Utilization of Solar Panels to Drive Water Pumps for DFT HydroponicWatering in Hydroponic Cultivators

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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 right use of renewable energy to replace the use of conventional electricity, in addition to reducing electricity costs, renewable energy also supports the formation of green energy and reduces electrical energy from scarce fossils at this time. The use of solar energy (solar panels) is the right choice because sunlight is available for 7 to 8 hours per day is considered a great potential. The purpose of this research is to design and build solar panels as an energy source to drive pumps in DFT hydroponic plants. Analyzing the average energy generated by the solar energy conversion system into electricity from solar panels for the DFT hydroponic system. The results of this study indicate that the energy generated by solar panels is not sufficient to supply the daily load. The average energy generated by solar panels is around 218.44 W/day while the average energy requirement is 252.18 W/day. The most energy produced by solar panels is 279.42 W/day on the first day.

Keyword : Hydroponics, DFT, Solar Panel