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Energy Intensity: A Case of Indian Manufacturing Industries

Authors : Archana Soni, Arvind Mittal, Manmohan Kapshe

Abstract : Energy has been recognized as one of the key inputs for the economic growth and social development of a country. High economic growth naturally means a high level of energy consumption. However, in the present energy scenario where there is a wide gap between the energy generation and energy consumption, it is extremely difficult to match the demand with the supply. India being one of the largest and rapidly growing developing countries, there is an impending energy crisis which requires immediate measures to be adopted. In this situation, the concept of Energy Intensity comes under special focus to ensure energy security in an environmentally sustainable way. Energy Intensity is defined as the energy consumed per unit output in the context of industrial energy practices. It is a key determinant of the projections of future energy demands which assists in policy making. Energy Intensity is inversely related to energy efficiency; lesser the energy required to produce a unit of output or service, the greater is the energy efficiency. Energy Intensity of Indian manufacturing industries is among the highest in the world and stands for enormous energy consumption. Hence, reducing the Energy Intensity of Indian manufacturing industries is one of the best strategies to achieve a low level of energy consumption and conserve energy. This study attempts to analyse the factors which influence the Energy Intensity of Indian manufacturing firms and how they can be used to reduce the Energy Intensity. The paper considers six of the largest energy consuming manufacturing industries in India viz. Aluminium, Cement, Iron & Steel Industries, Textile Industries, Fertilizer and Paper industries and conducts a detailed Energy Intensity analysis using the data from PROWESS database of the Centre for Monitoring Indian Economy (CMIE). A total of twelve independent explanatory variables based on various factors such as raw material, labour, machinery, repair and maintenance, production technology, outsourcing, research and development, number of employees, wages paid, profit margin and capital invested have been taken into consideration for the analysis.

Keywords : energy intensity, explanatory variables, manufacturing industries, PROWESS database
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