

Reduction of Electricity Consumption in Plant

- A “KAIZEN” Case Study**

Problem - High electricity consumption

Observations during “FUGAI” Walk- Across the Plant

- Air Leakages at 80 locations – tagging done.
- Studied Loading pattern of 55 Motors which are above 5 HP.
- Cooling Tower Fan of VPI is running continuously irrespective of Temperature.
- Voltage to the Lighting feeder goes up to 275 Volts.
- Skin Temperature of old VPI ovens is High.

Savings through Kaizen

Observations to actions

M PHD

System Air Leakage Calculations:-

	Before	After	Savings
Time ON	108 Sec	73 Sec	35 Sec
Time OFF	196 Sec	992 Sec	796 Sec
Air Leakage %	35.64	6.91	28.73
Quantity of Air Leakage Per Month	52720 m3	11380 m3	41340 m3
Units Lost Per Month	6695	1445	5250
Amount Lost per Month	Rs.33,475/-	Rs.7,225/-	Rs.26,250/-

Savings through Kaizen

Observations to actions

Conversion of Under Loaded motor from Delta to Star Connection:-

Location	Before	After	Savings per Month (for 50 nos Generators)
VTL Main Drive	14.66 KW	6.1 KW	1287 Units Rs.6435/-
Stretching m/c no.1	3.36 KW	2.14 KW	915 Units Rs.4575/-
Stretching m/c no.2	3.36 KW	2.14 KW	915 Units Rs.4575/-
VPI Exhaust Blower	2.02 KW	1.16 KW	75 Units Rs.375/-

Savings and benefits to the client

Summary of Saving per month

- **Energy Saving in Air System – Rs.41,490/-**
- **Energy Saving in Motors and Lighting – Rs.20,460/-**
- **Total Energy Savings – Rs.61,950/- [Rs 7.4lacs/year]**

Learnings to the client

Key Learnings

- **Importance of 'FUGAI WALK'.**
- **Importance of 'FOCUS IMPROVEMENT - KAIZEN'**
- **Awareness of 'ENERGY SAVING'**
- **'SCIENTIFIC METHOD' of Energy Loss Calculation.**
- **Importance of 'CROSS FUNCTIONAL TEAM'**