Optimal Battery Sizing in Wind System Using Firefly and Harmony Search Techniques

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Abstract

This paper investigates the use of the battery storage to solve the power fluctuations problem of a grid connected wind energy system. The main objective of the study is to obtain the optimal size of the battery which reduces the wind power fluctuations to be within acceptable limits and maximizes the profit gained from selling the energy to the grid. The formulated optimization problem is solved using two optimization techniques; the Firefly Algorithm and the Harmony Search Algorithm which have not been used in the previous studies related to the wind power fluctuations problem presented in this paper. The problem codes are implemented using MATLAB program.

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