

Harita Seating Systems Limited

Hosur, (Tamilnadu)

Unit Profile

Harita is the Sanskrit word for verdant prosperity. Harita Seating Systems Limited (HSSL) established and promoted by members of TVS family to provide customized seating solutions, taking into account the difficult Indian road conditions. Commercial production was started in 1988 and the company soon went public. HSSL had developed in-house competence in seat technology relevant for Indian market through the product launches made in the past decade.

HSSL is the only seat manufacturer to provide complete seating solution to all segments of automotive industry by serving more than 50 major customers across India with 170 products and 368 variants along with add on features in nine different segments. HSSL continue to strive to exceed customer's ever increasing expectation by developing innovative products. These possess a challenge to continuously improve in all spheres of business.

HSSL has been consistently growing right from inception from a level of 14 lakhs and closed the last financial year (FY08) with a figure of 196 crores of turnover.

Energy consumption

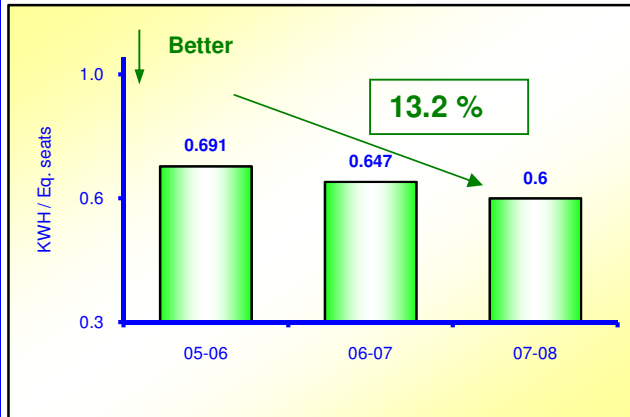
Thanks to the implementation of various energy conservation initiatives, there has been a significant decline in energy consumption at HSSL in the last 3 years which is evident from the below table:

Description	Units	2005-06	2006-07	2007-08
Annual production (equivalent seats)	Numbers in Lakhs	33.79	35.66	41.75
Total energy consumption/annum	Lakhs kWh	23.34	23.06	25.04
Specific energy consumption – Electrical	kWh / Eq.seats	0.691	0.647	0.600
Total thermal energy consumption / annum	Million kCal	1256	1231	1141
Specific energy consumption – Thermal	Million kCal / Eq.seats(Lakhs)	37.2	31.2	27.3
Energy cost as % of total manufacturing cost	Percentage	11.42	10.42	9.41

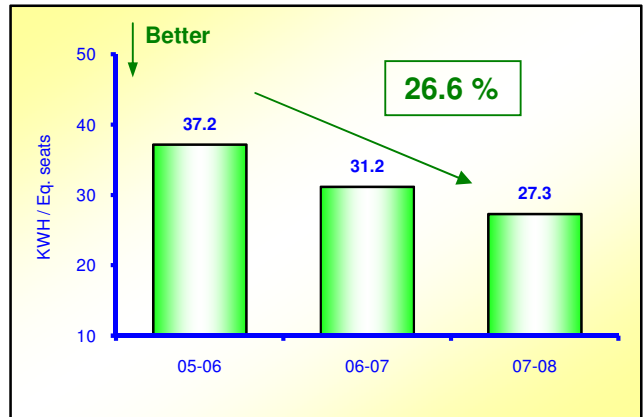
Reduction in specific energy consumption (SEC) per equivalent seat in last 3 years

Year	Electricity		Thermal	
	Consumption (kWh/ Eq. seats)	% of reduction over 2004-2005	Consumption (kCal / Eq. Seats)	% of reduction over 2004-2005
2005-2006	0.691	-	372	-
2006-2007	0.647	6.4	345	7.3
2007-2008	0.600	13.2	273	26.6

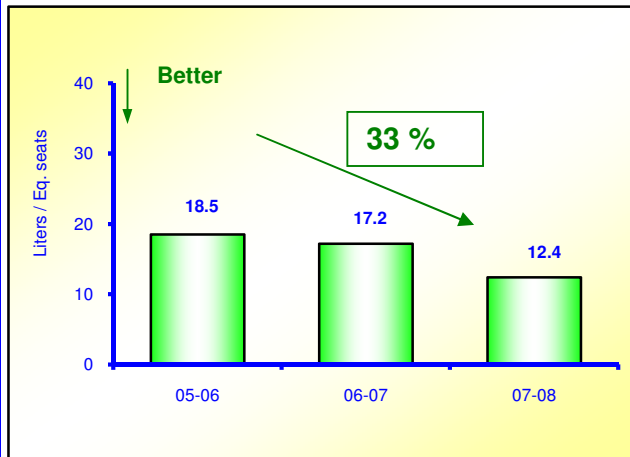
ELECTRICAL CONSUMPTION



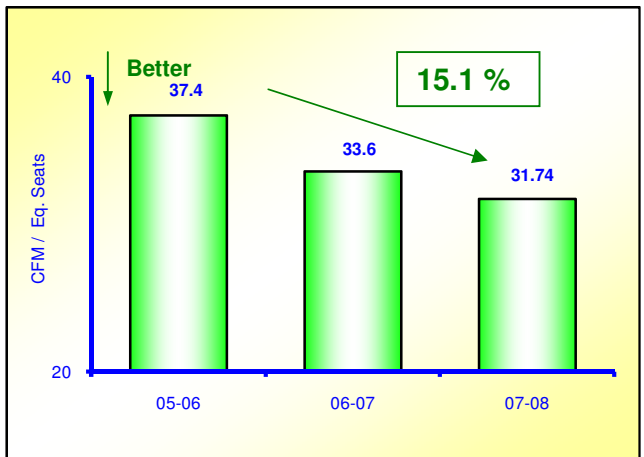
THERMAL CONSUMPTION



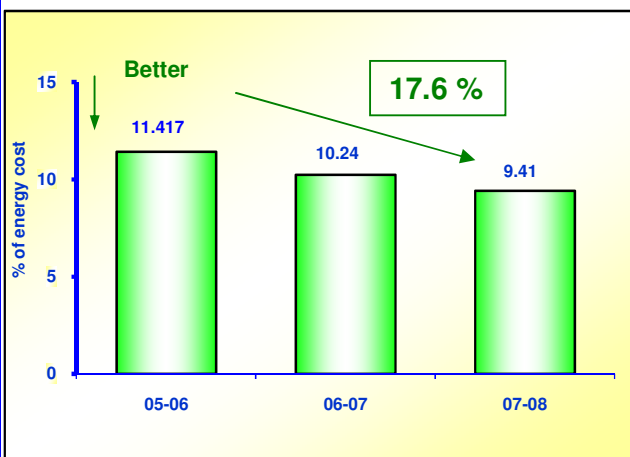
WATER CONSUMPTION



COMPRESSED AIR CONSUMPTION



ENERGY COST OVER MFG COST

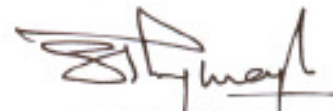


ENERGY POLICY

We are committed to Conserve Energy and reduce the Carbon footprint of our operations by

- Optimum utilisation of available energy
- Adopting modern and eco-friendly technologies for the process and product
- Creating awareness amongst all the employees and recognising their initiatives
- Promoting the use of renewable energy for sustainable development, safeguarding the society and protecting the environment
- Reducing the specific energy consumption continuously by adopting effective " Energy Management System"
- Promoting awareness among all the suppliers and society to become energy efficient and environmental responsible

01 October 2008



S Thiagarajan
President

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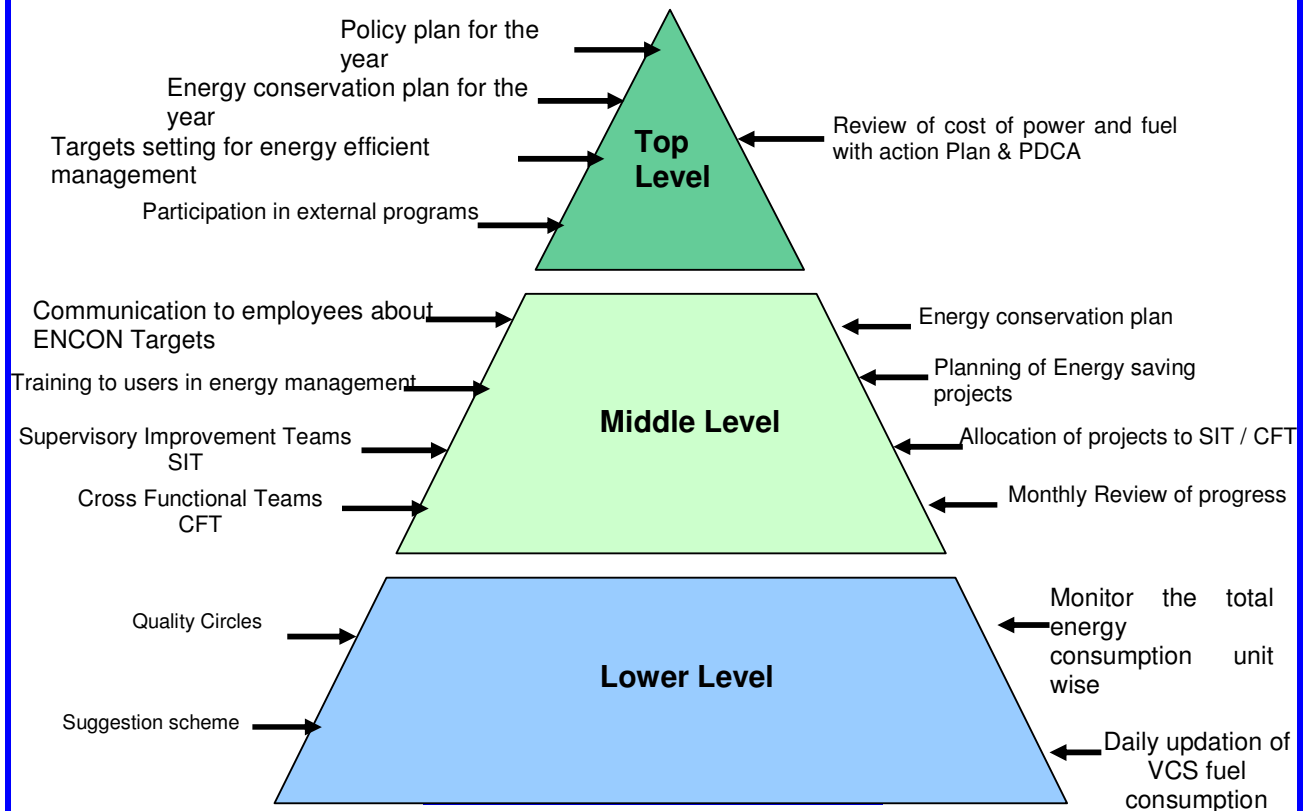
Energy conservation commitment, policy and set-up

HSSL strongly believes in integrating the environment with every sphere of our business activity through establishing a clear policy to ensure well being of the employees and society at large.

Energy conservation is nurtured as a culture at HSSL and forms part of actions initiated towards this commitment.

Energy Conservation Set up

Working System of Energy Management



Energy conservation achievements

From 1997 onwards, Harita Seating Systems is actively involved in inventing new ways of conserving energy. During the period of 1998 to 2008, 138 projects have been implemented to save energy to the tune of 432.8 Lakhs with an investment of 102 lakhs. This has resulted in a reduction of 51 % in specific electrical energy consumption and 79.5 % in specific thermal energy consumption.

The major mile stone activities during the year 2007 - 08 are

1. Energy Substitution – Alternate Fuel

Old method

We were using Diesel for the purpose of steam generation in our canteen boilers for cooking purposes. The boilers are used to heat the water to high temperatures and produce steam at high pressure and transferred to the cooking vessels. The systems efficiency is dropped due to the chute formation which also creates high air pollution and high heat loss.



New Method

As an alternate method, we have modified the heating system with Liquefied Petroleum Gas (LPG) in place of HSD. The consumption of fuel is reduced. The temperature accuracy is maintained. We have achieved fuel saving of 40 – 45 %, since all the burnt fuel is converted into heat and there is no wastage. This is an environmental friendly system.



Energy Savings : Rs 3.14 Lakhs per annum
Investment : Rs.1.7 Lakhs
Payback : 7 months

Advantages: -

- Eco - friendly System
- Clean and Pollution Free Atmosphere
- Maintenance free system

2. Energy Saving Hennecke Mould Temperature Control Unit

Old design of program

We are operating the Mould Temperature Control Units in individual Mould Fixtures to control the temperature of the mould. The power is consumed by the Water Pumps and the Heaters. The system is designed in such a way that the water circulation pump is kept continuously ON without any control over the production.

New design of program

We have modified the control of the MTCU in such a way that the water circulation pump will go OFF when the main Power pack switch is in OFF condition, during Low demand and planned stoppages. This will reduced the unnecessary heat loss and resulted in reduction in running time of the heaters saving energy.

Savings : Rs 2.02 Lakhs per annum
Investment : 0.16 lakhs
Payback : 1 month



3. T5 Energy Saving Fittings for Street Lighting

Old method

We are using 250 Watts Mercury Vapour Lamps for our Street Lighting purposes. These Luminaries consume more power.



Mercury Vapour Lamps

New Method

As an Energy Conservation measure, we have replaced the 250 watts Mercury vapour Fittings with T5 Energy saving Luminaries of 96 W (24 Watts X 4 nos Tubes) with the same lumens



T5 Tube Fittings

Advantages

- Less energy consumption
- Fast illumination and more life
- Less maintenance cost

Savings : Rs 1.27 Lakhs per annum
Investment : Rs. 1.5 Lakhs
Payback : 1 year and 4 months

4. Improving the Efficiency of Power & Distribution System

Old method

Our Power and Distribution System is equipped with a 1000 KVA Transformer. Due to continuous addition of connecting load in the plant, there were difficulty in maintaining the power factor which led to energy loss in the system.



Group Capacitors

New Method

As an Energy conservation measure, we have installed a Automatic Power Factor Controller Unit to maintain the power factor.

Savings : Rs 2.09 Lakhs per annum
Investment : 2.00 Lakhs



Automatic Power Factor Controller

5. Waste Heat Recovery System in Canteen Boilers

Old method.

We are using steam boilers for the purpose of cooking food in our canteen, the boiler water drain is continuously kept ON till the steam pressure is achieved.

New Method

We have connected a SS tank to collect the drained hot water and is reused in the recirculation line of the boiler, inturn conserving energy by wastage elimination.



Recovery System

Savings : Rs 0.61 Lakhs per annum
Investment : Rs 0.24 Lakhs
Payback : 5 months

Other projects implemented during 2007-08

- LDR for factory and street lighting
- Control circuit modification in Vacuum pumps to reduce idle running time
- Energy Conservation in Solar Pond water pumps
- Modification of the cooling fan operation in welding machines.
- Modification of Chilled Water System.
- Natural (renewable) lighting system for canteen dining hall
- Thermal insulation for Chemical Process Tanks
- Water Conservation and reduction in running time of water pumps
 - By using overhead tanks with auto level controllers
 - By using sewage treated water for gardening

Future Energy conservation Plan and Targets

Energy Conservation Measures (Planned)	Anticipated Saving Rs. Lakhs	Approx. investment (Rs.lakhs)	Project Commencement & Completion year
Reduction of Wastage heat in Rotary table Mould Control Temperature	0.7	0.5	2008 - 2009
Auto switching off of unwanted lights during night shifts after 4:00 AM	2.5	0.8	2008 - 2009
Design modification of RT Table temperature control system	5.1	1.5	2008 - 2009
Introduction of LPG Resonators to minimise the consumption of LPG	2.8	1.2	2008 - 2009
Install Energy efficient low power rating motors for EMB Polyol Metering System	1.3	0.3	2008 - 2009
Introduction of latest technology fume killers instead of scrubbers with low energy consumption	4.5	6.0	2008 - 2009
Installation of Wind Turbine Generator	121.7	695.0	2009 - 2010
Non Conventional Heating System for MTCU	1.5	2.5	2009 - 2010
Waste heat recovery in Rotary table Mould Control Temperature	0.7	0.5	2008 - 2009

Adoption of “Clean Technology “ and “Achieve Zero Accidents” is taken up as the company’s goal

Energy conservation week is celebrated every year 14th -20 th December . Poster , slogan ,quiz, competition on energy saving was conducted every year and rewarded for the best



Chief guest Er. Thiagarajan Superintending Engineer, TNEB, Dharmapuri addressing the gathering on Encon day celebration the 16th December 2005, at Harita



Chief guest Er. Udhaya Kumar , Chief Engineer , TNEB, Vellore region addressing the gathering on Encon day celebration the 16th December 2006, at Harita



Chief Guest Er. Sainathan , Chief Engineer , TNEB, Vellore region and his team appreciated the best conservation posters and slogans on Encon day celebration the 16th December 2007, at Harita

Environment & Safety

Clean and safe work environment

Harita seating systems is committed to protect the environment by Prevention of Pollution and continual improvement in our processes and systems to improve Environmental Performance. The company is ISO 14001:2004(EMS) certified by BVQI and working towards implementation of OSHAS 18001.

In house audit is carried out every year and by a continuous process of educating the employees about the importance of effective utilization and conservation of the natural resources. The teams are motivated to implement "KAIZENS & KAIKAKUS" to optimise the consumption.

Followings are few examples :

Effluent Recycling through Reverse Osmosis (RO) system

*Ground water consumption reduced by 48 %
Reduction in TDS of effluent from 850 – 50 ppm
Improved process and Product Quality
Clean & safe environment*



Pollution abating Scrubber for Welding and PU Foaming Process

- 17 Air Changeover per hour
- 3 % reduction in CO₂ in air
- Improve ambient air quality



Safety audit: Safety committee comprising of 5 executives constituted each year conducts audit under the guidance of safety officer on monthly basis. Performance of each area is monitored through safety boards displayed at genba. This committee will raise NCRs (Non conformity report) in the areas of electrical, fire, use of PPE (Personal protective equipment), equipment and material handling system.

Audit process is as indicated in the Fig 1 .President reviews the NCRs and corrective actions every month. Safety shield will be awarded to the best units based on the performance.

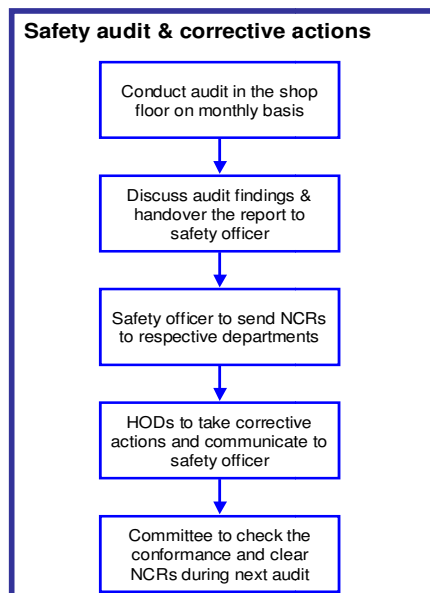


Fig 1



Fig 2