World Academy of Science, Engineering and Technology
International Journal of Energy and Environmental Engineering
Vol:9, No:11, 2015

Stand Alone Multiple Trough Solar Desalination with Heat Storage

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Abstract : Remote arid areas of the vast expanses of the African deserts hold huge subterranean reserves of brackish water resources waiting for economic development. This work presents design guidelines as well as initial performance data of new autonomous solar desalination equipment which could help local communities produce their own fresh water using solar energy only and, why not, contribute to transforming desert lands into lush gardens. The output of solar distillation equipment is typically low and in the range of 3 l/m2/day on the average. This new design with an integrated, water-based, environmentally-friendly solar heat storage system produced 5 l/m2/day in early spring weather. Equipment output during summer exceeded 9 liters per m2 per day.

Keywords : multiple trough distillation, solar desalination, solar distillation with heat storage, water based heat storage system
Conference Title : ICRERA 2015 : International Conference on Renewable Energy Resources and Applications
Conference Location : Cape Town, South Africa
Conference Dates : November 05-06, 2015