

## **ABSTRACT**

Electrical power is a very basic need for human being. With human population developing, the electrical need keeps increasing. PLN (Perusahaan Listrik Negara) as the only electrical power supplier, sometimes still facing a difficulties to keep up with high demand. Indonesia is a tropical country that near the equator line, because of it Indonesia possess a high wind speed average. To extract kinetic energy from wind a wind turbine can be used and store the energy to a battery. The problem is the wind speed that is too high can give a too big output can damage the battery and house hold electrical devices. Because wind is a very cheap renewable energy, the using of VAWT can be choosed as the alternate method to hep PLN in electrical power supply.

In this final project, will be designed a home scale wind power plant with vertical-axis wind turbine, that can act as a back up power source. With alternator that will produce an AC voltage.

The testing perimeters are, how big is the power output that can be obtained at certain wind speed. The VAWT is designed as cheap as possible with a reasonable result expected.

Keywords: Vertical-axis wind turbine, Wind, Generator.