

# **PEAK LOAD FORECAST VIA NEURAL NETWORK**

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## **ABSTRACT**

This thesis presents a new signal processing technique called artificial neural network(ANN) to peak load forecast based on short term basis. The uncertain elements such as weather conditions, holiday's effect, and historical load is taken into account. Experiments were carried out to choose the most suitable ANN model for peak load forecasting. The results acquired through the experiments shows that the proposed methodologies produce accurate peak load prediction under a wide variety of power systems operating conditions.

## **TABLE OF CONTENTS**

<b>CHAPTER</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
<b>I</b>	<b>INTRODUCTION</b>	
1.1	Introduction	1
1.2	Scope of the Thesis	3
1.3	Review	4
1.3.1	Traditional Method	4
1.3.2	Modern Approach in Load Forecasting	5
1.3.2.1	Artificial Neural Network	5
1.3.2.2	Fuzzy Logic	6
1.3.2.3	Neuro-Fuzzy	7
1.4	Organization of the thesis	8
<b>II</b>	<b>REVIEW OF EXISTING STLF TECHNIQUE</b>	9
2.1	Introduction	9
2.2	Existing Method	10
2.2.1	Extrapolation of Trend Curve	10
2.2.2	Exponential Growth Curves	10
2.2.3	Three Point Method	11
2.2.4	Autoregressive Integrated Moving Average	12

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Introduction**

Electric load forecasting is the process used to forecast future electric load, given historical load and weather information and current and forecasted weather information. Nowadays, system load forecasting model is a critically important decision support tool for operating the electric power system securely and economically [1]. Virtually all the scheduling and advanced application function such as Hydro-thermal optimisation, optimal power flow and economic load dispatch require system load forecasts [2]. Load forecasting frequently comprises of three groups. The long term period covering seven years onwards; the short to medium term for the period covering up to seven years and short term which covers the time-scale of up to one day ahead [3]. The short term is necessary in planning the level and mix of generating capacity that will be used to support actual demand and the sequence in which power stations are brought into operation. Apart from that, it also needed in planning for the operating plans, financial and tariff setting for power management. In the long-term approach, the load forecasting is necessary in planning for investment in generating capacity and the development of fuel supplies. It is important to realised that accurate load forecasting is necessary in order to ensure the availability of supply of electricity, as well as providing the means of