

ECONOMIC FEASIBILITY OF SOLAR WATER HEATING SYSTEMS IN OMAN

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ABSTRACT

Solar energy for both heating and lighting is excellent in the applications of extraction energy with high efficiency and also aids in the maintenance of a friendly compatibility with the atmosphere. Oman has complimentary climatic conditions for the development of solar energy due to the abundant sunshine, a condition considered favorable for harnessing energy from the sun. Because of the high initial cost of solar water heating systems (SWHSs) and the ease and relatively inexpensive purchase and installation of electrical water heaters (EWHs), many Omani families are still using EWHs to satisfy their need for hot water needs. This paper presents the design of SWHS and compares its economic feasibility with some EWHs from Omani market, by studying the annual operational costs for both systems. The results show that the annual cost of the EWHs becomes greater than the annual cost of the SWHS in the long-term, thus indicating a financial advantage for Omani families who choose to use the SWHSs.

KEY WORDS: Solar Water Heater, Feasibility Study