

عنوان مقاله:

Comprehensive Evaluation of Using Solar Water Heater on a Household Scale in Canada-

محل انتشار:

مجله انرژی تجدیدپذیر و محیط زیست, دوره 5, شماره 1 (سال: 1397)

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خلاصه مقاله:

Canadian researchers are now trying to exploit much more energy from solar sources, hydropower, wind, and biomass. Given the fact that reducing the carbon pollutant level is a political priority in Canada, this paper studies the feasibility of providing sanitary hot water and space heating demands of a four-member family in 10 provinces in this country. The feasibility analysis was performed by T*SOL Pro 5.5 software, and radiation data were obtained by MeteoSyn software. Results indicated that the most suitable station in terms of using solar water heater was Regina, which supplied 35 % of the total heat load for space heating and sanitary hot water purposes. This accounted for 5074 kWh of heat for space heating (25 % of demand) and 3112 kWh energy for sanitary hot water (94 % of demand) using a 40 m² solar collector. In addition, results are indicative of an annual amount of saving up to 2080 kg of CO₂ in the Regina station and an annual reduction of 984 m³ in natural gas for this station. In conclusion, Canada has a .potentially alluring market to utilize solar water heaters for providing sanitary hot water for the residential sector

کلمات کلیدی:

Solar Water Heater, Buffer tank, Heating load, Average daily consumption, Heated useable area

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