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Approach to energy efficiency of prototype of solar thermal systems in the ironing process and evaporation of water with square and curved concentrator

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Solar thermal systems that collect heat energy from the sun have shown a degree of effectiveness depending on the type of technology used, it has been shown that the temperatures reached by the collectors flat and curved concentrators is the determining factor when opt for a solar thermal system given as required. Flat solar collectors are usually used for the preparation of hot water applications where the water need not be evaporated because the temperature is near ninety degrees Celsius (90 °C). Furthermore the high concentration collector are characterized by their non-planar shape and are often called according to the curvature such as parabolic collectors , and parabolic trough concentrators are more effective when seeking temperatures to which water can evaporate and perform higher power applications. In this work the temperature measurements, and energy efficiency are done to flat and curved collectors of one square meter ($1m^2$) applied to a domestic ironing system and a system of water evaporation. In this work the temperature measurements, and energy efficiency are done to flat and curved collectors of one square meter ($1m^2$) applied to a domestic ironing system and a system of water evaporation. With the acquisition and storage of data by using software and hardware, it has been possible to calculate an approximation of efficiency of scale models based on parameters such as solar rush hour, the angle of inclination of the collectors, materials used in the collectors, the water flow and the time of day. The experimentally obtained data are supportive element for the research groups in Rational Use of Energy and Renewable Energy Technology Institute Soledad Atlantic, seeks to prototype self-sustaining communities in areas not connected to the national transmission system.

Keywords: Solar collectors; Efficiency; prototype; ironing; evaporation