

TABLE OF CONTENTS

APPROVAL PAGE	ii
STATEMENT PAGE	iii
DEDICATION PAGE.....	iv
PREFACE	v
ABSTRACT	xii
INTISARI.....	xiii
CHAPTER 1	1
INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem Statement	3
1.3 Objective & Benefit.....	3
1.4 Methodology	4
CHAPTER 2	5
THEORETICAL BASIS	5
2.1. Microgrid.....	5
2.1.1. Basic Components.....	5
2.1.2. Microgrid Operation.....	6
2.2. Distribution Static Synchronous Compensator (D-STATCOM)	8
2.2.1. Working Principle	8
2.2.2. Location of D-STATCOM.....	11
2.2.3. Reactive Power Support from D-STATCOM.....	12
2.2.4. Major Components of D-STATCOM	12
2.2.5. Applications of D-STATCOM.....	14
2.3. Power Factor.....	15
2.3.1. Power Triangle	15
2.3.2. Power Factor Correction	16
2.4. Voltage Fluctuation	17

CHAPTER 3	20
RESEARCH METHODOLOGY	20
3.1. Test System	22
3.2. D-STATCOM Configuration	24
CHAPTER 4	28
RESULTS AND ANALYSIS.....	28
4.1. Dynamic Response of D-STATCOM.....	29
4.2. Power Factor Correction.....	31
4.3. Voltage Fluctuation Improvement	34
CHAPTER 5	37
CONCLUSION AND FUTURE WORK	37
5.1. Conclusion.....	37
5.2. Future Work.....	38
REFERENCES.....	39