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Study on Electrical Power Output of Floating Photovoltaic and Conventional Photovoltaic

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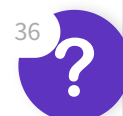
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Abstract

In this paper, several attempt were made to investigate the best electrical performance of a floating photovoltaic (FPV). In photovoltaic (PV) system, the electrical efficiency of the system decreases rapidly as the PV module temperature increases. Therefore, in order to achieve higher electrical efficiency, the PV module have to be cooled by removing the heat in some way. This paper presents study on a conventional photovoltaic (PV) module and floating photovoltaic (FPV) system. The objective of the study is to compare the performance of conventional PV module and FPV. At FPV, an absorber comprises of aluminum flat-box housing was attached to the back of the PV module to absorb heat. Water is used to cool the PV module by passing it under the bottom surface of the module. The system was tested under simulated solar intensity of 417 W/m², 667 W/m² and 834 W/m². Current (I) - voltage (V) curves and power (P) - voltage (V) curves of the results were analyzed. The study found that the FPV has higher efficiency and total power gain than the conventional PV module. The average PV temperature in a FPV might be lower than that for a conventional PV module, thereby increasing its electrical power output. The simplicity of the system structure and aluminum as the chosen material enabled it to reduce the installation costs for a larger scale. Applicable as heat sink, this FPV system is convenient to place on lakes, ponds or rivers.

Keywords

Author Keywords: [Floating photovoltaic \(FPV\)](#); [performance](#); [efficiency](#); [power](#)

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