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CONZERV™
Smart Energy Management

Excellence in Energy Management...
CASE STUDIES

A case study of an Unilever Gulf FZE Lipton Jabel Ali Factory

Introduction:

Lipton Jabel Ali factory is a tea packing facility of Unilever Gulf FZE. The energy sources of the plant is only electricity. The major areas of power consumption are the air-conditioning units, air compressors, dust extraction systems etc. in addition to the process machinery.

The average monthly electricity consumption of the plant is about 1. 5 million units.

Scenario before

The energy accounting was not accurate in the plant as only few meters were installed and the readings of the meters were being taken manually.

Conzerv and Lipton

Conzerv Arabia approached Lipton Jabel Ali factory for providing solutions in electrical energy management. The Dubai team of Conzerv Arabia installed and commissioned multifunction and other meters at strategic locations of the plant and also installed a mini energy management system software.

Scenario after

The availability of the proper energy accounting system for the plant led to dramatic improvement in energy management for the plant officials. The plant generated improvement in energy efficiency by the following actions:-

-Dust Extraction System

The plant has a powerful dust extraction system, comprising of 4 units to extract the tea dust generated in the process. The dust extraction fans are connected with 30 kW motors.

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- Engineering
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- Steel
- Sugar
- Wind Mills
- Shopping Malls

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These fans were running at full load, irrespective of the plant load conditions, throughout the operational period of the plant of 24 hours for 7 days a week.

Installation of dedicated meters for the fans and recording of readings through the software indicated that energy consumption of the dust extraction fans is one of the single largest power consuming activity of the plant and it remains constant irrespective of the load conditions of the plant.

Based on the power consumption pattern of the fans and plant load conditions given by the software, the plant management has decided to install variable speed drives with the fans. The idea was to control the power inputs to the fans based on plant load conditions, thereby saving energy.

The system worked well, led to savings in energy by optimizing the power inputs to the fans based on actual requirement.

However, the plant officials noted that the power consumption is still on the higher side of the dust extraction fans, compared to the volume of dust generated, density of dust particles and velocity required.

Finally, they have re-designed the total fan units based on actual requirements and replaced all the four fans with lower capacity ones.

This led to an energy saving of about 22 kW per fan per hour, leading to monetary savings of about US$ 3500 per month. The total cost involved in procurement of meters, software and new fans were paid back in just about 6 months.

In the above case, the actual savings came by replacing the fans with lower capacity fans. However, it was identified through the energy accounting system conceived and supplied by Conzerv Arabia.

- Optimising consumption pattern of production lines

The plant has 5 production lines. Energy meters are now installed for all the five lines and the output of each line is compared with the energy consumption through the software on a continuous basis.

This led to establishing of specific energy consumption for the production lines. Any variation from the set norms of energy consumption in each line will get noticed instantly and based on this, remedial measure are being taken to keep the energy consumption of each line under check always.

The plant is effectively controlling the compressed air leaks in the lines adopting the above strategy, which is one among the many steps being taken to control energy optimization in the production lines.

The way forward

Lipton is very happy with the performance of the meters and software supplied by Conzerv and the end results achieved by reducing energy consumption of the plant. The plant is considering more association with Conzerv by:-

- Conducting a detailed energy audit study of the plant by Conzerv to identify more avenues for reduction in energy cost

- Expanding the energy management system software with a full fledged software based on the recommendations of energy audit

Also, Mr. Nalin Jayatilake, Assistant Technical Manager says:

"Conzerv Energy Management System helps to identify the efficiency of different lines of production. The support provided by Conzerv Arabia was excellent and very prompt.
The people are very cooperative and immediately respond to a phone call or to any problem faced by us"