

عنوان مقاله:

A Multi-Objective Economic Load Dispatch Considering Accessibility of Wind Power with Here-And-Now Approach

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خلاصه مقاله:

The major problem of wind turbines is the great variability of wind power production. The dynamic change of the wind speed returns the quantity of the power injected to networks. Therefore, wind-thermal generation scheduling problem plays a key role to implement clean power producers in a competitive environment. In deregulated power systems, the scheduling problem has various objectives than in a traditional system which should be considered in economic scheduling. In this paper, a Multi-Objective Economic Load Dispatch (MOELD) model is developed for the system consisting of both thermal generators and wind turbines. Using two optimization methods, Sequential Quadratic Programming (SQP) and Particle Swarm Optimization (PSO), the system is optimally scheduled. The objective functions are total emission and total profit of units. The probability of stochastic wind power is included in the model as a constraint. This strategy, referred to as the Here-and-Now (HN) approach, avoids the probabilistic infeasibility appearing in conventional models. Based on the utilized model, the effect of stochastic wind speed on the objective functions can be readily assessed. Also a Total Index (TI) is presented to evaluate the simulation results. Also, the results show preference of PSO method to combine with HN approach.

کلمات کلیدی:

Economics load dispatch, PSO and SQP algorithm, wind turbine

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