

Seshasayee Paper and Boards Limited, Erode

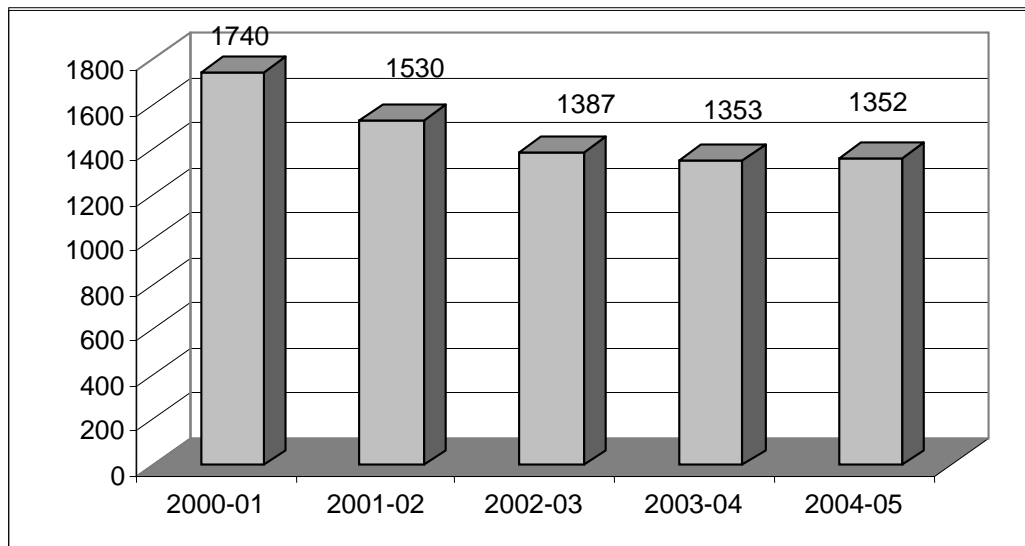
UNIT PROFILE

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, India. 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 1500 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

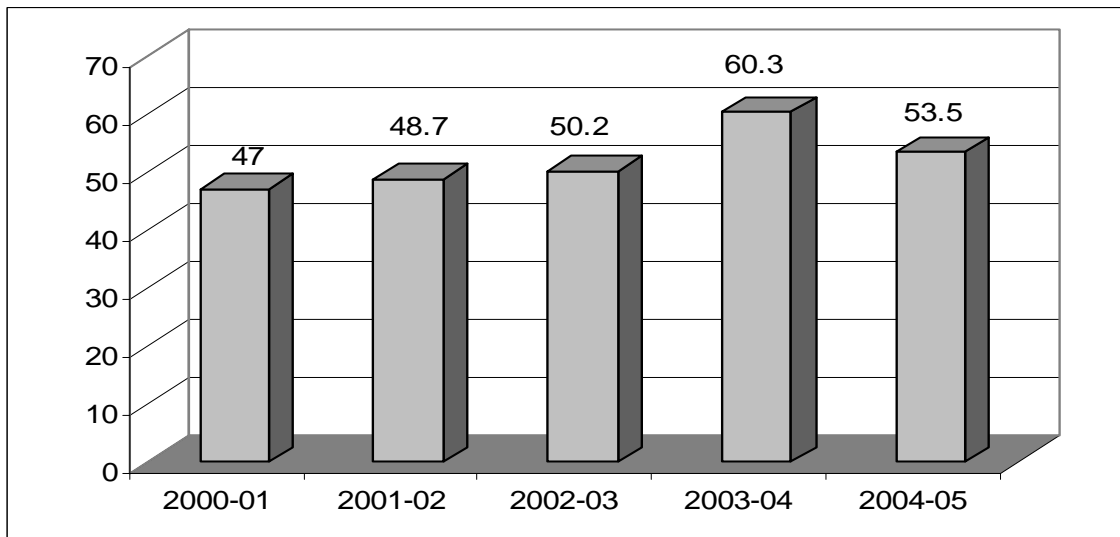
ELECTRICAL ENERGY CONSUMPTION

With the implementation of the various measures, the specific electrical energy consumption is shown a steady down ward trend as given below.



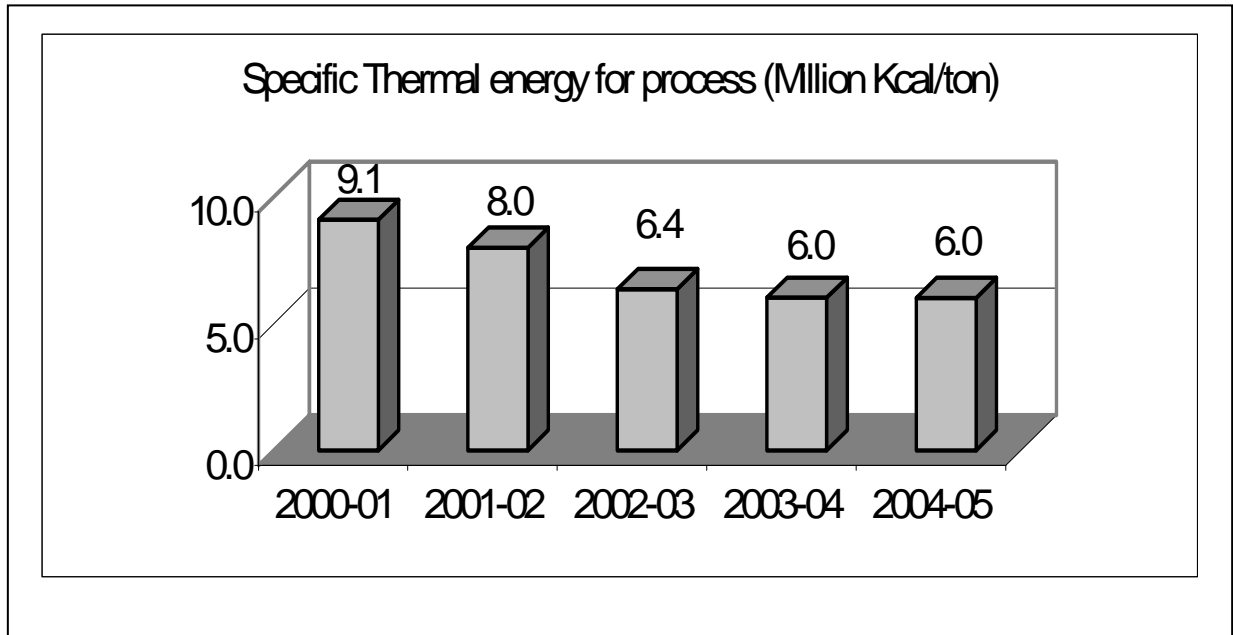
ELECTRICITY GENERATION

The company has been steadily increasing the generation of power from its steam turbo generators. During the year 2004-05, one of the old TG Set of 5 MW capacity was shut for maintenance. Further the company has commissioned the 20 MW Cogen Project in March 2005 and thus reached 100% self generation capacity.



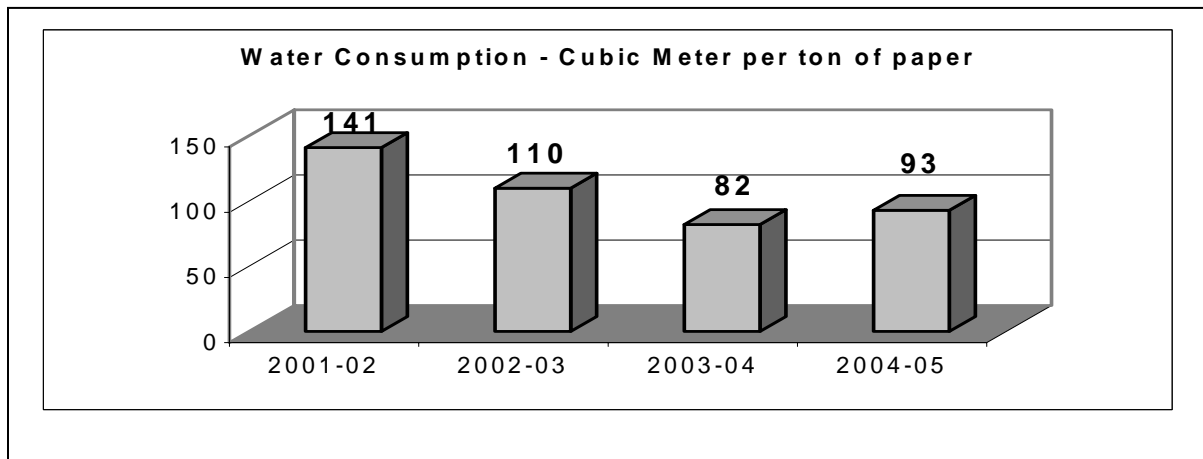
THERMAL ENERGY CONSUMPTION FOR PROCESS

With various measures implemented, the specific thermal energy consumption in the process has been reduced continuously as given below. The reduction achieved is 18%, 12% and 16% during the last three years.



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 ahs been taken for reducing the water consumption. The water consumption per ton of paper over the period of last four years is shown below.



ENERGY CONSERVATION COMMITMENT, POLICY AND SET UP.

SPB is committed to reduce energy consumption by following four-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 four methods to tackle the energy issue. They are

- (i) Maximizing capacity utilization of plant and machinery
- (ii) Implementation of innovative energy conservation measures
- (iii) Energy substitution
- (iv) Upgradation of Technology

ENERGY CONSERVATION ACHIEVEMENTS (2004-05)

1 *Installation of 20 MW Cogeneration Power Plant (FIRST TIME IN INDIAN INTEGRATED PULP AND PAPER MILL)*

a) Background of the Project

The mill was having old boilers and turbo-generators operating at 28 bar steam pressure. With a view to generate more co generated power, high pressure boiler and turbo-generator are to be installed.

b) Observation

For the above, a study was conducted and it was found that it is possible to install 105 bar steam pressure system. Accordingly a single boiler and double extraction cum condensing turbogenerators to suit to 117 tph steam generation capacity and 20 MW were selected.

c) Technical and Financial Analysis

The power generated by the old power plant is in the range of 6 to 7 MW. The new power plant can generate 20 MW of power with the same process steam demand.

The savings due to the project is Rs 2500 lakhs.

d) Implementation

The Project was implemented within 21 months period. The new power plant is commissioned and running since March 2005.

2 *Installation of Variable Frequency Drives for PM5 (MF3) Secondary Fan Pump*

a) Background of the Project

Variable frequency drives can be installed for equipment which are operating below designed operating points or where process requirements are fluctuating resulting in throttling of flow. A detailed study of such equipment was carried out for all centrifugal equipment (pumps and fans). Among them the above equipment was identified as those with highest savings potential.

b) Observation

For the above, a study was conducted and it was found that the load was fluctuating.

For MF3 machine the pump delivery valve was throttling up to 60% depending on GSM of paper being made on the machine. The installed motor rating is 335 kW

c) Technical and Financial Analysis

The savings potential as follows:

MF3 Fan Pump : 20 kW

It was found that installation of variable frequency drives for equipment would result in power savings of 20 kW resulting in financial savings of about Rs 1.2 lakhs/annum. The investment required was Rs 13.60 lakhs and payback period is about 10 years. But the equipment runnability improved and machine speed could be increased by 50 mpm and thereby the production increased and specific energy consumption was brought down.

d) Implementation

The Project was implemented within four months period.

3 *Installation of Energy Efficient fans for exhaust hood of PM1*

a) Background of the Project

Paper Machine 1 is open hood machine. The hood has three fans for exhausting the hot air evaporated in the dryer section. These fans are driven by belt driven slow speed fans having motor of 10 hp.

b) Observation

CPPRI consultant while studying the air handling capacity of the fans suggested to go for energy efficient fans. Accordingly the supplier was located and the new fan for same capacity is driven by 5 hp motor. There is a potential for energy saving.

c) Technical and Financial Analysis

The annual savings potential for one fan is 18,000 units per. The annual saving is Rs 61,000 and the cost of installation is Rs 26,000 with a pay back period of 4 months.

d) Implementation

The Project was implemented within four months period.

4 *Installation of flat belts in vacuum pumps of PM 1-4*

a) Background of the Project

Paper Machines 1-4 have vacuum pumps driven by V belt drive system. Consultant who studied the vacuum pumps suggested to replace it with flat belt for saving energy.

b) Observation

Accordingly, a flat belt supplier was called and joint power consumption readings were taken. The supplier has designed the flat belts and corresponding flat pulleys. They guaranteed the energy savings. A contract was signed with the supplier that only if the saving is proved, the payment will be given. Otherwise the supplier has to take back the flat belt and pulleys.

c) Technical and Financial Analysis

The annual savings potential for 10 vacuum pumps is 2.1 lakh units. The annual saving is Rs 7.36 lakhs and the cost of installation is Rs 6.51 lakhs with a pay back period of 11 months.

d) Implementation

The Project was implemented within five months period.

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 is in operation from March 2005. This 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.

OTHER ENCON MEASURES

Currently a study of pumps and fans in the mill are underway by M/s Siemens and M/s Control Techniques so as to identify a batch of equipment for installation of Variable Frequency drives on Performance to pay basis.

Further SPB is planning to invite reputed external agencies like NPC for conducting a detailed energy audit in the plant to achieve further reduction in energy consumption.

FUTURE LONG TERM PLAN

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

- (a) 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
- (b) 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.
- (c) Instalation of one more paper machine to make use of the new fiber line 100% capacity utilization as well as to use the excess power from new recovery boiler power plant.

Targets :

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