

A Model of Wind Power Electric Generator

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ABSTRACT

The purpose of this final project is to design and make a model of wind power electric generator to know the work process of a model of wind power electric generator, so that by designing and making this tool can be used to maximize wind energy as the alternative energy of electric source, solve energy crisis, and maximize the using of wind field in Indonesia.

This final project is made using build design method of a model of wind power electric generator. Steps that are used are by identifying the need of tools and materials, designing a model of wind power electric generator, experiment, and data interpretation. The design of this tool consist of main part, such as: windmill that is used to catch the wind, sprocket chain transmission that is used to increase rpm, alternator that is used to change the mechanic energy becomes electric energy, charge controller that is used to manage charging current that will be supplied into accumulator and accumulator is used to save the electric energy. The supporter component are tail fin manager that is used to manage wind generator to follow wind direction movement in order to get wind maximally together with the function of orientation system and slip ring that is used to save cable in order to make it doesn't rotate. Work principle of this tool is wind energy is converted into mechanic energy using windmill through transmission of sprocket chain, so that the alternator rotates and changes the mechanic energy from the rotation of mill to be electric energy, before alternator output tension is saved in accu, to prevent accu damage, first it is controlled in charge controller that is used to manage overcharging by changing charging current if the accu has been full to more energy.

Based on the experiment result "A Model of Wind Power Electric Generator" shows that the result appropriates with the planning that is windmill can produce energy and using charge controller can save energy that is produced by windmill safely into accumulator. The maximum energy that can be produced by windmill is 30 Watt with the tension of 12 Volt and current of 2,5 Ampere in wind speed of 10,2 m/s and alternator rotation of 2000 rpm. The energy that is produced by windmill can fill accumulator 12V-32Ah until full for $\pm 6,4$ hours.

Keywords : wind energy, windmill, charge controller