

Excellence in Energy Management...

CASE STUDIES

A case study of a Cement Industry

The cement industry is a continuous process industry where power cost plays an important role in deciding the cost economics of the cement manufacturing process.

Lafarge India Pvt. Ltd (LIPL) Jojobera manufactures slag and pozzolona cement by grinding clinker obtained from its sister units Sonadih & Arasmeta and blending it with ground slag / fly ash (from TISCO / Tata Power). LIPL was examining ways of improving profitability. Increasing manufacturing costs on one side and depressed market prices of cement on the other were depressing margins. Bringing down manufacturing costs became even more critical with competition from the major players. A very large portion of this manufacturing cost was electricity and this became an area of focus. Hence it became very important to optimise the energy usage and reduce costs.

The aim was to pin-point major points of energy consumption, study them and identify ways of minimising energy usage and at the same time maximise production.

First Step: Accurate Measurement

As a first step in their endeavour to reduce power bills, LIPL replaced their existing analog meters with "Conzerv" high accuracy Digital meters. During the expansion of the plant (from 2 million tpa to 3 million tpa) additional Digital Energy meters & Multi-function meters were installed at all locations. This immediately improved the visibility and accuracy of energy measurement.

Second Step: Accurate Measurement On-Line and in Real Time

The next step was to automate the monitoring and management of the entire electrical system. All the 24 Multi-function and 65 Energy meters were networked with Conzerv eLAN[®] software on a Central Pentium PC in the Main Control Room. This allowed centralised, on-line monitoring of the consumption patterns of all large electrical loads right from the incomers to the packing section.

- Automobiles
- Beverages
- **Cement**
- Chemicals
- Engineering
- Fertilizers
- FMCG
- Glass
- Hotels
- Hospitals
- IT
- Paints
- Paper / Pulp
- Petrochemicals
- Pharmaceuticals
- Textiles
- Shoes
- Steel
- Sugar
- Wind Mills
- Shopping Malls

Conzerv Systems Pvt Ltd
 (formerly Enercon Systems Pvt Ltd)

Third Step: Control!

Specific energy consumption plays a very important role in product pricing and hence it is vital to arrive at these figures accurately (energy consumption per unit of output). Jojobera plant had a RS View SCADA for monitoring and control of process parameters. The third step was to link the Conzerv eLAN[®] software with the RS View to determine the Energy Consumption patterns on real time at each stage of the process vis-a-vis production. This enabled the plant personnel to monitor the Specific Energy Consumption **as cement was being manufactured, on-line, in real-time.**

Two other critical areas of concern were Demand management and Power Factor. With the help of powerful features of the software, plant operators were able to identify the power factor at each load centre and its impact at the incomer. Demand monitoring in real-time led to demand control.

Above all, the wealth of data and its analysis gave their managers the confidence to suggest and try out changes with the benefit of a tool which could also be used for monitoring and verification of the energy saving measures taken by the plant **resulting in lasting improvements.**

Summary of Key Benefits

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| 1 | Generation of powerful MIS data based on Production and Energy Consumption both on-line and off-line | Better decision on costing, pricing etc. |
| 2 | Estimation of Distribution losses | Led to Efficiency Improvement |
| 3 | Automation of log records and other tasks | Savings in manpower, improved timeliness of information. |
| 4 | On-line Power Factor monitoring | Power Factor Improvement |
| 5 | Automatic computation of specific energy consumption in real-time for process improvements and optimisation | Better cost control. |