

MARAL OVERSEAS LIMITED SAROVAR PLANT

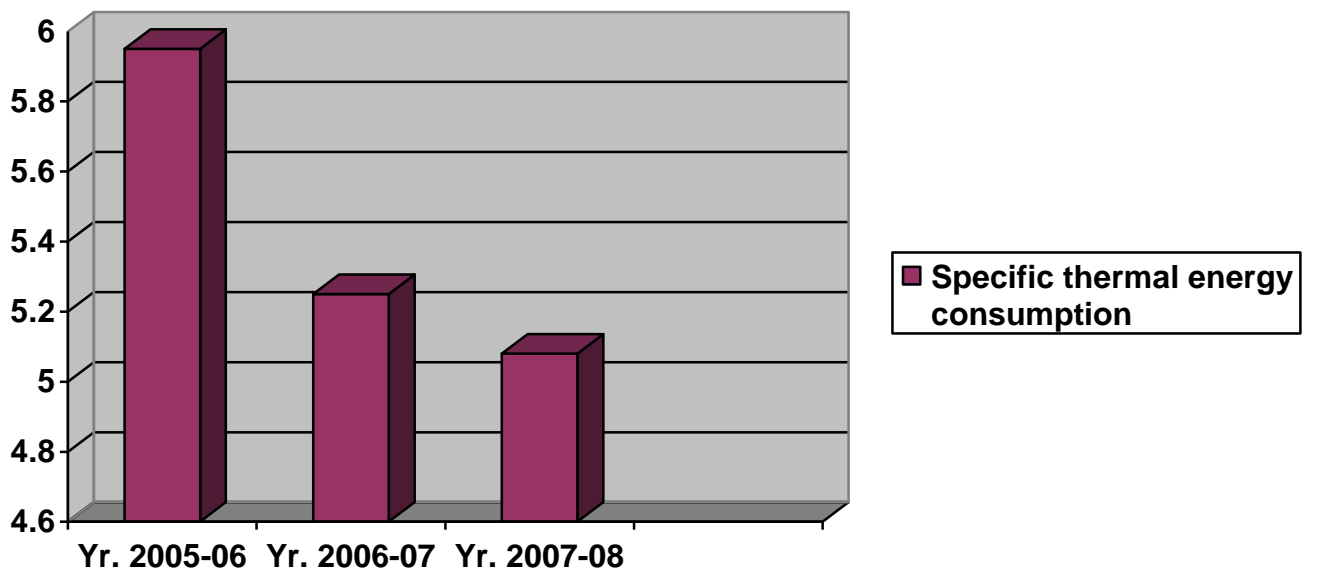
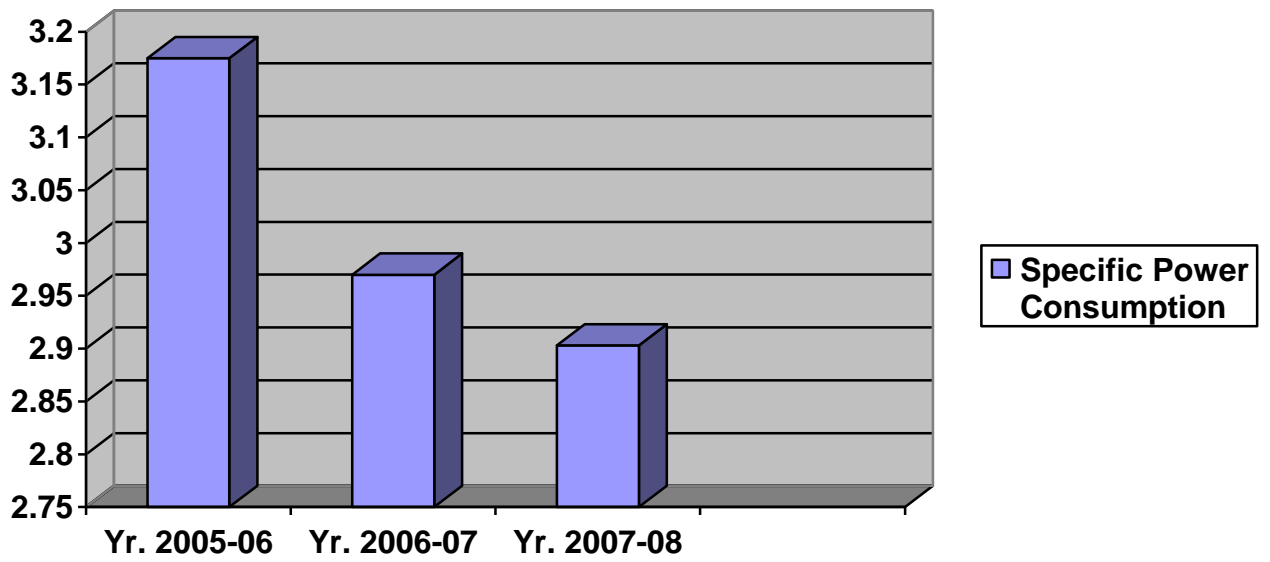


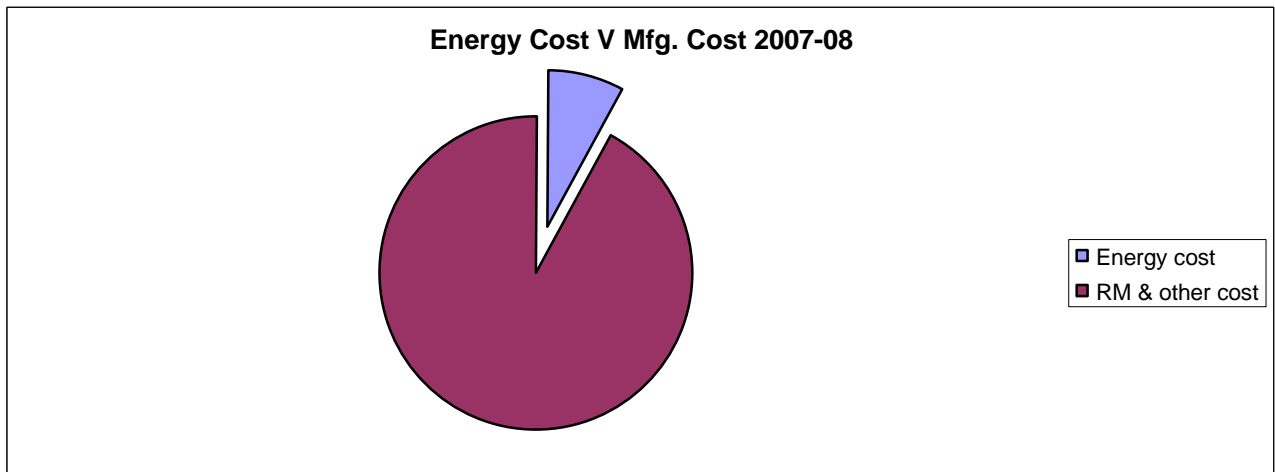
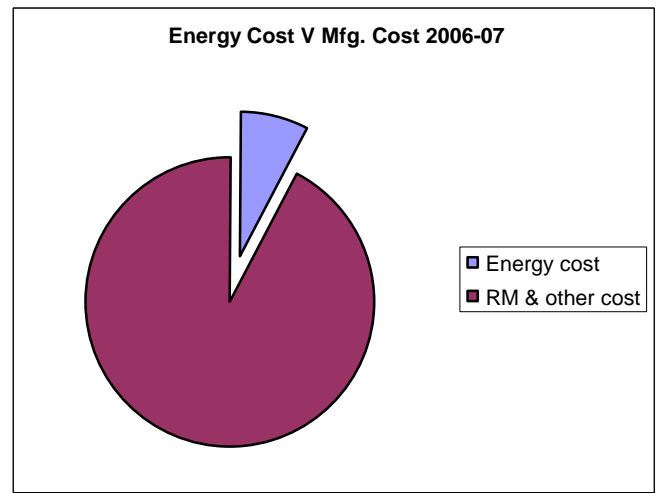
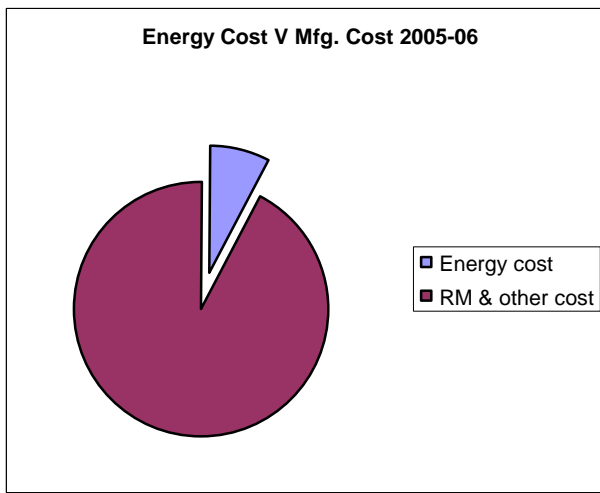
MARAL OVERSEAS LIMITED is a group Company of renowned LNJ Bhilwara group. Maral overseas Ltd., has plants located at two locations viz. Maral Sarovar (100% EOU) and Maral overseas Ltd. at Noida. The LNJ Bhilwara group founded by Shri Laxmi Niwas Jhunjunwala has a global presence. MOL Sarovar plant was set up in the year 1989 as 100% Export oriented, vertically integrated Textile manufacturing Unit (An ISO 9001 accredited Co.). This is one of the few textile Cos. to have most modern and state of art facilities of Spinning, Knitting, Processing & Garment manufacturing at single location. The plant and machinery have been imported from Switzerland, Japan, Germany and Greece. MOL has the honor to have supplied articles all over to the world known Cos., e.g., NIKE, MARKS & SPENCERS, HUGO BOSS, MANGO, ERICA, TIMBERLAND etc. Emphasis on training and regular re-training is integral to the way the unit works training workshops, conducted for the workers and managers, help sharpen professional skills needed for optimizing energy consumption on the sophisticated Japanese and other imported machines.

The Company is managed by well-qualified and experienced Managing Director Shri. Shekhar Agarwal. The Plant level management is headed by the President, Shri. T. K. Baldua along with other functional Heads, Staff members & Associates.

The company has been accredited by SGS with four additional International certification i.e. ISO –14001 (Environment Management System) , ISO 18001 (Occupational Health & Safety Appraisal System) , WRAP (World Wide Responsible Appraisal Producer) and SA-8000 (Social Accountability) in the year 2004-2005.

The company has bagged National Energy Award (First Prize) for the year 06-07 from Bureau of energy efficiency for Textile sector.





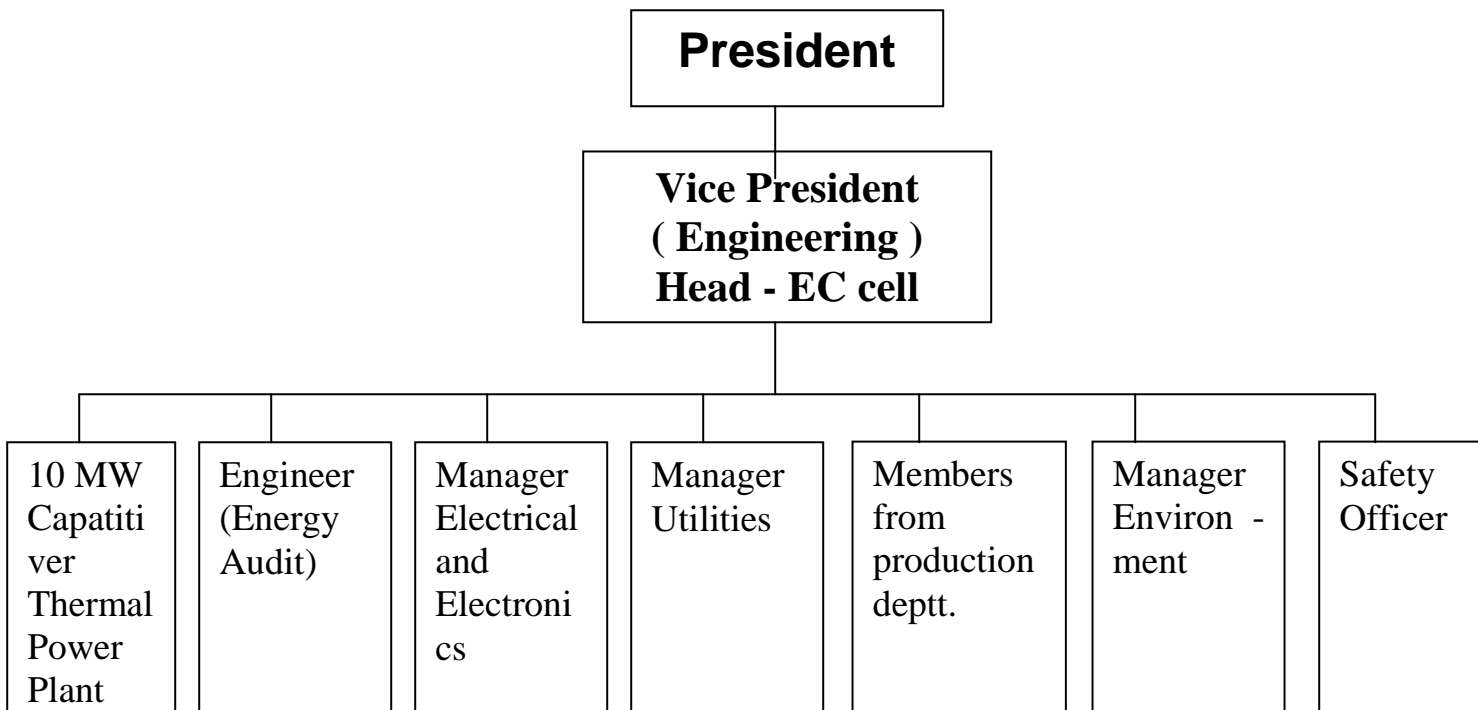
(ii) Energy Consumption

Include information on total energy consumption (i.e., Coal, Oil, Gas, Electricity and money value.) Information on energy consumption in terms of percentage of manufacturing cost should also be presented. Also, it should highlight the specific energy consumption for the period 2005-06, 2006-07 & 2007-08. Good Graphic Presentation related to specific energy consumption may also be incorporated.

Note – The annual production and the energy consumption for the cotton yarn is considered only the established unit,. Production for the unit under trial production was not considered.

Specific Power Consumption Details	Unit	2005-06	2006-07	2007-08
Annual Production				
Cotton Yarn	MT	11950.97	11965.92	11716.38
Knitted fabric	M.T.	2124.372	2306.99	2429.13
Dyed fabric	M.T.	2021.59	2805.06	2680.75
Garments	Lakh pcs/year	30.20	24.32	--
Yarn Dyeing	M.T.	116.70	671	920.92
Total Energy consumption per annum				
Cotton Yarn	Lakhs KWH	379.48	355.96	340.21
Knitted fabric		4.30	4.57	4.80
Dyed fabric		34.55	31.50	27.87
Garments		9.77	7.44	--
Yarn Dyeing		2.24	10.14	13.80
Total Thermal energy consumption	MKCal/Year	6340	12668	9791
Total manufacturing cost in Rs. Lakhs	Rs. Lakhs	19910.8	26440	31748
Total Energy Cost in Rs. Lakhs	Rs. Lakhs/ Year	1500.98	1979.54	2390.74
Energy cost as % of Raw material cost	%	7.53	7.48	7.84
Specific Power Consumption (Yarn) (Overall)	UKG	3.17	2.97	2.90
Specific Thermal Energy consumption (Dyed Fabric)	MKCal/MT	5.95	5.25	5.08

ENERGY CONSERVATION CELL ORGANISATION SET UP



(iii) **Energy conservation achievements**

(Include One paragraph on each major energy conservation project implemented during the year 2007-08 only.

Note:

Calculations shown herein under are annualized basis, whereas, the chart in Point No. 13 attached shows the actual savings achieved during 2007-08.

01. Replacement of rewind motors with the Energy efficient motors.



Background

Study of power consumption was carried out for each type of motors by replacing rewind motor with new energy efficient motor, and found that energy performance of rewind motor is 10% lower than the new motor.

Technical & Financial Analysis

Power consumption per day with Re wound motors	:	9358 Kwh
Power consumption with New energy efficient motors	:	8425 Kwh
Power saving per day with energy efficient motors	:	933 Kwh
Annual Power saving	:	Rs. 14.03 lacs
Investment	:	Rs. 10.33 lacs
Payback period	:	0.74 Yrs

02. Replacement of Energy efficient pump in H- Plant.



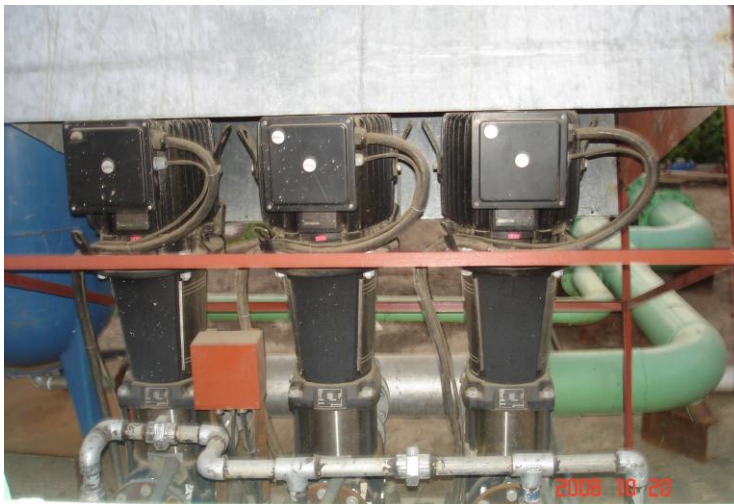
Background

The existing pumps which were running normal and its name plate efficiency was low as 55%, keeping in mind to improve energy efficiency, study of power consumption was carried out for pumps at duty point, with energy efficiency pumps and found improvement by 17.5% in energy efficiency.

Technical & Financial analysis

Power consumption per day with old pumps	:	2526 Kwh
Power consumption with New energy efficient pumps	:	2086 Kwh
Power saving per day with energy efficient pumps	:	440 Kwh
Annual Power saving	:	Rs. 6.54 lacs
Investment	:	Rs. 12.66 lacs
Payback period	:	1.94 Yrs

03. Energy efficient hydro pneumatic pressure boosting system for constant water supply pressure for process house.



Background

For supplying water to the Dye house consisting of dyeing machine, we were running 34 kw pump for 24 hrs. The requirement of water pressure in dye house is 3.5 kg/ sq. Cm. The pump has to run even if one dye house machine is taking water. The hydro pneumatic pressure booster system has three small pumps with VFD. Water quantity will be supplied as per the machine requirements only. During no load period and part load period the number of pumps and its speed will be selected automatically. Therefore, the wastage of energy during part load and no load period is saved.

Technical & Financial analysis

Power consumption per day with old set up	:	815 Kwh
Power consumption with pneumatic pumping system	:	195 Kwh

Power saving per day with pneumatic pumping system	:	620 Kwh
Annual Power saving	:	Rs. 9.23 lacs
Investment	:	Rs. 12.09 lacs
Payback period	:	1.31 Yrs

04. Modification in pipe line of raw water from overhead tank for water supply.



Background

For full filling the requirement of supplying the Drinking water to our mills and campus, it was required to run the mono block booster pumps. Further system study of pipe line was conducted and the design of pipe line was verified. The pipe line was replaced and connected directly with overhead tank for continuous water supply without pumping.

Technical & Financial analysis

Power consumption per day with old set up of pipe line	:	350 Kwh
Power consumption with modified structure	:	Nil
Power saving per day with modified structure	:	350 Kwh
Annual Power saving	:	Rs. 5.26 lacs
Investment	:	Rs. 5.38 lacs
Payback period	:	1.00 Yrs

05. Replacements of Worn out pullies.



Background

In the humidification Plant due to wearing out of pulley grooves , there was slippage in power transmission. Therefore old pulley were replaced with the new pulley.

Technical & Financial analysis

Power saving per day with new pulley	:	52 Kwh
Annual Power saving	:	Rs. 0.79 lacs
Investment	:	Rs. 0.80 lacs
Payback period	:	1.00 Yrs

06. Hot water supply system for fabric dyeing.



Background

The cold water is being fed to the dyeing machine along with fabric and chemical. For the first process, the cold water is to be heated up to 60 to 80 C, through steam. Similarly during the dyeing cycle at various stages the hot water is required at 90C, for which steam is used, to

raise the water temperature at various temperature. The consumption of steam is for heating of the water. The waste hot water and recovered hot water from various machines was collected centrally and supplied to various dyeing machines with the common pumping system. Thus steam consumption on various machine reduced which was otherwise required to raise cold water temperature.

Technical & Financial analysis

Steam consumption per day with old system	:	57.5 MT
Steam consumption per day with new system	:	42.9 MT
Steam saving per day with modified system	:	14.6 MT
Annual Steam saving	:	Rs. 38.34 lacs
Investment	:	Rs. 20.87 lacs
Payback period	:	0.55 Yrs

07. Installation of energy efficient submersible pump in place of mono block pumps in water supply system from Narmada river.

Background

The existing pumps were running normal and its name plate efficiency was low as 55%. Keeping in mind to improve energy efficiency of the system, study of power consumption was carried out for existing pumps at duty point and actual requirement was accessed, accordingly the selection of pumps was made. It was decided to replace the existing centrifugal mono block pumps with energy efficient submersible pumps. This system gave overall efficiency improvement of 30%.

Technical & Financial analysis

Power consumption per day with old pumps	:	1360 Kwh
Power consumption with New energy efficient pumps	:	950 Kwh
Power saving per day with energy efficient pumps	:	410 Kwh
Annual Power saving	:	Rs. 6.17 lacs
Investment	:	Rs. 10.30 lacs
Payback period	:	1.67 Yrs

08. Replacement of 72 watt CFL with 18 watt CFL of street light .



Background

The fixtures provided for the street light (50 nos). were $2 \times 36 = 72$ watt CFL each. These fixtures was removed with the CFL of 18 watt by improved pole designing. This reduced the load by 54 watt for each fixture and improved quantity of light on street which was otherwise hindered by trees. With this arrangement overall esthetic of road also improved.

Technical & Financial analysis

Power saving per day with modified structure	:	27 Kwh
Annual Power saving	:	Rs. 0.41 lacs
Investment	:	Rs. 0.50 lacs
Payback period	:	1.22 Yrs

09. Modification in compressed air pipe line.



Background

A in house study for pressure drop from compressor to machine end was conducted. The pressure drop was found around 1.0 bar. Higher the pressure drop higher is the energy loss. The line size was selected as per pressure drop calculation. Finally, after installation of new line the pressure drop reduced to 0.2 kg/cm².

Technical & Financial analysis

Power consumption per day with old set up of pipe line	:	12620 Kwh
Power consumption with modified structure	:	12420 Kwh
Power saving per day with modified structure	:	200 Kwh
Annual Power saving	:	Rs. 3.00 lacs
Investment	:	Rs. 5.87 lacs
Payback period	:	2.0 Yrs

10. Conversion of electric heating into steam heating by installation of Xorella machine.



Background

In the textiles industry the moisture requirements in the yarn after finishing remains 7.5 to 8 %. During the cotton processing, process from bale stage to the yarn stage, there is loss of moisture which is regained by processing the yarn through yarn conditioning system. The power consumption of existing electrical conditioning system was 780 KWH /day. The same was replaced with steam conditioning system with merely no power consumption.

Technical & Financial analysis

Power saving per day with Xorella yarn conditioning system	:	780 Kwh
Annual Power saving	:	Rs. 11.72 lacs
Investment	:	Rs. 28
Payback period	:	2.41 Yr

11. Fuel Switch – Thermal power plant



Background

Maral Overseas Ltd had furnace oil based captive power plant with capacity of 6.6 MW. The process steam was generated by a separate furnace oil fired boiler. Due to expansion in the power requirement increased to 8 MW, therefore 1 X 10MW Thermal power plant with co-generation of steam was installed to meet process steam and power requirement both by extraction cum condensing turbine.

Technical & Financial analysis

Power Consumption per day	:	1.65 Lacs Kwh
Power Generation per day	:	1.85 Lacs Kwh
Total steam requirement per day	:	70 MT
Cost of generation per unit	:	Rs. 3.75 / Kwh
Cost of generation from other sources	:	Rs. 5.00 / Kwh
Cost of Steam generation from turbine	:	Rs. 650 /MT
Cost of Steam generation from other sources	:	Rs. 2200 /MT
Amount saved during the year	:	Rs. 792 Lacs
Investment	:	Rs. 3950 Lacs