

# Industrial Energy Efficiency Project

## Islamic Republic of Iran

Regal Petrochemical Company (RPC) has joined hands with the United Nations Industrial Development Organization (UNIDO) and Iranian Fuel Conservation Company (IFCO) to implement a structured approach to energy management in their operations, under the Global Environment Facility (GEF) funded project, "Industrial Energy Efficiency in Key Sectors".

Through this cooperation, the RPC has already achieved significant savings through the implementation of an Energy Management System (EnMS) in alignment with ISO 50001:2011.

### A Case Study of Regal Petrochemical Company

#### EnMS background in RPC

Before starting EnMS in RPC although they done some activities for energy conservation, they didn't have energy manager and energy committee.

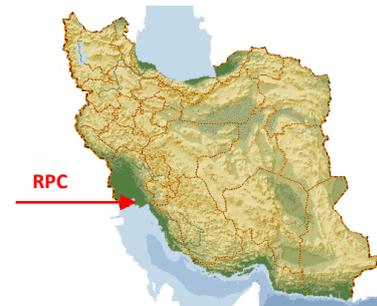
In fact, the main problem was that there was no structure and no insight about what was their real situation. Although some Ideas were raised, because of didn't had any structure and coordinated sessions to discuss on them, they don't arrive to the investigation and implementation steps.

After implementing EnMS, energy analysis become a day to day function and because of high management commitment and proper level of personnel motivation, they are reaching energy saving.

#### UNIDO program and development of the methodology within RPC

UNIDO's developed methodology within RPC consists the below steps:

- Management commitment
- Planning
- Implementing
- Checking



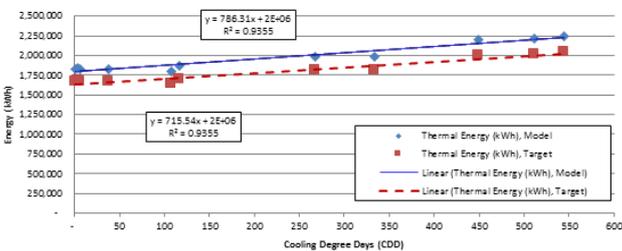
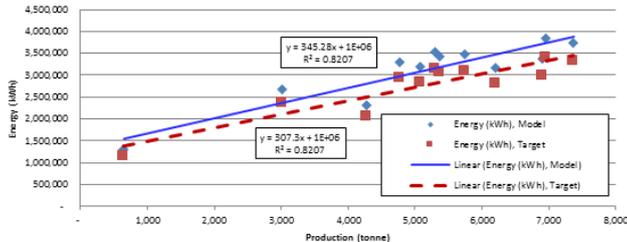
RPC is owner of a plant located in the petrochemical special zone of Bandar-e-Imam Khomeini, south west of Iran. The plant will be capable of producing 150,000 tons per year polypropylene from liquid propylene. Share of total annual energy cost in total production costs over the last three years is about three percent.

RPC is certified based on ISO 9001, ISO 14001 and OHSAS 18001. RPC is working on achieving EnMS certificate based on ISO 50001.



## Establishing a baseline and setting energy saving targets

The graphs below illustrate the energy baseline and defined target for energy consumption reduction for electricity and natural gas as the main energy carriers.



Reduction targets are defined as a result of a variety of no/low cost and investment projects identified by energy management system.

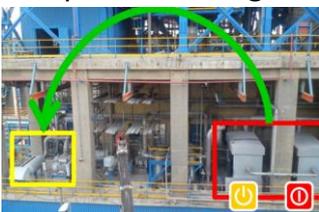
The RPC achieved a **4.1% improvement in energy consumption** over 12 month period of EnMS implementation.

## Implemented action plans

During implementation of EnMS, 33 energy conservation opportunities identified and two main of them implemented within the plant.

According to analysis, RPC achieved 1250 MWh per year electricity reduction by implementing the below two action plans:

- Switching to use one cooling water pump based on the weather condition and production rate as well as purification rate
- Using another compressor due to demand process change instead of the bigger one



## Identification of conservation opportunities and implementing action plans

In line with a clear energy saving action plan, top management is committed to further energy improvements in 2015 and 2016.

The energy improvements on RPC are an ongoing process and some of identified opportunities for improvement which will be implemented are listed in the following:

- Return condensate collection
- Installing steam boiler stack gas analyzer
- Using powder conveying compressor in part load condition
- Using extruder in optimum load

## Main achievements

- Changing the culture of operation
- Raising personnel awareness
- Implementing new systematic approach to management
- Preparing RPC for ISO certificate
- Achieve 4.1% energy consumption reduction by implementing no/low cost opportunities
- Training energy team members to train operators
- Improving the plant operation due to proper maintenance joined to energy management processes

## For more information

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