

***DESIGN OF DUAL AXIS SOLAR TRACKER TO INCREASE THE OUTPUT  
POWER OF SOLAR PANEL***

Risse Entikaria Rachmanita, S.Pd., M.Si. (Thesis Supervisor)

Arman Rachmat Maulana

**Study Program of Renewable Energy Engineering  
Department of Engineering**

***ABSTRACT***

*Solar energy, which can be utilized with PV Modules, is one of the renewable energy sources that can be used. To maximize the intensity of the sun received by solar panels, it is necessary to design a solar tracker system that can determine the most appropriate tilt angle of the panel. The system design requires the most appropriate tilt angle of the panels to maximize the intensity of the sun received by the PV Modules. This is carried out in order to receive the highest amount of solar radiation. Most of PV Modules are installed in a fixed position, which causing the PV modules are not perpendicular to the sun, and the light received by the solar panel is not optimal. As a result, the power generated by PV modules is suboptimal. Therefore, a dual axis solar tracker was designed as a solar tracker system that is able to adjust the tilt angle of the solar panels. According to the research, the dual axis solar tracker is capable of providing a maximum output power of 21.56 Watts and a minimum power of 13.8 Watts. This proved to be more than the tests conducted on static solar PV, which yielded a maximum output power of 20.93 Watts and a minimum output power of 12.8 Watts. According to the research, the highest efficiency value for solar panels using the solar tracker is 25.82%, meanwhile the maximum efficiency for static solar panels is 11,1% which tends to be lower.*

***Keywords:*** solar tracker, solar panels, solar panel efficiency