Photovoltaic DC microgrid design

Recent years have seen a surge in interest in DC microgrids as DC loads and DC sources like solar photovoltaic systems, fuel cells, batteries, and other options have become more ...

Abstract: In this paper, we detail the design, analysis, and implementation of a highly distributed off-grid solar photovoltaic dc microgrid architecture suitable for rural ...

Design of DC microgrid from solar energy is done in MATLAB/SIMULINK. The most important characteristic is that it provides a possibility for electrification of remote villages which are far ...

In this paper, the simulation model of a DC microgrid with three different energy sources (Lithium-ion battery (LIB), photovoltaic (PV) array, and fuel cell) and external ...

power, tidal power, etc. [5-7]. Among them, photovoltaic (PV) systems are now experiencing fast development. However, due to the intermittent feature of solar energy, which is closely related ...

A non-linear control structure for a Photovoltaic (PV), battery and supercapacitor based stand-alone DC-microgrid is presented in this paper. Most of the conventional PI-based ...

A DC microgrid system is simulated in MATLAB software and its outputs are analyzed. The studied DC microgrid consists of a PV system, wind with PMSG generator, battery, DC-DC bidirectional converter to regulate ...

6 of 12 In our design, we considered a -kW PV array 6 that uses 330 sun power modules. The array consists of 66 strings of 5 series-connected modules connected in parallel (10*2*305.2 ...