***Design of Battery Charging Control System in Hybrid Power Plant* (*Solar-Wind*) *Based on Programmable Logic Controller* (PLC)**

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ABSTRACT

This research designs a battery charging control system in a hybrid power plant (Solar-Wind) using a Programmable Logic Controller (PLC) as the control center. The system is designed to combine two renewable energy sources, namely solar power and wind power, which are used to charge the battery automatically based on the input voltage read. The voltage sensor is based on a voltage divider circuit, while the system output is controlled using a Solid State Relay (SSR). This system regulates the voltage source does not produce the specified set-point (12V), then the system will automatically disconnect the charging line from the source. The test results show that the system can work as designed, with the PLC able to read the voltage sensor and activate the SSR based on the input conditions. Schottky diodes are used to prevent reverse current, so that the two sources can work independently in the battery charging process. The highest value of solar panel in the process of taking data on the conditions of the variation of solar power plants and wind power plants is the 4th peak, namely the value of irradiation 957.0 W/m2 and panel voltage 17.09V. In the wind turbine, the highest value is in the 8th peak wind turbine condition which is worth 4.7 wind speed with a turbine voltage of 18.37V.

Keywords*: Control System, PLTH, Programmable Logic Controller, Voltage Devider*