OPTIMAL ALLOCATION OF AIR CONDITIONING SERVICES:

A CASE STUDY FOR A HOTEL IN SRI LAKA

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By
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Abstract

Tourism industry is one of the key players in Sri Lankan economy. With the long run internal conflict, Sri Lankan tourism industry had a negative growth in the last few decades. Not only that, but also due to global economic meltdown, almost all the industries all over the world are facing an extremely hard time. The increase of global warming, with its effects on North Pole glaziers, which have started to-meltdown, the entire world has started to be concerned on the concept of the "green house effect".

With global economic crisis and the "go green" concept most of the industries have started to practice cost reduction and energy saving methods in order to make their industries profitable. The situation in Sri Lanka's industry has no difference from that and especially the tourism industry has started to implement such methods.

In this thesis a case study has been carried out at one of the five star category resort type hotels in down south, Heritance Ahungalla, to analyze the pattern of energy consumption in that hotel in order to implement a method to reduce their production cost, as energy is one of the heights components in the hotel's expenses.

The chilled water distribution system has been studied and the hotel was divided to five section based on that. Cooling load requirement is correlated with the number of occupied rooms hence the energy could be saved by introducing wing operation to the hotel room allocation system.

A practical evaluation on wing operation was carried out only based on the energy consumption and a theoretical evaluation was also carried out based on both the energy consumption and the profit. Results showed the energy could be saved by introducing "wing operation" to the system of allocation of rooms in the hotel.

With the wing operation, it is required to implement automatic operation of chiller plant as well as isolation of each wing from the hotel main system as the wing

operation is highly cost effective. That could be achieved with introduction of building management system to the hotel.

DECLARATION

The work submitted in this dissertation is the result of my own investigation, except where otherwise stated.

It has not already been accepted for any degree, and is also not being concurrently submitted for any other degree.

UOM Verified Signature

L. A. A. N. Perera

I endorse the declaration by the candidate.

UOM Verified Signature

Prof. Lanka Udawatta

Contents

Abstract III
Dedication IV
Acknowledgement V
List of Figures VI
List of Tables VII
List of Charts VIII
Chapter 1 1
Introduction 1
1.1. Hotel Industry 1
1.2. Internal conflict and Global economic crisis 1
1.3. Trend to Greening Projects 5
1.4. Achievement in brief 6
Chapter 2 8
Problem Statement 8
2.1. Energy balance in area wise 16
Chapter 3 18
Methodology 18
3.1. Identification of areas to be addressed 18
3.2. Procedure 25
3.2.1. Isolation of Identified Sections 25
3.2.2. Loading 27
3.3. Analyzing of Data 30
Chapter 4 32
Electricity consuming pattern:
Other areas of the hotel 32
Chapter 5 36
Mathematical Model and Results 36
5.1. Algorithm 40
5.2. Schematic diagram 43
5.3. Results 46
Chapter 6 49
Conclusion 49
6.1. Background 49
6.2. Conclusion 49
6.3. Implementation of building management system 50
6.4. Future work to be carried out 51
References i
Appendix A - Program Codes ..... A - I

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List of Figures

Figure 1.1– World Tourism Arrivals for 2008 3
Figure 1.2 – Terms of Trade loss in South Asia (Jan 2003 – May 2008) 4
Figure 1.3 – Sri Lanka Tourist Arrivals 5
Figure 2.1 - Electrical Load Profile 14
Figure 2.2 - Electrical Load Profile with Individual Loads 15
Figure 3.1 - Monthly Electricity Consumption with Occupied Rooms 18
Figure 3.2 - Daily Electricity Consumption with Occupied Rooms 19
Figure 3.3 - Monthly Electricity Consumption with Guest Nights 20
Figure 3.4 - Electricity Consumption per Occupied room for a month period 21
Figure 3.5 - Electricity Consumption per Occupied room for a day 22
Figure 3.6 - Electricity Consumption per Occupied room for a day (AC Plant) 22
Figure 3.7 - Layout (Hotel Chilled water distribution line) 24
Figure 3.8 - Cooling Requirement unloading 26
Figure 3.9 - Chiller plant loading (Energy) 28
Figure 3.10 - Chiller plant loading (Power) 29
Figure 3.11 - Chiller plant unloading 30
Figure 4.1 - AC Plant Electricity Consumption (Day) 32
Figure 4.2 - Kitchen Electricity Consumption (Day) 33
Figure 4.3- Kitchen Electricity Consumption based on per occupied room (Day) 33
Figure 4.4 - Water treatment Electricity Consumption on per Occupied room (Day) 34
Figure 5.1 – Algorithm flow chart 45
Figure 5.2 – Profit Level with Different Room Combination 48
Figure 6.1 - Adaptive Comfort Zone 51

List of Tables

Table 2.1 - Monthly Energy Consumption on Energy Basis 10
Table 2.2- Monthly Energy Consumption on Energy Basis (Electricity together) 10
Table 2.3 - Hotel Energy Consumption on Cost Basis..... 12
Table 2.4 - Hotel Energy Consumption on Cost Basis (Electricity together) 12
Table 4.1 - Electricity consumption per Occupied room with Occupancy 34
Table 5.1 - Section wise AC consumption and profit level..... 37

List of Charts

Chart 2.1 – Hotel Energy Consumption on Energy Basis 11
Chart 2.2 - Hotel Energy Consumption on Energy Basis (Electricity together) 11
Chart 2.3 – Hotel Energy Consumption on Cost Basis 13
Chart 2.4 – Hotel Energy Consumption on Cost Basis (Electricity together) 13
Chart 2.5 – Electrical Energy Balance 16