OPTIMIZATION OF ECONOMIC DISPATCH USING TAGUCHI METHOD

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ABSTRACT

The Taguchi method was implemented to solve the economic dispatch (ED) problem in 26 bus of IEEE system with various total load demands. The Taguchi method involves the use of orthogonal arrays to estimate the gradient of the cost function. In an orthogonal array the most influencing factors on cost function are determined and then two levels or more of every factors are chosen. Each level of every factors is combined to obtain the most optimum cost function and using the cost function as a generation function and then the optimal and economic generation is determined. The transmission losses as a generation function are included in this thesis. The simulation resulted by MATLAB show that the optimization of ED using Taguchi method has succeeded to minimize the fuel cost compared with the Lagrange Multiplier method.

Key words: economic dispatch (ED), Taguchi method, orthogonal arrays, factor, level