

HINDUSTAN NEWSPRINT LIMITED

Unit Profile

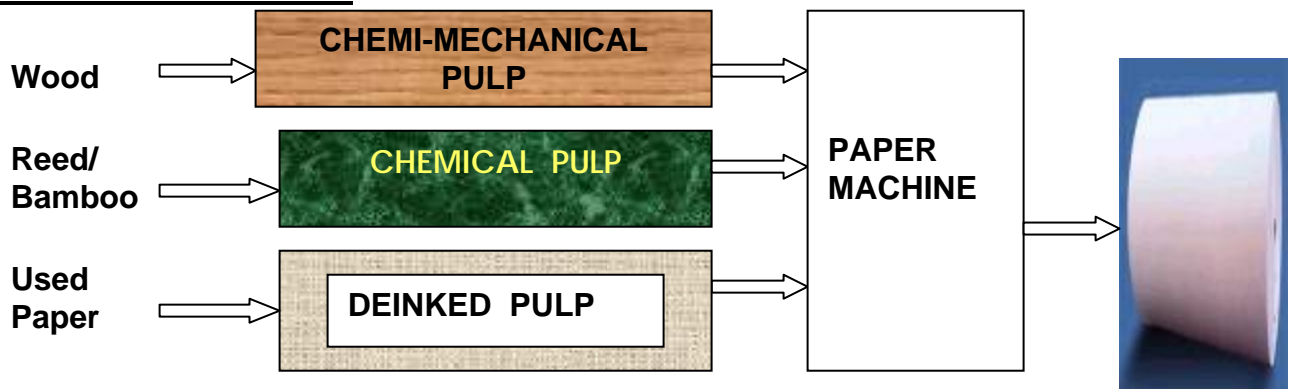
Hindustan Newsprint Limited (HNL), a Subsidiary of Hindustan Paper Corporation Limited, a Govt. of India Undertaking operates one of the largest integrated newsprint mills in the country. The mill was commissioned in 1982 with an installed capacity of 80,000 MT/annum, which was raised to 1,00,000 MT/annum in 1993-94 with major modernization and technological up gradation. The company achieved capacity utilization of more than 112% consecutively for the third time in 2006-07. HNL's major product is 48.8 GSM newsprint and during the last three financial years, 45GSM newsprint was also made to cater to the market demand. Also, the company achieved a record sales turnover of Rs. 315.19 Crores during 2006-07.

In continuation of its growth oriented initiatives with a mission on ensuring long –term sustainable survival, the company is presently embarking on an Expansion-cum-Diversification Project , which envisages to enhance the paper production capacity from the current level of 1,00,000MT to 2,80,000MT/annum. The proposed expansion will include production capacity for premium grades of Writing & Printing Paper and a swing facility to produce newsprint. The completion of the project would propel HNL to become a Rs 900 Cr entity with country wide market presence and with scales of operation comparable with that of the best players in the domestic industry.

HNL is always keen in energy conservation activities with a dynamic and professional energy management set up, supported by a well structured energy policy and latest technology energy management tools like Centralized Energy monitoring system of Enercon eLAN and ERP system of BaaN –IV giving reliable and accurate MIS reports, creating awareness among all levels of employees, which results in a high level of employee participation for energy conservation and by implementing a number of practical schemes proposed through Employee Suggestion Schemes. With the energy conservation measures taken up, HNL could reduce the Contract Demand with Kerala State Electricity Board from 30MVA to 26MVA with effect from 1st November 2003.

During the last three years, the company implemented a number of major energy conservation schemes all of which resulted in considerable saving in electrical and thermal energy fronts. The concentrated efforts in increasing the awareness levels of employees on energy efficiency improvement resulted in increased employee participation & motivated team work and a number of no investment energy conservation schemes were proposed by employees of various grades, all of which were implemented by the dedicated team work of energy management team with operational & maintenance teams of the respective plant sections.

Process Flow Chart:



During 2006-07, the overall specific energy could be reduced by more than **96 unit/MT** of Newsprint because of the dedicated Energy Conservation activities in all plants. This has resulted in a saving of around **88 lakhs** units of Electrical Energy & **Rs.345 lakhs** of energy cost in one year.

Energy Conservation Commitment, Policy & Organisational Set up:-

The company appointed Energy Manager as per the guidelines of EC Act 2001, in August 2003, who was later on qualified by BEE through the 1st National examination for energy managers. The designated energy manager acts as the co-ordinator and facilitator for energy management activities.

Energy Management Cell is headed by General Manager (Works) with cross-sectional representatives comprising of Managers of Production and Maintenance teams of different Plants, as members and Designated Energy Manager as the co-ordinator. The responsibility of the above cell is to explore the new avenues for energy conservation in all areas, to implement the schemes, look for continuous improvement, conduct brain storming discussions and make awareness and involve all employees for the energy saving activities. The EC cell members review all energy parameters in all area on daily basis and initiate actions to improve the performance.

The daily monitoring & review of all energy parameters of various plants at MD's chamber with core team of energy management cell including energy manger and the weekly review of all energy parameters and status of on going

energy conservation schemes in the performance review meeting of MD with HODs and energy manger show the commitment of top management at HNL .

The monitoring & review of all energy parameters of various plants in the daily plant performance meeting of General Manager (Works) with sectional managers and sectional mangers with the plant team and the chairman of the Energy Management Cell with the members on monthly basis etc. show the commitment of the middle management and our employees towards energy conservation.

100% of our technical staff of various plant sections were given energy awareness training, for enlightening them on Energy Conservation Act-2001, scarcity of natural resources, need for energy conservation and the details of the on going energy conservation schemes. Also brain storming session conducted to trigger the employees in identifying new avenues for energy conservation was very successful and as a result a number of creative, no investment and practical energy saving suggestions were proposed by the employees, especially from the operational side and all the practical schemes have been implemented.



हिन्दुस्तान न्यूजप्रिन्ट

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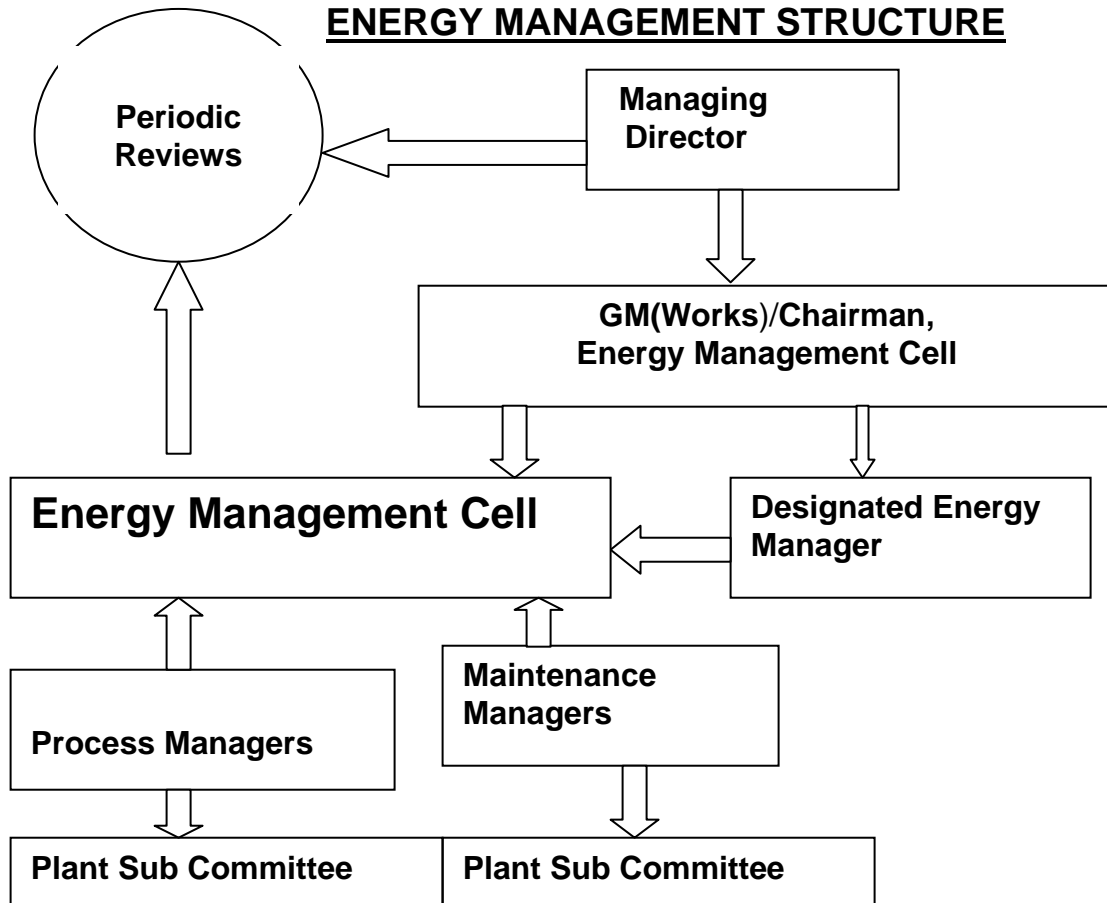
ENERGY POLICY

- Create awareness among all employees to conserve energy and natural resources.
- Monitor closely and control consumption of various forms of energy through an effective energy management system.
- Optimize the ratio of grid to captive power.
- Reduce specific energy consumption.
- Upgrade technology and improve efficiency of equipment and process.
- Enhance efficiency of steam generation.
- Reduce coal consumption by utilization of non-conventional fuels for steam generation.
- Carry out external energy audits periodically to identify areas for continual improvement.

Sd/-
MANAGING DIRECTOR

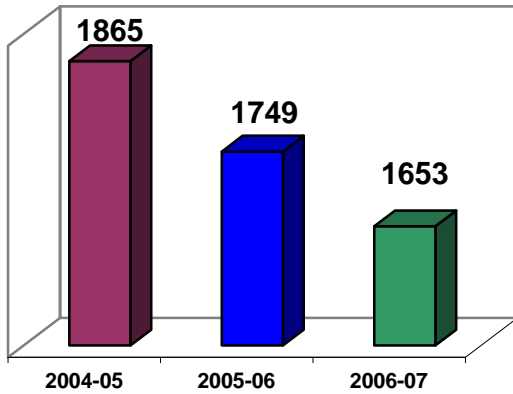
Dated: 09/12/2002

ENERGY MANAGEMENT STRUCTURE

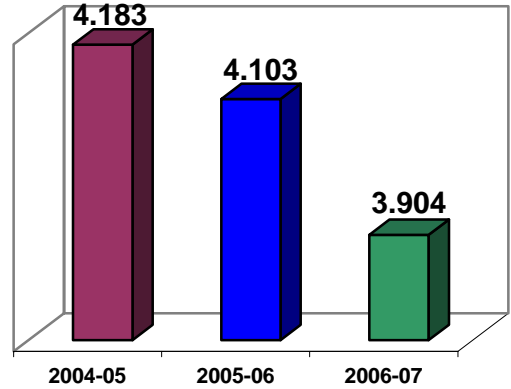


Specific Energy Trends:

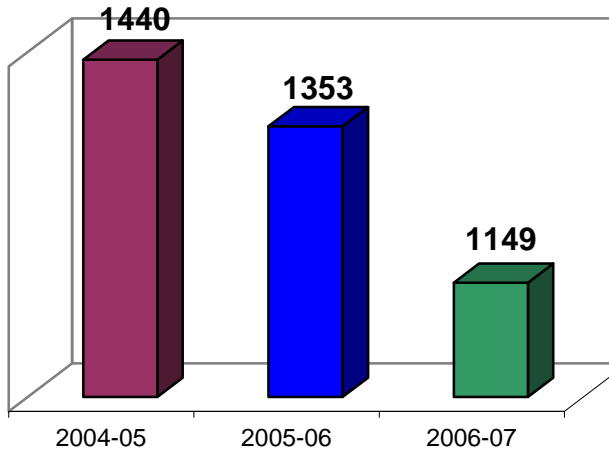
**Specific Electrical Energy:
kWh/ MT of Newsprint**



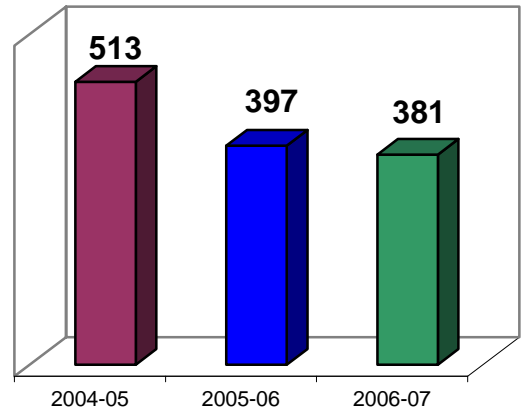
**Specific Thermal Energy:
M KCal/MT of Newsprint**



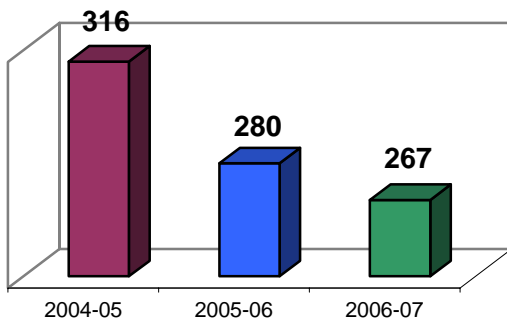
**Specific kWh/MT:
Chemi -Mechanical Pulping**



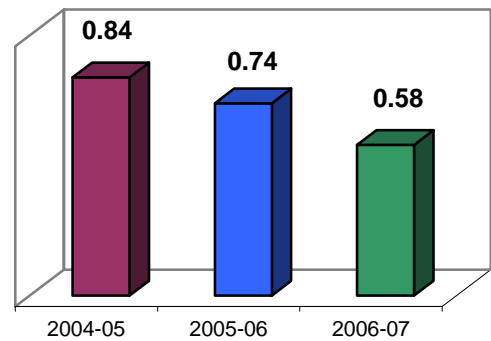
**Specific kWh/MT:
Chemical Pulping**



**Specific kWh/MT:
De-inking Plant**



Specific Coal MT/ MT




Energy Consumption Details:-

	Unit	2004-05	2005-06	2006-07
Newsprint Production	MT	112202	113050	112565
Total Electrical Energy Consumption	Lakh kWh	2093.03	1977.38	1861.13
Specific Energy Consumption	KWh/MT	1865	1749	1653
Total Thermal Energy Consumption	Million Kcal	469332	463888	439432
Specific Thermal Energy	Million kCal/MT	4.183	4.103	3.904

Energy Conservation Achievements

Year	KWh/MT	% Reduction over 2004-05	MKCal/MT	% Reduction over 2004-05
2004-05	1865	--	4.183	--
2005-06	1749	6.22 %	4.103	1.91 %
2006-07	1653	11.36 %	3.904	6.66 %

Energy Conservation Schemes implemented

1.	TREND SETTER PROJECT	
	<p>Scheme: Optimisation of Patterns of Refining Segments, by using Low Energy Refining Segments in Primary & Secondary refiners & thereby switching over from 3 stage Refining to 2 stage Refining in Chemi Mechanical Pulping stream in 2006-07:</p>	
	<p>Background: Chemi Mechanical Pulping plant is the highest energy consuming plant, consuming more than 40% of the mill's total electrical energy consumption</p>	
	<p>Research & Trials: High refining energy for chemi- mechanical pulping process was the major troubling matter in energy efficiency front of the plant. Hence the operational and maintenance teams of the plant were doing so many trials in the plant with an intensive desire to reduce the refining energy. Eversince the commissioning of the plant in 1982, chemi mechanical pulping had been adopting 3 stage refining, running the three refiners in series. The three refiners are being driven by three synchronous motors of 6500 KW each, operating on 11KV.</p>	
	<p>Results: With primary and Secondary Refiners using Low Energy Segments, switched over to two stage refining, eliminating the finest tertiary refining stage. Achieved Power Saving: 1350 KW Annual Energy Saving: 75.67 Lakh kWh Annual Energy Cost Saving: 227 Lakhs <u>Investment: NIL.</u></p>	

Segment Change trial - Primary Refiner

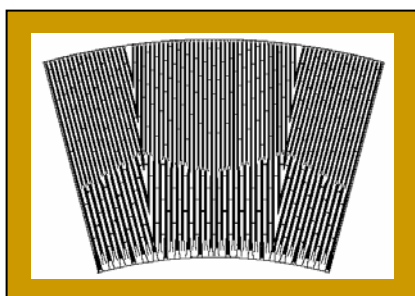


No:59242



Low Energy Segment

Segment Change trial - Secondary Refiner



No: 59289



No: 59242

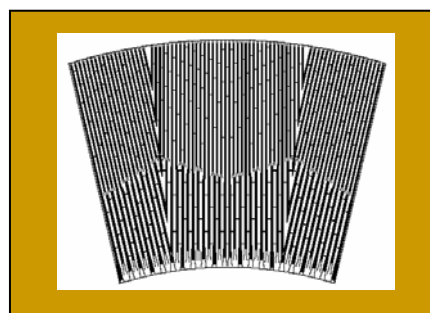


Low Energy Segment

Segment Change trial - Tertiary Refiner



No: 59246



No: 59289

With primary and Secondary Refiners using Low Energy Segments, we could achieve the required freeness reduction in 2 stage refining and hence switched over to two stage refining, eliminating the finest tertiary refining stage , from 1st September 2006 onwards. This resulted in eliminating a connected load of 6500KW, 11KV synchronous motor in Chemi- Mechanical Pulping plant.

The scheme resulted in ever time record reduction in Specific energy for CMP during 2006-07.

2.	<p>Installation of Variable Frequency Drives for 91 Pumps/Fans :</p> <p>Reduced the speed of 91 nos pumps /fans by installing variable frequency drives and through optimum operational control logics .</p> <p>Power Saving: 1410 KW Annual Energy Saving: 95 Lakh kWh. Annual Energy Cost Saving: Rs 331 Lakhs.</p> <p>Investment: Rs 379 Lakhs.</p>	
3.	<p>Replaced the Rotor Resistance starter of 970 KW slip ring induction motor for Wood Chipper by Fully Automatic Air Cooled Slip Regulator Control with Flux Compensated Magnetic Amplifier Starter:</p> <p>Power Saving : 42 KW. Annual Energy Saving: 83,160kWh. Annual cost saving= Rs 2.91 Lakhs . Investment: Rs 8.18 Lakhs</p>	
4	<p>Replacement of 17 Dynodrives by Energy Efficient Motors with Variable Frequency Drive</p> <p>Replaced all the 17 dynodrives, low efficiency drives , for different applications by Energy Efficient motors with Variable Frequency drives.</p> <p>Power Saving: 68KW Annual Energy Saving: 3.86 Lakh kWh. Annual Energy Cost Saving: Rs 11.96 Lakhs.</p> <p>Investment: Rs 22.35 Lakhs.</p>	 
5	<p>Replaced 3 low efficiency pumps with new Energy Efficient Pumps</p> <p>a) Stock Pump of Refiner:3 in CMP plant (from 110KW to 90 KW). Chlorine Washer Feed Pump in CP plant (from 55KW to 37KW). Washer Dilution Pump in CP plant (from 75KW to 55KW). Power Saving: 39 KW Annual Energy Cost Saving: 6.35 Lakh kWh. Investment: 9.46 Lakhs.</p>	
6	<p>Installed Variable Frequency Drive for Air Compressor for Ash removing system from Boilers.</p>	

Power Saving: 70 KW to 49 KW = 21 KW .
 Annual Energy Saving: 1.71 Lakh kWh
 Annual Energy Cost Saving: Rs 5.14 Lakhs.
 Investment: Rs 5.5 Lakhs.



7. Steam Saving Scheme in Paper Machine:

1.Installed thermo compressor of higher capacity at 3rd group dryers of Paper Machine.
 2.Replaced defective steam traps & condensate lines in Paper Machine.
 Average Specific Steam consumption in Paper M/c reduced from 1.86 to 1.81 MT/MT during 2006-07.
 Annual Steam Saving : 5625 MT
 Annual Coal Saving : 1125 MT
 Annual Energy Cost Saving: 27 Lakhs
 Investment: Rs 1,00,000/-



8. Energy Saving Scheme in Compressed air distribution system:



Conducted Air System audit through M/s Ingersoll Rand.
 Done Re-orientation of Air Distribution Network of centrifugal compressor to reduce pressure drop.
 Result: Compressor Discharge Air Pressure Setting could be reduced from 7 to 6.7 kg/sq cm.
 Annual Energy saving: 0.91 Lakh units.
 Annual Energy Cost Saving: Rs 2.73 Lakhs.
 Investment: Rs 2 Lakhs.



9. Renewable Energy Schemes:

Installed 4 Solar water Heaters for Company residential quarters of senior officers to use in place of electric storage heaters.
 Energy Saving: 2400 kWh/ annum.
 Energy Cost Saving: Rs 7,200/ annum.
 Investment: Rs 80,000



10.	Usage of non-conventional fuels like 5744 MT of wood fines in FBC boilers. Saving of Coal : 2870 MT Energy Cost Saving: Rs 67.20 Lakhs.	
11.	Installed Kitchen waste based Bio gas plant of 1 cub m in officers' hostel. <ul style="list-style-type: none"> •Bio gas used as fuel for Cooking. •Energy Saving: Fuel sufficient for 3 hrs cooking/day . •Annual Saving: Rs 3600/- •Investment: Rs 8,000/- 	

Energy Conservation Plans & Targets: -

Target set for 2007-08: -

Specific Energy Consumption: **Electrical: 1625 KWh/MT &
Thermal: 3.89 MKCal/MT of Newsprint.**

Plan for 2007-08:

The major projects planned for 2007-08, for achieving these targets are:

Energy Conservation Measures (Planned)	Approx. investment (Rs.lakhs)	Anticipate d Saving Lakh kWh	Anticipate d Energy cost Saving	Year of Completion
Variable Frequency Drive for CW Pump of 7MW TG	6 Lakh kWh	18	20	2007-08
Energy efficient Pump, Motor & VFD for Mill water Booster Pump in Paper Machine	3 Lakh kWh	9	20	2007-08
Use of Energy efficient pump for Primary Screen reject in Chemical Pulp mill	0.5 Lakh kWh	1.5	3	2007-08
Use of Energy efficient pump for Knotter Feed Pump in Chemical Pulp mill	0.6 Lakh kWh	1.8	4	2007-08
Use of Energy efficient pump for Secondary Centri-cleaners feed Pump in Chemical Pulp mill	0.57 Lakh kWh	1.71	5	2007-08
Modification of compressed air distribution network to reduce distribution losses	3.4 Lakh kWh	10.2	1.5	2007-08
Installation of online flue gas analyser at the 3 power boilers to control excess air and there by to increase boiler efficiency by 1%.	1700T of coal	47.6	20	2007-08
Use of 5000MT of Wood dust in our Power Boilers	2500T of coal	70	0	2007-08
Installation of Kitchen Waste based Bio Gas Plant in Factory Canteen.	600 kg of LPG	0.12	1.2	2007-08

Environment & Safety: -

a) Environment: -

The Quality Management System of HNL is certified ISO 9000:2000 and the Environment Management System is Certified ISO 14001:1996. our residential colony also is certified with ISO 14001: 1996 and HNL is keen in maintaining the “green” belt in and around the mill premises.

HNL has a structured solid waste management system in place. Process wastes like sludge from de-inking plant, wood dust etc are burnt in FBC boilers. Lime sludge is re-lined in lime re-burning plant. Boiler ash is supplied for cement manufacturing.

The major environmental protection project completed is the construction of a Scurred landfill facility in the mill premises for burial of hazardous waste, with an investment of Rs 100 Lakhs.

HNL distributed around 50 lakhs seedlings for pulp wood plants to the farmer community in Kerala State, through farm forestry scheme, in addition to the on going captive plantation schemes.

b) Safety: -

A well-structured Safety Department headed by a senior manager ensures the effective implementation of company’s health and safety policy, aided by the active involvement and participation of a safety committee comprising of employees at different levels. HNL is in the process of implementing OHSAS 18001.

HNL has a first aid center and a Health clinic with qualified doctors and paramedical staff working round the clock in the mill premises.
