عنوان مقاله:

The Stochastic Bidding Strategy of Micro grid for Participation in Energy and Ancillary Services

محل انتشار:

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خلاصه مقاله:

Typically, micro-grid is considered as an effective way to integration of distributed generations. However, in the deregulated environment integration of micro-grid in power system should be further considered. In this paper, a stochastic bidding strategy of joint market for the energy and spinning reserve services markets, with taking into account of the uncertainties of renewable distributed generation output power, load and electricity market prices to maximize the profits of micro-grid, is recommended. The bidding strategy is modeled as an optimization problem and is divided into two stages. First the predictions for uncertainties was carried out by using Adaptive Neural Fuzzy Inference System(ANFIS) and according to the forecast errors and Latin Hyperbolic Sampling (LHS) method, scenarios for micro-grid produced and these scenarios is reduced by using backward scenario reducing. In the second stage, according to the generated scenarios in the previous stage, the profit of micro-grid bidding including the revenue of micro-grid bidding, operation and imbalance costs is optimized by genetic algorithm. In the end, micro-grid bids is sent to market. The effectiveness of the proposed method is discussed on a sample micro-grid and results show the effectiveness of the proposed method

کلمات کلیدی:

Bidding strategy, Uncertainty, Power market, Ancillary services, Spinning reserve, Micro-grid, Distributed generation