

Evaluating the Effect of Modern Technologies and Technics to Supply Energy of Buildings Using New Energies

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Abstract : Given the limitation of fossil resources to supply energy to buildings, recent years have seen a revival of interest in new technologies that produce the energy using new forms of energy in many developed countries. In this research, first the potentials of new energies in Iran are discussed and then based on case studies undertaken in a building in Tehran, the effects of utilizing new solar energy technology for supplying the energy of buildings are investigated. Then, by analyzing the data recorded over a four-year period, the technical performance of this system is investigated. According to the experimental operation plan, this system requires an auxiliary heating circuit for continuous operation over a year. Also, in the economic analysis, real conditions are considered and the results are recorded based on long-term data. Considering the purchase and commissioning building, supplementary energy consumption, etc. a comparison is drawn between the costs of using a solar water heater in a residential unit with the energy costs of a similar unit equipped with a conventional gas water heater. Given the current price of energy, using a solar water heater in the country will not be economical, but considering the global energy prices, this system will have a return on investment after 4.5 years. It also produces 81% less pollution and saves about \$21.5 on environmental pollution cleanup.

Keywords : energy supply, new energies, new technologies, buildings

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