

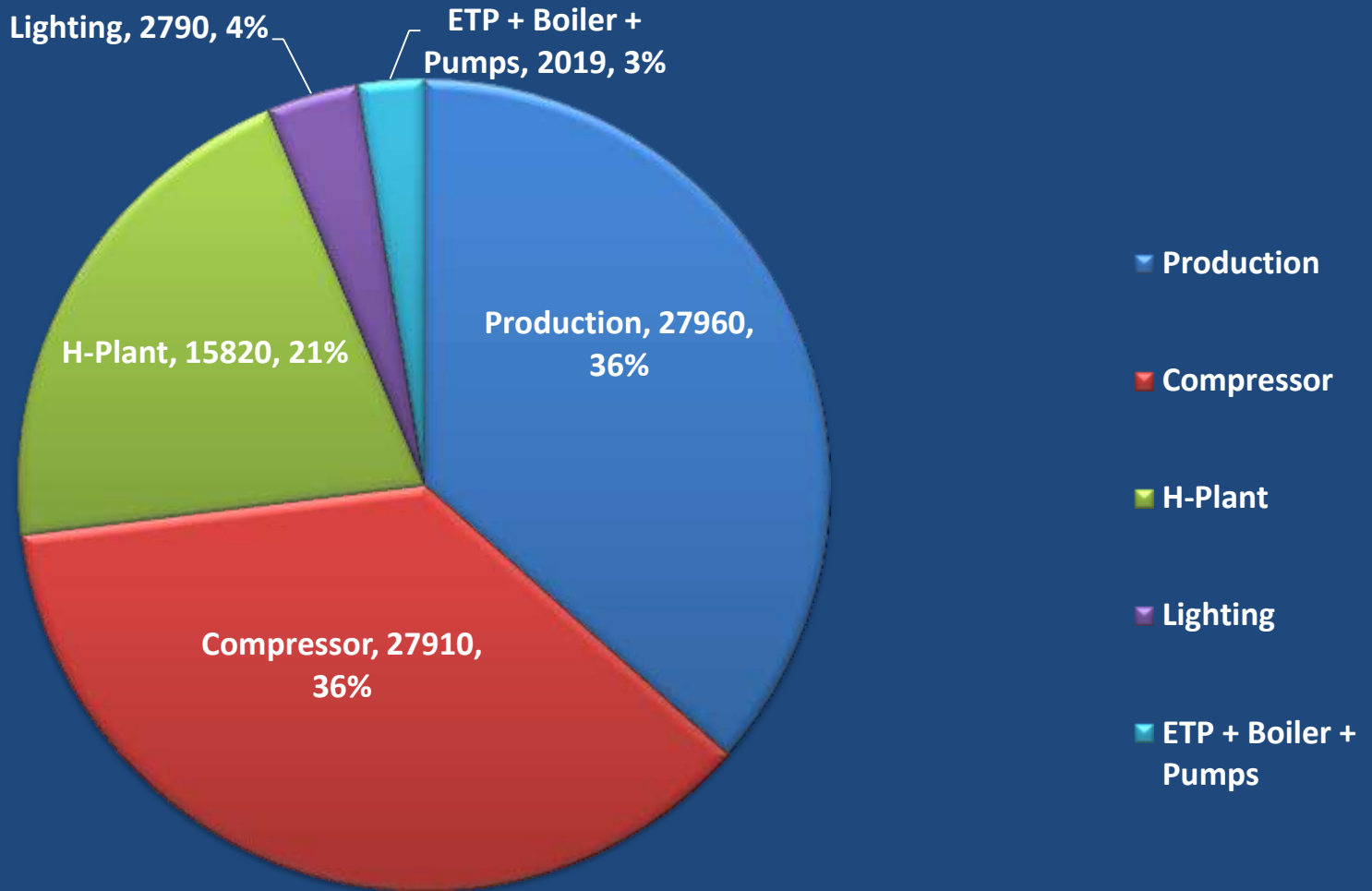


**ENERGY CONSERVATION PROJECTS
AT
MANDHANA INDUSTRIES LIMITED
(SHIRTING DIVISION)
BOISAR, MAHARASHTRA**

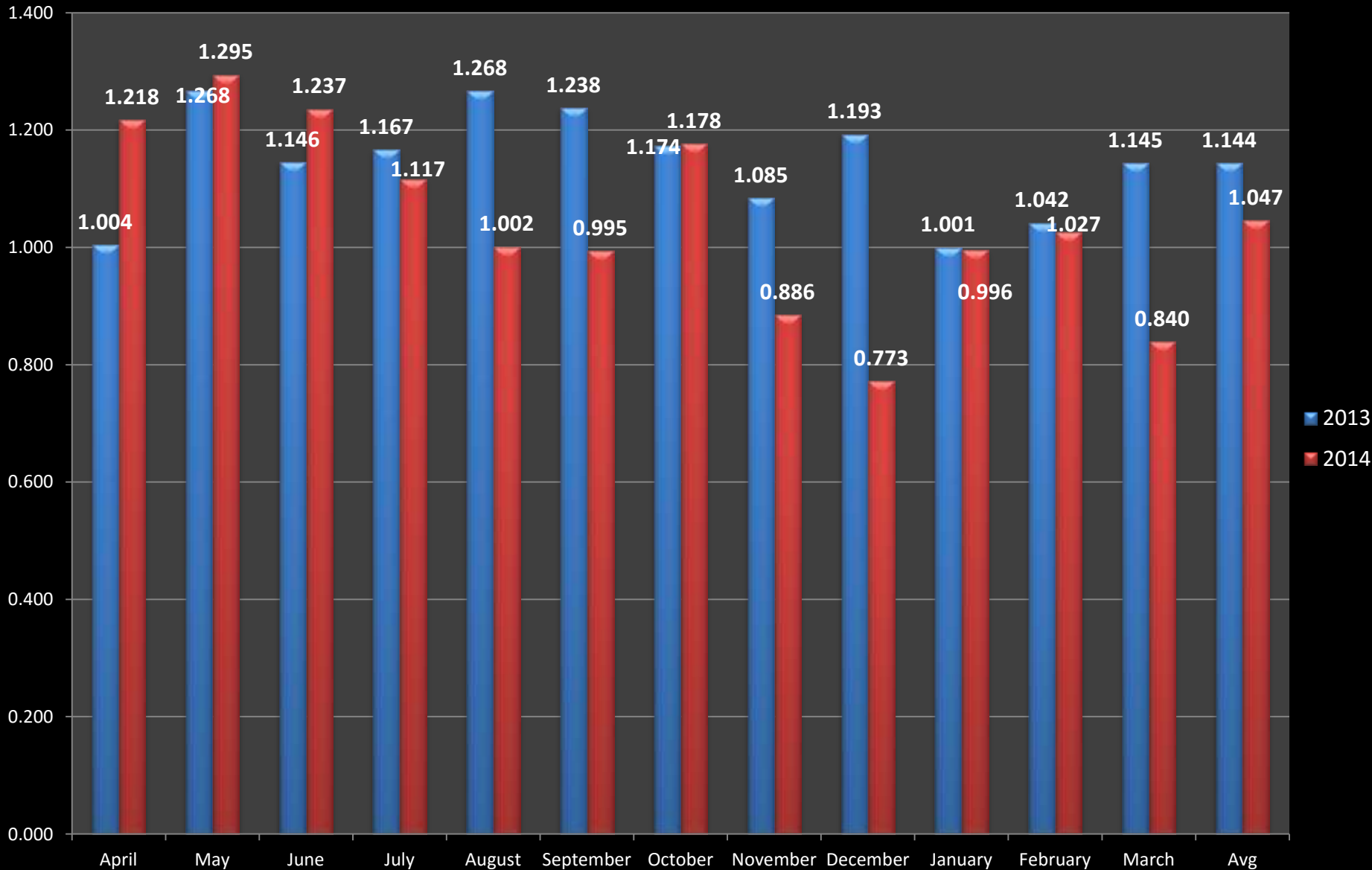
PLANT DETAILS

- Established in 2004
- Located at Tarapur MIDC Area, Boisar, Maharashtra
- Major Processes
 - Weaving
 - Yarn Dyeing
 - Warping
 - Sizing

ENERGY CONSUMPTION SCENARIO



Specific Energy Consumption (kWh/Mtr)



ENERGY SAVING PROJECTS IMPLEMENTED IN THE YEAR 2014-15

Electrical Energy Savings					
Sr.No	Project Description	Project Execution Month	Energy Savings Till April-15 (KWh)	Actual Financial Savings till April.15 (Rs.)	Investment (Rs.)
1	Reduction of cleaning air pressure by 2.2 bar by using Intelligent flow control (IFC) device	Jun-14	179520	11.5 Lac	5 Lac
2	Auto ON-OFF of Screw Compressor Cooling Tower Pump (20 HP) & Fan (1.5 HP)	Aug-14	25200	1.62 Lac	Nil
3	CFM Monitoring of Air jet Looms	Aug-14	378000	24 Lac	0.6 Lac
4	Installation of Energy Saver for lighting load.	Sep-14	25200	1.62 Lac	4.5 Lac
5	Weaving area- Replacement of 4 nos. of aluminium fan with FRP fan	Nov-14	38424	2.5 Lac	2.5 Lac
6	Monthly monitoring of air leakages and attending the same on time.	Aug-14	60480	3.9 Lac	3 Lac
Thermal Energy Savings					
Sr.No	Project Description	Project Execution Month	Coal Savings Till April .15 (Tons)	Actual Financial Savings till April.15 (Rs.)	Investment (Rs.)
1	Increasing condensate recovery and temperature	Jan-15	12	0.7 Lac	1 Lac
2	Use of carbonizer with coal which improves the combustion efficiency	Feb-15	54	3 Lac	1.7 Lac
Total Savings Achieved		Electrical (kWh)	706824	49,40,201	17.2 Lac
		Coal (Tons)	66		

PROJECT 1 :- REDUCTION OF CLEANING LINE AIR PRESSURE THROUGH IFC

- Reduction in compressor delivery pressure by 1 bar results 6 to 8 % energy savings
- Previously cleaning air pressure was set at 6.8 Bar
- Pressure reduced to 4.5 Bar by using Intelligent Flow Control (IFC)
- Reduction of pressure by 2.3 bar
- Savings achieved :- 195840 kWh
- Financial savings :- 13.2 Lac
- Investment :- 5 Lac
- Payback Period :- 5 Months



PROJECT 2 : - AUTO ON-OFF OF SCREW COMPRESSOR COOLING TOWER PUMP (20 HP) & FAN (1.5 HP)

- **Previous Condition** :- Cooling tower pump & fan was continuously running even if screw compressor in OFF condition
- **After Implementation** :- Cooling tower fan & pump runs only when screw compressor is ON
- Annual energy savings achieved :- 49410 kWh
- Financial savings :- 3.3 Lac
- Investment : - Nil
- Payback :- Immediate

PROJECT 3 :- CONTINUOUS AIR CONSUMPTION MONITORING OF AIRJET LOOMS / INTERNAL AIR LEAKGE MONITORING

- 80 % use of air in Air Jet looms
- Previously avg. air consumption was 38 CFM per loom at the speed of 750 RPM
- Internal air leakage monitoring by every 15 days
- After monthly monitoring of air consumption and minimizing air leakages , CFM consumption drops to 35 CFM per loom at the same speed
- Air savings = 477 CFM
- Annual kWh savings = 7 Lac Units
- Annual Financial savings = 47.25 Lacs
- Investment = 60000/-
- Payback = 5 Days



PROJECT 4 :- INSTALLATION OF ENERGY SAVER FOR LIGHTING LOAD

- Daily avg. energy consumption of lighting load = 1300 kWh
- Reduces the voltage level in day as well as night period
- Achieved energy savings = 160 kWh / Day
- % savings :-12 %
- Annual energy savings achieved = 57600 kWh
- Annual Financial savings = 3.8 Lac
- Investment = 4.5 Lac
- Payback = 14 Months



PROJECT 5 :- REPLACEMENT OF ALUMINUM FAN WITH FRP FAN IN HUMIDIFICATION PLANT

- Total no. of fans installed for H- plant = 29
- Till now we have replaced 4 no. of fans
- % savings achieved = 15 -20 %
- Actual annual energy savings = 1.46 Lac units
- Annual financial savings = 9.9 Lac
- Investment = 3.2 Lac
- Payback Period = 4 Months



PROJECT 6 :- USE OF CARBONIZER WITH COAL

- Carbonizer is solid powder which increases net heat transfer rate when mixed with coal
- Avg. annual coal savings = 180 tons
- Annual Financial savings = 10 Lacs
- Investment = 7.7 Lac
- Payback period = 10 month

IMPROVEMENT IN CONDENSATE RECOVERY AND TEMPERATURE

- 90 % application of steam is on Indirect Heating
- Continuously monitoring of steam traps, insulation of steam and condensate lines, steam and condensate leakages
- Insulated all the un-insulated steam and condensate lines in the plant
- ZERO steam & condensate leakage policy
- Results in more quantity of condensate recovery with high temperature
- Theoretically, 6 Deg.C rise in feed water temperature results 1 % savings in fuel consumption
- Annual coal savings = 128 ton
- Annual financial savings = 7.42 Lac
- Investment = 30000 to 40000
- Payback Period = 2 months

TRAININGS TO THE STAFF AND WORKER ON ENERGY CONSERVATION AWARENESS

- Awareness among the staff and worker is important
- Involvement all employees is necessary to achieve the goal of energy conservation
- Monthly training to staff and workers
- Suggestion from them and awards for best suggestions



ONGOING PROJECTS

Sr.No	Project Description
1	Retrofitting of 2600 no. of 36 W fluorescent tubes with 20 W LED
2	Installation of back pressure steam turbine instead of PRV
3	Replacement of 25 no. of aluminium fans with FRP fans
4	Replacement of 4 no. of old pumps with energy efficient pumps
5	Replacement of old ceiling fans with Superfans
6	Installation of motion and daylight sensors for lighting in toilets/LT rooms, etc.
7	Replacement of twin lobe blower with tri lobe blower in ETP
8	Replacement of HPSV high bay lamps with Induction lamps
9	Installation of NO AIR LOSS DRAIN VALVE for compressor and receivers
10	Automation system for boiler to improve the efficiency
11	Waste heat recovery from hot effluent

CONCLUSION

Year	Specific Electrical Energy Consumption In kWh/meter	Specific Thermal Energy Consumption In Million kCal/tonne	Specific Energy Consumption Reduction over 2013-14 (%)
2013-14	1.144	14.78	8.4
2014-15	1.047	13.18	10.8

THANKS