

## Excellence in Energy Management...

### CASE STUDIES

#### A case study of a Glass Industry

This pioneering glass manufacturer fired up their furnaces in Pre-Independence India. And today is a pioneer in Asia with a turnover of US \$ 0.85 million per annum. Their glass tableware and dinnerware is prized around the globe. Renowned manufacturers of processed foods in India seek their customized glass bottles.

Based on a study of the plant as well as the users wish-list, an Energy Management System was designed and setup to monitor the major electrical loads: Furnace, Compressor, Foundry Workshop and Processing workshop. Related auxiliaries were also monitored.

#### On-Line Monitoring

**Before** : Electrical Energy readings were noted manually. The manpower required and Human errors were beyond acceptable levels.

**After** : The eLAN<sup>®</sup> Energy Management System automatically provided real-time, on-line, energy consumption pattern from the different units onto computers and immediately available to the management. The system gave automated reports on shift wise, daily and monthly basis. The specific energy consumption, computed automatically reduced the scope of human error, and improved the costing procedure.

**Benefits:** The system improved the decision making process for the management to

- a) improve the process cycle
- b) improve the efficiency of the plant
- c) identify losses &
- d) plan need-based periodic maintenance

#### Load Profile Optimization

**Before:** It was important to optimise the use of furnace running time to minimise energy consumption. Without any tool to do so, it was difficult to monitor the process cycle in the furnace where raw glass is heated for conversion and finishing.

- 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)

**After :** installation of eLAN® Energy Management System, the energy pattern for each furnace was known. Relating this data with desired loading, unloading and heating cycles, the management now had an effective tool to optimise furnace usage. In addition, sub-optimal cycles and idle running of furnaces could also be detected and eliminated.

**Benefits :** The optimisation of furnace load improved the efficiency many times, saving cost of energy and maximizing the efficiency of moulding process.

Before installation of eLAN® Energy Management System the energy consumption pattern for the Furnace was monitored manually, where minor details of variation was ignored. On installation of the System the plant managers could closely monitor and compare the energy consumption pattern of Furnaces and the management could take action to prevent such losses.

The energy wastage due mechanical failures like valves and pressure gauges, temperature monitors etc. were not closely monitored. After installation on the System corrective action was quickly taken by closely monitoring the energy consumption pattern.

Energy losses in the compressors could not be identified with manual recording. After installation of the system it was found that an old compressor was consuming more energy and was replaced by Screw type Compressor hence saving approximately 2640 kWh / month.

Investment in Energy Management System	US \$ 5200
Annual Saving	US \$ 5625
Payback period:	9 months

### “How To” Points

An eLAN® Energy Management System provides Centralised, On-Line Data- The “Eyes” and “Ears” for tight management.

Group and Select Monitoring Points judiciously. The large loads directly affecting the process are “Musts”. Smaller auxiliaries can be functionally grouped for monitoring. Functional Plant and Supply layout are important.

Loads of raw data are not useful. Electrical readings alone cannot help management. Simply computerizing existing manual logs is a gross waste of System capability. The user must carefully re-think formats-brief, but bringing to light the “Rupees” and “Dollars”.