



BILT Ballarpur

Unit Profile

BILT-Unit Ballarpur is the largest unit of **Ballarpur Industries Limited**. It is an integrated Pulp & Paper Mill with an installed capacity of 94,500 MT of Paper p.a. having **latest art of finishing, packaging, storage & loading facilities**. The annual sales turnover of the Unit was Rs. 568 Crores in the year 2003-04. The Capacity utilisation in the year 2003-04 was 125%.

Bilt has got Quality management system (QMS) **ISO-9001: 2000 Certificate on 27th July 2002**. **TQM** was geared up in the year 2003 for continuous improvement thro'innovative ideas & involvement of everyone. **Bilt** aims to be a World Class Organization with a clear headway in terms of **Reduction in Energy Consumptions, Consistent Quality, Low cost & On time delivery**, the operating capacity has been brought up to 1,19,000 MT p.a.

2 MG & 4 MF Paper Machines i.e. total 6 Paper Machines are producing more than 338 TPD Finished Paper. Unit Ballarpur having the widest range of high quality writing &printing papers for a wide range of prestigious end users. The brand name of our company are **Bilt Copy Power**, Maplitho NSD premium SF & HB, Sunlit Bond, Sun Shine Super Printing, Cream Wove, MICR/ Cheque Paper, Colored Printing, T.D, AR & AF Poster etc.

It is the first Paper Mill in India to implement the ERP Successfully. Entire marketing services are being controlled through ERP.

ENERGY CONSUMPTION

There is a continuous decline in Specific energy consumption due to regular improvement & implementation of energy conservation ideas in the unit.

Description	Unit	2001-2002	2002-2003	2003-2004
Annual Production	MT	116375	116409	117789
Total Electrical Energy Consumption / annum	Lakhs kWh	2165.138	2213.254	2198.127
Specific Energy Consumption - Electrical	kWh / MT	1010	1037 *	1029
Total Thermal (fuel) Consumption / annum	MKCals	893570	886976	884895
Specific Energy Consumption - Thermal (fuel)	MKCals / MT	7.678	7.620	7.513
Total Paper Manufacturing Cost	Rs /MT	19859	21312	21868
Total Energy cost	Rs /MT	3268	3302	3298
Energy Cost as % of Manufacturing cost	%	16.45	15.49 **	15.08

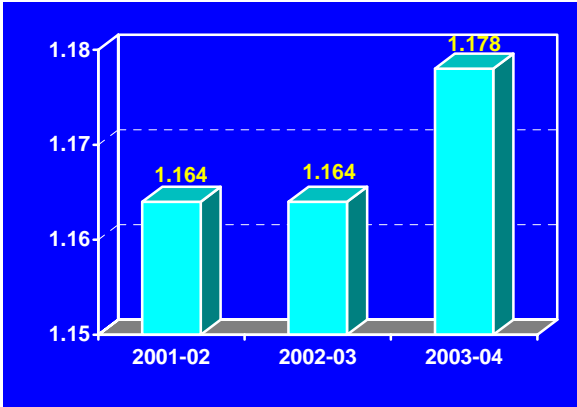
* See next page

** In spite of increased coal price

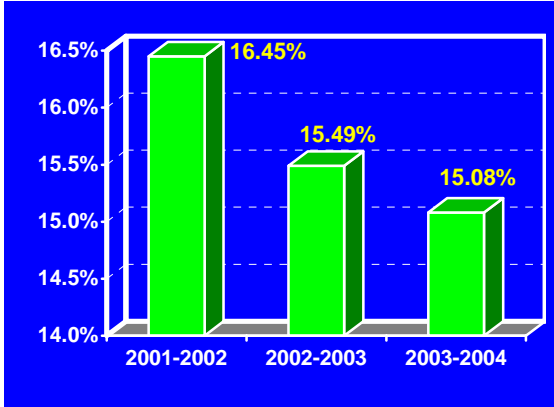


* Though Power consumption increased in 2002-03 due to addition of new Finishing & equipments such as Cameron Rewinder, Pasaban Cutter & Wrapmatic machine for quality improvement & customer satisfaction. **It has been further brought down in 2003-04 thr'o** measures taken for Energy conservation & optimization of the operations.

Paper Production in Continuous increasing trend

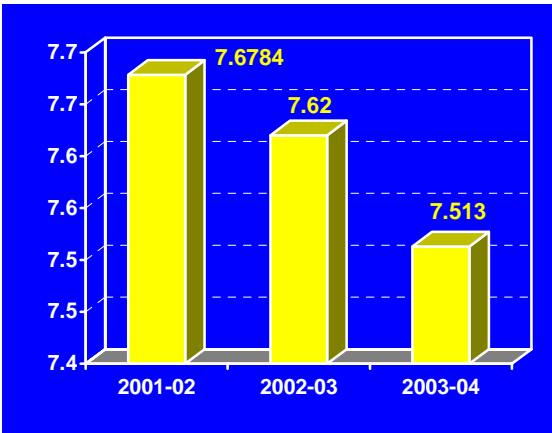


Reduction In Energy Cost : % of total Manufacturing Cost

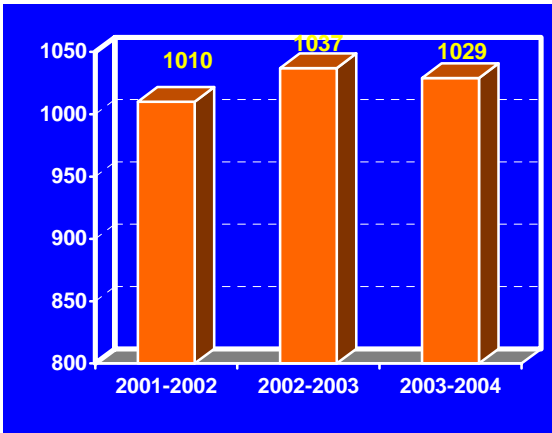


Specific Energy Consumptions

Sp. Thermal Energy Consumption (M kcal/ MT)



Sp. Electrical Energy Consumption (kwh/ MT)



Energy Conservation Commitment, Policy & Set up

Unit: Ballarpur is committed for continuously reducing the energy consumptions thr'o Encon ideas. Bilt consistently continues to strive for excellence and gives utmost importance to Energy Conservation as well as Environment Conservation. From the decades, company has independent Energy Conservation Cell, headed by a full time Energy Manager, constituting Process & Engineering faculties. Company has three tires 'Energy Set-up' reporting system & Cross Functional Teams headed by respective Sectional Heads inclusive of Process, mechanical & electrical maintenance.

Each sub-team comprises of Cross Functional Areas i.e. Process & Engg and regularly meets with Energy Cell to identify, review & communicate the Energy Conservation Opportunities to the core team of the unit for introducing specific conservation measures into site. Core team reviews the same & the decisions are taken for the implementation of Energy Conservation related projects in Short/ Medium/ Long Term basis. Modifications and retrofitting of Energy Efficient Equipments are implemented after getting an approval from the Management. These implemented measures are re-examined for their effectiveness periodically & communicated to HO level once unit approves its viability..

In this way, we promote a culture of innovation & creativity for achieving new dimensions of Energy Conservation by aligning our commitment at all levels. The Energy Conservation Cell prepares Energy consumption Report on weekly, monthly & yearly basis which are reviewed at all levels of Management. Weekly/ Monthly/ Annual targets of Energy Conservation are set on the basis of best achievements.

The Energy Audit, at an appropriate interval of time, is carried out by internal as well as external Agencies which helps in further identifying Energy Savings Potential in various sections.

Our unit has Energy Management Policy, which is appended herewith.

Energy Conservation Achievements: -

Major projects implemented during the year 2003-04.

Project/ Measures No. 1

Grinding of PM-3 Dryer cylinders

Paper Machine No.3 Dryer cylinders had developed grooves due to which uniform drying was not taking place, 24nos. Dryer cylinders were grinded by M/S Pikoteknik Finland for improving Heat transfer & paper quality which also resulted in reducing the specific steam consumption.



Steam saving	= 1.209 T/hr
	= 1.21x 24x 355
	= 10309 MT /Yr
Equivalent Coal	= 10309 x 0.220
	= 2268 MT Coal
Saving in Rs.	= 2268 x 1355/-
	= 30.73 Lacs /yr

Investment Rs. 150 Lacs

Project/ Measures No. 2

Increasing moisture by 1.3% after grinding of PM-3 resulted in fibre saving.

Fin. Prodn. Nov-03 to Mar-04	= 21080 MT
Increase in moisture (3.5 to 5%)	= 1.3%
Saving in fibre (21080x 1.3%)	= 274 MT
Cost of pulp Rs/MT	= 10500
Saving achieved	= 274 x 10500/100000 lacs
Saving in Rs.	= 28.77 lacs

Investment: With same investment as in project No.1

Project/ Measures No. 3

Installation of on line QCS on PM-4 for better control of moisture & basis weight.

Fibre saving achieved by increasing moisture from 2.54 to 4.4% (1.86%)

Fin. Prodn. Nov-03 to Mar-04 = 4929 MT

Increase in moisture (2.54 to 4.4%) = 1.86%

Saving in fibre (4929 x 1.86%) = 91.67 MT

Cost of pulp Rs/MT = 10500

Cost of Fibre in Rs = 91.68 x 10500/100000

Cost of fibre Saved in Rs. = 9.63 lacs



Investment: Rs. 30.40 Lacs

Project/ Measures No. 4

Installation of feed water heater in Coal Boiler no. -4 & 6

Feed water heater installed for Coal Boiler no. 4 & 6 to increase feed water temp from 105 to 135 Deg C.

Saving in Coal= 9.315 MT/ Day
= 3260 MT on Yearly basis

Actual Coal saving in the year after installation
= 9.315 x 152days = 1416 MT

Cost of Coal / MT = Rs 1355

**Saving in Rs. = 1416 x 1355/-
= 19.19 Lacs**



Investment Rs. 5.00 Lacs

Project/ Measures No. 5

Replacement of old inefficient Cl2 Compressor in CSC plant

Old Cl2 compressor was having less capacity with gland type design, which has been replaced with higher capacity new design compressor with mechanical seal. It has resulted in lower power consumption

Saving in Power = 11.64 x 24 x 330 = 92189

Capturability 95% = 87579 Kwh p.a.

Cost of own generation = Rs. 1.20 per kWh

Saving in Rs. = 1.20 x 87579/ 100000 = 1.05 Lac p.a.

Investment Rs. 3.0 Lacs



Project/ Measures No. 6

Replacement of inefficient rotor of warm water pump in Pulp mill

Presently two pumps of 300 M³/hr with 100 HP x 1450-rpm motor were running to meet the water requirement in blow heat recovery. running load was 100 & 70 amps respectively. The total water requirement was 400 to 450 M³/hr. It was discussed with M & P Engr to replace only rotor (Impeller) to get the reqd capacity from existing one single pump keeping casing etc same. The rotor was ordered & replaced in Jan-04, which is meeting the water requirement with single pump and running load is 123 Amps

Saving in Power = 30 kwh
= 30 x 24 x 350 p.a
= 252000 Kwh p.a.

Cost of own generation = Rs. 1.20 per kWh
Saving in Rs. = 252000 x 1.20
= 3.02 Lac p.a.

Investment Rs. 0.75 Lacs for one rotor.



Other ideas implemented are

- **Optimizing operations by running of 0.5SDM in place of 0SDM on PM-6**
- **Optimizing operations by running single DDR at PM-3 during higher GSM.**
- **Repositioning of vacuum pump silencers.**
- **Installation of 300 KVAR Capacitors.**
- **Reduction in power for water.**
- **Replacement of power saver electronic tube light fittings**
- **Reduction in Steam distribution losses by improvement in insulations & prompt attention on leakages.**
- **Reduction in fresh water consumption.**
- **Installation of Lead roll of PM-4 with VFD.**

Energy conservation plans and Targets:

Energy Conservation Measures (Planned)	Anticipated savings in		Approx. investment (Rs.lakhs)	Project Commencement & Completion year
	Energy Value	Rs. Lakhs		
	Million k Cal			
Installation of 1800 KVAR Capacitors	595	18.00	9.00	2004-05
Installation of VFD for Pulp Mill Washers	780	23.00	30.00	2004-05
Use of Activiser 'G' on Coal Boilers	19000	64.80	36.69	2004-05
Replacement of inefficient motors	66	2.00	2.00	2004-05
Installation of new Compressed air drying unit.	289	8.00	15.00	2004-05
Reduction of fresh water consumption	10 M ³ / MT			2004-05
Installation of Air preheater on Coal Boiler 4 & 6.	2900	14.00	13.00	
Use of Thermo Compressor on PM-6 to utilise flash steam	2600	8.50	8.00	2005-06
Installation of on-line energy monitoring system for PM-1, 3 & 6	----	* 0	7.50	2005-06
Installation of Lime mud re-burning system	----	** 0	1750.00	2006-07

* No saving in system improvement.

** No saving in environmental projects.

Apart from above other initiatives & activities will also continue to identify & implement more ENCON ideas in the plant.

ENVIRONMENT & SAFETY

Ballarpur Industries Limited

Unit Ballarpur

Environment Management

At Unit Ballarpur, Environment Management is a priority area. Various measures like DCS process control for optimising chlorine, reducing molecular chlorine use by using chlorine dioxide and oxygen in bleaching, use of eco friendly inputs, Cooking aid to reduce chemical consumptions, Spills collection and reuse systems, good house keeping etc are practised to minimise pollution. The company is efficiently operating a State-of-the-art effluent treatment plant based on Activated Sludge process. The treated effluent meets Maharashtra Pollution Control Board norms. Treated effluent is used in the process, gardening in ET plant area. The treated effluent is utilised for land irrigation.



Unit Ballarpur water consumption is less than 140 m³/T of paper, which is lower than national norms. Mill is actively working towards water conservations programs through Reduce, Recycle and Reuse methodologies.



Unit Ballarpur has provided efficient Electro Static Precipitators to Coal Boilers and Recovery Boilers to control the emissions below State Pollution Control Board specifications. Tall chimneys of the boilers help in dispersion and hence reduce pollution.

We have profuse greenery in and around mills, beautiful garden and lush green lawns on our lime sludge dumps, colony, Mills areas and ET Plant area. We have about 2.40 Lakh standing trees and saplings planted in our mills and colony area. These provide more than 40% green cover as assessed by Forest Department, Government

of Maharashtra.

Mill has developed about 50 kilometers of Avenue Plantation along with Ballarpur Nagpur Highway at Chandrapur, Ghodpeth, Nadori, Bhadravati etc

Unit Ballarpur has participated in a Green Rating Project conducted in CSE, New Delhi (Centre for Science & Environment) for Pulp & Paper Sector.

The mill is working actively towards achieving ISO-14001.

Unit Ballarpur has well equipped Environmental Monitoring Laboratory and trained staff with facilities like, Spectrophotometer, Flame Photometer, BOD & COD Analysis, Weather Monitoring Station, Stack Monitoring Kit, High Volume Air Samplers, and Handy Air Sampler etc.



SAFETY:

Unit Ballarpur has full-fledged Safety Department to look after the safety requirements of the plant & employees. Regular Training & awareness programmes being conducted in the mills. National Safety day / week is being celebrated every year on 4th March. Slogan, essay & painting competitions are also being conducted for whole hearty participation of all the employees. Departmental safety committees are formed & regular meetings are being conducted for day-to-day requirements & improvements. Internal & external Safety Audit & health checks are also conducted at scheduled intervals. On site Emergency plan exists. Work permit system, Mock Drills, House Keeping etc are the main activities for ensuring safety.

Ref.: Questionnaire Sr No. 16 : (iii) Apr-03 to Mar-04

Two Paragraph Write Up giving brief about background, observation made, technical & financial analysis made & implementation of Energy Efficiency Improvement Projects/ Measures For The Period from Apr'03 to Mar'04

Project/ Measures No. 1

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Project/ Measures No. 7

Optimizing Refiner operations by running of 0.5SDM in place of OSDM on PM-6

There are dedicated refiners for PM-4 & 6 having 200 & 350 kw motors because of different quality requirement on both machines. While in BCP run on PM-6 degree S requirement is less hence small refiner is being used for PM-6 & resulted in power saving.



Power consumption by using OSDM for PM-6
 = 143.59 kwh

Power consumption by using 0.5SDM for PM-6
 = 112.36 kwh

Power saving = 143.59- 112.36 = 31.23 kwh
 Power saving = 31.23 x 24 x 355 = 266080 kwh p.a
 Availability 80% = 266080 x 0.8 = 212864 kwh p.a
 Cost of own generation= Rs. 1.20 / kwh

Saving in Rs. = 212864 x 1.20
 = 2.55 Lacs p.a.

Investment: Nil .

Project/ Measures No. 8

Optimization of Operations by running single DDR at PM-3 during Higher GSM

Production 70 & above GSM = 20060 MT



R.Hrs of DDR for above Prodn = 2809 Hrs
 Power consumption of DDR /Hr = 242 kw
 Power saved = 2809 x 242
 = 679778 kwh
 Cost of own generation = Rs. 1.20 / kwh
 Saving in Rs. = 679778 x 1.2
Saving in Rs. = 8.16 lacs p.a

Investment: Nil .

Project/ Measures No. 9

Repositioning of Vacuum Pump Silencers.

In PM - 6 & 5 pumps were having silencers in discharge line at the height of 3 Meters due to which water was being pumped & discharged at height resulting higher power consumption. These silencers repositioned at ground level with pump & resulted in total power saving of 29.25 KWh

Saving in Power = 249210 kwh p.a.
 Cost of own generation = Rs. 1.20 / kwh
 Saving in Rs . = 249210 x 1.20/ 100000

Saving in Rs. = 2.99 Lac p.a.

Investment: Rs. 0.50 lacs



Project/ Measures No. 10

Optimization of Power factor of MSEB supply to maintain power factor to 0.97 by adding 300 KVAR capacitors.

Resulted savings of Rs 2.4 lacs in Power Bill

Investment Rs. 1.5 Lacs .



Project/ Measures No. 11

Reduction in power consumption for water by reducing water consumption.

Power for water in 2002 – 03 = 11861977 kwh

Power for water in 2003 – 04 = 10975746 kwh

Power saved = 886231 kwh

Cost of own generation = Rs. 1.20 / kwh

Saving in Rs. = 886231 x 1.20 = Rs. 10.6

lacs

Investment: NIL

Project/ Measures No. 12

Replacement of 90 nos. conventional tube light fittings with energy saving electronic fittings.

Saving in Power = 13 watt per tube = 13 x 90 x 24 350 /1000 kwh p.a.
= 10249 kwh

Cost of own generation = Rs. 1.20 per kwh

Saving in Rs. = 10249 x 1.20 = 0.12 Lac p.a.

Investment Rs. 0.31 Lacs .

Project/ Measures No. 13

Reduction in Steam distribution Losses.

Improving Insulations & prompt attention on leakages resulted in reducing the steam distribution losses by 0.34%

Saving in Steam = 4554 MT Steam

Coal / Ton of H P Steam = 209 kgs = 4554 x 0.209

Saving in Coal = 973 MT Coal

Cost of Coal Rs./ MT = 1355/-

Saving in Rs = 973 x 1355 = 13.18 Lacs./ yr.

Investment Rs. 8.00 Lacs on insulation

Project/ Measures No. 14

Reduction in fresh water consumption

Water Consumption in Yr 2002-03 = 20071252

Water Consumption in Yr 2003-04 = 18870131

Saving of water = 1201121 M³

= 12.01 Lac M³

Investment: NIL