

ABSTRACT

The demand for electrical energy is increasing every year. In 2050, the electricity demand in Indonesia is projected to increase 9 times compared to the electricity demand in 2018. The utilization of renewable sources in Indonesia reached only 9% from 31% target in 2050. To support government's target, Telkom University (Tel-U) seeks to gradually fulfill independent electrical energy by using renewable sources.

Hybrid power plant is expected may reduce the intermitences of renewable sources. The intermitences of solar and wind energy are quite high. Therefore, it needs a study to analyze solar and resources in Telkom University area. Geographical condition and environment parameter are affecting the potential of solar and wind energy. PV-Wind *hybrid* power plant will have 21kWp peak power. This study is expected to give best design with the geographical condition and environment parameter in Telkom University.

The study use HOMER to give the base design *hybrid* power plant. Furthermore, the study will analyze the power plant by its economic and technical factor. With geographical condition and environment parameter in Telkom University, wind energy is concerned to give enough electricity in big scale.

Keywords: *hybrid power plant, wind turbine, solar plant, LCOE*