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خلاصه مقاله:

AbstractOptimal arrangement of turbines in wind farms is very important to achieve maximum energy at the lowest cost. In the present study, the use of Vestas V-۴۷ wind turbine and uniform one-way wind in achieving the optimal arrangement of horizontal axis turbines in Manjil with genetic and Monte Carlo algorithms has been investigated. Jensen model is used to simulate the wake effect on the downstream turbines. The objective function is considered as the ratio of cost to power of the power plant. The results show that the Monte Carlo method compared with genetic algorithm will give a better result. Under the same conditions, the Monte Carlo algorithm will give ۲۹% and ۴۰% better results in terms of the number of turbines and output power, respectively. In terms of optimization, in the Monte Carlo algorithm, its fitness value is ۱۶% less than the genetic algorithm, which indicates its better optimization.

کلمات کلیدی:

Keywords: Wind Turbine, Optimization, Monte Carlo Method, Genetic Algorithm, Farm Layout

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