

TATA MOTORS LIMITED
Dharwad (Karnataka)

Unit Profile

Tata Motors Limited is India’s largest automobile company, with consolidated revenues of INR 2,75,561 crores (USD 41.6 billion) in 2015-16. Through subsidiaries and associate companies, Tata Motors has operations in the UK, South Korea, Thailand, South Africa and Indonesia. Among them is Jaguar Land Rover, the business comprising the two iconic British brands. It also has an industrial joint venture with Fiat in India. It is the leader in commercial vehicles in each segment, and among the top in passenger vehicles with winning products in the compact, midsize car and utility vehicle segments. It is also the world’s fifth largest truck manufacturer and fourth largest bus manufacturer.

The Tata Motors Group’s over 76,589 employees are guided by the mission “we innovate mobility solutions with passion to enhance quality of life.”

Established in 1945, Tata Motors’ presence cuts across the length and breadth of India. Over 9 million Tata vehicles ply on Indian roads, since the first rolled out in 1954. The company’s manufacturing base in India is spread across Jamshedpur (Jharkhand), Pune (Maharashtra), Lucknow (Uttar Pradesh), Pantnagar (Uttarakhand), Sanand (Gujarat) and Dharwad (Karnataka). The company’s dealership, sales, services and spare parts network comprises over 6,000 touch points.

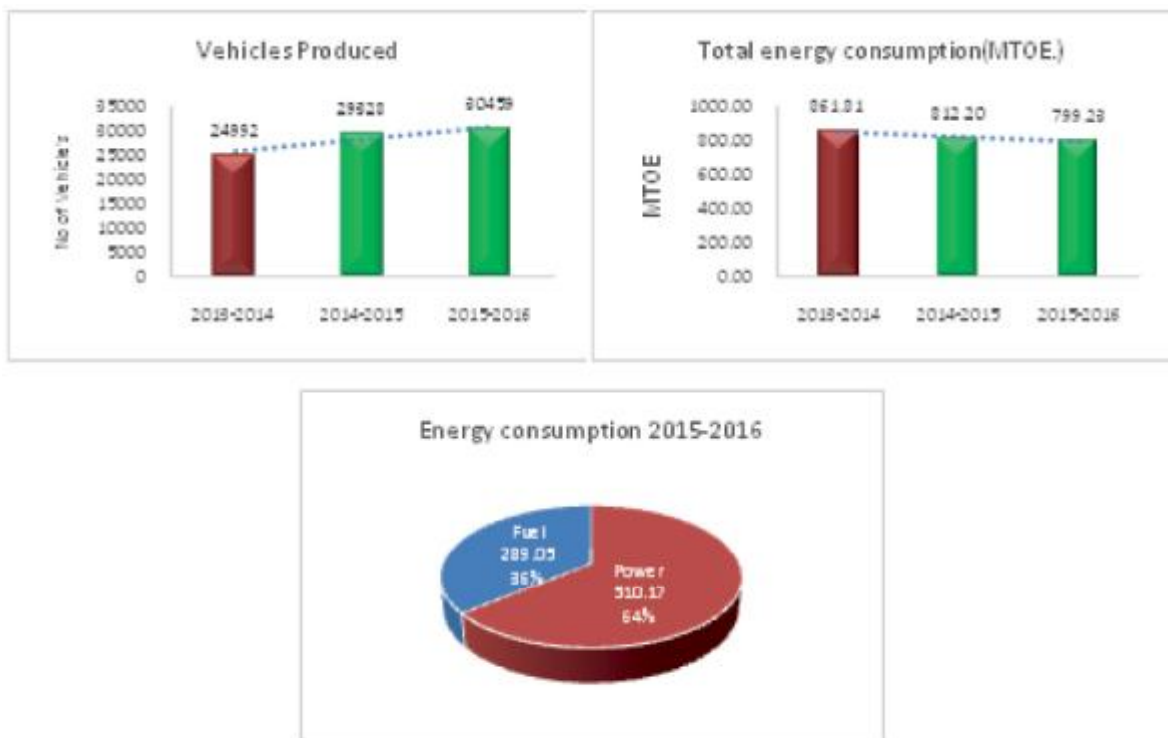
Tata Motors Ltd., Dharwad Plant is the youngest plant amongst other TATA MOTORS plant, started manufacturing Small Commercial Vehicles (Tata Ace Zip) in March, 2012. Manufacturing of Light Commercial Vehicles was started in financial year 2013-14. Dharwad Plant has an installed manufacturing capacity of 150 Small Commercial Vehicles and 40 Light/ Medium Commercial Vehicles in each shift.



Tata Motors, Dharwad works is the first Automobile Manufacturing Facility in India to be certified Platinum Rating by Indian Green Building Council (IGBC) and is certified ISO 14001, ISO 50001, TS 16949 and OHSAS 18001 and GreenCo Gold rating.

Energy Consumption

The Energy consumption has reduced by 7.1% in FY 15-16 compared to FY 13-14 even though there is significant rise of production by 17.9% and addition of fixed load of 211kW. However, the absolute energy consumption has a steady decline from FY 13-14 due to various energy conservation measures taken. The Energy scenario of TML Dharwad for past three years is as below.



Specific Energy Consumption.



Description	Unit	2013-14	2014-15	2015-16
Annual production Small and Light Commercial Vehicle.	Nos	249.92	29328	30459
Total Electrical Energy consumption	Lakhs KWh	59.31	57.51	59.32
Specific Energy consumption - Electrical	kWh / Veh.	193	1819	180.1
Total Thermal Energy consumption/annum	Million Kcal	3517.696	3176.35	2890.59
Specific Energy consumption - Thermal	Million Kcal/Veh.	0.141	0.12	0.09

Energy Conservation Achievements.

1. Use of LED high mast lighting.

Before: 10 no's X 9.6KW High Pressure Sodium Vapor lamp fittings in high mast lighting

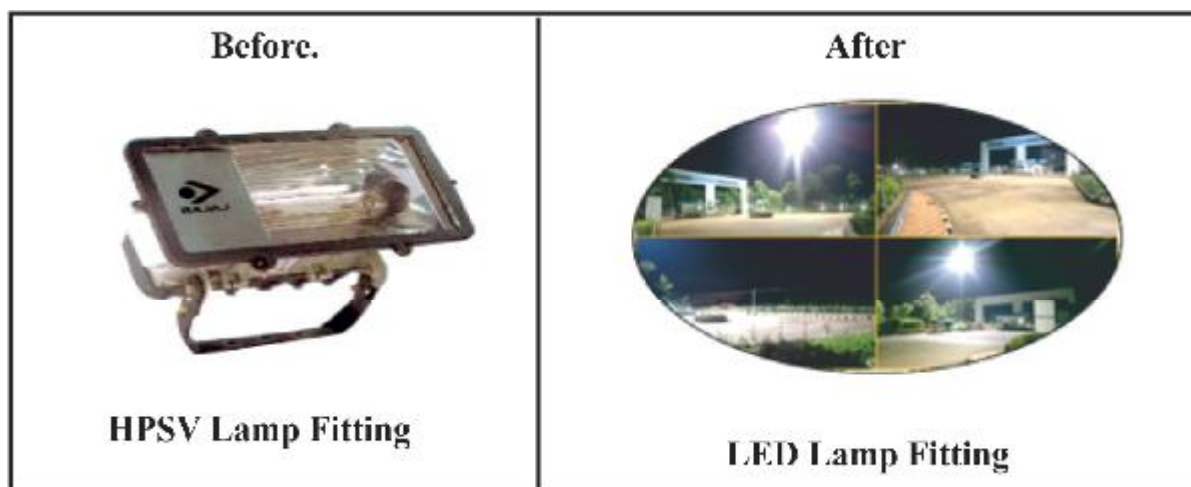
After: Replaced HPSV fittings with 10 no's X 3,6KW LED fittings resulting in saving of 60% energy.

Energy Saving kWh/year: 209485 kWh/year

Saving Per year: Rs.17.70 Lakhs.

Investment made: Rs.34.00 Lakhs.

Payback Period: 2 yrs.



2. Use of Magnetic Flux Fuel Saving Device.

Installed a Magnetic Flux Fuel saving device in a HSD fuel line of Burner

Fuel Saving KL/Year : 15600 KL/Year
 Saving Per Year : Rs.6.86 Lakhs
 Investment made : Rs.2.44 Lakhs

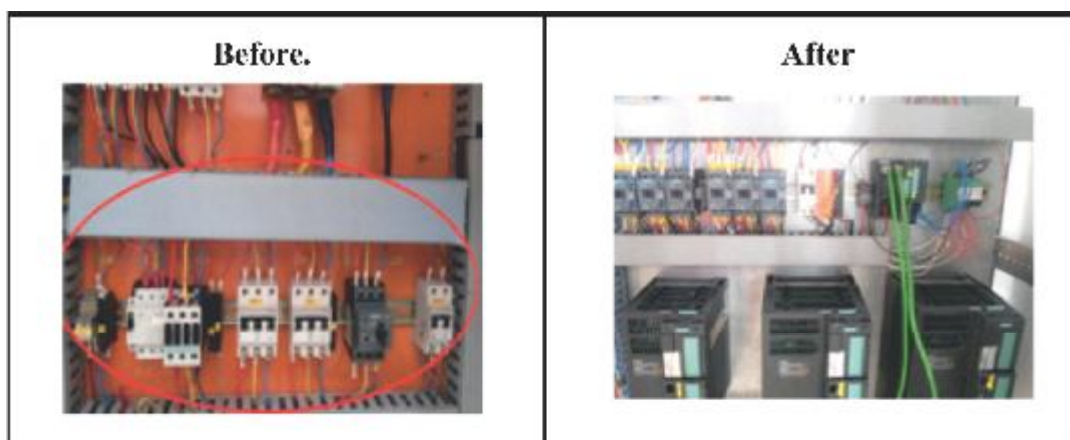


3. Installation of VFD for identified blowers(13nos) for PCC blowers.

Before: The blowers were running on contactor logic and at max RPM.

After: Installed VFD for all the 13 blowers and reduced the RPM and opened the damper's fully.

Power Energy Saving kWh/year : 144000 kWh/Year
 Saving Per Year : Rs.12.16 Lakhs
 Investment made : Rs. 7.35 Lakhs



Energy saving projects implemented in 2015-2016.

Sl.No.	Dept	EnMPs/Improvement Energy	Electrical Saving Saving in kWh	Fuel in in KL	Investment Rs. Lakhs
1	BIW	LED tube light in place of Fluorescent tube lights	3793		1.6
2	BIW	Power saver pack for network room AC	1178		0.1
3	BIW	Color Coding of High bay lamps for operating in 2nd shift	6424		0
4	BIW	Motion sensor for Fan in BIW production office and Store	164		0.03
5	BIW	Separate LED Hay bay lamp for robot station	750		0
6	BIW	Portable Compressor for Slat line for rework	5127		0
7	BIW	Optimization CMM room tube light usage	2016		0
8	APS	Replacement of tube lights with LED(Except clean room)	40932		2.632
9	APS	Installation of VFD for wax and touch up blower	600		1.55
10	APS	Replacement of tube lights with LED in clean room	14535		0.045
11	APS	Installation of VFD for identified blowers(13nos)	144000		7.35
12	APS	Installation of VFD for identified pumps(2nos)	24300		1.14
13	APS	Fixing of sheets between mixers gaps at Reaction Rinse tank	0	6	0.01
14	APS	Addition of Fuel Additive	0	14.53	0.09639
15	APS	Installation of Magnetic Flux Fuel Saving Device	0	15.6	2.448
16	APS	Installation of 400 cfm compressor in PCC Line	28248		6.3
17	APS	Reducing the time taken for color change	213		0
18	APS	Reduce heat loss at reaction rinse tank (after covering)	0	15	0
19	TCF	Robot controller fan when idle get auto OFF.	3000		0
20	TCF	Use of portable compressor	1716		3.76
21	TCF	Installation of LED high mast lights.	480		0.18
22	TCF	In paint touch-up booth VFD installed to reduce the power consumption.(3.5 kwx2 nos.)	1680		0
23	TCF	Installation of LED lights in place of tube lights in paint touch-up booth.	924		0.1668
24	TCF	Switching OFF of shower booth lights.	1560		0
25	LCV	Fan & lights ON/OFF with respect to shift timing.	4428		0.25
26	LCV	Power saver pack for network room AC	1440		0.08
27	LCV	Optimized use of High bay lamps for working in 2nd shift	3456		0
28	LCV	Motion sensor in office area to ON/OFF the Fan & lights .	2.4		0.045
29	FRAME	Reduction of cable in CO2 machine (10 nos.)	7000		0
30	FRAME	Installation of pneumatic control valve for main line	600		0
31	FRAME	Installation of LED tube lights on shop floor	1705		0.4856
32	FRAME	Installation of thermal sensor for hot water pump	12960		0.02927
33	FRAME	Changing of power source of SPM to reduce energy loss.	750		0
34	FRAME	Total saving in Gantry Cycle time reduction	2483		0
35	FRAME	Eliminated Co2 gas pre heaters.	9744		0
36	TA	Power saver pack for network room AC	1225		0.1
37	TA	Replacement of tube lights with LED in clean room	1380		0.045
38	TA	Switching OFF of Lights in un-manned area when Main line is running	3840		0
39	TA	Switching OFF of Lights in un-manned area at Metallurgy Lab	768		0
40	CPED	Installation of LED High mast	209485		34
		Total	542906.4	51.13	62.44306

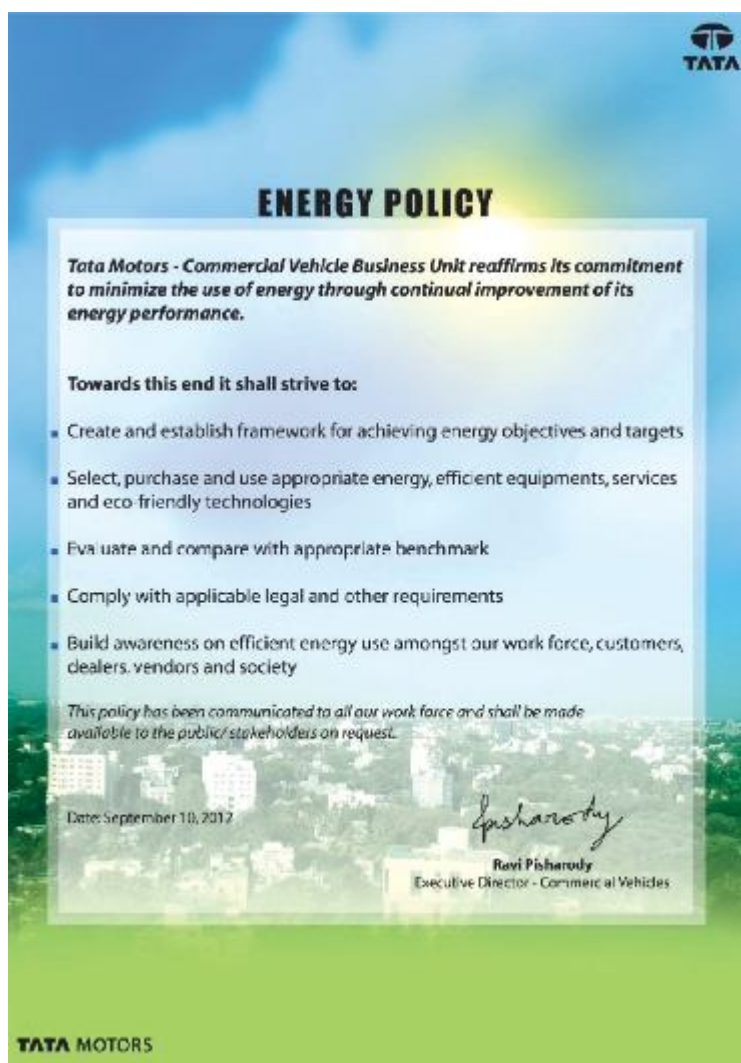
Energy Conservation Commitment, Policy and Set up

TATA MOTORS- Commercial Vehicle Business unit reaffirms its commitment to minimize the use of energy through continual improvement of its energy performance.

Following are some major initiatives/achievements at TML Dharwad towards energy conservation:

- LED High bay fittings, LED Street lighting's and T5 tube lights in offices, Hybrid power (solar & wind energy) for offices have been considered during the inception of the plant.
- As a go-green initiative, TML Dharwad has tied up with third party Wind power generation plant, M/s DGEPL. Effective September-2016, 85% of plant electrical energy is renewable.
- TML Dharwad is certified GREENCO GOLD rating in the year 2016 for its Environment performance.

Energy Policy



TATA MOTORS LIMITED - CVBU **Lucknow (Uttar Pradesh)**

Unit Profile

Tata Motors Limited is an Indian multinational automotive manufacturing company headquartered in Mumbai, Maharashtra, India. Its products include passenger cars, trucks, vans, coaches, buses, construction equipment and military vehicles. It is fifth-largest truck manufacturer and fourth -largest bus manufacturer by volume.

Tata Motors has auto manufacturing and assembly plants in Jamshedpur, Pantnagar, Lucknow, Sanand, Dharwad, and Pune in India, as well as in Argentina, South Africa, Thailand, and the United Kingdom. Tata Motors' principal subsidiaries purchased the British premium car maker Jaguar Land Rover and the South Korean commercial vehicle manufacturer Tata Daewoo. Tata Motors revenue was Rs. 2,75,561 crore's in financial year 2015-16. Tata Motors is ranked 226th in the 2016 Fortune Global 500 ranking of the world's biggest corporations.

Lucknow Plant, Tata Motors Ltd has started its production in 1992 and they are specialized in designing and manufacturing Low Floor and Ultra Low Floor, CNG & Rear engine buses.



Energy Consumption

The TATA Motors –CVBU Lucknow has always been cognizant of the need for conservation of energy and has been steadily making progress towards this end. The unit having Energy Policy, which governs all energy conservations activities. Energy Conservation measures have been implemented at all the shops, offices of the plant and special efforts are being put on undertaking specific energy conservation projects like

- Solar Power Plant
- Variable frequency drives
- Wind driven turbo ventilators
- Light Pipes in shops
- Optimized compressed air system
- Energy efficient motors, blowers & Pumps
- Reuse of furnace exhaust for preheating application
- Solar lighting, heating & signal flashers
- North Lighting based design of all new shops
- Adoption of new & green technologies

A substantial energy reduction in specific power consumption in both electrical and thermal achieved by Lucknow plant, Tata Motors Ltd. through a systematic approach of Energy management system i.e. ISO 50001.

- TATA Motors –CVBU Lucknow is certified with ISO:50001 for Energy Management System since 2012.
- A dedicated energy management cell is present to have a focused approach on energy management and conservation activities all around the plant.
- More than 54 nos. energy saving projects have been implemented in FY 2015-16 generating saving of more than 29 Lakh KWh electricity and 216.55 MTOE in thermal energy in 2015-16 alone.
- TATA Motors –CVBU Lucknow has been declared as zero discharge plant and water positive plant.

Specific Energy Consumption (SEC) 2014 – 2016:

Year	Product	Specific Electrical Energy Consumption kWh/ Eq. Vehicle	% Reduction over 2014- 2015	Specific Thermal Energy Consumption Million kCal/ Eq. Vehicle	% Reduction over 2014 - 2015
2014 2015	Commercial Vehicles	298	--	0.719	--
2015- 2016	Commercial Vehicles	280	6.07	0.701	2.45

Elect. Saving (Lakh kWh) in 201516	Thermal (Fuel) Saving (Million kCal) in 201516	Electrical Consumption (lakh kWh) in 201415	Thermal (Fuel) Consumption (Million kCal) in 201415	% Electrical Saving	% Thermal (Fuel) Saving
28.9	2165.5	261.24	17667.8	11.06	12.26

Major Energy Conservation Projects Implemented

Project 1: Waste Heat Recovery System (WHRS)

Before: At TML Lucknow plant, the plant is having Paint shop for painting cab and cowl of the vehicles. Its having three Propane fired Ovens (ED, Top Coat 1 & 2).

Internal temperature is maintained at 160°C - 180 °C and its hot flue gases were exhausted through preheater to atmosphere. But still Flue gas was having a substantial heat energy which can be utilized for useful work.

Hot Water Generator (HWG) generates hot water of 85°C for Pretreatment (PT) process in Paintshop. HWG uses Propane gas as a fuel for burner application. Supply Hot water 85 °C goes to PT process and returns at 75 °C.

After: The Waste Heat Recovery System installed. The water is now heated through WHRS and used for PT process.

Annual saving : 268 Tons of Propane Gas
Annual carbon abatement : 429 Tons of CO₂



Project 2: Light Pipe

Before: Unit had conventional lighting in Assembly Line -1, study was conducted for lux level and found that when the general lights were off during day time the lux level drop to 200 Lux which was far below the required lux level of 450~550 Lux, so the operators used to keep the lights on in day time also.

After: Installed light pipes in assembly line and Lighting level increased to 500 Lux without switching on lights during day time. Since light pipes only transmits light but not temperature, resulted in no increase in shop floor temperature as well.

Annual Electrical Saving : 85000 kWh
Annual Carbon Abatement : 69.7 Tons of CO₂



Some of the other ENCONs & Innovation Projects Implemented:

S. No.	Year of project	Project Description	Achievement of Annual Energy saving in 2015~16					Total Savings (Rs Lakhs)
			Electricity	Fuels*				
			Lakhs (KWH)	Coal (Tonnes)	F. Oil (KL)	Gas (Mkcal)	Total fuel (MTOE)	
1	2015-16	Operational control of office & store in TCF Shop- Line2 &3	5.45	-	-	-	-	61.30
2	2015-16	Control of Overhead lights through SCADA- Paint	4.00	-	-	-	-	32.80
3	2015-16	Introduction of 3 Coat 1 Bake technology- Paint	3.50	-	-	-	-	28.70
4	2015-16	Sustain the specific energy consumption of PT/ED line Batch Production Paint	2.50	-	-	-	-	20.50
5	2015-16	Optimization of pumps operation in PTED- Paint	2.35	-	-	-	-	19.27
6	2015-16	Installation of VFDs in Top Coat booth ASU fans Paint	1.55	-	-	-	-	11.89
7	2015-16	Elimination of production activity in C shift - Paint	1.25	-	-	-	-	10.25
8	2015-16	Reduction of Specific power consumption through optimized running of compressors (mix)-Plant Services	0.55	-	-	-	-	4.51
9	2015-16	Reduction in set up change over process - Transmission	-	-	-	41.720	4.172	1.24
10	2015-16	Reduction in LPG consumption by optimization of furnace running to avoid losses- Transmission	-	-	-	48.646	4.865	1.45
11	2015-16	Implementation of Magnetic Inductor System in the Gas burner units- Paint	-	-	-	378.95	37.89	11.27
12	2015-16	Installation of Heat Recovery System- Paint	-	-	-	1696.23	169.62	50.45

BAJAJ AUTO LTD.
Chakan Plant, Pune (Maharashtra)

Company Profile

The Bajaj Group is amongst the top 10 business houses in India. Its footprint stretches over a wide range of industries, spanning automobiles (two-wheelers and three-wheelers), home appliances, lighting, iron and steel, insurance, travel and finance. The group’s flagship company, Bajaj Auto, is ranked as the world’s fourth largest two- and three- wheeler manufacturer and the Bajaj brand is well-known across several countries in Latin America, Africa, Middle East, South and South East Asia

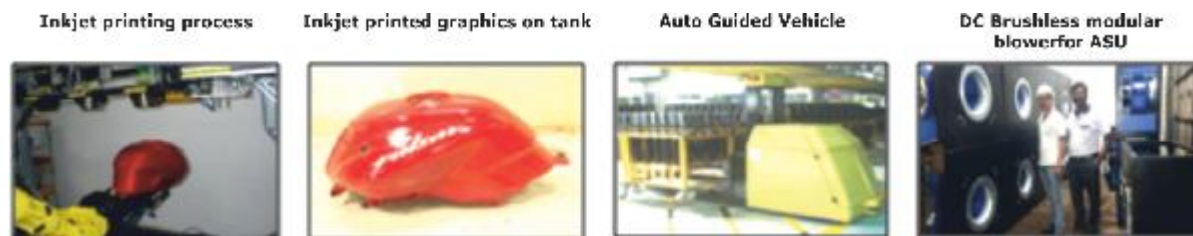
BAL has two manufacturing plants located in Maharashtra- Aurangabad & Chakan (Pune) and one at Uttarakhand- Pantnagar

Unit Profile

Chakan Plant is established in 1999, spread over 792,530 Sq. Mtrs area with Built up area: 148,000 Sq. Mtrs. It manufactures High Performance bikes. Production capacity is 4000 vehicles per day, Total manpower is 1350 with 122 Women Employees. Its products are in Sports & Premium Sports segment with 22 Models & 122 Variants & are of Pulsar & KTM brands.



One of the Plant Strengths is Flexibility in production. People call Chakan Plant as Manufacturing Laboratory, which is the Plant Characteristic. The plant "Invent / Adopt" new Ideas/Concepts, "Perfect it for Mass Manufacturing" and then "Practice & Deploy at other Plants". Manufacturing Laboratory few examples are given below



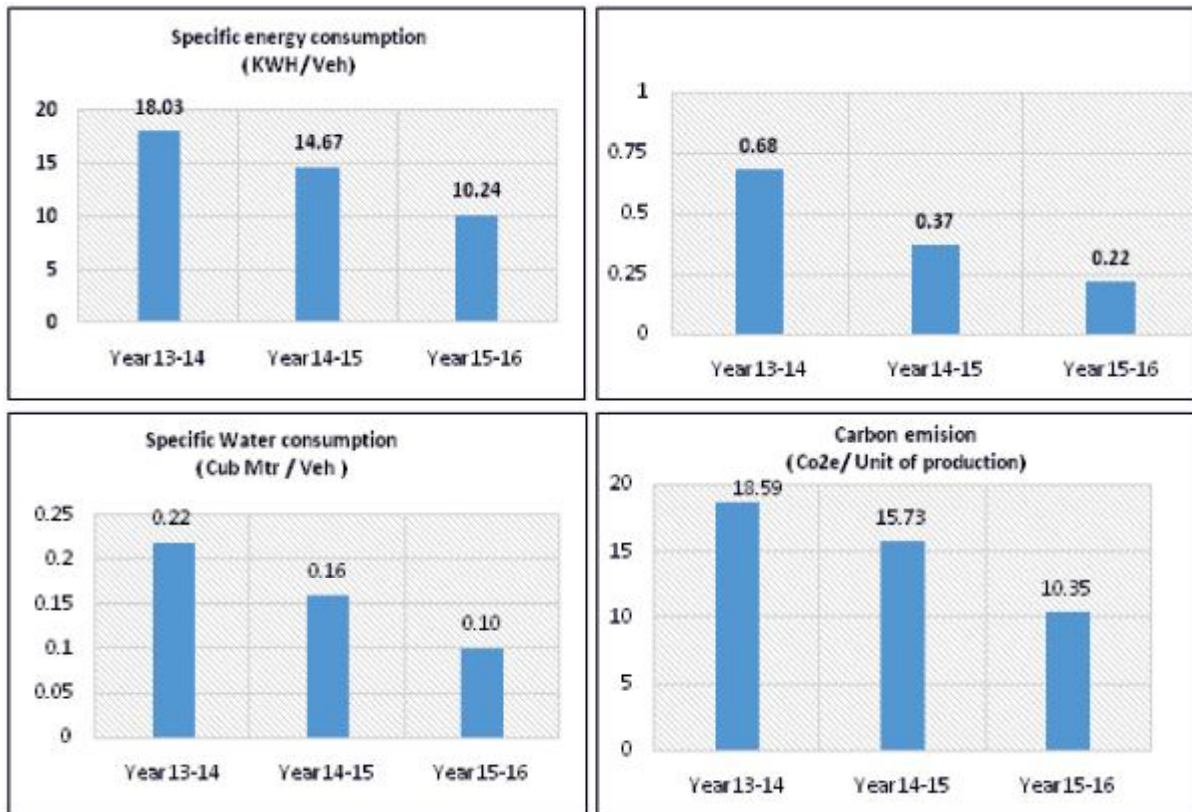
Energy Conservation Methodology:

- The plant **safety health & environment policy endorses** minimizing generation of waste and conserving resources through better technology practices.
- EC cell was established long back in 2000 and an energy manager was designated who is handling energy conservation activities across the plant.
- Sp. Energy consumption & total energy consumption targets for Power, Fuel & Water are set as corporate objectives. These targets are further broken down into process wise targets. EC Cell prepares & monitors action plans for above set targets in consultation with Process Shops and Plant Maintenance managers. Power and Fuel cost loss tree is used for implementation of Energy conservation project
- Plant Head conducts the monthly review for the same. Energy conservation budget provision is made with reference to action plan in every March.
- ENCON project implementation & horizontal deployment is being done regularly, All Energy conservation initiatives are shared with vendors and implemented at their end wherever applicable.
- Yearly consolidated report of ENCON project is prepared and submitted to top management, which is further published in company annual report.

Energy Consumption

Plant have implemented 533 energy saving ideas from last three years, power & fuel. As a result of it there is reduction in specific consumption of Chakan plant for power by 45% and for fuel by 67 %. This has also helped us, to bring down Carbon foot print for its operations and there is reduction by 47 %.

In recognition that water is an important resource and is becoming increasingly scarce, BAL has focused on water conservation, reuse and recycle at all plants. Through continuous improvement & rainwater harvesting, water consumption reduction has been achieved by around 40%



Energy Conservation Projects Implemented in 2015-16

Working calculation sheet for saving claimed against the project implemented in 2015 – 2016								
Sr No	Title of Energy Saving project implemented	Year of Implementation	Annual Electrical Savings achieved		Annual thermal savings		Total Annual Savings	Invest. Made
			Units in Lacs	Rs in Lacs	(lakh Nm3)	Rs in Lacs	Rs in Lacs	Rs in Lacs
1	Provide advanced technology with DC brushless modular blower (2 locations)	2015-2016	2.08	15.00	NA	NA	14.99	47.89
2	Relocation of Exhaust blower & duct up to ground level- paint shop PT exh. System	2015-2016	4.51	32.52	NA	NA	32.58	63
3	Provision of Q led tube lights in Engine assembly / vehicle Inspection	2015-2016	1.47	10.60	NA	NA	10.60	10.78
4	Provision of VFD to high HP motor	2015-2016	1.60	11.54	NA	NA	11.51	2.24
5	Provision of LED lamps in place of SV lamp – main gate road	2015-2016	0.12	0.87	NA	NA	0.87	4.17
6	PV area AHU blower remote facility near operator	2015-2016	0.23	1.66	NA	NA	1.66	0.45

7	Provision of portable compressor for jig stripping plant for non-working days & 3rd shift	2015-2016	0.34	2.45	NA	NA	2.45	0.95
8	Compressors cooling tower pump & Raw water pumps/- AHU - Provision of Energy efficient pump	2015-2016	2.78	20.04	NA	NA	20.04	2.62
9	Timer for engine LH/ RH automation overhead lights	2015-2016	0.27	1.95	NA	NA	1.92	0.1
10	Provision of cell wise compressed air auto On Off facility in Aluminium shop	2015-2016	0.60	4.33	NA	NA	4.33	4.8
11	Provision of movement sensor in vehicle dispatch / main gate toilet	2015-2016	0.04	0.29	NA	NA	0.29	0.67
12	Provision of cell wise compressed air auto On Off facility in steel shop	2015-2016	0.30	2.16	NA	NA	2.16	3.35
13	Provision of timers/ sensors on dispatch/ Dhaka's/ inspection area	2015-2016	0.20	1.44	NA	NA	1.44	0.82
14	Communization of coolant pump by change in process-machine shop	2015-2016	0.05	0.36	NA	NA	0.36	1
15	Engine/ Vehicle Assembly A, B & C line - Conveyor tube lights supply given through Electromizer	2015-2016	0.40	2.88	NA	NA	2.88	2.5
16	Machine shop – Electrical fans removed for cooling purpose of radiator	2015-2016	0.20	1.44	NA	NA	1.44	0.3
17	Provision of Induction / LED lamp in shops overhead lighting- total 200 no's	2015-2016	0.39	2.81	NA	NA	2.80	10.36
18	Use of LED bulb for Andon display	2015-2016	0.03	0.22	NA	NA	0.22	0.1
20	Machines coolant pumps removed by change in process	2015-2016	0.60	4.33	NA	NA	4.33	3
21	Use of magnetic resonance in oven PNG supply	2015-2016	NA	NA	0.05	1.54	1.54	1.88
22	Use of low temp chemical for pretreatment	2013-2014	NA	NA	0.04	1.302	1.30	1.79

EnCon Project- One Innovative example -DC Brushless Modular blower for ASU

Before: For Lacquer cell paint booth Air supply unit (ASU) - Conventional blower with 3 phase induction motor & VFD. Motor rating used was of 160 kW, Actual power consumption was 47.20 kW to get required CFM 64794. Energy consumption / Year : 176716 kWh (Rs. 12.72 Lacks)



Result: Saving 95097 KWH / Year

After: Installed 12 nos. DC brushless motor modular blowers.

(6 kW X 12 =72 kW)

Actual power consumption to get required CFM = 21.8 kWh.

Energy consumption / Year : 81619 kWh (Rs. 5.87 Lacks)



“Green Manufacturing” initiatives at Chakan Plant:

- | | |
|---|---------------------------------------|
| 1. Pre-treatment process (Tectalis) | Zero Hazardous waste Generation |
| 2. Deletion of Packing materials by use of reusable bins / trolleys | Recyclable Packing |
| 3. Minimizing use of wood in Export packing | Environment Friendly |
| 4. Wind mills & Solar Panels | Use of Non-Conventional Energy Source |
| 5. Rain water harvesting | Resource Conservation |
| 6. More than 60,000 trees planted | 72% area is under green cover |
| 7. Eliminate Painting and masking for dual colours | Minimize Hazardous waste |
| 8. Waste Heat recovery – Incinerator | Energy Cost reduction |
| 9. Piped Natural Gas (PNG) instead of LPG | Energy Cost reduction |
| 10. Positive Water Balance Plant | Recharge rain water under ground |
| 11. ISO 14001 & OHSAS 18001 Certification | Rewards & Recognitions |

**GABRIEL INDIA LTD.
Gurgaon (Haryana)**

Unit Profile

Gabriel was set up in 1961 by Mr. Deep C. Anand in collaboration with Maremont Corporation (now Gabriel Ride Control Products of Arvin Meritor Inc, USA) to manufacture best-in-class shock absorbers. Gabriel is now the flagship company of the New Delhi-headquartered Anand Group, a prominent name in India's automotive component sector. The Company's plants are located at Pune, Nashik, Dewas, Hosur, Khandsa, Parwanoo, Sanand, Malur and Aurangabad out of which three state of the art R&D centers at Chakan, Hosur and Nashik to develop new products, further optimizing product performance and capability. These facilities provide value-added services to Gabriel customers in areas of noise measurement, value engineering, and improving product quality by root cause analysis of customer complaints, as well as cost reduction through localization efforts. These centers also provide customers with a facility to conduct on-site ride tuning exercises through custom built mobile ride tuning vans.



Gabriel India Limited Khandsa Unit

Gabriel India Limited Khandsa Unit is located at Delhi-Jaipur Highway, Village-Khandsa, Gurgaon. It addresses the growing requirements of Maruti Suzuki, its single largest customer. During the year under review, the Company widened its product diversity, making it possible to address the needs of other customers as well. The plant retained its competitive edge through the sustained implementation of Lean Manufacturing concepts, which translated into enhanced line efficiency, human productivity and material economy. The small illustrative introduction about the unit is as below:

Products	Segments serviced	Major OEM customers	Quality certifications	Technical collaboration
Shock absorbers and struts	Passenger cars	Honda, Maruti Suzuki and TATA Motors	ISO TS – 16949	KYB, Japan

The installed capacity of Khandsa Units is more than 39Lakh units of Rear Shox, Front strut and Front Forks and or there FY 2015- 16 unit has achieved capacity utilization of around 55.41% which is a good figure keeping in mind the dependency on the key clients.

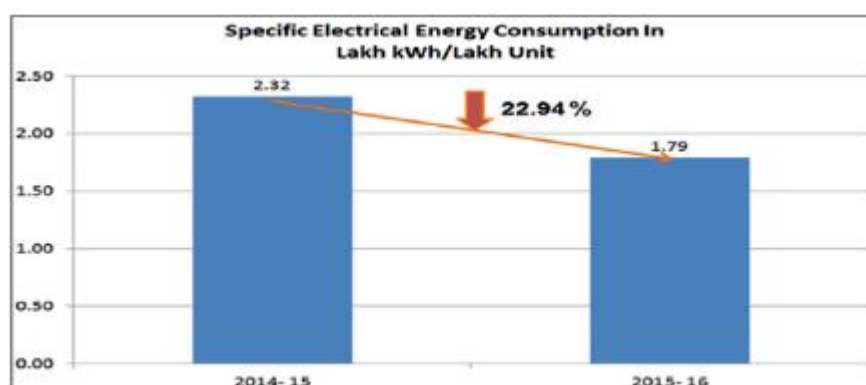
Energy Consumption

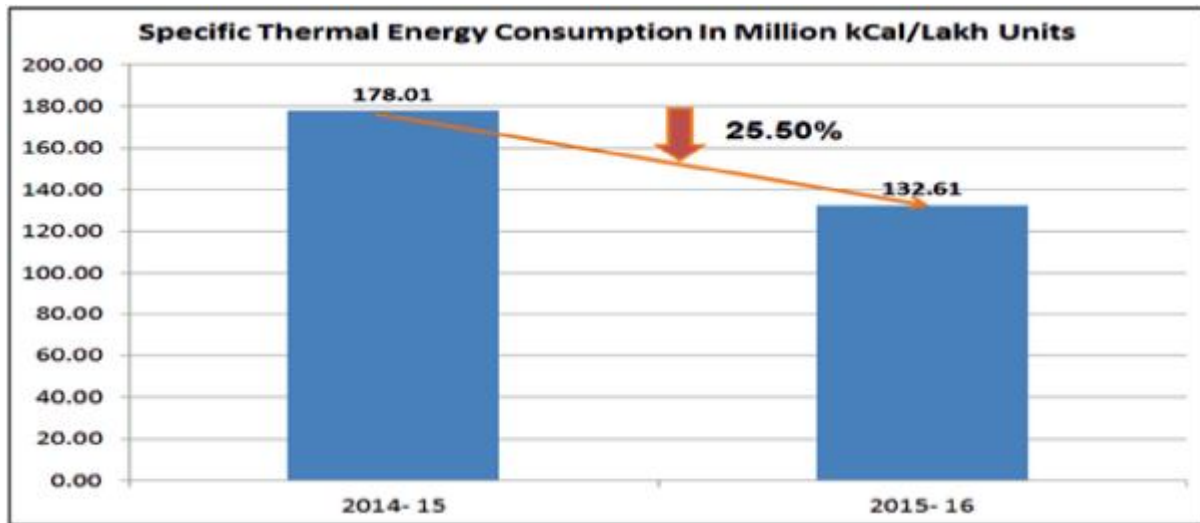
This unit consumes both electrical and thermal energy for its production. The energy consumption for 2015- 16 has been recorded as below:

Purchased Electricity (Lakhs kWh/ year)	38.41
Through DG sets (Lakhs kWh/ year)	0.26
Total consumption of electricity (Lakhs kWh/ year)	38.66
Total Thermal Energy Consumption, Million kCal/ year	2868.7

Specific Energy Consumption





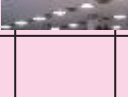
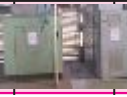
Khandsa units has done remarkable efforts to bring down the specific energy consumption for the unit and endless hard work and team efforts bring down specific energy consumption down by 22.94% and 25.50% in Electrical and Thermal.





Energy Conservation Measures Implemented:

The unit has achieved energy saving of almost 11.36Lakh kwh and 1898MkCal during FY 2015- 16. The list of energy conservation measures implemented by the units is as below:

Project description	Achievement of Annual energy savings in 2015-16					
	Electricity (Lakh kWh)	Fuels* Coal (tonnes)	HSD (kL)	Gas (lakh Nm ³)	Total fuel (MTOE)	Total savings (Rs. Lakhs)
Eliminating Electrical Energy Consumption by using PNG fired burner in place of Electrical Heaters	0.78					4.56
Use of PNG fired water heating system in Electroplating section in Place of Electrical Heating	1.58					9.24
Installation of Transparent Sheets to enhance the use of natural light in Production Area	0.346					2.02
Process modification for heating in furnaces system and change in Fuel charging system	0.00		56.18		58.71	19.66
Installation of VFD for Pumps in Grinder Filtration and Induction hardening Pumps	2.38					13.92
Installation of LED lights in different areas in Plant	0.74					4.31
Speed reduction of STP blower during night by speed limit switch and stopping usage of compressed air for aeration on load	0.35					2.03
Reduction in leakages in compressed air network from 46% to 18%	1.12					6.55
Change in operation pattern of compressor based upon the Performance in Energy Audit Report	1.90					11.12

Improvement in insulation condition of thermic fluid carrying lines				0.16	15.2	6.1
Line modification of Chilled water Pumps to reduce loading of pump with inhouse team	0.66					3.86
Change in Burner for thermopac to enhance combustion efficiency				0.8		
Optimizing operation of Thermic fluid circulation pump during off load hours	0.82			0.42	39.9	4.80
Line modification for Cooling water circulation line for DG Set and process to reduce pumping load when DG Set is not in operation	0.69					4.04
Grand Total	11.36	0.00	56.18	1.38	113.81	79.50