

Jaya Shree Textiles, Rishra (A Unit of Indian Rayon and Industries Ltd.)

(i) Unit Profile:

Jaya Shree Textiles, a part of Aditya Birla Group under the flagship of Indian Rayon & Industries Ltd. is situated at Rishra in the Hooghly District of West Bengal. Established in 1949 with the objective of import substitution of Flax Products (commonly known as 'Linen'), the plant started with linen textile (Yarn, Apparel and Industrial Fabrics) and today it has Synthetic Spinning, Wool Combing and Worsted Spinning in its fold.

In the world of textiles, this unit has its own image both in export and domestic market. Over the years, it has not only sailed through difficult times but also keeping pace with the changing competitive scenario it has modernized its operations and emerged as a Centre of Excellence. Whether it is manufacturing or timely delivery to customer, this unit has proved time and again.

Flax Yarn : Manufactured from the finest quality of West European Flax, Jaya Shree's Linen Yarn is suited for Weaving, Knitting, Industrial purposes, Fashionable Apparel, Furnishing & Bed Linen.

Product Range : Grey, Rove, Boiled and Rove Bleached Yarns for knitting and weaving apparel fabrics Multifold Yarns, Twine and Threads for industrial applications.

Capacity : 1820 tons per annum

Wool Tops & Worsted Yarn : The finest merino wool from Australia and New Zealand is processed into wool tops of world-class meeting the most stringent international quality standards. Started with 1400 tons production / annum in the year 1995, it has enhanced its capacity to 4200 tons / annum in the year 1999.

Worsted Yarn is spun from the finest quality merino wool from Australia and New Zealand, the wool and wool blended yarns are suitable for the knitting, hosiery and upholstery sectors. Started with 1000 spindles in the year 1975 and subsequently enhanced its capacity to 13000 spindles in the year 1986 and 21000 spindles in the year 1996 respectively.

Capacity

Wool Tops : 4500 tons/annum

Worsted Yarn : 3650 tons/annum

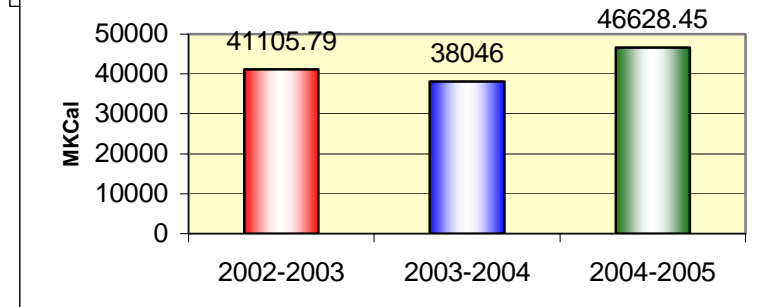
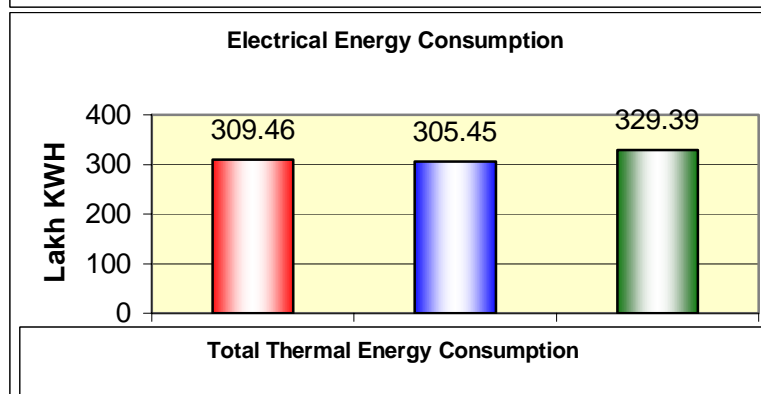
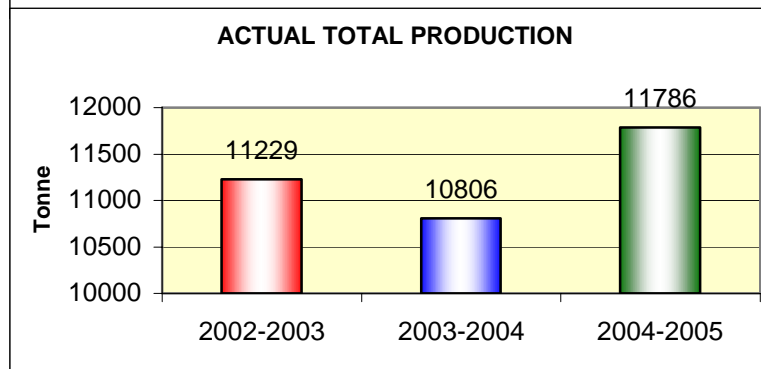
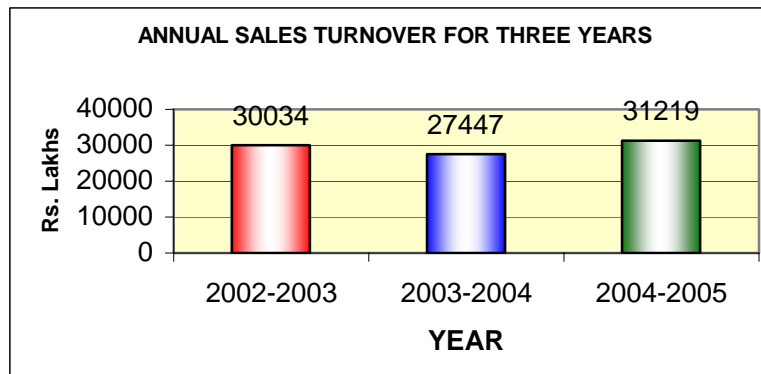
Fabrics :

Jaya Shree manufactures a wide range of Pure Linen and Linen Blends for the elite world, Flame Retardant Fabrics for Apparel, Industrial and Defence use, Flame Retardant furnishings and Upholstery. Linen is sold under brand name "**Linen Club**" and protective clothing is branded as **Pyroguard**.

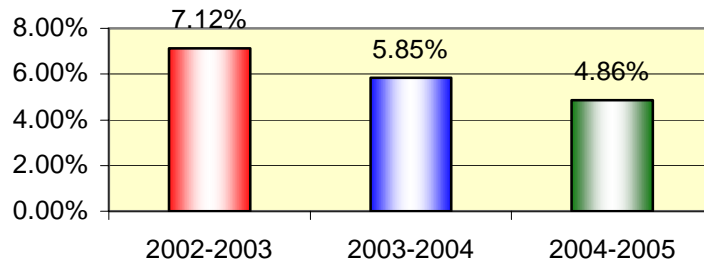


(ii) Energy Consumption:

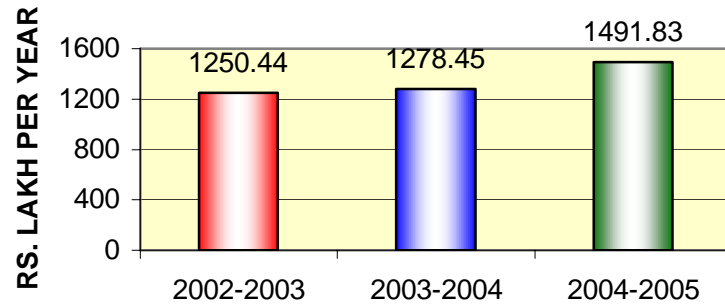
SPECIFIC DETAILS	POWER CONSUMPTION UNIT	2002-2003	2003-2004	2004-2005
Annual Sales Turn over	Rs. Lakh	30034	27447	31219
Annual Production	MT	11229.00	10806.69	11786.369
Total Electrical Energy Consumption	KWH (lakh)	309.46	305.45	329.39
Total Thermal Energy Consumption	MillionKCal	41105.79	38046.00	46628.45
Energy cost as % of Manufacturing cost		7.12%	5.85%	4.86%
Total Energy Cost in Rs. (lakhs)	Rs. Lakhs	1250.44	1278.45	1491.83
Specific Energy Consumption (Electrical)	Kwh/Tonne	2850.11	2826.51	2794.67
Specific Energy Consumption (Thermal)	MKcal/Tonne	5.20	5.06	4.96



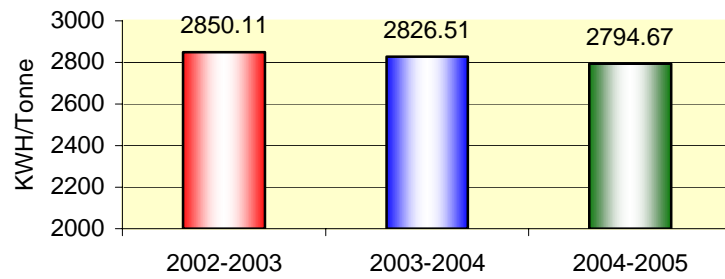
ENERGY COST AS % OF MANUFACTURING COST



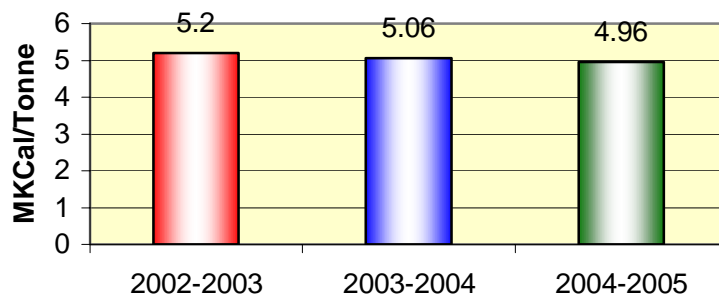
TOTAL ENERGY COST



Specific Electrical Energy Consumption



Thermal Specific Energy



Salient Feature of Energy Cell:

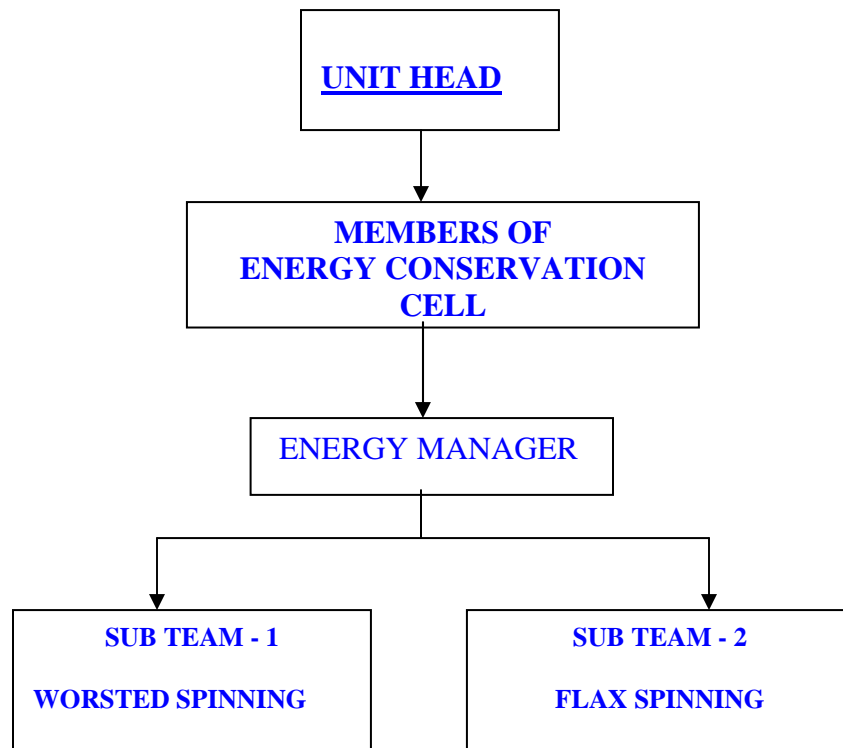
There is an Energy Cell, which deals with all energy conservation activities & projects in the plant. This cell is Jointly headed by GM Purchase and designated Energy Manager of the plant and directly reports to the CEO of the Plant. One officer associated to the ECC is engaged exclusively for energy conservation and environment management purpose since April 1998. ECC furnishes the project proposal related to energy conservation to the CEO directly who decides on financial matters related to the projects.

Energy conservation practices as a policy at Jaya Shree Textiles since more than 10 years, is observed from the total point of view i.e. the immediate monetary benefit in view of the cost of fuel and power rocketing high and long term social benefit in view of the increasing trend of environmental pollution threatening the modern civilization. Our visitors which include international experts in the field of energy economics often mention the notable awareness level on energy conservation of category of people in the industry.

The United National Economic and Social Commission of the Asia and Pacific (ESCAP) chosen Jaya Shree Textiles for the hands-on energy audit session of their first international training performance in efficient energy management in industries held in the Eastern India recently. Jaya Shree Textiles also took a key role in forming an enacting India's only Energy Club, for mass awareness on energy conservation. Energy Cell also organizes various seminars and workshops on energy efficiency and management in association with different leading educational institutes, energy intensive organizations and consultancy firms. Thus, this industry is committed to energy efficiency and awareness enhancement in this region.

Energy accounting system procedure exists. Parta Dept. (i.e. MIS or Management Information System) is preparing report on weekly and monthly basis. Engineering dept. and Energy Cell takes care of the implementation of the approved projects.

ENERGY CONSERVATION TEAM STRUCTURE



ENERGY CONSERVATION PLANS AND TARGETS

Energy Conservation Achievements.

Jaya Shree Textiles saved both electrical and thermal energy consistently during the last three years. Although we had to install several high energy consuming new utilities during last three years for introducing new product range and improving quality of existing products, we consistently reduced energy consumption in each product and utility area.

2002-03	:	Rs. 203.36 lacs saving from 23 energy projects
2003-04	:	Rs. 161.28 lacs saving from 24 energy projects
2004-05	:	Rs. 64.97 lacs saving from 13 energy projects

MAJOR ENERGY CONSERVATION PROJECTS IMPLEMENTED DURING 2004 – 05

1. Old motor replacement with new motor.

a) Back ground: Identical 13 numbers of motors, which was of low efficiency and re – wined more than 05 times.

b) Observation: These motors are consuming more energy and getting frequent breakdown.

c) Technical and Financial Analysis: After study it has been found that it is better to replace these motors with new high efficiency motors saving per year is Rs. 4.10 lacs where as cost is Rs. 03.40 lacs.

d) Impact of Implementation: After implementation it has been found that breakdown is reduced and saving of units/year is Rs. 1.08 lacs.

2. Replacement of nozzles from conventional type to high-pressure nozzles.

a) Background: Conventional type nozzles were more in numbers and not working properly.

b) Observation: These nozzles are getting choked frequently and power consumption was more and required more maintenance.

c) Technical and Financial Analysis: After study it has been found that it's better to replace these nozzles with high-pressure nozzles. Cost is Rs. 0.75 lacs and saving is Rs.1.33lacs per year.

d) Impact of Implementation: Maintenance is reduced of nozzles and desired saving is achieved.

3. Inverters in Humidification Towers.

a) Background: To take seasonal benefits, it was necessary to control the speed of the fan.

b) Observation: Earlier we have installed and Found saving of 45% of Energy.

c) Technical and Financial Analysis: As per desired RH% and temperature used to control the speed of the fan. 08 numbers of inverter installed and saving is Rs. 6.16 lacs per year investment are Rs. 7.58lacs.

d) Impact of Implementation: Working smoothly and able to maintain better RH% and temperature.

4. Modification of Ring Frame Pneumafil Ducting.

a) Back ground: Earlier we have two ducting and two motors of 3H.P for pneumafil suction in the spinning machine.

b) Observation: Trial taken with one duct and motor found no problem of suction and quality.

c) Technical and Financial Analysis: After completion of the project saving of Rs. 3.80lacs per year achieved with investment of Rs. 3.50lacs.

d) Impact of Implementation: After implementation motor maintenance is reduced and machine running satisfactorily.



Double ducting

SINGLE DUCTING

5. Reduce the bends in the air suction path of Humidification Towers.

a) Back ground: Found a lot of air flow restriction due to which power consumption was more.

b) Observation: Ducting path modified and reduced bends.

c) Technical and Financial Analysis: After reducing maintaining same RH% and Temperature and decreases the speed of fans. Achieved saving of Rs. 4.33 lacs per year.

d) Impact of Implementation: Power saving achieved.



BENDS IN H.TOWERS MODIFICATION IN DUCTING OF H.TOWERS

6. Use of high efficiency pumps with motors.

a) Back ground: There was very old low efficiency and high head pumps which was consuming more power.

b) Observation: After details pump characteristics study it has been found that a lot of energy and maintenance cost can be saved.

c) Technical and Financial Analysis: Replaced old low efficiency pumps with high efficiency pumps of which pay back is less than six months.

d) Impact of Implementation: Implemented and saving of Rs. 5.10 lacs per year on investment of Rs. 2.10 lacs.

7. Reduce the transmission and distribution losses.

a) Back ground: We have three level steps down voltage transformer system. We have changed the system from three to two steps level.

b) Observation: After detailed study, it has been found that one step down can be avoided.

c) Technical and Financial Analysis: Technically it is O.K and beneficial for the organization. One Transformer of 2500KVA is installed. Saving is Rs. 5.58lacs per year as investment of Rs. 15 lacs.

d) Impact of Implementation: System is working smoothly.



TRANSFORMER

2500KVA

8. Use of daylight in daytime.

- a) Back ground:** Earlier we were using Electrical mercury and Tube light in daytime also.
- b) Observation:** It has been observed that by replacement of few corrugated sheet with transparent sheet, in daytime sunlight can be used.
- c) Technical and Financial Analysis:** With only investment of Rs. 0.35lacs Rs. 0.95 lacs per year can be saved.
- d) Impact of Implementation:** After completion of the job, it has been found that system is working perfectly.

CORRUGATED TRANSPARENT SHEET



9.



Replacement of old air compressor with new.

- a) Back ground:** We were running 205CFM X 2 NO. = 410 CFM Capacity compressor per day of GA 45W Model.
- b) Observation:** Found that in place of two small size water cooled air compressor, if we will use one 400CFM, GA75W Model air compressor requirement can be fulfilled.
- c) Technical and Financial Analysis:** In place of 106.49KW running load it is reduced to 74.9KW, which results saving of Rs. 10.41 lacs per year with an investment of Rs. 8.96lacs.
- d) Impact of Implementation:** Getting good quality of air without any interruption.

COMPRESSOR GA 75W MODEL



10. Modification in the

- a) Back ground:** As our two and weaving department was connected with two chillers for this we used to run two number of chillers always.
- b) Observation:** It is observed that after pipe modification and installing pumps for using with both the chiller (as per requirement) we can stop the chiller.
- c) Technical and Financial Analysis:** With only investment of Rs. 2.25 lacs saving of Rs. 17.42lacs is achieved.
- d) Impact of Implementation:** We are taking the benefit when outside condition is good.

PIPE MODIFICATION WITH PUMP

pipng system.
pumps of spinning



11. Condensate recovery.

a) Back ground: Earlier it

b) Observation: Found that water, which we can use direct in the boiler.

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12. Heat recovery and operation.

a) Back ground: Colour water of 100°C was found flowing in the drain.

b) Observation: It has been decided that by installation of heat recovery unit, unit can be saved.

c) Technical and Financial Analysis: After installation of heat recovery unit feed water temperature increased 10°C which results saving of Rs. 4.32 lacs per year with the investment of Rs. 2.50lacs.

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Strategy

The set strategies will be as

follows:

- To monitor specific energy consumption for each department and set target to reduce the same for each dept.
- To remove direct wastage coming out of negligence.
- Installation of new energy saving technology on priority basis where technical feasibility is there and payback period is within acceptable limit (2 years)

New R & D projects in association with Educational Institute (e.g. IISWBM, Jadavpur University etc.) or process modification and energy saving through it.

ENVIRONMENT AND SAFETY

At Jaya Shree Textiles (JST), we firmly believe in sustainable development. We deeply appreciate the fact that the earth's resources and its capacity to absorb pollution and regenerate are finite. Therefore, operations at our unit are conducted in an eco-friendly way. Naturally then, the environment dimension forms an integral part of all business decisions. The company has already achieved ISO 14001 certification for environmental management system.

Each department identified all its activities and on the basis of that aspect impact analysis has been conducted in all the departments. 50 significant environmental aspects had been identified in the plant and to mitigate the impact of those aspects 49 programmes on environmental management have been taken. We monitor all parameters of water & air quality on a regular basis (say every week). We provided personal protective equipment to all staffs and workers wherever it is required. Adequate control measures are adopted to maintain consistent effluent discharge and flue gas emission quality. Compared to 2001-2002, environmental pollution parameters reduced by 10 – 50%. We conduct environmental audit in the plant on a regular basis. Our quality and environment policy is attached herewith.

Our company is committed to the safety and security of all employees working in our plant and also for our people residing outside the plant. We have a separate safety-health environment (SHE) sub-committee headed by VP (Finance) which comprises of heads of all departments. This high level committee monitors all the parameters related to SHE and takes initiative to improve the parameters. Apart from that we have a qualified safety officer for our plant. Safety audit is regularly conducted by outside agency.

Number of accidents in the plant reduced by more than 70% compared to the figure of 2001-02. We have a sustainable general health check up system for all employees and also have a special health check up system for employees working in the sensitive areas.

At JST, the disposal of hazardous waste is a great problem i.e. potential threat for the existence of the company in future. At present, the company is dumping, at a substantial cost, the wastes inside the campus as specified in the consent for hazardous waste handling rules stipulated by the State Pollution Control Board. It has been found that the solid waste (sludge) of ETP (effluent treatment plant), after chemical treatment contains more than 50% volatile matter and has a calorific value of more than 3500 Kcal/Kg.

A Project has been undertaken with an investment of Rs.75 lacs to upgrade the ETP plant incorporating Up flow Anaerobic Sludge Blanket (UASB) technology to generate substantial methane rich biogas from the waste anaerobically and to generate power subsequently from the generated biogas.

WRITE UP OF THE PROJECTS FOR 2004 - 05

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Installation of VFD in Auto coner suction drive.

Previously, Autoconer suction drive motor was running at constant speed. Now we have installed



VFD in suction drive motor to maintain the required suction uniformly through out the operation of the machine. Suction fan speed will be reduced when there is less demand of the suction and thereby energy saving can be achieved.

Power saved / day : 564 Units.
Power saved lakh units / year : 1.97 lakh unit.

Amount saved / Year : 5.92 Lakhs.
Investment : 8.05 Lakhs
Pay back period : 16.3 months

Optimisation of OHTC movement in Auto coner and Ring Frame.

OHTC used for cleaning the machine while machine is under running condition. As individual machine is having one OHTC it may not be necessary to run continuously. Hence we have installed sensor and timer for parking arrangement of OHTC in the Gear End. Now with this new arrangement Every OHTC stops for 2 min. for each cycle in the Gear end and energy saving achieved by stopping the OHTC

Power saved / day : 820 Units.
Power saved lakh units / year : 2.95 lakh unit.
Amount saved / Year : 8.85 Lakhs.

Investment : 0.65 Lakhs
Pay back period : 1.5 months



Replacing the conventional tubes with energy efficient tubes.

Previously we are using the Philips make ordinary Fluorescent Tube lights. Department illuminating lamps changed as GE make tube lights instead of Philips tubes. Its illuminating power and life are double when compared with old. So we are using 1800 tubes in place of 2570 no. of existing lamps.

Illumination for old Philips make : 2400 Lux
Illumination for new GE make : 3250 Lux
Power saved / day : 274 Units.
Power saved lakh units / year : 0.99 lakh unit.
Amount saved / Year : 2.96 Lakhs.
Investment : 1.44 Lakhs
Pay back period : 5.8 months