

CASE STUDY: IMPLEMENTATION OF THE ENERGY MANAGEMENT SYSTEM AND SYSTEMS OPTIMIZATION AT CERÁMICA ITALIA S. A.

Industrial Energy Efficiency Programme in Colombia



El futuro
es de todos

Minenergía



Unidad de Planeación Minero-Energetica



ORGANIZACIÓN DE LAS NACIONES UNIDAS
PARA EL DESARROLLO INDUSTRIAL



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

CERÁMICA ITALIA S. A. company enrolled in the training course offered by EEI Colombia in Norte de Santander region during 2017 and 2018, to implement an Energy Management System (EnMS) according to NTC ISO-50001 guidelines, along with the Optimization of Electric Motor Systems.



Production line at CERÁMICA ITALIA S. A. and energy efficiency campaign displayed at centralized start/stop points, implemented within the EnMS framework.

Source: UNIDO / UPME

“We at CERÁMICA ITALIA S. A. produce more with fewer energy resources.”

Euler Saavedra, Director of Technological Innovation, CERÁMICA ITALIA S. A.

Overview:

CERÁMICA ITALIA S. A. is a leading company in the production and marketing of high-value, differentiated products for the construction and space-design industries. It is located in San José de Cúcuta city and is one of the ten best-ranked companies in sales of ceramic products and other materials.

The implementation of an Energy Management System (EnMS) and the strategies to optimize energy end-use systems were devised as mechanisms of environmental competitiveness and accountability, while being aligned to corporate policy in regards to the continuous improvement of quality.

Production processes use electric and thermal power, mainly in motor systems, and drying and cooking machinery.

Relevant Information:

Program implemented: EnMS and Motor Systems Optimization

Base year: 2016

Energy sources: Electric power and natural gas

Scope and limits of EnMS: Preparation of clay paste and glaze, and final product manufacturing

Improvement actions:

Best practices: measuring and control of operating times of machinery

Technological change: motors, lighting, variable speed drives and variable air-flow systems

Goal: 2% reduction in consumption of electric power and 4% reduction of fuel gas

Identified savings: 28.153 kWh/month of electric power and 1.530 MBTU/month of fuel gas

GHG reduction: 103,7 tCO₂ eq / month

Achievements: _____

Once the scope of EnMS was defined, and upon completion of the energy review, management efforts were directed towards attaining savings on gas and electric power, both of which add up to 78% of the total energy use at the plant. Gas usage applications include the preparation of raw materials, drying and cooking, whereas electric power is mostly used in clay paste preparation.

Electric power and fossil fuels savings of 2% and 4% respectively, are expected upon application of improvement actions which include the implementation of control measures; optimizing energy systems for every cost center; automating processes to minimize operating times; implementing best practices in operations and maintenance; replacing and including new technologies and processes (High-efficiency motors, variable speed drives, combustion-air and LED lighting), and adjusting production variables (Composition of raw materials).

By applying tools for Motor Systems Optimization at the water plant, the need to implement variable speed drives in order to improve the performance of the equipment was validated. Opportunities to upgrade motors to high-efficiency models and to improve the clean water pumping system, are expected to reduce power requirement by 30%.

Success factors and lessons learned: _____

"A meticulous energy review is essential to identify in what processes and how energy is being used. It is important, therefore, to have proper instruments to measure and control, conducting permanent monitoring of system indicators and producing all due documentation. The relentless search of improvement opportunities for energy performance has allowed us to increase the productivity and competitiveness levels of our company.

The implementation of a submetering system has allowed daily monitoring of each Significant Energy Use, and the quantification of benefits obtained from the energy efficiency measures implemented. EnMS promoted the creation of a real-time data-logging of energy consumption which, instead of working with estimated data, allows for the identification of variables in each process that significantly affect energy performance."

*Yobany Pereira, Líder de Innovación de Proyectos Tecnológicos
CERÁMICA ITALIA S.A.*

Future actions: _____

CERÁMICA ITALIA S. A. plans to widen the scope of EnMS to all energies and areas of the production plant, characterizing energy use on every process line, and eventually preparing for an ISO 50001 Certification by 2020.

For further information: _____



This program, an initiative of UPME and UNIDO, has been created with the purpose of strengthening technical capacities in Energy Efficiency and to foster the implementation of EnMS, as support and contribution to the productivity and competitiveness of the national industry.

United Nations Industrial
Development Organization - UNIDO
M.Matteini@unido.org

Mining and Energy Planning Unit - UPME
www.upme.gov.co
olga.gonzalez@upme.gov.co