

The Evaluation of Electricity Generation and Consumption from Solar Generator: A Case Study at Rajabhat Suan Sunandha's Learning Center in Samut Songkram

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Abstract : This paper presents the performance of electricity generation and consumption from solar generator installed at Rajabhat Suan Sunandha's learning center in Samut Songkram. The result from the experiment showed that solar cell began to work and distribute the current into the system when the solar energy intensity was 340 w/m², starting from 8:00 am to 4:00 pm (duration of 8 hours). The highest intensity read during the experiment was 1,051.64w/m². The solar power was 38.74kWh/day. The electromotive force from solar cell averagely was 93.6V. However, when connecting solar cell with the battery charge controller system, the voltage was dropped to 69.07V. After evaluating the power distribution ability and electricity load of tested solar cell, the result showed that it could generate power to 11 units of 36-wattfluorescent lamp bulbs, which was altogether 396W. In the meantime, the AC to DC power converter generated 3.55A to the load, and gave 781VA.

Keywords : solar cell, solar-cell power generating system, computer, systems engineering

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