ABSTRACT

Currently, one of the promising and widely used sources of New and Renewable Energy is solar energy. Electricity can be generated from sunlight using photovoltaic (PV). However, the current output power of PV is still low, between 5% - 16%. Therefore we need a way to increase the output power so that the electricity generated is even greater.

To overcome these problems, research will be conducted to increase the PV power output by using a combination of light convergence methods and solar tracking methods. The light convergence method is carried out with Fresnel lens media and the sun tracking method is carried out with a time-based DC motor.

This research was conducted for 3 days located at Telkom University Campus, Bandung. The results of this study indicate that the combination of the two methods succeeded in increasing the PV output power on the first day by 6.7882 watts or 68%. On the second day managed to increase the PV output power by 7.8655 watts or 79%. On the third day managed to increase the PV output power by 6.9700 watts or 70%. So, the average increase in PV output power which is equipped with a combination of the light convergence method and the sun tracking method in this study is 7.20789 watts or 72%.

Keywords: Photovoltaic, light convergence, sun tracker, fresnel lens, DC motor.