

## **Economic Feasibility Study of “Battery-less” Renewable Energy (PV and Fuel Cell) System for Remote Areas in UAE via Water Electrolysis**

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Safari camps are getting great deal of attention recently due to the economical and touristry benefits. However, these camps are located in remote rural areas in UAE desert where there is no grid power supply; the installed electric source typically is diesel generators. Due to the cost of fuel supply and the impacts of the generator vibrations on desert landscape, two renewable systems have been investigated. One is a conventional renewable system consisting of PVs and battery storage. The second system is a combination of PVs and fuel cell where hydrogen is provided via water electrolysis. This economical and feasibility study aims to compare the performance of both systems (Fuel cells and Batteries) using HOMER software. System capital cost and maintenance are included in the cost study. The cost of the fuel cell system is higher than the PV/battery system by about 50%. However, lead acid batteries assumed in the study have low life span and can pose serious environmental risks if not discarded properly.

### **Bio**

Dr. Laith A. Hadidi is an assistant professor in the Department of Construction Engineering and Management at King Fahd University of Petroleum and Minerals in Dhahran, Saudi Arabia, since 2013. His research interests include: scheduling; quality assurance and control; maintenance engineering; and management optimization of quality and maintenance systems. Dr. Hadidi gained his PhD in Industrial and Systems Engineering in 2011 from the King Fahd University of Petroleum and Minerals in Dhahran, Saudi Arabia.

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