

Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in their operations, El Araby AC 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 El Araby AC Company 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 El Araby Conditioning Company

El Araby AC Snapshot

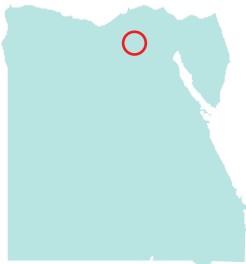
Industry:

Engineering

Location:

Menoufia, Egypt

Product: AC Units



Implementation cost: 985,000 EGP

EnMS scope: Electricity and N. gas

Annual energy savings: ~3.76 GWh

Financial savings: ~1.3 million EGP /year

GHG reduction: ~15 ktCO₂eq (10 y)

Overall payback: 9 months

Objectives period: 2015 - 2020

Time to implement EnMS: 16 months

El Araby has established El Araby Company for Air Conditioning in 2004. The company is located in Quesna industrial zone over a 45,000 m² area. The company produces AC units in addition to heat exchangers. The company employs a total of 1183 staff members and has an annual production capacity of 420,000 complete sets. El Araby has technical cooperation agreements with international market leaders such as SHARP Corporation and



EnMS Implementation at El Araby AC

El Araby Group has a strong long term commitment to continuously improving its management techniques. In February 2015, El Araby AC has started its cooperation with UNIDO aiming to improve the company's energy performance. Through this cooperation strong efforts were put in building a systematic approach to energy management, which was crowned by the company's certification of compliance with ISO 50001.

El Araby AC Ambitious EnMS Objectives

El Araby AC has set its EnMS objectives with an approach of ensuring full commitment of all staff from top management, supervisors and operators on all levels of the organization. El Araby AC assigned the following objectives:

- Reduce Electrical Consumption by 10% by EOY 2017
- Reduce Natural Gas Consumption by 5% by EOY 2020

UNIDO, a Key Player in the Company's Success

With UNIDO's support, El Araby AC staff was engaged in a thorough process to review and analyze the company's historic energy consumption and performance. The team has developed their energy policy, defined the EnMS scope and boundaries and carried out a thorough energy review. In addition, the company has focused on the identification of a short term list of energy saving opportunities with a focus on no/low cost measures.

Implemented Energy Saving Measures

Description	Energy Savings (kWh)	Financial Savings (EGP)	Capital Cost (EGP)	Payback (Year)
Switch lights off	30,240	13,306	-	0.0
Modify inverter settings (molding machine)	64,927	28,568	-	0.0
Adjust the mc production settings	43,475	19,129	-	0.0
Redistribution of outdoor lighting	19,354	8,516	2,000	0.2
Redistribution of indoor lighting	16,934	7,451	2,000	0.3
Redistribution of indoor lighting	18,144	7,983	4,500	0.6
Re-use of discharge water	23,338	10,269	1,000	0.1
Install inverter for cooling system	450,000	198,000	100,000	0.5
Installation of a VSD	32,184	14,161	30,000	2.1
Lighting replacement	680,648	299,485	843,250	2.8
Awareness raising for the staff	894,536	393,596	-	0.0
Indirect natural gas savings (cooling system)	1,486,415	317,834	-	0.0
Total	3,760,195	1,318,297	982,750	0.7

Barriers

Since the top management of El Araby Group was highly committed to implement an EnMS in all its companies, the implementation in El Araby AC experienced a smooth implementation.

However, the only barrier experienced was to change the company's staff dominant culture that energy efficiency is a the sole responsibility of the maintenance team. In cooperation with UNIDO consultants several staff awareness sessions and capacity building workshops were conducted.

As a result the energy team was reformulated and higher staff involvement in the implementation process of the EnMS was clearly noted. The result was the implementation of systematic and effective EnMS with the involvement of company staff at all company's levels and functions.

Lessons Learned

The implementation of the EnMS at El Araby AC has proven to be both easy and cost effective.

Strong management commitment was demonstrated by the allocation of adequate technical and financial resources.

Furthermore, it has proven that without the involvement of the different departments in the energy team, the EnMS would not be implemented effectively. It is necessary to include 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.

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