

This paper aims to define a control and management strategy for water pumping system which would be powered by a hybrid PV/diesel generator system with battery storage. The particularity of the proposed power management method is to ensure the water volume in need and to maximize the use of PV generator while limiting the use of the diesel generator. In order to capture the maximum power from PV generator, a fuzzy logic maximum power point tracking controller is applied. On the other hand, a PI regulator is used with a boost converter in order to adapt the voltage of the battery bank to the DC bus. The water flow of the pump is also controlled. The developed power management and control strategy has been implemented using SIMPOWER toolbox in Matlab/Simulink. The obtained satisfying simulation results prove the efficiency of the proposed solution that assures continuous supply of water and electricity.