

An analytical strategy for energy storage sizing in isolated microgrid with PV source

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ABSTRACT

In isolated PV microgrid, the using of energy storage system (ESS) such as a battery is vital in supplying power to the utility networks. Depends on the microgrid capacity, the correct and adequate sizing of energy storage have to be placed appropriately. Thus, in this paper, an analytical framework for sizing the ESS is proposed. The proposed uses the simple analytical approach that taking into account the parameters of PV power source, charging/discharging level and estimated load profile. Furthermore, the algorithm is designed to prevent the condition of overcharging and discharging. The state of charge of the energy storage and load power required is used as a reference to make sure the controller was designed to operate within the operational boundary. The design consideration and analysis are setups in Matlab/Simulink environment.

KEYWORDS:

Energy storage; Microgrid; PV power source; Renewable Energy