

# Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, Egyptian Propylene Polypropylene Company “EPPC” 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 “EPPC” 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 Propylene Polypropylene Company “EPPC”

#### EPPC EnMS

##### Snapshot

##### Industry:

Petrochemicals  
Industries

**Location:** Alexandria  
and Port Saeed,  
Egypt

**Product:** Polypropylene

**Implementation cost:** ~ 0.120 MEGP

**EnMS Scope:** Electricity & natural gas

**Annual Energy savings:** : ~ 19.73 GWh

**Financial savings:** : ~ 10.64 MEGP

**GHG reduction:** ~ 8,293 tons CO<sub>2</sub>eq

**Overall payback:** immediate

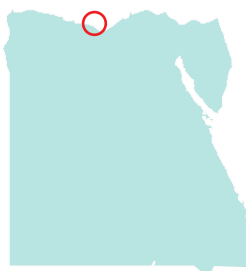
**Objectives period:** 3 years

**Project Status:** at the end of planning

**Time to implement EnMS:** one year  
(2016)

EPPC produces about 300,000 ton/year of Polypropylene which is considered to be the most important polymer for different industries. The company exports 70% of the production and engages over 700 employees.

EPPC is ISO 14001 and ISO 9001 certified supplier.



#### Implementing EnMS in EPPC is the way out

EPPC is a fairly new company, where production has started at the end of 2010 and it has a problem in the design capacity, which has not been achieved. The top management is striving to reach the design capacity and in the same time keep the industry economics within the ranges of the feasibility study or even better. Under these circumstances, EPPC has made the decision to adopt the EnMS as it provides a systematic approach not only to monitor and manage energy consumption but also to attempt monitoring and improving operation and maintenance in general. Additionally, introducing energy conservation opportunities and measures, as per the requirements of EnMS, at this phase of the plant would certainly help the management in addressing the challenges of the design capacity and optimizing the production cost.

#### EPPC ambitious EnMS objectives

Based on the identified opportunities, the company has set the following objectives:

- decreasing electricity consumption by 5% at end of 2018
- decreasing natural gas consumption by 4% at end of 2018

## UNIDO, a key player in EPPC success

The company own energy experts, trained and technically supported by IEE UNIDO, were able to introduce EnMS through development of the energy policy and establishment of energy team, define roles and responsibilities, identifying SEUs, Baseline, EnPI, identifying energy conservation opportunities and setting objectives and target.

decreasing as a result of electrical and thermal energy saving.

The newly introduced CUSUM as energy performance indicator clearly showed the at the cost of production is decreasing as a result of electrical and thermal energy saving.

## Energy Saving Opportunities

Implemented Saving Opportunities						
S	Implemented Energy Saving Opportunities	Elect Savings MWh	Fuel Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Decreasing the opening of flow control valve at suction line from 34% to 14%	3,168	-	2.96	-	-
2	Repairing steam traps- decreasing steam consumption of PDH unit	-	11,281	2.75	-	-
3	Increasing the direct production rate to PP plant, leading to running 2 Motors instead of 3 Motors	5,280	-	4.93	-	-
<b>Total</b>		<b>8,448</b>	<b>11,281</b>	<b>10.64</b>		

## Barriers

Although EnMS showed early wins and benefits to the company, the company trained energy experts were still suffering from a main obstacle in implementing EnMS; which was the plant main problem of “not reaching the design capacity”.

This main obstacle led to the following problems:

- lack of management commitment
- Very slow, or absence, of response of the company management, even in crucial matters such as approving the energy policy.
- Lack of commitment of the energy team, as it was not officially assigned and announced.
- Lack of resource; staff and time
- Lack of involvement of different departments



## Lessons Learned

Even if the company has its own trained energy experts and EnMS started to show early results and benefits, management commitments and involvement is the corner stone in sustainable energy management system.

Management commitment and involvement will encourage the commitment of all company staff and speed their response and cooperation; allocation of resources will be guaranteed. in brief management commitment and involvement will eliminate all barriers and obstacles.



### For more information:

UNIDO Project Management Unit in Egypt

Email: [iee-egypt@unido.org](mailto:iee-egypt@unido.org)

Phone: +20 (2) 27943477

+20 (2) 27941993

[ieeegypt.org](http://ieeegypt.org)

### UNIDO Headquarters:

Rana Ghoneim: [r.ghoneim@unido.org](mailto:r.ghoneim@unido.org)

Phone: +43 (1) 60264356

[unido.org](http://unido.org)