UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

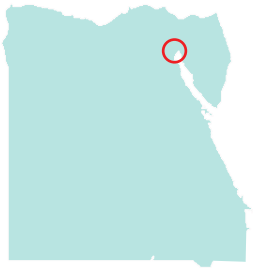
Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, Galaxy Chemicals 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 Galaxy 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 Galaxy Chemicals Company

Galaxy Chemicals Company Snapshot



Industry: chemicals Industries

Location: Ataqah, Suez, Egypt

Product: surfactants and specialty chemicals

Implementation cost: : ~0.120 MEGP

EnMS Scope: electricity, natural gas & water

Annual Energy savings: ~ 880 MWh

Annual water savings: :~ 62,020 m^3

Financial savings: ~0.546 MEGP

GHG reduction: ~651 Metric Tons CO_2eq.

Overall payback: ~2.5 years

Objectives period: 2 years

Project status: finished planning 2016

Time to implement EnMS: one year (2016)

Galaxy Chemicals Egypt is the Egyptian business unit of Galaxy Surfactants Limited, which is an Indian Group of companies having manufacturing facilities in India, Egypt & the USA, and serving customers in more than 50 countries. The company produces 80,000 Ton per year of surfactants and specialty chemicals used

By end of 2016, the company has been ISO 50001 certified in addition to the existing ISO 9001, ISO 22716

Implementing EnMS in Galaxy is the way out

Once the EnMS was introduced by IEE project, immediately the company management saw the advantages and the added values of implementing such system. In highly competitive market as the market of surfactants, adoption of the system has provided a tool to be more efficient; i.e. cost effective through recording, monitoring and analyzing energy data as well as identifying, studying, prioritizing and implementing energy saving opportunities; which are translated into action plan to improve not only energy performance but in general operation and maintenance.

Furthermore, as water is as scarce as energy, the company management has decided to include water consumption within the scope of the EnMS. Where the same approach and methodology is applied to monitor, control and improve water consumption.

Galaxy ambitious EnMS objectives

Given the action plan put forth to implement the identified energy saving opportunities, Galaxy has set its objectives to reduce consumption as follows:

- 10 % of electricity consumption by the end of 2017
- 25 % of water consumption by the end of 2017

UNIDO, a key player in Galaxy success

Cooperation with UNIDO has helped the company to link the already existing intention to reduce energy consumption with production output and the identified saving opportunities. But before reaching this linkage, the energy team with UNIDO support has gone through:

- Establishing Energy Policy
- Carry out awareness campaign in Energy efficiency and EnMS
- Conducted an energy review
- Quantifying and documenting significant energy uses for electricity, N.G and water
- Identifying drivers and developing baseline for each SEU.
- dentifying opportunities for energy saving
- Developed an action plan
- Setting Objectives and targets
- Identified & documented Legal and other requirements
- Planning and implementing management review
- Setting plans for EnMS internal and external audit

Energy Saving Opportunities

Implemented Opportunities (In-progress)					
S	**Implemented Energy Saving Opportunities**	**Elect Savings MWh**	**Savings MEGP**	**Investment MEGP**	**Payback Year**
1	Replace lights in warehouse with LED	37.80	0.024	0.04	1.71
2	Study air and nitrogen compressor loads and repair all leakages	54.00	0.033	0.01	0.15
	Total	**91.8**	**0.057**	**0.05**	

Identified and Planned Opportunities					
S	**Energy Saving Opportunities**	**Elect Savings MWh**	**Savings MEGP**	**Investment MEGP**	**Payback Year**
1	Fit VSD to cooling tower fans	142.56	0.09	0.09	1.02
2	Replace lights in plant areas with LED	60.48	0.04	0.04	1.07
3	Using a Turbo blower for 11K1A motor instead of normal centerfugal blower	561.60	0.35	0.04	2.30
4	Reduction of Cooling water pumping system and cooling water for F2 plant	24.00	0.02	0.05	1.68
	Total	**788.64**	**0.5**	**0.130**	

Water Saving Opportunities

Planned Saving Opportunities					
S	**Planned Water Saving Opportunities**	**Water Savings m^3**	**Savings MEGP**	**Investment MEGP**	**Payback Year**
1	Control domestic water uses	720	0.004	0.001	0.26
2	Control garden irrigation water	18,000	0.095	0.005	0.05
3	Return ACF back wash water to RCC again	2,000	0.010	0.008	0.76
4	Do MMF back wash based on differential pressure not fixed time	500	0.003	-	-
5	Decrease the Number of regeneration by increasing the amount produced from each one	22,800	0.120	-	-
6	Return Back ETP outlet to use it in cooling tower water make up	12,000	0.062	0.01	0.16
7	Return back ETP outlet to use it in 14C1	6,000	0.032	0.05	0.16
	Total	**62,020**	**0.326**	**0.029**	

Barriers

As highly committed as Galaxy management is, all barriers or obstacles were resolved immediately during cooperation with UNIDO to implement EnMS in the company, which resulted in starting to achieve results of energy performance improvement and certification in one year.

Lessons Learned

The implementation of the EnMS at Galaxy has proved

- Management commitment is the decisive factor in EnMS success.
- Regression analysis adds new understanding of energy performance.
- Dedicated energy awareness meetings help to identify more energy conservation opportunities.

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