

Study, Design, Construction and Remote Supervision of a Domestic Photovoltaic Desalination System

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Abstract

Climate change and global warming are causing sea levels to rise, which is degrading groundwater quality through salt infiltration. In this context, the aim of this study is to set up a domestic multi-stage solar desalination system (purely photovoltaic) equipped with a remote acquisition and supervision kit, designed to supply drinking water to people living in regions suffering from high groundwater salinity. The system developed in the course of this work will make it possible to produce a daily quantity of around 20 litres per day, and to monitor the operation of the plant in real time, thereby guaranteeing the quantity and quality of the fresh water produced. It will also offer the possibility of intervening remotely in the event of a breakdown or malfunction. After describing the operation of the photovoltaic distiller, this work presents the structure of its control and supervision system. This includes managing the start-up and shut-down of the distiller, monitoring its operation, collecting data, and controlling the connection to the photovoltaic generators.

Keywords

PV, Climate Change, Water, Desalination, Photovoltaic