



# **IMPACTS OF THREE INTERVAL TARIFF ON INDUSTRIES**

A dissertation submitted to the  
Department of Electrical Engineering, University of Moratuwa  
in partial fulfillment of the requirements for the  
degree of Master of Science

by  
K.M. SUSIL CHANDANA SOMARATHNA

Supervised by: Prof. H.Y. Ranjit Perera  
Dr. Tilak Siyambalapitiya

Department of Electrical Engineering  
University of Moratuwa, Sri Lanka

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94851



## Abstract

Ceylon Electricity Board (CEB) has introduced a new tariff structure with effect from 15th March 2008 and it includes flat rate tariff, two part time of day tariff and newly introduced three part time of day tariff for the industrial consumers. Aim of the CEB by introducing optional three part time of day tariff was the reduction of peak demand and the well distributed base load throughout a day when their newly installed coal power plants are connected to the system.

This is the one of outcome of the researches were done by CEB in past few years and the successfulness of this implementation is depend upon the awareness of the consumers. Due to the lack of past investigations to prove the benefits or losses to the consumers as well as to the CEB by introducing this new tariff structure, the results of this project will be more important to the both parties.

This investigation initiated by the selection of sample of industries and the selected sample covers major categories of industries as ceramic, rubber, food processing, hotel, and apparel. When the selection it was also considered the operational pattern of these industries as one shift, two shifts, and three shifts per day. The priority was given to their personal interests as well to carry out these investigations in their factories.

As a first step the data were collected using data loggers to identify the loading patterns and major electricity consumed sections of these industries. Then the well suit options for the change of loading-patterns were identified with the involvement of responsible officers of same industries and then evaluated the expected benefits which could be obtained by tariff part time of day tariff with the proposed changes.

At the end the reduction of peak electricity demand of Sri Lanka was calculated to generalise the results obtained in this investigation and identified some drawbacks of newly introduced three part time of day tariff.



The final results of this research show the average minimum benefit to the industrial consumer is about 10% of their current electricity cost and it can be maximised by further investigations. If 75% of total industries shift their 10% of load out of peak hours, Ceylon Electricity Board will entertain 130 MW reduction of its peak demand.

## 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***

va, Sri Lanka.  
Dissertations

K.M.S.C. Somarathna  
28<sup>th</sup> January 2010

We/I endorse the declaration by the candidate.

***UOM Verified Signature***

Prof. H.Y. Ranjit Perera

***UOM Verified Signature***

Dr. Tilak Siyambalapitiya

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## **Acknowledgement**

This thesis named as “Impacts of Three Part Time of Day Tariff on Industries” covers the research of Master of Science in Electrical Engineering of University of Moratuwa.

The objective of this research was to study the behaviors of industrial consumers after the implementation of new time of day tariff by Ceylon Electricity Board and analysis of losses or benefits to the consumers at the beginning. Under the guidance of my project supervisors the objective was extended to analyze the impacts to the utility supplier of Ceylon Electricity Board as well.

The idea of this research was brought forward for the first time by Dr. Tilak Siyambalapitiya, one of the supervisors of this project. First I should place my great gratitude to Dr. Tilak Siyambalapitiya for his excellence guiding and support extended to bring this project success. As this was new to me also he guided and encouraged me supplying various information on this from the beginning.

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