

ABSTRACT

Nowadays there are several power plants using alternative energy. One of them is a conventional wind turbine with battery for its energy storage. To optimize the power output, wind turbine should use a backup media of Flywheel Energy Storage (FES) to saving the energy.

FES will operate when the wind velocity become down. The stored energy released for helping the rotation of turbine. So that, turbine can rotate longer and will increase the power level. The purpose of this study was to measure and comparison of the resulting output power of wind turbine which uses Flywheel Energy Storage (FES) and without FES, as well as proving that the addition of FES on wind turbine should be optimize its performance.

This research evidence that FES can saving the energy about 27,6% of total output energy from turbine. The stored energy in FES is kinetic energy at wind velocity more than 6,35 m/s.

Keywords: Energy, Wind Turbine, Flywheel.