

Optimal operation planning of micro-grids in presence of demand responsive loads considering renewable resources failure rate such as wind and solar units

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In this thesis a new analytical model has been developed by goal of micro-grid operation planning optimization consist of DG resources, energy storage, and demand responsive loads. Indeed, micro-grid benefit participants maximization is defined as objective function of optimization problem while is connected to up-stream power network. To effectiveness evaluation for proposed model, simulation studies are applied on a test micro-grid. Case studies have been performed by change in reliability level of micro-grid DGs and constant basic load of demand (CBL). Simulation results show that decrease in positive and negative response of responsive loads will lead to decrease in micro-grid benefits and increase in DGs reliability level cause to decrease in providing cost of spinning reserve and expected cost of energy not served and finally cause to increase in benefit of network operation planning.

Keywords : Key word : micro grid - demand responsive - expected energy not served - wind turbines - solar farm

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