

**POWER GENERATION COORDINATION
WITH CONSIDERATION OF SHORTFALL
COST USING GREY WOLF OPTIMIZER**

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Final Year Project Report is submitted in partial fulfilment of the
requirements for the degree of
Bachelor of Engineering (Hons) Electrical Engineering

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ABSTRACT

Electricity utilities are in a process of adapting their systems to the new system with the introduction of liberalization of electricity markets where it could become a well-functioning system in the industry of the country. Due to the liberalized market, competition among the participants in the industry has been introduced. This forces the industry in many countries to take a significant transformation. As the electricity generation and the economic viability varies with the demand, location and planning for the delivery of output power is crucial in order to obtain the maximum profit of hydro and thermal generation while considering the risk in the market. In this study, shortfall cost in the electricity generation is considered as the risk. Hence, Grey Wolf Optimization (GWO) method has been developed to maximize the profits of the hydro and thermal generators without and with considering the risk. This GWO algorithm is a simple method that use a few parameter, fast seeking speed and high search precision where it is more easily combined with the practical engineering problems. A test system consists of 7 hydro and 4 thermal units is tested using the proposed method and the results have shown that the maximum profit while considering the shortfall cost also can be obtained.

ACKNOWLEDGEMENT

First of all, I wish to thank God for giving me the opportunity to embark on my Degree and for completing this challenging journey successfully. My gratitude and thanks also go to my supervisor, Assoc Prof Bibi Norasiqin Sheikh Rahimullah.

My appreciation goes to my colleagues and friends for helping me with this project. Then, special thanks for those people who are help me on how to use the MATLAB.

Finally, this final year project report is dedicated to the loving memory of my very dear late father and mother for their belief and determination to educate me. This report is a victory from me for both of you. Alhamdulillah.

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