

2nd World Congress on **Wind and Renewable Energy** & 5th World Congress and Expo on **Green Energy**

June 14-16, 2018 | London, UK

Design of thermoelectric solar genetaror for pump

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In this study, a generator prototype has been designed to gain electricity energy from solar heat with using the thermoelectric modules. With the prototype high amount of heat obtained from solar heat was converted to electrical energy by means of a simple system. This prototype was tested for use in the irrigation system. With the designed generator which is using 20 thermoelectric modules where the temperature difference between the TEG surfaces is 32.8°C the short circuit current ($R_L=0$) was measured as 1.42 A. When the R_L is equal to 15 ohm ($R_L=15\ \Omega$), the TEG voltage was measured 8.1 V which was 13.87 V before no load and passing current over load was measured as 1.1 A. In this case, 8.91 W powers were transferred over the load. The produced power was decreased with less and more values of 15 Ω . By disabling the private water circulator system DC circulator pump was connected to the output of TEG. When T_H is equal to 94°C ($T_H=94^\circ\text{C}$) the TC was measured as 61°C ($TC=61^\circ\text{C}$) and the pump was worked with the power of generated by TEG itself.

Biography

Abdullah Hakan Yavuz has completed his PhD from Gazi University. He is currently working as an Assistant Professor in Electrical and Electronics Engineering Department at Gaziosmanpaşa University. He has published more than 15 papers in reputed journals.

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