

ABSTRACT

In Indonesia, efforts to procure electrical energy in disadvantaged areas has been done by PT. Lentera Angin Nusantara through the use of small scale wind power plants. In the system that has been built in some of these areas, used TSD-500 generator with the specification of power output is 500 watts, 180V AC three phase voltage, and 3A current.

Small-scale wind power systems consist of several components including: wind turbines, generators, controllers, data loggers, energy storage systems (batteries, pump storage), and inverters. The output energy of the TSD-500 generator is a three-phase AC (Alternating Current) voltage and used battery as electrical energy storage system. Battery works on DC power supply (Direct Current). The controller is used to regulate the energy storage process of the conversion into the battery. The storage process includes: three-phase AC voltage rectification into DC voltage, large monitoring of generator power output, monitoring of controller output current and voltage, adjustment of current and voltage of battery charging process, and system security from overvoltage.

The designed controller device consists of several subsystems and has been tested through the process of storing electrical energy from the generator output (approximately 90V DC) into the battery with voltage and current of about 13V and 2,5A.

Keyword : *Buck Regulator, Three Phase Rectifier.*