

CHAPTER 1

INTRODUCTION



1.1 Introduction

Electricity Generating Authority of Thailand

The Electricity Authority of Thailand (EGAT), the state enterprise governed by the Ministry of Energy, has been established since 1 May 1969. Its responsibility is to produce the electric power and also distribute to the sub-distributors i.e. the Metropolitan Electricity Authority and the Provincial Electricity Authority to serve the Kingdom of Thailand and directly supply to some independent business.

In order to serve the electric power for the Kingdom continuously, EGAT has to not only operate and maintenance the existing power plant but also plan and research for construction of the new power plants. Recently, EGAT Act has been amend in 1992. EGAT can do their own business with more electric business e.g. establishing private limited companies or public companies limited or holding shares in any company.

Thermal Power Construction Division

Thermal Power Plant Division (TPC) is a division under the Deputy Governor for Development Group. The responsibilities of TPC are as follow.

- Construction of thermal power plants, structures and other buildings relating to the power plant construction
- Controlling, assembling, erecting and installing machine, electrical and mechanical equipment as well as control and instrument of the power plants
- Repowering thermal power plants

TPC is divided into 5 departments: Construction Coordination; Civil Work; Electrical; Mechanical; and Control Instrument. Since 1969, TPC has constructed more than 60 units

of thermal power plants, with the capacity of over 16,600 MW. The two power plant projects as referred to in this study, have already been constructed under this Division. They are Ratchaburi Thermal Power Plant (RTPP-700 MW) and Krabi Thermal Power Plant Construction Project (KTPP-300 MW).

- **Ratchaburi Thermal Power Plant Construction Project**

The project was established to serve the PDP 1995-2011. It is located at Muang District, Ratchaburi Province. One unit can produce 700 MW. The fuel is natural gas from Thai gulf. The cooling water and raw water is from Bang Pakong River.

- **Krabi Thermal Power Plant Construction Project**

The Krabi Thermal Power Plant Project is located at Nuakhlung District, Krabi Province in the southern region of Thailand. The plant produces power of 300 MW. The fuel is oil which is transferred from Ban Khlong Rua Tank Farm near Sri Bo Ya island. The cooling water is obtained from Pakasai canal.

The main activities of this construction project are site preparation, public relation, environmental monitoring (Air quality, Noise measurement, and water quality), construction, erection & installation and testing of the power plant.

Mechanical Department

Mechanical Department (MD) is a department of Thermal Power Construction Division. This department is responsible for the construction, supervision and installation of mechanical equipment for thermal power plant as well as thermal power plant repowering. The department is divided into four sections: Steam Generator, Mechanical Machine, Piping and Mechanical Equipment Quality Inspection.

1.2 Statement of the Problem

There has lot of construction projects under MD's responsibilities and is now offering construction services to private companies.

In tradition, there has no model of human resource allocation. The allocation planning has been done by using experience of head of Chief of Mechanical Project Department. Therefore, the problems of human resource of MD allocation occurred. The problems can be divided into two types which are the resource shortage and the over resource. Both types caused over budget. The problem details are as follows:

- **Resource shortage**

The resource in each section has shorted when their availability at site is less than their requirement. The problems of the shortage is cost of the project increases because the lack of inspectors so the resource has to do over time.

- **Over Resource**

The resource in each section has increased since the beginning of the project but the resource does not decreased when they are not required according to the allocation plan.

In short, both cases can cause increasing cost of the project from the budget plan. Therefore, more human resource planning of MD is required to complete the increasing construction work with well allocated and lower cost to each project.

1.3 Objective of Thesis

The objective is to improve a method and create model of human resource allocation planning for Mechanical Department from projects' data in the past by using Microsoft Project program.

1.4 Scope of study

This thesis will study the human resource allocation planning of MD's human resources who are responsible for the construction, supervision and installation of mechanical equipment of the thermal power plant construction project of EGAT. This thesis will use

the data from two projects in the past which were Ratchaburi Thermal Power Plant Construction Project and Krabi Thermal Power Plant Construction Project as the case study. Thermal Power Plant is work of Mechanical Department used in this study which are similar to both projects. The work consists of four groups: Steam Generator Plant; Turbine Plant; Water treatment plant and Cooling tower; and Mechanical Equipment Inspection and Tank. The actual duration of the constructions for Mechanical Department of both projects is shown in Table 1.1. The human resource allocation model will be created from the study.

Table 1.1: Thermal Power Plant Projects schedule of RTPP and KTPP

Project	Started Date	Finished Date
Ratchaburi	4 August 1997	4 August 2000
Krabi	4 August 1999	24 September 2002

1.5 Proposed Methodology

1.5.1 Literature Survey

To study and review techniques and factors of the human resource allocation planning from textbooks, researches, journal, web sites and etc. and also from the Microsoft Project program.

1.5.2 Data Collection

To collect the relevant data and study the practice from current projects planning and the past such as interview of responsible persons, expenditures, knowledge, skills and experiences and daily report.

1.5.3 Data Analysis

To analyze the data by using Microsoft Project program.

1.5.4 Model Development

To develop and create the decision making method model that can be applied for human resource allocation planning of all future multi projects.

1.5.5 Implementation

To implement the model in item 5.4 above for human resource allocation planning of MD into the future projects as the case study.

1.5.6 Evaluation and Correction

To review and compare the model in item 5.4 above in terms of time and cost.

1.5.7 Reporting

To conclude the information and write up the report.

1.6 Expected Benefits

The benefit of this research should be for MD to be able to use a model for human resource allocation planning in the future multi projects. It is expected to help MD to allocate human resource to fulfill its requirement at each time of the future multi projects with lower cost by the implementing the model. Then human resource allocation plan for the future multi projects of MD will be created.