



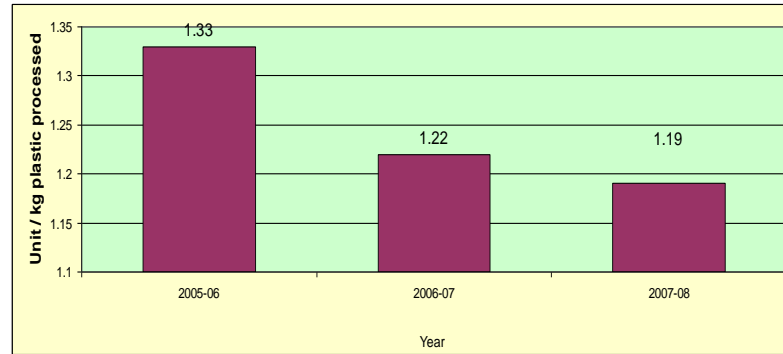
TATA AutoComp Systems Limited
Interiors and Plastics Division

Start up	Jan-98
Products	Automotive Plastics - Interiors & Exterior
Sales	USD 95 million
Plant & Machinery	Injection molding machines from 60T to 2700 T Paint shop (Water based, solvent based – manual & robotic Assembly equipment Cockpit assembly line
Employees	1023
Certification	TS 16949 & ISO 14001
Customer Awards	TKML – Supplier of the year Gold Award – 2005 TKML - Zero PPM Awards 2003, 2005, 2006 & 2007. TKML – QCD Awards 2003, 2005, 2006 GM - Supplier of the Year Awards 2003, 04 & 05

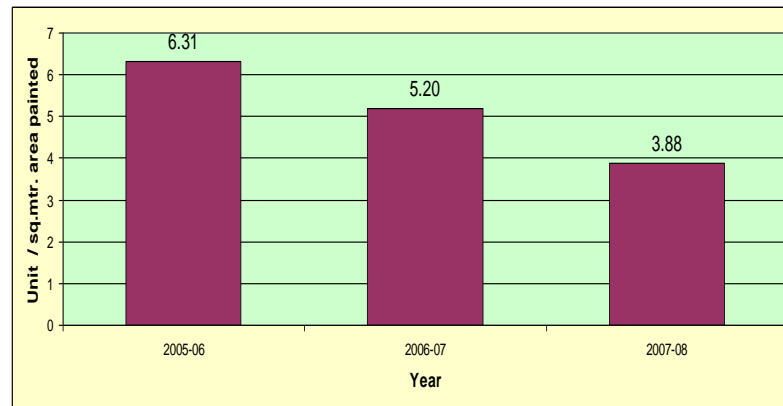
Energy consumption:

DESCRIPTION	UNIT	2005-2006	2006-2007	2007-2008
Mould shop plastic processed	MT	4465	5008	5671
Paint shop Area painted	Sq. mtr	528842	702710	810000
Total Energy consumption	Lakh Units	112	133	143
Total Energy cost	Lakh/Year	426	621	770
Specific Energy consumption Mould shop	Unit/Kg	1.33	1.22	1.19
Specific Energy consumption Paint shop	Unit/Sq mtr	6.31	5.20	3.88
Annual Sales	Lakh Rs	18170	25340	28165
Sales to power cost ratio	%	2.5	3.38	2.5
Energy Rate Per Unit	Rs/KWH	3.65	4.74	4.93
Energy cost as % of manufacturing cost	%	24	26	26

Specific Energy Consumption –IMM Mould Shop



Specific Energy Consumption for Paint Shop



Energy Conservation Policy:



Energy Conservation Policy

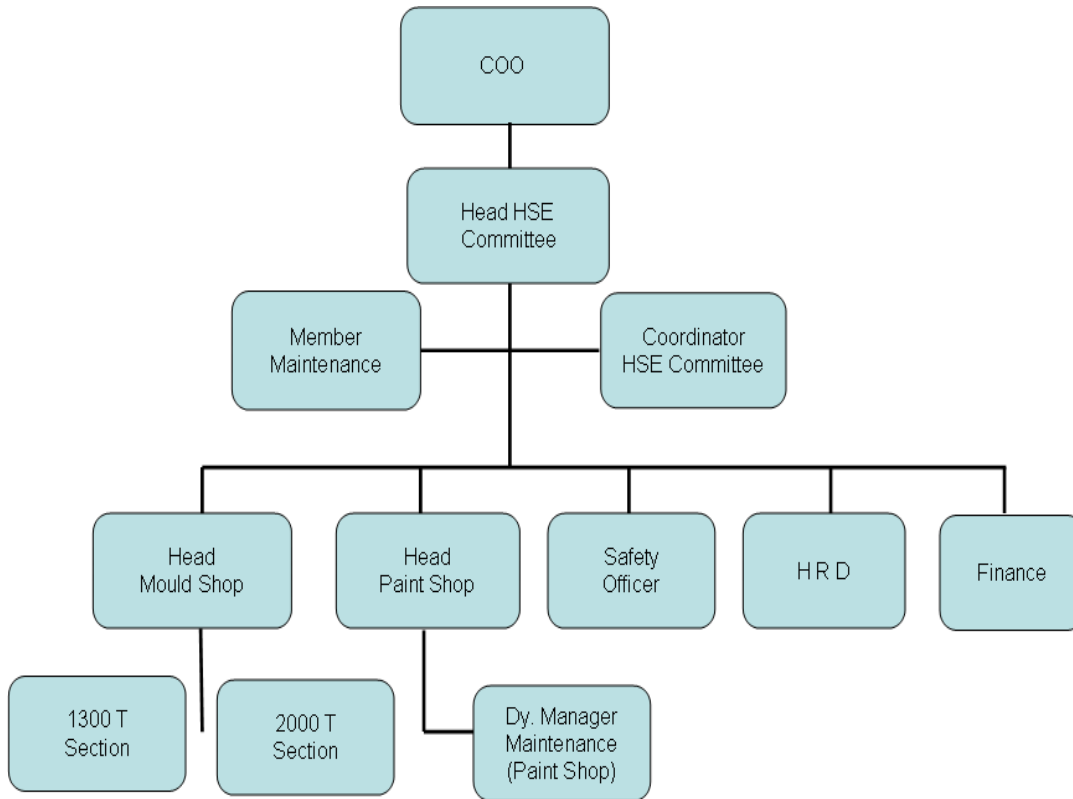
TACO – IPD shall make a concerted effort to minimize the consumption of Fuel and Energy by improving productivity, increasing efficiency, Reducing waste and look at adopting Renewable Sources of Energy.

Efficient energy management systems shall be developed and cascaded through, training and awareness campaign to focus our actions.

Energy Conservation Slogan:

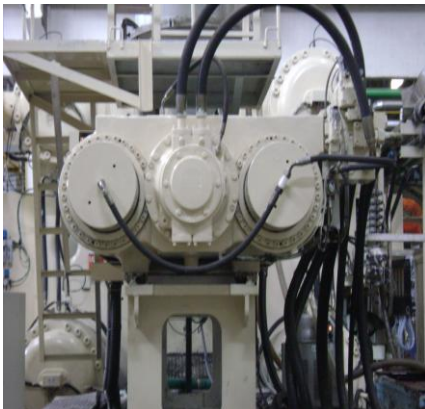
“UNIT OF ENERGY SAVED IS TWO UNITS OF ENERGY PRODUCED”

Energy conservation Cell:



Energy Conservation Achievements:

1. Parallel Operation of 2300T Machine



Before

Sequential operation of Plasticizing & Mold opening
Cycle time 92 sec.

After

Modified hydraulic circuit of the Machine.

- Parallel operation of Plasticizing & mold opening.
- Cycle time reduced by 12 seconds.
- Investment : Rs. 23 lakhs

2. Capacitor Bank at Load End



Before

Only APFC Panel is installed to correct power factor of the whole plant. Low PF at load end results in higher Distribution losses & higher KVA demand.

After

Installed the Capacitor bank at load end.

- Billed power factor for 2007-08 is Unity.
- Annual PF rebate in EB bill is Rs 42 Lakhs

3. Interlocking the Grinder



Before

Grinder used to run for 24 hours irrespective of the rejection volume. Poor efficiency of Grinder.

After

Interlocking done so that grinder runs only in night shift with max efficiency

- Average monthly consumption reduced to 3399 from 7838
- Additional benefit due to rebate as per TOD tariff.
- Investment : Rs. 0.1 lakh
- Saving : Rs. 1.57 Lakh/annum

4. Replacement of tube light chokes



Before

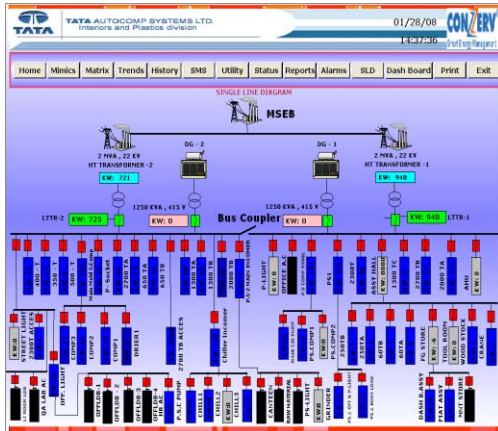
- Copper Chokes for all tube light. .
- Tube light Power Consumption 42W



After

- Power consumption with Electronics choke reduced to 32W
- Investment: Rs. 4 Lakhs.
- Savings : Rs. 3.76 Lakhs per annum.
- Power factor improved from 0.57 to 0.99

5. Energy Management System



Before – Disk type KWH meters. Manual reading of all the parameters.

After

- Energy Management System (EMS) shows more than 20 parameters e.g. KW, KWh, A, V, pf etc.
- Auto SMS if KVA demand & Power factor deviates from the preset limits.
- EMS automatically sends Daily Energy reports to distribution list
- All energy readings are available on PC desktop
- Investment : Rs. 10 lakhs

6. VFD for Booth Water Circulation Pump



Before

- 48KW submersible pump is used for booth water circulation. Running on 50Hz, full speed



After

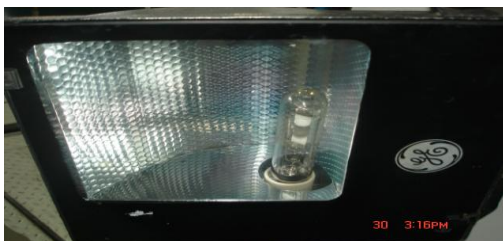
- Variable frequency drive installed for Booth water circulation pumps.
- Motor Speed reduced by 10%.
- Investment : Rs. 2.0 lakh
- Saving : Rs 5.97 Lakh/annum

7. Modification of Booth Lighting



Before

- Entire booth lights were used during cleaning activity.



After

- Metal Halide Flood lights are installed at required locations for cleaning activities & booth lights are kept off
- Investment : Rs. 0.5 lakh
- Savings : Rs. 1.1 Lakh per annum

8. Motion Sensor for Switching Light & Rope Switches for Office Light



Before

- Manual switching of the lights at toilet, utility, LT room. Lights are kept ON even if room is vacant



After

- Installed the Motion sensors at the toilet, utility, & rope switches in the office. It senses human body & triggers light switch
- Lights are automatically switched off after preset time is over
- Investment : Rs. 0.3 lakh
- Savings : Rs 3 Lakh per annum

9. Reduction in Plant Lighting Voltage & Automatic Switches for Paint Shop



Before

- 240V supply voltage applied to Plant Lights through Distribution DBs



After

- A high efficiency transformer is installed with switching devices
- Plant light voltage is reduced by 10%.
- No substantial reduction in lux level is observed
- Investment : Rs. 1 lakh
- Savings : Rs 0.68 Lakh per annum

10. Inverter for Compressors



Before

- Direct starting of the compressor motor
- During Unloading time motor running at full speed.



After

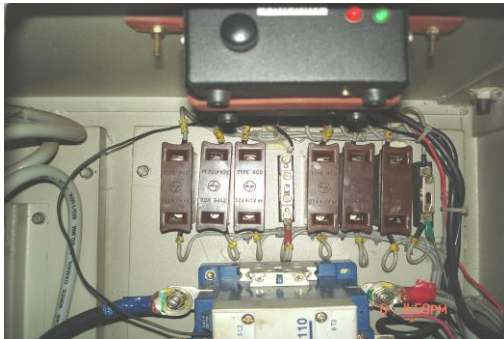
- Installed the VFD for Compressor motor
- During unloading time speed reduced by 50%.
- Investment: Rs. 4 lakh
- Saving : Rs 4 Lakh/annum

11. Photo sensor for Street Light & Plant Light



Before

- Timer switching of the Street /Plant lights with bypass switch for cloudy days.
- Electricity Consumption : 3.12 lakh KWH/annum
- Power Cost : Rs. 14.82 lakh / annum



After

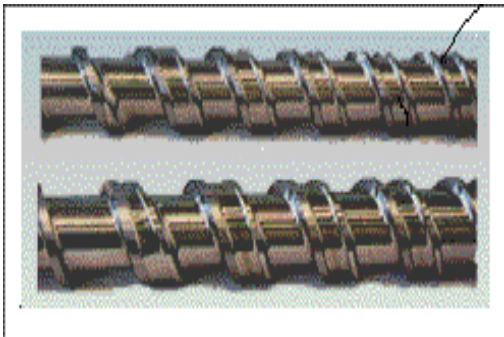
- In addition to Astronomical timer photo sensor used for switching Lights are switched. During cloudy days, lights are automatically switched on/off.
- Electricity Consumption : 2.96 lakh KWH/annum
 - Power Cost : Rs. 14.06 lakh / annum
 - Investment : Rs. 0.1 Lakh
 - Saving : Rs. 0.76 Lakh / annum

12. Cycle time Improvement of injection Molding Machine



Before

- The molding machine having standard screw.
- Refilling time & cycle time is more.
- Plasticizing rate is low



After

- Standard screw is replaced with Double flight injection screw..
- Plasticizing rate (kg/sec) of new screw is better than the old one.
- Cycle time reduced by 6%.

Investment: Rs. 3 Lakh
Saving : Rs 5.26 Lakh/ annum

13. Auto Sequencing of Air Compressors through PLC & Digital Pressure Switch



Before

- Depending on the load requirement (air consumption) compressors have to be switched on & off manually.
- Required constant watch & man power.



After

- Automation helped us to avoid idle running of compressors.
- Improved flexibility in operation, reduced maintenance cost.

Investment: Rs. 0.5 Lakh
Saving : Rs 7.5 Lakh/ annum

14. VFD for Blower Motor



Before

- 2x 30 KW motors running at full speed with 50Hz frequency.



After

- Blower speed reduced by 15%.
- A total saving of 2.16 lakh Units / annum.

Investment: Rs. 2.5 Lakh
Saving : Rs 10.76 Lakh/ annum

15. Chiller Up gradation



Before

- No precise control over the Chiller operation
- Electricity Consumption : 7.9 lakh KWH/annum
- Power Cost : Rs. 28.9 lakh / annum



After

- Installed the Microprocessor based Controller for Chiller
- Electricity Consumption : 7.2 KWH/annum
- Power Cost : Rs. 26.2 lakh / annum
- Investment : Rs. 3.6 lakh

- Saving : Rs. 2.63 lakh / annum

16. Hanger modification in paint shop



Before Installation

- There were only two parts per hanger
- Electricity Consumption – 37.5 lakh KWH/annum
- Sq mtr Area painted/ hanger
- Power Cost :- Rs. 140 Lakh



After Installation

- bumpers per hanger increased to four
- Electricity Consumption – 35.6 Lakh KWH/annum
- Power Cost :- Rs. 133 Lakh
- Investment : Rs. 12 lakh

- Saving : Rs. 7 lakh/annum

17. Idle Hydraulic Pump tripping circuit



Before

- Hydraulic pumps running during mould change

After

- Installed the Idle Hydraulic Pump Tripping Circuit – which allowed to stop the pump automatically when m/c is idle for more than 5 minutes
- Investment : Rs. 0.1 Lakh
- Saving : Rs. 1.7 lakh / annum

18. Variable frequency Drive for Woodstock press Hydraulic pump



Before

- Direct starting of the Hydraulic. Pump
- All the time, pump running on full load.

After

- Installed the VFD for Hydraulic pump motor
- Pump running on full load only during Ram Up down movement.
- Investment : Rs. 0.6 lakh
- Saving of 0.91 Lakh/annum

19. Two punching tools fixed in one press



Before

- There were two separate punching presses for LH & RH tools
- Electrical Consumption : 0.56 Lakh KWH/annum
- Cost : Rs. 2.27 lakh /annum

After

- Installed two tools on Single Punching Press
- Electricity Consumption : 28K KWH/annum
- Cost : Rs. 1.13 lakh / annum
- Investment : Rs. 0.05 Lakh
- Manpower saved
- Saving : 1.14 lakh /annum



Summary of Investment & Saving:

<i>(Figures in lakh)</i>			
Year	2005-06	2006-07	2007-08
Investment	34.65	26.90	31.10
Saving	37.28	82.15	57.09
KWH Saving	10.21	10.70	2.80