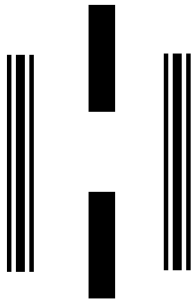
A STUDY ON REVENUE PLANNING
OF
NEPAL ELECTRICITY AUTHORITY

A Thesis



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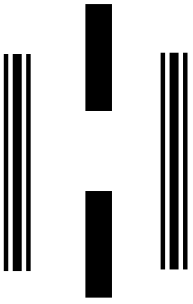

Submitted To:-

Office of the Dean

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In partial fulfillment of the requirement for the degree of Master of Business Studies (MBS)

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Viva-Voce Sheet

We have conducted the Viva-Voce examination of the thesis

Presented by

Raphid Kawari

Entitled

A study on Revenue Planning

Of

Nepal Electricity Authority

And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirements for degree of Master business studies (MBS)

Viva-Voce Committee

Chairperson, Research Committee……

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Member (External Expert)……

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RECOMMENDATION

This is to certify that the thesis

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A study on Revenue Planning

Of

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Has been approved by this department in the prescribed format of faculty of management. This thesis is forwarded for examination.

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DECLARATION

I have by declare that the work reported in this thesis entitled "A study on Revenue planning of Nepal Electricity Authority" Submitted to faculty of management, R.R.M. Campus, Janakpur, Tribhuvan University is my original work done in the form of partial fulfillment of the requirement for the Master of Business studies (MBS) under the supervision of Surya Narayan Yadav lecturer. Faculty of management, R.R.M. campus, Janakpur.

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Acknowledgement

The research work, "A study on Revenue planning of Nepal Electricity Authority" is a Master degree thesis prepared to fulfill the partial requirement for the Master of Business studies (MBS), Tribhuvan University, Nepal. The main objective of this study is examine the revenue planning of Nepal Electricity Authority (NEA), suggest them on appropriate ideas from the findings of the study. For preparing this study, I got alot of help from NEA, and inspiration from various persons and staff.

Firstly, I would like to express my sincere gratitude to my respective thesis supervisor **Surya Narayan Yadav** Lecturer, **Jugeshwar Sah** Lecturer, Dr. **Bramh Dev Jha** Reader for his guidance and suggestion to complete the thesis. I would like to thank, all the staff of NEA for their sincere co-operation in cource of collection of data and information during the study period.

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RAPHID KAWARI

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Abbreviation

&	-	And
A/c	-	Account
A/R	-	Account Receivable
ACP	-	Average Collection Period
ARR	-	Average Rate of Return
BS	-	Bikram Sambat
CV	-	Coefficient of Variation
CVP	-	Cost Volume Profit
F/y	-	Fiscal year
GDP	-	Gross Domestic Product
i.e.	-	that is
Ltd.	-	limited
Mof	-	Ministry of Finance
NG	-	Nepal Government
No.	-	Number
NEA	-	Nepal Electricity Authority
P.E.	-	Probable Error.
PE	-	Public Enterprises
PPC	-	Profit Planning and control
RoI	-	Return on Investment
S.D.	-	Standard deviation.
T.U.	-	Tribhuvan University.
VC	-	Variable cost
CA	-	Current Assets
CL	-	Current Liabilities
FAT	-	Fixed Assets Turnover
KW	-	Kilo Watt
MW	-	Mega Watt
TD	-	Total debt
Lo	-	Lower level.
Asis	-	Assistant level

Chapter-I
Introduction

1.1 General Background:-

Nepal is least developed and land locked country, which is situated between India and China; India in the east, south and west and by china in the north. The total area of this is 1,47,181 square kilometers that covers 0.03 percent land of the world and 0.3 percent land of Asia. Geographically, Nepal has been broadly divided into three ecological zones/regions: the mountain, The Hills and Terai. The Economic condition of our country is very poor among other developing countries. Thirty percent of people live below adject poverty line according to living index survey of households in 2005. The GDP of Nepali people are approximately us $250. So there is a greater challenge to eliminate the massive poverty. Recently Nepal has adopted the path of economic development through liberalization for the economic growth of the nation. In this liberal and free market economic system private sector has predominant role and market determine the price of commodities and services. However, there is the remarkable involvement of Government of Nepal in the infrastructure development such as transport, health, education, electricity and telecommunication etc. through public enterprises.

Nepal is facing the problems of new scientific ideas and technologies. It is becoming poorer day by day because of the uneducated resources mobilization and steeply growing corruption almost in all the sectors and due to the one decade old conflict. This is directly hampering the economic status of the country and as a result the country is marching towards poverty. This condition can be driven away by the amount of the increment in the profits of the organization whether the organization is profit based or non-profit based.

The economic performance has markedly deteriorated in recent months halting the acceleration of output and export growth. Growth in non-

manufacturing sector is projected to decelerate and manufacturing value added is expected to contract other constraining factors are the decline in export demand caused by global economic slowdown and internal factors such as frequent strikes insurgency and terrorist attacks on economic target and power shortages i.e. load shedding of electricity. The untimely hail and other natural catastrophes also adversely affect growth in the agricultural rectors.

Agriculture is one of the main important sources of national income which contributes about 40% in GDP. About 43% of total population was economically. Active in 2001 population census and among them 80% were engaged in agricultural activities. So the growth of GDP depends highly upon the growth in agriculture. (source: CBC- Nepal at a Glance 2006)

1.2 Meaning of Public Enterprises:-

"Public enterprises are an autonomous body, which are owned and managed by government and which provide goods or services for a price. The ownership with the government should be 51% or more to take on entity PE" according to Laxmi Narayan.

The term public enterprises has been defined differently by different agencies, and government to suit their own respective situation. UN has defined PE as "those organization namely governmental enterprises and public corporation, which are entirely or mainly owned and or controlled by the public authorities consisting of establishment which by virtue of their kind of activities, technology and mode of operation are classified as industries".

Public enterprises plays a very important role in most of developing country. the role of public enterprises differs from country to country basically due to political philosophy of existing government. Public enterprise comes into existence either by the way of deliberate policy of the government to bring certain activities under new institution or by nationalizing them from private sector. When we see the history of PEs, we find most of them well created by the government themselves to manage certain key sectors of the economy.

Public enterprises are generally owned and controlled by government and are usually autonomously organized with the government providing the initial capital and being responsible for a continuous overview of their activities. Public enterprises play a very important role in achieving the twin objective of social and economic development imagined in the national policy. Public enterprises largely autonomous in its management, through responsible to the public, through government and parliament and subject to some direction by the government.

By the above definition we can conclude public enterprises as following features:

a) Financing by the government
b) Ownership by the government must be 51% or more.
c) Legally independent entity.
d) Autonomous in daily functioning.
e) Social and economic character.
f) Control, direction and management by the government.
g) Public accountable and service oriented.

1.3 Public Enterprises in Nepal:-

Public enterprises represent the single largest economic sector in the world economy. They collectively employ more people, command a greater asset base and swallow a greater proportion of global GDP than any single area of private sector activity. Public enterprise plays a very important role in most of the developing countries like Nepal. Public enterprises come into existence either by the way of deliberate policy of the government of bring certain activities under strict government control by creating new institution or by nationalizing them from private sector. Public enterprises in Nepal constitute a vital instrument for the socio-economy development of the country. It enjoys a strategic and crucial position in our mixed economy. They have been established in many sectors for the overall development of the country with

different goals and objectives. Nepal Bank Ltd, a commercial Bank was established in 1994 B.S. which is the first public enterprises to have a separate legal entity in Nepal.

Nepal started its planned economic development in 1956 (2013 B.S. with the launching of first five year plan. Since then the number of PEs has increased substantially in the various fields of national economy. There were 64 PEs in Nepal before the commencement of privatization area. To 2004 Nepal has privatized 24PES. the PES is dominant in production of supply of sugar, cement, Cigarettes, agricultural tools, petroleum and other public utilities. Nepal electricity authority is a public utilities public enterprise.

1.3.1 Types of Public Enterprises

Government of Nepal has classified the public enterprises operating in their respective field according to functions and services given by the enterprises, they are classified into the following type (Joshi 1993):

a) Commercial Public Enterprises

Commercial public enterprises are mainly concerned about the commercial aspect of goods and expansion of the goods. Nepal agriculture product oil corporation , Nepal Goods corporation , Nepal oil corporation etc. The examples of such type public enterprise

b) Manufacturing Public enterprises

These enterprises mainly concerned about the manufactured goods for public usage. Udaypur cement Udhyog, Janakpur Cigarette Factory, Diary development corporation etc. are the example of this type enterprises.

c) Financial Public Enterprises

Financial Public enterprises gives financial aid to public. Some of the name of this type public enterprises are: Nepal Agriculture Development Bank, National Commercial Bank, Industrial Development Corporation, Nepal Development Bank, National insurance corporation etc.

d) Public Utilities Public Enterprises.

These types of enterprises are solely concerned of the services given to public. They have autonomous power to make their Policy. Nepal Electricity Authority, Nepal Telecommunication Corporation, Nepal Water Supply Corporation etc falls in this category.

e) Development or service public Enterprises

These types of enterprises have been established for only development purpose. Nepal Engineering consultancy, Economic service center, Agriculture service center etc. come under this type.

f) Social services public enterprises.

Some of the public enterprises are established to provide social service to the people. Guthi Sansthan , Gorkhapatra Corporation, Nepal Television, Cultural Corporation are some example of this type.

1.4 Historical Background of Nepal Electricity Authority (NEA)

Nepal Electricity Authority (NEA) was established under the NEA act 2041. NEA started its operation on 17 the August 1985. NEA is responsible to generate and supply of electricity securely, efficiently, economically at responsible price for the development of the nation. to objective of NEA is planning, construction, operation and maintenance of the electricity power sub-sector NEA should ensure the availability of the resources necessary for the development of electricity supply by the most efficient and effectives manner.

The planned development of electricity was started from the three year plan (1962-1965) establishment of Nepal Electricity Corporation (NEC) on August 16. 1962 (2019 B.S.). Before 1962 (2019 B.S.) Bijuli Adda, which was under the ministry of water and power to distribute the electricity in Kathmandu valley . Bijuli Adda held monopoly, Power in the management of electricity till 2019 B.S. In 1931B.S. Eastern zonal Electricity Corporation was established in Biratnagar to facilitate electricity supply to the eastern part of Nepal. In 2039 B.S. however both Nepal Electricity Corporat'

ion and Eastern zonal corporation were merged into a single organization before 2039 B.S. there were department of electricity of HMG/N and several other electricity division committees for the supply and facilitation of electricity and construction and distribution work.

Nepal Electricity Authority was incorporated on 7 Kartik 2041 B.S. under the Nepal Electricity Authority Act 2041. All format divisions and committees concerning electricity production, supply and distribution were amalgamated into Nepal Electricity Authority Marsangdi Electricity Center was also hadled over to NEA after the completion of construction work. NEA was established as a unified organization in Badra 1st 2042 B.S.

1.4.1 The objective for establishing (NEA)

The specific objectives of establishing Nepal Electricity Authority are as given below:

a) To produce electricity at low cost harnessing the existing water resources.
b) To utilize and develop the huge amount of water resources of Nepal in a more co-ordinated way.
c) To establish single organization that would work in all sector of electricity planning, survey, production, operation, maintenance and distribution of electricity.
d) To manage the generation, transmission and distribution in order to capability, reliability and accessibility to all people for supply.
e) To provide equal and extensive skills development opportunities for all employees working in the field of electricity.
f) To supply reliable and high quality electricity at reasonable price.

1.5 Statement of the problem:-

NEA is the biggest public enterprises in Nepal with the biggest investment of authorized capital. There is no market competition as other private enterprises and ahs higher future scope of production. Thus it should

earn good net profit, which may contribute to the development budget of country.

Nepal as the of the least developed countries having low per capital income of 280 us dollar and of total population majority are below the poverty line. In this context NEA has been established to reduce to the dependency on agriculture sector improve the national economy and to make self sufficiency in electricity. It is beneficial to evaluate the revenue planning of NEA. In order to evaluate the revenue planning of NEA, this study seek to find out the answers of the questions through various method of analysis.

It is very difficult to imagine industrialization without electricity. At this situation NEA has to play great role than other public enterprise. As most of the industries depend on power supply in this sense Nepal Electricity Authority has no difficulty in selling its product and service as the demand of power supply is always growing. NEA gets the highest potential for further growth and expansion, as it does no market competitions. Despite these facts the performance of NEA is not satisfactory.

In the context the study on NEA primarily focuses on financial obligation , generating rate of return on capital investment and revenue generation the present study will make a modest attempt to have an insight over the problem of management of NEA as well as to recommend some concrete suggestion for the improvement in overall financial performance through revenue planning. The success or failure of any enterprises is measured on the bases of profitability or surplus. The profit depends on the systematic budgeting and financial performance. the study tries to seek answer the following questions.

a) Whether the sales targed stated in annual budget and actual sales are consistent or not.
b) Whether cash collection and disbursement of NEA is in proper way or not.

c) Whether NEA's revenue planning is Effective or not.

d) Whether NEA's production (i.e supply) is based on sales (i.e. demand) or not.

e) How efficient has Nepal Electricity Authorities been able to use its assets.

1.6 Objectives of the study:-

Normally, the objectives mean the further plan of performing task. The main objective of the study is to analyze revenue planning in NEA in order to identify problems and recommend possible remedial measures.

However some specific objectives are as follows:

a) To identify the sources and volume of the revenue of NEA.

b) To identify the uses and volume at the revenue of NEA.

c) To study and analyze the relationship between total power available and losses in transmission in NEA.

d) To make a comparative study of revenue generation of NEA in the study period on the basis of financial indicators.

e) To evaluate financial performance of NEA.

f) To Provide Suggestion based on the major findings of the study.

1.7 Significance of the study:-

Nepal Electricity Authority is one of the largest enterprises in Nepal. It is capital intensive institution and cannot implement its own investment plan with its internal resources. Its revenue planning has a significant impact upon the electricity generation is Nepal. It had enjoyed the monopoly power all over the year as a firm. It should generate profits. However being a public utility concerned. It should be service oriented as well. Besides, Nepal Electricity Authority should earn some surplus for the sake of repairing and maintenance. There should be trade of between cost and service.

Revenue planning is a crucial part of overall profit planning of business enterprises. Poor system of planning adversely affects profit planning. Thus,

periodical analysis and review of revenue planning is necessary in order to ensure smooth functioning of an enterprise. The main purpose of the study is to forecast the future event and to overcome or reduce the risk.

The importance of the study lies on the role of revenue planning that considerably contributes to improve profitability and financial performance of NEA.

Thus study will be useful to provide information and to draw attention of NEA management regarding what can be done for future planning and management of revenue. This study is expected to be helpful to the private and non-governmental agencies, Which are willing to invest in hydropower project in Nepal.

However some significance as follows:

a) To know the strength and weakness of the corporation.
b) To know sources/volume of revenue.
c) To know the existing loan position.
d) To know the financial position.
e) To know the revenue effectiveness.
f) It is useful for lenders and shareholders.
g) It is useful for future plan of the corporation.
h) It is useful for the public and government.

1.8 Limitation of the study:-

This study is partial requirement of master of Business study programs. so this study will be limited by following factors:

1. The study cannot over the company or corporation whole operating period i.e. it only cover 5 operating periods.
2. The study covers only the revenue planning of NEA.
3. The study is based on secondary data from NEA's records.
4. Research is based on the data provided by Nepal Electricity Authority from its official records. Thus the data are not verified.

5. Since the study mainly concerned with NEA, the conclusion drawn form the study, findings and suggestions may not be applicable to any other private or public Enterprises.

1.9 Organization of the study:-

This study is divided into 5 chapters. Each chapter will devote to some aspects of the study. The major chapters of the study are as follows:

1. Chapter One : Introduction

   The first chapter is introduction, which contains the following subject: Background of the study, Brief introduction of company/Authority, Statement of the problem, objectives of the study, Significance of the Study, Limitation of the study and organization of the study.

2. Chapter Two: Review of Literature

   This chapter is concerned with review of literature reading material. In this chapter are conceptual review and review of previous related studies.

3. Chapter Third : Research methodology.

   The chapter contains methodology of the study which is as follows: Research design, population and sample, Data collection procedure and data analysis tools.

4. Chapter Fourth : Presentation and analysis of Data

   This chapter comprises data presentation analysis and interpretation of tables and charts.

5. Chapter five: Summary, Conclusion and Recommendations:

   This chapter is concerned with the output of the study in the form of summary, conclusion and recommendation.

Chapter II

Review of Literature

Review of literature is supported to revise the eminent literatures relating to the study. This chapter aims to gives a conceptual framework and makes a review of the relevant studies that have already been done in this research topic so that some new contributions could be given to the established body of knowledge. Every research requires a clear-cut idea on the problem of study and its solution, which emerges the review of literature. The previous studies cannot be ignored because they provide the foundation of the present study.

This chapter reviews the available literature relating to Nepal Electricity Authority and the views expressed by various scholars and researchers on the revenue planning of public enterprises. so far as study on revenue planning in the context of Nepalese enterprises is concerned, some studies have been undertaken by the management experts and students describing the Revenue planning of public enterprises. Some of the notable literatures relevant to the study are reviewed in this study to identify the relevance of the present study.

2.1 Conceptual framework:-

2.1.1 Meaning of Revenue:

Economists defined the term revenue in the sense of the sale proceeds. A term which is used sometimes to describe:

1. The income of business firms or company
2. The income received by the government from taxation.

The wealth that is additionally produced is known as revenue or profit suppose a trader has a capital of Rs 20,000. During the course of a year he earns a profit of Rs. 2000. The revenue for that year is Rs 2,000.

Capital is source of revenue: revenue comes out of capital. Capital is invested so that it may give rise to revenue. Every firm will sell its product or services to collect the revenue. The profit of the firm depends upon the cost and

revenue. The profit earned by any firm is the difference between the cost of production and the revenue collected by selling products or services in the market. The revenue of a firm can be divided into three parts. They are:

1. Total Revenue
2. Average Revenue
3. Marginal Revenue

1. Total Revenue:

The total amount collected by a producer after selling certain quantity of goods in the market is known as total revenue. It is necessary for a firm to know its total revenue is for more than the total cost then the firm will be in the state of earning profit. So the total earning of a firm from the selling of the goods at certain price is the total revenue. Therefore total revenue is the total amount earned by a producer on a firm by selling the goods. Total revenue can be calculated by mulitiplying the per s unit cost with the total quantity.

Mathematically:

$TR = P \times Q$

Where,

TR = Total Revenue

P = Selling price per unit

Q = Quantity Sold.

For example, in a producer sells 100 apples at rate of Rs 5 per an apple than the total revenue is $100 \times 5 =$ Rs. 500.

2. Average Revenue:

The amount earned by a producer after selling one unit of a produced commodity is known as the average revenue. For example, if a producer earns Rs. 200 by selling 10 units of goods, then the average revenue is Rs. 20, which is earned by selling one unit of the goods. In other words, if the total revenue earned by a producer is divided by the total units of goods sold, then the quotient is the average revenue.

Mathematically:

$$AR = \frac{TR}{Q}$$

Where, AR = Average revenue

TR = Total revenue

Q = Quantity of goods sold

3. Marginal Revenue :

The net revenue earned by a producer by selling one additional unit of goods is known as the marginal revenue.

Mathematically:

$$MR = TR_{n+1} - TR_n$$

Where, MR = Marginal revenue

TR_{n+1} = Total Revenue received by total quantity sold.

TR_n = Total verenue received before selling additional unit.

For Example, a producer sells 10 units of the goods for per unit price of Rs. 20 and receives Rs. 200 as total revenue. It the producer increases the sales by one unit, Then the total sales will be 11 units. It the per unit price remains. The same then the total revenue will be 11x20 = Rs. 220

Thus,

MR = TR n + 1 – TR n

or, MR = Rs. 220 – Rs. 200

MR = Rs. 20.

So marginal revenue (MR) is the revenue received from the sale of one additional unit of goods.

2.1.2 Planning:

The Planning means thinking and deciding in advance what is to be done in future. It is a method of thinking out acts and purposes before and planning starts with forecast and complete with determination of future events. It is the first essence of management and all other function performed within framework of planning.

It includes:

1. Establishing enterprise objectives
2. Developing premises about the environment in which they are to be accomplished.
3. Selecting a course of action for accomplishing the objectives.
4. Initiating activities necessary to translate plans into action.
5. Current re-planning to correct deficiencies", (welsch, Hilton and Gordon 2000:3)

Planning is hard task for it involves the ability to think to periodic, to analyze and to came to decide, to control the actions of its personnel and cope with a complex dynamic fluid environment. They bridge the gap between which they are and where they want to go (Memoria). This statement obviously shows planning is a complex and hard job.

Planning means setting goals for the firm considering various ways of meeting those goals, and picking out what appears to be the best way to meet the goall (Lynch and Williamson 1984). In planning the management is concerned with laying sown objectives and determining the courses of action to be followed out of the several alternatives available to meet those objectives.

Planning is essential to accomplish goals. it reduces uncertainty and provides directions to employees by determining the course of action in a dvance. Formal planning indicates the responsibility of management and provides an alternative of grouping without direction. Planning on the other hand, involves the determination of what should be done. how the goal may be

reached and what individuals or units are to assume responsibility and be held accountable.

Thus planning stands for future activity and formulates to meet the objectives of the management. Generally planning can be divided into two parts, which are as follows:

2.1.2.1 Short term planning:

Short term plan have shorter time frames and narrower scopes than long term plans. Short term planning provides the specific ideas for implementing strategic or long term plan. It is the process of making detailed decisions about what to do, who will do it and how to do it. Tactical or short term planning translate broad strategic goals and plans into specific goals and plan. Short term plans focus on functional areas of organization. middle managers who are responsible for major divisions or braches in an organization develop tactical plan. The key task for them is to determine the specific details or garget, resource utilization and time frames. It selecting to conform to fiscal quarters or years. Short term plans focus on the major actions that a unit must take to fulfill its part of the strategic plan.

2.1.2.2 Long term planning or Strategic Planning:

Strategic plans have longer time frame and broader scopes than tactical or short term plans. A strategic plan is the actions taken to achieve strategic goals. Such plans are developed at the corporate level. Senior executives are responsible for the development of these plans. These plans involve making decisions about the organizations long term goals and strategies. Long range planning is used to determine the overall direction of organization. Successful enterprises have always done some long range planning. Long range planning five to ten years verying with the enterprise, sometimes extended to ten years. It is more important for broad and long leaving enterprises.

Thus, planning process both short and long term, is the most crucial component of the whole system. It is both the foundation and the bond for the other elements because it is through the planning process that we determine what we are going to do, how are going to do and who is going to do it. It operates as the brain center of an organization.

2.1.3 Revenue Planning:

Revenue results from the sale of goods and rendering of services and is measured by the charge made to customers, client or tenants for goods and services furnished to them. It also includes gain from the sale or exchange of assets other than stock in trade, interest and dividends earned on investments and other increases in the owner's equity except those arising from capital contribution and capital adjustment. the revenue planning estimates are only a guide to the level of future revenues, not a guarantee. It the economy remains strong, the planning estimates are likely to underestimate future revenues. But if the economy fails to perform at a high level anticipated in the control, the planning estimates will overstate future revenues.

The revenue planning process is a necessary part of PPC. If the revenue plane is not realistic all of the other parts of the overall profit plan also are not realistic. Therefore if management believes that a realistic revenue plan cannot be developed; there is little justification for PPC.

The revenue plan should be designed to co-ordinate the efforts of the sales department production department and all other departments. Many factor should be considered when sales budget is established. Including sales trends, limitations on the supply of merchandise or the company's market competing product, the expected amount of advertising and general level of economy. Since most these unknown companies frequently maintain a specially trained staff to increase them" (Seiler & Robert 1964: 659-660)

"The logical starting point in developing the revenue planning is the estimates of sales. It does not follow, however that the revenue estimation can be considered in isolation or that once the revenue estimates has been computed, the other elements of revenue and expenses will fall into place. There is circular relationship between sales and some expenses. In Fact the level or amount of certain expenses may have a considerable influence on the revenue. For example: The relationship between advertising and sales" (Finney, Millers Herbert 1963:389)

2.1.4 Preparation of Revenue Planning.

The following steps should be completed for planning the revenue. These are as follows:

Step – I Development management guideline for sales planning.

All management particular in the sales planning process should be provided with specific management guidelines to be followed in revenue planning. Fundamentally, these guidelines should specify revenue-planning responsibilities. The purpose of these guidelines is to attain coordination and uniformity in the revenue planning. The guideline should emphasize enterprise objectives goals and sales strategies.

Step – II Prepare sales forecast

one or more sales forcats should be prepared. each separate forcast should use different assumption. which should be clearly explained in the forecast. the management guide lines should provide the broad assumptions. The forcast coot should include strategic and tactical forecasts that are consist-tent with the time dimension.

Step – III Assemble other relevant data.

in addition to step I an step II all other intonation relevant to developing a realistic revenue plan should level be collected and evaluated. This information should relate to both constraints and opportunities. the primary constraints that should evaluate are.

a) manufacturing capacity.

b) sources of raw material and supplier.

c) Availability of key people and a labor force.

d) capital availability and.

e) availability of alterative distribution channels.

These factors require evaluation and contribution among the head of the various functional areas in developing a realistic revenue plan

Step – IV Develop the strategic and tactical sale.

Using the information provides in step i, ii, iii, the management develops treetops a comprehensive revenue plan to do this. The process of developing realistic revenue plan should be unique to each company because of the company's its product, its distribution channel and the competence of its marketing group. The planning process must be structured to maximize.

(a) Motivation of sales force and (b) Realism in the revenue plan.

Step – V. Securing managerial commitment to attain the goals in the comprehensive, Revenue plans.

Top management must be fully commited to attaining the sales goal that are specified in the approve revenue plan. This commitment require full communication to the sale manager of the goals. approve marketing plan and strategies by sale responsibilities

2.2 Review of Previous Study.

The Revenue planning seem to be new subject of study for reserve and study. Many researches have been made in the area of project planning and control of NEA and public manufacturing enterprises. An attempt is made here to review some of the researches which have been submitted in revenue planning and profit planning control in the context of Nepal.

2.2.1 Mr. Chiranjibi Acharya (2000)

Mr. Achrya has made research on "profit planning in Nepalese public Enterprises, a case study of Nepal Electricity Authority" submitted to faculty of management Shanker Dev campus for the partial fulfillment of M.B.S. In this study Mr. Acharya has pointed out following objectives and major findings.

Objectives:-

a) To example the profit planning & system applied in NEA.
b) To analyze the various functional budgets these are prepared by NEA.
c) To Analyze the variance between budget and actual achievement of NEA.
d) To Access the financial performance analysis of NEA, by applying financial tools.
e) To make relevant suggestion and recommendation to management of NEA on the basis of findings from the above analysis.

Major Kindings:

a) There is perfect positive correlation between the planned sales and actual sales.
b) The authority is unable to sell the electric services to its customer according to the production or total energy available.
c) Leakage, outage and theft is one of the major consideration in NEA. Due to this leakage there is a vast gap between sales and production and this leakage is reducing NEA's profit annually.
d) Strengths and weakness are not analyzed in depth by NEA because of the monopoly situation or the obsence of competitors and it is not alert toward its possible threats and opportunity.

2.2.2 Mr. Ghana Shyam Thapa (2004)

Mr. Thapa has made research on "profit planning in Nepalese Public Enterprise a case Study of Nepal Electricity Authority" submitted to faculty of management Shankar Dev Campus for the partial fulfillment of Master of

Business Studies. In this study Mr. Thapa has pointed out following objectives and major findings.

Objectives:-

a) To examine the present profit planning Premises adopted by NEA.

b) To highlight the various functional budgets of NEA.

c) To evaluate the variances between budgeted and actual performance of NEA.

d) To provide valuable suggestion and recommendation on the basis of study.

Major findings:-

a) NEA prepares both tactical and strategic profit plan but strategic plan in confined to the level executives.

b) Achievement of capital expenditure budget is satisfactory.

c) Operating cost have not been controlled effectively during the study period.

d) NEA has no maintained sound liquidity during the study period.

e) NEA ahs not prepared plan and program for agriculture sector's consumption of electricity.

f) NEA has not considered demand determinats such as family income, price of elasticity, connection charge, cost of alternative available, cost of auto generation of electricity and reliability of NEA service while forecasting demand.

2.2.3 Mr. Mahendra Rai (2004)

Mr.Rai has made research on profit planning in public utility sector of Nepal. A case study of NEA , submitted to faculty of management Shankar Dev campus for the partial fulfillment of Master of Business studies. In this study Mr. Rai has pointed out following objectives and major findings.

Objectives:

a) To examine profit planning system applied by NEA.

b) To analyze the financial performance of NEA by using various financial tools.

c) To observe the various functional budget of NEA associated with comprehensive profit planning.

d) To evaluate budgeted and actual achievement of NEA.

e) To provide a package of recommendation and suggestion to be taken instantly and further to be encountered with identified with identified budgeting & profit planning problems on the basis of finding.

Major Findings:

a) Budgeted production is more fluctuating than a actual production.

b) Budgeted sales are more variable than actual sales.

c) NEA has been paying a large amount of interest on long term loan.

d) Power leakage is significantly high in NEA.

2.2.4 Mr. Rabin Dahal (2005)

MR. Dahal has made research on profit planning system & financial conditions of NEA, submitted to faculty of management, Shankar Dev campus for the the partial fulfillment of M.B.S. on January 2005. In this study Mr. Dahal has pointed out following objective and major findings.

Objectives:

a) To examine the present planning premises adopted by NEA on the basis of budgeting.

b) To observe the NEA's profit planning on the basis of overall managerial budgeting.

c) To analyze the variance between budgeted and actual achievement of the authority.

d) To assess the financial performance of NEA.

e) To Recommend measures to be taken instantly and further to encounter with the identified budgeting and profit planning problems.

Major Findings:

a) There is positive and perfect correlation between budget and achievement of NEA is higher than budgeted sales.

b) Actual sales are less than actual production and it indicates the remarkable loss of power in NEA.

c) Total assets turnover ratio, profitability ratio and return on net capital employed ratio are not perfectly satisfactory.

d) There is perfect positive correlation between actual sales and actual production.

2.2.5 Mr. Narayan Ghimire (2006)

Mr. Gihimire has made research on impact of Budgeting on profitability a case study of NEA submitted of faculty of management Shankar Dev campus for the partial fulfillment of M.B.S. on September 2006. In this study Ghimire has pointed about following objectives and major findings.

Objectives:

a) To analyze the various functional budget of NEA.

b) To obtain true picture of profit planning diversification of NEA.

c) To analyze the variance between budget and actual achievement of the authority.

d) To print out the major short coming and recommended suggesive measures.

Major Findings:

a) Actual sales are more fluctuating than budgeted sales and budgeted sales is more fluctuating than actual production.

b) NEA has a practice of preparing both strategic and tactical plan but tactical short range plan is prepared for external purpose and strategic plan is prepared for internal purpose.

c) NEA has been paying huge amounts of interest on long term loan.

d) There is perfect correlation between budgeted and actual sales and budgeted and actual production.

e) Actual sales are always less than actual production due to power loss which is main problem of NEA.

2.2.6 Mr. Kamal Raj Joshi (2004)

Mr. Joshi has made research on revenue planning and cash management of NEA submitted to faculty of management. Shankar Dev campus for the partial fulfillment of M.B.S. In this study Mr. Joshi has pointed out following objectives and major finding.

Objectives:

a) To examine revenue planning, policies and practices of NEA.
b) To analyze the relationship between sales and production.
c) To make comparative study of revenue generation of NEA from different sectors.
d) To receive cash flow from operating, financing and investing activities.
e) To make suggestion effective of revenue mobilization of NEA.

Major Finding:

a) Average achievement of actual sales unit is consistent with internal sales but higher in external sales. In indicates that the budgeted sales planning is less consistent with external sales market. Similary, average achievement of sales revenue is also satisfied and highly consistent with internal and very small in external.

b) Category wise revenue analysis of NEA shows that achievement in domestic, non-commercial, commercial, streetlight, temple categories are more heterogeneous than budgeted. Community sale achievement is too high. It means there is some problem in planning.

c) Category wise analysis of NEA shows that the major outribution of domestic and industrial categories to consumption of sales unit and increased in sales revenue.

d) Cash position of NEA shows that cash from operating activities is in decreasing trend. Operating cost of NEA is too high.

Similarly, the cash from investing activities is in highly increased up to 2057/058. Thereafter decreased but its return is very poor. It indicates that the utilization of assets is very poor. The cash from financing activities is highly increased in F.Y. 2056/057. Thereafter it is decreased.

Chapter III

Research Methodology

3.1 Introduction

"Research may be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalization principles of theories, resulting in prediction and possibly ultimate control of events" according to John W. Best.

Research methodology is the way of the solve systematically about the research problem. Research methodology is a general plan of how the researcher is going about answering the research questions he has set. In other words the systematic and well organized way for solving the research problem can be referred to as research methodology. This study has an ultimate concerned with the applicability and effectiveness of revenue planning in manufacturing concern. So, the objective of this study is to analysis. Examine and interpret the application of revenue planning of Nepal electricity Authority. This chapter looks into the research design, population and sample, sources of data, techniques of data collection, and tools for analysis of data. the main contents of research methodology are mentioned as below.

3.2 Research Design:

Research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern of framework of the project that stipulate what information is to be collected from which sources by what procedure. If it is good design. It will ensure that the information obtained is relevant to the research questions and that it was collected by objective and economical procedure. Generally, research design means define procedure and techniques, which guide to study and profound ways for research variability. It is planned structure and strategy of investigation conceived so as to obtain answers to research questions.

The research design is a plan to obtain the answer of research questions through analysis of data. The research design of this study is an examination and evaluation of revenue planning of NEA. The research design of this study is descriptive as well as analytical approaches. The study is closely related with the various functional budget and other related accounting information and statement of NEA. These information are used to and evaluate the revenue planning of NEA.

3.3 Population and Sample

The large group about which the generation made is called the population under study, or the universe and small portion on which the study is made is called the sample of the study.

As this research aims at studying the revenue planning of NEA as a sample for the study. So Nepal Electricity Authority is a sample and population itself. This study is based on revenue planning of central office and branches, sub branches of Nepal Electricity Authority. It is not entered with one branch. It is not possible to meet with all customers personally this study using a sampling method.

3.4 Period covered

The study covered the period of 5 years from 2059/60 to 2063/064. Data are taken from Nepal Electricity Authority's balance sheet and income statement and analysis is basically made on the basis of the five year data.

3.5 Nature and sources of data.

Collection of data is the first step in statistical investigation. The structure of statistical analysis and decision making is built on the data collected. Thus government, business house and individuals collect requisite statistical data to carry out their activities efficiently and effectively. The persons or organizations that have collected the data and the reports and publications in which data are published are known as sources of data. Data may be obtained either from the

primary source or secondary source. A primary source is one that itself collect the data a secondary source is one that makes available the data through some other agency.

This study is mostly based on secondary data. However primary data information have been obtained through informal discussions with executives and other related staffs of the NEA. Secondary data have been collected from the annual reports of NEA, balance sheet, profit and loss account, cost detail sheet, previous thesis and other relevant published and unpublished documents and other related publications.

The significance of research depends on the nature, availability and accuracy of information. Data collection is the major task of the research work. The data is collected from the secondary sources.

3.6 Research variables:

Revenue from sale of electricity in different types of customers, sales in units and amount, generation and purchase of power in units. Contribution by different category, profit and loss, balance sheet are the research variables of present study.

3.7 Analytical tools

Various analytical tools can be used in order to ascertain actual financial position of any firm. It is true that suitable or appropriate tools, according to the nature of statement and data make the analysis more effective and significant. Therefore, the data have been collected and managed, analyzed and presented in suitable tables, formats, diagrams, graphs and charts. Such presentation have been interpreted and explained wherever necessary.

The primary and secondary data which collected from the different sources will be used for analytical study by using the following financial and statistical tools.

3.7.1 Financial Tools

"Financial Tools are those, which are used for analysis and interpretation of financial data. These Tools can be used to get the precise knowledge of the enterprises, which in turn are fruitful in exploring the strengths and weakness of the financial policies and strategies. In spite of various financial tools available, the researcher has primarily stressed on ratio analysis assuming it the most suitable tools. Ratio analysis helps us to summarize the large quantities of financial data and to make quantitative judgments about the organizations financial performance.

Ratio Analysis:

An Arithmetic relationship between two figures is known as ratio, in financial analysis a ratio is used as an index or yardstick for evaluating the financial position and performance of the firm.

Ratio analysis is powerful tool and technique of financial analysis, which helps in identifying the sound financial structure of the organization. It is widely used tool for financial analysis. In other words, ratio analysis helps the analyzer make quantitative Judgment of the firm's financial position as well as its performance.

Types of Finance Ratio:

a. Liquidity Ratio.
b. Leverage Ratio.
c. Turnover Ratio.
d. Profitability Ratio

a) Liquidity Ratio:

Liquidity ratios measure the firm's ability to fulfill its short term commitments. These ratios focus on current assets and current Liabilities and are used to ascertain the short term solvency position of a firm. These ratio as a group are intended to provide information about a firms liquidity.

The liquidity ratio provides a quick measure of the firm by establishing a relationship between its current assets and current liabilities. If a firm does not have sufficient liquidity, It may not be in a position to meet its commitments and there by may loose its credit worthness. Two ratio's are mainly used to measure the liquidity position.

i) Current Ratio:

A current ratio is the quantitative relationship between current assets and current liabilities. The current ratio a measure of firm's short term solvency. So, this ratio is calculated by dividing current assets by current liabilities. Here current assets are those items, which can normally be converted in to converted into cash with an accounting period. There are cash stock, debtor, bank balance, prepaid expenses, marketable securities etc. on the other hand, current liabilities refer to those obligation which must be paid within an accounting period. These normally include creditors, bank overdraft, bills payable, outstanding etc.

$$\text{Current Ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}}$$

Generally, current ratio of 2 times or 2:1 is considered to be satisfactory. Higher the current ratio, greater is the profitability of timely and full payment for liability. Low ratio value indicates the firm will not be able to pay its future bills.

ii) Quick Ratio/Acid Test Ratio:

Quick ratio is the proportion of quick assets to current liabilities, which is more accurate measure of liquidity than the current ratio. This ratio establishes relationship between quick or liquid assets and current liabilities. An assets is liquid if it can be converted into cash immediately or reasonably soon without a loss of value. Cash, bills receivable, sundry debtor and short investment is considered to be most liquid assets. Inventories and prepaid expenses are considered to be less liquid as the

emphasis is on ready availability of cash. The quick ratio is calculated by dividing the total quick assets by current liabilities.

$$\text{Quick Ratio} = \frac{Quick\ \ Assets}{Current\ \ Liabitlities}$$

Generally, a quick ratio of 1:1 is considered to represent satisfactory current financial condition. Higher ratio indicates that the firm has excessive quick assets and indicates in efficient management. A low ratio is the indicator of difficulties in the timely payment of future bills.

b) Leverage Ratio.

Leverage Ratio are also called long term solvency ratios or capital structure ratio. Leverage or capital structure ratios are calculated to judge the long term financial position of the firm. This ratio indicates the mix of fund provided by owners and lenders. Thus solvency ratios are the measure of the company's ability to meet its long term obligations. The following are the major types of leverage ratios.

i) Debt to total Capital Ratio

ii) Debt – Equity ratio

i) Debt to total Capital Ratio:

This ratio shows the relationship between total debt and total capital employed by the company. Total capital includes long term liabilities plus Shareholder's equity. Total capital is also regarded as permanent capital or capital employed or long term fund. Total bebt will include short term and long term from financial institution debenture/bonds, deferred payment arrangement for buying capital equipment and bank borrowing, public deposite and other interest bearing loan.

This ratio is ascertained by using the following formula.

Debt to total capital ratio = $\frac{Total\ \ Debt}{Total\ \ Capital}$

ii) Debt – Equity ratio

The ratio between total debt and net worth is called debt equity ratio. It is calculated by in following way.

Debt Equity ratio = $\frac{Long\ Term\ Dept}{Shareholder'equity}$

or,

Debt Equity ratio = $\frac{Total\ Debt}{Net\ Worth}$

Where,

Total debt = long term debt + current liab.

Generally A high ratio shows the large share of financing by the creditors as compare to that owners This means creaditors suffer more in times of distress than the owner. This is why creditors prefer low debt equity ratio.

c) Turnover Ratio:

Turnover ratio indicates the speed with which assets are being converted or turned in to sales. These ratios are also called activity ratio. These ratios are employed to evaluate the efficiency with which the firm manages and utilizes its assets. Turnovers ratio involves comparison between high level of sales and investment of various assets account some of the important activity ratios are as follows:

i) Capital Employed Turnover Ratio

A ratio between sales and capital employed is known as capital employed turnover ratio. It can be calculated in following way.

Capital Employed Turnover = $\frac{Sales}{Capital\ \ Employed}$

Generally, A high ratio is preferable which shows that the firm is very efficient on sales activity.

ii) Total Assets Turnover Ratio:

A ratio between sales and total assets is known as total assets turnover ratio. Total assets turnover ratio indicates how well the firm's total assets are being used to generate its sales. It shows the efficiency of utilizing total assets. It can be calculated in the following way.

$$\text{Total Assets turnover} = \frac{Sales}{Total\ \ Assets}$$

Generally higher turnover ratio shows the firm is efficient to utilize thee scarce resources and vice versa.

iii) Fixed Assets Turnover Ratio:

A ratio between sales and fixed assets is known as fixed assets turnover ratio. Fixed assets turnover ratio indicates how efficiently the fixed assets are used. It measures the efficiency with which the firm has been using its fixed assets to generate sales. It is calculated as follows:

$$\text{Fixed Assets Turnover Ratio} = \frac{Sales}{Total\ \ Fixed\ \ Assets}$$

Generally, the higher value of fixed assets turnover, the more efficient is the management on utilization of *fixed* assets and vice versa.

iv) Inventory Turnover Ratio:

It is also known as stock turnover ratio. This ratio shows the relationship between the cost of goods sold and the average inventory. This ratio measures how frequently the company's inventory turned into sales . It indicates as to how fast the goods are sold. It is computed by the following way.

$$\text{Inventory Turnover Ratio} = \frac{Cost\ \ of\ \ goods\ \ sold}{Average\ \ inventory}$$

Cost of goods sold = Sales – Gross profit

$$\text{Average inventory} = \frac{\text{opening inventory} + \text{closing inventory}}{2}$$

or,

$$\text{Inventory Turnover} = \frac{Sales}{Clo\sin g\ \ inventory}$$

Generally, a high inventory turnover is indicated goods inventory management and low inventory turnover is indicated poor inventory management.

d) Profitability Ratio:

The profitability ratios measure the profitability or operational efficiency of the firm. Profitability ratios are the measure of its overall efficiency Generaly profitability ratios can be Calculated in term of the company's sales investment and earning and dividends. the following are the main types of profitability ratios.

i) Gross Profit Ratio:

A ratio between gross profit to sales is known as gross profit ratio. It is also termed as gross profit margin. This ratio shows the relationship between gross profit and net sales and it measures the overall profitability of the company in terms of sales. It is generally expressed in percentage. It is computed by the following way.

$$\text{Gross profit Margin} = \frac{Gross\ \ \text{Pr}ofit}{Sales}$$

A higher ratio is a sign of efficient management which reflects lower cost of goods sold and maximizing profit. Hence, higher percentage is preferable of the company and vice versa.

ii) Net Profit Ratio:

A ratio between net profits after Tax to sales is known as net profit ratio. It is also called net profit margin. This ratio measured the overall profitability of a business by establishing the relationship between net profit and net sales. Generally it is also expressed in percentage. It computed by following way.

$$\text{Net Profit Margin} = \frac{Net\ \ \text{Pr}ofit\ \ After\ \ Tax}{Sales}$$

Generally, A higher ratio is the sign of efficient management. Hence higher percentage is preferable of the company and vice versa.

iii) Return on Assets:

A ratio between net profit to assets is known as return on assets. This ratio measures the relationship between the total assets and net profit after tax plus interest. This ratio measures the profitability of all financial resources invested in the firms assets. Hence, the higher ratio implies that the available source and tools are employed efficiently and vice versa. It is computed by the following way.

$$\text{Return of assets} = \frac{Net\ Profit\ After\ Tax}{Total\ Assets}$$

$$\text{Or,} = \frac{Net\ Profit\ After\ Tax\ Interest}{Total\ Assets}$$

iv) Return on capital Employed

A ratio between net profit to capital employed is known as return on capital employed. This ratio measures the relationship between capitals employed and net profit after tax plus interest. This ratio indicates how well the management has used the fund supplied by creditors and owners. It is computed in different ways as under.

$$\text{Return on capital employed} = \frac{Net\ Profit\ After\ Tax}{Capital\ Employed}$$

$$= \frac{Net\ Profit\ After\ Tax + Interest}{Capital\ Employed}$$

Generally, high ratio an indication of better utilization of capital employed. Hence, higher ratio is preferable for the company.

3.7.2 Statistical Tools

Some statistical tools which are useful to the research for the analysis and presentation of the data are as follows:

a) Arithmetic Mean (A.M.)
b) Standard Deviation (S.D.)

c) Coefficient of Variation (C.V.)
d) Correlation Analysis and PE
e) Diagram and graphic presentation.

A. Arithmetic Mean (A.M.)

Arithmetic mean of a given set of observations is their sum divided by the number of observations in general if x_1, x_2, ……..x_n are the given n observation, then their Arithmetic mean usually denoted by $\bar{x}$ is given by

$$\bar{x} = \frac{x_1 + x_2 + ... + x_n}{n}$$

$$= \frac{\sum x}{n}$$

Where, n = no. of observations

$\sum x$ = Sum of the observation

If frequency is given then $\bar{x} = \frac{\sum f x}{n}$

Where, f = frequency.

B. Standard Deviation (S.D.):

Standard deviation is defined as the positive square root of the arithmetic mean of the squares of the deviation of the given observations from their arithmetic mean. Thus if x_1, x_2, ……..x_n is a set of n observation then its standard deviation is given by :

$$6 = \sqrt{\frac{1}{n}\sum\left(x - \bar{x}\right)^2}$$

Where $\bar{x} = \frac{1}{n}\sum x$ is the arithmetic mean of the given values.

Standard deviation usually denoted by the letter 6 (small sigma).

C. Coefficient of Variation (C.V.)

According to professor Karl pearson who suggested this measure "coefficient of variation is the percentage variation in mean, standard deviation being considered as the total variation in the mean".

Coefficient of Variation (C.V.) $= \frac{S.D.(6)}{Mean(\bar{x})}$

For the comparing the variability of two distribution we compute the co-efficient of variation for each distribution. A distribution with smaller C.V. is said to be more homogeneous or less variable than the other and the series with greater C.V. is aid to be more heterogeneous or more variable than the other.

D. Correlation Analysis and PE:

i) Correlation Analysis:-

Correlation analysis deals with the statistical technique which measures the degree of relationship or association between the variables. In other words it help us in analyzing the co-variation of two or more variables.

Correlation coefficient or co-efficient of correlation measures the degree of association between the two variables say x and y and is defined by

$$r = \frac{N\sum xy - \sum x \sum y}{\sqrt{N\sum x^2 - \left(\sum x\right)^2}\sqrt{N\sum y^2 - \left(\sum y\right)^2}}$$

or,

$$= \frac{\sum \left(x - \bar{x}\right)\left(y - \bar{y}\right)}{\sqrt{\sum \left(x - \bar{x}\right)^2 \left(y - \bar{y}\right)^2}}$$

Where,

N = Number of observation is series x and y

$\sum x$ = Sum of observation is series x.

$\sum y$ = Sum of observation is series y.

$\sum x^2$ = Sum of square deviation in series x.

$\sum y^2$ = Sum of square deviation in series y.

$\sum x \sum y$ = Sum of the product of observation in series x and y.

r = co-efficient of correlation

Values of r lies between -1 to +1 i.e. $-1 \leq r \leq +1$

a) If r = 1, there is perfect positive relationship.

b) If r = 1, there is perfect negative relationship

c) If r = o, there is no any relation between the series.

ii) Probable error:

After computing the value of the correlation coefficient, the next step is to kind the extent to which it is dependable. Probable error of correlation coefficient, usually denoted by P.E. (r).

Probable error of the correlation co-efficient is given by:

$$P.E\ (r) = 0.6745 \times SE\ (r)$$

$$= \frac{0.6745\left(1 - r^2\right)}{\sqrt{n}}$$

Where,

r = correlation coefficient

n = no. of observation

E. Diagram and graphic presentation.

Diagrammatic and graphic presentation has a number of advantage, some of which are enumerated below:

i) Diagram and Graphs are visual aids which give a birds eye view of a given set of numerical data. They present the data is simple, readily comprehensible form.

ii) Diagrams are generally more attractive fascinating and impressive than the set of numerical. They are more appealing to the eye and leave a much lasting impression on the mind as compared to the dry and uninteresting statistical figures.

Chapter IV

Presentation and Analysis of DATA

4.1 Introduction

The main purpose of this study is examine the revenue planning of Nepal electricity authority. TO achieve these objectives this chapter has analyzed the various aspects of revenue planning from income statement, balance sheet, accounting policies of the authority and their related variance of the company (authority).

This chapter highlights the revenue planning of Nepal electricity Authority. some financial and statistical tools have been used to evaluate the financial position of the organization. Under the financial tools, ratio analysis is used likewise under the statistical tools, arithmetic mean (A. M.), standard deviation (S.D), correlation and probable error (P. E) are used. in a ratio analysis, liquidity position is evaluated. with the help of ratio analysis financial performance of NEA has been analyzed and interpreted, so that strength and weakness of these organization as well as historical performance and financial condition can be determined.

4.2 Revenue Trend of NEA

Revenue results from the sales of goods and rendering of service it is measured by the charge made to customers, clients or tenants of goods and services furnished to them. it also includes gains from the sale or exchange of assets other than stock in trade , interest and dividends earned in investment and other in creases in the owners equity except those arising from capital contribution and capital adjustment. Revenue from ordinary course of business is same times describes as operating revenue.

Revenue plan is the key factor in profit planning and control. Unless there is a realistic and practical revenue plan one cannot be sure of accuracy and practicability of other element of profit. plan revenue plan is prepared on the

basis of sales forcast . sales nature of consumer are categorized like domestic dcommercial, non commercial, industrial, irrigation, streetlight, temporary supply, transport, temple ,community sale and bulk, supply (India) and others.

The beginning point for the evaluation of existing revenue planning practice is to analyze past trends of planned sales revenue and its achievement. The following table 4.1 presents the sales budget and actual sales in unit and rupees respectively from the fiscal your 2059/2060 to 2063/2064.

Table 4.1
Revenue trend of NEA from F/y 2059/2060 to 2063/2064.

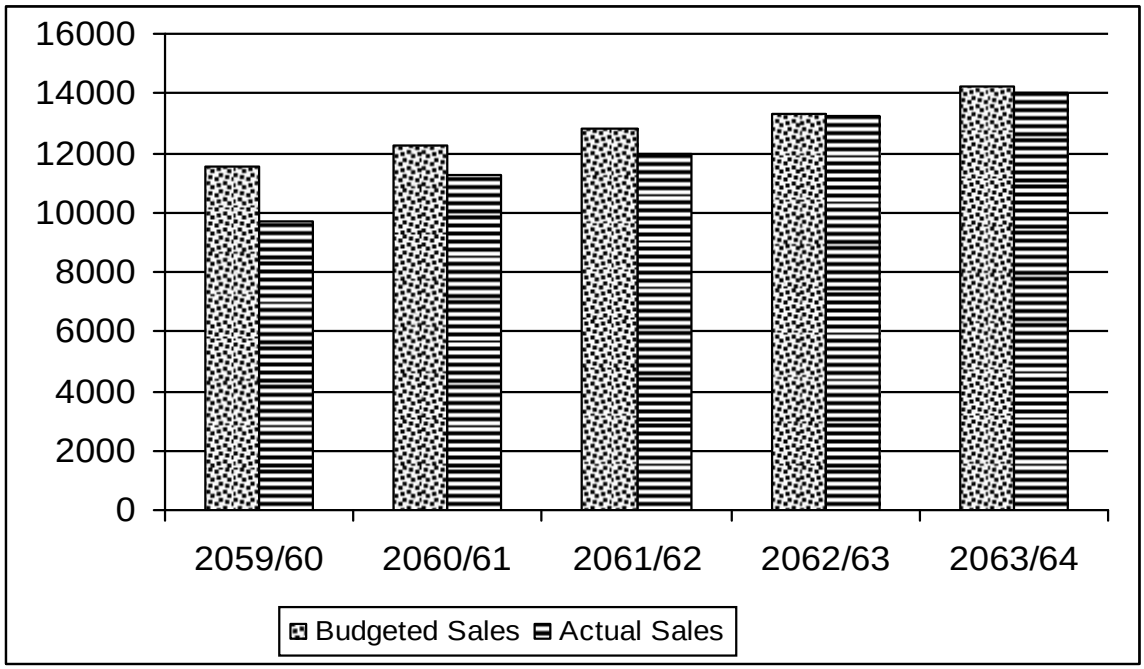
Fiscal Year	Budgeted sales		Increase over previous your		Actual sales		Increase over previous your	
	Unit in GWH	Amount in mill.Ps	Unit %	Amount %	Unit in GWH	Amount in mill.Ps	Unit %	Amount %
2059/60	1642.500	11521.396	-	-	1534.313	9687.650	-	-
2060/61	1804.900	12238.800	9.89	6.23	1696.816	11237.490	10.59	16.00
2061/62	1906.622	12825.732	5.64	4.80	1795.233	11992.610	5.80	6.72
2062/63	1988.950	13275.383	4.31	3.51	1918.350	13264.360	6.86	10.60
2063/64	2145.480	14260.339	7.88	7.42	2066.270	14012.900	7.71	5.64

Source :- Annual Report and Budget Book of NEA.

It is clear from the table 4.1 that in year 2060/61 budgeted sales in unit and Rs are increases by 9.89% and 6.23% respectively. At the same period actual sales revenue in unit and Rs are increased by 10.59% and 16% respectively. Similarly in fiscal year 2061/062 planned growth in sales unit and revenue are 5.64% and 4.80% respectively. At the same period actual sales in units and Rs are increased by 5.80% and 6.72% respectively. In fiscal year 2063/064 there was an increase in sales unit by 7.80% and by 7.42% in sales revenue. At this period achievement are 7.71% and 5.64% in sales unit and revenue respectively. It shows that there is no consistent between budgeted and actual sales revenue. It is clear that the forecast of demand is not realistic.

The revenue trend of NEA can be efficiently presented by the help of following graph.

Graph 4.1
Revenue Trend Of NEA



The above graph 4.1 shows the budgeted revenue trend of NEA is always higher than the actual revenue trend during the research period that means the target has not been met in the entire research period.

Table 4.2 shows the budgeted sales and actual sales with their respective achievements from the fiscal year 2059/60 to 2063/64.

Table 4.2
Budgeted sales and Achievement in unit and Rs from Fiscal Year 2059/60 to 2063/64.

Fiscal Year	Sales Unit in Mill. (i.e. GWH)			Sales in Mllion		
	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %
2059/60	1642.500	1534.313	93.41	1521.396	9687.650	84.08
2060/61	1804.900	1693.816	94.01	12238.800	11237.490	91.82
2061/62	1906.622	1795.232	94.16	12825.732	11992.610	93.50
2062/63	1988.850	1918.350	96.46	13275.383	13264.360	99.92
2063/64	2145.480	2066.270	96.31	14260.339	14.12.900	98.26
Average			**94.87**			**93.52**

Source: Annual report and Budgeted book of NEA.

The table 4.2 signifies that the budgeted and the actual sales in unit and Rs with their respective achievements of NEA. In the fy 2059/60 the budgeted sales of NEA was 1642.500 million units and gradually increased up to the fy 2063/64 which is 2145.480 million units. On the other side the actual sales of NEA in Fy 2059/60 was 1534.313 million units which is increased to 2066.27 million unit up to fy 2063/64. The annual achievement in units is not less than 93.41 percent. This shows that achievement are satisfactory regarding the sales unit.

In the same way in the fy 2059/60 the budgeted sales revenue was Rs 11521.396 million annual targeted sales budgeted is increasing from the fy 2059/60 up to the fy 2063/64. In fy 2063/64 the budgeted sales was Rs. 14260.339 million on the other side the actual sales revenue of NEA in Fy 2059/60 was 9687.65 million which is reached to Rs. 14012.90 million up to fy 2063/064. Annual achievement in sales revenue is also in increasing trend except fy 2063/064.

In conclusion the sales budget shows that actual achievement is high except during fy 2059/60. More that 91% achievement is satisfactory. It denotes that an actual achievement is near to budgted achievement. Average achievement over fire yuear are 94.87% and 93.52% in units and Rs respectively, which is good signal of NEA. Lastly if the actual sales are increase under this figure NEA will achieve good prosperity in coming days. Trends of actual sales of NEA are presented below in table 4.3.

Table 4.3
Trends of Actual sales of NEA from fy 2059/60 to 2063/64 (In million)

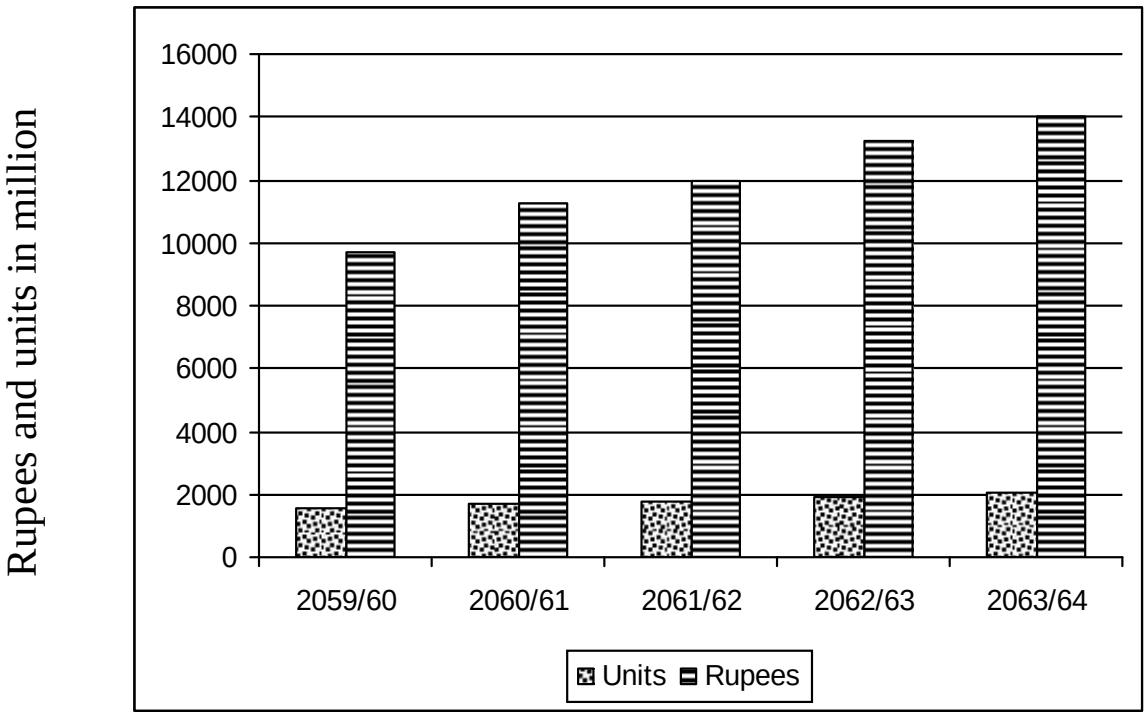
FY	Units	Increase/Decrease	Rupees	Increase/Decrease
2059/60	1534.313	-	9687.650	-
2060/61	1696.816	10.52	11237.490	16.00
2061/62	1795.233	5.80	11992.610	6.72
2062/63	1918.350	6.86	13264.360	10.60
2063/64	2066.270	7.71	14012.900	5.64

Source : Annual reports of NEA

The above table shows the increasing trend of actual sales of NEA since fy 2059/60 to 2063/64. The increment unit in fy 2060/61 was seen to be 1534.313 units which is increment by 16% in term of rupees. Similarly the incremental in unit in the fiscal year 2061/62, 2062/63 and 2063/64 are 5.80, 6.86, and 7.71 respectively. While on the other side the increment in terme of rupees in the year 2061/62, 2062/63 and 2063/64 are 6.72, 10.60 and 5.64 respectively. The increment in the fiscal year 2060/61 is maximum both in units in rupees while the minimum increment is in the fy 2063/64 both in units and rupees.

The trend of NEA can be shown effectively in the graph as follows:

Graph 4.2
Trend of Actual sales of NEA



The above graph shows that the actual sales in rupees and sales in units are in increasing trend during the research period. But the increment in sales in rupees is higher than the increment in the sales units.

4.3 Summary of Statistical Calculation

The Table 4.4 presents the summary of statistical calculation

Table 4.4
Summary of statistical calculation

Statistical Tools	Budgeted Sales in Rs. 'x'	Actual Sales in Rs. 'y'
Mean	12824.33	12039.002
Standard deviation	928.01	1521.263
Co- efficient of variation (c.v.)	7.24%	12.63%
Correlation of co-efficient (r)	0.9804	
Co-efficient of determination (r^2)	0.9612	
Probable Error (P.E)	0.0117	

Sources : Appendix 1

The above table 4.4 shows the value of statistical tools. A distribution having more C.V. is considered more variable or more heterogeneous or less consistent. A distribution having lesser C.V. is considered less variable or more homogeneous or more consistent or more uniform. It also states that the actual sales are more deviated or fluctuated year by year as the coefficient of variation of the actual sales as shown in the table is greater than the budgeted sales the C.V. of actual sales is 12.63% where as budgeted sales is 7.24%.

Another statistical tools 'correlation coefficient' can be used to analyze the degree of relationship or association between the degree of relationship or association between the budgeted sales and actual sales. to find out the correlation between Budgeted sales and actual sales we can use Karl pearson's correlation coefficient which is denoted by 'r: kari pearson's correlation coefficient is the most commonly used measure of the relationship between the two variables. The value of correlation coefficient is 0.9804 which shows that there is highly positive correlation between Budgeted sales and actual sales achievement. That means the actual sales should increase as the budgeted sales and vice-versa.

A Regression line can also be fitted to show the degree of relationship between the budgeted sales and actual sales and to forecast on estimate the possible actual sales achievement with given budgeted sales. For this purpose, the actual sales have been assumed to be dependent upon the budgeted sales, as independent. So, the regression line of actual sales (Y) on budgeted sales (X) on y on x is as follows

$$\left(y - \bar{y}\right) = r \frac{6y}{6x} \left(x - \bar{x}\right)$$

Subtracting the value from above table 4.4

We have,

$$y - 12039.002 = 0.9804 \frac{1521.263}{928.01}\left(x - 12824.33\right)$$

or, $y - 12039.002 = 0.9804 \times 1.6393\left(x - 1282.33\right)$

or, $y - 12039.002 = 1.6072\left(x - 12824.33\right)$

or, $y - 12039.002 = 1.6072x - 20611.263$

or, $y = 1.6072x - 20611.263 + 12039.002$

or $y = 1.6072x - 8572.261$

The above regression line shows that there is positive relationship between budgeted sales and actual sales it is obvious that the actual sales are in increasing trend and it will be increased by 1.6072 million with increasing the budgeted sales for Rs. 1 Million. By the help of this regression equation. We can estimated the expected sales achievement for the fiscal year 2064/065 with the given value of budgeted sales "x"

Budget sales for 2064/065 (x) = Rs 15638.122

Hence the expected sales achievement

$y = 1.6072 \times 15638.122 - 8572.261$

= Rs. 16561.328 million.

If the relationship between budget sales and actual sales remain the same as the previous year then the actual seals for the fiscal year 2064/065 will be expected to be Rs. 16561.328 million as staved up by the above regression equation.

Another statistical tool called least square methods can be used to analyze the trend of actual sales and to estimate the possible future sales for a given time (years). This tool is considered as a time. Factor straight line trend by the method of least squares will show the relationship between actual sales and years (time). For the least square method. It is assumed that the sales are consitently changed (increased or decreased) with the change in time. To fit the straight line trend. Time factor is considered as independent variable (x) and actual sales achievement (y) is assumed as dependent upon time (years).

Now the straight line trend by least square method for actual sales upon time is expressed by:

$yc = a + bx$ ……..(1)

Where,

y = Actual sales achievement

x = deviation taken in time.

a = fixed value

b = variable value

Table 4.5
Fitting straight line trend by least square from fy 2059/60 to 2063/64.

Fiscal Year	Actual Sales in Rs. 00000 (y)	x = x – 2061/62	x^2	xy
2059/60	9687.65	-2	4	-19375.30
2060/61	11237.49	-1	1	- 11237.49
2061/62	11992.61	0	0	0
2062/63	13264.36	1	1	13264.36
2063/64	14012.90	2	4	28025.80

	$\sum y$ =60195.01	$\sum x = 0$	$\sum x^2$ =10	$\sum xy$ = 10677.37

Since,

$\sum x = 0$ then

$$a = \frac{\sum y}{n} = \frac{60195.01}{5} = 12039.002$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{10677.37}{10} = 1067.737$$

Now the best fit of straight line trend is obtained by substituting the value of 'a' and 'b' in equation

i) i.e y c = a + bx . We get

yc = 12039.002 + 1067.737 x

this trend line equation shows the positive relationship between time (years) and actual sales achievement. The actual sales will be increased by 1067.737 million every year if the sales trends of past years continue in the future. By using this trend line equation, we can estimate the actual sales for fiscal year 2064/065.

The value of deviation {x} for fiscal year 2064/065 is 3 .

We have,

yc = 12039.002 + 1067.737x

= 12039.002 + 1067.737 x 3

= Rs 15242.213 million.

If the past sales trend does not change then the future actual sales will be Rs. 5242.213 million in fiscal year 2064/065. By the help of least square method we can say that the trend of actual sales will have an increasing pattern.

4.4 Category wise Analysis of Revenue:

While preparing revenue plan, the emphasis needs to be given to category of customer. The major aspect of this analysis is to measure the achievement of actual sales and actual sales revenue of each category of NEA.

Table 4.6 shows category wise achievement of budgeted sales unit of NEA and table 4.7 shows the category wise achievement of sales revenue. The detail calculation of this analysis are presented in appendix.

Table 4.6
Category wise achievement of sales units (%)
of NEA form fy 2059/60 to 2063/64

	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Domestic	92.99	95.14	98.11	97.44	99.41	96.618
Non-commercial	96.57	89.71	89.81	81.56	87.85	89.100
Commercial	87.28	84.31	98.29	100.41	110.52	86.162
Industrial	98.62	95.38	101.76	105.35	96.55	99.532
Water supply	92.96	81.04	95.54	83.99	97.11	90.128
Street light	97.09	101.78	128.36	96.41	110.91	106.910
Temporary Supply	31.33	69.60	86.55	112.57	137.74	87.558
Transport	86.69	79.00	75.99	81.64	99.67	84.498
Temple	88.43	100.09	137.95	93.42	94.42	102.922
Community Sales	1143.40	118.50	111.62	136.20	106.93	323.330
Bulk Supply (India)	78.74	96.12	57.58	68.62	72.14	74.640
Average	**181.282**	**91.906**	**98.324**	**96.146**	**101.205**	**113.77**

Source : Appendix II

The category wise average achievement in units of NEA during the whole research period can be efficiently shown in the following bar diagram 4.3

Diagram 4.3
Category wise average achievement of NEA in units

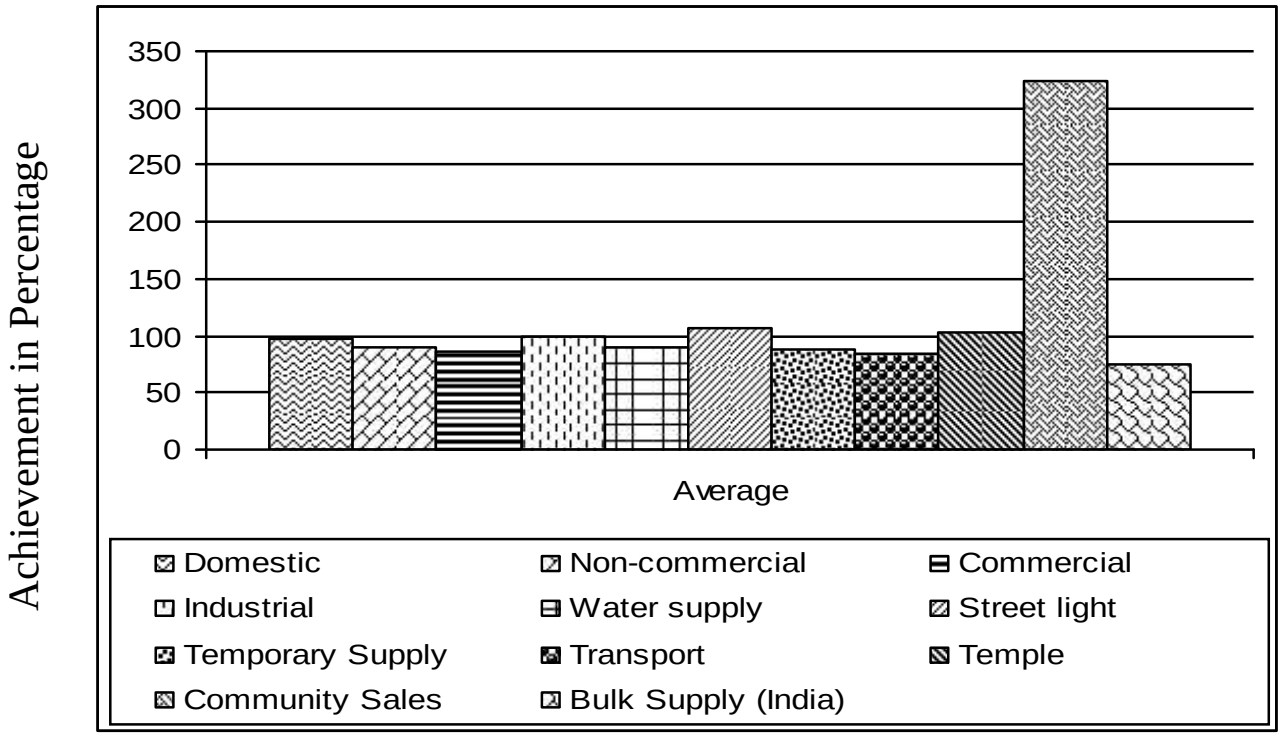


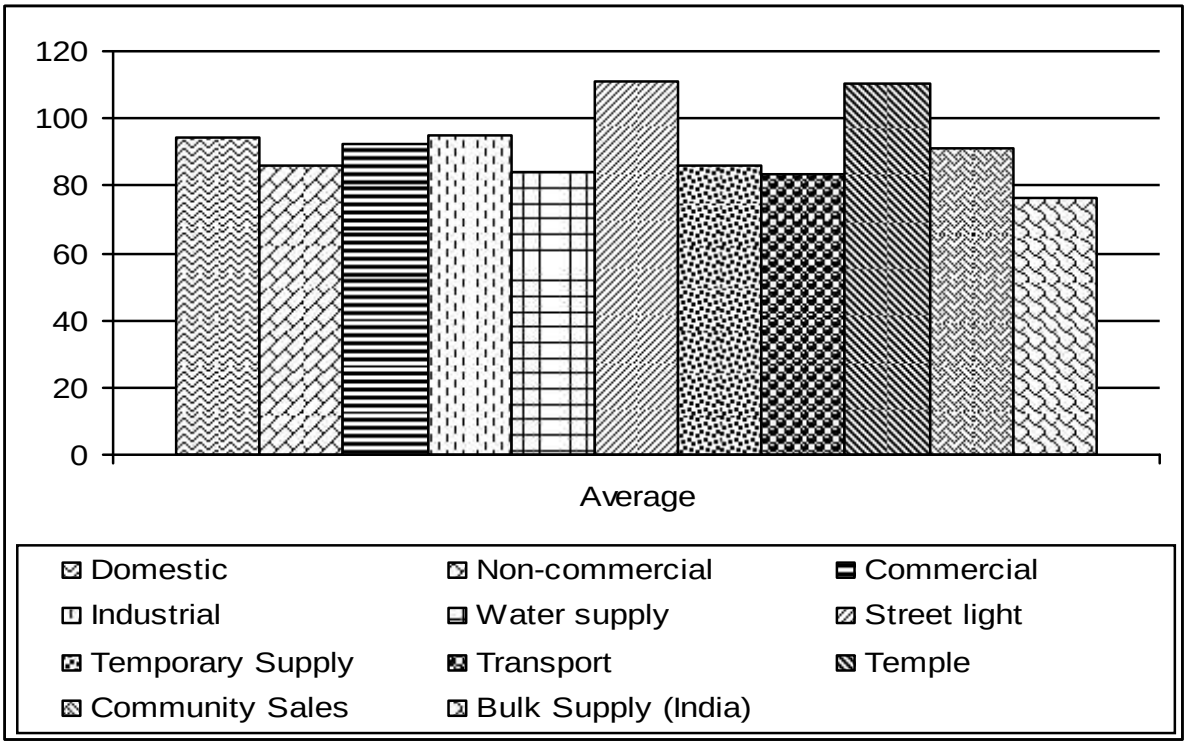
Table 4.7
Category wise achievement of sales rupees (%)
of from fy 2059/60 to 2063/64.

	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Domestic	86.33	92.55	95.98	98.12	98.52	94.30
Non-commercial	87.23	87.11	88.25	81.44	85.80	85.97
Commercial	78.25	82.18	90.55	101.29	109.69	92.39
Industrial	82.60	94.16	99.10	104.21	95.79	95.17
Water supply	87.88	78.88	95.25	81.16	76.12	83.89
Street light	101.69	104.46	145.97	91.77	110.91	110.96
Temporary Supply	30.44	70.22	88.38	107.09	132.88	85.80
Transport	86.71	76.08	73.08	83.46	96.83	83.23
Temple	86.51	101.71	139.60	127.94	95.54	110.26
Community Sales	-	118.50	114.80	114.48	106.93	90.94
Bulk Supply (India)	79.59	92.98	58.19	72.59	77.99	76.27
Average	**73.38**	**90.80**	**99.02**	**96.69**	**98.82**	**91.74**

Source: Appendix II

The above average achievement of Sales revenue of NEA during the research period can be shown in the following diagram 4.4.

Diagram 4.4
Category wise Average achievement of NEA(In Rs)



The above table 4.6 and diagram 4.3 and table 4.7 and diagram 4.4 shows the category wise achievement of sales unit and category wise achievement of sales rupees of NEA. The categories are domestic, Non-commercial, Commercial, Industrial, Water supply and Irrigation, street light, temporary supply, transport, temple, community sales and bulk supply (India) respectively.

It is predicted that the average domestic achievement of sales units is 96.618 while the average domestic achievement of sales rupees is 94.3. The domestic sales unit in fy 2059/60 is 92.99 which reached to 99.14 in the fy 2063/064. It is increasing trend since fy 2059/062. It has slightly gonedown to be 97.44 in the fy 2062/063 in comparison to fy 2061/2062, which is 98.11 in 2061/62.

Similarly a domestic sales rupee is in increasing trend. The mean figure of domestic shows that mean domestic in sales unit is better position than mean domestic in rupees of NEA.

In non-commercial category, the average achievement is 89.10 and 85.97 in sales unit and sales rupees respectively. The Sales unit has gone slightly down after the fy 2059/060 while the remarkable change in sales rupees has been during the year 2062/063.

The average achievement in commercial category is 96.162 and 92.392 in sales unit and sales rupees respectively both the sales are in good increasing trend. the commercial achievement sales unit was 87.28% in the year 2059/060 which then mounted to reach the peak or 110.52% in the year 2063/064, likewise the achievement in sales rupees in fy 2059/060 was 78.25% which then reached the peak of 109.69 in the fy 2063/064. This shows that sales unit is in better position than sales rupees.

In the industrial the average sale unit is 99.53 and the average sale rupees is 95.172. the achievement in sales unit has gone down in the Fly 2059/060 and 2063/064 in comparison to fy 2059/060 But achievement in sales rupees is in increasing trend but has gone down only in during the year 2063/064 in

comparison to fy 2061/062 and 2062/063 though there are ups and downs in sales unit it is in better portion than sales rupees.

In water supply and Irrigation category the average sale rupees is 83.858 which is low but nor the least in comparison to other . the average sales unit is 90.128 which is around the average of Average.

The street light categories in both sales unit and sales rupees are in fluctuating trend. The average achievement in sales unit is 106.91 which is the highest mean. The average achievement in sales rupees is 110.96 which is the highest mean in comparison to other categories of mean.

In the temple category the achievement in sales unit exceeds hundred percentages. In is 102.922 which is next to the highest average. The sales unit is maximum during the fy 206/062 and minimum during the year 2059/60. the average achievement in sales rupees is 110.26. this the sales rupees are maximum during The fy 2061/62 and minimum during the fy 2059/060 The community sales in rupees only started since the fy 2060/061.since then it has exceed 100% Ranging from 118.50% in fy 2060/061 to114.80% in fy 2061/062 then has slightly declined during the year 2063/064. The average community sales unit being 323.33% The community sales unit in fy 2059/060 very high. It figures out to be in thousand while other consequent y it is only in three digit , therefore NEA must Revise the calculation of realistic demand of electricity in this category on the basis of sufficient home task.

The last category in the above table is bulk supply (India). The average achievement of sales unit in this category is 74.64%. The sales units seems to be unsatisfactory. It has the lowest average sales unit. The average achievement of sales rupees is 76.268%. This is also not satisfactory, sales in comparison to other category .

In can be concluded from the above table 4.6 that achievement of sales unit in domestic, industrial, street light, temple and community sales category are relatively satisfactory but lacks consistency in planning. Similarly from table

4.7 it can be concluded that achievement of sales rupees in domestic ,industrial , street light, temple, and community sales categories are satisfactory to some extend but this too shows lack of consistency in planning.

In conclusion, It can be suggested that NEA must calculate the demand of electricity in each categories on the basis of realistic information and sufficient home tasks.

4.5 Contribution of Each category in Total Sales.

Contribution of each category in total sales unit and total sales revenue from fiscal year 2059/060 to 2063/064 are presented in table 4.8 and 4.9 respectively.

Table 4.8
Contribution of each category in total sales unit
from fy 2059/60 to 2063/064

Fiscal year	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Particulars	Coutribution%	Coutribution%	Coutribution%	Coutribution%	Coutribution%	Coutribution%
Domestic	36.36	36.37	37.67	38.09	39.21	37.54
Non-commercial	5.09	4.75	4.62	4.76	4.90	4.824
Commercial	5.89	5.50	6.02	5.60	5.97	5.796
Industrial	38.89	37.10	38.42	39.81	38.88	38.620
Water supply& Imgation	1.91	1.76	1.76	1.88	2.06	1.874
Street light	2.57	2.70	3.07	3.01	3.14	2.898
Temporary supply	0.02	0.02	0.01	0.02	0.03	0.020
Transport	0.36	0.33	0.30	0.30	0.29	0.316
Temple	0.16	0.17	0.23	0.22	0.24	0.204
Community sales	0.37	0.28	0.31	0.42	0.38	0.352
Bulk supply(India)	8.72	11.32	7.87	5.87	4.90	7.736
Total	100	100	100	100	100	100

source : Appendix III

Table 4.9
Contribution to each category in total sales revenue
from fy 2059/060 to 2063/064

Flscal year	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Particulars	Contri bution%	Contri bution%	Contri bution%	Contri bution%	Contri bution%	Contri bution%
Domentic	37.59	37.82	38.18	38.70	39.09	38.28
None Commercial	7.45	6.98	6.80	6.69	6.77	6.94
Commercial	8.45	7.96	8.22	7.86	8.30	8.16
IndusTrial	37.24	35.95	36.52	37.25	36.88	36.77
Water supply Irrigetion	1.43	1.32	1.29	1.64	1.43	1.42
Street light	2.07	2.20	2.75	2.44	2.72	2.43
Temp0rary supply	0.04	0.04	0.03	0.04	0.07	0.04
Transport	0.29	0.26	0.24	0.24	0.22	0.25
Temple	0.13	0.13	0.17	0.23	0.18	0.17
Community sale	_	0.15	0.17	0.18	0.10	5.40
Bulk supply(India)	5.31	7.20	5.62	4.73	4.12	5.40
Total	100	100	100	100	100	100

Source : Appendix III

The above table 4.8 and 4.9 gives the contribution of each category with respect to total sales in sales unit and in sales rupees respectively .

The industrial category gives the highest contribution in sales units . the sales unit averaging to 38.62% while the sales rupees was averaging 36.77% . the second highest contributing category in sales unit is domestic category . the contribution in sales unit was between 36.36% and 39.21% .the average contribution was 37.54% similarly the contribution in sales rupees was in between 37.59% and 39.09% having the average contribution of 38.38%.

Like wise bulk supply India has the contribution in between 4.90%and 11.32% averaging to 7.736% in sales unit and averaging to 5.40% in sales

revenue. Similarly the average contribution of commercial, Non commercial, street light and water supply and irrigation is sales unit are 5.797%, 4.824%, 2.898% and 1.874% respectively. But rest other category have less than 1% contribution.

The highest contribution in sales revenue is from domestic category in sales unit followed by industrial. The average contribution of commercial, Non - commercial bulk, supply (India), street light, and water supply and irrigation are 8.16%, 6.94%, 5.40%, 2.43%, and 1.42% respectively. All other category has average contribution below 1%.

4.6 Contribution of Consumers in Each category:

The detail studies about contribution of each category with no. of consumers are presented in appendix4. The brief analysis of the results of contribution of consumers in each category from FY 2059/060 to 2063/064 is presented in table 4.10 as below.

Table 4.10
Contribution of consumers in each category from fy 2059\060 to 2063\064.

	2059/60	2060/61	2061/62	2062/63	2063/64	Average
Domestic	95.93	95.87	95.90	96.02	96.08	95.96
Non-commercial	0.98	1.002	0.094	0.858	0.782	0.912
Commercial	0.44	0.55	0.52	0.517	0.482	0.502
Industrial	2.12	2.04	2.03	1.940	1.799	1.99
Water supply	0.03	0.03	0.03	0.032	0.030	0.03
Irrigation	0.15	0.177	0.24	0.293	0.504	0.273
Street light	0.012	0.127	0.14	0.129	0.121	0.127
Temporary Supply	0.019	0.014	0.014	0.013	0.013	0.015
Transport	0.006	0.005	0.005	0.004	0.004	0.0048
Temple	0.203	0.018	0.186	0.185	0.179	0.187
Community Sales	0.001	0.0001	0.0014	0.003	0.005	0.0019
Bulk Supply	0.0006	0.0005	0.0005	0.0004	0.0004	0.0005

(India)						
Average	**100**	**100**	**100**	**100**	**100**	**100**

Source :Appendix IV

The contribution of domestic category of consumer during the F/Y 2059|060 ranks in the first position . The contribution in total sales in between 95.87% and 96.08% averaging to 95.96. like wise industrial category ranks in the second position . its contribution lies between 1.799% to 2.12% . the average contribution lies being 1.9% . the contribution of all other category of consumer is below %. the average contribution of Non-commercial , commercial irrigation , temple , Street light, temporary supply, water supply, community sales and Bulk supply (India) are 0.912% ,0.502%, 0.273%, 0.187%, 0.127%, 0.015%, 0.0048%, 0.0019%, and 0.0005%respectively. Except domestic and industrial category the contribution of consumer during FY 2059/060 to 2063/066 were very low.

4.7 Relationship between Total Revenue and profit:

Profit is a major element of each and every business endeavor for survival and future development. Business without profit exists nowhere. No matter the concept of profit is changing from time to time. It present reasonable profit approach seems to hold a strong position. profit is the nerve center of any business organization. So it can be said that profit is the blood circulation of any organization. Profit is essential to pay expenditure dividends and to get benefits from opportunities and financial contribution to natural treasury is a source of revenue as well as mobilization of domestic sources. profit of any organization highly depends upon sales relationship.

NEA has been generating negative returns. NEA is unable to earn profit from years 2003 and is not able to pay loan. There is no effective control system for reward and punishment system. The following table shows the profit and loss trend of NRA from FY 2059/060 to 2063/064

Table 4.11

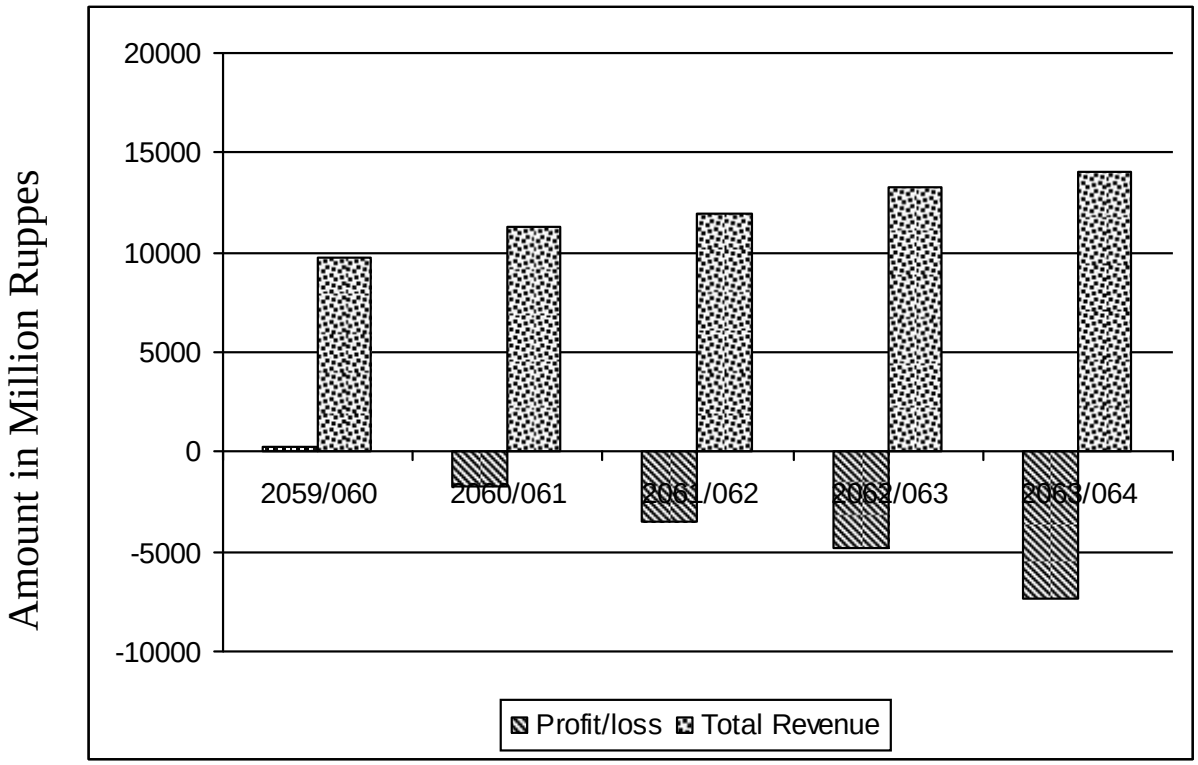
Total revenue and profit/ loss trend of NEA.

Fiscal year	Profit/loss (in million Rs)	Total Revenue in million Rs	% of profit / loss on total revenue
2059/060	278.9	9687.65	2.88
2060/061	(1694.9)	11237.49	(15.08)
2061/062	(3475.2)	11992.61	(28.98)
2062/063	(4808.0)	13264.36	(36.25)
2063/064	(7300.6)	14012.90	(52.10)

Sources: Annual Report of NEA

The above table 4.11 gives the account of total revenue and profit /loss trend of NEA from FY 2059/060 to 2063/064. NRA during the fiscal year 2059/060 was in very strong position. It was in profit of 278.9 millions while the total Revenue was 9687.65 million. The percentage of profit was 2.88 since, after FY 2059/060 it went in loss. The loss was in increasing trend starting from 1694.9 million to the height of 7300.6 million. This shows that the percentage loss started from 15.08 and reached to 52.10

Graph 4.5
Relationship between Revenue and profit/ loss trend of NEA



The above line graph gives the clear picture of relationship between total revenue and profit / (loss) of NEA during the research period of 2059/ 2060 t0 2063/2064 the total revenue is in increasing trend where as the profit in decreasing trend that shows the relationship between total revenue and profit is in totally inverse direction.

The least square method can be used to analyse the trend of profit (Loss) and to estimate the possible future profit or loss for a given time of year. Considering the time factors as independent and profit or loss as dependent factor upon time. It will show the relationship between year and profit or loss.

Let the straight line trend be yc=a+bx

Table 4.12
Fitting straight line trend by least square from fy 2059/2060 to 2063/2064

F/y (x)	Profit / loss (y) (in Rs000000)	x=x-2061/062	x^2	xy
2059/060	2789.9	-2	4	-557.80

2060/061	-1694.9	-1	1	1694.90
2061/062	-3475.20	0	0	0
2062/063	-4808.00	1	1	-4808.80
2063/064	-7300.60	2	4	-14600
	εy= -16999.80	εx=0	εx^2=10	εxy=-18270.90

Since εx=0 then

$a=\frac{£y}{n}=\frac{-16999.80}{5}$ =-3399.96

$b=\frac{£xy}{n}=\frac{-18270.90}{5}$ =-3654.18

Now substituting the value of 'a' and 'b' in the above equation

we have

yc =-3399.96+(-3654.18)x

=-3399.96-3654.18x

for the estimation of profit or loss

For the year 2064/65

We have

a=3

yc=-3399.96-3654.18x3

=-14362.5 million.

The estimated loss for the fiscal year 2064/65 will be Rs 14362.5 million if the past profit trend continue . with the help of least square method we can say the trend of loss of NEA is increasing.

4.8 Analysis of Account Receivable of NEA.

The following table 4.13 shows that the account receivable, sales revenue average collection period and debtor turnover of EA.

Table 4.13
Account receivable sales revenue average collection period and Debtor Turnover From Fy 2059/060 to 2063/064

Fiscal year	sales revenue in Rs. million (A)	Account receivable inRs million (B)	Debtor turnover (C=A/B)	Average collection period=360/c
2059/060	9687.65	2284.9	4.24 times	86.80 days
2060/061	11237.49	3380.2	3.32 times	109.94 days
2061/062	11992.61	3735.7	3.21 times	113.71 days
2062/063	13264.36	3697.7	3.59 times	101.67 days
2063/064	14012.90	4064.6	3.45 times	1.5.80 days

Source : Annual Report of NEA

The above table 4.14 shows that sales revenue, account receivable,debtor turnover and average collection period of NEA from fiscal year 2059/060 to 2063/064. The debtor turn over and average collection priod are calculated by using following formula.

Debtor turnover = sale / closing debtor or sales / Account receivable.

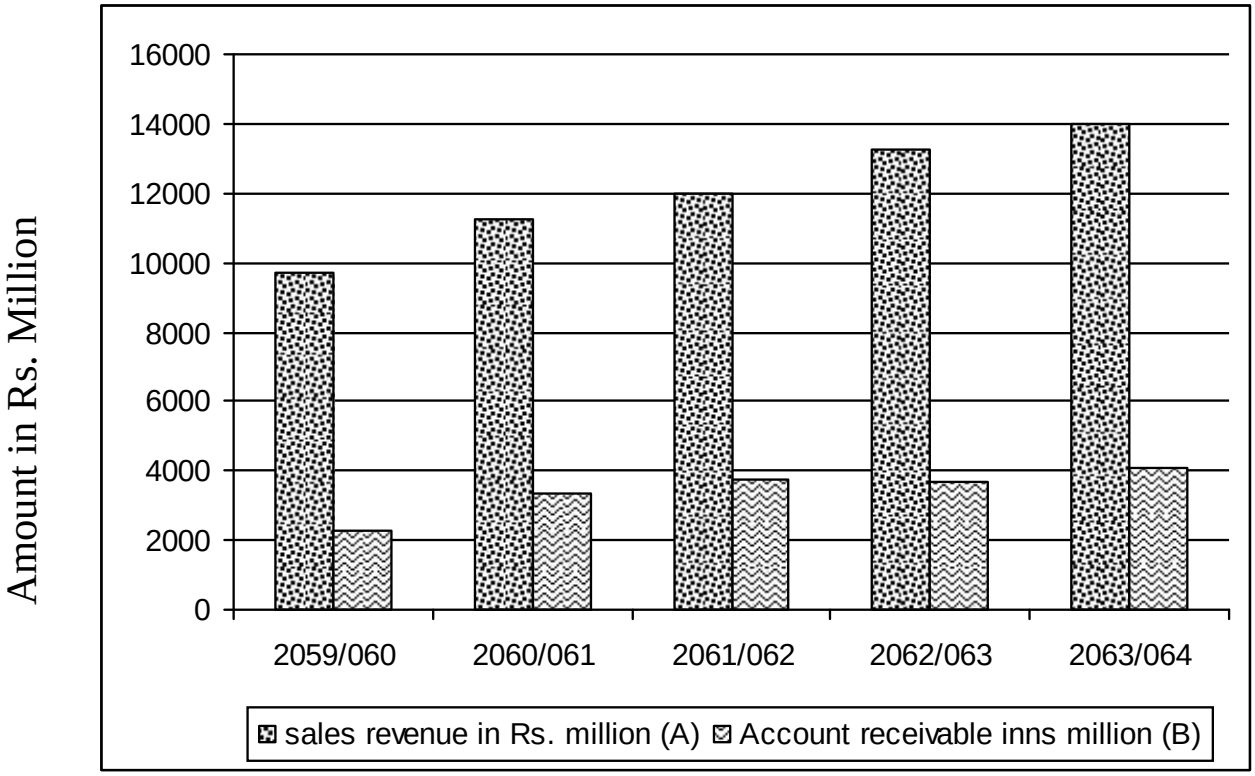
Average collection period= days in a year / Debtors turnover.

The table shows that as sale revenue increases, it puts impact on Account receivable so does account receivable increases. Debtor turnover is in decreasing trend. It decreased from 4.24 times to 3.21 times during the fiscal year 2061/062 .then it has slightly gone up to 3.59 time during the year 2062/063 and then again it has deceased to 3.45 times in fy 2063/064.

The average collection period of NEA during the fiscal year 2059/060 was 86.08 days. It increase to 109.94 days and 113.71days during the F/Y 060/061and 2061/062 respectively. Further more it decreased to 101.67 days during fy 2062/063 the above table shows that the collection period was good enough during fy 2059/060 This is to because the collection period was the lowest during the year 2059/060.

The relationship of sales and account receivables can be shown by graph as follows

Graph 4.6
Relationship between sales and account receivable



The above graph shows that both the sales revenue and account receivable are increasing in the whole research period. Account receivable is increasing with the increase in sales.

4.9 Relationship Between total power available and power loss.

Power loss is most crucial issue of NEA. Every fiscal year power is not utilized fully. Normally 15% of electricity loss out of actual production is considered. leakage, outage and theft are manor causes of power loss the following table shows the total power available , Total sales and power loss of NEA from fiscal year 2059/060 to 2063/064.

Table 4.14
Total Power Available, Sales and Power Loss
From fy 2059/060 to 2063/064 (Unit in million)

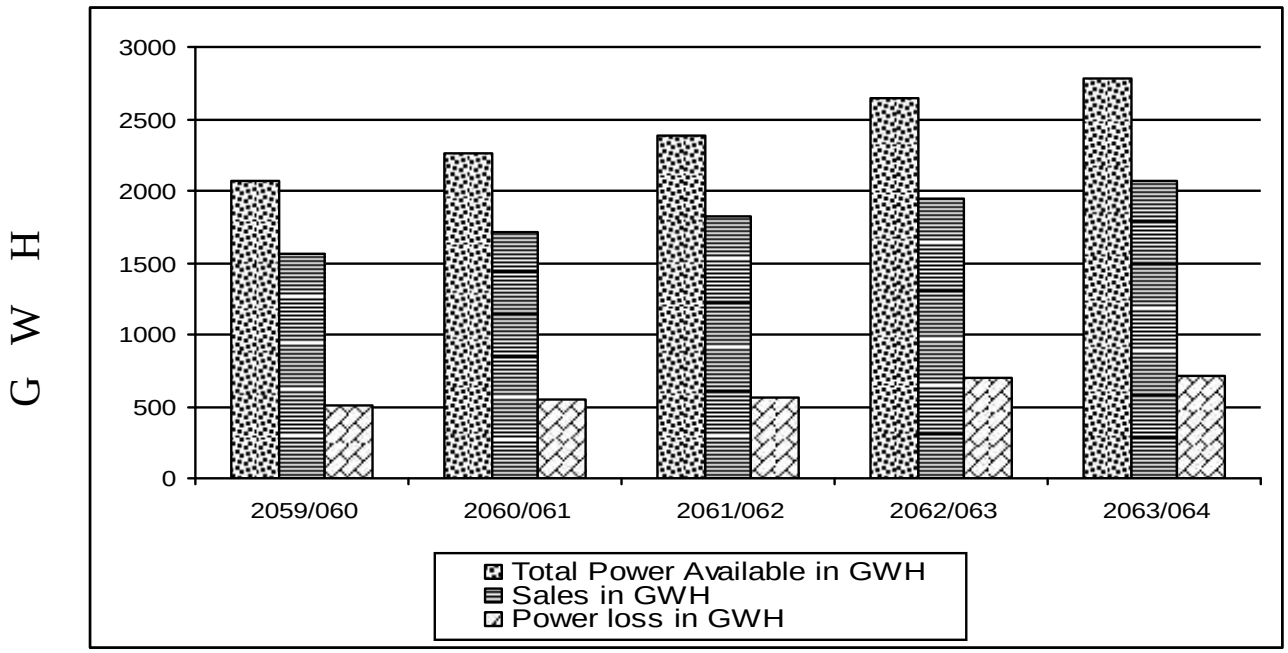
Fiscal Year	Total Power Available in GWH(production+purchase)	Sales in GWH (Total Sales+self consumption)	Power loss in GWH	% of Power loss compared to Total Power Available	% of Power loss compared to Sales
2059/060	2066.33	1558.91	507.42	24.56	32.55
2060/061	2261.13	1719.16	541.97	23.97	31.53
2061/062	2380.89	1824.10	556.79	23.39	30.52
2062/063	2642.75	1940.60	702.15	26.57	36.18
2063/064	2780.92	2062.62	718.30	25.83	34.82

Table 4.14 shows the relationship between total power available, sales and power loss of NEA from 2059/060 to 2063/064. IT is clearly seen that percentage of power loss is fluctuating with respect to total power available and total sales though the total power available, total sales and power loss are found to be in increasing trend during the same period. The percentage of power loss with sales is found to be higher than the percentage of power loss with total power available. This shows that the effort to decrease the power loss is found to be in effective.

The total power available, sales and total power loss can be compared by the help of following bar diagram 4.7

Diagram 4.7

Relationship between total power available sales and power loss.



The above diagram shows the total power available, sales and total power loss from fiscal year 2059/060 to 2063/064. The power loss in increasing in total power available and sales.

To analyze the relationship between total power available and power loss of NEA. Some statistical tools are used which are presented below.

Table 4.15

Summary of statistical calculation

statistical tools	Total power available 'x'	Power loss 'y'
Arithmetic mean	2426.40	605.33
Standard deviation	257.50	87.28
Coefficient of variation	10.61%	14.42%
Correlation coefficient	0.9633	
Coefficient of Determinant	92.79%	

Source :- Appendix-V

Table 4.15 shows that power loss of NEA is more variable then total power available having CV. The correlation coefficient between total power available and power loss in 0.9633. That means there is highly positive correlation between total power available and power loss which shows that power loss of NEA increases with increase in Total power available. The coefficient of determination between total power available and power loss is 92.79% that means power loss is explained up to 92.79% by total power available and remaining portion by other factors.

4.10 Analysis of Financial Ratio

Ratio analysis is a widely used tool of financial analysis. The term Ratio represents the numerical or quantitative relationship between two variable financial analysis is a tool used to know the performance of any enterprises. It present the actual situation of an organization. It provide guidelines especially in spotting trend towards better or poor performance. since financial efficiency is vital element to achieve the goal the management should be aware of the current financial position. If present condition can be assessed than the management can predict the future position. corrective action can be taken to improve financial position. So it is very important for any enterprises to analyze it financial position with the help of Ration analysis. The Ratios can be studied by classifying into the following groups.

1. Liquidity Ratio
2. Leverage Ratio
3. Activity Ratio or Turnover Ratio
4. Profitability Ratio

4.10.1 Liquidity Ratios

Liquidity ratios measures the firm's ability to fulfill its short term commitments. These ratio focus on current assets and current liabilities. and are used to ascertain the short term solvency position of a firm. These ratio as a group are intended to provide information about a firm's liquidity.

The liquidity ratio provide a quick measure of the firm by establishing a relationship between its current assets and currently liabilities. two ratios are mainly used to measure the liquidity position.

A . Current Ratio:

Current ratios show the relationship between current assets and current liabilities. The current ratio is measure of firm's short term solvency. It indicates the availability of current asses in rupee for every current liability. in other words it is an indicator of firm's ability to meets its short term obligation . It is also known as short term solvency ratio or working capital ratio. Generally current ratio of 2 times or 2: is considered to be satisfactory. The table below presents current ratio of NEA from flscal year 2059/060 to 2063/064.

Table 4.16
Current Assets Ratio of NEA
from fy 2059/060 to 2063/064

Fiscal Year	Current Ratio
2059/060	1.23:1
2060/61	0.94:1
2061/62	0.76:1
2062/063	0.64:1
2063/64	0.65:1

Source: Appendix VI

The above table 4.16 shows the current assets ratio of NEA from fy 2059/060 to 2063/064. It is clear from above table that current assets ratios are less than 2:1 which is considered to be standard. All current

ratio lie 'between' 0.64 to 1.23 in the above table. Since the current ratio of 2:1 is considered as satisfactory. to therefore solvency position of NEA is not satisfactory being current ratio less than standard.

B. Quick-ratio

It is also called acid test ratio or liquid ratio. this ratio establishes the relationship between quick liquid assets and the current liabilities. A current assets is considered to be liquid if it is convertible into cash without loss of time and value. cash, Bills receivable, sundry debtor, and short investment is considered to be most liquid assets. inventory and prepaid expenses are less liquid assets . Generally a quick ratio of 1:1 is considered to be satisfactory. The quick ratio is calculated by dividing the total quick assets by current liabilities.

The table 4.17 shows the quick ratio of NEA from fy 2059/060 to 2063/064.

Table 4.17
Quick Ratio of NEA
from fy 2059/060 to 2063/064

Fiscal Year	Quick Ratio
2059/060	0.50:1
2060/61	0.54:1
2061/62	0.46:1
2062/063	0.38:1
2063/64	0.65:1

Source: Appendix VI

As the above table 4.17 states that the quick ratio of NEA in all flscal years is below the standard (1:1) so it can be concluded that the quick ratio of NEA is unsatisfactory in any fiscal year.

4.10.2 Leverage Ratios:

Leverage ratios are also called long term solvency ratios or capital structure ratio. Leverage ratios are calculated to judge the long term financial position of the firm. The following are the major types of Leverage ratios.

A. Debt to total capital ratio

B. Debt equity ratio.

Among the two we will discuss only the 'A' which is frequently used in NEA.

A. Debt to total capital ratio This ratio shows the relationship between total debt and total capital employed by the company. Total capital includes long term liabilities plus shareholders equity. Total capital is also regarded as permanent capital or capital employed or long term fund. This ratio is ascertained by using the following formula.

$$\text{Debt to total capital ratio} = \frac{Total\ \ Debt}{Total\ \ Capital}$$

Table 4.18
Debt to total capital ratio from fy 2059/060 to 2063/064

Fiscal Year	Quick Ratio
2059/060	0.72:1
2060/61	0.78:1
2061/62	0.82:1
2062/063	0.84:1
2063/64	0.84:1

Source: Appendix VI

Table 4.18 shows debt to total capital ratio. Debt to capital ratio of 2:3 is considered as satisfactory. Debt to total capital ratio of NEA for all fiscal years starting since 2059/060 to 2063/064 is well enough satisfactory . the highest satisfaction was gained during the fy 2062/063. The satisfaction level is in increasing level.

4.10.3 Turnover Ratios

A turnover ratio or activity ratio is a measure of movement and thus indicates as how frequently an account has moved/turned over during a period. It shows as to how efficiently and effectively the assets of the firm are being utilized. The activities ratios therefore, measure the effectiveness with which the

firm uses its resources. The activity ratios way be calculated for all the specific assets, however, some of the important activity ratios are as follows:

A. Capital Employed Turnover ratio:

Capital employed turnover ratio establishes the relationship between the amount of sales and capital employed. It shows how efficiently capital employed in the NEA has been utilized in generating its sales revenue. Table 4.19 presents the capital employed turnover ratio of NEA.

Table 4.19
Capital Employed Turnover Ratio from fy 2059/060 to 2063/64.

Fiscal Year	Capital Employed Turnover Ratio
2059/060	0.15 times
2060/61	0.17 times
2061/62	0.18 times
2062/063	0.18 times
2063/64	0.18 times

Source : Appendix VI

The capital employed turnover ratio has increased from 0.15 times during the fy 2059/060. This ratio then has remained constant to 0.18 times from fy 2061/062 to 2063/064. The capital employed turnover ratio explains that, the higher the turn over ratio, the more effective utilization of the creditor's fund.

B. Total Asset Turnover Ratio:

This ratios shows the relationship between total assets and sales. Total assets turnover ratio indicates how well the firm's total assets are being used to generated its sales. A higher assets turnover ratio indicated better utilization of total assets in generating sales and lower total assets turnover ratio indicates over investment in total assets. Generally, a highly ratio is preferable which gives the result if better profitability. The following table 4.20 presents the total assets turnover ratio of NEA.

Table 4.20
Total Assets Turnover Ratio from fy 2059/60 to 2063/64

Fiscal Year	Total Assets Turnover Ratio
2059/060	0.13 times
2060/61	0.15 times
2061/62	0.15 times
2062/063	0.15 times
2063/64	0.15 times

Source : Appendix VI

The above table shows the total assets turnover ratio. The total assets turnover ratios of NEA during the year 2059/060 are 0.13 times. It then slightly went upto 0.15 times and remain constant to 0.15 times. Since fy 2060/61 to 2063/064. This show that the total assets turnover ratio of NEA is not satisfactory. One of the reasons behind it that the NEA has invested large amount in assets.

C. Fixed Assets Turnover Ratio:

Fixed assets turnover ratio is also termed as the ratio of sales to fixed assets. Fixed assets turnover ratio indicates how efficiently the fixed assets are used. It measures the efficiency with which the firm has been using its fixed assets to generate sales. A higher fixed assets turnover ratio indicated better utilization of fixed assets in generating sales and lower fixed assets turnover ratio indicates over investment in fixed assets. Following table shows the fixed assets turnover ratio of NEA.

Table 4.21
Fixed Assets Turnover Ratio from f/y 2059/060 to 2063/064

Fiscal Year	**Fixed Assets Turnover Ratio**
2059/060	0.17 times
2060/61	0.20 times
2061/62	0.20 times
2062/063	0.22 times
2063/64	0.22 times

Source : Appendix VI

In the above table the fixed assets turnover ratio is 0.17 times during the year 2059/60, which rose up to 0.20 during the fy 2060/061 and 2061/062. It further increased to 0.22 times during the year 2062/063 and 2063/064. It indicates that NEA has unsatisfactory fixed assets turnover ratio. It is because of large investment in fixed assets.

D. Inventory Turnover Ratio:

This ratio is also called stock turnover ratio. This ratio shows the relationship between the cost of goods sold and the average inventory. This ratio measures how frequently the company's inventory turned into sales. Generally a high inventory Turnover is indicated good inventory management and low inventory turnover is indicated poor inventory management. The following table shows the inventory turnover ratio of NEA.

Table 4.22
Inventory Turnover Ratio of NEA from f/y 2059/060 to 2063/064

Fiscal Year	Inventory Turnover Ratio
2059/060	9.16 times
2060/61	11.05 times
2061/62	11.44 times
2062/063	9.66 times
2063/64	10.42 times

Source : Appendix VI

Inventory Turnover ratio during the fy 2059/060 remained to 9.16 times. It increased to 11.05 times and 11.44 times during 2060/061 and 2061/062 respectively. During the fy 2062/63 it went down to 9.66 times meeting the level of 2059/060 while increased to 10.42 times during 2063/64.

4.10.4 Profitability Ratios

The profitability ratios measure the profitability or the operational efficiency of the firm. The main objective of a company is to earn profit. Profitability ratios are the measure of its over all efficiency. Generally profitability ratios can be calculated in term of the company's sales investment

and earning and dividends. The following are the main types of profitability ratios.

A. Gross Profit Ratio:

Gross profit ratio is also termed as gross profit margin this ratio shows the relationship between gross profit and net sales. It measures the overall profitability of the company in terms of sales. It is generally expressed in percentage. Following table shows the gross profit ratio of NEA.

Table 4.23
Gross Profit Ratio of NEA
from f/y 2059/060 to 2063/064

Fiscal Year	Gross Profit Ratio
2059/060	37.88%
2060/61	51.44%
2061/62	43.03%
2062/063	40.80%
2063/64	35.84%

Source : Appendix VI

The above table shows the gross profit ratio of NEA during fy 2059/60 to 2063/64. The gross profit ratio has remained between 35.84% to 51.44%. The gross profit ratio remained below 38% during fy 2059/60 and 2063/64. While it was around 40% during fy 2061/062 and 2062/63. The highest gross profit ratio achieved during fy 2060/061. i.e. 51.44%. It is obvious that higher the gross profit higher the strength of the authority.

B. Net Profit Ratio:

This ratio also called net profit margin. This ratio measured the overall profitability of a business by establishing the relationship between net profit and net sales. It is expressed in terms of percentage. The following table 4.24 shows the net profit ratio of NEA from fy 2059/60 to 2063/64.

Table 4.24
Net Profit Ratio of NEA
from f/y 2059/060 to 2063/064

Fiscal Year	Net Profit Ratio
2059/060	-9.08%
2060/61	-17.74%
2061/62	-14.82%
2062/063	-10.41%
2063/64	-18.43%

Source : Appendix VI

The above table 4.24 gives the net profit ratio of NEA during fy 2059/60 to 2063/64. Since fy 2059/60 to 2063/64 NEA could not make any profit if has only experienced the net loss. So it has only achieved a bitter negative net profit ratio in every successive year since 2059/60 to 2063/64. This data of loss in net profit ratio of NEA suggests the authority to have a well organized planning and monitoring of the activities those results to bring the authority to have positive results.

C. Return on Assets (RoA):

This ratio measures the relationship between the total assets and net profit after tax plus interest. It measure the productivity of the assets ad determine how effectively the total assets have been used by the company. The table 4.25 presents the RoA of NEA from fy 2059/060 to 2063/064.

Table 4.25
Return on Assets (RoA)
from f/y 2059/060 to 2063/064

Fiscal Year	Return on Assets (RoA)
2059/060	0.75%
2060/61	1.38%
2061/62	1.57%
2062/063	2.04%
2063/64	0.88%

Source : Appendix VI

The above table 4.25 draws the picture of return on assets in percentage of NEA. The return on assets is positive, but it is very low. It is in increasing position since 2059/060 to 2062/63 which was 0.75%, 1.38%, 1.57% and 2.04% respectively. In conclusion it can be concluded that NEA has very low productivity of assets. Hence it is suggested to NEA's management group to manage its management for increasing the productivity of assets.

D. Return on capital Employed (RoCE)

This ratio measures the relationship between capitals employed and net profit after tax plus interest. This ratio indicates how well the management has used the fund supplied by creditors and owners. Higher ratio indicates the efficient of fund entrusted to the firm by creditors and owners. The table 4.26 shows the RoCE of NEA from fy 2059/60 to 2063/64.

Table 4.26
Return on Capital Employed (RoCE) of NEA
from f/y 2059/060 to 2063/064

Fiscal Year	Gross Profit Ratio
2059/060	0.81%
2060/61	1.54%
2061/62	0.18%
2062/063	2.40%
2063/64	1.04%

Source : Appendix VI

The table 4.26 shows the return on capital employed ratio of NEA. The return on capital employed has fluctuated in every year since fy 2059/60 to 2063/64. The lowest return was during 2061/062 i.e. o.18%. The return on capital employed is very low in every year. This that capital employed is very low.

4.11 Major Findings :

The major finding of this research study is based on the analysis of available data which are pointed as follows:

a) Budgeted sales and actual sales both in unit an amount are in increasing trend. Increase in actual sales in percentage both in unit and amount are fluctuating from 5.80 to 10.59 and 5.64 to 16 respectively.

b) Achievement has not been met during the research period. The highest achievement in unit 96.46% during the fiscal year 2062/63 and achievement in amount is 99.92% during the fiscal year 2062/063.

c) The correlation coefficient (r) of budgeted sales and actual sales is 0.9804 which shows that the correlation is highly positive. This means they more to the same direction.

d) The coefficient of determination is 0.9612 {96.12%}. This means that sales are explained by budgeted sales up to 96.12% and the remaining portion i.e. 3.88% is explained by other factors.

e) The probable error is 0.0117 which is six times less than correlation coefficient i.e. 0.98047 > 0.0702. Hence the correlation coefficient is significant.

f) The regression line y = 1.6072 'x' – 8572.261 shows the positive relationship between budgeted sales and actual sales. The actual sales will increase by Rs. 1 willion while in the next fiscal year actual sales will reach to Rs. 16561.328 million if other factor remaining constant.

g) The analysis of category wise achievement of sales unit and sales rupees of NEA i.e 106.911 and 110.96% shows that the highest achievement is achieved by street light while the lower is made by bulk supply (India) i.e. 74.64% and 76.26% respectively.

h) The highest contribution in total sales in units and in rupees in categorywise contribution of NEA are contributed by domestic sales which is 37.54% and 38.28% in average while the least contribution is 0.02% and 0.04% in average respectively contributed by temporary supply.

i) The highest contribution of consumer is 95.96% in average which is gained by domestic category of consumer, while the lowest is 0.0005% in average is gained by bulk supply (India).

j) Analysis of profit and loss shows that NEA is loss during fy 2060/061 to 2063/64, where the percentage of loss on total revenue is 15.08 to 52.10% respectively. It is on profit only in fy 2059/60 which is 2.88 profit on total sales.

k) The regression line calculated by least square method shows loss even in next fiscal year 2064/065 which figures out to be 14362.5 million in rupees.

l) The highest account receivable. Sales revenue debtor turnover and average collection period during the research period are 4064.6 million 14012.90 million, 4.24 times and 113.71 days respectively.

m) The highest percent of power loss in total power available is 26.57% which is during the f/y 2062/063.

n) Finding on analysis of financial ratio:

   i) The highest current ratio and quick ratio is 1.23 and 0.54 during the fy 2059/60 and 2060/61 respectively. While the lowest current ratio and quick ratio is 0.64 and 0.38 respectively during the year 2063/064.

   ii) The highest and the lowest debt to total capital ratio is 0.84 and 0.72 during the fy 2062/63 and 2059/60 respectively.

   iii) The highest capital employed turnover ratio, total assets turnover ratio, fixed assets turnover ratio and inventory turnover ratio is 0.18 times, 0.15 times, 0.22 times and 11.44 times during the research period.

   iv) The highest gross profit ratio, return on assets and return on capital employed is 51.44% in F/y 2060/061 2.04% in 2062/063 and 2.40 in 2063/064 respectively. The net profit ratio is in negative position in research period.

Chapter V

Summary, Conclusion and Recommendation

5.1 Summary

Nepal Electricity authority is a leading and sole corporation in power sector in Nepal. It was corporated on 7 Kartik, 2041 B.S. under the Nepal electricity Act 2041 in order to make effective, independent and economical production, transmission and distribution of electricity and to manage properly the electricity supply. The history of NEA is already reflected in the previous Chapters.

Planning is the essence of management without it we can not imagine efficient management. Management planning provides the basis for performance. In NEA revenue result from the sale of electricity which is measured by charge made to customers. Revenue is influenced by both internal and external factors. Most of the corporate planning process starts from revenue planning which co-ordinates the effort of revenue department, production department and all others department. Many factor should be considered for revenue planning including revenue trends limitation of supply, potential competitors and general level of economy.

Nepal Electricity Authority is the largest government undertaking PEs in Nepal with the highest capital investment assets and human resources. Government of Nepal established NEA for development of electricity as a major infrastructure requirement for development. It has undertaken all the responsibility of planning construction, operation and generation all over the country. The main objective of NEA is to provide nationwide low cost and reliable electricity resources to people and to relate the infrastructure for the development of the country as a whole. Though NEA's market is purely monopoly. It is continuously facing problem of liquidity, transmission loss and under capitalization.

As per the nature of the study secondary data's are used with descriptive and analytical approach for this research study fire years data from fiscal years 2059/060 to 2063/64 has been used. Data are tabulated as per the requirement of the study. Statistical tools like arithmetic mean, standard deviation and coefficient of determination, probable error of correlation, regression, graphs, and diagrams have been used to analyze the data. Similarly a financial tool that is ratio analysis has also been used.

5.2 Conclusions:

Having analyzed the over all revenue planning of NEA the following conclusion are drawn.

1. During the whole study period the actual sales achievement is lower than budgeted targets. This fact is realized due to ineffective implementation of budgeted.
2. NEA should take under consideration the demand determinants such as price of electricity cost of auto generation of electricity, family income,cost of alternative and reliability of NEA service while forecasting demand.
3. The category wise achievement both in sales and unit shows fluctuation in mean. Which is due to ineffective and timely planning. So the categories having mean below hundred percent should be increased.
4. NEA should get consistency between budgeted and achievement level ,especially in some sector such as bulk supply and street light.
5. NEA is having loss of power every year which is adversely affecting in revenue generation.
6. The loss figure suggests that approximately 15% is accounted of loss due to technical reasons and 10% non-technical loss that may be attributed chiefly to the irresponsible and unauthorized used of electricity. Other factors contributing to non technical losses are

faulty metering devices in use. unaccountable public installation such as temple and street lights and NEA's inefficiency to records its own consumption.

7. The due amount of account receivable denoted inefficiency of NEA's collection policy.
8. NEA has bared a loss. The loss is in increasing pattern with respect to sales revenue. The reality of loss is due to high investment in fixed assets.
9. The relationship between budgeted sales and actual sales is positive. This shows that sales in the future will increase .
10. The statistical tools (C.V.) show that the actual sales are highly fluctuating during entire research period.
11. In comparison to actual sales profit is highly fluctuating during the entire research period. This shows that there may arise a questions mark to the management of NEA for not meeting its sustainable profit in the long run.
12. NEA has not exercised in preparing monthly budged which is extremely necessary for planning and forecasting.
13. NEA has not prepared plan and programs for agricultural sectors consumption of electricity.
14. The current ratio and quick ratio below its standard which shows solvency position of NEA is not satisfactory.
15. The fixed assets turnover ratio shows that NEA is not utilizing its fixed assets to increase sales effectively.
16. The net profit ratio is in negative during research period which indicates that NEA is not in sound position.

5.3 Recommendations:

1. NEA's planners must be properly trained for budgeting.
2. NEA should excise to prepare plans and programs for agriculture sector, which is capable of massive consumption of electricity.
3. NEA should make keen effort to prepare monthly budget for sales revenue.
4. NEA should pay more effort to manage the supply to the profitable sector such as domestic, industrial, commercial, non-commercial and temporary supply.
5. NEA is paying a huge amount as interest on long term loan which is not good for authority. So it should emphasized internal financing to minimize such budget. Therefore NEA must restructure its capital structure and for this issue the share and refund the debt.
6. NEA should try to reduce overdue amount of receivable. NEA should provide incentive to staff to encourage them for collection of overdue amount of receivable.
7. NEA should forecast planned collection for next year on the basis of actual collection of previous year.
8. NEA should reduce its huge amount of fixed cost resulting from over staffing fuel and other overheads.
9. NEA should consider demand determinants such as family income, price of electricity, connection charge, cost of alternative sources, cost of self generation of electricity and reliability of NEA service while forecasting demand.
10. To generate adequate sales and profit NEA should efficiently utilize its total resources (total assets) because its total turnover ratio seems low.

11. NEA should introduce program and action plan for the reduction of transmission loss, both technical and non-technical. NEA can improve its efficiency in the metering device instantly either by changing old meters or utilizing only efficient meter readers or improving its transmission system. Non technical loss can be reduced by adopting effective managerial, social, legal and other measures.
12. NEA should adopt standard costing system and also established a cost control centre for cost control purpose. NEA should reduce high operating cost to reduce loss.

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Appendix-1

Budgeted sales are assumed to be independent variable and denoted by 'x' Actual sales are assumed as dependent variable and denoted by 'Y' Now calculation of arithmetic mean, standard deviation of variation, correlation co-efficient, co-efficient of determination and probable of error of correlation between budgeted sales and actual sales achievements of NEA.

Fiscal Year	Budgeted Sales (X) (in Rs.'000 00'	Actual Sales (Y) In Rs'000 00'	$x = (x -$	X^2	$y = (y -$	Y^2	Xy
2059 /60	11521.4	9687.6 5	- 1302. 93	1697637.0 1	- 2351. 352	5528856.2 3	3063656.4 7
2060 /61	12238.8	11237. 5	- 585.5 3	342845.38 1	- 801.5 12	642421.48 6	469309.32 1

2061/62	12825.7	11992.6	1.402	1.965604	-46.392	2152.21766	-65.041584
2062/63	13275.7	13264.4	451.253	203448.809	1225.358	1501502.23	552701584
2063/64	14260.3	14012.9	1436.009	2.62121.85	1973.898	3896273.31	2834535.29
	$\sum x = 641$	$\sum y = 60$	$\sum x = 0$	$\sum x^2 = 43060$	$\sum y = 0$	$\sum y^2 = 11571$	$\sum xy = 69201$

A. Budgeted Sales (X) :

a. Arithmetic mean $\left(\bar{x}\right) = \frac{\sum x}{n} = \frac{641221.70}{5} = 12824.33$

b. Standard Deviation $\left(\pm\right) = \sqrt{\frac{\sum x^2}{n}} = \sqrt{\frac{430055.01}{5}} = 928.01$

C. Coefficient of Variation $\left(C.V_x\right) = \frac{\pm_x}{x} \times 100 = \frac{928.01}{12824.33} \times 100 = 7.24\%$

B. Actual Sales

a. Arithmetic Mean $\left(\bar{y}\right) = \frac{\sum y}{n} = \frac{60195}{5} = 12039.002$

b. Standard Deviation $\left(\pm_y\right) = \sqrt{\frac{\sum y^2}{n}} = \sqrt{\frac{11571205.5}{5}} = 1521.263$

c. Coefficient of Variation $\left(Cy_y\right) = \frac{\pm_y}{y} \times 100 = \frac{1521.263}{12039.002} \times 100 = 12.63\,\&\,\%$

C. Coefficient of correlation (r) between budgeted sales and actual sales achievement we have,

Coefficient of correlation $\left(r\right) = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} = \frac{6920137.44}{\sqrt{4306055.01} \times \sqrt{11571205.5}}$

$= \frac{6920137.44}{2075.10 \times 3401.65} = 0.9804$

D Coefficient of Determination $(r^2) = (0.9804)^2 = 0.9612$

E. Probable Error of Correlation Coefficient P.E.(r)$= 0.6745 \times \frac{1 - r^2}{\sqrt{n}}$

$$= 0.6745 \times \frac{(1-0.9612)}{\sqrt{5}} = 0.0117$$

F. Standard Deviation of Actual Sample $= \sqrt{\frac{\sum y^2}{n-1}}$

$$= \sqrt{\frac{11571205.5}{5-1}} = 1700.82$$

Appendix -2
Category-Wise Achievement of Sales Units (%) of NEA

(Figure in million)

	2059/60			2060/61			2061/62			2062/63			2063/64		
	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %
Domestic	600.00	557.94	92.99	648.60	617.11	95.19	689.40	676.37	98.11	750.00	730.83	97.44	815.00	810.1	99.41
Non Commercial	81.00	78.22	96.57	90.00	80.74	89.71	92.43	83.01	89.81	112.00	91.34	81.56	115.00	101.03	87.85
Commercial	103.60	90.43	87.28	110.00	92.74	84.31	110.00	108.12	98.29	107.00	107.44	101.41	111.70	123.45	110.52
Industrial	605.00	596.68	98.62	660.00	629.51	95.38	677.90	689.80	101.76	725.00	763.77	105.35	832.05	803.35	96.55
Water supply & lrrigation	31.50	29.28	92.96	37.00	29.98	81.04	33.15	31.67	95.54	43.00	36.12	83.99	44.00	42.73	97.11
Stre	40.7	39	97.09	45.0	50	101.7	43.0	55	128.3	60.0	57	96.41	58.5	64	110.

et Light	0	.52		0	.80	8	0	.20	6	0	.84		0	.88	91
Temporary Supply	0.90	0.28	31.33	0.50	0.35	69.60	0.29	0.25	86.55	0.35	0.39	112.57	0.53	0.73	137.74
Transport	6.50	5.64	86.69	7.00	5.53	79.00	7.20	5.47	75.99	7.00	5.72	81.64	6.00	5.98	99.67
Temple	2.80	2.48	88.43	2.80	2.81	100.39	2.98	4.11	137.95	4.50	4.20	93.42	5.20	4.91	94.42
Community Sales	0.50	5.72	1143.4	4.00	4.74	118.50	5.00	5.58	111.62	6.00	8.17	136.20	7.50	8.02	106.93
Bulk Supply (India)	170.00	33.86	78.74	200.00	192.25	96.12	245.27	141.24	57.58	164.00	112.53	68.62	140.00	101.00	72.14

Category –wise Achievement of sales Rupees (%) of NEA

(In Rs.million)

	2059/60			2060/61			2061/62			2062/63			2063/64		
	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %	Budgeted	Actual	Achievement %
Domestic	4218.0	3641.4	86.33	4592.0	4249.8	92.55	4770.6	4578.9	95.98	5082.8	7987.0	98.12	5444.2	5363.5	98.52
Non Commercial	827.8	722.12	87.23	900.0	783.90	87.11	924.3	816.0	88.28	1058.9	862.4	81.44	1083.3	929.5	85.80
Commer	1046.4	818.	78.25	1089.0	854.	82.18	1089.0	986.	90.55	999.7	1012	101.29	1037.7	1138	1.9.6

cial		75			91			0			.7			.2	
Industrial	4368.1	3608.1	82.60	4290.0	4039.6	54.16	4419.9	4380.2	99.10	4605.9	4799.7	104.21	5283.5	5061.1	95.79
Water supply & irrigation	157.82	138.68	87.88	188.30	148.53	78.88	162.93	154.8	95.25	260.7	211.6	81.16	258.3	196.6	76.12
Street Light	197.4	200.74	101.69	236.25	246.79	104.46	225.75	329.5	145.97	342.3	314.1	91.77	336.4	373.1	110.9
Temporary Supply	11.93	3.63	30.44	6.75	4.74	70.22	3.92	3.46	88.38	4.7	5.1	107.09	7.4	9.8	132.8
Transport	32.18	27.90	86.71	38.50	29.29	76.08	39.60	28.94	73.08	36.8	30.7	83.46	31.5	30.5	96.83
Temple	14.06	12.16	86.51	14.00	14.24	101.71	14.90	20.80	139.60	22.8	29.2	127.94	26.2	25.0	95.54
Community Sales	1.75	-	-	14.00	16.59	118.50	17.50	20.09	114.80	21.0	24.0	114.48	26.6	28.5	106.9
Bulk Supply (India)	646.0	514.12	79.59	870.0	808.96	92.98	1157.7	673.7	50.19	839.7	609.5	72.59	725.2	565.6	77.99

Appendix 3 (a)
Contribution of each Category in Sales Units

	2059/60		2060/61		2061/62		2062/063		2063/64	
	Actual Sales	Contribution %	Actual sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %
Domestic	557.94	36.36	6.17.11	36.37	676.36	37.67	730.83	38.09	110.19	39.21
Non Commercial	78.22	5.09	80.74	4.75	4.75	4.62	91.34	4.76	101.03	4.90
Commercial	90.43	5.89	92.74	5.50	5.50	6.02	107.44	5.60	123.45	5.97
Industrial	96.68	38.89	629.50	37.10	37.10	38.42	763.77	39.81	803.35	38.88
Water supply & irrigation	29.28	1.91	29.98	1.76	1.76	1.76	36.12	1.88	42.73	2.06
Street Light	49.52	2.57	45.80	2.70	2.70	3.07	57.84	3.01	64.88	3.14
Temporary Supply	0.28	0.02	0.35	0.02	0.02	0.01	0.39	0.02	0.73	0.03
Transport	5.64	0.36	5.53	0.33	0.33	0.30	5.72	0.30	5.98	0.29
Temple	2.48	0.16	2.81	0.17	0.17	0.23	4.20	0.22	4.91	0.24
Community Sales	5.27	0.37	4.74	0.28	0.28	0.31	8.17	0.42	8.02	0.38
Bulk Supply (India)	133.86	8.72	192.24	11.32	11.32	7.57	112.53	5.87	101.00	4.90
Total	**1534.31**	**100**	**1696.82**	**100**	**1795.23**	**100**	**1918.35**	**100**	**2066.27**	**100**

Appendix 3 (b)
Contribution of each Category on Sales Revenue

	2059/60		2060/61		2061/62		2062/063		2063/64	
	Actual Sales	Contribution %	Actual sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %
Domestic	3641.43	37.59	4249.81	37.82	4578.99	38.18	4987.04	38.70	5363.46	39.09
Non Commercial	722.12	7.45	783.99	6.98	816.01	6.80	862.37	6.69	929.48	6.77
Commercial	818.75	8.45	894.91	7.96	986.07	8.22	1012.66	7.86	1138.21	8.30
Industrial	3608.13	37.24	4039.65	35.95	4380.22	36.52	4799.74	37.25	5061.11	36.88
Water supply & irrigation	138.68	1.43	148.53	1.32	154.80	1.29	211.57	1.64	196.63	1.43
Street Light	200.74	2.07	246.79	2.20	329.52	2.75	314.11	2.44	373.06	2.72
Temporary Supply	3.63	0.04	4.74	0.04	3.46	0.03	5.06	0.04	9.86	0.07
Transport	27.90	0.29	29.29	0.26	28.94	0.24	30.72	0.24	30.50	0.22
Temple	12.16	0.13	14.24	0.13	20.80	0.17	29.17	0.32	25.04	0.18
Community Sales			16.59	0.15	20.09	0.17	24.04	0.18	28.47	0.21
Bulk Supply (India)	514.12	5.31	808.96	7.20	673.69	5.62	609.51	4.73	565.60	4.12
Total	**9687.65**	**100**	**11237.49**	**100**	**11992.61**	**100**	**12885.97**	**100**	**13721.41**	**100**

Appendix 4
Contribution of each Category in Sales Units

	2059/60		**2060/61**		**2061/62**		**2062/063**		**2063/64**	
	Actual Sales	Contribution %	Actual sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %	Actual Sales	Contribution %
Domestic	848540	95.93	930554	95.87	1010719	95.90	1113740	96.02	1229750	96.08
Non Commercial	8629	0.98	9722	1.002	9865	0.94	9950	0.858	10010	0.782
Commercial	3898	0.44	5317	0.55	5454	0.52	6000	0.517	2170	0.482
Industrial	18789	2.12	19833	2.04	21374	2.03	22500	1.940	23020	1.799
Water supply	251	0.03	305	0.03	352	0.03	370	0.032	380	0.030
Irrigation	1353	0.15	1721	0.177	2557	0.24	3400	0.293	6450	0.504
Street Light	1048	0.12	1229	0.127	1437	0.14	1500	0.129	1550	0.121
Temporary Supply	172	0.019	138	0.014	150	0.014	155	0.013	165	0.013
Transport	49	0.006	48	0.005	48	0.005	50	0.004	54	0.004
Temple	1800	0.203	1738	0.18	1959	C.186	2150	0.185	2290	0.179
Community Sales	1	0.0001	1	0.0001	15	0.0014	35	0.003	58	0.005
Bulk Supply (India)	**5**	0.0006	5	0.0005	5	0.0005	5	0.0004	5	0.0004
Total	**884535**	**100**	**970611**	**100**	**1053935**	**100**	**1159855**	**100**	**1279902**	**100**

Appendix 5

Relationship between Total Power Available and Power Loss:

Total Power Available is assumed to be independent variable denoted by 'X, and Power Loss as assumed to be dependent variable denoted 'Y':

Fiscal Year	Total Power (x) Available (X) (In GhW)	Profit (Y) (In GhW)	X= $(X-\overline{Y})$	Y= $(Y-\overline{Y})$	X^2	Y^2	XY
2059/60	2066.33	507.42	-360.07	-97.91	129650.40	9586.37	35254.45
2060/61	2261.13	541.97	-165.27	-63.36	27314.17	4014.49	10471.51
2061/62	2380.89	556.79	-45.51	-48.54	2071.16	2356.13	2209.06
2062/63	2642.75	702.15	216.35	56.82	46807.32	9374.11	20947.00
2063/64	2780.92	718.30	354.52	112.97	125684.43	12762.22	40050.12
	$\sum X = 1213$	$\sum Y = 302$	$\sum x = 0$	$\sum y =$	$\sum x^2$ =331527.48	$\sum y^2$ =38093.32	$\sum xy = 1089$

A) Total Power Available (x) :

a. Arithmetic Mean ($\overline{X}$) = $\frac{\sum X}{n} = \frac{12132.02}{5} = 2426.40$

b. Standard Deviation $(\pm_x) = \sqrt{\frac{\sum x}{n}} = \sqrt{\frac{331527.48}{5}} = 257.50$

c. Coefficient of Variation (C.V.$_x$) = $\frac{\pm_x}{X} x100 = \frac{257.50}{2426.40} x100 = 10.61\%$

B. Power Loss (Y) :

a. Arithmetic Mean $(\overline{Y}) = \frac{\sum Y}{n} = \frac{3026.63}{5} = 605.33$

b. Standard Deviation $(\pm_y) = \sqrt{\frac{\sum Y^2}{n}} = \sqrt{\frac{38093.22}{5}} = 87.28$

c. Coefficient of Variation (C.V.$_x$) = $\frac{\pm}{Y} x100 = \frac{87.28}{605.33} x100 = 14.42\%$

C) Coefficient of correlation (r) between total power Available and power loss (r_{xy}):

We have,

Coefficient of Correlation (r_{xy}) = $\frac{\sum xy}{\sqrt{\sum x^2 x \sqrt{\sum y^2}}} = \frac{108932.14}{\sqrt{331527.48} x \sqrt{38093.32}}$

= 0.9623

D) Coefficient of Determination (r^2) = $(0.9633)^2$= 0.9279=92.79%