

H. T. I.

ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

ENERGY MANAGEMENT SYSTEMS
FOR A HOTEL APARTMENTS
COMPLEX

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JUNE 1998

HIGHER TECHNICAL INSTITUTE
NICOSIA - CYPRUS

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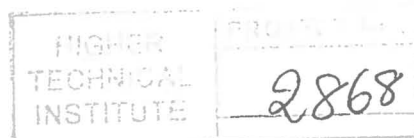
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ENERGY MANAGEMENT SYSTEM OF A HOTEL APARTMENT

By Joseph Sergides

This project, in its first chapter deals with a brief study of electricity auditing methods. Also a suitable method for electricity auditing is selected for use in the energy survey for the hotel apartment complex.

Chapter two is a description of the present condition of electricity consumption of the building. That condition is presented not only by means of tables but also by means of graphical representations.

The third part of the project is again of a descriptive nature presenting in detail the existing loads of the building, which are divided into power and lighting loads.

Chapter four and five can be considered as the main part of this project. Those chapters include all the recommendations for reducing the energy cost of the establishment. Chapter four is dedicated for the lighting and Chapter five for the power loads.

The final stage of the project deals with the policy which the management of the building should adopt to accomplish a successful energy saving procedure resulting in considerable reduction of the electricity bill.

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INTRODUCTION

During the recent decades it was clearly shown that there is a need to conserve the fuel resources of the planet. Those fuel resources had shown a declining tendency during the recent years.

The need for the reduction of the earth's energy consumption is inevitable, now that the facts show that this kind of action is a must. Scientists all over the world after recognizing the problem of the shortage of energy resources, coupled with the pollution of earth's environment and atmosphere have begun a campaign to minimize energy waste and pollution. In that campaign a variety of drastic measures were taken against the irrational use of earth's physical energy, including, researches, inventions of all kinds, information to be given to people, etc.

The reduction of energy consumption by domestic, industrial and commercial establishments would have been very helpful to the effort of millions of people. Therefore, different methods were established to conserve more energy used in all buildings and establishments.

This report is an attempt to achieve in practice a certain strategy which will offer the reduction of energy consumption by the hotel apartment complex and additionally, decrease the cost of the electricity bill which the management of the establishment has to pay.

The main energy consuming loads of the building which we will examine are lighting, motors of all kinds and air-conditioning which is a benefit offered to the occupants, in all the twenty-two bedrooms of the building.

Various energy conservation options will be examined in this project. Methods will be suggested for the reduction of energy consumption in the areas of lighting motors and air conditioning. Special analysis will be carried out to show the savings of energy and money which are going to be achieved. Also

calculations will show how long the pay-back period of these methods is going to be. Pay-back period is a very important parameter, because except from energy saving which is achieved this is going to be the most important decision making factor for the hotel apartment management to adopt the method suggested .

Electricity in Cyprus is almost the main form of energy for commercial and industrial users, as well as for the domestic sector. The cost of electricity often has significant impact on their present activities and their future plans.

I hope that the following report will offer an attractive energy saving strategy which will also save an important sum of money for the management of an establishment. It is also expected that the energy saving methods suggested for different kind of electrical loads are going to offer an attractive pay-back period which will contribute an extra convincing factor for the management whether it is going to install an energy management system or not.