

Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, Evergrow for Specialty Fertilizers 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 Evergrow 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 Evergrow for Specialty Fertilizers

Evergrow for Specialty Fertilizers Snapshot

Industry: Fertilizers Industries

Location: Smart village, Egypt

Product: Fertilizers and chemicals

Implementation cost: ~ 0.150 MEGP

EnMS Scope: Electricity & Diesel Fuel Oil

Energy savings: ~ 50.6 GWh

Financial savings: ~ 13.8 MEGP

GHG reduction: ~ 9,922 Metric Tons CO₂eq.

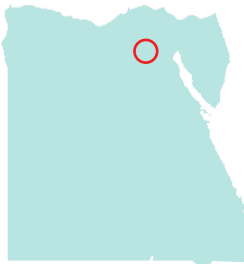
Overall payback: ~3 years

Objectives period: 3 years

Time to implement EnMS: one year (2015)

Evergrow for Specialty Fertilizers produces 10 products of fertilizers, fully soluble or liquid, and chemicals with total capacity of 150'000 tons/ year (Calcium Nitrate, Potassium nitrate, Potassium sulphate, Mono Ammonium ...etc.). the products are produced from 7 production facilities that employs 800 employees.

The Company is certified in common management systems; ISO 9001, ISO 14001, ISO 17025 & BS OHSAS 18001.



Implementing EnMS in Evergrow is the way out

On the top of strategic objectives of Evergrow for Specialty Fertilizers come: "To produce and market fertilizers, acids and chemicals efficiently and economically, in an environmentally sound manner" and "To take up implementation of schemes for saving energy". Therefore the company management spares no effort or resources to align the company activities and operation towards these objectives. Implementing EnMS; with the support of IEE project, UNIDO on the guidelines of ISO 50001, helps the company to convert those objectives into reality.

Evergrow ambitious EnMS objectives

Evergrow top management with the support of Energy Team has set the objectives as follows: - have been identified as:

- To reduce electrical consumption 33.5% by 2017
- To reduce educe thermal consumption in boilers by 51.8 % by 2017
- To reduce educe thermal consumption in furnaces by 5.8 % by 2017

UNIDO, a key player in the plant's success

Cooperation with UNIDO IEE project started in 2014 by receiving training on EnMS different components which has helped the company to change from cost oriented to energy efficiency focused. Eventually, this change has led to the sought cost reduction. Cooperation with IEE project continued through work on management commitment and planning phases leading to identification, studying and prioritization of energy conservation opportunities; then the company started implementing those opportunities according to the set action plan. Based on the possible saving values, the objective and targets were set up by the company management.

Energy Saving Opportunities

Implemented Opportunities (In-progress)						
S	Implemented Energy Saving Opportunities	Elect Savings MWh	Fuel Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Turn off Dryer 6	303		0.090		0
2	Training & awareness	24	924	0.233		0
3	Housekeeping	60	2,309	0.582	0.028	0
4	Install electric energy meters	241		0.072	0.019	0.26
5	Improve combustion efficiency by 3%(by adjusting Excess air ratio)		1,224	0.363	0.005	0
6	Build new furnaces walls & insulation		195	0.033	0.004	0.12
7	Switch to N.G		18,809	4.822	2.000	0.41
Total		629	23,461	6.20	2.06	<1

Planned Saving Opportunities						
S	Planned Energy Saving Opportunities	Elect Savings MWh	Fuel Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Install LED lighting	394		0.117	0.075	0.638
2	Replace (30) motors with high eff. Motors Replace (22) motors with VSD motors	339		0.101	0.278	2.758
3	Minimize blowdown losses and increase condensate return by 20%		9,271	2.753		0.000
4	Minimize service steam by 20% and produce flash steam		12,708	3.774	0.050	0.013
5	Improve combustion efficiency (adjusting Excess air ratio Preheat comb. air and use regenerative burner)		3,813	0.901	0.210	0.400
Total		733	25,792	7.65	0.61	<3

Barriers

Implementation of EnMS faced some barriers and obstacles, at the beginning; however, management commitment good communication between consultants and company staff helped to overcome those barriers

- Changes in the energy team members and factory staff, due to transfer to El Sadat Factory.
- Un-clarity in the production data, which have been updated in the middle of the project.
- Very slow response of the energy team members.



Lessons Learned

The implementation of the EnMS at Evergrow has proven that energy efficiency focused efforts will eventually lead to the sought after cost reduction. Additionally, it also have showed that even in cases where the company is experiencing lack of full commitment, readily available data, very slow response and other challenges, it is still possible to establish a well-defined systematic EnMS and achieve significant savings in energy consumption.



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