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EVALUATION OF DISTRIBUTIONAL SOLAR RADIATION PARAMETERS OF ČAČAK USING LONG-TERM MEASURED GLOBAL SOLAR RADIATION DATA

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ABSTRACT

Serbia is becoming more dependet on imported primary energy to meet its increasing energy demand. The ratio of indigenous primary energy production to primary energy consumption is decreasing. Therefore, it is of great importance for Serbia to make use of its indigenous energy resources more effectively, including its solar energy potential. Knowledge of global solar radiation is essential in the prediction, study, and design of the economic viability of systems which use solar energy. In this paper, the solar radiation data on Čačak (lat 43.87° N, long 20.33° E) are analyzed based on 4 years of global solar radiation data measured on a horizontal surface. The distributional solar radiation parameters are derived from the available data and analyzed. The available solar radiation data on a horizontal surface are converted to that of various tilt angles and the yearly and monthly optimum tilt angles are determined.

KEYWORDS

renewable energy, solar radiation, optimal tilt angle

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