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POWER CRISIS IN INDIA

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ABSTRACT

Crisis of power is one of the major problems in developing countries particularly in India. Day by day the gap between demand and production is increasing. Moreover, most of the power plants are fossil fuel based which will be phased out in future. Misuse and system loss in power sector are supposed to be the main issue regarding this crisis. It is possible to fulfill load demand by reducing transmission loss, by using compact fluorescent or LED lamps, transformation of holiday, proper load management and encouraging Independent Power Producers (IPP). Priority is given to control the misuse and mismanagement in power sector than to increase the generation of power. But proper utilization of renewable energy should be the up most choice for the solution of the power crisis. This is because it requires low cost and has lesser risk Initiative should be taken to develop new technology and skilled manpower required for the power sector considering renewable energy sources. India is slow to set up new power *capacity principally because it is short of fossil fuels. Coal is mined hesitantly and natural gas the other feedstock for power plant in from new offshore finds.*

INTRODUCTION

So far as total production of electricity is concerned, the electricity sector in India had an installed capacity of 255.012 GW as of end November 2014 and generated around 703.1BU for the period April - November 2014. India became the world's third largest producer of electricity with 4.8% global share in electricity generation surpassing Japan and Russia. Renewable Power plants constituted 28.43% of total installed capacity and Non- Renewable Power Plants constituted the remaining 71.57%. India generated around 967 TWh (967,150.32 GWh) of electricity (excluding electricity generated from renewable and captive power plants). The total annual generation of electricity from all types of sources is 1102.9 TWh.

In addition to hydropower, coal, oil, gas and nuclear power generation, it covers generation by geothermal, solar, wind and tide-wave energy, as well as that from combustible renewable and waste. Production includes the output of electricity plants that are designed to produce electricity only as well as that of combined

heat and power plants.

The 21st century finds a huge number of electric power plants located across country. India has sufficient technology and expertise to generate electricity through the use of coal power wind power, water power and nuclear power. However, coal based plants is the main source of fuel for the production of electricity in India.

MAJOR ELECTRICITY GENERATOR PLANTS

India has a number of power plants. The production of electricity by different power plants are situated across the country. The entire country is dependent on these power stations for its energy requirement. The important power plants in India are given below;

(a) **Thermal power plants:** The installed capacity of natural gas based power plants is 21,727 MW. These base load power plants are operating at overall PLF of 25% only due to severe shortage of Natural gas in the country. These power plants include Suratgarh state thermal power station, Paras thermal power station, Chhabra State thermal power plant, Rajiv Gandhi Thermal Power Project (RGTPP), Panipat thermal power Station and Nashik thermal power station, NTPC (singrauli, Korba etc.)

(b) **Nuclear power plants:** India has 4.8 GW of installed electricity generation capacity using nuclear fuels. India's nuclear plants generated 32455 million units or 3.75% of total electricity produced in India. The nuclear power plants include Kaiga Atomic power station, kakrapar atomic power station, Madras atomic power station and Narora atomic power station. Few more proposed are at Jaitpur, Kudankulam, Mithivirdi, Kowada, Haripur and Kumharia.

(c) **Hydroelectric power plants:** The present installed capacity is approximately 40,661.41 MW which is 16.36% of total electricity generation in India. These power plants are located at Bhakra dam, Srisailam dam, Uri Hydroelectric dam, Madikheda dam and Bansagar dam.

(d) **Wind power plants:** India has the fifth largest installed wind power capacity in the world. Wind power accounted for 6% of India's total installed power capacity, and 1.6% of the country's power output. The installed capacity of wind power in India was 15.9 GW. The state of Gujarat is estimated to have the maximum gross wind power potential in India, with a potential of 10.6 GW. Important wind power plants are Muppandal Wind Farm, Vankusawade Wind Park, Arasinagundi (ARA) Wind Farm, Madhya Pradesh Wind Farm and Kanjikode Wind Farm. A wind farm is soon to be set up in West Bengal. This is supposed to generate 50 MW of electric energy.

REASONS OF ENERGY CRISIS

There are several reasons behind the energy crisis or shortage of electrical energy in India. Some of the very crucial factors are being discussed here:

(a) Sharp increase in demand: Being a fast developing country the number of industries and other sectors power demand is being increased. The number of companies is multiplying each year and the power demand is increasing very fast. This is the most serious matter to match production of electricity with the demand.

(b) Poor utilization of electrical equipment: Apart from insufficient power supply the power which is being supplied is not utilized properly. Around 30-40% power is wasted due to low power factor. If we can save that 30% of power, we have to produce less electricity as that wastage can serve the purpose.

(c) High transmission loss: In India, the efficiency of electrical equipments used in power transmission and distribution like transformers and other equipments is very poor as compared to developed countries, so there is a chance to save power.

(d) Power theft: The biggest reason for power shortage is the theft of its resources. Due to importance of power, it is considered as one among the crucial resource but this is stolen by some people and this has to be stopped.

(e) Delay in commissioning of power project: Due to non-availability of funds power projects are delayed in India and sometimes some political problems are also faced. This delays the project and hence ' increases the supply versus demand ratio.

(f) Shortage of coal: Coal is not available at power generating locations like thermal power plants, on time and this causes delay in the power generation.

(g) Faculty planning and plant outages: The planning in Indian power industry is of 20 years behind the time. It should be upgraded like that in developed countries.

EFFORTS TO MINIMISE POWER CRISIS

We can minimize the power shortage by switching off the electrical gadgets when they are not in use. To overcome the energy crisis following steps are required:

(a) Saving energy: Energy saved is the energy produced. So we all should take care of this and should save as much power as we can.

(b) Use of efficient equipment's: Always consider power saving of the device while buying new electrical equipment.

(c) Pay for what one use: If one is using electricity one must pay its cost. The fact is that from the fund earned from selling electricity is utilized in setting up new power.

CONCLUSION

Power crisis can be solved by the use of renewable energy sources. Such sources are bio-diesel, biogas, solar energy, micro hydro, wind energy, ocean wave energy, ocean tidal power, geothermal energy etc. Some renewable energy resources like small hydro, micro hydro, wind, solar thermal, bio-mass based standalone power generation units have succeeded in India to some extent, whereas there is no serious study for tapping the potential of geothermal energy. Potential of wave and tidal energy remains untapped just without any satisfactory reason. Solar energy can also be a great source for solving power crisis in the country. But due to some technical limitations and cost solar photovoltaics has failed to gain necessary popularity. This review article deals with the factors responsible for the power crisis in the country and its possible solution.

REFERENCES

- Raymond Alcorn, *Chapter 17 - Wave Energy Future Energy (Second Edition)*, 357-382, 2014.
- Antonio Urbina, *Renewable Energy*, 68, 264-269, 2014.
- D. Azofra, E. Martinez, E. Jimenez, J. ^Blanco, J.C. Saenz-Dlez, *Applied Energy*, 121, 28-37, 2014.
- Matfas Hanel, Rodrigo Escobar, *Renewable Energy*, 49, 96-100, 2013 C. Marimuthu, V. Kirubakaran, *Renewable and Sustainable Energy Reviews*, 23, 80-90, 2013.

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