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Effect of Temperature on Power Output of Photovoltaic Modules in Outdoor Conditions at Nawabshah

The purpose of this study was to analyze the performance of crystalline and non-crystalline photovoltaic modules at Nawabshah. The climatic conditions of site were recorded with HP-2000, performance of photovoltaic modules with Prova-210, and module temperatures with Prova-830. The maximum global solar radiation was recorded at noon and ambient temperature in the evening and relative humidity in the morning hours. It was found that amorphous attained more average temperature than polycrystalline, thin film and monocrystalline modules. The maximum average power output was produced by thin film with 54 percent and minimum by amorphous with 44 percent of their respective rated values. As far as crystalline and non-crystalline modules are concerned, the mean average maximum power output was given by polycrystalline and minimum by amorphous from their rated values. It was revealed from the study that crystalline photovoltaic modules perform better than non-crystalline modules at the study area.

Keywords: Climatic conditions, Fill factor, Module temperature, Photovoltaic, Power output

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