



Mahindra & Mahindra Ltd. (Automotive Division) Nashik

Unit Profile

1.1 About M & M

Mahindra & Mahindra, automotive division is in the business of manufacturing Utility vehicles, SUV's and LCV's. Manufacturing plants are located at Mumbai, Nashik and Igatpuri in Maharashtra, Haridwar in Uttarakhand & Zaheerabad in Andhra Pradesh.

M&M is leader in U V segment and has Indian market share of over 50 percent. The company's automotive division also exports its products to several countries in Africa, Asia, European and Latin American countries.

1.2 About M & M Nashik Unit

Nashik unit manufactures Scorpio, Bolero, Logan (in JV with RENAULT FRANCE launched in May -07) and spares for these vehicles.

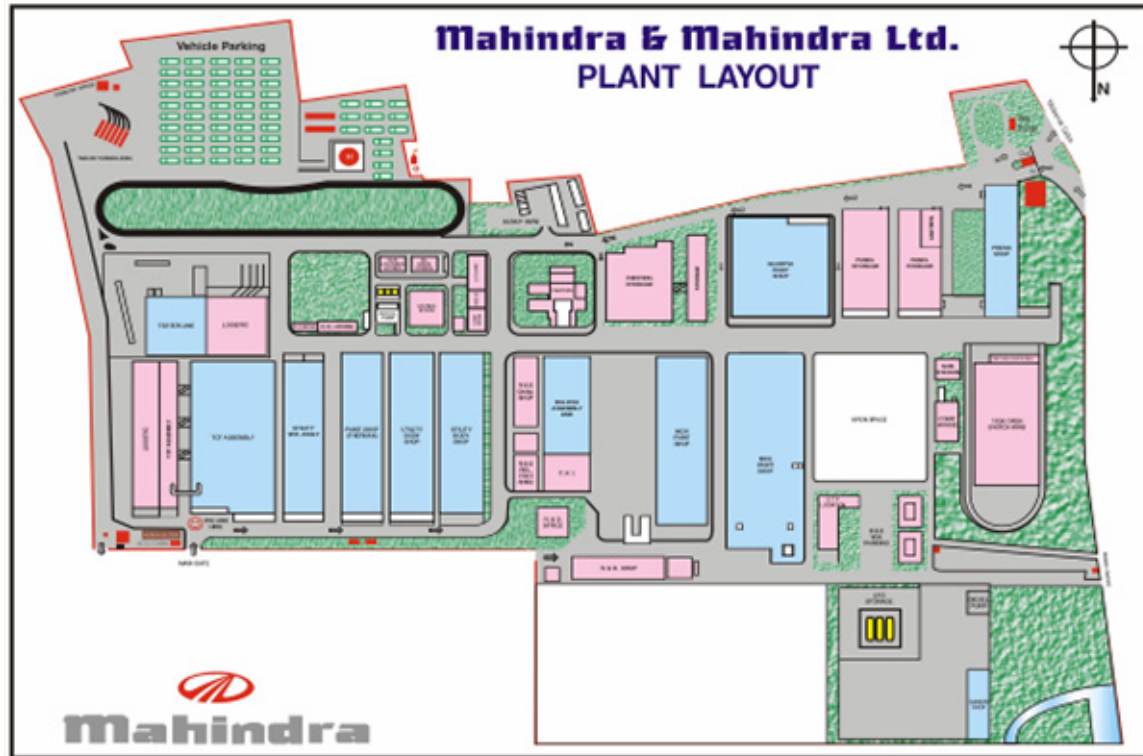
M&M's R&D centre, where new product design activities carried out, is also located at Nashik. The total sales turnover of the Nashik unit is around Rs. 2655 Crores.

M&M Nashik plant received Quality system certificate ISO TS 16949 in the year 2003 & EMS certification ISO 14001 in the year 2004. Plant has also received OHSAS's Safety certificate ISO 18001:1999 in Feb -07.

Scorpio is declared "Car of the year" by CNBC Auto Car, BBC wheels and business standard motoring in the year 2003.

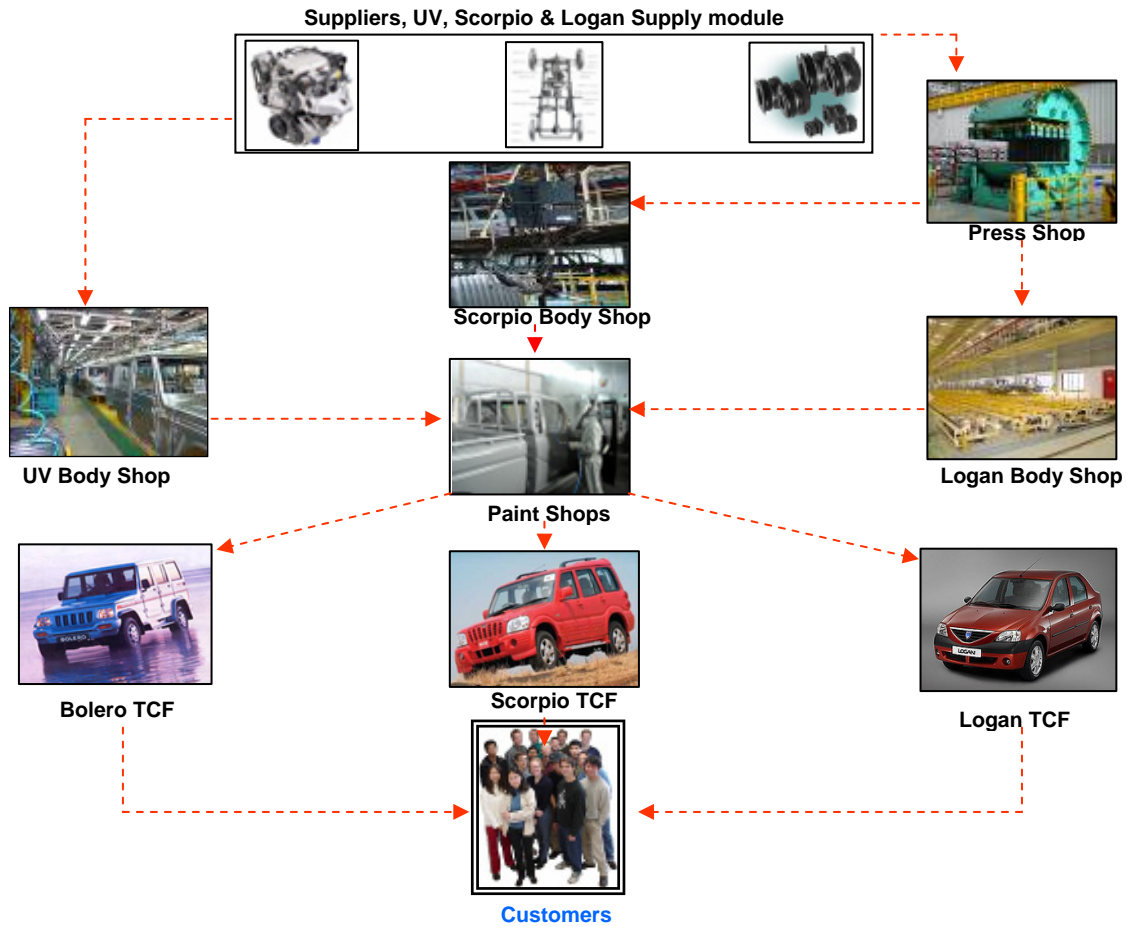
2.0 Plant Layout & Process Flow

M & M Nashik unit is scattered over 2 sq km area.








Following is the process flow diagram



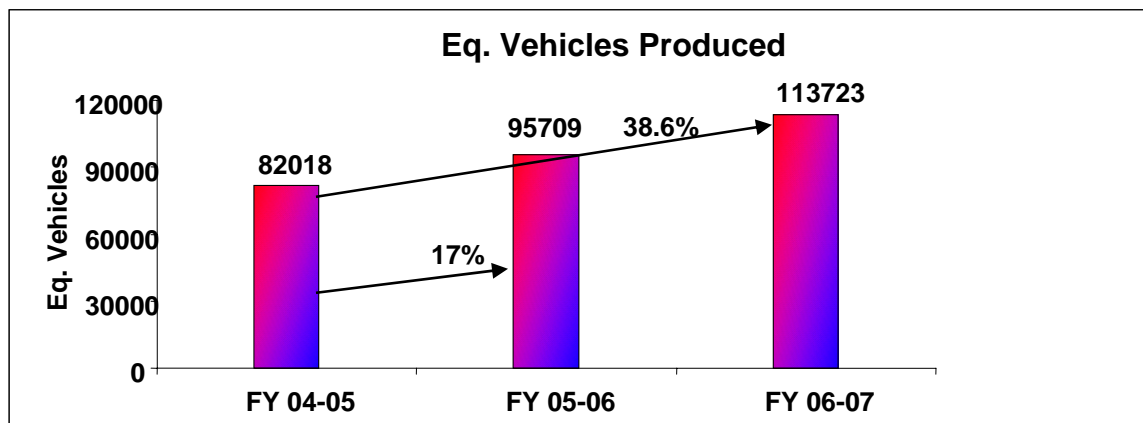
3.0 Production, Energy Consumption & Specific Energy Consumption (SEC)

Description	Unit	FY 04-05	FY 05-06	FY 06-07
Electrical Energy	kWh/Eq. Vehicle	387	346	316
Thermal Energy	M KCal/Eq. Vehicle	0.44	0.35	0.32
Total Energy Bill	Rs. Lakhs	1921	2061	2566
Energy as % of Total cost of Manufacturing	%	9.18%	9.74%	9.5%

3.1 Production

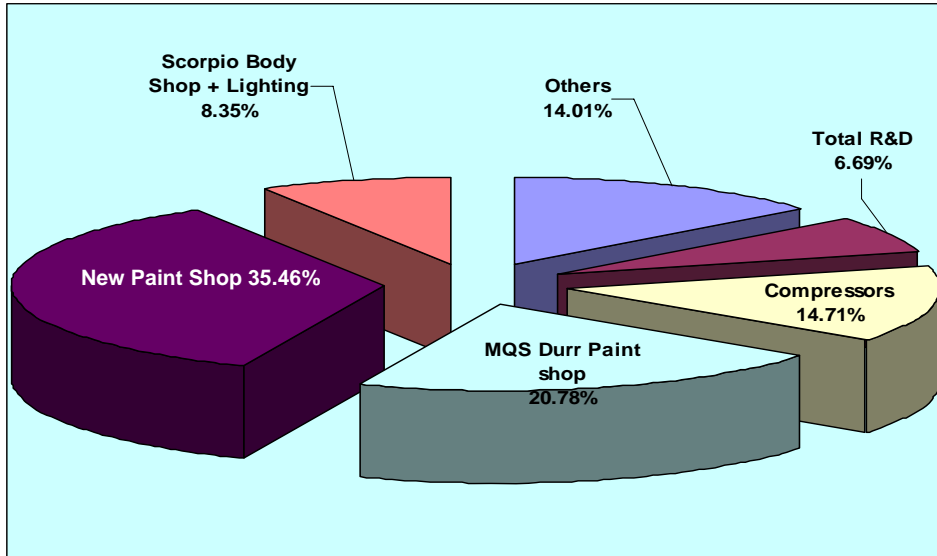
Product	Parameter	FY 04-05	FY 05-06	FY 06-07
Scorpio 	Plant Capacity (Nos.)	31660	43318	65477
	Eq. Vehicles Produced (Nos.)	34066	42712	60192
	Capacity Utilisation (%)	107%	99%	92%
Bolero 	Plant Capacity (Nos.)	38427	51321	51910
	Eq. Vehicles Produced (Nos.)	47952	52830	53531
	Capacity Utilisation (%)	125%	103%	103%
Logan 	Plant Capacity (Nos.)	N.A.	N.A.	1976
	Eq. Vehicles Produced (Nos.)	N.A.	N.A.	0
	Capacity Utilisation (%)	N.A.	N.A.	N.A.

Based on market requirement, overall production of equivalent vehicles have increased over FY 04-05



3.2 Energy Consumption

Following are major energy consumption areas/ sections of the plant:



Annual electricity and LPG consumption for last three year is as follows

Year (FY)	Annual Energy Consumption			
	Electrical*		Thermal (LPG)	
	Lakhs kWh	Rs Lakhs	Tons	Rs Lakhs
FY 04-05	352.9	1165.2	3133.88	755.8
FY 05-06	364.1	1359.7	2805.10	701.2
FY 06-07	414.6	1636.6	3112.54	929.4

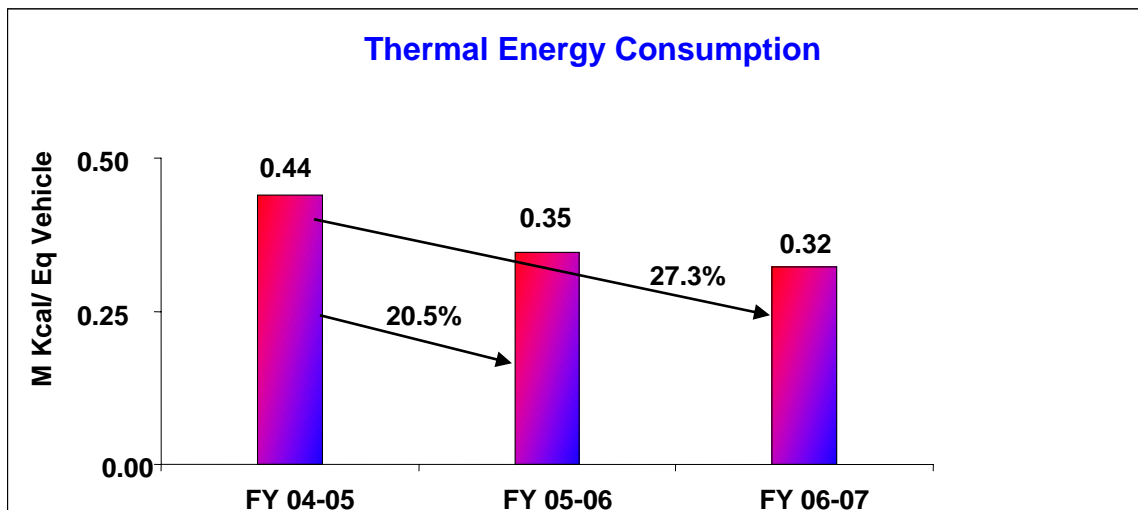
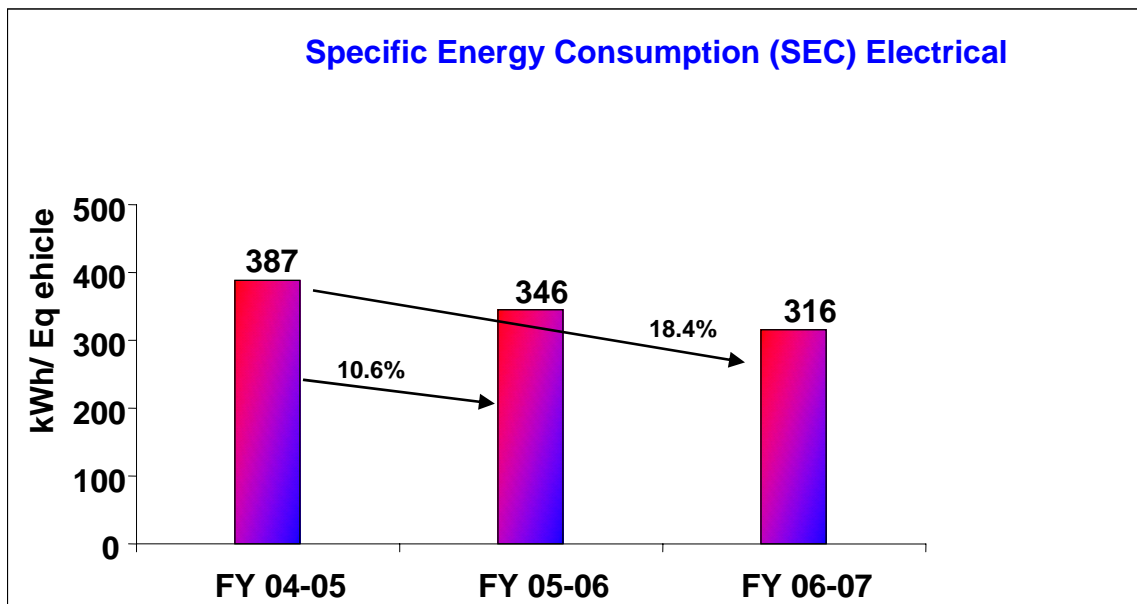
* Including DG Generation

Around 25% of the electricity consumption of the FY 06 - 07 is met by clean energy i.e. wind energy. Following table indicates % of year wise electricity substitution by wind energy and subsequent monetary savings due to tariff difference:



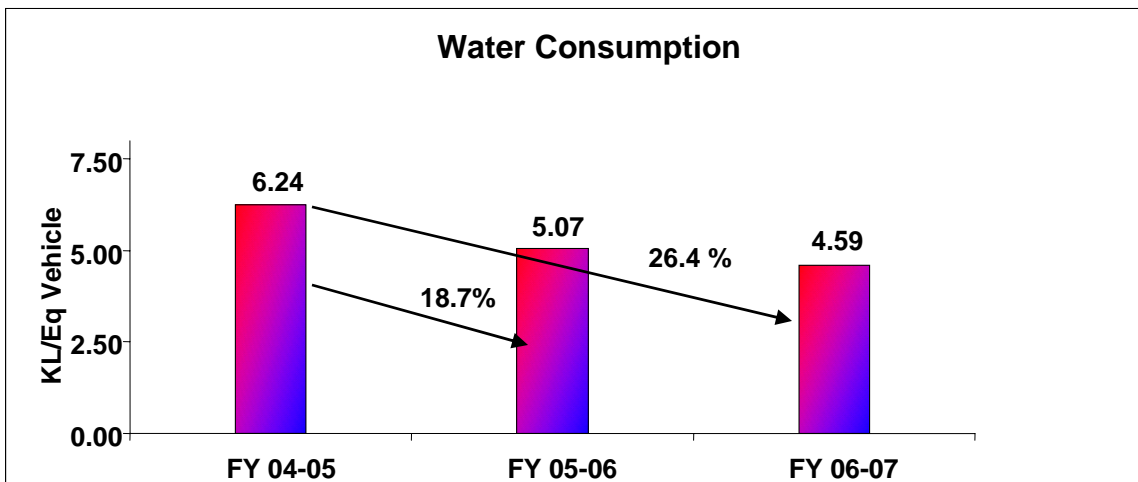
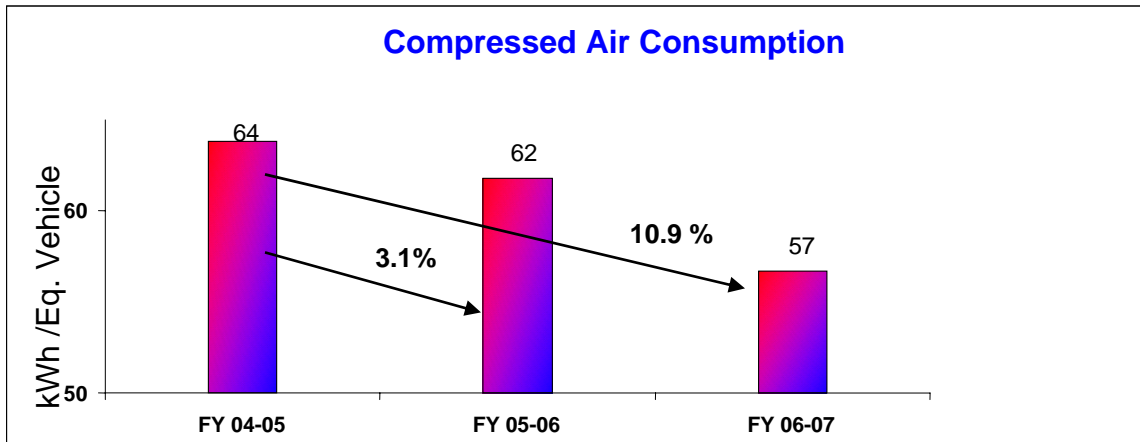
Year	Wind Energy Consumed (Lakhs kWh)	Annual Savings (Rs. Lakhs)	% of Total Electricity
FY 04-05	119.8	124.8	33.9%
FY 05-06	103.5	122.0	28.4%
FY 06-07	104.5	169.1	25.1%

3.3 Specific Energy Consumption (SEC)





There is a reduction in specific energy consumption (kWh / Eq. Vehicle & M Kcal/ Eq. Vehicle) due to implementation of various energy conservation measures and improved productivity. Details of the energy conservation measures are listed in subsequent paragraphs.



There is drastic reduction in the specific water consumption due to water conservation measures implemented and use of recycled ETP water for gardening and toilet use.



4.0 Energy Conservation Policy & Organizational Set up

Mahindra & Mahindra Ltd, Automotive Sector, Nashik emphasises on all types of energy (Electrical, Thermal and Compressed air.) conservation. Energy conservation measures are identified, reviewed periodically for techno-commercial viability in ECON Cell, implementation & verification strategies are made.

ECON meeting is held on every alternate Tuesday of the month to review the action plan.



Mahindra

4.1 Energy Management Policy



Mahindra

89, MIDC, Satpur, Nasik- 422 007
Tel : (0253) 6608041/53

Mahindra & Mahindra Ltd.

Fax: (0253) 2352272

ENERGY MANAGEMENT POLICY

Mahindra & Mahindra Ltd, Automotive Sector are in the business of Designing & Manufacturing Multi Utility Vehicles with customer satisfaction through the process of continuous improvements in all areas of operations.

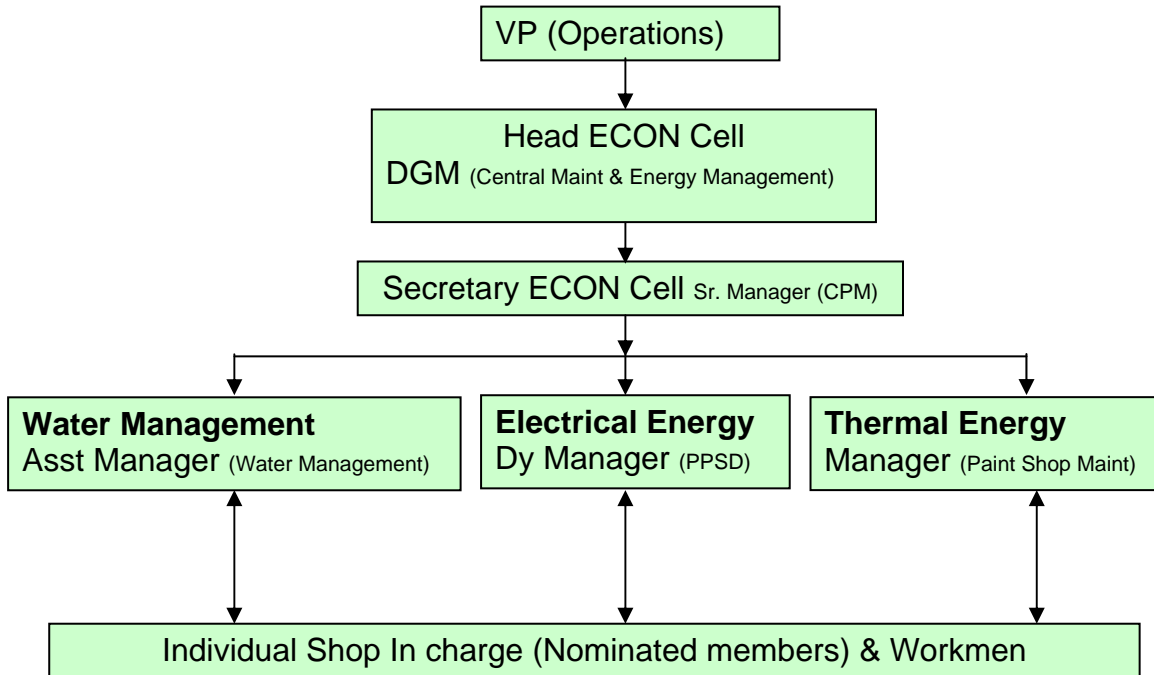
We are committed to :

- Bench mark specific energy consumption with National & International standards, and setting up systems to achieve them.
- Increase use of non-conventional sources of energy & alternate fuel sources.
- Incorporate energy efficient designs & equipments in all projects.
- Conduct regular Energy Audits to reduce energy wastage in all areas.
- Formation of small group activities to increase employee involvement.
- Promote awareness among all employees through leaflets, seminars, competitions and company visits.
- Recognise energy conservation initiatives taken by employees and award them.
- Promote awareness among students, nearby areas through leaflets, seminars.
- To work with vendors and contractors in adopting energy conservation practices at their end.
- Reduce waste generation and promote disposal, reuse and recycling in an Environment friendly manner.
- Make an effort to reduce the cost continuously every year by adopting effective "Energy Management System".

Rajan Wadhera
Vice President –Order Management.
Automotive Sector



4.2 Organizational Setup for Energy Management



5.0 Energy Conservation Achievement

Following table provides the summary of savings achieved by implementation of Energy Conservation Measures over last three financial years:

Year	Achievement of energy savings per year basis				Investment on projects (Rs. lakhs)
	Electricity	Fuels		Total savings (Rs. lakhs)	
	(Lakhs kWh)	LPG (Ton)	HSD (KL)		
FY 04-05	15.39	-	-	50.78	9.32
FY 05-06	14.28	41.3	-	54.37	39.84
FY 06-07	39.34	250.68	*25.6	244.12	525.15

* stopping of DG sets



Over all impact of energy conservation measures implemented and productivity improvement initiatives over last three years as compared to FY 04- 05 is as follows:

Year	Specific energy consumption		% Reduction over FY 04-05	
	Electrical	Thermal	% Electrical	% Thermal
	kWh/Eq. Vehicle	M Kcal/Eq. Vehicle		
FY 04-05	387	0.44	---	---
FY 05-06	346	0.35	10.68%	20.35%
FY 06-07	316	0.32	18.43%	27.18%

5.2 Energy Conservation Plans and Targets

Following the details of target for the reduction is electrical & thermal energy and water consumptions for FY 07 -08:

Description	Unit	FY 07-08
Electrical Energy	KWh / Eq. Vehicle	309
Thermal Energy (LPG)	M KCal / Eq. Vehicle	0.31
Compressed air	kWh / Eq Vehicle	55.3
Water consumption	KL / Eq Vehicle	4.45

To achieve the above target & to boost the drive to identify further energy conservation measures & to reduce specific energy consumption plant management has also taken expert consultancy from Petroleum Conservation Research Association, a premier energy conservation organization of the country. Also consultancy from Blue Star for air conditioners, Ingersoll Rand for compressed air systems has been taken to identify energy conservation potential in respective area. Details of energy conservation measures planned to



implement in FY 07-08 are given in Annexure. Some of them are already implemented as half of the current financial year is over.

Year	Proposed energy savings				Investment on projects (Rs. lakhs)
	Electricity	Fuels		Total savings	
	(Lakhs kWh)	LPG (Ton)	HSD (KL)	(Rs. lakhs)	
FY 07-08	20.51	-	*6.06	84.18	81.81

* Reduction in fork lift movement

6.0 Commitment to Environment, Safety & Social Responsibility

6.1 ENVIRONMENT

Mahindra & Mahindra Ltd. is committed to “Protect the Environment, Prevention & Control of Pollution, Minimise the Waste Generation, Promote Energy Saving and Conservation of Resources”. An “Environmental Policy” duly signed and documented is provided expressing our commitment towards the EMS.

Plant Head along with Union President Planting the tree on Borgargh Hill Forest





Tree Plantation along with school children





MAHINDRA & MAHINDRA LTD
Automotive Sector,
Plot 80, 89. M.I.D.C. Satpur, Nashik 422007.
Tel. (0253) 6608202, Fax: 0253-2352272



08.02.2007

Environmental, Occupational Health and Safety (EHS) Policy

We, at Mahindra & Mahindra Ltd. Automotive Sector, Plant 1, R&D Centre and Die Shop- Plant 2, Nashik, are in the business of design, development and manufacturing of automotive products, related tooling, equipment and rendering associated services.

In line with our corporate vision and core value of "Good Corporate Citizenship", we are committed to demonstrate excellence in our Environmental, Occupational Health and Safety (EHS) performance in an ongoing manner.

To achieve this, we shall:

1. Integrate EHS considerations at planning and operational stages of our activities, products and services.
2. Undertake **elimination, minimisation** of environmental aspects and OHS hazards, **at the first place** or their **control** following the principles of best operational practices.
3. Comply with applicable occupational Health, Safety and Environmental legal requirements and other requirements as subscribed by the organisation.
4. Institutionalise pollution prevention, waste avoidance and minimisation and safe work practices.
5. Optimise consumption of resources and energy conservation.
6. Strengthen EHS awareness, skills and competence of the employees and business associates to enable them ensure good EHS management through on-going training and pro-active communication.
7. Provide high degree of safety promotion and encourage safe behaviour and provide prompt proactive feedback for unsafe behaviour.
8. Establish EHS management systems and undertake structured reviews to steer our ongoing performance.

We shall communicate this policy to all persons working for and on behalf of the organisation and also make it available to public.

-sd.

Dr. Pawan Goenka,
President, Automotive Sector

Note: The Operational Heads at Plant 1, R&D and Plant 2 shall own the responsibility for its effective implementation in their respective areas.

Regd Office: Gateway Building, Appollo Bunder, Mumbai 400001, India. Tel: 022-22021031



The company has successfully obtained the Environment Management Certificate of ISO 14001 in the month of June 2004 from M/S. RWTuV of India. Efforts are being made for the achievement of the goals of Legal Compliance, Proper Waste disposal, Promote recycling and reuse of waste / Materials, etc. during the implementation and after the certification of the Environment Management System.

Following are some of the initiatives taken by the management towards Environment protection

1. Installed Effluent Treatment Plant and the treated effluent is being used for Gardening spread over the area of about 1.00 Lac M².
2. Installed Bio-Gas plant for processing Canteen solid Waste to generate a cooking gas for its use at canteen
3. Installed Solar Water Heating Systems for canteen hot water requirement.
4. Around 25% of the electricity requirement for the FY 06- 07 is met by clean energy i.e. wind power.
5. An Oil Separation unit is installed to prevent the Water Pollution before its disposal through ETP / STP.
6. Implemented the projects of providing a Sewage Treatment Plant
7. Acoustic Insulation for the Generator House, Vehicle Testing, Engine Testing to prevent the noise pollution. Noise level is 64 dB in the day time and 58 dB in the night time on average.
8. Around 5000 Trees planted in various schools & other institutions in the Nashik apart from 18% green area coverage in our own premises in FY 06-07. As of now 25% area is under green coverage and expecting to have 33% area under green coverage by FY 07-08.



9. For FY 07-08 massive plantations of 1 Lakh trees in the Nashik has been planned in association with Forest deptt. & Air Force.



10. In all the new constructions Pre mixed PPC cements & pre coated clip on sheets are used which is made of fly ash from the power plants.
11. Inventory of GHG Emissions initiated.
12. We are giving Education regarding Science & Maths through practical such as toy making(e.g. Balloon Motor)in various schools of Nashik.
13. Health campaign for AIDS awareness are also under way .



6.2 Safety

Industrial Safety is an integral and essential part of every operation / process in Mahindra & Mahindra at Nashik. We are certified for OHSMS as per OHSAS 18001:1999 since February 2007.

Following practices are used to motivate Safety in plant:

1. Behaviour based safety (BBS) for people's involvement has been started.
2. Staff / workers involvement in safety committee. Regular meetings are conducted to review the Safety concerns and accident reduction.
3. Product Unit head is involved during the Safety Patrol rounds. Line managers and operators motivate reduction in accidents.
4. Yearly Safety and HAZOP studies are conducted. The report is reviewed to take corrective action for the observations in report.
5. Weekly SHE sub-committee is meeting to discuss and implement the safety procedures and find solutions on short falls to adopt safe practices. SHE sub committee operates on the guide lines of TPM (Total Productive Maintenance)
6. In plant vehicle drivers are trained frequently on safety & instruction guide are provided.
7. Patrol rounds are conducted for identifying and correcting unsafe conditions and behaviours also onsite emergency mock drills are conducted.

6.3 Corporate Social Responsibility

1. "Srushti" an annual EHS Publication started and is distributed to all employees, their families and local stakeholders



2. Energy Conservation awareness program for employees on 2nd Oct-06



3. Energy Conservation awareness program for school children

- Vidya Prabodhini Prashala
- Ravindra Vidyalaya



4. Energy conservation awareness program is conducted frequently for around 6000 employees to motivate them for energy conservation. Motivated workforce will inculcate the energy Conservation practices at their workplace as well as at their houses.

5 kWh/ month reduction of each employee's domestic consumption will lead to Rs. 14.5 Lakhs annual savings.





5. Energy Conservation week in the plant 14th to 20th Dec -2006



6. Keeping M & M commitment towards global warming and environment protection we have launched “Bio-Diesel Scorpio (B-100)” & three wheeler “BIJALEE”.

