

How to improve the performance of a photovoltaic water pumping system?

Ziyad and Dagher presented a technique to improve the performance of a photovoltaic water pumping system by coupling a PV powered permanent magnet DC motor between PV array and screw-type volumetric water pump.

Is solar photovoltaic water pumping system feasible?

Solar photovoltaic water pumping system (SPVWPS) has been a promising area of research for more than 50 years. In the early 70s, efforts and studies were undertaken to explore the possibility of SPVWPS as feasible, viable and economical mean of water pumping.

Why is solar photovoltaic power a good choice for water pumping system?

Furthermore, the use of solar photovoltaic power to operate the water pumping system is the most appropriate choice because there is a natural relationship between requirement of water and the availability of solar power. SPVWPS comprises of different components, which can be grouped as mechanical, electrical and electronic components.

Can solar PV water pumping systems be used in India?

Bhave highlighted the potential of solar PV water pumping systems in India and concluded that there is a vast scope of replacing traditional and diesel pumps with solar pumps for low and medium head pumping applications but the capital costs are very high.

How efficient is a photovoltaic pumping system?

The motor-pump efficiency did not exceed 30%, which is typical for a directly-coupled photovoltaic pumping system; yet such a system is suitable for low head irrigation in remote areas. The efficiency of the system can be increased by selecting the size of PV array, its orientation and motor-pump system.

What are solar photovoltaic pumping systems?

Therefore, solar photovoltaic pumping systems are associated with various fields of science and engineering. In remote, less-populated areas without electricity, where it is either challenging to connect to the grid or it is not possible, solar photovoltaic water pumping systems can play a significant role.

The photo-voltaic (PV) technology used for solar water pumping is to solar energy into electrical energy. This electrical energy is used to operate the water pump connected with sprinkler for irrigation. The main objective of the study is ...

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