A MODIFIED SHUFFLED FROG LEAPING ALGORITHM AND ITS APPLICATION TO SHORT-TERM HYDROTHERMAL SCHEDULING

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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

Praise to Allah the Almighty that has granted me a good health and allows me to complete my thesis successfully. Alhamdulillah, with Allah blessings, I am able to finish my project on time and this thesis is finally accomplished. The completion of this project may be almost impossible without the help and support from my supervisor, friends and family.

I would like to wish my appreciation for those who have been helping and giving me an inspiration 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 helps throughout this project. From her supervision, many aspects regarding on this project has been explored. Besides that, with her sharing of knowledge, ideas and support also may contribute to completion of this thesis project within stipulated time.

I also want to present my thankful to my friends who are always supportive by giving ideas and contribution to the completion of my project. Their genuine support and sharing of knowledge made this journey becomes more meaningful to me. Very grateful thanks to my beloved parents, Abdul Hady Bin Sibaweh and Anisah Binti Mohamed Salleh also for my lovely family members who are continuously supporting me with their endless motivation throughout my studies. Last but not least, thanks to everyone who has participated directly or indirectly in contributing 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 short-term hydrothermal scheduling problem using modified shuffled frog-leaping algorithm, which is inspired by the behavior of a group frog to find a place that has the most food optimization technique purpose that has been develop for solving the hydrothermal scheduling problem. Short-term hydrothermal scheduling is defined as commitment and dispatching of thermal and hydro units in order to minimize the cost while fulfill the demand. Hydrothermal scheduling problem involves large, non-convex, dynamic and nonlinear programing by observing all constraints. The most important purpose of this study is to obtain the minimum total fuel cost at thermal and the optimal generated power process for every unit hydro and thermal plant. This paper presents a modified shuffled frog leaping algorithm in order to accelerate the global search solution. This modified SFLA (MSFLA) is developed in MATLAB programming and tested on a system with three thermal unit plants and four hydro unit plants. The result shows that the MSFLA is able to provide a solution for hydrothermal scheduling problem.

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