

CONTENTS

Sl.No:	Title	Page No.
	Abstract	(i)
	List of Figures	(v)
	List of Tables	(vii)
	List of symbols and acronyms	(viii)

CHAPTER 1

INTRODUCTION

- 1.1 LOAD FREQUENCY CONTROL IN A SINGLE AREA POWER SYSTEM
 - 1.1.1 REASONS FOR THE NEED OF MAINTAINING CONSTANT FREQUENCY
 - 1.1.2 LOAD FREQUENCY CONTROL
- 1.2 MATHEMATICAL MODELLING OF A LFC SYSTEM
 - 1.2.1 MATHEMATICAL MODELLING OF A GENERATOR
 - 1.2.2 MATHEMATICAL MODELLING OF LOAD
 - 1.2.3 MATHEMATICAL MODELLING FOR PRIME MOVER
 - 1.2.4 MATHEMATICAL MODELLING FOR GOVERNOR
- 1.3 AUTOMATIC GENERATION CONTROL
 - 1.3.1 AGC IN A SINGLE AREA
- 1.4 FREQUENCY RESPONSES OF LFC SYSTEM
 - 1.4.1 FREQUENCY RESPONSE WITHOUT THE PI CONTROLLER
 - 1.4.2 FREQUENCY RESPONSE WITH THE PI CONTROLLER
- 1.5 CONCLUSION.

CHAPTER 2

ELECTRIC VEHICLE TO GRID TECHNOLOGY

- 2.1 INTRODUCTION:
- 2.2 CONCEPT OF ELECTRIC VEHICLE TO GRID TECHNOLOGY

- 2.3 ELECTRIC VEHICLE
- 2.4 WHY DO WE USE PLUG IN EV FOR V2G TECHNOLOGY?
- 2.5 WHAT IS V2G CHARGING OR EV SMART CHARGING?
- 2.6 ELECTRIC VEHICLE AGGREGATOR
 - 2.6.1 AN EV AGGREGATOR MODEL
 - 2.6.2 LFC MODEL INCLUDING EV AGGREGATORS WITH DELAYS

CHAPTER 3

MATHEMATICAL MODELLING OF LOAD FREQUENCY CONTROL SYSTEMS INTEGRATED WITH EV AGGREGATOR

- 3.1 INTRODUCTION
 - 3.1.1 MATHEMATICAL MODELLING OF LFC SYSTEM WITH EV AGGREGATOR:
 - 3.1.2 VARIABLE DESCRIPTION
 - 3.1.3 PARAMETER DESCRIPTION:
 - 3.1.4 CONTROLLER PARAMETERS AND PARTICIPATION FACTORS:
 - 3.1.5 EV AGGREGATOR PARAMETERS:

CHAPTER 4

SIMULATIONS AND RESULTS

- 4.1 DELAY DEPENDENT STABILITY
 - 4.1.1 BENCHMARK SYSTEM PARAMETERS
 - 4.1.2 MATLAB CODE FOR COMPUTATION OF STABILITY DELAY MARGIN
 - 4.1.3 MATLAB OUTPUT FOR DIFFERENT K_p AND K_i VALUES
 - 4.1.4 SIMULATION RESULTS
- 4.2 COMPUTATION OF STABILITY DELAY MARGINS
 - 4.2.1 MATLAB CODE FOR COMPUTATION OF STABILITY REGIONS

4.2.2 STABILITY REGION CURVE FOR TIME DELAY FOR VARIOUS PARTICIPATION
FACTORS.

4.3 CONCLUSION

CHAPTER 5

5.0 CONCLUSION.

CHAPTER 6

6.0 REFERENCE PAPERS AND BASE PAPERS