PMC and Full Service units within Process Automation division, an energy audit at the Papelera Brandia plant, in Santiago de Compostela, Spain plant, recommends implementation of a collaborative production management (cpm) system in order to help save energy and increase efficiency. As a result, cpmPlus with Energy Manager by ABB is installed resulting in less downtime and increased asset optimization.

Papelera Brandia SA produces machine-glazed (MG) kraft papers ranging from 24 to 140g/m². Their kraft papers are ideal for wrapping and packaging due to its mechanical properties. The brightness of the glazed side of the paper optimizes printability.

At their customer’s request, Brandia adapts paper to end-use, providing high smoothness, wet strength, high opacity and other stock treatments depending on the application.

Background

In 2012, Papelera Brandia started to have problems with maxi-meters tripping. These are devices used to automatically block power consumption after having reached a pre-determined limit, in order to avoid penalty payments to the local electrical utility for consuming too much energy. The maxi-meters became faulty due to old age and lack of servicing. Due to the commitment of the Full Service team on site, and the confidence of the customer in ABB, Papelera Brandia explains the issue to Full Service through the follow up meetings. Based on our experience and trying to move ahead, Full Service offered Energy Audit as the strategic approach to not only know about their energy consumptions but also the following steps such as master plan with identification of potential opportunities and savings, etc.…

The process

As Papelera Brandia was aligned with the offered approach, the first order was placed to perform the energy audit. The audit consists of the following:

- **On-site assessment**
  - 1 week on site visited by 2 experts with electrical and thermal energy focus, checking the power plant, pulping process and paper machine energy sources.
Papelera Brandia did not have an energy meter, so the first target was to measure the actual values per each area.

- Interviews with quality, production, maintenance, purchasing, plant managers were held to know the way they manage their operations and their knowledge about energy policies.
- Collecting information such as invoices from various utilities and other energy supply companies.

- **Off-site analysis**
  - Preparing the final report, energy map, baseline consumption and list of opportunities

After the assessment and analysis, together, ABB and Papelera Brandia defined a master plan with prioritization of opportunities, categorization and a feasibility analysis.

One of the crucial needs identified was a monitoring and targeting system. This was turned into a proposal for the cpmPlus Energy Manager.

**The offer included:**
- Delivery and commissioning of energy meters
- Delivery a regular industrial server including the Energy Manager software (monitoring and targeting template)
- Programming of functions. It includes communications with quality control, production, plan systems.

Regarding UNE 216501:2009 standard, the energy audit is defined as a systematic, independent and documented process aimed at obtaining and objectively evaluating evidences in an organization or part of the organization, with the following objectives:

- Obtain a reliable evaluation or the energy consumption and its associated costs.
- Identify and characterize the factors affecting the energy consumption.
- Detect and evaluate savings opportunities, efficiency improvements, energy diversification possibilities and their repercussion in the energy and maintenance costs, and also other possible benefits and their associated costs.

As a summary of the energy audit, 21 opportunities were identified as priorities. 14 out of these 21 have been delivered, resulting in the below savings:

- **Total energy savings:** 288,830 €/year
- **Global energy savings** 9,25%
- **Electrical savings** 9,9%
- **Natural gas savings** 7,9%
- **Savings in tons of CO₂:** 1,467 Ton/year
- **Investment:** 600,000 €(approx.)
- **Average ROI:** 2,1  
  (92k in less than 18 months)

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