

**THE SUITABLE CHOICE OF FUZZINESS PARAMETER IN
LOAD PROFILING**



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ABSTRACT

Load profiling is an estimated load shape for a group of customers, which can be developed from historical or current day data. Many techniques for load profiling have been reported in the past. The techniques range from conventional method to more sophisticated ones such as fuzzy c-means algorithm. This thesis presents a technique for determining the weighting exponent, m , parameter in a fuzzy c-means algorithm using fuzzy clustering validity indexes. The objective of using cluster validity index is to find the best clustering schemes. In this thesis, two fuzzy clustering validity indexes used are Non-fuzzy Index (NFI) and Xie-Beni Index (XB). It will give information on the customers cluster pattern in load profile.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	iii
DECLARATION	iv
ABSTRACT.....	v
TABLE OF CONTENTS	vi
LIST OF FIGURES.....	viii
LIST OF TABLES.....	ix
INTRODUCTION	
1.1 Introduction.....	1
1.2 Aims and Objective	2
1.3 Scope of Work	3
1.4 Organization of Thesis.....	4
LITERATURE REVIEW	
2.1 Introduction.....	6
2.2 Load Profile	6
2.3 Cluster Analysis.....	9
2.3.1 Types of Clustering.....	10
2.4 Fuzzy Logic	11
2.4.1 Fuzzy Sets.....	12
2.4.2 Membership Function.....	12
2.4.3 Fuzzy C-means	13
2.4.4 Fuzzy C-means Algorithm.....	13
2.4.5 Weighting Exponent Parameter, m	17

CHAPTER 1

INTRODUCTION

1.1 Introduction

Electric load in distribution system depends on the consumer demands that vary in accordance to their activities. Power companies must produce sufficient energy when demand to meet the requirements of the consumers [1]. Power companies need a load data for produce energy according demand of consumer. The power companies can fix their electricity production by using load profile information. The data also was needed for tariff and pricing.

It is important to estimate electric load profile in the deregulated environment where competing entities need to assess the load demands based on partial knowledge of the system [2]. By knowing load profile, power companies can improve market strategies and thus taking the advantages of new liberalized energy market. The load profile can be also very helpful in dealing with load management, electricity generation, distribution planning system, state estimation or distribution system restoration

The Fuzzy c-means (FCM) algorithm was initially developed by Dunn and later generalized by Bezdek [3]. FCM algorithm has been used to get a good cluster for the load data. A fuzzy goal is defined as maximizing the number of