

Solar water pump research paper





Overview

The amount of rainfall in Meknes region in Morocco is insufficient to meet agricultural water demand. Pumping methods based on diesel and butane are thus an unavoidable option for local farmers. Nonetheless,

What is solar water pumping system size?

Solar water pumping systems size depends on the system component such as PV solar system, pumping system, and storage system. The pumping system's performance can be predicted through system components design. Many models have been developed for sizing PV pumping systems prediction.

What are the economic parameters of solar water pumping system?

Other economic parameters for instance, benefit cost ratio of 1.6 and internal rate of return of 18.15 % mark favorable to invest for the system. In addition, the solar water pumping system is compared with grid-electric pumping system. The cost of a pumping system operated by grid electricity includes the cost of feasible grid extension.

How can we improve the efficiency of solar water pumping systems?

To improve the efficiency of solar water pumping systems, Ref. 21 provided a novel fractional-order fuzzy-MPPT approach. By covering parts, system viewpoints, and sophisticated control techniques for increased efficiency, these publications together boost our knowledge and development of solar water pumping systems.

What is a solar water pumping system?

The system aims to provide an efficient and reliable solution for water pumping applications using renewable solar energy. A boost converter, bidirectional converter, and 3-phase inverter are modelled along with the BLDC motor, battery, and solar photovoltaic (PV) array.

Can a solar water pumping system be used as a water supply source?

Setiawan et al. reported on a solar water pumping system as water supply



source for a small village in Indonesia. The system was designed and installed to lift water from a 218.34 m' head. The flow chart of the overall procedure is shown in Fig. 6.

Is solar water pumping system a good investment?

The grid extension length is calculated in view of permissible voltage constraint which was performed with software DIgSILENT PowerFactory. The results indicated that, up to four hectare of land, investment on solar water pumping system seems more economical than grid-electric water pumping system with grid extension for a kilometer.



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[Design and performance evaluation of a solar water ...](#)

PDF , This paper is concerned to design of direct coupled solar water pumping system without using batteries. Technical, economic and environmental , Find, read and cite all the research you

Solar photovoltaic water pumping system approach for ...

Solar energy for water pumping is a possible alternative to conventional electricity and diesel based pumping systems, particularly given the current electricity shortage and the high cost of diesel.



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Design, optimization and analysis of a solar water pumping ...

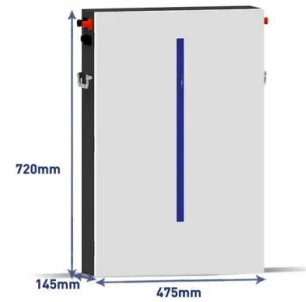
In the third stage of the thesis, a solar water pumping system with a water tank was designed for the same selected site earlier. Detailed cost comparison for a solar water pumping system with ...

(PDF) Solar Water Pump

The aim of the paper is to present the influence of the solar radiation variation on the performances of a stand alone photovoltaic pumping system which consists of photovoltaic



generator, dc-ac inverter, an immersed group motor-pump and ...



Solar photovoltaic water pumping system approach for electricity

Solar energy for water pumping is a possible alternative to conventional electricity and diesel based pumping systems, particularly given the current electricity shortage and the ...

Maximizing solar water pump efficiency: Exploring ...

These papers collectively contribute to the ongoing advancement of solar water pumping technologies, addressing technical considerations, environmental impacts, novel system configurations, and ...



Maximizing solar water pump efficiency: Exploring ...

The solar water pump system has come to light as a potential solution to these problems. By using solar energy, the device provides an affordable and environmentally friendly way to operate agricultural water ...



[Review on Solar Photovoltaic-Powered Pumping](#)

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Water and energy are becoming more and more important in agriculture, urban areas and for the growing population worldwide, particularly in developing countries. To provide access to water it is necessary to use ...



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