



**UNIVERSITI TEKNOLOGI MARA**

**EVOLUTIONARY ALGORITHM OPTIMIZATION  
FOR DYNAMIC ECONOMIC DISPATCH  
CONSIDERING UNCERTAINTIES**

**KHAIRUL FAIZEE BIN KORSIN**

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## ABSTRACT

In this study, it is proposed to solve the dynamic economic dispatch problem using evolutionary programming (EP) by considering uncertainties under the deregulated energy and reserve market. The goal of the proposed method is to maximize the generation company's own profit and to hedge its risks as a participant in the energy market. In the past, utilities had to produce power to satisfy their customers with the objective to only operate with a minimum total production cost. But in the new structure system, the generation company can schedule their generators with objective of maximizing their own company's profit. The uncertainties that will be considered are demand and reserve required in each market, energy and reserve price in each market, and the probability that reserves are called upon the actual operation time. By using this method, the optimal amount of power and reserve can be determined. The reserve payment method that is used in this study is the payment for power delivered. Simulations has been performed on a 10-unit generator test system to show the effectiveness of the proposed method.

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