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# Hybrid Power Generation and Power Station for Electric Vehicle

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**Abstract -** Now a day's electricity is the most essential for economic growth for any country. Fossil fuels are going to get depleted one or the other day. So we shift from conventional to non conventional energy sources. In this the combination of two energy resources takes place i.e. wind and solar energy. The article deals with state of the art of a hybrid power system with renewable energy sources. 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 .Wind turbines are used for converting wind energy into electricity and solar panels for solar energy into electric energy at affordable cost.

***Key Words*: *Hybrid1, Renewable2, Electric Vehicle3, and Power Station4 etc...***

## 1. INTRODUCTION

According to many renewable energy experts, a small "hybrid" electric system that combines wind electric and solar electric (photovoltaic or PV) technologies offers several advantages over either single system. In much of the Indian 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. For the times when neither the wind nor the solar systems are producing, most hybrid systems provide power through batteries. By connecting such model and there batteries in the series we can generate a single power station for electric vehicles. Where we can charge electric vehicles.

## PROCEDURE

The moving vehicle on highway may be all types such as small or heavy vehicles. Whenever vehicle moves on both side of the highway divider then some pressurized air is produced due to the speed of vehicle. This pressurized air is striked on the blade of vertical axis wind turbine and turbine makes a rotation. The shaft of the vertical axis wind turbine is connected to generator with the help of gear mechanism. The generated electricity is an alternating quantity; the output of the generator is rectified by rectifier and stored in the battery. The solar system is mounted on besides of the vertical axis wind turbine, the function of the solar system not only generate the electricity but also provides the constant air flow towards the blade of vertical axis wind turbine. The position of solar plates is in inclined nature at an angle 45 degree. Solar panel proposed here are of self cleaning which cleans itself for increasing the efficiency of solar panel. A solar cell or photovoltaic cell is an electrical device that converts the energy of light directly into electricity by the photovoltaic effect, which is the physical and chemical phenomenon. It is photoelectric cell, defined as a device whose electrical parameter such as current, voltage or resistance varies when exposed light. Solar cells are the building blocks of photovoltaic modules. The generated electricity is stored in the battery. The stored energy used as a hybrid power and this power can be utilized for generating the power station for electric vehicle. As we know the future of mobility is the electric car and we need a large number of electricity to fulfil the demand so we need a large number of power stations for electric vehicle and from this we are proposing the power station by connecting such models in the series

# BLOCK DIAGRAM

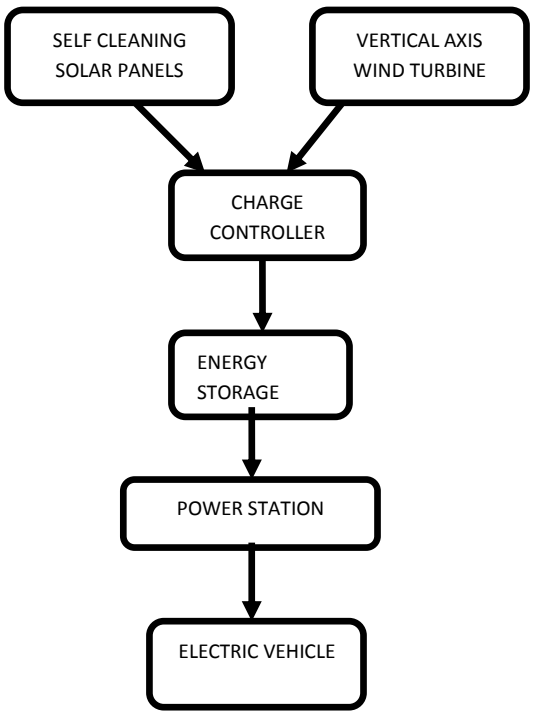


Fig. Block diagram of hydride power generation and power station for electric vehicle

**2. SELF CLEANING SOLAR PANELS:**

Solar panels are those devices which are used to absorb the sun's rays and convert them into electricity. A solar panel is actually a collection of solar cells, which can be used to generate electricity through photovoltaic effect. These cells are arranged in a grid-like pattern on the surface of solar panels. These panels are very hard when it comes to wear-and-tear. Self cleaning of panels is essential to increase efficiency .The panels are attached to a wiper where it is cleaned. Wiper is placed on solar panel in such a way that it moves in horizontal direction and it has a water sprinkler at its tip and after a period of time it sprinkles water and the wiper moves in horizontal direction and self cleaning of the panel is done.

**3. VERTICAL AXIS WIND TURBINE:**

A wind turbine is a device that converts the wind's kinetic energy into electrical energy. Vertical-axis wind turbines have the main rotor shaft arranged vertically. One advantage of this arrangement is that the turbine does not need to be pointed into the wind to be effective. Also, the generator and gearbox can be placed near the ground, using a direct drive from the rotor assembly to the ground-based gearbox, improving accessibility for maintenance. Here the gear mechanism used is bevel gear which is used to transmit the generated power in 90 degree so that the energy generated can be stored properly.

**4. CHARGE CONTROLLER:**

It prevents overcharging and may protect against overvoltage, which can reduce battery performance or lifespan and may pose a safety risk. . It may also prevent completely draining a battery, or perform controlled discharges, depending on the battery technology, to protect battery life.

**5. ENERGY STORAGE:**

Battery is the energy house. Where the generated energy is stored .Battery has one or more electrochemical cells with external for providing energy for electrical devices and electrical car. When battery supplies energy its positive terminal is the cathode and its negative terminal is the anode. All the batteries from the model are connected in series and the supply is given for power station where the energy is utilized for charging Electric vehicle.

**POWER STATION:**

Power station is also called as electric vehicle charging station and it is also known as EV charging station. Is an element which gives charging for electric vehicle as a power. All the equipments of rechargeable electric vehicle can be charged by domestic wall socket; a charging station is usually accessible to multiple electric vehicles and has additional current or connection sensing mechanisms to disconnect the power when the EV is not charging.

**6. ELECTRIC VEHICLE:**

An electric vehicle (EV) is one that operates on an electric motor, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases. Therefore, such as vehicle is seen as a possible replacement for current-generation automobile, in order to address the issue of rising pollution, global warming, depleting natural resources, etc.

**7. CONCLUSION**

The effective way of power generation is hybrid power generation system rather than conventional energy resources. The power can be utilize where it generated so that it will reduce the transmission losses and cost and it can be easily transmitted to power station and from that to electric vehicle (EV).It has greater efficiency. Hybrid power system is eco-friendly which does not produce any harmful waste product like conventional resources. The main part of hybrid power system it is cost effective and one time investment with low cost maintained. Overall it is best and adorable solution for power generation.

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