SESHASAYEE PAPER AND BOARDS LIMITED
Namakkal, Erode (Tamil Nadu)

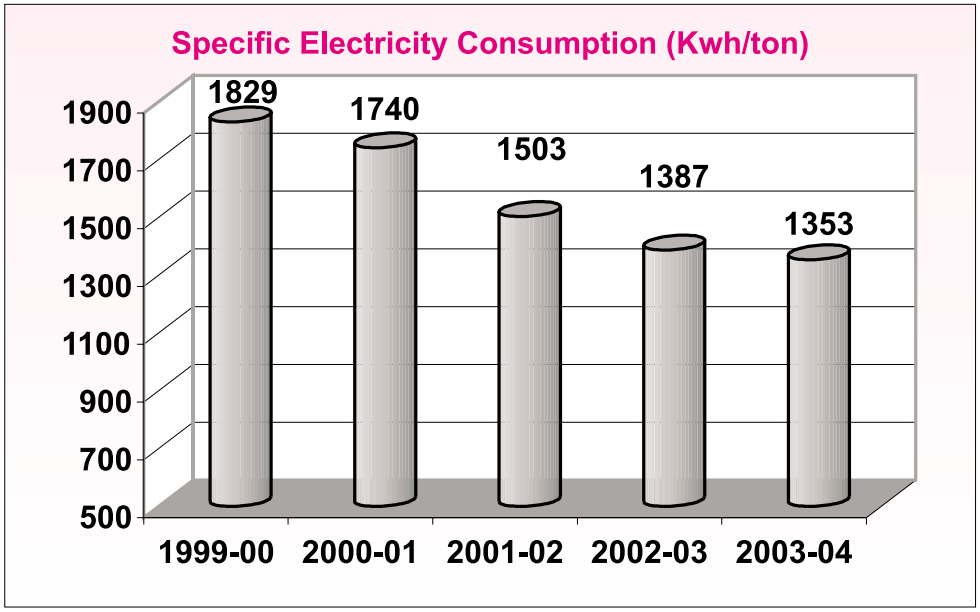
Unit Profile

Seshasayee Paper and Boards Limited (SPB), an integrated pulp and paper mill, incorporated in the year 1960 with an initial capacity of 20,000 tons of paper and paper boards per annum, is located in Erode in Tamilnadu State. SPB has over the years gradually expanded to the present installed capacity of 115000 tonnes per annum. Today SPB exports nearly 20% of its production to various countries with an annual turnover of Rs 4000 million and it employs about 1600 persons. SPB has five paper machines to produce a wide range of fine papers viz., printing and writing papers, on line starch coated papers, on line pigment coated papers, super calendered papers, posters, paper boards, packaging papers, A4 business/copier paper, coated boards, etc. SPB has production facilities to produce both bleach wood and bagasse pulp and has a chemical recovery section. The utilities include power boilers, turbo-generators, water treatment plant and an effluent treatment plant.

Energy Consumption

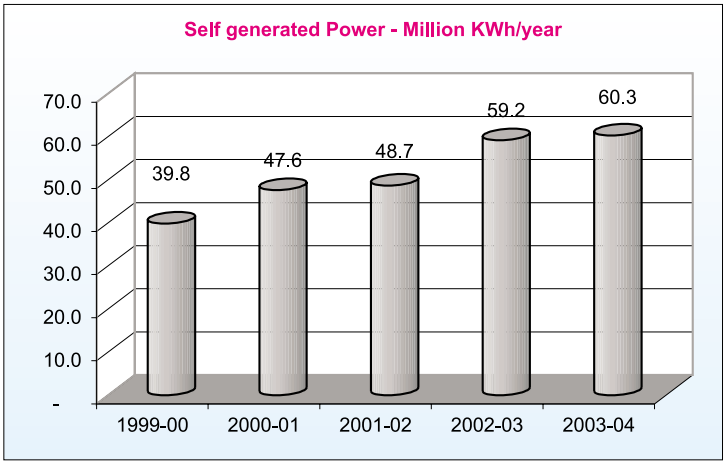
Electrical Energy Consumption

With the implementation of the various measures discussed above, the specific electrical energy consumption is shown a steady down ward trend as given below. The reduction achieved are 7.72%, 9.98% during 2002-03 and 2003-04 compared to 2001-02.



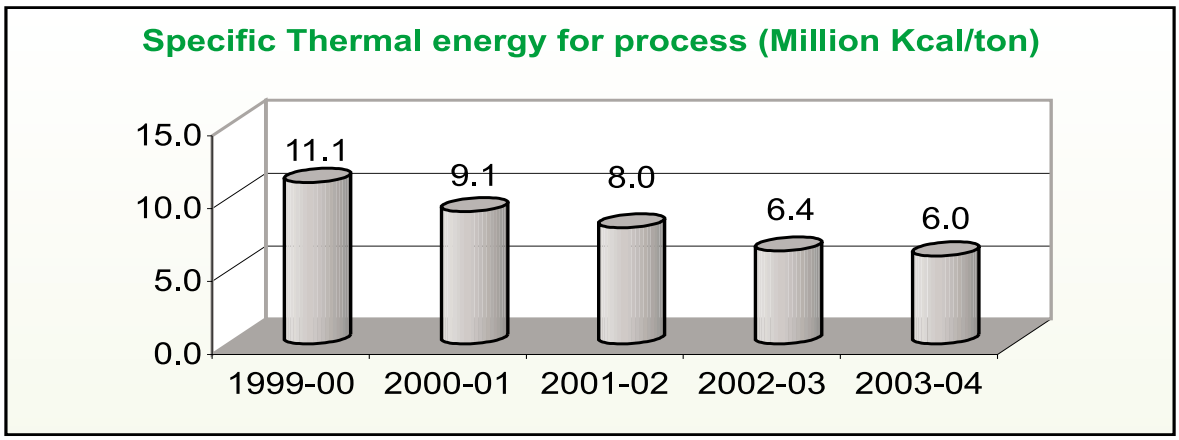
Electricity Generation

An optimization study on loading of the three Turbo generators was carried out. The plants which have higher ratio of power generation (due to its process steam demand) to power consumption are connected to the turbo generators. This required some alterations in the existing electrical feeders. The same was carried out and the (Self) power generation has increased from the range of 6.5 MW to 8.5 MW. This has resulted in increasing of self-generation from 59.2 million kWh in 2002-03 to 60.03 million kWh in 2003-04. Thus a saving of Rs 3.5 Million has been achieved during the year 2003-04.



Thermal Energy Consumption for Process

With various measures implemented, the specific thermal energy consumption in the process has been reduced continuously as given below. The reduction achieved is 29.8% and 24.75% during 2002-03 and 2003-04 compared to 2001-02.



Energy Conservation Commitment, Policy and Set up

SPB is committed to reduce energy consumption by following three-fold strategy.

One of the organizational strategies of SPB is to continuously focus on reducing the cost of energy with a view to get the leverage to excel even in the highly competitive paper business. On the energy front, SPB's policy is to optimize the usage of resources like water, power fuel and raw materials. SPB adopts three methods simultaneously to tackle the energy issue. They are

- Maximizing capacity utilization of plant and machinery
- Implementation of innovative energy conservation measures
- Energy substitution

The Energy Policy as declared is given below:

We committee ourselves:

- To continually reduce specific energy consumption in all our operations
- To generate / procure energy at least cost
- To maximize the use of eco-friendly energy sources and technologies in our processes and
- To train and motivate our employees to be responsible for continual improvements in our energy performance

Organizational Set up

Chairman and Managing Director monitors the energy consumption and energy cost on a daily basis during his walk around meeting inside the factory with each department head. The company has established an energy conservation cell headed by President (Operations). President (Operation) reviews the energy consumption during daily production meeting. The company also has a designated Energy Manager as per EC Act 2001. The EC cell consists representatives from each department.

Functions of Energy Cell

Data collection on sectional energy consumption – computation of cost of energy – highlighting and projecting the impact of cost of energy initially at department heads level – highlighting the variation of cost of energy consumption over the fixed norms – discussing and arriving at course of action to be taken to contain the cost of energy within the norm, every day, at top management level – continuous monitoring of consumption and cost of energy – identification and implementation of short term and long term Energy conservation Projects

Energy Conservation Achievements

1. Replacement of MF2 White water pump (60 hp) with efficient pump (30 hp)

   Electricity saved per year = 0.7884 lakhs kwh
   Annual savings = Rs 2.52 lakhs
   Investment incurred = Rs 1.00 lakh

2. Flat belt drive for MG couch vacuum pump instead of V-belt

   Electricity saved per year = 0.3942 lakhs kwh
   Annual savings = Rs 1.26 lakhs
   Investment incurred = Rs 1.00 lakh

3 High capacity and high efficiency pump for replacing two WL pumps feeding to Pandia & Stationary Digesters.

Electricity saved per year = 1.1826 lakhs kwh
Annual savings = Rs 3.78 lakhs
Investment incurred = Rs 1.00 lakh

4 Installation of Pre-heater in one Stationary Digester(2 t of steam /blow)

Coal saved per year = 700 tons
Annual savings = Rs 18.20 lakhs
Investment incurred = Rs 19.50 lakhs

5 Installation of Condensate Collection System for Air Heaters in Paper Machine and Coating Plant

Coal saved per year = 215 tons
Annual savings = Rs 7.94 lakhs
Investment incurred = Rs 2.60 lakhs

6 Replacement of 7 Worm Gearboxes with Energy Efficient Helical Gearboxes for Washers in Pulp Mill

Electricity saved = 1.20 lakhs kwh
Annual savings = Rs 4.50 lakhs
Investment incurred = Rs 2.73 lakhs

7 Installed additional Capacitors 950 KVAR and increased the power factor from 0.95 to 0.97

Electricity saved = Rs 0.6228 lakhs kwh
Annual savings = Rs 22.83 lakhs
Investment incurred = Rs 3.50 lakhs

8 Automation in Stationary Digesters (4 Numbers of 80 Cubic Meter Stationary Digesters) DCS System

Coal saved = 1650 tons
Annual savings = Rs 32.50 lakhs
Investment incurred = 177.00 lakhs

9 Recycling of Bleach Plant back water within Bleach Plant itself and saved 2400 cubic meters per day of Fresh Water

Electricity saved = 2.1 lakhs kwh
Annual savings = Rs 7.56 lakhs
Investment incurred = Rs 6.50 lakhs

10 Installed a new FD Fan of high capacity replacing the old one of low capacity and increased the Black Liquor firing rate and increased the steam generation in Recovery Boiler B&W

Coal saved = 1150 tons
Annual savings = Rs 33.93 lakhs
Investment incurred = Rs 3.00 lakhs

11 Replacement of furnace tubes in GV Recovery Boiler and Modification of Air Ports leading to increased black liquor firing

Coal saved	=	1500 tons
Annual savings	=	Rs 44.25 lakhs
Investment incurred	=	Rs 100.00 lakhs

12 Introduced a Bow Screen and increased the consistency from 2.5 to 5% of Pulp fed to Refiner in Paper Machine # 5

Electricity saved	=	1.54 lakhs kwh
Annual savings	=	Rs. 5.54 lakhs
Investment incurred	=	Rs 1.00 lakh

13 Paper Machine Back Water Recycling and used in Wire Shower (500 cu m/day)

Electricity saved	=	4.375 lakhs kwh
Annual savings	=	Rs 15.75 lakhs
Investment incurred	=	Rs 0.65 lakhs

Energy Conservation Plans and Targets

Current Projects

Self Sufficiency in Electrical Energy – New Power Plant

SPB has taken up a captive co-generation power project at a cost of Rs 65 crores. The project comprises of replacing the existing 28 bar steam & power generation system with a 105 bar energy efficient new power plant. SPB is the first integrated pulp and paper mill in India to install a 105 bar power plant. The contracts for the major 105 bar boiler has been awarded to ENMAS ANDRITZ, Chennai and 20 MW Double Extraction cum condensing Turbo-generator set has been awarded to BHEL, Delhi. The new power plant will be in operation from January 2005. This will result in substantial savings in energy cost by way of avoiding the highly priced grid power and by way of increasing the overall efficiency of the power plant cycle.

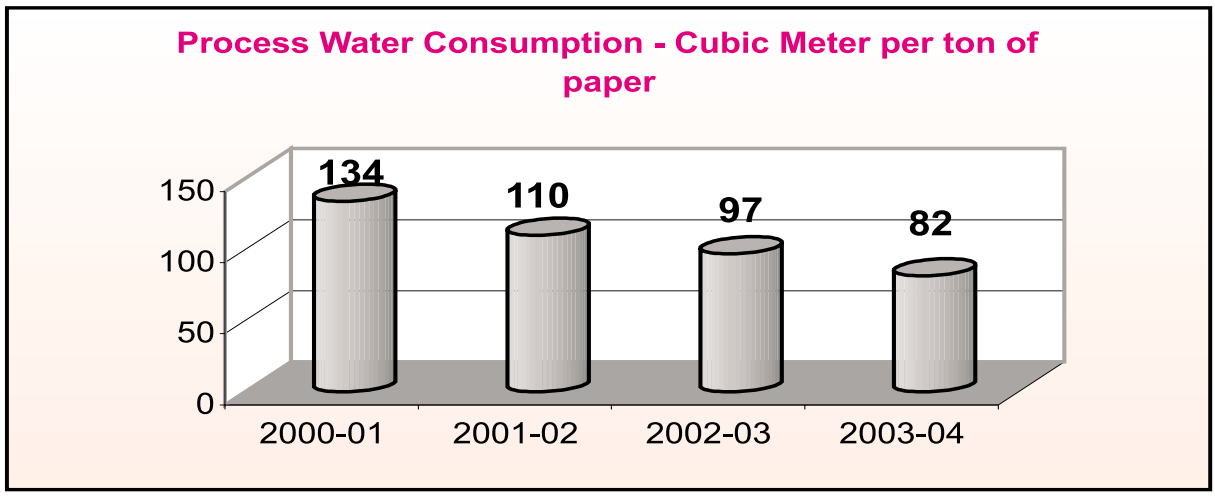
Process Water Conservation

SPB has continuously focused on reducing the water consumption in the mill. Many measures inside the plant as well as in the colony has been taken for reducing the water consumption. Some of the schemes implemented during 2003-04 are as follows:

- Use of 180' Primary Treated Effluent in ETP Filter House replacing PER water.
- Use of Secondary Effluent in Pulp Mill
- Squirt water excess being taken to 40 bar tank in Paper Machine (1-4)
- Surface condenser water connected to concrete tank in MF 2 Machine
- Rewinder Brake cooling water in Yankee Machine(PM 3)cted to concrete tank
- Knock off shower has been put into auto control mode and operated only during paper breaks

- In MG Machine lump breaker roll shower was replaced with newly designed shower by which fresh water saving is about 50 m3/day
- Use of Paper Machine 5 back water for preparation of clay solution in WTP
- Recycling of the Sand Filter back wash water to raw water tank
- Replacement of MF 2 Machine white water pump with high capacity pump for recovery of fiber by 0.5 tpd
- Deculater vacuum pump seal water recycling in Paper Machine 5. Thus fresh water is saved.
- Paper Machine 3 back water recycling.

The water consumption per ton of paper over the period of last four years is shown below.



Future long term plan

As a long term plan (next 10 years) following projects are under study

- Replacement of two recovery boilers (28 bar and 10 bar) with a high pressure (65 bar) single recovery boiler along with a suitable back pressure turbo-generator set
- Installation of a Lime Kiln
- Installation of a Capturing and Non-condensable Gases
- Replacement of complete pulp mill with a single line large capacity modern pulp mill with all the features such as extended delignification, oxygen delignification, ECF bleaching etc.

The following schemes planned for year 2004-05:

SL.NO	DESCRIPTION
	EC measures Planned
1	Installation of a mini Chipper for wood chipping to supply to Power Boilers to replace imported coal
2	Installation of additional capacitors(2 Nos of 200KVAR) to improve PF to 0.98
3	Purchase of Power from M/s OPG Energy Pvt Ltd , Chennai, Natural Gas based Power Producer(instead of power from TNEB)
4	Replacement of V-Belt by Flat Belt for 14 Vacuum Pumps in Paper Machines 1 to 4
5	Replacement of old Hood exhaust fan in Paper Machine # 1 with a new energy efficient fan
6	Energy efficient impeller for B&W ID fan
7	Energy efficient Vacuum Pump for Lime Mud Washer
8	Energy Efficient Vacuum Pump for Brown Stock Washer in Pulp Mill
9	Installation of 20 MW Power plant to achieve 100 % self generated power (by installing 105 bar steam boilers in place of the present 28 bar steam boilers)
10	New Centricleaning System for Paper Machine # 2
11	Power Capacitors to improve the Power Factor to 0.98
12	VFD for Secondary Fan Pump in Paper Machine # 5

Targets

The company is committed to reduce energy consumption by 5% by 2010 from the base year of 2002-03.

Environment and Safety

The company has the following Environmental Policy

Environmental Policy

We commit ourselves

to manufacture quality papers in a clean, green and safe environment

to continuously improve our environmental performance by reducing air emissions, process effluents and solid wastes

to maximize the use of eco-friendly materials and methods in the manufacturing processes

to optimize usage of resources like water, power, fuel and raw materials

to comply with relevant regulations

to train and motivate our human resources to be environmentally responsible and

to make this policy known to all interested parties

Environmental Management

The mill has commissioned the following schemes to efficiently manage its environment during 1999-00.

- Installation of wire press for bagasse pith (Rs 10 lakhs)
- Installation of ESP for boiler #6 and 7 (Rs 250 lakhs)
- Installation anaerobic lagoon for reducing the BOD and COD of effluent. (Rs 12 lakhs)
- Utilization of mill's complete effluent for irrigation of dry lands
- Use of hydrogen per-oxide for bleaching of pulp instead of chlorine
- Chemical recovery system to recycle the waste chemicals in the production process.
- Secondary effluent treatment plant (Rs 500 lakhs)

During 2000-01, the company has installed an ESP and cascade evaporator in place of cyclone cum venturi-scrubber in B&W recovery boiler at a cost of Rs. 150 lakhs.

During the year 2003-04 following environmental programs have been implemented:

- Introduction of Double Ep Stage in Bleach Plant so as to reduce Chlorine consumption
- Shifting of Outside Reel to Paper Conversion job from nearby Town to within the Mill. This has resulted in avoiding transportation of Reels and Paper,
- Introduction of Enzymatic bleaching of wood pulp in association with Central Pulp and Paper Research Institute on a plant scale trial. (Funded by CESS Project).