



# 7<sup>th</sup> INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION Academic

“CLEANER PRODUCTION FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS”

## Establishment of Energy-Production and Environmental Indicators in the Physical Refinery Area of a Colombian Food Company

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### Abstract

This paper presents the results of the application of the strategic decision stage for the implementation of an Integrated Energy Management System, based on the NTC ISO 50,001:2011 standard, in the physical refinery area of a company in the food area, a vegetable oil and grease producer located in Colombia. The principles for obtaining control charts and consumption indexes are shown as a complement to the implementation of the equivalent production method to obtain the base and target lines in terms of natural gas and electric energy consumption for the elaboration of its products from three different raw materials: palm, soybean and sunflower. Through the analysis of each of these graphs, some representative saving potentials were obtained of 30.7, 31.37 and 50.4% in electricity, for soybean, palm and sunflower, respectively, and 23.10, 22.7 and 45% in natural gas in the same order above. These savings are reflected also in the equivalent reduction of CO<sub>2</sub> emissions with an average of 670.43 CO<sub>2</sub>eq annually, where 229.7 tons of CO<sub>2</sub> correspond to savings in the physical refinery area due to electrical energy saving consumption and 430.73 tons of CO<sub>2</sub> refer to the impact of reducing the consumption of natural gas.

**Keywords:** *Energy characterization, food area, saving potential, energy performance indicator, CO<sub>2</sub> emissions.*