

# 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 have done some activities in energy conservation, there were no energy manager as well as energy committee within the company.

There was no structure and insight about their real situation before EnMS. Lack of systematic approach has caused no decision made for implementation of raised ideas corresponded to energy conservation.

After implementing EnMS, energy analysis becomes a day to day practice. Although, the share of total annual energy cost was about three percent of total production costs, having management commitment and personnel participation motivate them to achieve considerable amount of energy saving.

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

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

- Management commitment
- Planning
- Implementing
- Checking



RPC is owner of a plant located in the petrochemical special zone of "Bandar Imam Khomeini", south west of Iran.

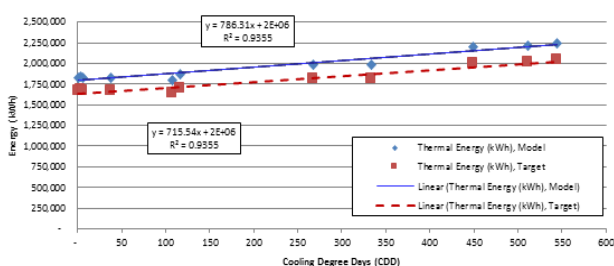
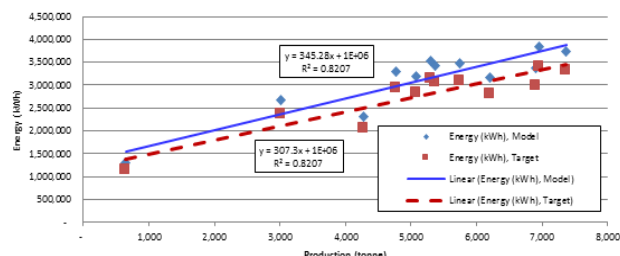
The plant has the capacity for producing 150,000 tons per year polypropylene from liquid propylene.

RPC is certified based on ISO 9001, ISO 14001 and OHSAS 18001 and is also achieved EnMS certification based on ISO 50001 after joining to UNIDO program.



## Establishing a baseline and setting energy saving targets

The graphs below illustrate the energy baseline and defined energy reduction targets for electricity and natural gas, respectively.



Energy reduction targets are defined as a result of various no/low and high cost projects which were identified through implementation of energy management system applying the methodologies of ISO 50006:2014.

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.

As an example, Regal petrochemical achieved 1250 MWh per year electricity consumption reduction by implementing of two action plans:

- Switching to use one cooling water pump based on the changes on production rates as well as the required demand for satisfying purification rate;
- Using smaller compressor instead of bigger one due to process demand change.



## Identification of conservation opportunities and implementing action plans

Having obvious energy saving action plan, top management is committed to further energy improvements in 2015 and 2016.

The energy improvements in RPC are an ongoing process nowadays. Some energy conservation opportunities which were approved for implementation are listed as follows:

- Collection of returned condensate;
- Installation of gas analyzer on steam boiler stack;
- Using powder conveying compressor in part load condition;
- Utilizing extruder in optimum load.

## Main achievements

- Changing the culture of operation;
- Raising personnel awareness;
- Implementing new systematic approach to energy management;
- Preparing RPC for ISO 50001 certification
- Achieving 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 connected to energy management processes.

## For more information

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