

## Estimation of Fuel Cost Function Characteristics Using Cuckoo Search

**Authors :** M. R. Al-Rashidi, K. M. El-Naggar, M. F. Al-Hajri

**Abstract :** The fuel cost function describes the electric power generation-cost relationship in thermal plants, hence, it sheds light on economical aspects of power industry. Different models have been proposed to describe this relationship with the quadratic function model being the most popular one. Parameters of second order fuel cost function are estimated in this paper using cuckoo search algorithm. It is a new population based meta-heuristic optimization technique that has been used in this study primarily as an accurate estimation tool. Its main features are flexibility, simplicity, and effectiveness when compared to other estimation techniques. The parameter estimation problem is formulated as an optimization one with the goal being minimizing the error associated with the estimated parameters. A case study is considered in this paper to illustrate cuckoo search promising potential as a valuable estimation and optimization technique.

**Keywords :** cuckoo search, parameters estimation, fuel cost function, economic dispatch

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