COMPUTER-BASED SHORT-TERM HYDROTHERMAL GENERATION SCHEDULING

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ABSTRACT

In this paper, a solution of a short term hydrothermal scheduling is presented by using Computer-Based and software MATLAB. The technique is used to handle the problems of short-term hydrothermal scheduling and economic load dispatch while satisfying and thermal constraints in order to minimize the total system cost. This technique is tested on a system consisting of a hydro plant and a thermal plant and the outputs are obtained by using the λ-γ iteration. While designing a programming for the hydrothermal scheduling not only using an academic knowledge, but need also other additional knowledge that need to be learn through a traditional method. There are much others additional empirical knowledge that is still missing in the academic knowledge instructions. Therefore, a traditional method and simulation need to be done to learn about the additional knowledge, so that all the procedure can be completed. This paper focuses on the process of aim to provide the basics analytical techniques in order to determine the economic operation schedule of the conventional energy generating plants along with illustrations and discussions.

Keywords - Hydrothermal scheduling, Computer Approach, Power Generation, Hydrothermal Unit Commitment, Matlab Programming

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Nowadays in power systems, the efficient scheduling of available energy sources for satisfying load demand has become an important task. The short term hydrothermal scheduling is one day to one week involves the hour by hour scheduling of all generation on a certain system. The generating scheduling problems consists of determining the optimal operation, subject to variety of constraint [1].

The aims of this project is to develop a program that can calculate the optimal operation of scheduling thermal units and hydro plants that minimizes total thermal production cost while considering various local and coupling constraints in order to meet the forecasted demand. Since the operation of a power system is characterized by having to maintain a high degree of economical and reliability [2], the hydrothermal scheduling plays an important role in power system operation planning. Hydrothermal scheduling is mainly concerned with hydro units scheduling and thermal units dispatching, and is more complex than the scheduling of an all-thermal generation system [3].

It is dominantly thermal unit power system, hydro units are usually scheduled for peak load periods as they are less expensive and can be started up and shut down more efficiently. The scheduling of hydrothermal units in power system is one of the most important problems to be solved when hydroelectric