



**UNIVERSITI TEKNOLOGI MARA
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**OPTIMAL OPERATION FOR HYDROTHERMAL
SCHEDULING CONSIDERING PUMP STORAGE
UNIT USING PARTICLE SWARM OPTIMIZATION
(PSO) TECHNIQUE**

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“May Allah bless and reward all of them for their generosity”

ABSTRACT

This study aims to obtain a multi-reservoir hydrothermal scheduling with the presence of pump storage station. The scheduling optimization is to find the minimum cost of consumption of the plant in feeding high energy demands. Pump storage units are valuable asset to have in a hydro plant system for energy and water conservation. In this study, the solution for optimal scheduling is developed by using Particle Swarm Optimization method (PSO) for hydrothermal system considering pump storage unit. To validate the application of the developed method of the system, a simulation is conducted on a test system consisting 4 hydro units, 3 thermal units and 1 pump storage unit. The results gained confirm that the power generated is able to fulfill the demand and the best minimum cost is obtained from the optimization scheduling through the PSO.

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