Energy Efficiency in Maquiladoras of Electronic Components: A Cleaner Production Approach

VELAZQUEZ, L. [a*], ESQUER, J. [a], GARCIA, R. [a], VARGAS, N [a]. VELDERRAIN, R. [a]

a. Universidad de Sonora, Hermosillo

**Corresponding author, luis_velazquez@industrial.uson.mx*

Abstract

Estimates by the International Energy Agency show that the world's demand for energy will increase 1.6% annually until 2030; this is mostly due to the rapid growth in the economies of developing countries. Currently, almost two thirds of the world's energy resources are used in production lines; therefore, not only is energy management an operational and administrative priority for entrepreneurs, but has also become a matter of public and governmental concern.

Given the fact that the manufacturing industry is a powerful energy consumer, energy efficiency has become a key element to maintaining competitiveness and core advantages, since not only it does contribute to cut costs and reduce the emission of greenhouse gasses (GHG), but it also aids maquiladoras in their efforts to build an image of prestige and repute in the eyes of the competitors, the employees and other stakeholders. It also helps them developing strong policies to grow as a socially responsible company and paves the way to true sustainable development.

Despite the obvious economic and social benefits that efficient energy management means for companies and entrepreneurs, the manufacturing industry in developing countries still lacks strong energy policies. It is usually the international corporation that adopts and adapts energy conservation measures in host countries; if only as an extension of similarly built management techniques used by the parent company in the countries of origin.

Energy audits in Mexican maquiladoras have shown diverse results, this is mostly due to lax regulations and lack of rigor in compliance, poor employee training and significant differences in infrastructure and in the size of the plants. Nonetheless, opportunities for improvements have been identified in all maquiladoras audited and could, potentially, greatly reduce energy costs and GHS emissions.

Keywords: *energy audits, maquiladora, energy efficiency, energy management systems, cleaner production.*