عنوان مقاله:

Modeling and Controlling an Off-Grid Hybrid PV-Battery system

محل انتشار:

چهارمین کنفرانس ملی تحقیقات کاربردی در مهندسی برق،مکانیک،کامپیوتر و فناوری اطلاعات (سال: 1397)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Javad Ebrahimi - *Instructor of the Fars University of Applied Sciences, Pasargad Center*

Amir Rahimi - *Managing director of Arsanjan Mountains Energy Safety Co*

خلاصه مقاله:

Hybrid energy systems can be formed by combining fuel cells, PV cells, wind turbines, diesel generators, gas generators, microturbines, and battery storages. A common hybrid system adopted for distant loads is PV cells and wind turbines. PV cells have a maximum power point, at which the generated power reaches its maximum value, based on atmospheric conditions, irradiation, etc. Thus, a control method is required to always achieve the maximum power and thus maximum utilization. Here, first a suitable battery is chosen for the hybrid system. Then, an accurate PV cell and a control model are presented. Finally, a simulation of a PV-battery hybrid system is performed. The results show of stable a PV-battery system power output. Depending on the circumstances in which solar cells are like weather, radiation, etc. have a Maximum Power Point (MPP). So a method is required to steadily keep solar cell in its Maximum Power Point to get maximize power and efficiency of solar cells. Solar energy absorbed by the solar cells should become transferable to local charges and network, and this can be done using power converters. Using converters with high efficiency and low and constant initial cost seems necessary.

کلمات کلیدی:

PV system, fuel cells, MPPT, hybrid system