

中文摘要

本論文提出有關太陽能系統的新技術，有助於太陽能的運用與推廣。第一種是輔助電熱器位於集熱器下方的太陽能熱水器，在有陽光時，以太陽光電板所產生的電力，來做為輔助電熱器的電源，致使耗電量減少。第二種是不用馬達的追日裝置，可以使成本與耗電量降低。第三種是聚光型太陽能系統，可以使所需的太陽能光電板面積大幅減少，進而使成本大幅降低。

英文摘要

In this thesis, new technologies for solar energy systems are proposed. These new technologies make an important step forward for applications of solar energy. The first technology is a solar water heating system, characterized in that electric heater below the solar collectors. The electric heater is supplied from a photovoltaic solar energy system in sunny day. By doing so, the electricity consumption will be decreased. The second technology is the solar tracking system without motors, the cost and electricity consumption will be decreased by this new technology. The third technology is a solar energy system with condenser. The cost of a solar energy system can be decreased because the reduction of the photo voltaic area.