

Effective Scheduling of Hybrid Reconfigurable Microgrids Considering High Penetration of Renewable Sources

Authors : Abdollah Kavousi Fard

Abstract : This paper addresses the optimal scheduling of hybrid reconfigurable microgrids considering hybrid electric vehicle charging demands. A stochastic framework based on unscented transform to model the high uncertainties of renewable energy sources including wind turbine and photovoltaic panels, as well as the hybrid electric vehicles' charging demand. In order to get to the optimal scheduling, the network reconfiguration is employed as an effective tool for changing the power supply path and avoiding possible congestions. The simulation results are analyzed and discussed in three different scenarios including coordinated, uncoordinated and smart charging demand of hybrid electric vehicles. A typical grid-connected microgrid is employed to show the satisfying performance of the proposed method.

Keywords : microgrid, renewable energy sources, reconfiguration, optimization

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