

## **ABSTRACT**

Solar Cell (Solar Cell) in principle is a diode that have a wide surface and is designed to absorb light effectively in order to convert solar energy into electrical energy. Viewed from the characteristics of solar cells, utilization of solar cells as an alternative source of electrical energy is very effective because the sunlight intensity in Indonesia is enough for solar cells work optimally

In this research discusses about a system of adjusting level voltage of the solar cells can be parallelized to work with DC power source from power supply. In compliance with DC load power, solar cells are expected to be more to supply power to the load when the sun is high intensity. But, when the light intensity decreases or night day, the solar cell will be off and the fulfillment of supply to DC power load in fully by power supply. Thus ,emphasis of this research is how to adjust level voltage of solar cells to work on hybrid systems using a method DC Power Maximum Power Point Tracker (MPPT)

The system is implemented in this research has been tested and worked fine. From the results of testing the level adjustment voltage circuit of solar cells at the point of the hybrid DC power obtained percent power transfer between the level adjustment voltage circuit of solar cells (DC to DC converter type buck) with the power supply is 17.23% of supply power from DC to DC Converter type buck circuit, while 82.77% supply power to the load fulfilled by power supply on a hybrid system. Therefore the system voltage level adjustment circuit which is designed in solar cell has been running optimally.

Key words: Solar cell, Maximum Power Point Tracker (MPPT), DC power, hybrid system, adjusting the level of voltage.