

Modeling and Sensitivity Analysis of Hybrid Solar System

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Efficiency in the solar energy system is obtained by studying, modeling and analyzing the emerging hybrid photovoltaic thermal (PVT) technology that produces simultaneous electrical and thermal energy [1].

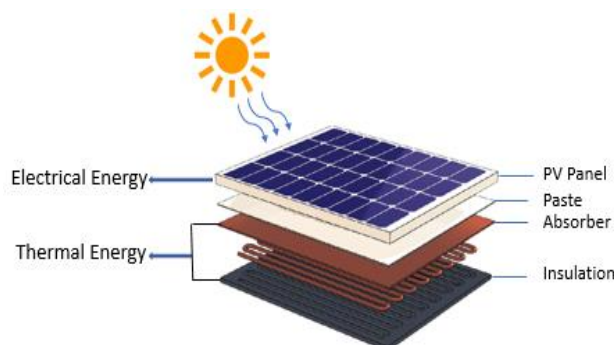


Fig.1 Hybrid Photovoltaic thermal system.

This paper describes the study and analyses of mathematical [2] model including thermal and electrical modeling [3-4] to obtain the effective efficiency of the hybrid photovoltaic thermal system.

The important and efficient task is to investigate the parametric analysis of the hybrid PVT as it is combined with non-linear equations with high complexity. Environmental conditions and other related parameters have a great influence in the output of the hybrid PVT system [5].

A sensitivity analysis [6] of the parameters variation is briefly described and conducted to study the influence in this work. It is also studied and observed the thermal and electrical efficiency due to the effects of parameters variation. From the result, it is found that there is a great impact on the overall energy output including electrical, thermal and overall efficiency of the PVT module.

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