

Modelling and Parameter Analysis of Hybrid PVT Panel

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The most used and conventional types of solar energy technologies (photovoltaic and thermal panels) are used to construct hybrid Photovoltaic thermal (PVT) systems that cogenerates electrical and thermal energy simultaneously [1]. Mathematical and thermal model development techniques are considered as the initial conditions to simulate the PVT system's behaviour [2]. This article discusses about improved modelling and implementation technique review of hybrid PVT technology to enhance the panels effective efficiency by increasing energy output. Characterization and parameters identification including sensitivity analysis of hybrid PVT system is studied and analysed. An improved PVT collector model is established by studying various mathematical modeling and parameter analysis. The impact of some thermal parameters variation on the both electrical and thermal efficiency is also studied in the work [3]. A comparison between internal and ambient temperature variation effect on the system is also discussed. PV module emittance and heat extraction capacity are also analysed based on the results obtain by the parameters variation. From the result, it is obtained that there is a great impact on the overall energy output including electrical, thermal and overall efficiency.

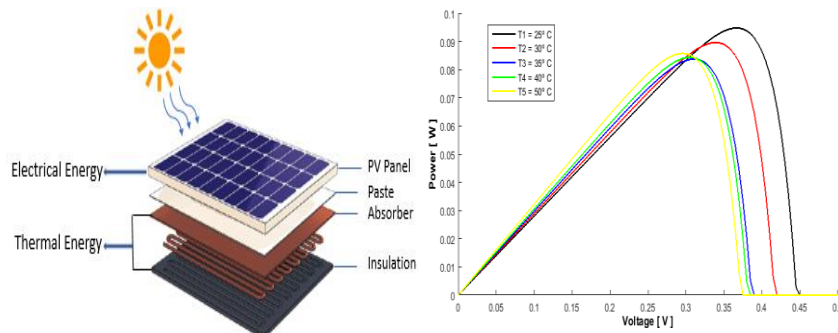


Fig.1 – Overview of an ideal Hybrid Photovoltaic Thermal Panel.

Fig.2 – Thermal Parameter variation effect on Hybrid PVT panel .

References

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