

Star Paper Mills Limited, Saharanpur (U.P.)

Unit Profile

Star Paper Mills Limited, is an ISO 9001:2000 & ISO-14001 Company certified by DNV, UK and follows TQM and Quality Circles with a vision to be front runner in quality products.

The Unit is committed to Manage its energy resources in an efficient manner and is continuously making efforts to reduce energy cost by replacing a part of conventional fuel ie Coal with Agro waste. The company is committed to adopt latest technology to reduce pollution load and to maintained eco-friendly environment.

In last 2 years the Unit got following Awards in Pulp & Paper sector.

- 1. Greentech Environment Excellence Award 2005 -GOLD Award in paper sector**
- 2. Greentech Safety Excellence Award 2005 -GOLD Award in paper sector**
- 3. Greentech Environment Excellence Award 2006 -GOLD Award in paper sector**
- 4. Greentech Safety Excellence Award 2006 -GOLD Award in paper sector**
- 5. Business Sphere award for leadership in manufacturing of industrial grade paper 2005 – 2006.**
- 6. NCQC – 2005 Excellent Award**
- 7. NCQC – 2006 Excellent Award**

The Unit has bagged the National Energy Conservation Award, 1st Prize in Pulp & Paper Sector during 1992-93 and Certificate of Merit, Government of India in 1998-99 which strengthens its policy of continual improvement.

Energy Consumption

Implementation of various energy conservation measures, energy scenario of last 3 years is given below.

Description	Unit	2004-05	2005-06	2006-07
Annual Production	MT	71106	67875	71503
Sp. Energy Consumption (Electrical) for paper	Kwh/T	1151	1308	1383
Sp. Energy Consumption (Thermal) for Paper	Million Kcal/T	4.43	4.65	4.71
Energy Cost as % of Total Manufacturing Cost	%	35.36	41.73	-

Further details like consumption of Coal ,Oil ,electricity & money value etc are already furnished in the Format.

The Specific energy consumption has been following an increasing trend for last three years because of company's more emphasis on environment high return quality product. In this connection we installed additional plant / equipment for betterment of environment up gradation of boiler pressure and also there has been increased product of low gsm quality paper.

The details are as under.

1.	ODL & EOP and Blow heat recovery	-	90 units/Ton
2.	Increased No. of aerator for improvement in ETP discharge quality	-	20 Units/Ton
3.	Change in Product mix i.e. Increased production of lower gsm paper	-	50 units/Ton
4.	Up gradation in chemical recovery and Multifuel boiler.	-	60 units/Ton
	Total	-	220 units/Ton

Energy Conservation Commitment, Policy and Set-up

The Unit is committed for the energy efficient usage of its Assets. To achieve this, energy management has been integrated into the overall structure of the organisation. Copy of the "Energy Policy" is also enclosed

The Unit has an "Energy Management Cell" which is responsible for the monitoring of energy consumption and also for implementation of "Energy

Savings Ideas". In addition to this, Company gives strong emphasis on the involvement of all the persons down the line for productivity improvement.

Senior General Manager (Engg.) holds the additional responsibility as Head of the Energy Management Cell who is assisted by "Certified Energy Manager" and other Process and Engineering Officers. Ideas are generated through Brain Storming and discussions. Ideas are evaluated and Cost-Benefit Analysis is being done and after approval of the Management, implementation and monitoring is done.

Encl : Photo Copy of Company Energy Policy

Energy Conservation Achievements

In last 2-years the Unit has done Major investments under Cogeneration Scheme & was able to reduce its Energy Cost.

The following Major jobs were carried out which is giving results as per our expectations:

1. Retrofitting of Recovery Boiler to operate at 42 ATA 420°C from existing 20 ATA 310°C. Also removal of Cascade Evaporators from Recovery Boiler & installing a new large economiser to increase HP steam generation from Recovery Boiler.
2. Installation of Multifuel Boiler to operate at 42 ATA 420°C & discarding existing 20 ATA 310°C Coal Fired Boilers.
3. Retrofitting of BHEL 5 MW turbine to operate at 42 ATA 420°C from existing 20 ATA 310°C.
4. Installation of 5 MW new extraction cum back pressure turbine to operate at 42 ATA 420°C & stopping PRDS to meet out the process steam requirement of the Mill.
5. Recently installed Hot Stock Screening Plant & stopped existing screening ,thickening and centricleaning plants. This has resulted in power reduction of about 200 KWH.

All the above 4 major projects were taken under Cogeneration Scheme & were installed from 2005-06 to 2006-07 (Completed).

Environment and Safety

The Unit maintains a perfect harmony with the environment through well managed pollution control measures. Maintaining a clean and green environment has been the prime concern of the Unit. Following major improvements have been done during last 3-Years.

1. The Unit has installed Oxygen Delignification Plant followed by Oxygen Bleaching and reduced Chlorine consumption in Bleaching Plant . It has resulted reduction in AOX level in discharged effluent.
2. The unit has installed Blow Heat Recovery Plant suitable for NCG collection & incineration. It has resulted clean & fibre free environment inside & out side the Mill premises.
3. The unit has done "Rain Water Harvesting" in the Mills and Colony to recharge sub-soil water.
4. The unit is recently installing a Dregs Collection system in Recausticizing Plant .Presently all the dregs in liquid form goes to E.T Plant . With the installation of above system the dregs in semi solid form shall be burnt in Multi Fuel Boiler thus reducing COD load on ETP

The Unit regularly monitor & measures the values of Air Emissions , COD & BOD in treated effluent . All the values is well within the UPPCB & CPCB.

The Unit provides safe working environment to its employees and has Safety Department so as to train and take care of its employees. Mills is fully equipped with necessary safety equipments. Safety Circles are actively operating in the Mills. Company believes that safety is more important than the production and profitability.

A copy of the "Safety and Health" and "Environment" Policy is enclosed herewith

b) **Replacement/Installation/Modernisation of old and inefficient existing equipment and systems – High investment options**

√ **Replacement of inefficient boiler with efficient one**

(In year 2005-06 & 06-07 , we have replaced 2 Nos. old Coal Boilers with new High Press Boiler) under Cogeneration Scheme

- Replacement of inefficient furnace/kiln with efficient one

√ **Replacement of inefficient motor with efficient one**

- Replacement of inefficient motor with efficient one

(In Year 2006-07 we have replaced old motor of PM-2 Fan Pump with energy efficient 110 KW motor)

√ **Replacement of inefficient air/gas compressor with efficient one**

In Year 2006-07 we have installed 2 Nos. new Air Compressors which are efficient & also need based

√ **Installation of variable speed drive**

(In Year 2006-07 we have installed VFD in under flow pump of WLC

√ **Installation of high temperature (more than 350/400 C) heat recovery system e.g. economiser, heat recovery boiler, high temperature air heater (e.g. recuperator, regenerator), gas heater, raw material or intermediate product preheating system etc.**

(In Year 2005-05 & 2006 & 07 we have replaced 2 nos. cascade evaporators with economizer in recovery boiler)

- Upgrading of insulation of furnaces/kilns with low thermal mass ceramic fibre/ insulation bricks
- Upgrading insulation of steam distribution pipelines, equipment, chilled water pipe lines, etc.

√ **Modernisation of condensate recovery system (Already done)**

√ **Revamping of steam distribution system**

(Under HP Cogeneration Scheme (2005-07)we have retrofitted complete steam distribution system for 42 ATA operation from 20 ATA operation.

Total Investment in 06-07 : Rs. 1100 Lacs.

Total money saving in 06-07 : Rs. 221 . Lacs.

(c) **Energy substitution/switching measures**

- Substitution of fuel oil with coal in boilers/furnaces for energy cost reduction
- Substitution of coal with fuel oil/natural gas in boilers/furnaces for energy efficiency
- √ **Substitution of coal/fuel oil/natural gas with agro-waste, bio-mass, other solid wastes, in boilers/furnaces for energy cost reduction**

(In Year 2006-2007 we have substituted partly coal with Agro Waste in new multi fuel boiler.

Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of 5 MW Turbine	Sector :Pulp & Paper
Year to be filled by BEE		Technology : H.P Cogeneration
<p>Description of the energy conservation measure:</p> <p>Installation of 5 MW extraction cum back pressure turbine to operate at 42 ATA and 420°C.</p> <p>Extraction steam pressure as 11 ATA & exhaust pressure as 4.80 ATA</p> <p>Stoppage of PRDS's from 42 ATA to 11 ATA & also from 42 ATA to 4.80 ATA to meet our the process steam requirement for paper manufacturing.</p> <p>Additional free power generation about 200 Lacs units /annum by the stoppage of PRDS's.</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
<p>Agency that executed the project (with complete address and email):</p> <p>M/s. Shandong Runh Power Plant Engineering Technology Co. Ltd. D16 International Plaza ,East Erhuan Road,Jinan,China e-mail- okcn001@yahoo.com</p>		

Total investment, Rs.: 616 Lacs		Year of implementation: 2006-07			
First year energy cost savings, Rs. 882 Lacs					
First year other savings, Rs.: Nil					
On annual basis	kWh 000'	Coal (Ton s)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	Free Power generation				Free power generation of 200 lacs units/annum
Energy consumption after	Free Power generation				
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	Rs. 4.41 /KWH				
Company complete address: M/s. Star Paper Mills Limited Saharanpur (U.P) Pin-247001 e-mail : star.sre@starpapers.com Contact person who could be contacted for more information: Mr. I.J.Singh Senior General Manager (Engineering) Star Paper Mills Limited Saharanpur (U.P) e-mail :ijsingh.sre@starpapers.com				We authorise Bureau to use this information for dissemination Signature Date	

Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure	Sector : Pulp & Paper
Year to be filled by BEE	Installation of Hot Stock Screening Plant	Technology : Pulp Screening
<u>Description of the energy conservation measure:</u>		
<p>The Unit has installed latest Delta Combi & Opti Screening plants before pulp washing and stopped existing pressure screens ,centrifugal screens , pulp thickening and cleaning equipments . By adopting this latest technology the Unit is able to reduce about 200 KWH power saving in pulp plant.</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	

Agency that executed the project (with complete address and email): Metso Paper India Pvt Ltd 6 th Floor DLF gateway Tower DLF city Phase-3 Guargaon e-mail : nkjain@metso.com					
Total investment, Rs.: 400 Lacs.			Year of implementation:2006-07		
First year energy cost savings, Rs.: 73 Lacs					
First year other savings, Rs.: Nil					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	38.80 Lacs KWH				
Energy consumption after	21.80 Lacs KWH				
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	Rs.4.41/KWH				
Company complete address: M/s. Star Paper Mills Limited Saharanpur (U.P) Pin-247001 e-mail : star.sre@starpapers.com Contact person who could be contacted for more information: Mr. I.J.Singh Senior General Manager (Engineering) Star Paper Mills Limited Saharanpur (U.P) e-mail :ijsingh.sre@starpapers.com				We authorise Bureau to use this information for dissemination Signature Date:	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2006-2007 and a CD containing the above information may be please be enclosed.