World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:8, No:11, 2014

The Optimization of Sun Collector Parameters

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Abstract : In order to efficiently solve the problems created by the deepening energy crisis affecting Europe and the world, governments cannot neglect the opportunities of using the energy produced by sun collectors. In many of the EU countries there are sun collectors producing heat energy, e.g. in 2011 in the area of EU27 (countries which belong to European Union) + Switzerland altogether 37519126 m2 were operated, which are capable of producing 26.3 GWh heat energy. The energy produced by these sun collectors is utilized at the place of production. In the near future governments will have to focus more on spreading and using sun collectors. Among the complex problems of operating sun collectors, this article deals with determining the optimal tilt angle, directions of sun collectors. We evaluate the contamination of glass surface of sun collector to the produced energy. Our theoretically results are confirmed by laboratory measurements. The purpose of our work is to help users and engineers in determination of optimal operation parameters of sun collectors.

Keywords : heat energy, tilt angle, direction of sun collector, contamination of surface
Conference Title : ICEBESE 2014 : International Conference on Environmental, Biological, Ecological Sciences and Engineering
Conference Location : Kyoto, Japan
Conference Dates : November 13-14, 2014