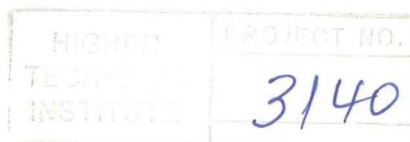


**HIGHER TECHNICAL INSTITUTE
NICOSIA-CYPRUS**

**POWER LOAD FORECASTING USING REGRESSION
ANALYSIS**

NICOS VASSILIADES
Project Number E.1228

Student : Mr. Nicos Vassiliades
Supervisor : Mr. Marios Kassinououlos
External Assessor : Mr. Papadouris Demitris



Objectives:

1. To study the regression analysis method as applied in forecasting methods.
2. To apply regression analysis for forecasting consumption of various groups of E.A.C consumers
3. To comment on the results

Introduction

In this project assigned to me an effort will be made to forecast the load demand at the electricity authority of Cyprus. At first we will see what methodologies are available at the electricity authority of Cyprus for long term forecasting. Then we will try to forecast ourselves.

Forecasting is very important especially for a large supplier like E.A.C because the aim of the authority is to provide electricity to the consumers reliably and economically.

The supplier must know about the future increase of the need for power by the consumers so that he will be able to comply with the needs effectively and economically or else without any planning and forecasting it will fail to provide the required power.

When we refer to forecasting we must distinguish between long term forecasting and short term forecasting. I.e. for a short period of time or a long period of time.

Forecasting can be made using a variety of methods such as trending analysis (by using regression which can be temperature related or energy related), explanatory models, end use models, integrated models, PC packages, and neural networks (a rather new technique). The purpose of these methods is the same independently of the different approach of each one and this is to forecast for energy and maximum demand needs.

Usually several methods are used at the E.A.C and when the results are compared between them for error checking purposes. This effects to a better forecasting. In E.A.C though for long-term forecasting the methods that are used most is the regression analysis and a PC package called foretell.

Furthermore besides the effort to forecast ourselves and the reference to the methodologies used by the electricity authority, the two methods of regression will be mentioned and explained in some depth, linear regression and multiple regression. Also when dealing with subjects like forecasting of energy is important to give general information about energy, energy transmission, and production. This knowledge will enable the reader to have a better view on the subject and to emphasize the importance of correct planning for the future for proper energy provision.