AN IMPROVED ADAPTIVE SHUFFLED FROG LEAPING ALGORITHM TO SOLVE VARIOUS NON SMOOTH ECONOMIC DISPATCH PROBLEMS IN POWER SYSTEM

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This thesis is presented in partial fulfillment for the award Bachelor of Engineering (HONS) Electrical Universiti Teknologi MARA (UiTM)

JULY, 2016

ACKNOWLEDGEMENT

In the name of ALLAH S.W.T, the most gracious in the world and hereafter. First and foremost I would like to thank ALLAH almighty for His blessing that has granted me a good health and allows me to complete my thesis successfully. Alhamdulillah, with His blessings, I am able to finish this project on time and this thesis is finally accomplished. The completion of this project may be almost impossible without the support from the following individuals.

For expressing my sincere and gratitude, I would like to wish my appreciation for those who have been helping and giving me an inspiration either directly or indirectly in the completion of this project. Special thanks to my dedicated supervisor, Prof. Madya Bibi Norasiqin binti Sheikh Rahimullah for her guidance, assistance, support and lots of helping throughout this project. From her supervision, many aspects regarding on this project has been explored. Furthermore, with her sharing of ideas and knowledge also contribute to the completion of this thesis project within stipulated time.

Thousands thanks and lovely appreciation to my beloved parents, Mr. Muhamad Izham bin Abdullah and Pn. Amnah binti Muhamad Ali and also for my lovely family members who are continuously supporting me with their endless motivation throughout my studies. Besides that, I also want to present my gratitute to my friends who are always supportive by giving ideas and contribution to compete my project. With all priceless friendship among us, genuine support and sharing knowledge made my journey becomes more meaningful to me. Last but not least, thanks to everyone who has participated towards the completion this thesis, including my fellow friends and lecturers who helped me a lot to ensure that I am successfully completed the project on time.

ABSTRACT

This thesis discusses the solution of Economic Dispatch (ED) problems which is to minimize the total cost of generation in power system operation by using an improved adaptive shuffled frog leaping algorithm (IASFLA). IASFLA is inspired from the behavior of a group of frogs to search a food source, is an optimization technique that has been developed for solving the various problems. In this study, the IASFLA is suggested in order to improve the local search and performance of SFLA for non-smooth optimization problem with non-convex solution spaces. The proposed IASFLA method is developed using MATLAB programming. The IASFLA method is tested on a ten generator units system with valve-point loading effects and multi-fuel source options. The results obtained proved that IASFLA is able to solve the problem with minimum total cost of generation compared to other methods.

TABLE OF CONTENTS