

Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, Egyptian Petrochemical Company "EPC" 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 Egyptian Petrochemical Company "EPC" to implement Energy Management System in alignment with ISO 50001 for an overall improvement in energy efficiency and improve environmental impact.

EGYPT

A Case Study of Egyptian Petrochemical Company "EPC"

EPC Snapshot

Industry:

Petrochemicals
Industries

Location:

Alexandria, Egypt

Product: Petrochemicals,
services and electricity

Implementation cost: ~0.20 MEGP

EnMS Scope: Electric & thermal energy

Energy savings: ~50,015 MWh/ year

Financial savings: ~5.27 MEGP/ year

GHG reduction: ~37,212 Metric Tons CO₂
equivalent/ year

Overall payback: ~3 years

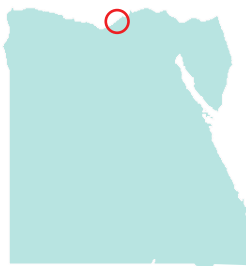
Objectives period: by 2020

Time to implement EnMS: one year

EPC produces ~80,000 mtpy Poly Vinyl Chloride (PVC), ~40,000 mtpy PVC Compound and XLPE different types, ~60,000 mtpy Vinyl Chloride Monomer (VCM), ~73,000 mtpy caustic soda. EPC also sells ~167,000 MWh of electricity per year to neighboring companies.

The company includes 5 production sites and it employs 2940 persons.

The company holds ISO 9001 & ISO 14001 & OHSAS 18001.



Implementing EnMS in EPC is the way out

EPC management is committed to maximizing the yield of natural resources by adopting innovative technologies and modern management systems. Applying EnMS with the support of the IEE project, EPC objective is not only to improve energy efficiency, increase the value added of the natural gas and become more competitive in the market, but also to incorporate more sustainable solutions to mitigate the environmental impact of the company activities.

EPC ambitious EnMS objectives

Based on identified, well-studied and planned saving opportunities, the company set its objective: "reducing the consumption of natural gas 10% and electricity 10 % by 2020".

UNIDO, a key player in the plant's success

With the commitment of EPC management and IEE support, the trained energy team was able to carry out company-wide energy awareness campaign and start on planning phase of the EnMS. The team led the process of identification of significant energy users (SEU), developing baseline for each SEU, set measuring plan and identifying studying, prioritizing and setting action plans for energy saving opportunities.

Energy Saving Opportunities

Implemented Saving Opportunities						
S	Implemented Energy Saving Opportuni-	Elect Savings MWh	NG Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Improve boiler insulation Repair steam traps improve boiler operation system and operation condition	-	8,660	1.039	0.150	<1
2	Accelerate repair Steam turbine	40,000	-	4.062	30.000	7.4
3	Fixed and repair leakage of compressed air	358	-	0.036	0.010	<1
4	Reduce blow-down of cooling tower	104	-	0.036	-	0
5	install LED lights in office building (6000 lamps were replaced (64W to 7 W)	892	-	0.090	0.480	1.9
Total		41,355	8,660	5.27	30.640	

Barriers

At the beginning, implementation the system faced some obstacles:

- Too busy staff members
- Focus on productivity and the achievement of the plan only
- Lack of training and awareness of scale of possible saving at the areas of SEU

The commitment of the management helped to solve the problems from within the system itself:

- Selection of energy team and setting the roles and responsibilities of team members
- Setting periodic follow up of meetings with the company management
- Clarifying the value of energy savings due to of technical intervention with no or low cost.
- Clarifying the relation between energy savings and impact on environment.
- Coordination between the training department and the energy representative to focus on energy related program

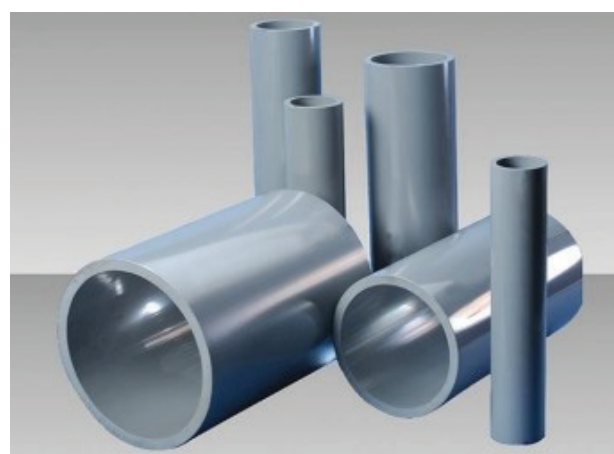


Lessons Learned

Even for the EPC; which is an energy producing company and has general awareness of energy efficiency, (the company uses boiler waste heat in combined cycle), using EnMS with its systematic monitoring, recording and analyzing of energy data has proved to be corner stone in achieving and sustaining continuous improvement of energy performance.

Furthermore, the following were of most importance for the success of EnMs implementation at EPC:

- Dissemination the culture of the importance of energy rationalization.
- Exchange of experiences between companies.
- Transfer of experiences between colleagues within the company and other companies.



For more information:

UNIDO Project Management Unit in Egypt

Email: iee-egypt@unido.org

Phone: +20 (2) 27943477

+20 (2) 27941993

ieeegypt.org

UNIDO Headquarters:

Rana Ghoneim: r.ghoneim@unido.org

Phone: +43 (1) 60264356

unido.org