

INTRODUCTION

A nation's development is based on its infrastructure development like Roads, Railways, Electricity, Education, Airports, Ports, etc. Energy and Power availability is the one of the basic ingredients for any development be at village level or at a national level. As the Indian economy continues to surge ahead, its power sector has been expanding concurrently to support the growth rate. The demand for power is growing exponentially and the scope of growth of this sector is immense. ENERGY is an essential input for economic development and improving the quality of life. Nuclear energy development is being geared up to contribute significantly to the overall energy availability in the country.

Power development in India commenced at the end of the 19th century with the commissioning of electricity supply in Darjeeling during 1897, followed by the commissioning of a hydropower station at Sivasamudram in Karnataka during 1902. In the pre-Independence era, the power supply was mainly in the private sector that too restricted to the urban areas. With the formation of State Electricity Boards during Five-Year Plans, a significant step was taken in bringing about a systematic growth of power supply industry all over the country. A number of multi-purpose projects came into being and with the setting up of thermal, hydro and nuclear power stations, power generation started increasing significantly. The Ministry of Power is primarily responsible for the development of electrical energy in the country. The Ministry is concerned with perspective planning, policy formulation, processing of projects for investment decisions, monitoring of the implementation of power projects, training and man-power development and the administration and enactment of legislation with regard to thermal and hydro power generation, transmission and distribution.

A recent study by consultancy major McKinsey estimates India's power demand to increase from the present 120 gigawatt (GW) to 315 GW–335 GW by 2017, if India continues to grow at an average of 8 per cent over the next 10 years. This would require a five- to ten-fold rise in power production, entailing investments worth US\$ 600 billion over the next ten years. To feed its rapidly growing economy, India is planning to get an additional 60,000 MW of electricity from various hydro-power projects by the end of 2025.

The **electricity sector in India** is predominantly controlled by Government of India's public sector undertakings (PSUs). Major PSUs involved in the generation of electricity include NTPC, NHPC and Nuclear Power Corporation of India . Besides PSUs, several state-level corporations, such as MSEB, CSEB, TNEB, etc are also involved in the generation and intra-state distribution of electricity. The PowerGrid Corporation of India is responsible for the inter-state transmission of electricity and the development of

national grid. After liberalisation in 90s, Indian Government has been encouraging private sector to add capacities in power generation.

India is world's 6th largest energy consumer, accounting for 3.4% of global energy consumption. Due to India's economic rise, the demand for energy has grown at an average of 3.6% per annum over the past 30 years.

The state of Chhattisgarh is one of the major power producing states of India and produces approximately 3300MW of power and another 5000MW generation capacity is behind added in the next few years [In construction stages] and once the projects are completed Chhattisgarh will be one of the leading power producing states for India. Chhattisgarh has over 40 billion tonnes of coal reserves amounting to 16 per cent of India's total coal reserves. It therefore has an edge over other states as it can use these reserves for power generation. Chhattisgarh already has surplus electricity generation capacity. Being strategically located in central India, the electricity generated in the state can be easily transmitted to any of India's four regional electricity grids or to power deficient markets in India at competitive prices, particularly since with the enactment of the New National Electricity Sector Legislation, inter-state supply and trading of electricity is permitted.

Availability of reliable and cheap power is absolutely essential for economic development of any developing State and consumption of electricity in a State is an important indicator of the stage of development of agriculture, industry and commerce in that State. Chhattisgarh is backward in agriculture and industrial sector due to historical reasons. Formation of separate Chhattisgarh State out of undivided Madhya Pradesh since 1st November 2000 has opened up immense possibilities for development of agriculture and industrial sector in the State. Therefore Energy Policy which is practical and realistic is essential to realise the above possibilities.

Chhattisgarh State is fortunate that it has surplus electricity and has immense possibilities of coal based thermal power generation. At the national level one finds several States suffering from serious power crises. Looking to abundant availability of coal in the state, Chhattisgarh would be developed as a 'Power Hub' of the nation from where power would be exported to other needy States.

Due to historical reasons Chhattisgarh is backward in agriculture and industrial sector. One of the main reasons for this backwardness has been non-availability of cheap and reliable power in the State. State Government aims to ensure availability of reliable and cheap electricity to every section of society both in rural as well as urban areas, including the farmers, so that more and more electricity could be consumed within the State. State Government shall also provide quality power at reasonable rates to industries as per their requirement so that industries could flourish and pace of industrialization is accelerated.

ENERGY POLICY OF CHHATTISGARH GOVERNMENT

Rural Electrification:

The following rural electrification program shall be under taken in line with National Policy in this regard:-

- (a) Electrification of all villages and Majra/Tolas of the State would be completed by the end of 10th Five Yeas Plan i.e. 2007.
- (b) Electricity to every household in the State would be available by the end of 11th Five Year plans, i.e. 2012.

Energy For Agriculture

Keeping in view the important role of agriculture in the State's economic development and low irrigation percentage, priority shall be accorded to energisation of agriculture pump sets. For this purpose, where power lines exist and the required formalities are completed by the farmers, energisation of their agriculture pumps shall be done within a fixed time- limit. Where lines do not exist, transmission and distribution infrastructure shall be developed for energizing agriculture pumps.

Energy For Industries

For giving impetus to industrial investment in the State, it is absolutely essential that industries get quality power at reasonable rates. State Government resolves to make reliable power available to industries at reasonable rates so that in the present competitive scenario, new industries get attracted to the State.

Captive Power Plants For Industries

Power Sector Reforms

Due to long monopoly of State/SEBs in energy sector and due to defective policies, power generation, transmission and distribution sectors have become inefficient and most of the SEB' s have become financially unviable with the result that SEB's are unable to make required investments in these sectors. This situation cannot be allowed to continue for long and therefore, reforms in power sector has now become inevitable.

Development of Non-Conventional Energy

(a) There exists a large scope of energy generation and utilization in the State through Solar, Biomass, Bio-gas, Hydel etc. Non-conventional energy resources are also very important from the viewpoint of environment conservation. Therefore installation of power plants using non-conventional energy resources shall be encouraged by State Government.

Energy Conservation And Demand Side Management

Looking to the importance of energy and its high generation cost, it is not only essential to stop misuse of energy but also to conserve energy by way of demand side management. Effective measures for creating awareness about energy efficient appliances like agriculture pump sets, energy efficient bulb tube lights etc, shall be taken by State Government.

Consumer Satisfaction

State Government is of clear opinion that in energy sector, consumer satisfaction is supreme. Therefore, for speedy Redressal of complaints of all category of consumers viz -agriculture, industry, domestic and others, a system shall be devised by which Redressal is ensured within a fixed time limit. Electricity bills will be simplified and services of Banks and Information Technology (IT) shall be availed to improve the process of payment of energy bill.

State Government has declared above energy policy for the State of Chhattisgarh vide Notification dated 31st October 2001

With the above, we come to know that electricity is an essential factor of production for developing the national economy and an essential component of people's lives. In short, electricity and the economy are closely related. Changes in electricity consumption and changes in structure also reflects changes in economic operations . efficient use of domestic energy resources in combination with reasonable importing electricity, fuels, diversification of primary energy resources for electricity generation , fuel conservation and ensuring energy security for future. Step by step electricity quality in order to provide electricity services with higher quality. Application of electricity tariffs according to market mechanism aiming to encourage investment in power sector development, efficient electricity use and electricity saving. The state will only hold monopoly of power transmission network in ensure the national energy system security. Development of power sector is sbased on reasonable, efficient use of primary energy resources in each region, continuing promotion of rural electrification, ensuring efficient, continuos, safe supply of electricity to all areas of the country. Specific development objectives for coming period.

OBJECTIVES OF THE RESEARCH WORK

- To study and review the current scenario of Power Generation, Transmission, Distribution, Consumption in the country and the sources of power and energy; Demands of energy with respect to agriculture, industrial and households; demand estimates in the future; plans by the Indian Government to meet the energy needs of the country.
- To analyse and evaluate the challenges of the Power sector and in particularly with respect to Chhattisgarh State.
- To create Investment climate in promotion of power industries; Government Support and Policy decisions in Power Generation; Public and Private Participation in Power Generation, Transmission and Distribution.
- Tapping the importance of power generation to the State of Chhattisgarh due to locational advantage and mineral strengths.
- To review the Power Tariffs with respect to residential, Commercial, Agricultural and Industrial usages with a social object.
- To define the role of Electricity Boards in streamlining the Tariffs, Supply , Distribution and management of Power at each block levels; To meet the Efficiency standards with respect to distribution and lower power cuts;
- To submit the recommendations and Suggestions to improve the Power Generation capacities, bring new investments in Power Sector , to streamline the distribution, to reduce the leakages and losses in the sector, to understand how the Power Generation in Chhattisgarh can help the state to improve the State economy and bring development at the village levels.

RESEARCH HYPOTHESIS

1. The Growth in power generation, Energy Creation and power distribution has played a major role in the overall economic development and GDP growth of the state.
2. Uninterrupted and continuous power supply due to investments in Power sector have shown a positive growth trend in the industrial output , industrial productivity and Employment index of the state.
3. The added power production capacity both in the government and private sector has helped the electrification and supply of power to the remote villages and small towns which in turn has helped rural employment generation and agriculture related industries.
4. The state's industrial policies has played a major role in inviting private investment in power generation and energy creation facilities.
5. Infrastructure investments in Power Sector is one of the major factors in the Chhattisgarh State's Economic Development.

NOTEWORTHY CONTRIBUTION IN THE FIELD OF PROPOSED WORK

Below mentioned are the few areas, a through knowledge of which may contribute a lot in providing a proper direction to the proposed work:

1. INFRASTRUCTURE DEVELOPMENT ACTION PLAN FOR CHHATTISGARH – A FINAL REPORT BY PRICE WATER HOUSE, COOPERS, 2001.
2. DISCUSSION PAPER OF CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION (www.CSERC.GOV.IN).
3. ENERGY POLICY OF CHHATTISGARH GOVERNMENT (WWW.CSEB.GOV.IN).
4. AN OVERVIEW OF POWER SCENARIO IN INDIA WITH SPECIAL FOCUS ON RENEWAL ENERGY R & D, PROF . AK TRIPATHY, BHUBANESHWAR, 2010.

PROPOSED METHODOLOGY DURING THE TENURE OF RESEARCH WORK

The purpose of research is to discover answers to questions through the application of scientific procedures. For a good research work it is necessary to prepare a plan for the conduction of the study in advance so that after the analytical study of the data collected, important conclusions could be drawn. For the fulfillment of the objectives and testing of the hypothesis various types of information's are to be collected..

The data necessary for the above work will be collected from the primary and secondary sources.

Primary Data: collection will be made through questionnaire, survey ,interviews, discussion etc.

Secondary data : will be collected through literature survey, journals, internet search, industry records, bulletin, newspapers, magazines, etc.

Data so collected will be analysed with the help of statistical tools as required. Secondary data will be verified where required through discussions with people concerned. Past, present and future aspects will be covered in the study so period cannot be defined.

The scope of work is mainly restricted to Chhattisgarh state from the date of formation in 2000 and Power producing industries in the country. Extensive use of internet

relating to the subject will be considered as support for enrichment of the subject work. Inter and intra firm comparison will be used for better analysis and conclusions. Information and data relating to inter industry and intra industry also will be taken into account as per the need of the subject.

EXPECTED OUTCOME OF THE PROPOSED WORK

1. A better understanding of the Energy Situation in India and with relevance to the state of Chhattisgarh.
2. Understanding the present scenario of Power and Energy Generation in India and Chhattisgarh .
3. To suggest for the increase in the Power generation Capacity in the State and to improve the rural economy of the state.
4. To identify areas through which the income from Power Generation can be used to provide the employment to the rural women, youth in the rural areas and in total the rural development..
5. To analyse the causes and reasons for Supply - demand shortage in Power and to provide suggestions to improve the distribution and maintainance.
6. To understand the nature of the Energy situation, requirement and usage and how the Energy security affects the growth of the State, Promotion of new industries, Employment potential, development of the State etc;
7. The analyse the basic requirements for boosting the energy usage, distribution.
8. To analyse the reduction of transmission losses, collection of the CSEB dues, perfect metering standards.
9. To evaluate the activities and action taken by CSEB for reduction of the losses while usage, suggestions in educating the population in using electricity to its full potential with efficiency etc.

10. Finally to provide inputs on the overall situation of the Energy requirements of India and in particular Chhattisgarh state.

SUGGESTIONS AND CONCLUSIONS

In today's economy, the high level of electrification means that nearly every kind of economic activity must rely on electric power. Electricity is an essential factor of production for developing the national economy and an essential component of people's lives. In short, electricity and the economy are very closely related. Changes in electricity consumption or changes in the electricity consumption structure also reflect changes in economic operations and structures.

Electricity is a special commodity with two unique features:

1. Power generation, transmission and consumption are completed instantaneously.
2. There is no method for storing electricity on a large scale.

These require the complete equilibrium of power generation and consumption and these two characteristics also determine the instantaneous nature of power generation and consumption and the need to coordinate power with national economic development. Furthermore, electricity data requires the verification of meters on both the generation side and consumption side, which guarantees the instantaneity, reliability and accuracy of electricity data. The above shows the close relationship between power generation, power consumption and economic development and the important role of electricity economics in macro economic studies. We can say electricity is a thermometer for measuring economic development. So it should be addressed with due importance in the agenda for development of Chhattisgarh State.

CHAPTERISATION

1. INTRODUCTION AND IMPORTANCE OF POWER AND ENERGY

- 1.1 introduction of various energy and power resources
- 1.2 production, generation and distribution of energy resources
- 1.3 economic development with energy and power resources

2. RESEARCH METHODOLOGY, HYPOTHESIS AND RESEARCH DESIGN

- 2.1 Research methodology
- 2.2 Hypothesis of the study
- 2.3 Research Design

3. ECONOMIC PROGRESS AND DEVELOPMENT OF INFRASTRUCTURE

- 3.1 Economic Development of India since Independence
- 3.2 Budget Allocation for Infrastructure development in five year plan
- 3.3 Economic development of Chhattisgarh state from the time of formation
- 3.4 Contribution of energy and power sector for the state of Chhattisgarh

4. TRADITIONAL AND NON TRADITIONAL WAYS OF POWER GENERATION

- 4.1 Various means of traditional and non traditional energy production
- 4.2 A comparison among different energy sources and its advantages
- 4.3 Sustainability and development of various sources of power generation.

5. EVOLUTION OF ELECTRICITY AND POWER IN CHHATTISGARH STATE

- 5.1 Development of electricity and power in state
- 5.2 Formation of various subsidies under C.G. State Electricity Board
- 5.3 Production and Productivity of Electric Power in the state
- 5.4 Benefit derived from the formation of C.G. State

6. PRESENT STATE AND CONDITION OF ELECTRICITY AND POWER IN CHHATTISGARH STATE

- 6.1 Production and consumption analysis of power energy in Chhattisgarh State
- 6.2 Major source of income and revenue generation in the state
- 6.3 Comparison of production of power energy with other major states of India
- 6.4 Energy policy of Chhattisgarh State

7. CONSUMPTION OF POWER IN VARIOUS SECTORS

- 7.1 Major users of power in Domestic Sector
- 7.2 Consumption of electricity for agriculture purposes
- 7.3 Consumption of electricity for Industrial Units
- 7.4 Miscellaneous sources

8. CHALLENGES OF ELECTRICITY GENERATION , DISTRIBUTION AND COLLECTION OF REVENUES

- 8.1 Major and Minor Challenges
- 8.2 Stringent Power and energy production and consumption policy
- 8.3 Challenges with supply and distribution of raw materials

9. SUGGESTION AND CONCLUSION

BIBLIOGRAPHY

LIST OF PUBLISHED PAPER OF THE CANDIDATE

Paper for publication in ISSN no journal on the topic A study on the open ended debt/equity/fund plans in the past 5 years period and customer behavior to such schemes with special reference to Canara Bank.

Published in the journal GLOBALISATION & CONSUMER PROTECTION with ISBN No 978-81-905380-1-5 titled Consumer protection through services management – building an ethical edge to attain competitive advantage.

Contribution for a chapter in a book with ISBN No under the title Women entrepreneurship – present scenario and management perspective .

Published in national research journal VISION RESEARCH with ISBN 978-93-81171-04-2, VOL -1, ISSUE 1, FEB 2011 under the title UNIFORM ANNUAL EQUIVALENT – A TECHNIQUE OF CAPITAL BUDGETING.

Research Guide

Dr.Hansa Shukla

Principal

Swami Swaroopanand Institute

Of Education

Amdi Nagar, HUDCO, Bhilai

Research Co-Guide

Dr. R.P. Agrawal

Professor (Commerce)

Kalyan Post Graduate College

Bhilai Nagar

Research Scholar

R.Bhuvana

Asst Prof (Commerce)

St Thomas College

Ruabandha, Bhilai

Forwarded

Principal

Research Centre

Kalyan Post Graduate College, Bhilai Nagar