

Abstract

Home heating and production of domestic hot water are important items of expenditure and energy consumption. These are also sources of pollution and emission of greenhouse gases. This work presents a comparative study between conventional and solar heating of an individual house in Algerian climate conditions. For this purpose, we performed a general heat balance on various heat losses in house parts. Needs for heating and domestic hot water were also estimated. Based on these needs, sizing of the solar system has been developed. To compare the performances of solar and classic systems, we conducted an economic evaluation and determined the environmental impact. Although conventional energy is heavily subsidized in Algeria, the comparison of the cost of solar thermal kWh with other energies and the large quantities of CO₂ avoided clearly show that economic and environmental benefits are in favor of solar heating development