

***Utilization of Solar Energy to Drive Water Pumps for NFT Hydroponic Plants  
in Water Management Laboratory***

Zeni Ulma, SST., M. Eng. (*chief conselor*)

**M. Choirul Huda**

**Study Program Of Renewable Energy Engineering  
Departemen Of Engineering**

***ABSTRACT***

*Energy is a vital need to support daily needs such as industry, transportation, agriculture, and household needs. The crucial energy requirement is electrical energy where daily activities utilize electrical energy. The utilization of renewable energy is proper to substitute the conventional electric use, beside to reduce the electrical expenses, renewable energy also supports the green energy establishment and reduces the electrical energy of fossils that is rare for now. The usage of solar energy (solar panel) is the great choice since the sunlight is available for 7 until 8 hours per day considered as a great potential. The aim of this study is to design and build solar panel plants as the energy source to drive the pump of NFT hydroponic crop also analyze the average energy produced by conversion system of solar energy into electricity from solar panel for NFT hydroponic system. The result of this study shows that the energy that is produced by solar panel is not enough to supply the daily loads. The average energy that is produced by solar panel is about 227,56 W/day meanwhile the average need of energy is 425,62 W/day. The highest total energy that produced by solar panel is 330,1 W/ day.*

**Key Words** : *Hydroponic, NFT, Solar Panel*