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Optimal sizing of photovoltaic systems using HOMER for Baghdad

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***Abstract*— In this study, the weather conditions data for Baghdad City such as temperature, solar radiation intensity, relative humidity and wind speed were used in Homer program to determine the optimum system of solar-powered lighting to The Energy and Renewable Energies Technology Center at the University of Technology. Homer can be regarded as the closer global program utilized in such post.**

The proposed system presumed design was employing a group of Photoelectric cells with a total production equal to 8 kW. The primary cost of the proposed systems was in 2000 US$. Also, the current net cost of the system is 32015 US$, and the cost of electricity produced 0.903 US$/kW. The study proved that the use of solar cell systems in the city of Baghdad financially acceptable and laws and regulations must be legislated to facilitate its utilization widespread.

***Index Terms*— Photovoltaic; Solar System Design; Optimization; HOMER; Baghdad City**

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