Dual Power Generation

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***Abstract*: Now a day's electricity is most needed facility for the human being. All the conventional energy resources are depleting day by day. So, we have to shift from conventional to nonconventional energy resources. In this the combination of two energy resources is takes place i.e. wind and solar energy. This process reviles the sustainable energy resources without damaging the nature. We can give uninterrupted power by using hybrid energy system. Basically, this system involves the integration of two energy system that will give continuous power. Solar panels are used for converting solar energy and wind turbines are used for converting wind energy into electricity. This electrical power can utilize for various purpose. Generation of electricity will be takes place at affordable cost. This paper deals with the generation of electricity by using two sources combine which leads to generate electricity with affordable cost without damaging the nature balance. Renewable energy has been on an increasing demand in the recent due to over stress on non-renewable resources and their increasing cost. Thus, producing electricity with the use of renewable resources like Wind and Solar has been taken up in this project.**

***Keywords*: wind energy and solar energy**

I. INTRODUCTION

In developing countries like India who depend on agriculture need continuing power supply for different processes like crop dryer, harvesting, paddy dryer, food storage, hot water for germination, suction of wet air, irrigation etc. It is very costly and very difficult to availability of grid power at the remote areas but it is necessary of continuing energy supply. To achieve this goal consists of using renewable energy sources, not only for large-scale energy production, but also for stand-alone systems. The conventional energy resources are depleting day by day. Soon it will be completely vanishing from the earth so we have to find Sources for the conventional energy resources. There are many non-conventional energy resources like geothermal, tidal, wind, solar etc. the tidal energy has drawbacks like it can only implemented on sea shores. While geothermal energy needs very lager step to extract heat from earth. Solar and wind are easily available in all condition. The non-conventional energy resources like solar, wind can be good alternative source. Wind and solar are India's cheapest sources of renewable power, but those 70-80% capacity factor requirements are impossible to meet with one wind or solar project on its own, for two reasons. The first is the basic diurnal nature of renewable generation—solar doesn't generate at night, after all, and wind generation is often low midday. According to many renewable energy experts, a small "hybrid" electric system that combines home wind electric and home solar electric (photovoltaic or PV) technologies offers several advantages over either single system. In much of the United States, wind speeds are low in the summer when the sun shines brightest and longest. The wind is strong in the winter when less sunlight is available. Because the peak operating times for wind and solar systems occur at different times of the day and year, hybrid systems are more likely to produce power when you need it.

II.BLOCK DIAGRAM

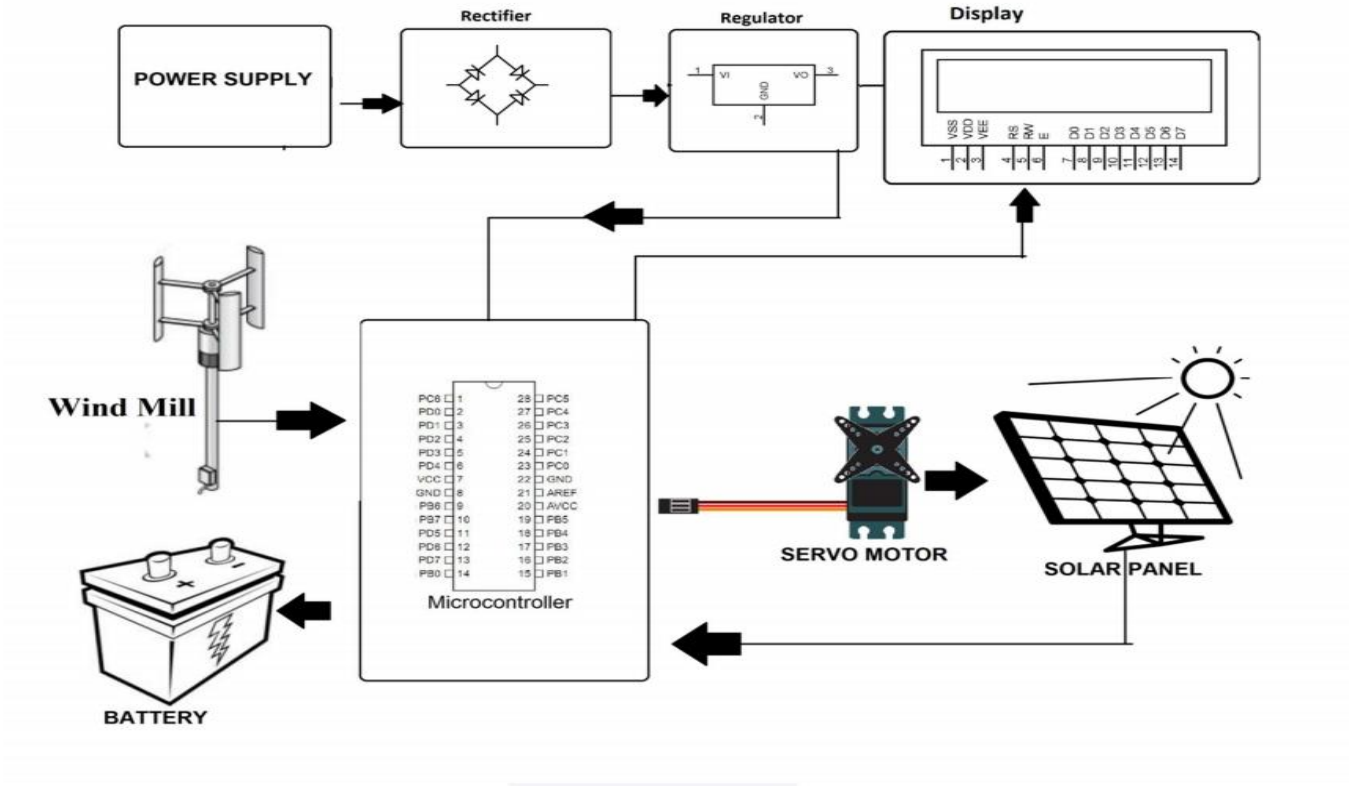

Fig.1. Block Diagram of Dual Power Generation System

IV.ADVANTAGES

The hybrid solar energy systems have various advantages. Let's have a look at few of them.
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1. Continuous power supply – The hybrid solar systems provide power continuously, without any interruption, as the batteries connected to them store the energy. So, when there is an electricity outage, the batteries work as inverter to provide you backup. This is also the case during the evening or night time when there is no sun and energy is not being generated; batteries provide the back-up and life goes on without any interruption.

2. Utilize the renewable sources in best way –Because the batteries are connected to the system to store the energy, there is no waste of the excess energy generated on brightsunny days. So, these systems make use of the renewable energy in best way, storing energy on a good day and utilize the stored power on a bad day. The balance is maintained.

3.Low maintenance cost – The maintenance cost of the hybrid solar energy systems is low as compared to the traditional generators which use diesel as fuel. No fuel is used and they do not require frequent servicing.

4. High efficiency – The hybrid solar energy systems work more efficiently than your traditional generators which waste the fuel under certain conditions. Hybrid solar systems work efficiently in all types of conditions without wasting the fuel.

5. Load management – Unlike traditional generators, which provide high power as soon as they turned on, most of hybrid solar power systems manage load accordingly. A hybrid solar system may have technology that adjusts the energy supply according to the devices they are connect

V.DISADVANTAGES

Like all things, hybrid solar energy systems also have few disadvantages. Let's have a look at them:

1. Complicated controlling process – With different types of energy sources in use, the systems require some knowledge. The operation of different energy sources, their interaction and co-ordination must be controlled and it can become complicated.

2. High installation cost – Although the maintenance cost is low, the initial investment for the installation of a hybrid solar energy systems is high as compared to a solar system.

3. Less battery life – The batteries connected to the system may have a lower life as they are often exposed to natural elements like heat, rain, etc.

4. The number of instruments connectable is limited – The number of devices you can connect to a hybrid solar energy system is limited and vary from system to system.

With this advantages and disadvantages, the hybrid solar energy systems are becoming popular around the world and are being installed for homes and offices. So, they are a good consideration.

V. CONCLUSIONS

Wind energy and solar energy are the most widely used renewable energy sources, but both lack reliability and stability. This offers several advantages over either independent wind power or photoelectric systems in terms of time and intensity, especially for remote areas and small power consuming places

In this project we developed and design the solar and wind hybrid power generation. Successfully design cad model using CATIA software.

The prototype of wind turbine was built for this study to satisfy the energy requirements on the highways. The system is good and effective solution for power generation than conventional energy resources. It has greater efficiency. It can provide to remote places where government is unable to reach. So that the power can be utilize where it generated so that it will reduce the transmission losses and cost. Cost reduction can be done by increasing the production of the equipment. People should motivate to use the non-conventional energy resources. It is highly safe for the environment as it doesn't produce any emission and harmful waste product like conventional energy resources.

It is cost effective solution for generation. It only needs initial investment. It has also long-life span. Overall it good, reliable and affordable solution for electricity generation

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