UNIVERSITI TEKNOLOGI MARA

DYNAMIC ECONOMIC DISPATCH IN ELECTRICITY MARKET USING PARTICLE SWARM OPTIMIZATION ALGORITHM

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Thesis submitted in fulfillment of the requirements

for the degree of

Bachelor of Engineering (Hons) Electrical Engineering

Faculty of Electrical Engineering

July 2017

ABSTRACT

Electrical power industry restructuring has created highly vibrant and competitive market that altered many aspects of the power industry. In this changed scenario, scarcity of energy resources, increasing power generation cost, environment concern, ever growing demand for electrical energy necessitate dynamic economic dispatch. This paper presents the application of Particle Swarm Optimization (PSO) algorithm to obtain a solution for Bid-Based Dynamic Economic Dispatch (BBDED) model problem to maximize the social profit in a competitive electricity market. The model considers various constraints such as power balance constraints, generation bid quantities constraints, and customers bid quantities constraints, to obtain a physically feasible resource scheduling which is demonstrated on a power system with three generators and two customers. The results of numerical simulation show that the proposed PSO method is capable of obtaining high quality dispatch solution efficiently.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful All praise to Allah S.W.T as He has given me the opportunity to finish this project. A special appreciation goes to my supervisor, Assoc. Prof. Bibi Norasiqin Sheikh Rahimullah for providing guidance and motivation in finishing this project. I am really thankful for her counsel, encouragement and patience in motivating me during conducting the research. I would also like to take this opportunity to express gratitude to all lecturers of the Faculty of Electrical Engineering, my family members and those who helped me directly and indirectly. Last but not least, I would like to thank University Technology Mara Malaysia, UiTM especially the Faculty of Electrical Engineering for giving me a chance to pursue my degree.

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