عنوان مقاله:

A Novel Techno-Economical Optimization Approach Based on Linear Integer Programing (LIP) for Hybrid Renewable systems

محل انتشار:

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نویسندگان:

Saeed Reza Nazari Estahbanati - *MSC student of Mechanical engineering, Department of Mechanical Engineering, University of Sistan and Baluchestan, P.O.*

S. Masoud Barakati - *Department of Power Electronic Engineering, University of Sistan and Baluchestan;*

Mehri Mehrjoo - *Department of Telecommunication, University of Sistan and Baluchestan*

Mohammad Ali Yazdanpanah Jahromi - *Department of Mechanical Engineering, University of Guilan*

خلاصه مقاله:

An optimal approach for sizing of stand-alone hybrid distributed generation (DG) powermanagement systems is presented. The methodology is applied to an integrated hybrid system including photovoltaic (PV) panels, wind turbine (WT), and battery (BT). The PV array is operated effectively at the maximum power point tracking. Unit cost of electricity energy (UCEE), as an efficient criterion for the economic assessment and the loss of power supply probability (LPSP), as a suitable criterion for reliable assessment, are used to optimize the system sizing. Typical residential load, solar irradiation, wind speed, and temperature data are collected from the city of Marvdasht, located in Iran, Fars (Latitude: 29°50'N, Longitude:52°40'E) to evaluate the proposed technique. A Branch and cut method is employed and coded in MATLAB® environment to optimize configuration of proposed hybrid system. Regarding the stochastic nature of renewable sources and load, the simulation results show the suitable match rate between demand and supply.

کلمات کلیدی:

Hybrid renewable wind/PV/battery system, optimization, sizing method, linearinteger programing (LIP), LPSP, UCEE

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