Algorithm for Optimum Sizing of a Photovoltaic Water Pumping System

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Abstract

A sizing algorithm for a photovoltaic water pumping installation composed of photovoltaic panels, battery bank, DC/AC converters and a water pump is presented. Considering criteria related to the battery bank's safe operation, fulfilling the water volume needed by the crops and ensuring a continuous operation of the pump, the algorithm decides the size of the installation's components. The installation's cost using the presented and the basic algorithms are compared. Obtained results confirm that the water demand is covered during the crops' vegetative cycle with a minimum use of the battery bank and minimum cost.

References

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**Index Terms**

Computer Science Algorithms

**Keywords**

Photovoltaic energy sizing algorithm water pumping.