

REVIEW PAPER

# A REVIEW ON HYBRID (SOLAR & WIND) POWER GENERATION SYSTEM

<sup>1</sup>Ajay Shrinet\* and <sup>2</sup>Devesh Kumar

<sup>1</sup>Research Scholar, <sup>2</sup>Assistant Professor, <sup>1,2</sup>Department of Mechanical Engineering,  
MMM University of Technology, Gorakhpur, Uttar Pradesh, INDIA.

\*Corresponding Author's Email ID: ajayshrinet@yahoo.com

## ABSTRACT

Solar and Wind energy are present in enormous amount, we get this energy easily anywhere in the universe and free from pollution that's why they are considered as promising power generating source due to their availability. As the availability of fossil fuels are decreasing now days so we are moving towards renewable source of energy like solar, wind, hydro, geothermal etc. A Hybrid power system consist of two or more different forms of energy sources, a controller, an energy storage system in the form of battery and inverter is also used here which converts DC supply into AC. This Hybrid (Solar/Wind) power system is becoming more popular in remote area for power generation application because of advancement in renewable energy technologies that we are using now days. This project is a combination of mechanical engineering and development that can be sustained in developing countries now days.

**Keywords:** Hybrid Power System, Renewable Energy, Water Pumping, Fossil Fuels Etc.

## 1. INTRODUCTION

The intensive consumption of fossil fuels is the main cause for the negative impact on environment. In fact the fossil fuels are the main appropriate and important source of power generation and sustain the worldwide environment in a proper way. Today due to increasing international concern on the earth climate change we are assisting towards renewable energy sources. Here we are discussing two renewable energy sources: wind energy & solar energy. Both these energy sources are clean, freely available worldwide & environmental friendly also. As I am using two different forms of energy (Solar & Wind) for developing a model that's why this system is called Hybrid System.

**Solar Power:** Solar panels are the medium to convert solar power into the electrical power. Solar panels can convert the solar heat or solar energy directly into the induced energy. Photo-voltaic cells are made up from the semiconductor type structures as seen in the computer technologies now days. Sun beam/rays is absorbed in the solar panel and with this panel electrons are emitted from the atoms that they are bounded in it. This release energy and activates a current. Photovoltaic is known as the process between beam absorbed and the electricity induced. In the sector of solar energy some large projects have been implemented for power generation and in

Gujarat an area of 35,000 km<sup>2</sup> in the Thar Desert has been set aside for large solar power projects that are sufficient to generate 700 to 2,100 GW power by solar energy.

**Wind Power:** Wind turbine is a device used to convert the wind energy into electric power. Electric generator inside the turbine converts the mechanical power into the electric power with the help of wind energy. Wind turbine systems are available ranging from 50W to 2-3 MW. The energy produced by wind turbines mainly depends upon the wind velocity acting/striking on the turbine blade. Wind power is used to feed both energy production and consumption demand in the rural areas with the help of transmission lines i.e. beneficial. Wind turbines are classified with respect to the physical features (dimensions, axis and number of blades), generated power and so on. Other classification of wind turbines with respect to the axis structure: Horizontal rotor plane located turbines, Vertical rotor plane located turbine, Vertical and Horizontal axis spinning directions with respect to the wind and so on. Turbines with number of blades like: 3-blade, 2-blade and 1-blade turbines etc are used are also classified.

The Block Diagram of Hybrid Power Generation System shown below:

