



Energy Crisis With Special Reference to Karnataka State

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ABSTRACT

There is acute shortage of energy in the coun-try. This leads to energy crisis which is apparent in frequent load shedding, power failure, closure of factories, man-hour loss and decrease in production. Part of the problem is related to the insufficient energy resources leading to the shortage in supply which is not able to meet the growing demands of power in the rapidly expanding industrial, transport, agricultural and urban sectors.

A comparison of growing electricity generation through the plans and increasing demands shows that deficit is mounting year after year which now stands at one-fifth of the demand even at the abysmally low level of per capita consumption, i.e., 340 km as against the world average of 2,500 km and 8,000 km for the devel-oped countries.

The consumption of electricity in the country is increasing at the rate of 10 per cent per year. According to the 14th electric power survey of India, the country's peak demand projected for the year 2010 AD is 1,72, 267 MW against the actual installed capacity of 85,795 MW in 1996-97. This requires additional installed capacity of 86,472 MW in Just 13 years which seems to be an uphill and impossible task. Against the target of 30,000 MW for the Eighth Plan only 7,960 MW has been in-stalled so far. This will lead to further decrease in per capita electricity supply and worsening of the power crisis.

An energy crisis is an great bottleneck (or price rise) in the supply of energy resources to an economy. In popular literature though, it often refers to one of the energy sources used at a certain time and place, particularly those that supply national electricity grids or serve as fuel for vehicles. There has been an enormous increase in the global demand for energy in recent years as a result of industrial development and population growth. Supply of energy is, therefore, far less than the actual demand.

Karnataka State extends over an area of 1.92 lakh sq. kms, it occupies about 5.84% of the total geographical area of the country. The state is situated in the West-Central part of the Deccan Peninsula of the Indian union and is stretched between 13° 3' and 18°45' north latitudes and 74° 12' and 78° 40' east longitudes. The major portion of Karnataka lies in the elevation range between 450 and 900 metres above mean sea level. With a population of 4,49,77,201, it accounts for 5.4% of the country's population. For administrative purpose, the state has been divided into divisions, districts and taluks. There are 27,024 villages spread over 175 taluks. 69.07% of the population resides in rural areas (31,069,413 people).

KEYWORDS : energy, crisis, mounting, bottleneck, economy, national electricity grids,

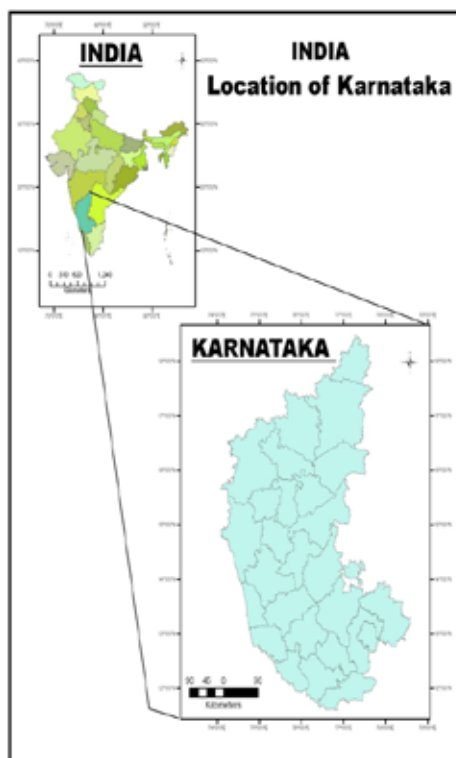
I. INTRODUCTION:-

Energy is the primary input in the production o goods and services. The wheels of progress move with the flow of energy. The role of energy has significantly increased with the increase in Industrialization and Urbanization in the present day society. From its early role, which was confined to kitchen as a fuel for household cooking, energy is now a major input in sectors such as industry, commerce, transport and communications.

The demand for energy sources is vigorously increases with the development of Agriculture, Industries, Transport, Communication and other sectors with specially in Karnataka state, some of the MNC's are ready to putting there steps in Karnataka State Industrial field but due to the acute shortage of energy in the State, the MNC's are vacillating to start their companies in Karnataka State.

II. STUDY AREA:-

Karnataka State extends over an area of 1.92 lakh sq. kms, it occupies about 5.84% of the total geographical area of the country. The state is situated in the West-Central part of the Deccan Peninsula of the Indian union and is stretched between 13° 3' and 18°45' north latitudes and 74° 12' and 78° 40' east longitudes. The major portion of Karnataka lies in the elevation range between 450 and 900 meters above mean sea level. With a population of 4, 49, 77,201, it accounts for 5.4% of the country's population. For administrative purpose, the state has been divided into divisions, districts and taluks. There are 27,024 villages spread over 175 taluks. 69.07% of the population re-sides in rural areas (31,069,413 People). Fig – 1



III. OBJECTIVES

Following are the main objectives of this paper

- To know the energy consumption in India
- To know the Supply (Generation) and Demand of Energy In Karnataka State
- To Understand the causes for energy crisis in Karnataka State
- To Find out the Remedial Measures to solve the Energy Crisis

IV. DATA BASE AND METHODOLOGY:-

The data, which is being utilized through out the work of this paper has been collected from different sources. The secondary data was collected from various Government departments such as Karnataka Electricity Board; the base Map of Karnataka State was downloaded from internet.

V. GENERATION, TARGETS AND CONSUMPTION OF ENERGY IN INDIA:-

Generation of energy during the last 50 years has been significantly increased. The total installed generating capacity from all the sources has been increased from 2,300 MW in 1950 to 1, 43,800MW by 2005-06. Table – 1.

Besides enlargement of generating capacity, the last five decades witnessed the growth of power systems from the rudimentary stage of isolated stations to fairly well integrated systems in most of the states and emergence of grids. Construction of inter-state and inter-regional lines has also made headways. Despite this tremendous growth, India has always faced chronic energy shortage since 1950-51.

Table – 1 ●
Power Generation Targets and Achievements

Plans	Additions to Installed Capacity		Percentage Shortfall(in MW)
	Targets	Achievements	
First Plan	1,300	1,100	15
Second Plan	3,500	2,300	36
Third Plan	7,000	4,500	36
Fourth Plan	9,300	4,600	50
Sixth Plan	19,670	14,230	28
Seventh Plan	22,250	21,500	4
Eighth Plan	30,540	16,420,	46
Ninth Plan	40,250,	19,015	53
Tenth Plan	41,110	23,250	40

Source: - Various Five Years Plans

There are two main reasons for this:-

- The demand for energy has been rising continuously, as for instance, during the 1980's it has raised at the annual rate of 9 to 10 percent. This rise in demand is at all levels, viz, Public lighting, domestic use, railway transport, industrial use and lift irrigation. Etc,
- While the demand for energy has been rising continuously, the generation and distribution of energy has not risen proportionately.

A comparison of growing electricity generation through the plans and increasing demands shows that deficit is mounting year after year which now stands at one – fifth of the demand even at the abysmally low level of per capita consumption, i.e.340 kw as against the world average of 2,500 kw and 8,000 kw for the developed countries.

The consumption of electricity in the country is increasing at the rate of 10 percent per year. According to the 14th electric power survey of India, the country's peak demand projected for the year 2010 is 1,72,267 MW against the actual installed capacity of 86,472 MW in Just 13 years which seems to be an uphill and impossible task. Against the target of 30,000 MW for the Eight Plan only 7,960 MW has been installed so far. This will lead to further decrease in per capita electricity supply and worsening of the power crisis.

VI. KARNATAKA'S ENERGY SCENE:-

Karnataka does not have any coal deposits. It gets its coal from out-

side. The electrical energy for Karnataka was purely hydro, and with the commissioning of Raichur thermal power station, it gets electrical energy from coal also. The other major source of commercial energy-oil-is also not available in Karnataka. Hence, the main source of commercial energy for the state comes from hydroelectric plants.

Karnataka State depends both on commercial and non-commercial forms of energy. Non-commercial energy constitutes 53.2%, met mainly by sources like firewood, agricultural residues, charcoal and cow dung, while commercial energy's share is 46.8%, met mainly by electricity, oil, coal, etc. Table – 2 lists the source wise consumption of energy during the year 1990-91. This data is compiled from various agencies: Karnataka Electricity Board, Directorate of Economics and Statistics, Planning Department, Forest Department and Agriculture Department. As noticed in Table - 2, commercial energy sources like coal, oil and electricity provide only a small part of the energy scene of Karnataka. The major energy share comes from firewood. Electricity represents 55.67% of commercial energy for 1990-91. There has been an increase in the per cent share for electricity in the last 10years. Firewood consumption is around 7.44 million tons of oil equivalents. Agro wastes are also used for energy purposes. Figure 1 a and b are pictorial presentations of source wise consumption. From Fig. 1 b, it is seen that firewood constitutes 43.0%, while electricity is 26.1%, followed by oil (11.6%) and agricultural residues (8.7%). This demonstrates that we depend mainly on biomass to meet our energy needs. Figure 1 c illustrates the sector wise consumption of commercial energy in Karnataka during 1990-91. This shows that the industrial sector, with 51.4% share, constitutes the major consumer of commercial energy, followed by the transport sector (23.0%), household (11.2%) and agriculture (3.5%). Hence, we focus our attention on the industrial sector to carry out a detailed investigation to see the extent of savings possible

Table – 2
SOURCE WISE CONSUMPTION OF ENERGY IN KARNATAKA DURING 1990-91 (In Million tons of Oil Equivalent)

Source	Quantity (Mtoe)	% Share
Coal	1.005	5.81
Kerosene	0.445	2.57
Oil(HSD,LDO,etc)	2.014	11.64
LPG	0.130	0.75
Electricity	4.510	26.06
Commercial Energy Total	8.105	46.84
Agricultural Residues	1.510	8.73
Fire wood	7.440	43.99
Biogas, Cow dung, etc	0.250	1.44
Non commercial Energy Total	9.200	53.16
Total Energy During 1990-91	17.055	100.00

Source; - <http://www.ces.iisc.ernet.in/energy>.

Fig - 2

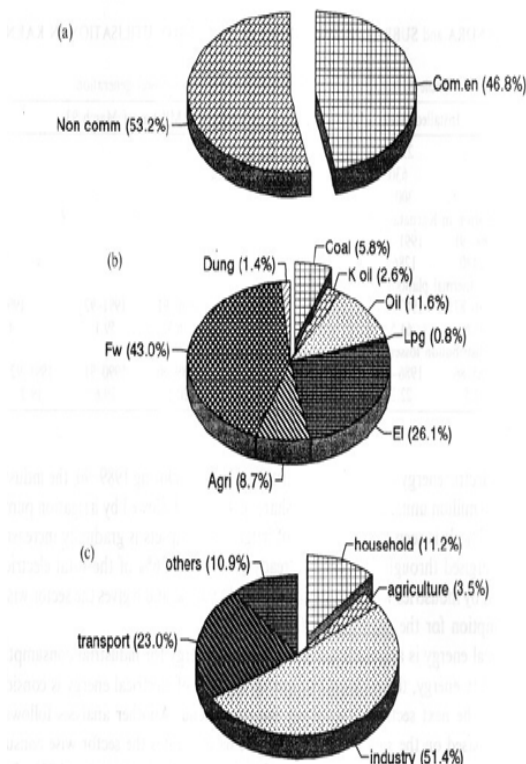


Fig. 4. (a) Commercial and non-commercial energy share; (b) source wise consumption; (c) user wise commercial energy consumption.

VII. SUPPLY (GENERATION) AND DEMAND OF ENERGY IN KARNATAKA

STATE:-

Presently the Approximate Power Generation of Karnataka from all sources (Govt and Private sector including Central Government) Hydro Power Generation, Thermal Power Generation, Wind Power Generation, Gas and Diesel Generation etc) – is 8000 MW during perk hours.

But the demand is about 10,000 MW during peak hours (6 AM to 10AM & 6PM to 10PM). And demand is not a constant parameter. It will very drastically.

It is clear that there is a gap between Supply (Generation) and Demand. As demand is drastically variable it's very difficult to match the demand with supply (generation). Because of this Distribution companies go for load staggering.

VIII. CAUSES FOR ENERGY CRISIS IN KARNATAKA STATE:-

As far as one can remember, Karnataka has been facing energy crisis for more than 25 years. Brown outs and black outs have become reg-

ular features of the energy scenario whether reservoirs are full or not. Power crisis has become a perennial phenomenon – a State which had power surplus one time has been a power deficit State since a long time.

There are several reasons for the age old power crisis. The first and foremost is the competitive politics of supplying power below the cost of production to create vote banks. Every one knows that if a shop keeper continues to sell his products below the cost of goods, he would go out of business. This is a basic lesson in economics. But our political leaders who are short term oriented are naturally interested in maximizing their gains and not interested in the long term interests of the State.

The Second reason is the political interference in the management of power sector companies.

The third reason is the inefficient operations of all the power sector companies. These are not operated along commercial lines. If they were private stockholder owned companies they would have been closed down a long time back. Their management is not held accountable for supplying quality and reliable power to the consumers.

Fourth reason is the mismanagement of power sector, low efficiency of power houses, labour problem, and power pilferage and power wastage.

Finally the apathy on the part of power sector consumers is also responsible for the current power crisis. In a functioning democracy, voters should hold the elected representatives responsible and vote them out.

IX .CONCLUSION:-

The most important single factor which can act as a constraint on economic growth of a country is the availability of energy. India is both a major energy producer and consumer. Currently, India ranks as the world's seventh largest energy producer and fifth largest energy consumer in the world.

Karnataka is also one of the most Important Energy Producer and Consumer state in India. The rapid growth of Industrialization, Urbanization, Tourism, Agricultural Development, ect, The demand for energy is also drastically increased in Karnataka State, Due to the imbalance of demand and production, the state is facing the chronic energy crisis. It is every body's responsibility to conserve energy and proper utilization of energy.

"Making small changes in our everyday life is helps to conserve the energy"

"1 Unit Energy Saved is 1 Unit Energy Gained"

"CONSERVE THE ENERGY AND SAVE THE PLANET"

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