

**DESIGN AND MANUFACTURE OF 3 PHASE ELECTRIC MOTOR
PROTECTION SYSTEM IN COFFEE AND RUBBER PROCESSING (CASE
STUDY IN PDP KAHYANGAN SUMBERWADUNG FARM)**

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ABSTRACT

Electrical energy is energy that is often used by people. Most of the community's activities are dominated by electrical energy, from light work to heavy work. The use of electrical energy on a large scale is usually used in industrial plants which generally receive a supply voltage of 90 - 200 kVA because they have loads that require large power, for example electric motors, such as at the PDP Kahyangan plant, Sumberwadung garden. The area of the PDP Kahyangan factory area, Sumberwadung gardens, often occurs blackouts accompanied by a decrease in electricity voltage so that it can cause damage to electric heavy equipment. This final project report aims to design and create a protection system to overcome voltage drop faults, understand the design method, the circuit and the performance of the protection system and determine the performance of the electric motor when it gets a less than optimal supply of electrical energy. The method used is the method of circuit design, tool making and tool testing. The results show that the protection system tool can cut off the electric current to the load when the voltage drops with a voltage value below 110 VAC. The design method is carried out in stages starting from designing the circuit, selecting component specifications, making the system, calibrating sensors, and conducting system testing. The circuit used is Star-Delta 3 phase electric motor installation, protection system circuit. The performance of the tool disconnects the electric current and the alarm turns on if the voltage value read by the voltage sensor is below 110 VAC, and the voltage value is automatically stored every second on the memory card. The performance of the electric motor when the voltage drops for a long period of time, reduces the efficiency of the electric motor rotation so that the motor rotation becomes slow and the stator component becomes hot.

Keywords: Electrical Energy, Voltage Disturbance, 3-Phase Electric Motor, Protection System.