UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

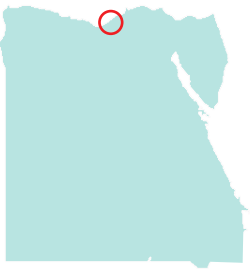
Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in their operations, ABCO United company has joined hands with the GEF funded project, "Industrial Energy Efficiency in Egypt." This project is implemented by the UNIDO in partnership with the Egyptian Environmental Affairs Agency, Ministry of Industry, Trade and SMEs and the Federation of Egyptian Industries. The project has helped ABCO to implement an Energy Management System in alignment with ISO 50001 for an overall improvement in energy efficiency and improve environmental impact.

EGYPT

A Case Study of ABCO United

ABCO Snapshot



Industry: Plastics & Chemicals
Location: Alexandria, Egypt
Product: PE, PP and PET plastic containers, bottles plastic closures & PET
Implementation cost: ~830,000 EGP
EnMS scope: Electricity
Annual energy savings: ~1,500 MWh
Financial savings: ~700,000 EGP
GHG reduction: ~8000 CO_2eq (10 y)
Overall payback: ~14 month
Objectives period: 3 years
Time to implement EnMS: 12 month
ABCO is active in B2B Plastic Packaging (PE, PP and PET plastic containers, bottles plastic closures & PET). ABCO also produce household detergents, car-care products & third party filling.

Implementing EnMS in ABCO is the way out

In 2014, ABCO were working on the expansion of their production facilities. At the time, the industrial sector in Egypt was facing strong challenges represented in the phasing out of energy subsidy in addition to difficulties in securing their energy supplies. Under these circumstances, ABCO have made the decision that adopting a systematic approach in managing their energy consumption should be the first step in addressing these challenges.

ABCO ambitious EnMS objectives

ABCO assigned its EnMS objectives with an approach of applying energy efficiency measures in order to improve facility-wide energy performance. In this context, ABCO's objective is to reduce 7.5% of their electrical consumption by EOY 2017.

UNIDO, a key player in the plant's success

With UNIDO's support, ABCO staff were engaged in a thorough process to review and analyze the company's historic energy consumption and performance. Throughout the process, ABCO have developed their energy policy, defined the EnMS scope and boundaries and carried out a thorough energy review. In addition, ABCO have focused on the identification of a medium term list of energy saving opportunities. In specific, ABCO have started by the replacement of old motor systems as well as improving the compressed air system overall efficiency and replacing the existing lighting system with LED technology.

Saving opportunities achieved

Implemented Energy Saving Opportunity Measures				
Description	Energy Savings (kWh)	Financial Savings (EGP)	Capital Cost (EGP)	Payback (Month)
Replacement of Extruder Motors	889,400	421,576	497,000	14
Optimization of Air System Efficiency	366,102	173,532	250,000	17
Switching Lighting Systems to LED	205,523	97,417	82,000	10
Other Identified Energy Saving Opportunity Measures				
Optimization of Crushers Efficiency	TBI	TBI		
Scraping of Old Equipment	TBI	TBI		
Total	**1,461,025**	**692,525**	**829,000**	**14**

Replacement of Extruder Motors

ABCO have replaced the existing extruder motor from DC to AC motors. This intervention has resulted in ~30% energy savings in the motors system energy consumption.

Optimization of Compressed Air System Efficiency

ABCO has worked on the optimization of their compressed air system. The company has successfully prevented air leaks in their air network and production equipment. In addition, the company has installed a new air network for an additional department.

Switching Lighting System to LED Technology

ABCO have replaced their lighting system for the whole plant from florescent lamps to LED lamps that has resulted in ~50% energy saving.

Optimization of Crushers efficiency

In order to minimize energy losses at no production, the company is working on the installation of an automatic on/off control system for the crushers.

Scraping of Old Equipment

The company is currently developing a plan in order to replace low-efficiency production equipment with high efficiency production equipment.

Barriers

The implementation of an EnMS at ABCO faced very few barriers and obstacles due to the strong commitment that the top management has shown. Most of the barriers and challenges were of minor nature mainly revolving around the change of the energy manager who was also the management representative, which has merely resulted in some delays in implementation. Although the change of personnel to such a pivotal role could have resulted in a major setback during this stage of implementation, the top management approach to ensure that ABCO's EnMS has to be systematic and hence involves all relevant parties and staff members acted as a reliable safety net.

Lessons Learned

The implementation of the EnMS at ABCO has proven to be both easy and cost effective giving a strong management commitment and the availability of adequate technical resources. In addition, it has proven that it is necessary to involve all relevant staff member at all stages of implementation to ensure that the EnMS does not revolve around certain personnel but rather institutionalized as a core activity in the organization.

For more information:

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