

HYBRID 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 non-conventional energy resources. In this the combination of two energy resources is taken place i.e. kinetic energy resources without damaging the nature. We can give uninterrupted power 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. This electricity power can be 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.

IndexTerms - wind turbine, piezoelectric, power hump and accelerometer

I. INTRODUCTION

Electricity is most needed for our day to day life. There are two ways of electricity generation either by conventional energy resource +or by non-conventional energy resources. Electricity energy demand increases in world so to fulfill demand we have to generate electrical energy. Now a day's electrical energy is generated by the conventional energy resources like coal, diesel. And nuclear etc. The main drawback of these sources is that it produces waste like ash in coal power plant, nuclear waste in nuclear power plant and taking care of this wastage is very costly. And it also damages he nature. The nuclear waste is very harmful to human being also. The conventional energy resources are depleting day to day. Soon it will be completely vanishes from the earth so we have to find another way to generate electricity. The new source should be reliable, pollution free and economical. The non-conventional energy resources should be good alternative energy resources for the conventional energy resources. There are many non-conventional energy resources like geothermal, tidal, wind, solar etc. the tidal energy has drawback 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.

II. RELATED WORKS

The hybrid system can be standalone or can be grid connected. In this paper the grid connection hybrid system is used which is more reliable to deliver continuous power to the grid because if there is any shortage of power or fault in the renewable energy sources then the loads are directly connected to grid. The various FACTS device alike UPFC, IPC, Fuzzy logic, SVS, STATCOM etc. are used to maintain stability [1].

These paper performances of the wind/PV hybrid system are studied under different grid perturbation conditions. The optimal operating conditions of the grid-connected SOFC were obtained by solving the NLP problem considering the power consumed by the air compressor. With the optimal operating condition at different active power output levels, a hierarchical load tracking control scheme was proposed to realize the maximum electrical efficiency operation with the stack temperature bounded [2].

In this [3] paper it propose a two-stage rolling dispatch approach based on Model Predictive Control(MPC),which contain an intra-day rolling optimal scheme and a real-time rolling base point tracing scheme. The closed-loop optimization is formed to correct the power deviation timely, making smoother output.

In this [4] paper proposes an Adaptive Power System (APS), it is used to mitigate the negative levied on the platforms resulting from large dynamic loads.it uses DC motor as speed control over a wide range both above and below speed High starting torque.

This paper [5] uses a method of combination of FEA and a complex stiffness model of a resistively shunted piezoelectric element. Comprises a thick-film layer of the piezoelectric, lead zirconate titanate (PZT) printed on a thin steel substrate.

The speed breakers are designed for heavy vehicles, as it increases the input torque and ultimately results in increasing the power as output. It uses the rack and pinion mechanism [6]

Its main objective is to power control of distributed wind and solar generators using ANFIS controller. It presents design of energy control center (ECC) to control DERS using a multi-agent system. The Interaction between the grid wind and solar enables a DER agent to manage the power that is to be distributed to the necessary loads [7].

In this [8] paper aim to modulate and test a simple design that converts Kinetic energy to Electrical energy through human footsteps. It used in street lighting, advertising billboards, and information display. It is designed very efficiently.

In this [9] paper provides a review of challenges and opportunities of hybrid solar PV and wind energy integration system. Voltage and frequency fluctuation are major power quality issues for both grid-connected and stand-alone system with weak grid. This can be resolved to a large extent.

In this [10] paper they developed an optimal design for hybrid solar-wind energy plant with number of photovoltaic modules. Simulation studies and sensitivity analysis reveal the hybrid plant is able to exploit the complementary nature of the two energy sources and deliver energy reliably throughout the year.

III. CONCLUSION

Energy is an important input to sustain industrial growth and standard of living of a country and can be directly related to the per-capita energy consumption. The conventional sources of energy and depleting very fast and by the turn of the century man will have to depend on non-conventional sources for power generation. Various types of non-conventional sources are solar energy, wind energy, piezo electric, dynamo biogas etc. Now by using these speed breakers, we can generate electricity without any external sources. This day, vehicle traffic is a major issue in most big cities. This can be used to our advantage by installing these speed breakers in heavy traffic road and toll booths we can generate electricity almost continuously by using the weight of the vehicles to produce mechanical power in the shafts by using the rack and pinion mechanism. As this method does not require any external power source and the traffic never reduces, these speed breakers are more reliable and have a greater life span.

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