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Energy demand in solar home systems: the case of the communities in Ribeira Valley in the state of São Paulo, Brazil

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Abstract

An account is given of research on energy demand with solar home systems (SHSs) and the analysis of results of a field survey of 18 families located in 4 communities in the Ribeira Valley, on the southern coast of the State of São Paulo, Brazil. These families' energy consumption was measured over a one-year period and, in order to do so, equipment that could determine the daily energy requirements in Ampere hour units was developed. The measurement instrument was coupled to existing (SHSs) in these communities and the data collection involved direct user participation. Data collection was done by hand and was intended to provide an interrelationship among the system, the user, and the researcher. The data provided social and cultural information related to the energy use in addition to essentially technical data. Through this methodology it was confirmed that energy demand is related to a number of factors which were not predicted before the survey. It was also confirmed that the people's behavior is reflected in the operation of the photovoltaic system as a whole. The results show that 55% of the SHSs researched showed consumption below 3 kW h/month. Copyright © 2001 John Wiley & Sons, Ltd.

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