ABSTRACT

The operation of the generator has a very critical role. This is the effect of the function of the generator in converting kinetic energy into electrical energy. With a continuous pattern of operation and loading of electrical network systems that always change at any time, so that generators must be ready to face the demands of various system conditions in accordance with consumer demand.

Load ups and downs cause changes to some generator operating parameters, one of which is the generator excitation system. The increase in excitation current can have an impact on the increase in reactive power and the temperature of the winding rotor generator. The increase in reactive power aims to maintain the generator output voltage so that the supplied electrical equipment is not quickly damaged due to lack of voltage. While the high temperature of the winding rotor can cause damage to the insulation of the winding and the increase in power losses resulting from copper losses. To avoid overheating on the generator rotor winding, it is equipped with a cooling system using hydrogen gas. The cooling system that is carried out is by maintaining the purity and pressure of hydrogen gas in the generator to keep it in accordance with the parameters.

The success application of the generator rotor cooling system can be seen from the effectiveness of the cooling produced. The limitation of cooling effectiveness parameters is 98%, so the higher the value of effectiveness, the generator becomes more reliable and the power losses become smaller.

Keywords: Generator, Winding Rotor Temperature, Current Excitation, Load, Effectiveness of Cooling System.