

Abstract

Energy consumption pattern in the hotel industry of Thailand was estimated in this study using 14 hotel samples in Bangkok. The result varies with respect to the hotel group ranking; hotels in higher group ranking consume more energy than the lower ranking hotels from various sources such as electricity, LPG, heavy fuel oil, and diesel.

Air conditioning and water heating share significantly to total energy used in hotels; air conditioning shares approximately 38.68% in the highest ranking hotels and up to 70.33 % in a low ranking hotel; approximately, 12.42 up to 24.18% is shared for water heating in a typical hotel among the five hotel groups.

Solar water heater is proposed as a renewable energy technology to reduce energy cost in hotels, at the installation of full area requirement, typical solar water in the Thai market could results in 6.83 to 14.17 years of simple payback period depending on the current fuel used for water heating; with the discount rate of 10%, NPV over the life cycle of the project of 20 years shows negative value in most cases indicating that the project will never reach the discounted payback period.

Replacing fossil fuel energy use by renewable energy directly results in GHG emission reduction. This study shows that solar water heater can contribute about 32.49 up to 211.66 ton of CO₂ emission reduction per year by a hotel, resulting in the incremental cost of 86.59 up to 205.28 \$ per ton of CO₂ emission reduction over the crediting period of 10 years, showing more or less some potential of Clean Development Mechanism implementation.