The company has been implementing three integrated management systems (ISO 9001, ISO 14001 and OHSAS 18001) for more than 10 years. This familiarity with management systems allowed the company to easily engage with UNIDO in the implementation of the Energy Management System (EnMS), which was integrated into the existing management systems structure. Management’s main objective for implementing the EnMS was cost savings by reducing the facility’s energy consumption for:

1. Increased profitability
2. Improved competitiveness
3. Contributed to environmental conservation

**IALK’s Energy history**

IALK had already initiated some EnMS practices prior to joining the UNIDO Industrial Energy Efficiency project in Indonesia, but had not fully adopted the associated structured management practices. The initial approach taken by IALK was project based rather than management as outlined in ISO 50001. The company did, however, use clear plant energy performance indicators based on an electricity energy consumption target at the corporate level (total).

**Management Systems**

To fully adopt structured energy management practices, PT. Inter Aneka Lestari Kimia has joined hands with the United Nations Industrial Development Organization (UNIDO), the Ministry of Energy and Mineral Resources (MEMR), Ministry of Industry (MOI) and National Standardization Agency of Indonesia (BSN). The Global Environment Facility (GEF) funded project, “Promoting Industrial Energy Efficiency through System Optimization and Energy Management Standards in Indonesia” has helped PT. Inter Aneka Lestari Kimia to implement an Energy Management System in alignment with ISO 50001 for an overall improvement in energy efficiency and a reduction in energy consumption.

**A Case Study of PT. Inter Aneka Lestari Kimia**

PT. Inter Aneka Lestari Kimia (IALK), located in Banten, Indonesia, produces Masterbatch and Polymer Compounds for industrial applications in plastic manufacturers of the chemical sector. With almost 400 employees, IALK has a production capacity of 20,000 tons/year.

Website: www.interaneka.com

**Using Meter data to identify the Significant Energy Users (SEUs):**

The sub-metering undertaken by IALK was an important tool for the identification of the significant energy users (SEUs) and the basis for the improvements under the EnMS. The SEUs identified were the extruders and the air compressor.
Recognizing the role played by the SEUs in the facility’s energy usage, IALK developed an Objectives, Target and Action Plan sheet clearly map out the objectives of the EnMS. The overall Energy Performance Target was a 6% reduction as compared to the baseline.

**Opportunities**

As part of the plan to achieve the outlined objective and following the analysis of the SEUs on site, key energy saving opportunities were identified, with the most beneficial opportunities developed into action plans. Some of the opportunities directly implemented were:

- Replacement of TL with LED lightbulbs
- Installation of an air conditioner inverter
- Installation of a bank capacitor and variable speed drive for the machine motor

In addition, a number of no cost improvements were implemented:

- Reduction of the compressor tank pressure from 8 to 7 bar
- Reduction of the heat temperature of various machines while awaiting a quality control test
- Turning off of the air conditioner when rooms are vacant
- Double dies offline cleaning of M/C 1, 5, 8, 12, 16, 14

The total savings of the implemented improvements were approximately 356,000 kWh, which is equivalent to 5% of total energy usage (equivalent to US$ 35,600 or 321.468 ton CO2 reduction ) in January 2014 until May 2015.

The CUSUM graph shows the consistent savings that began in September 2014 with the initiation of the energy efficient pilot projects.

**Sustainable Improvements**

To ensure the achievement of the Energy Performance Target, IALK has been:

- Including the energy saving programme in the company’s overall targets.
- Reviewing the achievement in a monthly meeting to identify any issues, required actions or potential new energy efficiency projects.
- Continuously updating the energy efficiency projects as new opportunities are identified.

In addition to the 5% saving, IALK has already identified 8 new energy efficiency opportunities to improve the performance. The average payback time of those opportunities is 1,8 year and this will improve their efficiency with another 10%. IALK will replicate the project to their sister company. The key persons already joined the EnMS understanding training on the course of pilot project.

**Benefits of EnMS Implementation**

According to IALK, the benefits of implementing the Energy Management System with the support of UNIDO are:

- Consistent reduction of machine downtime since its identification as part of the EnMS
- New and improved approach of implementing a management system implementation as compared to the standard implementation approach in Indonesia
- Operators are more aware of the the machines’ condition and the role this play in energy consumption
- Improved communication and response times to problems among operators and staff
- Improved approach to investment decision making through the use of Net Present Value (NPV) tools

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