ECONOMIC DISPATCH USING GENETIC ALGORITHM

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ABSTRACT

This project presents an alternative method of solving Economic Dispatch (ED) by using Genetic Algorithm (GA). Although several methods of ED could be considered, the study focused on the total generation cost and the incremental cost. The proposed method was applied to a three and four generating system. The results obtained were compared with the classical method to show its feasibility.

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CHAPTER 1

INTRODUCTION

In large plant many generators may corporate to meet the needs of the entire connected load. Often these generators are installed as the plant expands to meet the growing needs of the consumer. The generators have different fuel-rate conversion characteristics. In operating the system, the contribution of each plant, the units within a plant must be determined to minimize the cost.

In operating the system for any load condition the contribution from each plant and from each unit within the plant must be determined so that the cost of delivered is minimum. An early method of attempting to minimize the cost of delivered power called for supplying power from only the most efficient plant at light loads. As load increased, the most efficient plant would supply power until the point of maximum efficiency of that plant is reached. Then for further increase the load the next most efficient plant would start to feed power to the system, and the third plant would be called upon until the point of maximum efficiency of the second plant was reached. Even with transmission losses neglected this method fails to minimize the cost [1]. The problem of minimization the cost generation in operating system is called economic dispatch.

The principal objective in Economic dispatch (ED) of thermal generators in a power system is to determine the economic loadings of the generators so that the load demand can be met and the loadings are within the feasible operating regions of the generators [2].

Basically economic dispatch is constrained nonlinear dynamic problem, which was made difficult by uncertain environment. Two directions have been pursued in the study of operation of power systems. One is towards an effective computational