

Increase in Equipments Efficiency Performance - The Brazilian Mandatory Standards Experience –

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Abstract

The use of public policies to improve energy efficiency is justified by the economic and environmental gains. The Brazilian experience begun during the 1990 decade with development of a voluntary labeling programs conducted by an state energy company (Eletrobrás/PROCEL). The Brazilian electrical energy crisis occurred 2001 alerted the government authorities for the necessity in investments in different sources of electrical energy (until then the supplí was almost exclusively from hidroelectricity) and for the urgency to put in practice programs to increase the electrical equipments efficiency. In the same year, the Congress approved the Energy Efficiency Law (Law 10295/2001), which allows the Federal Government to establish maximum levels of consumption, or minimum levels of efficiency for energy consumers machines and equipments used in the country. This Law gave a new dimension to the policy of improving the efficiency of electrical appliances, which until then consists of voluntary labeling systems and now includes regulations and procedures defining the energy performance of equipments consumed in the country. The Energy Efficiency Law created the Management Committee of Indicators and Levels of Energy Efficiency (CGIEE) formed by representatives of government agencies related to the energy sector and energy experts with the aims to develop specific rules for each type of electrical machines and apparatus, and to propose means to monitor their implementation and evaluate the results. It also sets penalties for non compliance with the established indicators. This article describes the regulations development methodology and summarizes the resolutions already approved by the government related to three-phase induction motors, freezers and refrigerators, home air conditioners, gas ovens and stoves, and gas water heaters. It shows the results in energy economy related to the voluntary and mandatory programs implemented in Brazil since the decade of 1990 and its distribution by equipment regulated. It emphasizes the results related to the most influence loads in these economy data: freezers/refrigerators and induction motors. It concludes that the mass production of high performance equipments require significant increases in demand for some materials, especially sheets of iron-silicon and copper, whose prices have increased significantly in recent times and that the impact on prices can stimulate the import of cheaper products, hence the need for a greater control in monitoring this products by the government. Moreover, the regulation must expand its area of interest and includes the system to which the equipment is connected. In the case of motors, the study of the appropriate load and the correct use of the frequency inverters can generate even more savings than the increased in the efficiency levels itself.