

## **Energy Management: A Macroeconomic Approach**

**Dr. Vitti Devi Dubey**

*Associate Professor, Department of Economics, DAV PG College Bulandshahr,*

---

### **Abstract**

*India is not gifted with large principal energy assets in keeping with her great geographical area, increasing population and greater than ever final energy requirements. In the criteria of energy requirement Coal, oil, and natural gas are the three most important commercial sources of energy. Over the years, there has been a significant change in the pattern of supply and consumption of energy. Nevertheless in India, it is practically proven; that energy planning is not an incorporated doings in practice of a common people. Various administration organization dealing with diverse resources regard as only the aggregate require and project the energy supply in excess of a period of years without taking in to description efficiency of utilization, scope for conservation with technological upgrading or the structural changes that might have or may take place.*

**Keywords:** *Energy Management, Economic Analysis, Renewable Resources, GDP*

---

### **I. Introduction**

Being a gold mine of the natural resources, the energy sector in India has received a high precedence in the planning process at the comprehensive level, and so also in the allowance of public funds for its development. Its share of funds has risen from 15% in the Third Five-year Plan to 27% in the Eleventh Five year Plan.

In spite of persistent hard work, the growth of this sector has not been prompt enough to keep swiftness with the demands for energy services by the personage consuming sectors. The Indian population and its consumption of the energy is not that problem but the mishandling of the resources and the energy loss is the major problem for the energy management sectors or bodies.

India is not gifted with large principal energy assets in keeping with her great geographical area, increasing population and greater than ever final energy requirements. In the criteria of energy requirement Coal, oil, and natural gas are the three most important commercial sources of energy. Over the years, there has been a significant change in the pattern of supply and consumption of energy. Over the years, there has been a noteworthy transform in the pattern of supply and consumption of energy.

Nevertheless in India, it is practically proven; that energy planning is not an incorporated doings in practice of a common people. Various administration organization dealing with diverse resources regard as only the aggregate require and project the energy supply in excess of a period of years without taking in to description efficiency of utilization, scope for conservation with technological upgrading or the structural changes that might have or may take place. It is well thought-out that there subsists a high causality between energy and GDP.

However, of late, in many developed countries, more efficient energy use has destabilized the linkage between economic growth and energy use. But at the global level, just 37 percent of primary energy is transformed to constructive energy - meaning that virtually two thirds of gross primary energy is lost. Thus energy efficiency can turn out to be one of the main drivers of sustainable development world-wide as well.

This has two characteristic - first is, supply-side energy efficiency i.e. efficiency in energy extraction then after conversion then transportation and finally distribution(9). While another factor or the second one, being end-use (or demand side) energy efficiency i.e. more proficient use of final energy in various sectors like; industry, services, agriculture, households, transportation, and other areas.

Supply - side efficiency has been the center of attention of energy investment and research and development. However, end-use efficiency has customary similar attention only recently, despite the fact that it has been verified cheaper in countless cases but over and over again more difficult to achieve.

In macro-economic outline, policies to advance energy efficiency and reallocate to highly developed and greener technology and less carbon exhaustive fuels generates two significant remuneration for the national financial system

1. Encourage economic development due to the reallocation of saved energy cost.
2. Trim down the environmental and social costs of energy exploit that were previously uncounted in market transactions for fuel.

Accomplishing these two remuneration of increased energy efficiency – positive financially viable effects and reduced environmental encumber is called a 'double dividend. Through the procedure of planned

growth undertaken over the last several decades, the country has taken major treads or strides in acceleration the production of primary commercial energy.

Coal still prolongs to be the main source of primary commercial energy not only for straight energy use in industry or corporate sectors, but also for indirect energy use all the way through power generation. Strenuous efforts made in exploration and expansion of hydrocarbons has led to a noteworthy step up in the production of oil and natural gas.

However, in the recent years, the production of crude oil has been decline but the other sources of energy requirement are still abundant. The availability of hydroelectricity has increased significantly and reaches a record generation of 82.71 TWh in 2004-15. There have been added extras to nuclear power generation capacity as well as power generation from nuclear power plants. The wind power generation has also pulled out appreciably during the last six years.

Energy policy has conventionally miscalculated the benefits of end-use efficiency for society, the environment and employment. Practicable altitude of economic efficiency relies on a country's juncture of industrialization, motorization, electrification, human capital and policies. But the swiftness of consciousness can be slowed by sector and technology specific obstacles - together with lack of knowledge, legal and administrative obstacles, and the market power of energy industries.

Government and companies should be familiar with innovations that can eliminate or minimize these complications. The peripheral costs of energy use can be sheltered by some factors like energy taxes, environmental legislation, and green house gas emissions trading.

There is also an important role for international synchronization of regulations for effectiveness of traded products. Swift development in demand makes available especially complimentary conditions for innovations in developing countries - enabling these countries to leapfrog stages of development if market reforms are also in place.

## **II. Conclusion**

Being very rich in geographical distribution India has a great disadvantage of bursting population to the division of energy distribution among all the sectors, industry, domestic use and other relevant consumption are not properly established, which in turn deviates the economy as the major portion of the fund release is spent on the stratification of energy.

Nevertheless in India, it is practically proven; that energy planning is not an incorporated doings in practice of a common people. Various administration organization dealing with diverse resources regard as only the aggregate require and project the energy supply in excess of a period of years without taking in to description efficiency of utilization, scope for conservation with technological upgrading or the structural changes that might have or may take place.

## **References**

- [1]. Wene C-O. Energy-economy analysis: linking the macroeconomic and systems engineering approaches. *Energy*. 1996;21(9):809-24.
- [2]. Wath SB, Vaidya AN, Dutt P, Chakrabarti T. A roadmap for development of sustainable E-waste management system in India. *Science of the Total Environment*. 2010;409(1):19-32.
- [3]. Kolhe M, Kolhe S, Joshi J. Economic viability of stand-alone solar photovoltaic system in comparison with diesel-powered system for India. *Energy economics*. 2002;24(2):155-65.
- [4]. Bhat I, Prakash R. LCA of renewable energy for electricity generation systems—a review. *Renewable and Sustainable Energy Reviews*. 2009;13(5):1067-73.
- [5]. Garg A, Shukla P. Coal and energy security for India: role of carbon dioxide (CO<sub>2</sub>) capture and storage (CCS). *Energy*. 2009;34(8):1032-41.
- [6]. Bhattacharyya SC. An Estimation Of Environmental Costs Of Coal- Based Thermal Power Generation In India. *International Journal of Energy Research*. 1997;21(3):289-98.
- [7]. Paul S, Bhattacharya RN. Causality between energy consumption and economic growth in India: a note on conflicting results. *Energy economics*. 2004;26(6):977-83.
- [8]. Ghosh S. Electricity consumption and economic growth in India. *Energy policy*. 2002;30(2):125-9.
- [9]. Cheng BS. Causality between energy consumption and economic growth in India: an application of cointegration and error-correction modeling. *Indian Economic Review*. 1999:39-49.
- [10]. Mehrara M. Energy consumption and economic growth: the case of oil exporting countries. *Energy policy*. 2007;35(5):2939-45.
- [11]. Mallick H. Examining the linkage between energy consumption and economic growth in India. *The Journal of Developing Areas*. 2009;43(1):249-80.
- [12]. Al-Iriani MA. Energy–GDP relationship revisited: an example from GCC countries using panel causality. *Energy policy*. 2006;34(17):3342-50.

- [13]. Ghosh S. Import demand of crude oil and economic growth: Evidence from India. *Energy Policy*. 2009;37(2):699-702.
- [14]. Scott CA, Shah T. Groundwater overdraft reduction through agricultural energy policy: insights from India and Mexico. *International Journal of Water Resources Development*. 2004;20(2):149-64.
- [15]. Bhattacharyya SC. Energy access problem of the poor in India: Is rural electrification a remedy? *Energy policy*. 2006;34(18):3387-97.
- [16]. Pachauri S. An analysis of cross-sectional variations in total household energy requirements in India using micro survey data. *Energy policy*. 2004;32(15):1723-35.