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Solar Radiation Studies and Performance of Solar Panels for Three Cities of Sindh, Pakistan

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Abstract : Solar radiation on horizontal surface over three southern cities of Sindh, namely Karachi, Hyderabad and Nawabshah has been investigated to asses the feasibility of solar energy application for power generation. In the present work, measured data of bright sunshine hour of the region have been used to estimate the global and diffuse solar radiation. The regression coefficient 'a' and 'b' have been calculated using first order Angstrom type co-relation. The result obtained shows that the contribution of direct solar radiation is low and diffuse radiation is high during the monsoon months July and August for Karachi and Hyderabad. The sky remains clear from September to June, whereas for Nawabshah the global radiation remains high throughout the year. The potential of grid quality solar photovoltaic power in Karachi is estimated for 10 square meter area of solar panel.

Keywords : solar potential over Sindh, global and diffuse solar radiation, radiation over three cities of Sindh, solar panels
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