

**International Energy Journal, Volume 10, Issue 1, March 2009**[HOME](#) | [ABOUT](#) | [LOG IN](#) | [REGISTER](#) | [SEARCH](#) | [CURRENT](#) | [ARCHIVES](#)[Home](#) > [Volume 10, Issue 1, March 2009](#) > [Ghoneim](#)**Thermal and Electrical Performance of Hybrid Photovoltaic-Thermal Collector**

A.A. Ghoneim, M.Y. Aljanabi, A.Y. Al-Hasan, A.M. Mohammedein

**Abstract**

*This paper presents the results of an experimental investigation of the thermal and electrical yield of a combined photovoltaic-thermal collector in Kuwait climate. The combined photovoltaic-thermal collector is constructed by connecting a conventional PV-laminate to the absorber plate of a conventional flat plate collector. The proposed combination can offer economical advantages compared to a combination of separate thermal and photovoltaic panels. Linear regression analysis was implemented to determine the thermal and optical parameters of the combined collector. The performance measurements indicated that the combined photovoltaic-thermal collector produces a higher yield per unit area than a conventional thermal collector. In order to predict the performance of combined photovoltaic-thermal collector, a numerical model has been developed, consisting of an optical and a thermal model. The well-known flat plate collector formulas have been modified to take into account the effects of adding solar panels. The simulation results of the present work agree well with the experimental data.*

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