



## Method for solving economic load dispatch problem in electrical power system

Pisey Heng, Unchittha Prasatsap, Jirawadee Polprasert and Suwit Kiravittaya

Department of Electrical and Computer Engineering, Faculty of Engineering, Naresuan University, Phitsanulok 65000, Thailand

\*Corresponding author. E-mail: suwitki@gmail.com

### Abstract

This paper presents conventional and heuristic methods for solving economic load dispatch (ELD) problem in electrical power system. We consider various conventional and heuristic techniques like lambda-iterative method, gradient method, genetic algorithm, tabu search algorithm, and particle swarm optimization, which are widely employed to solve ELD problem. The approach relies on conventional multi-variable optimization routines. Various physical constraints such as balance constraint, generator operation constraint, and line flow constraint are considered. The objective of this work is to schedule the committed generating units in a power system in order to minimize the total production cost of real power generation. Standard IEEE bus is used as our test system. The both investigated methods demonstrate the effectiveness and efficiency in term of ability to find solution, computational speed, and demanded computational resources. Ability to define and solve the ELD problem is a basis for our further investigation.

**Keywords:** Economic load dispatch, electrical power system, conventional method, heuristic method, total production cost