

First Prize

Tyre

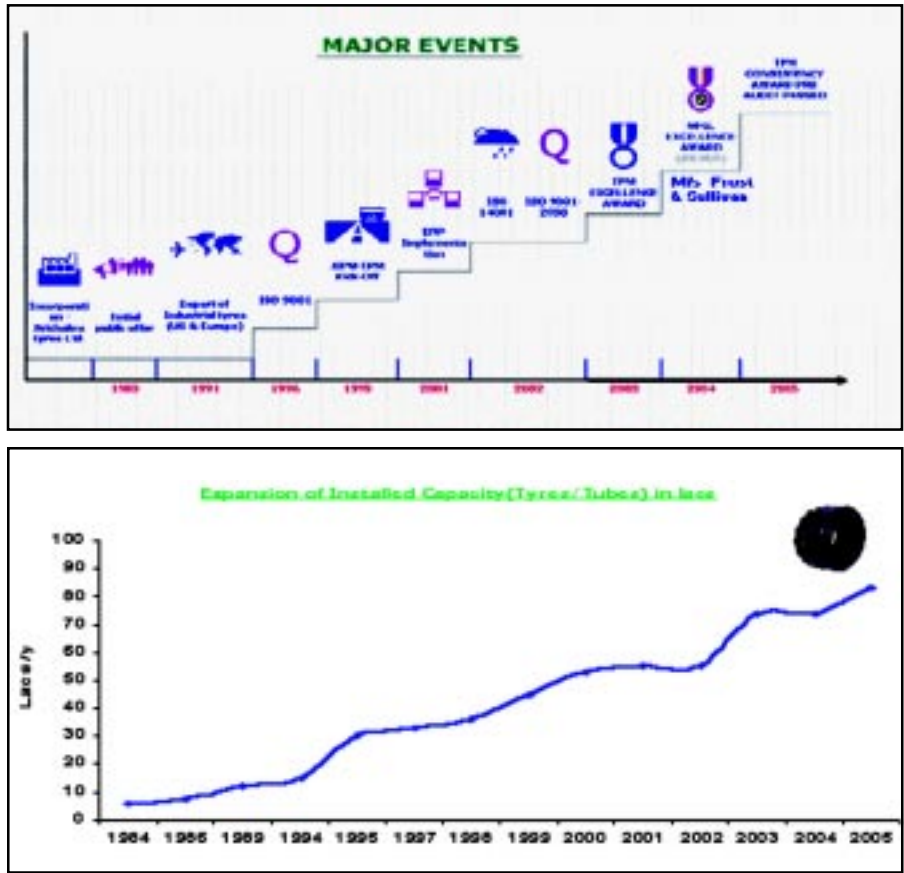
TVS SRICHAKRA LIMITED **Madurai (Tamil Nadu)**

Unit Profile

TVS Srichakra Limited, located in Madurai, Temple City southern end of Tamil Nadu and started its production in 1983 and is one of the leading two, three wheeler automobile tyres & tubes manufacturing company in India. The annual sales turnover is Rs.227 crores and has production capacity of 7362000 tyres & 6552000 tubes per annum with 89% capacity utilization in year 2004-2005.

TVS Srichakra Limited has the OE marketers like Hero Honda, TVS Motors Ltd, Bajaj etc., and is doing export market on industrial & agricultural truck tyres to 13 countries which includes US, Australia & European countries.

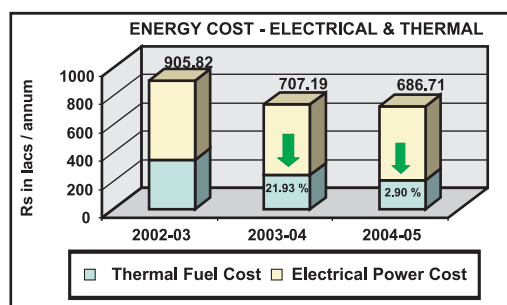
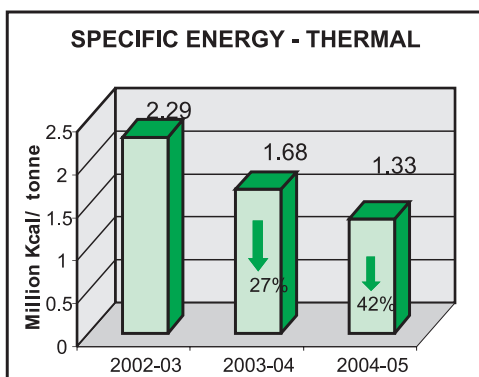
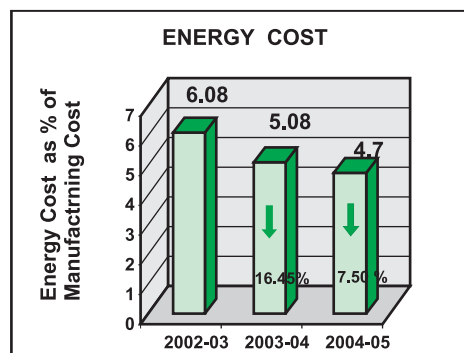
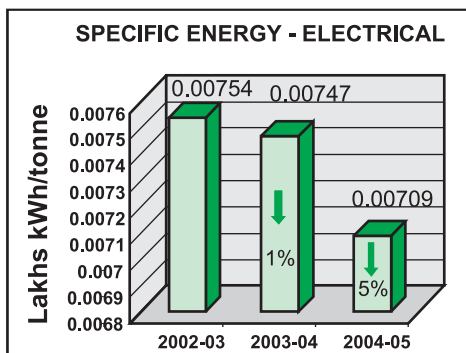




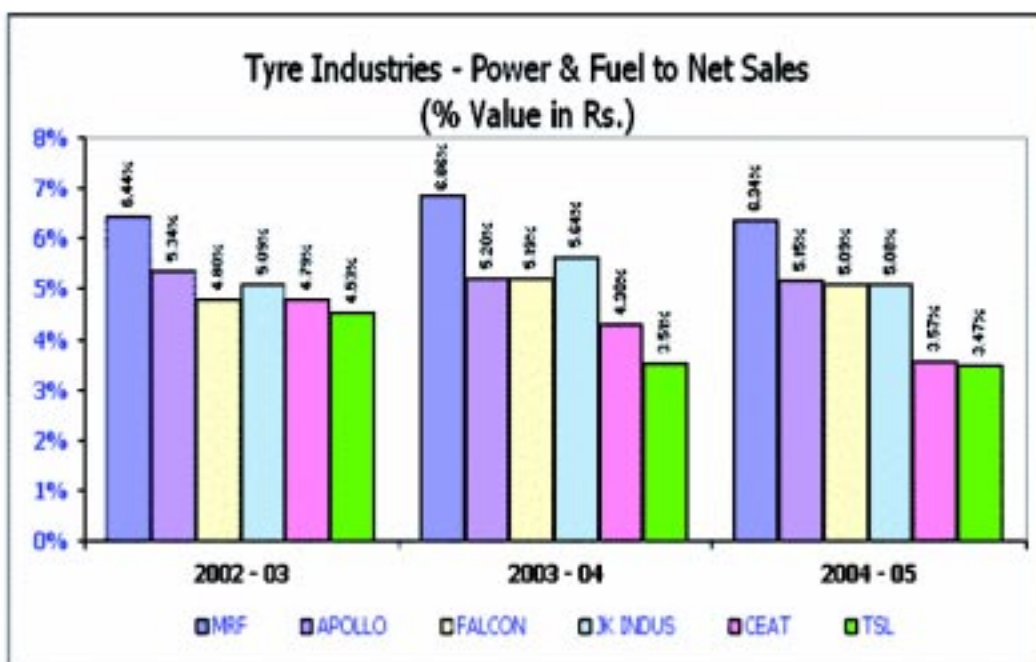
Energy Consumption

There is a steady decline of specific energy consumption due to implementation of various energy conservation projects in the past three years is given below.

DESCRIPTION	UNIT	2002-03	2003-04	2004-05
Annual production	Tonne	21623	19443	20229
Total Electrical Energy consumption /annum	Lakhs KWh	163.03	145.32	143.43
Specific Energy consumption Electrical	Lakhs KWh/ tonne	0.00754	0.00747	0.00709
Total thermal Energy consumption /annum	Million Kcal	49474	32593	26816
Specific Energy consumption -Thermal	Million Kcal/tonne	2.29	1.68	1.33



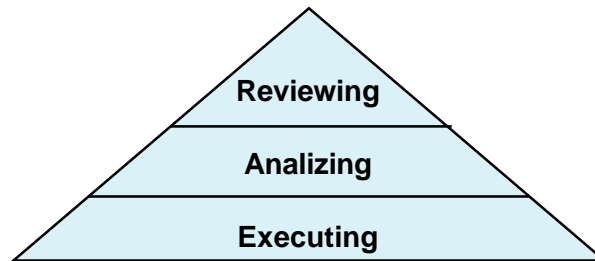
REDUCTION IN SPECIFIC ENERGY CONSUMPTION & ENERGY COST OVER 2002-03



Energy Conservation Commitment, Policy and Organisational Set up

- * TSL is committed to total Energy Management and prevention of energy wastage.
- * TSL insists for energy conservation features in the design stage itself.
- * All employees were trained for their maximum knowledge to utilize the various energies in an economical way to reduce the energy consumption from time to time.
- * Maintaining the implemented conservation measures at all times.

Energy Management setup comprises of three groups.



- * The reviewing group gives all the necessary support and encouragement to Energy conservation activities. It comprises of Managing Director, Director, President - Finance and Vice President - E & D.
- * The analysing group comprises of middle level management includes all Dept; heads & Energy Manager.
- * The executing group comprises of Energy executives from various departments. They identify the problems, conduct brain storming discussions and implement the best feasible solution by involving all employees. The performance of implemented projects is reviewed and its impact over specific energy cost is reported to management periodically.

TVS SRICHAKRA LIMITED ; MADURAI - ENERGY POLICY

TVS Srichakra Limited is self committed and motivated towards Total Energy Management and prevention of energy wastage through:

- * Continuous implementation of energy efficient technologies for producing World class Automobile tyres and tubes with optimum specific energy consumption.
- * Continuous education & training to all employees for updating their Energy Conservation Awareness
- * Implement and practice Energy efficiency throughout the plant operation & its utility functions
- * Continuous monitoring and conduct of regular audits for conserving energy towards optimum

ENERGY MANAGER

Energy conservation Achievements

1) Common boiler for Tyre & Tube curing operations

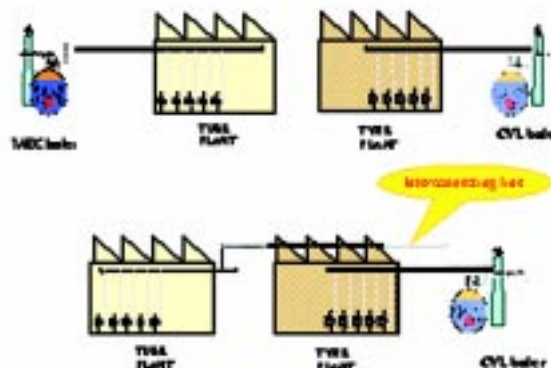
STATUS :

- * Separate boilers for tyre and tube curing operations.

Before :

OBSERVATIONS:

- * Low efficient boiler for tube curing operation.
- * Low utilization of higher efficient tyre plant boiler due to 12500 nos of steam leaks



ACTION TAKEN:

- * Connecting two boiler steam lines and operating tyre plant efficient boiler

PAYBACK:

Annual saving	:	Rs. 60.5 lakhs
Investment	:	Rs.12 lakhs
Payback	:	3 months

2) Stoppage of main air compressor :

STATUS :

- * Excess main air compressors operating at tyre plant.

OBSERVATIONS:

- * Plenty of air leaks inside the plant

ACTION TAKEN :

- * Arresting all the air leaks as per the schedule

PAYBACK :

Annual saving	:	Rs. 21.6 lakhs
Investment	:	Rs.0.15 lakhs
Payback	:	3 days



3) Energy efficient transformer:

STATUS :

- * Transformer efficiency low in tyre plant

OBSERVATIONS:

- * Low efficient transformer as old model

ACTION TAKEN :

- * Replace this transformer with higher efficiency transformer



PAYBACK :

Annual saving : Rs. 1.8 lakhs
Investment : Rs. 7 lakhs
Payback : 3.5 years

4) Vapour Absorption chiller plant:

STATUS :

* Electrical power consumption high in vapour compressor-50 H.P.

OBSERVATIONS:

* Electrical power unit consumption higher in compression chiller plant

ACTION TAKEN :

* Replace compression chiller plant with absorption chiller plant



PAYBACK :

Annual saving : Rs. 6 lakhs
Investment : Rs. 9 lakhs
Payback : 1.5 years

Other Projects Implemented during 2004-05

1. VFD control in CVL Boiler FD & PA fan system
2. Replacement of 250 watts baylights with tube lights 80 watts after height lowering
3. Isotope provision for TD3 trap which consumes active power
4. Avoiding dalightings by providing transparent roof
5. Providing pull guard switches for office lightings & fans
6. VFD control in water hydraulic system
7. Installation of 10 H.P energy efficient movichrom pumps oin veesons boiler
8. Pedel switch provision in tube powder collection blower
9. Replacement of faulty capacitors which consumes active power
10. Impedence matching in lighting to operate at optimum voltage
11. Early warning annunciator in mills to avoid over loading
12. Replacement of 25 H.P. motor with 15 H.P. motor in ATMC curing press
13. Repalcement of Energy efficient power pack in Bemco press
14. Provision of temp controller in cooling tower fans
15. VFD provision in tread extruder to increase output.

List of energy conservation measures planned for the future, investment planned & expected savings

Energy Conservation Measures (Planned)	Anticipated savings in Energy		Approx investment (Rs. lakhs)	Project commencement & completion year
	Energy value	Rs. lakhs		
Wood fired boiler - Alternate cheaper fuel		45	40	2005-06
VFD provision in all main air compressors		7.62	4.5	2005-06
VFD provision in cold water pump		1.73	1.1	2006-07
VFD provision in hot water generator		0.79	1.1	2006-07
VFD provision in all indofan - Tyre plant		1.9	5.5	2006-07
Automatic Power Factor Controller in mixing plant		9	15	2005-06
Economiser for boiler feed water heating	318 mKcl/year		3	2006-07
Canteen boiler heating steam	221.6 mKcal/year		8	2006-07
Flash steam recovery through Thermo compressor	226 mKcl/year		4	2006-07
FT 10 trap provision in SCT presses	432 mKcal/year		1.5	206-07

Safety and Environment

ISO 14001 certified organization - TPM Consistency awarded - CII award for SHE activities during 2004. As the unit is TPM practicing company, it is intensively following Safety Health & Environment activities through SHE pillar which is headed by Head of Personnel and Human Resources Department. Safety is not one man responsibility and is the total responsibility of all & the organization and all are part of it. Safety Manager is appointed and he will be auditing regularly all the near missing and unsafe conditions/ actions. A team of expertise people to create the awareness to all employees conducts regular patrolling & mock drills.

GOODYEAR INDIA LIMITED
Ballabgarh, Faridabad (Haryana)



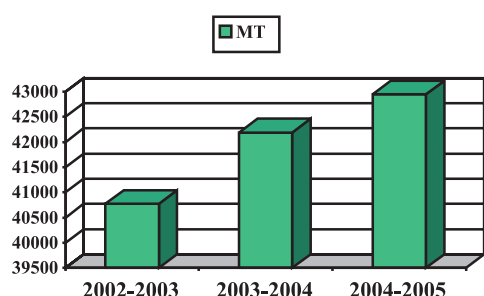
Unit Profile

GOODYEAR INDIA LIMITED, Ballabgarh is engaged in manufacturing of Car, Truck & Tractor tires. GOODYEAR INDIA LIMITED company is a subsidiary of Goodyear Tire & Rubber Co., AKRON, USA a multinational & one of the largest tire companies in the world. Unit has a sales turnover of about Rs.630 Crore (as per Annual Report) & employs about 1100 persons. Cost of Utilities is approximately 25 crore/year.

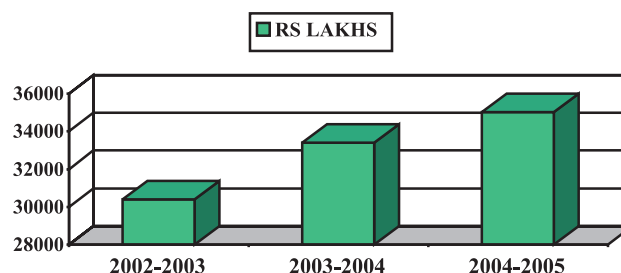
Globally GOODYEAR is driving energy on top priority and keeps tracking all the Plants. GOODYEAR INDIA is presently the leader in GOODYEAR Plants world wide in terms of BTU/Lb. Company has very high commitment to energy conservation and driven by the Manufacturing Director. A high powered team is formed by Manufacturing Director under leadership of Plant Head – Engineering comprising of Electrical Manager, Power House Manager, Instruments/ Electronics Engineer that keeps finding opportunities & tries to arrange resources & capital required and Implements those ideas. Energy committee is continuously working on finding more areas of opportunity & has taken a target of 2% improvement every year.

SPECIFIC POWER CONSUMPTION DETAILS	UNIT	2002-2003	2003-2004	2004-2005
ANNUAL PRODUCTION	MT	40776	42187	42946
TOTAL ELECTRICAL ENERGY CONSUMPTION	KWH(LAKHS)	424	373	337
TOTAL THERMAL ENERGY CONSUMPTION	MILLION KCAL	62868	59700	55756
TOTAL MFG COST IN RS (LAKHS)	RS LACS	30383	33392	35024
ENERGY COST AS % OF MFG COST	%	32.05	31.49	30.94
ELECTRICAL ENERGY CONSUMP./TON OF PRODUCT	KWH/TON	949	840	745
OIL CONSUMP.FOR HEATING (KG/KG OF PRODUCT)	KG/KG	0.172	0.138	0.126
PLANT ENERGY BTU/LB	BTU/LB	5894	5163	4858

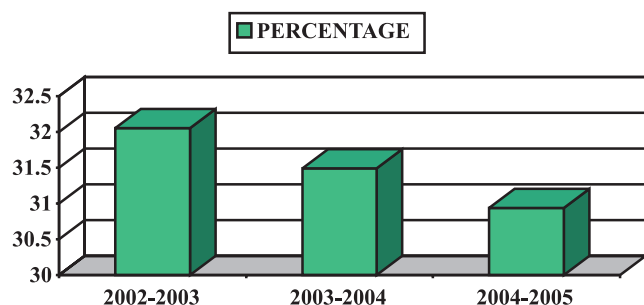
ANNUAL PRODUCTION (MT)



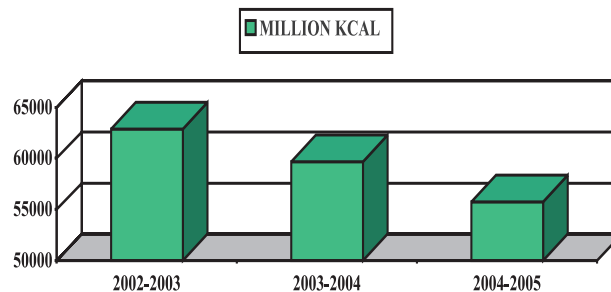
TOTAL MFG. COST Rs(lakhs)



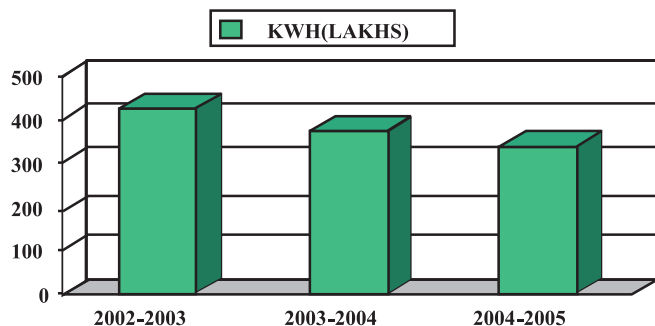
ENERGY COST AS % OF MFG. COST



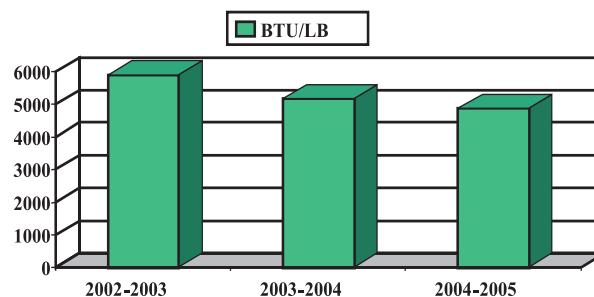
TOTAL THERMAL ENERGY CONSUMPTION (MILLION KCAL)



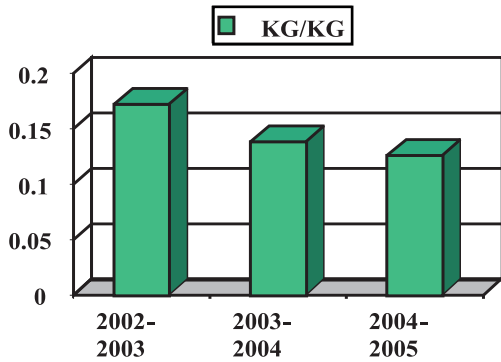
TOTAL ELECTRICITY CONSUMPTION ANNUM KWH(LAKHS)



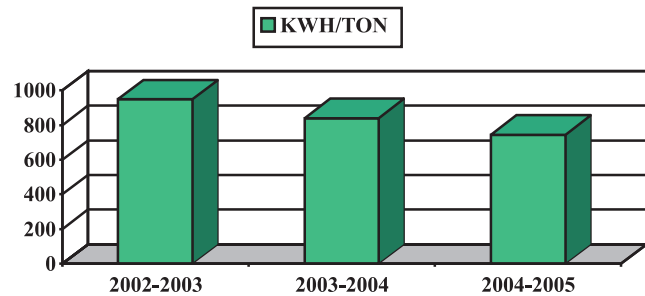
PLANT ENERGY BTU/LB



OIL CONSUMPTION FOR HEATING KG/KG OF PRODUCT



ELECTRICAL ENERGY CONSUMPTION/TON OF PRODUCT



ENERGY POLICY

We the Associates of GOODYEAR INDIA are fully committed to continuous improvement in Energy Conservation efforts and minimizing the specific energy consumption for our products to International Industry Standards & GOODYEAR CORPORATE world.

The policy is achieved through the following:

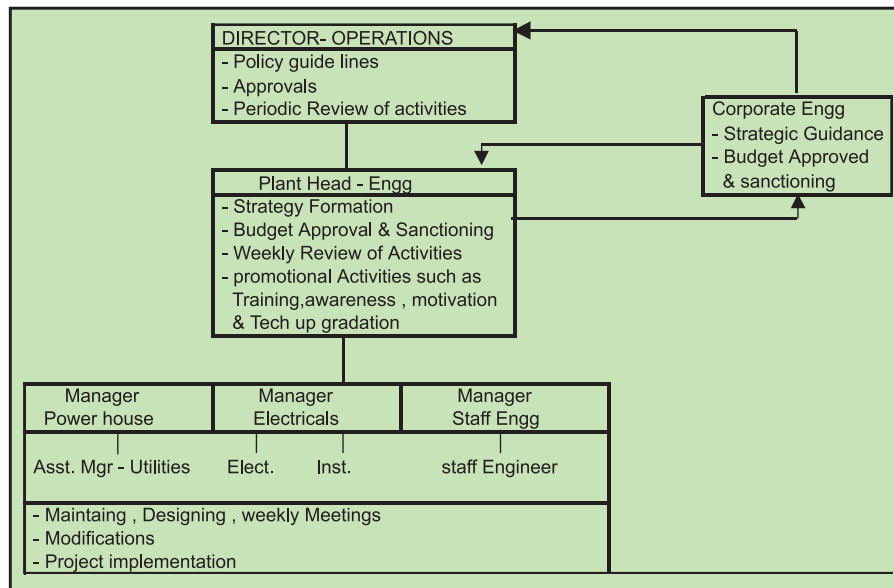
Each drop of oil is precious, look at all small & big energy consuming areas for improvements.

Work with Process Teams & Improve Process efficiency

Educating & Training to each associate for eliminating wasteful energy practices

Up-gradation of technology & equipment to achieve energy efficient process in a cost effective manner

ENERGY CONSERVATION CELL STRUCTURE



MAJOR ENERGY CONSERVATION PROJECTS IMPLEMENTED DURING THE YEAR 2004-05

I. REDUCING ENERGY CONSERVATION OF AIR WASHERS

During summer the electrical load of the plant increases due to running of the Air Washers. These units have a Blower Motor and a Pump. The pumps had become old & inefficient Some of the Air Washers had excess air flow. Ducting was not properly designed & balanced.

3 Nos. Air Washers shutdown by relocating ducts and installing smaller, more efficient Blowers & Pumps.

SAVING	=	180 HP = 134 KW
IMPACT	=	134 x 20 hrs x 26 days x 6 months x 4
	=	Rs. 16,72,320/-
INVESTMENT	=	Rs. 1,70,000/-



II. SHUTTING DOWN OF 265 CFM AIR COMPRESSOR

This is a utility required for curing process. To maintain this one 200 HP Motor was run. This utility have now been replaced by already available (surplus after modifying Presses & Piping to reduce consumption) and has allowed to shutdown this Compressor Completely.

KWH Consumption	=	150x.8x24 hrsx26 days x 12 months
	=	898560 KWH
NET SAVING	=	898560 x 4
	=	Rs.35,94,240/-

III. AIR LEAK MANAGEMENT

By following a strict Air Leak Management Programme the Unit has been able to shut down one Compressor of 200 HP. Earlier the Plant used to run 3 LP Compressor (200 HP each) & 1 HP Compressor (200HP). Presently the utilities are maintained by running 3LP & 1 Booster (75 KW) Compressor thru A.C.Drives

Net Saving = **75 KW**
Amount = 75x.8x24 hrs x 26 days x 12 months x Rs.4/-
= **Rs.17,97,120/-**



IV. CONVERSION OF EXTRACTOR UNIT TO ELECTRICAL CONTROL

This unit was controlled by pneumatic circuit and there was lot of air consumption. The Controls were modified and a Electric Motor was used to operate the same. This conversion has given a saving of Rs.10 lakhs/annum.



STEAM

I. Optimization of start up / shut down & utilities on weekly shut downs

The Plant undergoes a weekly shut down & start up on Sunday & Monday. Lack of co-ordination between Production & Engineering results in waste of energy

Lack of Communication resulted in Boiler was fixed up and steam generated even though the production was not started. Due to the peak requirements of steam at the start of the shifts two boilers were required to feed the same.

Tech/Financial

Presently the Presses are pre-heated in steps thus controlling the peaks of the load & this demand is met by firing only one Boiler. Also the Boiler is lighted only when the production was ready to start production avoiding waste of energy.

IMPACT

Saving of 2 KL / Day every shut down
i.e. $15 \times 1000 \times 2 \times 52 = 0.30000 \times 52 = \text{Rs. } 16,60,000 / \text{Annum}$

II. INSULATION OF HEADERS, PIPES THROUGHOUT THE PLANT

A massive drive to insulate the steam carrying headers pipe lines was launched which gave rich dividends. The steam consumption was reduced by 10 Tonnes / Day.

Investment = Rs. 10 Lakhs
SAVING = Rs.20 Lakhs



Energy Conservation plans and Targets

S.No.	Energy Conservation Measures	Anticipating savings (Rs Lakhs)	Investment	project Commencement and Completion	
				Start	End
1	Power factor improvement	12	9	Dec-05	Jan-06
2	Reduce Cost of Compressed air by installing centrifugal Compressor	95	80	Dec-05	Mar-06
3	Energy Efficient lights	1.5	2	Mar-06	May-06
4	Reduce steam consumption(8 t/day)	10	5	Jan-06	Jun-06
5	Improve Plant Equipment efficiency	25	Zero	On going	
6	Remove MG Set from Plant Eqpt & Replace with D.C. Drive	1.5	Zero	Nov-05	Jan-06

GOODYEAR SAFETY SYSTEMS

The Principle of Accidents Occurrence is “**ACCIDENT ARE CAUSED THEY DO NOT HAPPEN**”. Therefore, Accident Prevention becomes easier as they are caused. The most successful ACCIDENT PREVENTION PROGRAM adopted by GOODYEAR is implementation of **5 Es** :-

- ENGINEERING
- ENFORCEMENT
- ENGINEERING
- EVOLUTION
- ENTHUSIASM

