

Industrial Energy Efficiency Project

In order to introduce a structured approach to energy management in operation, El Marwa Food Industries – Juhayna Group 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 El Marwa to implement Energy Management System in alignment with ISO 50001 for an overall improvement in energy efficiency and improve environmental impact.

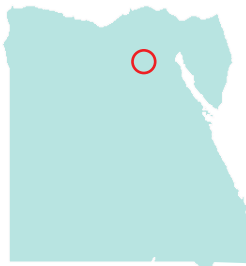
EGYPT

A Case Study of El Marwa Food Industries Juhayna Group

El Marwa EnMS Snapshot

Industry: Food Industries

Location: Industrial Zone, 6th of October City, Giza, Egypt



Product: : fruit purees, pulps and juice concentrates

Implementation cost: ~ 0.120 MEGP

EnMS Scope: Electricity & natural gas

Energy savings: ~ 101 MWh

Financial savings: ~ 65,000 EGP

GHG reduction: ~ 75 tons CO₂eq

Overall payback: ~ One year

Objectives period:

Time to implement EnMS: one year (2015/2016)

Project Status: end of planning phase of implementation

El Marwa Food Industries Company, member of Juhayna Dairy and Juice Industrial Group, produces 25,000 tons per year of tropical fruit purees and concentrates from one line and 10,000 tons per year of citrus concentrates from a second line. The products are supplied to juice factories in the group and to other produces in the domestic and abroad markets.

The company is certified in ISO 18001, ISO 22000 and FSSC 22000 (Food Safety System Certificate).



Implementing EnMS in El Marwa is the way out

Although El-Marwa for Food Industries uses equipment and extraction technology provided by the top suppliers in the field, the company management feels that the energy is used inefficiently and that consumption could be reduced significantly. Adoption of EnMS in the group has provided the management with the required tool to ensure the efficient use of energy and to identify, study and follow up energy saving opportunities; consequently, the framework to set objectives for the energy consumption. Applying the stringent procedures of EnMS to use energy efficiently contributes to confirming the leading competitive position of the group in the dairy and juice sector.

El Marwa ambitious EnMS objectives

The company has finished identification of the energy saving opportunities which will be studied, prioritized and converted to action plan of measures and projects. Consequently, the objectives will be drafted and forwarded to the company management for approval.

UNIDO, a key player in EnMS success at El Marwa

With EnMS training provided by UNIDO and support of the consultant delegated by the project, the company has managed to:

- review of past available energy records
- quantify the significant energy users
- identify and document roles and responsibilities
- identify drivers and define baseline for each user

- define energy performance indicator(s)
- carry out awareness on energy efficiency
- documented critical operating parameters
- identify energy saving opportunities
- introduce Life Cycle Cost analysis in procurement of equipment

Energy Saving Opportunities

Implemented Saving Opportunities					
S	Implemented Energy Saving Opportunities	Elect Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Reduce leaks of the compressed air network	73	0.050	-	-
Total		73	0.050		
Planned Saving Opportunities					
S	Planned Energy Saving Opportunities	Elect Savings MWh	Savings MEGP	Investment MEGP	Payback Year
1	Increase storage capacity of compresses air	25	0.016	0.120	-
2	Reduce pressure settings of compresses air	3	0.023	-	-
Total		28	0.039	0.120	

Other Identified Opportunities

In addition to the implemented and planned opportunities a long list of energy conservation opportunities have been Identified and currently are under study:

Boiler Area

- recovery of steam condensate
- change pasteurization steam injection system
- preheat boiler feed with evaporator drain
- repair the insulation of valves and pipes
- use boiler exhaust to preheat fresh water feed

Cold Store

- repair door seal
- optimize the operating temperature
- install air curtains auto light switches

General

- reuse evaporator drain for floor washing
- install motion sensors for lights
- switch off AC for unoccupied spaces
- reduce the AC set temperature
- zoning of lights in production halls
- replace current lighting with LED lamps

Barriers

Barriers faced during planning and of EnMS were mainly related to:

- Historical production data was not accessible to the consultant which significantly delayed the analysis.
- Unavailability of breakdown of energy consumption due to lack of sub-meters.
- Very slow response of the energy team members.
- Delay in issuing the corporate energy policy.

These were overcome by:

- convincing the company team with the importance of the data for the analysis
- inspire spirit of challenge between the companies in the group
- change in the energy team members
- holding several meetings with the team to get them more involved in the system

Lessons Learned

- Top management commitment is the first pillar in adoption of EnMS.
- Sharing information and data with consultants is a must to build effective system.
- Effective communication among the different departments is indispensable for the system.



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