

CASE STUDY: IMPLEMENTATION OF THE ENERGY MANAGEMENT SYSTEM IN ACERÍAS PAZDELRÍO

Industrial Energy Efficiency Programme in Colombia



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ACERÍAS PAZDELRÍO company enrolled in the course offered by the EEI Colombia programme in the Cundinamarca and Boyacá regions during 2017, to implement an Energy Management System (EnMS) according with NTC ISO-50001.



Morgan Lamination Train, Acerías PazdelRío
Source: Acerías PazdelRío

“Acerías PazdelRío is committed to the efficiency and continuous improvement of the Energy Management System”

Francisco Sánchez, Project Coordinator, Acerías PazdelRío

Achievements:

Upon completion of an energy review of the *Morgan* Lamination Train, it was determined that 60% of energy costs corresponds to the consumption of electric power, mainly by a set of electric motors, and 40% corresponds to natural gas consumed by the *Danielli* furnace.

The opportunities to improve energy performance are mainly in the form of low cost, operational adjustments and controls, which include optimizing the operating time of equipment and controlling flue gas mix. EnMS tools have generated annual savings of about COP 800MM at the *Morgan* Lamination Train; these results make possible to consider capital investment projects, to find additional savings opportunities and to boost the plant's productivity by relying on an energy efficiency approach.

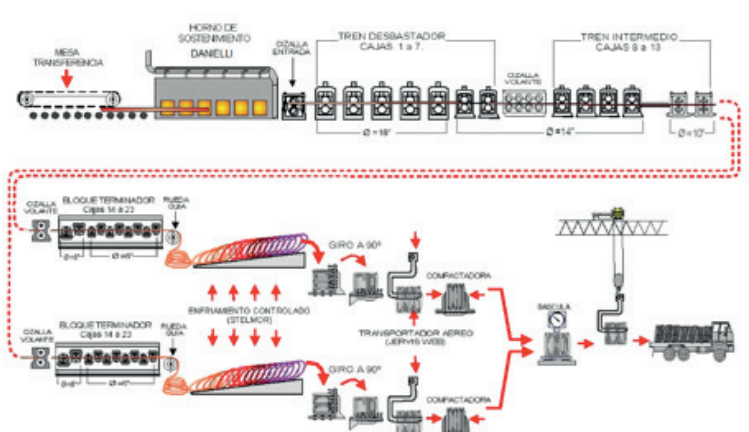
Overview:

Located in Nobsa, Boyacá, Acerías PazdelRío is Colombia's second largest steel mill, dedicated to the exploration, extraction and transformation of iron ore, limestone and coal.

The implementation of the Energy Management System (EnMS) was motivated by top-management, envisioning the reduction of energy costs and of their carbon footprint as well.

The initial scope selected for the implementation of EnMS tools was initially limited to the electric loads of the Morgan Lamination Train. EnMS tools are currently being applied to other energy sources, such as natural gas, and in other areas of the steel mill as well.

FLOWCHART OF THE MORGAN TRAIN



SOURCE: Acerías PazdelRío

Relevant Information: _____

Program implemented: EnMS

Base year: 2017

Energy sources: Electric power and natural gas

Scope and limits of EnMS: *Morgan* Lamination Train

Improvement actions:

Best practices: O&M, operational control, optimization of operating conditions

Goal: 8% reduction in consumption of electric power and 0,5% reduction of natural gas

Identified savings: 241.162 kWh/month of electric power, 4.008 m³/month of natural gas

GHG reduction: 97,5 t CO₂ eq / month

Success factors and lessons learned: _____

“The first and most important lesson was the importance of leaving behind traditional practices, to adopt a fresh approach towards energy management, which allows to identify savings opportunities that had been ignored in the past.

Awareness-raising campaigns at all levels of the company, regarding efficient use of energy and the development of skills, boosted the formulation of appropriate savings measures and the allocation of resources to implement actions that allow the attainment of the proposed goals.

The interest to participate in the EEI Colombia program was promoted from top-management at PazdelRío; this made all areas of the company to commit and to value the information produced by the EnMS. The participation of company facilitators, their understanding of consumption and costs associated to productive processes and their capacity to replicate their know-how within the team, have been fundamental in identifying variables that affect Significant Uses of Energy.

It is crucial to have measurement and data-logging tools to keep track of progress made in the implementation of the savings actions which were formulated. The formulation of corrective actions and of improvement strategies, has been facilitated by the use of management tools to detect the completion of goals and deviations from the action plan; these tools include alerts, root cause and fishbone analysis, etc.

In regards to activities for operational sustainability or process expansion, Acerías PazdelRío prioritizes the search for adjustments to make processes more energy efficient, further reducing their environmental impact.”

Francisco Sánchez, Project Coordinator, Acerías PazdelRío

Future actions: _____

The EnMS methodology will be applied to all the productive areas at the plant; this means covering an energy consumption four times greater than the one of the *Morgan* Lamination Train. In order to achieve such goal, Acerías PazdelRío contemplates expanding the use of sub-metering systems to areas that lack such technology, to accurately characterize all processes. Additionally, the company will consider cogeneration projects and the usage of some fuels obtained as by-products in other areas of the plant.

For further information: _____



Eficiencia Energética
Industrial en Colombia

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.

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