt cost of solar energy device. It is definitely set to become economical in the coming years and growing as better technology in terms of both cost and applications. Everyday earth receives sunlight above (1366W approx.) This is an unlimited source of energy which is available at no cost. The major benefit of solar energy over other conventional power generators is that the sunlight can be directly converted into solar energy with the use of smallest photovoltaic (PV) solar cells. There has been a large amount of research activities to combine the Sun's energy process by developing solar cells/panels/module with high converting form. the most advantages of solar energy are that it is free reachable to common people and available in large quantities of supply compared to that of the price of various fossil fuels and oils in the past ten years. Moreover, solar energy requires considerably lower manpower expenses over conventional energy production technology.

II. SOLAR ENERGY

Amount of energy in the form of heat and radiations called solar energy. Shown in Fig.1. It is radiant light and heat from sun that is natural source of energy using a range of ever changing and developing of technology such as solar thermal energy, solar architecture, solar heating, molten salt power plant and artificial photosynthesis. The large magnitude of solar power available makes highly appealing source of electricity. 30% (approx.) solar radiation is back to space while the rest is absorbed by ocean, clouds and land masses.

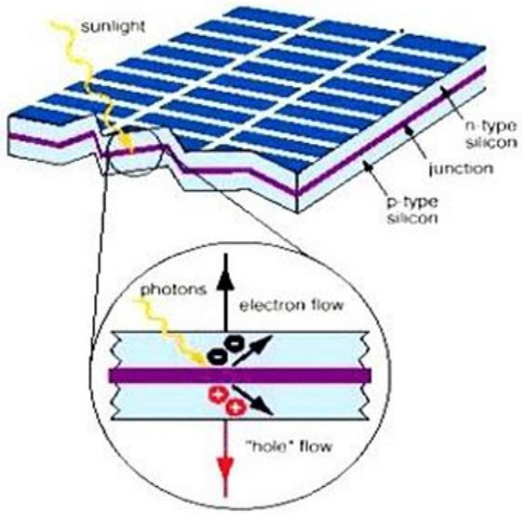

Fig.1. Internal of Reaction of Solar energy

III. WORKING OF SOLAR ENERGY

PV cells Convert Sunlight to Direct Current (DC) electricity. Charge Controller work as control the power from solar panel which reverse back to solar panel get cause of panel damage. Battery System act as storage of electric power is used when sunlight not available (i.e. night). From this system connected to inverter for convert Direct Current (DC) into Alternating Current (AC).

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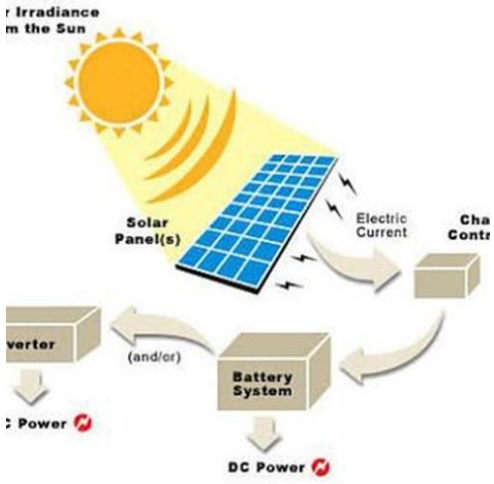

Fig.2. Conventional working process of solar energy

IV. METHODS TO IMPROVE EFFICIENCY

Adjusting The Tilt There are two types of trackers (i) Single axis (ii) Dual axis. Single axis has one degree of freedom (only the daily rotation of earth is considered) while dual axis has two degrees of freedom (seasonal change in the position of sun is also considered). For six months' sun remains towards northern side and for next six months it remains towards southern side [2]. Dual axis trackers are designed to follow exact path of sun during these seasonal changes. The output which we get from Bi Axial is more than that obtained from single axis but it also requires more input as it has more complexity. In this study, the simple construction of fixture is designed. It is useful to position collector as well as solar panel according to sun position. The fixture consists of a rod, perpendicular to a surface, parallel to solar panel as shown in figure.3. The exact path of sun is followed manually by using this fixture. In this paper biaxial mechanism for solar Panels has been discussed.

Methods Used for Tilting:

To get tilting motion of the panel with collector we have used simple mechanism of rotation of semicircular bar on fixed path. In this we have used 12mm square bar, bended into semicircle curve. A guide is provided for the motion of the bar on its perimeter. we have achieved this motion manually. In which we connected dead weight at one side end and a wire on other side for adjusting the tilt. We have achieved this motion for tracing the sun. To trace the exact path of the sun we have given rotational motion in which we have used mechanical pair. The male part rotates in the female part and rotational motion is achieved. We rotated the whole assembly manually by a string attached at one end.

V. CONCLUSION

Most of the people are aware about non-renewable energy resources. Solar energy has become increase more popular due to their economic benefits. By on Battery Backup, Solar Energy can even provide Electricity 24x7, even on cloudy days and at night. This also used with inter-grid System with Continuously Power supply. It has more benefits compared to other forms of energy like fossils fuels and petroleum deposits. It is an alternative which is promise and consistent to meet the high energy demand. Research on solar cell and solar energy is promise has a future worldwide.

REFERENCES

[1]. Performance Improvement of Solar PV Panel Using Reflectors and Bi-Axial Tilting Mechanism

[2]. A Review Paper on Electricity Generation from Solar Energy