

TATA MOTORS Limited

Jamshedpur

Unit Profile

Tata Motors is leading automobile giant in the country having its manufacturing units located at Jamshedpur, Luknow and Pune. Today, Commercial Vehicle Business Unit (CVBU) of Tata Motors is India's largest and world's sixth largest commercial vehicle manufacturers. Tata Motors is also India's only fully integrated automobile company with product offerings spanning Medium and Heavy Commercial Vehicles, Light Commercial Vehicles, Multi-Utility Vehicles and Passenger Cars. Tata Motors which enjoys nearly 59% overall market share in commercial vehicle sector had a turnover of Rs. 15552 crores during 2003-04. As an important part of Commercial Vehicle Business Unit of Tata Motors, the plant at Jamshedpur which is the mother unit, manufactures Medium and Heavy Commercial Vehicles from 8 to 40 ton gross vehicle weight. Having an installed capacity of 60,000 vehicles, the unit produced 66765 vehicles during the year 2003-04 in keeping with the current buoyant demand in commercial vehicle industry. Having been certified to ISO/TS 16949 and integrating its interventions of Six-sigma, Kaizen, TPM and WCM the unit is set to become a global player to reckon with.

The Automobile unit at Jamshedpur has captive Forge and Foundry divisions which meet its requirement of all critical steel forgings and alloy iron castings. In order to achieve greater efficiencies and world class technological edge in its aggregate production, the manufacture of Axles and Gear Boxes is carried out by the subsidiaries HV Axles Ltd and HV Transmissions Ltd.

The unit has a decent township for its employees and supports community services as a part of its social responsibility towards its employees and local community.

Energy Consumption

With the systematic implementation of Energy Conservation measures, the Specific Energy Consumption of all areas - Auto, Forge and Foundry divisions has been steadily declining. Also Energy Cost as % of Manufacturing Cost has come down. This resulted in saving of Rs 10.7 crores in energy during 2003-04. Last three years' specific energy consumption figures are as shown below:

PRODUCT	DESCRIPTION	UNIT	2001-02	2002-03	2003-04
Automobile chassis	Electrical energy	KWH / Eq. Vehicle	596	493	374
	Thermal energy	MkCal / Eq. Vehicle	0.411	0.337	0.258
Forge Tonnage	Electrical energy	KWH / MT	655	626	576
	Thermal energy	MkCal / MT	3.52	3.21	2.84
Casting Tonnage	Electrical energy	KWH / MT	2108	1926	1790
	Thermal energy	MkCal / MT	0.393	0.323	0.302
Manufacturing Cost		Rs. Lakhs.	182583	237179	304141
Total Energy Cost		Rs. Lakhs.	7641	8083	8373
Energy cost as % of Manufacturing Cost		%	4.19%	3.41%	2.75%

A graphical representation of the specific consumption is also attached.

Energy Conservation Commitment, Policy and Set up

Energy Conservation is a Top Management priority for the unit and an Energy Policy is in place. An Engineering Audit group co-ordinate the energy conservation activities in the plant.

Awareness & involvement of people at all levels has been a major plank for implementation of energy conservation measures. **Energy auditing** is a function of the Engineering Audit group. Every year **Targets** are set for the various divisions & **Energy Conservation Action Plans** are worked out. The Specific Energy Consumption & status of action plans is reviewed weekly with divisional coordinators using a *common matrix* which is shared across all divisions and areas to facilitate *cross-pollination of ideas*. Ideas implemented by groups are encouraged by publication in in-house magazine 'Flashes'. The Team set-up and a sample leaves from in-house magazine are also attached.

Specific consumption of each area is monitored by Engineering Audit on daily basis & is shared with each Divisional Head / divisional Coordinator as well as the Top management.

ENERGY POLICY

We, at Tata Motors are committed to optimum use of all forms of energy by:

- Using energy efficient alternatives, methods, work practices and eco-friendly technologies.
- Minimizing and eliminating wastages in all segments of our operations.
- Creating awareness on energy conservation amongst employees at all levels and using effective Energy Management system for reducing energy consumption and its cost.
- Using renewable energy sources where feasible.

Sep 20, 2004

A P Arya
Sr Vice President
Jsr & Lkw Works

Energy Conservation Projects

Variable Frequency Drive at Pre-wash pumps

A 100 HP VFD installed for dual speed operation at 25Hz and 45Hz resulting in energy consumption.

Before Installation:

Energy Cons 319 kWh / Shift

After Installation:

Energy Cons 159 kWh / Shift

Savings Achieved : Rs 3.64 Lakhs per annum

Investment : Rs 2.80 Lakhs

Payback : 9 Months



ControlAir system for Compressed Air in Inner Complex

A demand side pressure management system for Compressed Air in Inner Complex area has resulted in reduced pressure requirement by 4-8 psi in different user areas.

Energy consumption reduced by 3350 kWh/Day

Energy saving: 10.05 lakh kWh / Year

Annual saving: Rs 38.69 Lakhs

Investment : Rs 38 Lakhs

Payback period: 12 months



Rad Heat Tube Gas Heating Oven in place of Electrical

A Rad Heat Tube Gas heating element in place of earlier 90 kW electrical heating in one Oven for coating sand in Shell Core shop.

Earlier energy consumption: 1112 kWh/Day

Now, LPG consumption: 88 kg/Day

Annual savings in Energy cost: Rs 6.16 Lakhs

Investment: Rs 5.88

Payback period: 11 months



Use of Celdek Pad in Air Replacement Plant in Paint shop

Celdek Pad in place of high pressure water spray jet system has been installed in 2 of the ARPs thereby reducing the size of pump from 11 kW to 1.5 kW and saving electrical energy.

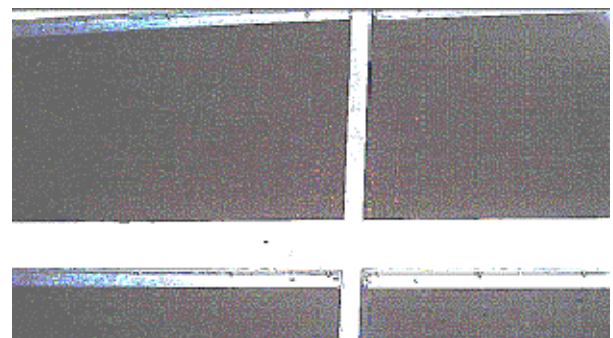
Earlier consumption: $2 \times 11 \times 0.88 \times 16 = 282$ kWh per day

After change consumption: 39 kWh / Day

Annual Energy saving : 1.46 Lakh kWh

Annual saving : Rs 5.62 lakh

Investment: Rs 8 Lakhs; Payback: 17 months



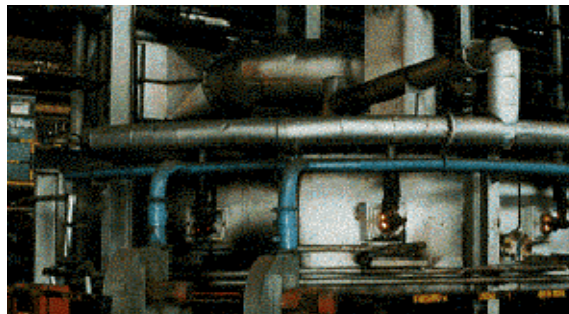
Modification of Rotary Hearth Furnace

Rotary Hearth furnace in N-Line was modified to prevent leakages and ensuring proper water sealing and reducing fuel oil consumption.

Fuel oil consumption : 20 litres/Hr reduction

Saving ; 24 KL per Year

Annual Energy Cost saving : Rs 3.89 Lakhs



Installation of Energy Efficient Screw Compressors

Two nos of 1000 cfm Compressors and two nos of 160 cfm Compressors were installed for capacity matching with demand during peak and lean periods and also to reduce running of old inefficient compressors thereby reducing daily energy consumption by 3000 kWh.

Energy Saving : 9.00 Lakh kWh / Year

Energy Cost saving: Rs 3.85 x 9,00,000 kWh/Yr
= Rs 34.65 Lakhs

Investment : Rs 28.12 Lakhs

Payback period: 10 months



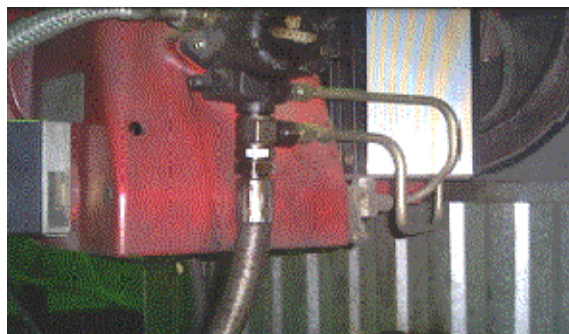
Installation of Energy Efficient Wieshaupt Burners

Use of fuel efficient Weishaupt burners has been made in two places in Centralised paint shop resulting in saving of 34 KL of LDO per year.

Energy cost saving : Rs 6.4 Lakhs per year

Investment : Rs 10 Lakhs

Payback Period: 1 Yr and 7 months



Besides the above other projects implemented during 2003-04 are:

- * Change-over to lower wattage energy efficient lamps for lighting in the plant & improved luminaries and circuit & control.
- * Reduced idle running of motors of drives using timers, interlocking , temperature controller.
- * Use of VFD's at 5 locations for flow control of pumps and blowers and saving energy.
- * Improved work practices and organization of office space resulting in reduced shift running of production lines, certain equipment and A/Cs .
- * Down-sizing of under loaded motors at 5 locations in Forge division.
- * Replaced metallic blade Fans by energy efficient FRP blades for Man-coolers & one cooling Tower
- * Reduced thermal losses in Furnaces and Ovens by improved insulation.
- * Further 140 more translucent roof sheets were installed in different areas to harness natural day light in place of using high-bay lamps during day time.
- * Technical improvements in process in various areas for reducing energy consumption.

Energy Conservation Plans & Targets

Jamshedpur unit of Tata Motors is committed to further improve its energy performance by exploring new avenues for energy saving on a continuous basis. Some of the major proposals as a part of future plan for achieving targets in energy conservation are:

- (1) Installing and commissioning Medium Frequency Induction furnace in Foundry for saving in energy.
- (2) Installing VFD's in Engine Cooling Tower , Town Filter Plant and other identified areas to save power.
- (3) Continuing with phased installation of Translucent roof sheets for day lighting in identified areas.
- (4) Use of RadHeat LPG heating in place of electric heating in all ovens Shell Core Sand in Foundry.
- (5) Installing Celdek pad in place of water spray in remaining Air Replacement plants in CPS
- (6) Continuing with phased Conversion of existing metallic blade to FRP blade for man-coolers .
- (7) Demand side management of Compressed air through use of Controllers for various pressure requirements in remaining areas.
- (8) Installing smaller size Energy efficient screw compressors for ensuring better capacity matching during different times of the day.
- (10) Installing more energy efficient Weishaupt burners in Ovens in CPS.
- (11) Converting 2000 lb electrical heat treatment furnaces into thermal heating.
- (12) Trying alternative fuels for reducing energy cost and improving environment.

Environment & Safety

Jamshedpur unit of Tata Motors places a high importance on preserving Environment, employee health and safety. The Company's contribution as a social responsible Corporate was rewarded with the second place at the TERI 's (The Energy and Resources Institute) CoRE-BCSD (Corporate Roundtable on development of strategies for sustainable development and Environment – Business Council for Sustainable Development) Corporate Social Responsibility awards for 2001-02. Also Tata Motors received 'India's Best Employer' 2003 award from Employee Provident Fund Organization under 'Best complying oldest establishment' category.

Tata Motors (formerly Tata Engineering) has been awarded the 'Golden Peacock Environment Award 2003' in the category of 'Large Manufacturing' by World Environment Foundation – New Delhi at the 5th World Congress on Environment Management held at Palampur on 14th June, 2003.

In line with the Environment Policy of the Company the Jamshedpur unit has a full-fledged department to monitor and coordinate the safety and environment aspects of the Plant and the Township. The unit is well set for acquiring ISO 14001 certification.

A major Centralized Effluent Treatment Plant has been set up and replaced the existing ETP. A sewage disposal set-up at a cost of Rs 4 crores for the extended part of River View town-ship for improved treatment and disposal of sewage water is complete.

Centralised Paint Shop has been converted from AED to CED in June, 2003 reducing the effluents substantially.



Environmental Policy

Tata Motors reaffirms its commitment to minimise the adverse impact of its products, operations and services on the environment.

Towards this end, it shall strive to :

- Establish sound environmental objectives and targets and a process of reviewing them.
- Comply with all applicable legal/regulatory and other environmental requirements.
- Reduce the emission levels of vehicles in full compliance of the regulatory norms and proactively work with the Industry, Government, other related industries and agencies to bring in international best practices.
- Use of environmentally sustainable technologies and practices for prevention of pollution and the continual improvement in environmental performance.
- Conserve natural resources and energy by minimising their consumption and wastage.
- Minimise waste generation, enhance recovery and recycling of material and develop Eco-friendly waste disposal practices.
- Building awareness of our work force, customers and vendors on environment issues.

This policy has been communicated to all our employees and shall be made available to the public/stakeholders on request.

Ratan N. Tata
Chairman

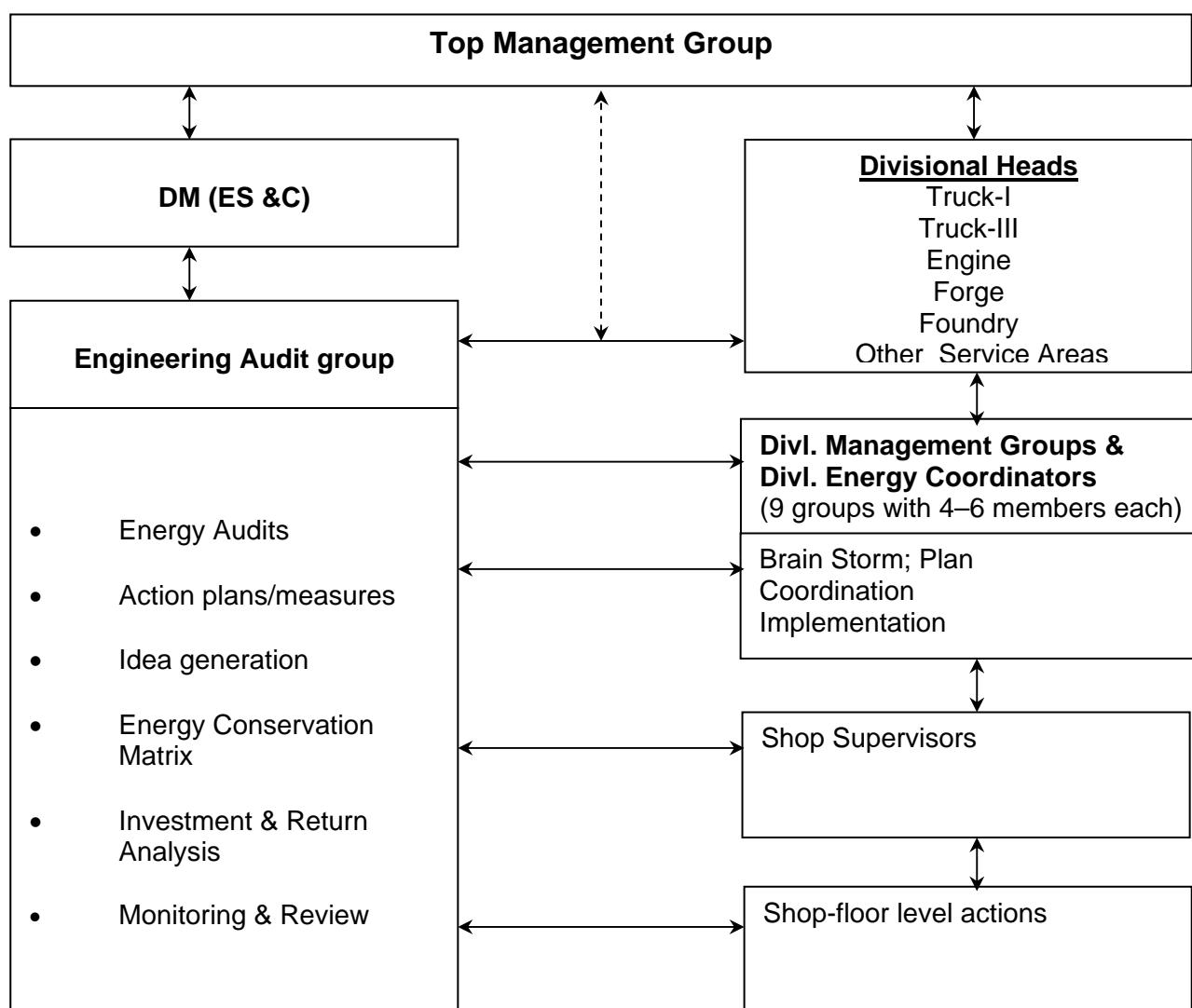
July 29, 2003.

policy

environmental



ENERGY CONSERVATION TEAM SETUP



Extent of involvement of supervisory and managerial population is over 90 %

Activity	Workmen	Supervisors	Middle Management	Top Management
* Identify energy conservation projects			✓	✓
* Plan action for implementation of the energy conservation project.		✓	✓	
* Projection of savings and investment required and the payback period, for approval of the procurement, if needed.			✓	✓
* Follow up for implementation of project at different levels .		✓	✓	✓
* Procure necessary devices as per procurement process			✓	
* Implement the energy conservation project .	✓	✓	✓	
* Assess & evaluate and monitor savings from the implemented project.		✓	✓	✓
* Give suggestions for energy savings through the Central Suggestion Scheme/SGA/Value Engineering Kaizen and other initiatives in the Company .	✓	✓	✓	

TATA MOTORS JAMSHEDPUR

Steadily declining Specific Energy Consumption

