



UNIVERSITI TEKNOLOGI MARA

**GREY WOLF OPTIMIZER FOR SOLVING
EMISSION ECONOMIC DISPATCH PROBLEM**

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ABSTRACT

The electricity distribution system is interconnected in order to accomplish the benefits of minimal production costs, maximum reliability and better opportunities. Solving economic dispatch is extremely crucial in operation of power system. The problem will become a lot of complicated and complex if big number of generators is involved and when is emission is considered. In recent years, an increase in air pollution and the concentration of carbon dioxide emissions from power stations has led to global warming. A reliable method that maintain electricity at the cheapest price with minimal air pollution is required. The economic emission problem is aimed at minimizing the total fuel costs of power generation while meeting the constraints and also minimizing the released emission. This final year project report presents the development of a new meta-heuristic called Grey Wolf Optimizer (GWO) to solve the problem of combined economic and emission dispatch. In this study, Grey Wolf Optimizer (GWO) is developed a better solution for combined economic and emission dispatch (CEED). The constraints such as total losses, emission and power balance are imposed in optimizing the solution for CEED problem in order to achieve lowest possible generation costs and emission released. In this study, the proposed method is tested on a 3- generation units and 10-generation unit systems, and the result shows that this method is able to solve the problem with minimum cost are developed using MATLAB software.

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