

## A REVIEW OF SOLAR ENERGY SYSTEM

<sup>1</sup>Mohit, <sup>2</sup>Amit Mahal

<sup>1</sup>Research Scholar, <sup>2</sup>Assistant Professor, IIET, Kinana

**Abstract:** The solar energy system has been reviewed in this paper. The variety of solar energy is quite wide. The use of solar power varies according to the time and geographic location. The proposed paper has reviewed the solar energy conversion into electricity with particular emphasis on photovoltaic systems. It also considers the solar cells and the pattern to store the electricity. There are several researches in the field of Solar Energy. Some of them have been considered here the solar power energy system technologies are also discussed here. The energy system technologies are concentrated Solar Power, Solar PV, and Solar Water Heating System. In concentrated solar thermal (CST) technology, the mirrors have been used to concentrate sunlight. A lot of methods are there to perform this. The curved mirrors are usually known as parabolic mirrors. Such mirror changes the movement of the sun. The sunlight is focused on the pipes filled by liquids. The long flat rotating mirrors are also used in other model for this purpose. Such mirrors are cheaper.

ISSN : 2278-6848



9 772278 684800 03  
© International Journal for  
Research Publication and Seminar

Keywords: Solar portal, Photovoltaic Systems, MATLAB, Solar Panels, Inverter, Switch Board

### [1] INTRODUCTION

Solar energy is energy. Solar portal provides an overview of information on energy pedia related to solar energy. Solar control is exchange of power from sunshine into electricity, unlock by photovoltaic, or indirectly using concentrated solar power. The condensed solar power systems use mirrors or lenses & trace systems to centre a huge area of sunlight into a small ray. The Photovoltaic cells convert light into an electric current using photovoltaic effect. The Solar reserve across ant country is ample for solar electric systems also known as photovoltaic systems because they could use both direct & scattered sunlight. The amount of power produce at a special site depends on how much of sun's energy reaches it. Thus, photovoltaic systems purpose most powerful in India, which entertain greatest amount of solar energy.

If sale a photovoltaic system, you would want to be sure your site had enough solar energy to meet your electricity needs efficiently & economically. Your local system supplier

could perform a solar site analysis for you or show you how to do so on your own.

### [2] SOLAR SYSTEM WORK

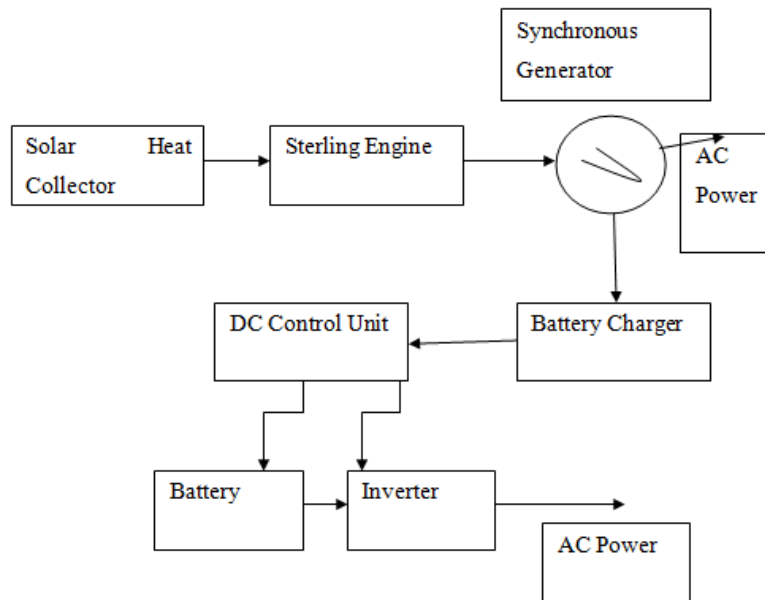
Photovoltaic modules use semiconductor materials to generate dc electricity from sunlight. The large area is required to collect more sunlight as achievable so semiconductor is either make into crystalline cells, thin, flat, or put down as a very small incessant layer onto a support material, typically glass. Cells are wired together & sealed into a weatherproof module, within electrical connectors added.

The number of supply power into a major power system, dc results from module must be improved to at correct voltage & regularity. The electronic inverter is used to do th is. Usually, a number of photovoltaic modules are connected in series to provide a higher dc voltage to inverter input, & sometimes several of these 'series strings' are connected in

parallel, so that a single inverter could be used for 50 or more modules.

1. Solar Panels
2. In
- ve
- re
- r
3. S

wi  
tc  
h  
B  
oa  
rd



#### 4. Electricity Mains Grid

Simply stated, batteries have been applied to power remote load. It is required with solar energy. It has been used to hold the charging of batteries.

Fig 1. Solar Power systems

Therefore, the application of remote solar power systems presents a complex and varying set of challenges. There are three primary factor related to Solar Power System. Such components are solar modules, power controller modules, and batteries are. There may be many combinations of the three components. Such combinations enable the customer to select a system.

### [3]LITERATURE REVIEW

There are several researches in the field of Solar Energy. Some of them have been listed below:

**Naveen Kumar Sharma (2012) “Solar energy in India: Strategies, policies, perspectives and future potential” [1]**

Energy sources as well as methods provided the solutions to the longstanding power issues. Such issues are faced being faced by the developing countries like India. Solar energy is an essential thing related to the plan of India. It does not only add the new capability but it allows the increment in energy security. It also decreases the address environmental issues. Solar energy provides the massive market for renewable energy. Solar thermal electricity also is referred as concentrating

solar power. Such are developing renewable energy methods. Such methodologies are the future potential option for electricity generation in India. In this paper, efforts have been made to summarize the availability, current status, strategies, perspectives, etc India.

**G.K. Singh (2013) “Solar power generation by PV (photovoltaic) technology: A review”, [2]**

There are many forms of solar energy. Such forms are solar heat, solar photovoltaic, solar thermal electricity, and solar fuels offer a clean, climate-friendly, very abundant and in-exhaustive energy resource to mankind. Solar power has been known as the alteration sunlight. In this system the sunlight has been converted into electricity. For this purpose the photovoltaic (PV) has been used directly. As well as indirectly the concentrated solar power (CSP) also may be applied.

**Anveshi Atul (2015) “A Study on Space-based Solar Power System”, Journal of Environmental Science, Toxicology and Food Technology, Volume. 1 Issue 5, PP 01-03[3]**

With the increase in rate of global warming, environmental planning and management has become an indispensable concern. Environmental planning has been known as the procedure. This process is related to facilitating decision making to carry out development. The present paper deals with the alternative method of acquiring electricity as the environmental impact of electricity generation is significant because modern society uses large amounts of electrical power. This power has been generally formulated at power plants. Some other kind of energy is converted into electrical power. It is well known fact that in each system, there are advantages as well as disadvantages. Along with this fact, some system represents the environmental issues. Energy conservation has been determined as the base of energy independence.

**Anuja R. Jadhav (2016) “Review Paper on Solar Powered Energy Management System for Electric Vehicle”, [4]**

Solar energy methodologies as well as the applicability have been determined as an essential to grow the developing countries. Many countries are adopting green machine concept in automotive sectors. Electrical Vehicle plays important role to saves the non-renewable sources such as petrol, diesel. Batteries are easily charged using the solar

systems which results in saving of electrical energy.

The solar cooling in SAV reduces required energy for AC. Using Energy Management System efficiency of EV's can be further increased.

**Kasongo Hyacinthe Kapumpa (2016) “A Review Paper on Solar Photovoltaic Systems”, [5]**

A comprehensive review of solar photovoltaic systems has been carried out to explore their application in future generation systems. The power and efficiency of solar photovoltaic system gets affected by variations in operating temperature as well as by solar irradiation striking on the panel. By designing a continuous tracking system to have maximum irradiation throughout the day and by reducing the temperature of solar panel with a suitable cooling method, the efficiency of solar cells can be improved. The new developments in solar photovoltaic module materials will result in improved efficiency of solar cells in the near future.

**Deepak Purohit, Goverdhan Singh (2017) “A Review Paper on Solar Energy System”, [6]**

The plant (an arrangement of solar panels) which converts solar energy to light energy from the sun into electrical energy (charge emission) is called a solar power plant process. In solar plant there are many solar panels are connected and in panels there are many cells units which make panels. In which special metal is used which is in the form of lines and these lines are also connected to very thin lines and all these lines are connected to a metal line frame which is mainly quadrilateral in shape. So there is large area to trap light i.e. now there is a suitable area for light to fall on it as the metal arrangement in large to fall on it electrons start's to emit from thin lines to metal frame and current goes into a diode box which is behind the panel and then comes into supply wires.

**[4]PROBLEM STATEMENT**

The problem within tradition system was that there was no scope to add record related to solar system managed device. Even in traditional solar systems devices were managed manually & on site. Here in our research we have managed devices remotely using intelligent remote controlled home automation system. System is supporting internet features. Records related to status of devices would be stored on remote database server.

**[5] TOOLS AND TECHNOLOGY**

## MATLAB

MATLAB is known as Language of Technical Computing. It is considered as a high-level language within interactive environment. Matlab enables us to perform computationally tasks quicker as compare to other programming languages such as C, C++, & FORTRAN.

Matrix is a rectangular array of numbers in MATLAB environment. Its Meaning is attached to 1x1 matrices. These are scalars. In order to matrices within one row or column there are vectors. MATLAB had different ways to store numeric & nonnumeric data. It is best to consider everything as a matrix in beginning. Operations in MATLAB have been designed to be natural. Programming languages other than Matlab work within numbers one at a time but MATLAB offers to work within complete matrices quickly & easily.

## [6]CONCLUSION

In order to program & control flow of information in solar system, a predicted architectural direction is required. It is being called BPM. Everywhere that is a blending of traditional process management and special capabilities to automate control of large numbers of coordinated devices. In an Internet of Things, significance of a result would not essentially have based on a deterministic system but would instead be based on framework of event itself: this is also being a semantic web. Subsequently this would not essentially command common standards that would not be able to favor every context or use: some actors accordingly be self-referenced and if ever needed, adaptive to active common standards. Some researchers give that sensor networks are most essential component of solar system.

## [7]FUTURE SCOPE

The research work would be beneficial in future. It would provide the review of traditional techniques of Solar Energy Systems and its techniques. It is the fact that the photovoltaic is a costly technique used to produce the electricity than other energy techniques. But there are several countries that are supporting this technology. The cause is that it promises the future potential along with and the added advantages with the creation of electricity. These benefits are already effective. Future work needs to address technical developments closely with standards development, as well as changes in

regulatory frameworks, so that photovoltaic technology becomes an active part of the tomorrow's electricity networks. Building-integrated photovoltaic systems can play an essential role in sustainable urban planning since they are easily and visually attractive integrated in building surfaces. In this respect architecturally well-designed building-integrated photovoltaic systems are an important driver to increase market deployment.

## REFERENCES

1. Naveen Kumar Sharma (2012) "Solar energy in India: Strategies, policies, perspectives and future potential"
2. G.K. Singh (2013) "Solar power generation by PV (photovoltaic) technology: A review",
3. Anveshi Atul (2015) "A Study on Space-based Solar Power System", Journal of Environmental Science, Toxicology and Food Technology, Volume. 1 Issue 5, PP 01-03
4. Anuja R. Jadhav (2016) "Review Paper on Solar Powered Energy Management System for Electric Vehicle", International Journal of Engineering Research & Technology Vol. 5 Issue 11, November-2016
5. Kasongo Hyacinthe Kapumpa (2016) "A Review Paper on Solar Photovoltaic Systems",
6. Deepak Purohit, Goverdhan Singh (2017) " A Review Paper on Solar Energy System", International Journal of Engineering Research and General Science Volume 5, Issue 5, September-October, 2017