

Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, Delta Company for Fertilizers and Chemical Industries “ASMEDA” 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 Delta Company for Fertilizers 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 Delta Company for Fertilizers and Chemical Industries “ASMEDA”

Delta Company for Fertilizers Snapshot

Industry: Fertilizers and chemical industries

Location: Talkha-Dakahlia, Egypt

Product: fertilizers and chemicals

Implementation cost: ~0.140 MEGP

EnMS scope: electric energy in Nitric Acid unit and Natural Gas in boiler unit

Annual energy savings: ~532 GWh

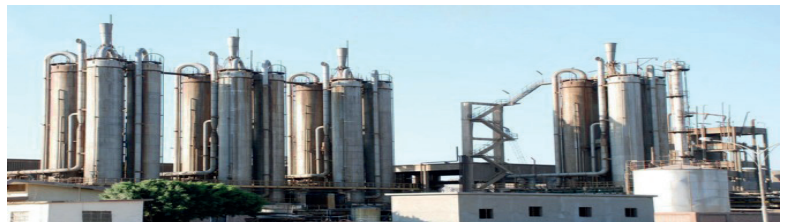
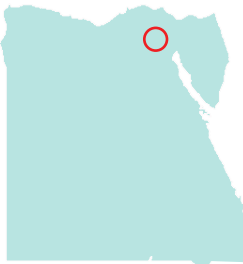
Financial savings: ~134 MEGP

GHG reduction: ~99,661 Metric Tons CO₂eq

Overall payback: 1.5 Years

Objectives period: One Year

Time to implement EnMS: 1.5 Years



Implementing EnMS in ASMEDA is the way out

As a fertilizers and chemicals manufacturer, ASMEDA is one of the intensive energy users in the Delta area. Recently, after 2011, the government started to lift off the energy subsidy gradually; which urges the management to scrutinize where and how the energy is used. Additionally, the company management started to pay attention to its environmental impact to comply with the requirements of the government.

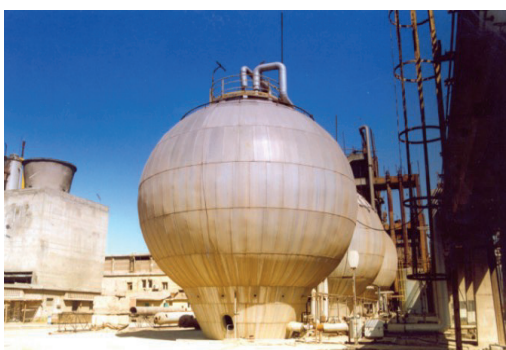
In December 2015, the company decided to adopt EnMS as a way to monitor and improve energy performance and in turn mitigate the environmental impact.

ASMEDA ambitious EnMS objectives

ASMEDA assigned its EnMS objectives based on identified energy conservation opportunities and energy efficiency measures. The objectives are: to reduce 10% of electric energy consumption and 10% of natural gas by End of 2016.

UNIDO, a key player in the plant's success

With UNIDO's support, ASMEDA staff were engaged in a thorough process to review and analyze the company's historic energy consumption and performance. Throughout the process, ASMEDA has developed energy policy, defined the EnMS scope and boundaries and identified baselines, significant energy user (SEU), measurement plan, opportunity list for saving energy and an action plan for each opportunity. The company has also laid out the proper documentation system to follow up and monitor the implementation of the system.



Saving opportunities

Identified and Planned Saving Opportunities						
S	Saving Opportunities	Elect Savings MWh	Fuel Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Improve combustion efficiency by burner tune up using a new gas analyzer		14,317	28.58	0.03	0.00
2	fixing steam leakage		137,181	34.30	0.40	0.01
3	Install VSD motors	3,103		1.40	2.00	1.43
4	Training program	1,434	45,727	12.08	0.10	0.00
Total		4,537	297,225	76.35	2.53	

Identified under Study Saving Opportunities						
S	Saving Opportunities	Elect Savings MWh	Fuel Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Reuse the blow-down water to preheat fed water of the boiler		160,044	40.01	0.10	0.00
2	Maintenance program include preventive and predictive maintenance	1,551	68,590	17.85	0.50	0.02
Total		1,551	228,634	57.86	0.60	

Barriers

ASMEDA is a very old company and most of the equipment had never been replaced. It was difficult to achieve saving without or with low cost measures. The following are the barriers faced during planning to implement EnMs:

- Difficulty to change company management behavior and mind-set.
- Difficulties in collecting the required data accurately.
- The company has no sub metering system for all significant units related to electric energy and depends only on rated power.
- The company has no training programme related to energy to raise the awareness of all levels in the company.
- SEU operators do not have enough training and awareness of the importance of their role in energy saving.
- Difficulty to arrange awareness and training sessions, though paid by UNIDO.
- Maintenance programme includes only oil and filters replacement.
- Lack of finance for the implementation of energy saving projects.
- Lack of will from top management to pursuit and complete the implementation of the EnMS Project

Lessons Learned

The work performed during the unfinished planning phase showed that there are viable and cost-effective saving opportunities; though no accurate calculation was performed. Strong management commitment is the cornerstone in implementation of the EnMS. In addition, if the changing the mind-set of the top management proved to will be difficult, saving in energy will be at random initiatives not the systematic approach as laid out in the ISO 50001

On the other hand, working with middle management and floor level engineers, through planning has proved the benefits of the knowledge transfer between energy team and UNIDO experts in technical details of fertilizers production process (company side) and Energy management system, the international standard ISO 50001 and knowledge transfer when discussing saving opportunities (Experts side) .

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