

**COMBINED HEAT AND POWER ECONOMIC DISPATCH
USING SHUFFLED FROG LEAPING ALGORITHM (SFLA)**

SAIDATUL MAISARAH BINTI FADZLI

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ABSTRACT

This thesis discusses the solution of combined heat and power economic dispatch (CHPED) problem using shuffled frog leaping algorithm (SFLA), which is inspired by the behavior of a group of frogs to find a place that has the most food for an optimization technique purposes that has been developed for solving the CHPED problem. In this study, the CHPED problem is divided into two problems part which are the heat dispatch and the power dispatch problem. The most important purpose of this study is to find out the minimum fuel cost of the optimal point of power and heat generation. The proposed SFLA method is developed using MATLAB programming. The SFLA method is tested on four generators units consists of a single conventional power unit, a single heat-alone unit and two co-generation units. The results obtained proved that SFLA is able to achieve the best convergence with minimum fuel cost while obtaining the optimal point in power and heat.

TABLE OF CONTENTS

APPROVAL	i
DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
LIST OF FIGURES	viii
LIST OF TABLES	ix
ABBREVIATIONS.....	x
CHAPTER 1	1
INTRODUCTION.....	1
1.1. BACKGROUND OF STUDY	1
1.2. PROBLEM STATEMENT	2
1.3. SIGNIFICANT OF STUDY	3
1.4. OBJECTIVES	3
1.5. SCOPE OF WORK.....	3
1.6. THESIS ORGANIZATION.....	4
CHAPTER 2	6
LITERATURE REVIEW	6
2.1. INTRODUCTION.....	6
2.2. ECONOMIC DISPATCH BASIC THEORY	7
2.3. COMBINED HEAT AND POWER ECONOMIC DISPATCH (CHPED) THEORY.....	8
2.4. COMBINED HEAT AND POWER (CHP) ADVANTAGES	9
2.5. TECHNIQUES TO SOLVE COMBINED HEAT AND POWER ECONOMIC DISPATCH (CHPED).....	10
2.6. ARTIFICIAL INTELLIGENT METHODS IN SOLVING PROBLEM.....	11
2.6.1. Particle Swarm Optimization (PSO).....	12
2.6.2. Harmony Search (HS) Algorithm	12
2.6.3. Artificial Bee Colony (ABC) Optimization.....	13
2.6.4. Genetic Algorithm (GA).....	13

2.6.5. Benders Decomposition (BD) Algorithm	13
2.7. SHUFFLED FROG LEAPING ALGORITHM (SFLA) IN SOLVING PROBLEM	14
CHAPTER 3	16
CHPED PROBLEM FORMULATION	16
3.1. INTRODUCTION.....	16
3.2. COMBINED HEAT AND POWER ECONOMIC DISPATCH (CHPED) PROBLEM	17
3.3. COMBINED HEAT AND POWER ECONOMIC DISPATCH (CHPED) CONSTRAINTS.....	18
3.3.1. Conventional Power Unit and Heat-Along Unit Limit Constraints	20
3.3.2. Feasible Operation Region For Co-Generation Unit	20
3.4. PENALTY FACTOR FOR CO-GENERATION UNIT	21
CHAPTER 4	23
METHODOLOGY	23
4.1. INTRODUCTION.....	23
4.2. COMBINATION GENETIC ALGORITHM (GA) AND PARTICLE SWARM OPTIMIZATION (PSO) METHOD	24
4.2.1. Genetic Algorithm (GA) Techniques.....	24
4.2.2. Particle Swarm Optimization (PSO) Techniques	24
4.3. SHUFFLED FROG LEAPING ALGORITHM (SFLA).....	25
4.4. OPTIMIZATION PROCESS USING SFLA.....	27
4.4.1. Shuffled Frog Leaping Algorithm Pseudo Code	28
4.5. LOCAL SEARCH PROCESS IN SFLA	30
4.6. CHPED PROBLEM USING SFLA SOLUTION.....	31
CHAPTER 5	33
RESULTS AND DISCUSSION	33
5.1. INTRODUCTION.....	33
5.2. SFLA PARAMETER SETTING	34
5.3. DATA AND RESULTS FOR TEST SYSTEM.....	34
5.3.1. Varying the Number of Population.....	38
5.3.2. Varying the Number of Memplex	40