Science Publications

American J. of Environmental Sciences
Quarterly Publication

Title: An Applied Research Program on Water Desalination with Renewable Energies

Author: Sergio M. Alcocer and 2Gerardo Hiriart

Source: American J. of Environmental Sciences 4(3): 204-211 , 2008

Abstract: The use of renewable energy for desalination might be quite different in many places of the world. In Mexico, specifically in Baja California, there is an abundance of “traditional” renewable resources like sun and wind but also some others like hot springs at the coast, tidal currents and tidal amplitudes of over six meters in the upper part of the Gulf of California associated with a severe scarcity of fresh water. The National University of Mexico (UNAM) started two years ago a well organized research program to assess the amount of these resources and to find the way to use them for desalinating sea water. Very exiting results have being obtained: The abundance of hot springs at the shore, some of them over 84°C, lead to the design of thermal desalinating prototype plants with very little energy consumption. It was found by geochemistry that at a few meters deep, some 50 m, very high temperature can be obtained, easy to use in binary geothermal power plants to generate electricity for desalination. During the survey it was found that the amount of electrical power that can be generated with tidal storage and from deep sea hydrothermal vents is of the order of several thousands of MW. A special approach is also presented for the use of solar energy and the tidal currents of the Gulf. The IMPULSA research group at UNAM has been already consolidated with more than 30 students, dedicated to the design of appropriate equipment to make use of these resources and to characterize and quantify this huge amount of renewable energies that will permit to desalinate sea water.