



CII-GreenCo Forum: Pune

GreenCo Journey @ Tata Motors Ltd, CVBU Pune

CII – GreenCo Assessment

- Tata Motors Pune (Pimpri & Chikhali Works) rated '**GOLD**' rated.



'Energy Policy – Tata Motors

TATA MOTORS



ONE TEAM
ONE VISION

[Energy policy](#) provides a framework for action and for the setting of energy objectives and energy targets.

This policy is signed by [Executive Director – Commercial Vehicles](#): Tata Motors commitment for –

- To set [Energy objectives](#)
- To select [Energy Efficient Equipment's](#).
- To [Benchmark](#).
- To Build Awareness.

ENERGY POLICY

Tata Motors - Commercial Vehicle Business Unit reaffirms its commitment to minimize the use of energy through continual improvement of its energy performance.

Towards this end it shall strive to:

- Create and establish framework for achieving energy objectives and targets
- Select, purchase and use appropriate energy, efficient equipments, services and eco-friendly technologies
- Evaluate and compare with appropriate benchmark
- Comply with applicable legal and other requirements
- Build awareness on efficient energy use amongst our work force, customers, dealers, vendors and society

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

Date: September 10, 2012

Ravi Pisharody
Ravi Pisharody
Executive Director - Commercial Vehicles

TATA MOTORS

'Climate Change Policy – Tata Motors

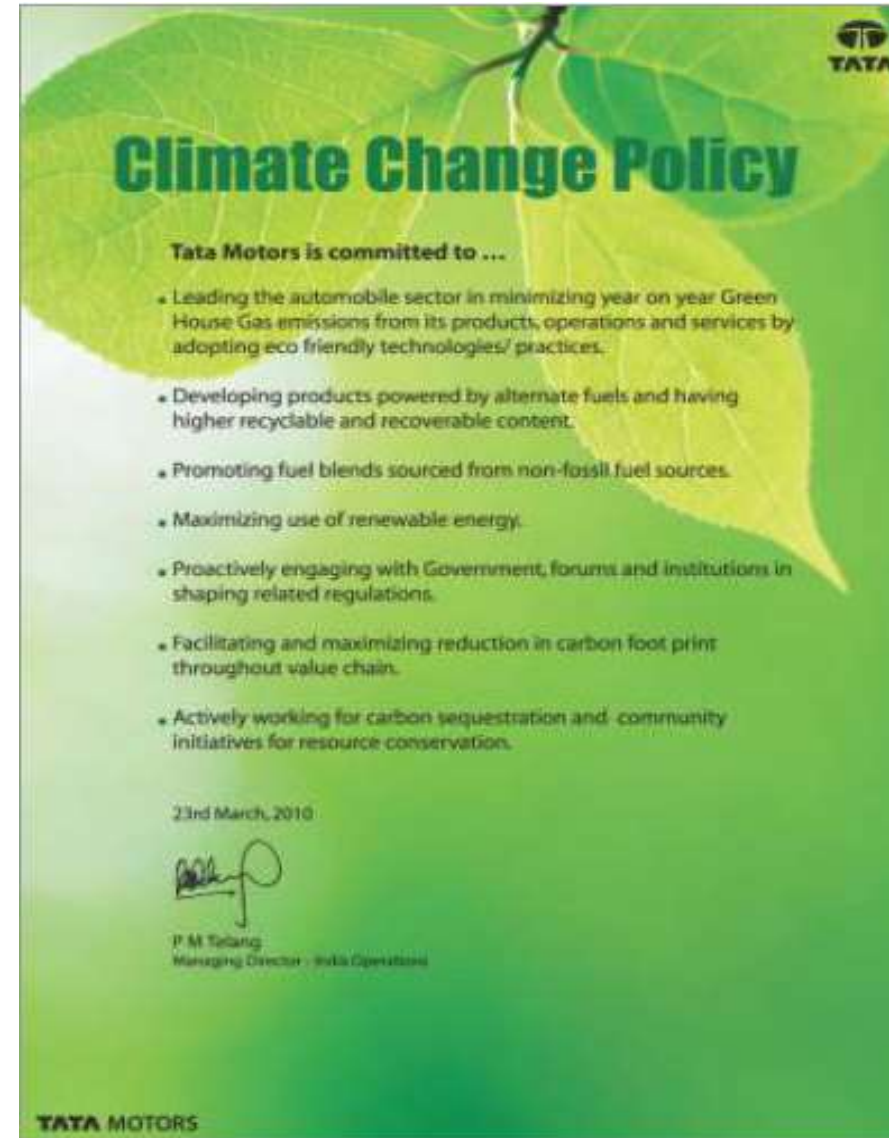
TATA MOTORS



Tata Motors have [Climate Change Policy](#)

This policy is signed by former [MD \(India Operations\)](#)
:→ Tata Motors commitment for –

- Mitigating **GHG emissions**
- Developing **alternate fuel** technologies/products
- Maximizing use of **Renewable Energy**
- **Resource Conservation**



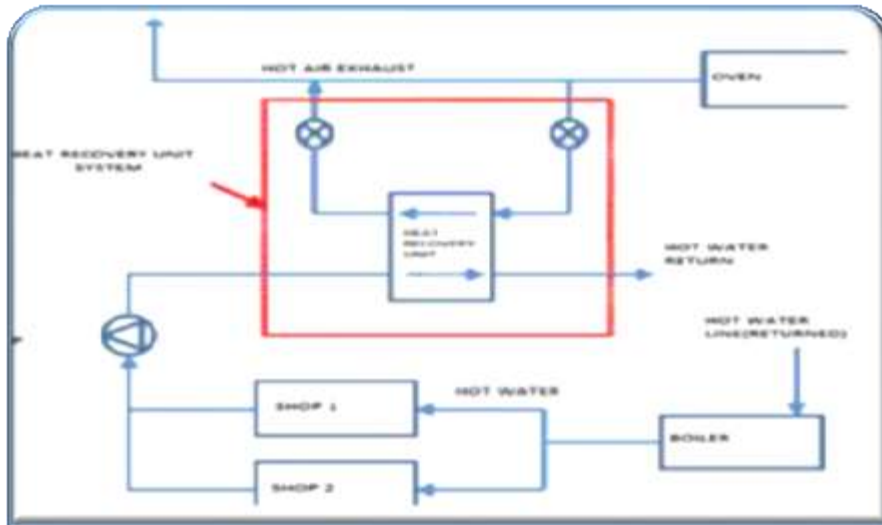


Energy Efficiency

Energy Saving by Installation of Waste Heat Recovery System for CED Oven, Surfacer Oven and Top Coat Oven at J-11 Paint Shop.

- ✓ Now, Waste Heat Recovery System installed to recover waste heat of exhaust flue gases of paint baking oven
- ✓ Recovered heat is used for hot water generation.

Inauguration of Waste Heat Recovery System



Schematic Diagram of Waste Heat Recovery System



Installation of Waste Heat Recovery System (CED, Surfacer & Top Coat Oven) at J-11 Paint Shop

**Fuel Saved Natural Gas = 1.8 Lakh SCM; &
Annual Fuel Cost Saving of Rs. 70 Lakh**

Energy Saving by Replacement of existing KPC make old Centrifugal compressor with Energy efficient IR make compressor (3000CFM) at D Block Compressor House.

- ✓ Old centrifugal KPC make compressor, its electrical energy consumption was 16.1KWH/100CFM.
- ✓ 3000CFM Energy Efficient Centrifugal Compressor IR make installed & Its electrical consumption 15KWH/100CFM.

Inauguration of Energy Efficient 3000CFM Air Compressor



3000CFM Energy Efficient Centrifugal Compressor IR make Installed



Inauguration of 3000CFM Air compressor at Hands of Plant Head CVBU-Pune

Electrical Energy Saved = 1.94 Lakh KWh; & Annual Energy Cost Saving of Rs. 15.49 Lakh

Energy Saving by Introduction of New Energy Efficient 40W LED Batten Lights in place of 216W (54W x 4) T5 Lights for task lighting at H-3 TCF Line.

Before: T5 Lighting



216W (54Wx4) T5
lighting

After: Energy Efficient LED Lighting



New energy efficient
40W LED Batten lights

Electrical Energy Saved = 0.23 Lakh KWh; &
Annual Energy Cost Saving of Rs. 6.1 Lakh

Energy Saving by Introduction of Flame proof LED Lighting at ERC Engine Test Beds.

- ✓ We have developed solution with the help of M/s VIN LED for 'Flame proof LED' suitable for this application.
- ✓ Manufacturers like Phillips, Wipro etc. don't have 'Flame proof fittings' range as volume of the business is low and readymade solution not available for the same.
- ✓ Now, we have installed VIN make Flameproof 30W LED Fittings for illumination of Engine Test Bed area at ERC.

After: Flameproof Energy Efficient LED Lighting



Flameproof 30W Energy Efficient LED lights

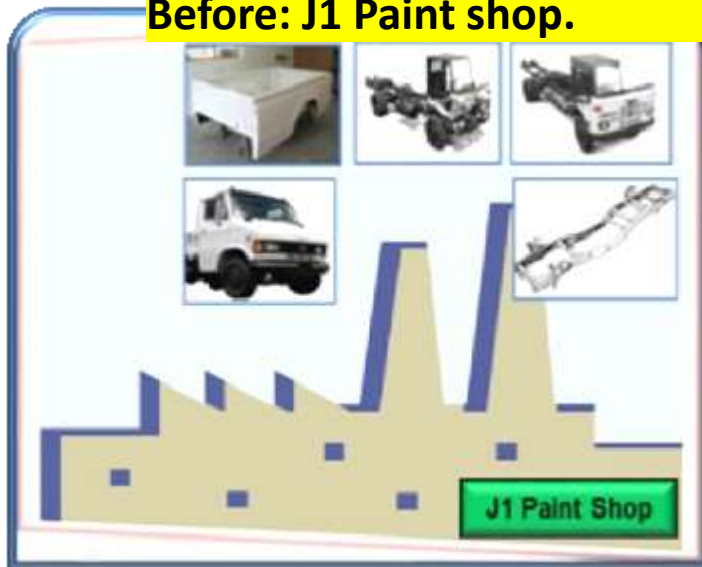


Installation of Flameproof 30W Energy Efficient LED Lights

**Electrical Energy Saved = 1.01 Lakh KWh; &
Annual Energy Cost Saving of Rs. 7.96 Lakh**

Energy Saving by Optimization of Paint Shop Capacity at CVBU Pune.

Before: J1 Paint shop.



J1 Paint shop with low capacity utilisation

After: J11-12 Paint shop.

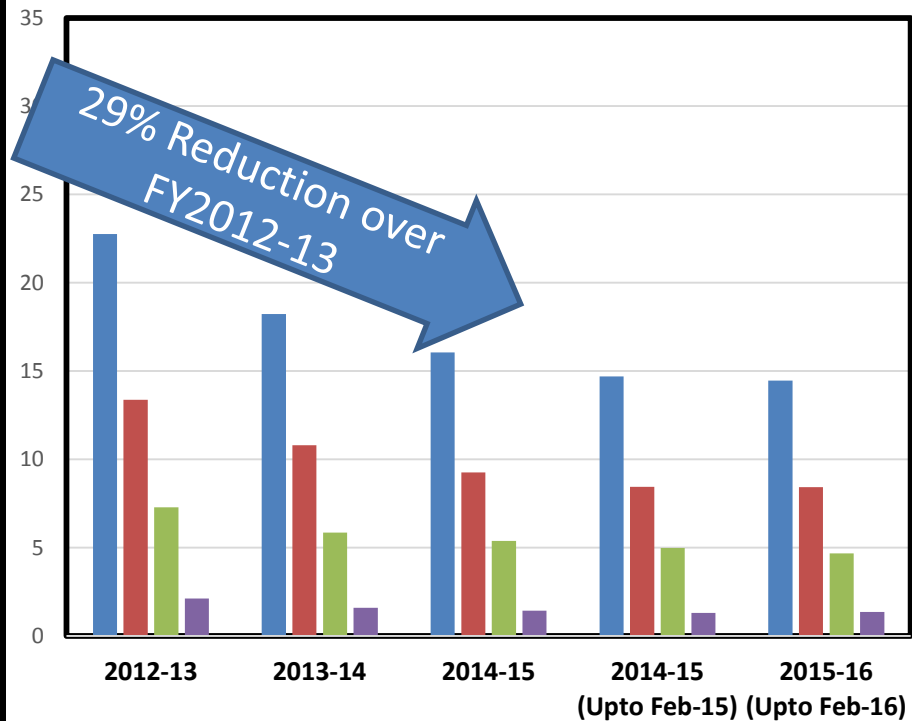


J12 Paint shop Capacity utilisation improved from ~50% to 90%

Electrical Energy Saved = 9.5 Lakh KWh;
Fuel Energy Saved = NG Fuel 9.84 Lakh SCM &
Annual Energy Cost Saving of Rs. 464 Lakh

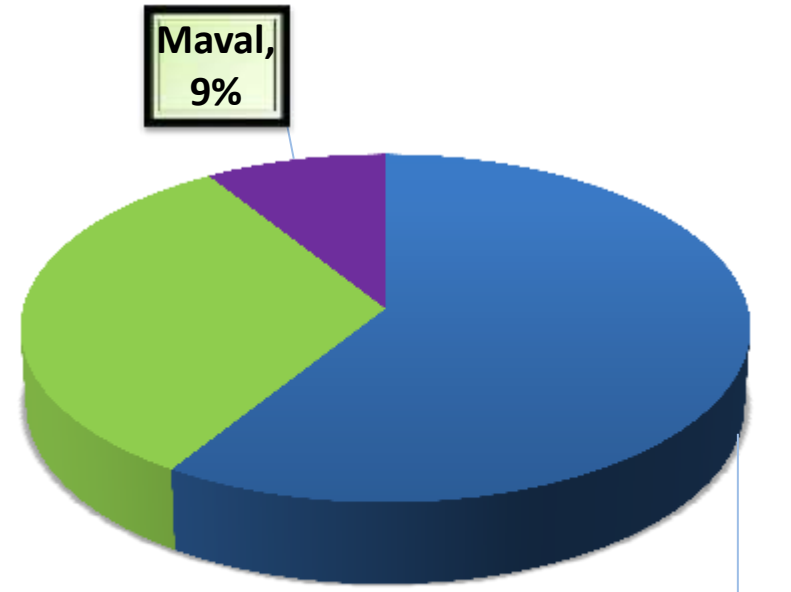
**Absolute Electrical Energy Consumption
in Cr. Units :
CVBU Pune (Pimpri+Chinchwad+Maval)**

**Projected Reduction in Absolute Electrical
Energy consumption upto Mar-2016 will be 31%
over FY2012-13**



■ Total CVBU Pune ■ CVBU - Pimpri ■ CVBU - Chinchwad ■ CVBU - Maval

**CVBU Pune
(Pimpri+Chinchwad+Maval) :
Electrical Energy Consumption in %**



Chinchwad, 32%

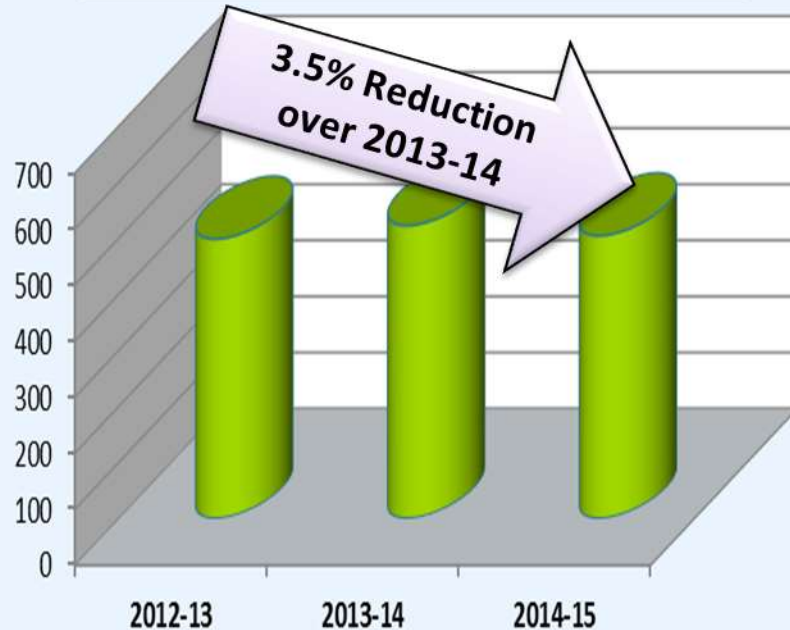
Pimpri, 59%

■ Pimpri ■ Chinchwad ■ Maval

Electrical Energy Performance Trend – Specific Energy & Absolute Energy

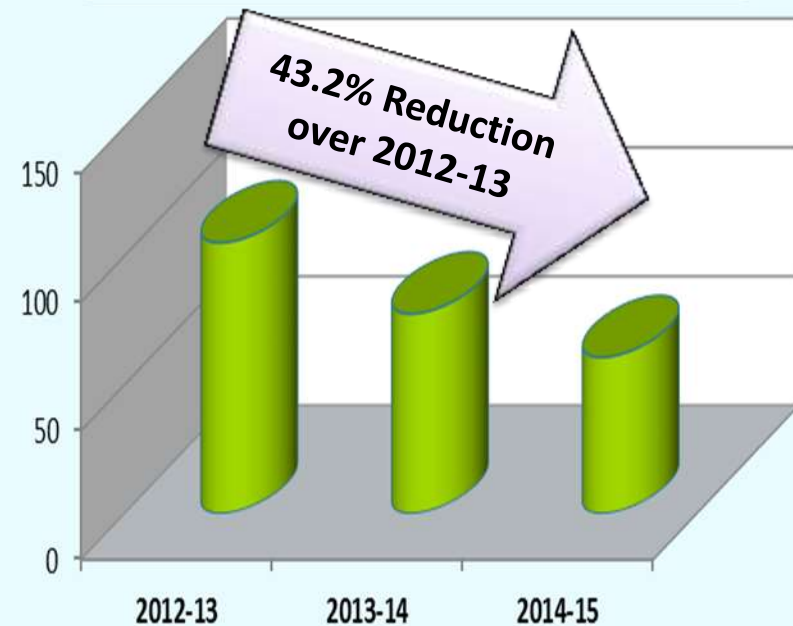
Electrical Energy -Specific Energy Performance Trend

Electrical - Specific Energy Performance (KWh/Eq. Veh.)



Absolute Electrical Energy Performance Trend

Absolute Electrical Energy Performance (Million KWh)



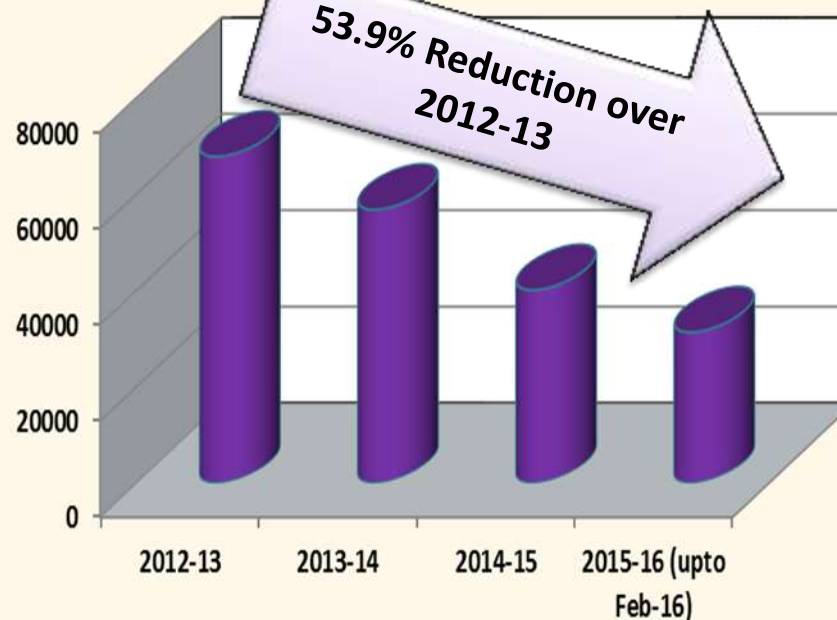
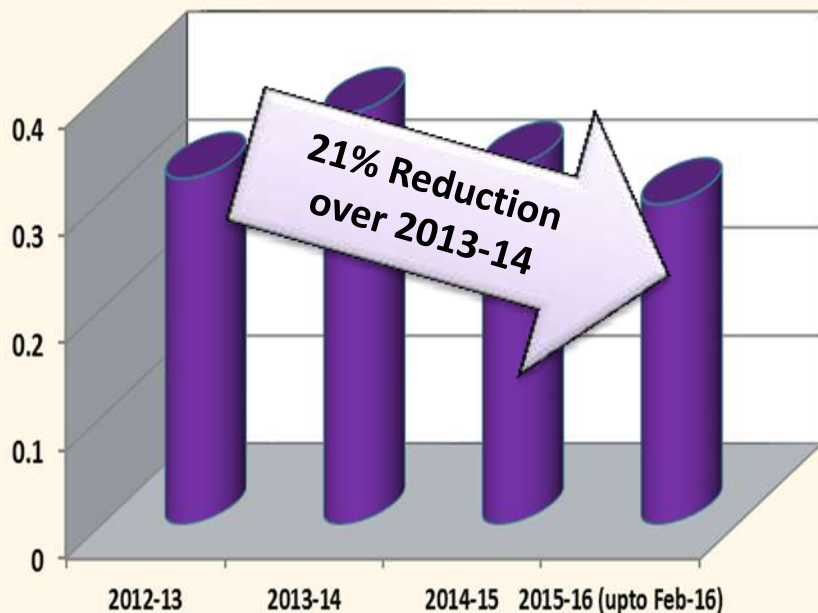
Thermal Energy (Fuel) Performance Trend Specific Energy & Absolute Energy

Thermal Energy (Fuel) - Specific Energy Performance Trend

Thermal Energy (Fuel) - Absolute Energy Performance Trend

Thermal Energy (Fuel) - Specific Thermal Energy Performance (MKCal/Eq. Veh.)

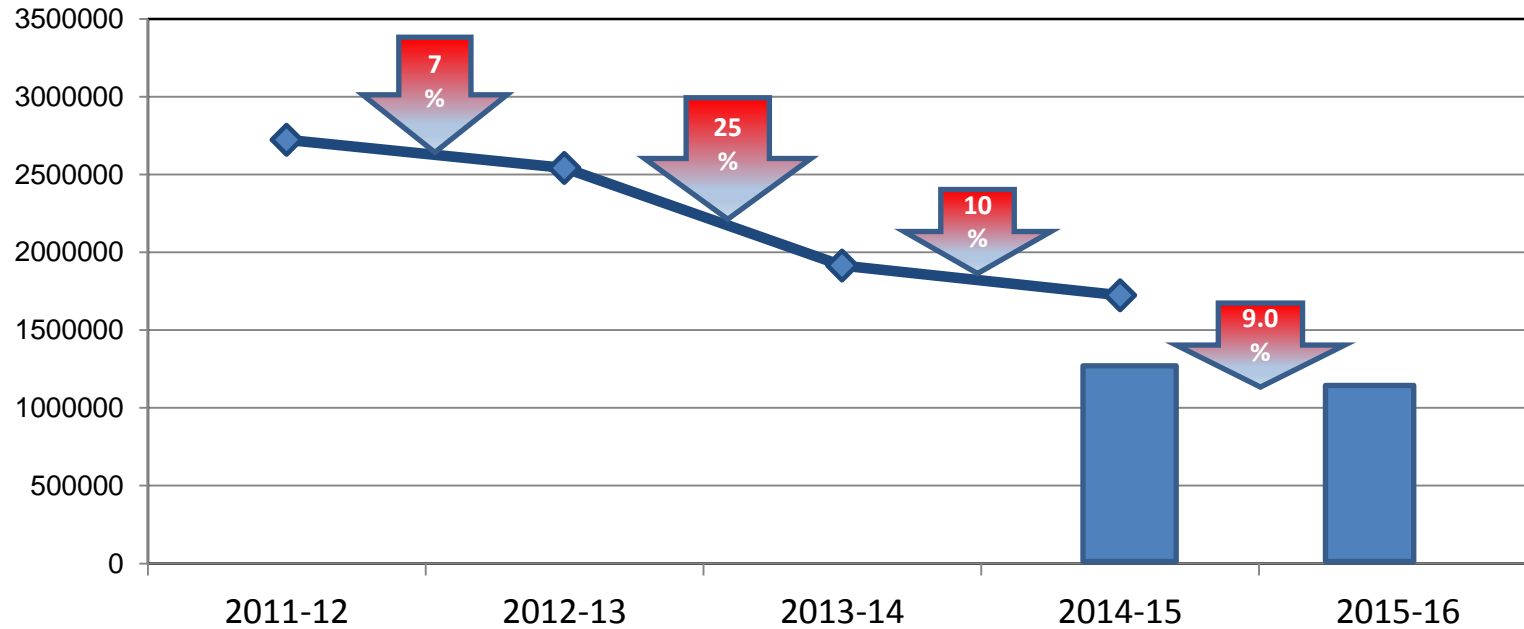
Absolute Thermal Energy (Fuel) - Performance (Million KCal)





Water Conservation

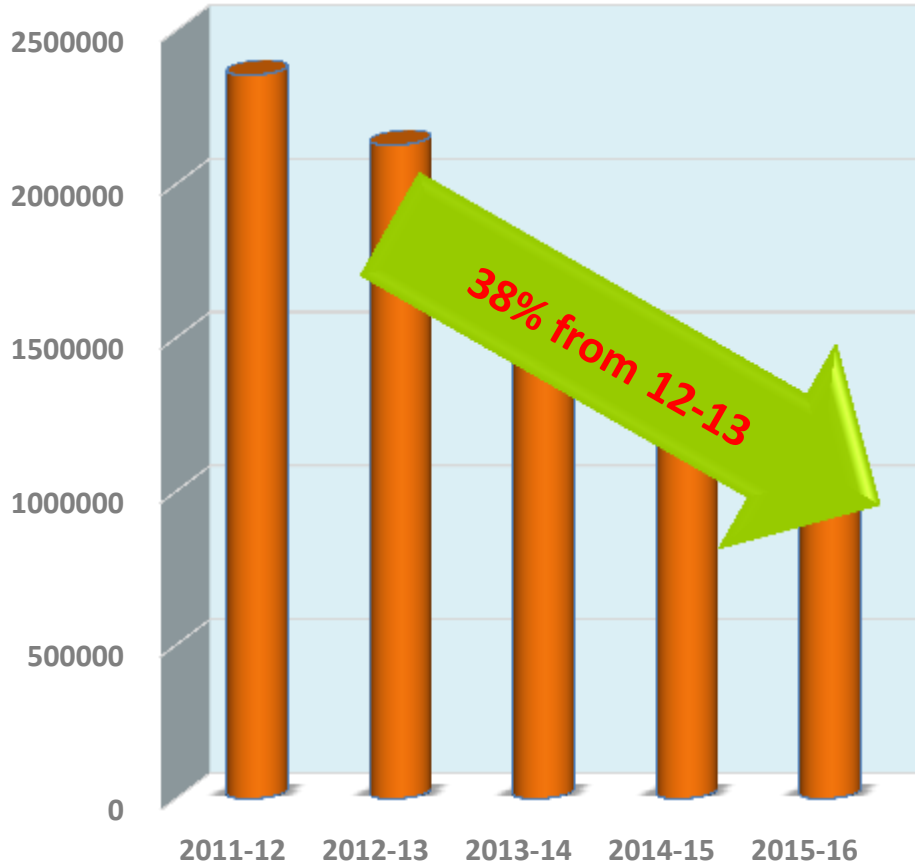
CVBV (Pimpri + Chinchwad) - Total water consumption (KL)



Year	Consumption(KL)	Reduced Consumption(Kl)	% reduction
2011-12	2722860		
2012-13	2542960	179900	7%
2013-14	1914623	628337	25%
2014-15	1722720	191903	10%
2015-16 (up to Dec15)	1211568	109412	9.03 %

CVBU Pune : Absolute Water Consumption (KI)

Pimpri works



Chinchwad works



Water Conservation



Water Conservation - Achievement

- Direct water supply after 1700 Hrs based on available MIDC water pressure
- Water supply at controlled pressure
- Expansion of J 11-12 Paint shop pipeline to enhance RO water usage
- Identification and rectification of Water leakages
- Disconnection of isolated locations underground water lines
- Installation of VFD for power conservation

Water Conservation – Way forward

Formation of CFT – and Involvement of End user	In place – cont.
Identification and rectification of leakages	In place – Cont.
Effective complaint management	In place – Cont.
Addition/ enhancing Use of filter water for toilet flushing	April 16 – Sep 16
Installation of 500 KLD DBOO Plant	Dec 16
E block Booster Pump	Jun 16
Process water pipeline to Individual shops	April 16 to March 19
Process water line to cooling / tower and recirculation system points	April 16 – March 18



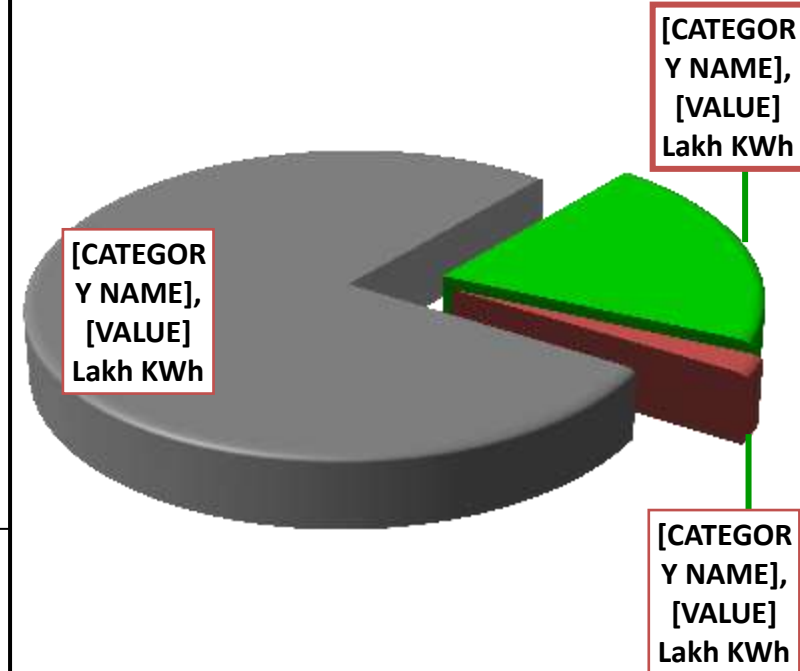
Renewable Energy

TML Pune : Use of Renewable Energy (Green Energy)

Green Energy – Mile Stone So far.....

- ✓ **Captive Wind Farms 21.95MW** : Use of 250 to 310Lakh
- ✓ **Bio Gas Plant** : Annual Energy Generation 0.30 Lakh Units.
- ✓ **Renewable Energy Certificate (REC)**: Till date Total 63,432 RECs generated and Total 36,474 RECs sold.
- ✓ **Roof Top Solar PV Power Project : 1.8MW Roof Top Solar PV Project** commissioned Apr-2015.

TML Pune : Present Electrical Power Sourcing (Utility & Green Power)



TML Pune Electrical Power Sourcing Share - Hybrid Mix (Conventional + Renewable)

ON-Site : Solar
Power 28 to
30Lakh KWh
(Solar Plant 1.8MW)

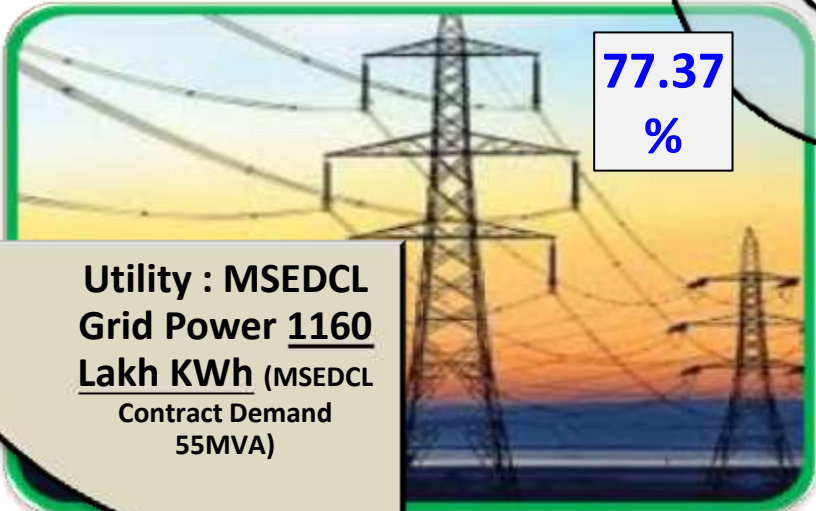


1.93%

OFF-Site : Wind
Power 250 to
310 Lakh KWh
(Wind Farm 21.95MW)



20.68
%



77.37
%

Utility : MSEDCL
Grid Power 1160
Lakh KWh (MSEDCL
Contract Demand
55MVA)



0.02%

ON-Site : Bio-gas
Power
Generation 0.3
Lakh KWh (Bio-gas
Generator 50KVA)

Renewable Energy : Use of Roof Top Solar PV Power at TML Pune Plant

→ Pimpri CVBU : Total 1350KWp Solar PV Rooftop Project.

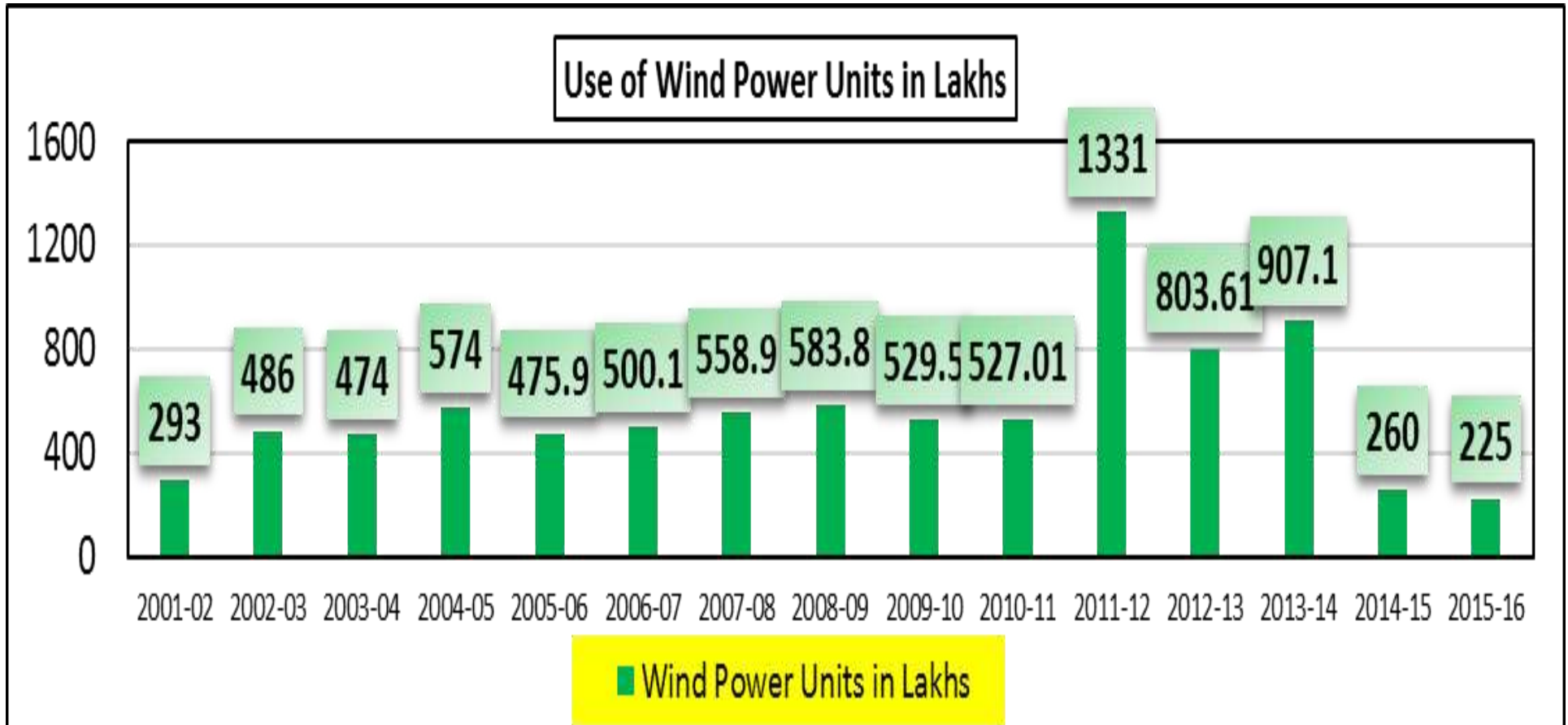
→ Chikhali PVBU : Total 450KWp Solar PV Rooftop Project



**Annual Solar Power
Generation
= 28-30 Lakh Units**



Renewable Energy : **Maximizing Use of Renewable Energy – Wind Power**



Renewable Energy : Use of Solar Water Heating System

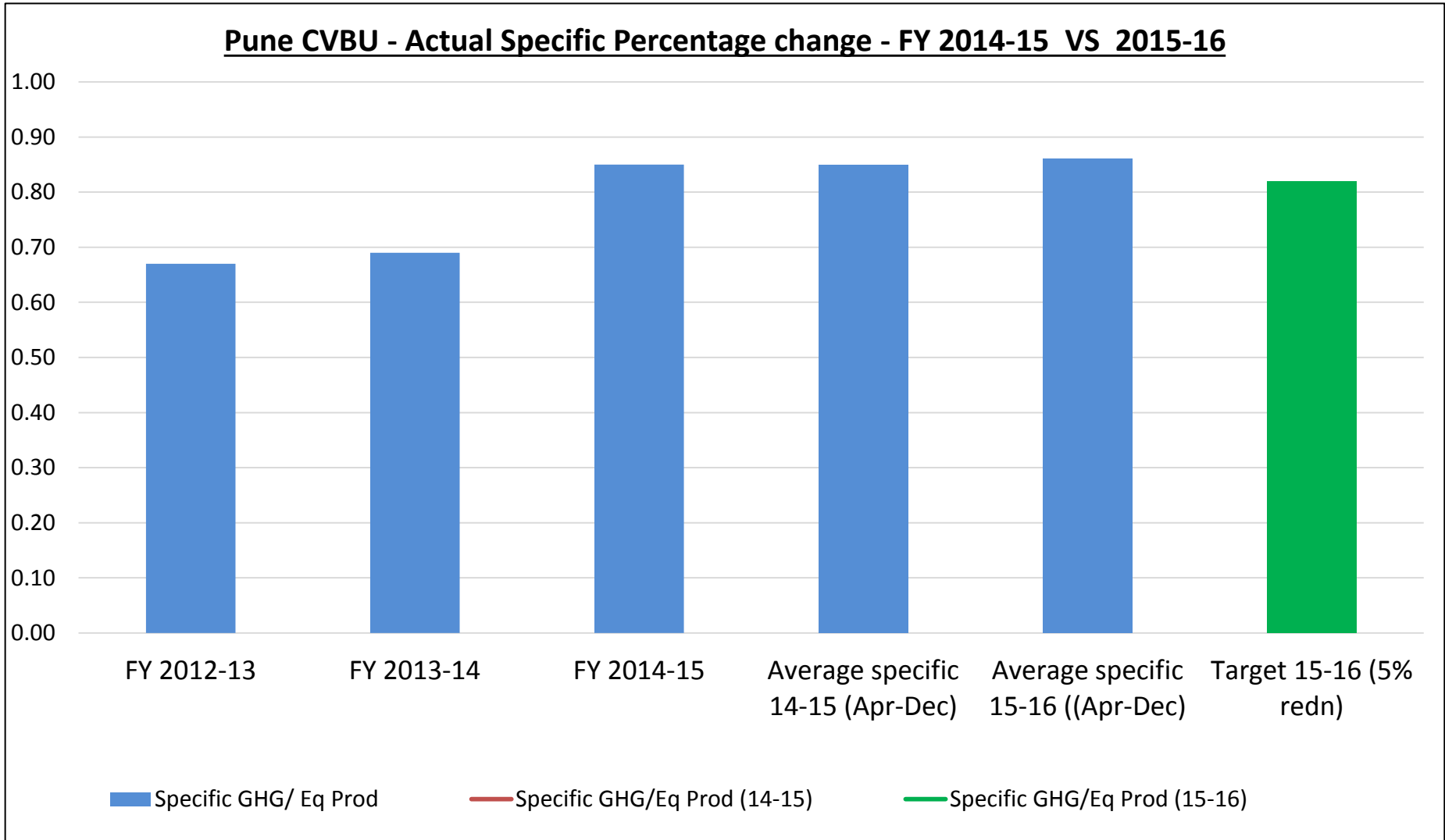
Sr. No.	Area	Installed Capacity	Application
01	Employees Canteen Area	10,000 LPD – 1No. 4000 LPD – 4Nos. 3,000 LPD – 2Nos.	Hot water for Thali Washing.
02	Apprentices Hostel and Canteen	2500 LPD – 1No. 750 LPD – 1No.	Hot water for bath and thali washing.
03	Lake House Kitchen & Sindh Hsg. Society	250LPD – 2Nos.	Hot water for Thali Washing
04	Creche Area	750LPD – 1No.	Hot water for bath and washing.
Total Installed Capacity		36,250 LPD	





GHG Emission Reduction

Carbon Footprint Specific GHG/Eq Veh Trend - Pune CVBU





Waste Management

Utilization of Waste as a Fuel : Canteen Waste Bio-Gas Plant

Canteen waste Disposed through Bio-Gas Plant and Bio-Gas as Fuel Energy :

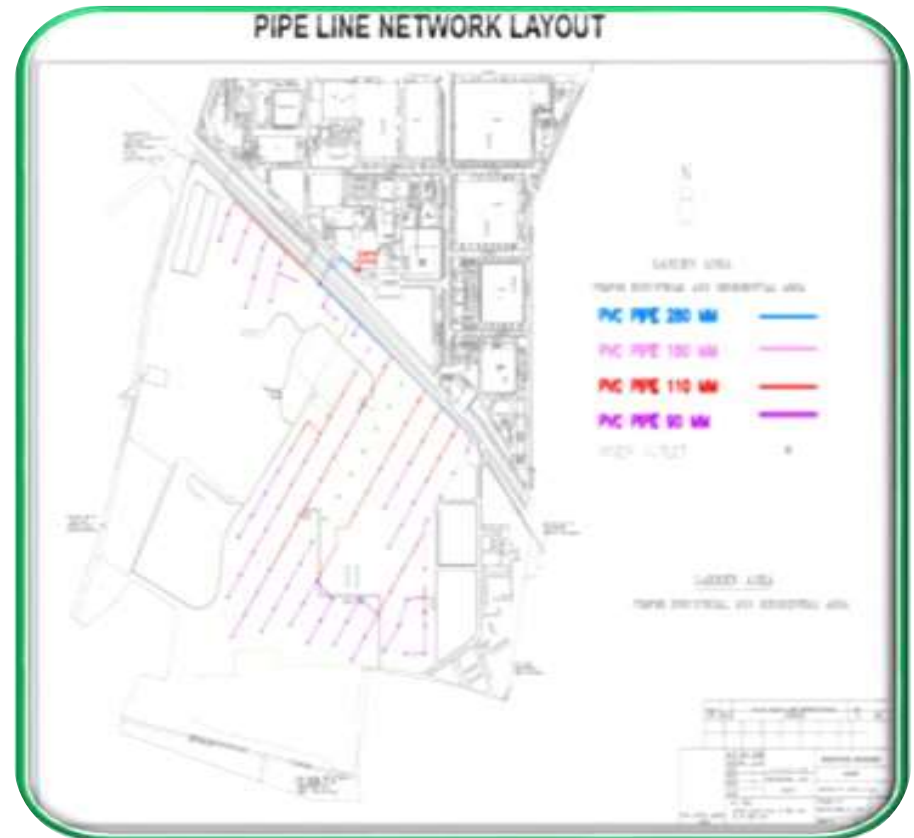
- 6 ton/day biogas plant using canteen waste at Pimpri Plant.
- Electrical Generator operated on biogas.
- In Last 3 years, Total 2677MT Canteen Waste used.
- Bio-Gas of 0.138 Million Cubic Meter Generated & its Heat Value is 528 Million Kcal.





Environmental Improvements

The use of treated effluent for Horticulture purpose.



Environmental Improvements

Installation of 07 number fountains to induce Aeration in Lake.

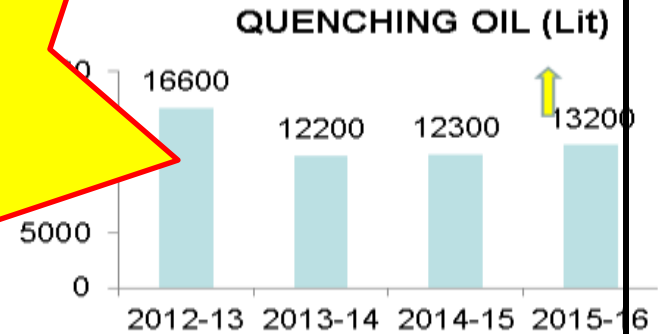
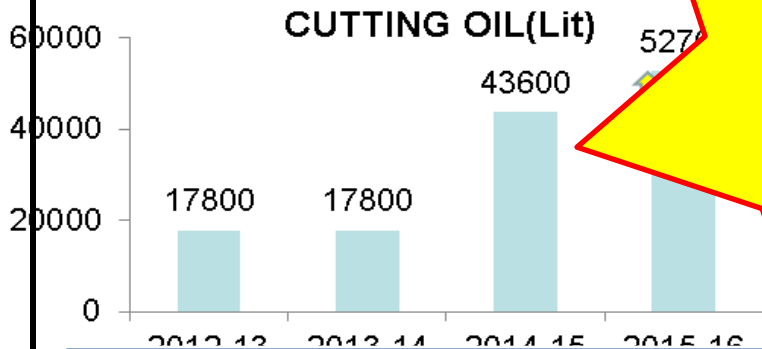
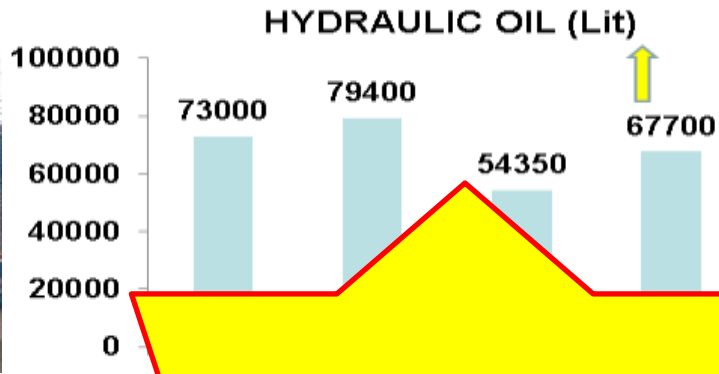


Environmental Improvements

125 KLD and 75 KLD STP installation at Chinchwad instead of use of Public sewage treatment facilities.



ORC – Oil Reclamation Cell - Reclamation of Oil for Reuse



Revenue Generated Rs 150 Lac

The Brief Details of ORC

The used oil is reclaimed through centrifuge process and re-used for primary / secondary purpose such as power packs , press machines , drilling , boring and heat treatment process

The quality of oil is checked through in house lab for viscosity , specific gravity flash point

Residue / non usable oil is sent for Auction or disposed off at CHWTSDF based on quality of oil

Hazardous Waste - Achievement

Identification of root cause and Reduction of oily card board waste

Action for changing the packaging material

Use of ETP Sludge for paving block manufacturing

Trials for Use of Bio gas for drying ETP Sludge – Proposal is not cost economical

Use of alternative chemical to replace the Lime – Proposal is not cost economical

Hazardous Waste - Way forward

EMP at CX level at starting of the year Minimum 16 % reduction over 14-15 level	March 16
CBRI – Study for use of ETP sludge to develop various building materials	Jun 16
Use of ETP sludge for paving lock manufacturing	Dec 16
Installation Paint granular machine	July 16
Try out with Use of Centrifuge to reduced sludge volume and enhance sludge drying	July 16
Shop Level reduction efforts at Generation stage	June 16-
Awareness Drive on segregation	Sep 16



Green Supply Chain

Stakeholder Engagement: Sustainability in Supply Chain

- Conducted awareness sessions on “Carbon Footprint – Measurement & Mitigation” in Vendor Meets covering about 215+ Suppliers representatives.
- Shared GHG Tool (spreadsheet) provided by CII-IGHGP with all Suppliers for CO₂ estimation for their own Units. We have started receiving responses.
- Plan to share Sector Specific TML Best Practices for GHG mitigation with Suppliers.



Works	Date	No of Suppliers participated	Topic	Faculty
CV Pune	29-Jan-2016	80+	• Carbon Footprint – Measurement & Mitigation	Atik Sheikh - CII India GHG Program
CV Pune	24-Feb-2016	50+	• Importance of Sustainability in Supply Chain	Abhay Pathak, Lead – Sustainability
Lucknow	29-Feb-2016	15	• Carbon Footprint – Measurement & Mitigation	Mr. Girijesh Pandey – Environment Dept.
PV Pune	14-Mar-2016	70+	• Carbon Footprint – Measurement & Mitigation • & Importance of Sustainability in Supply Chain	Peter D’souza, Lead – Env Mgt & Abhay Pathak, Lead – Sustainability

ISO 14000 AWARENESS VISIT STATUS 15-16

Sr. No.	Date	Supplier	Address	Guidance given	Remarks
1	11-05-2015	EMULISCHEM	T - 120 MIDC Bhosari PUNE 26	ISO 14000 AWARENESS	
2	11-06-2015	K C Tool Room Pvt Ltd.	Plot No. J 141 MIDC Bhosari PUNE 26 Near Gawali Matha Chawk	ISO 14000 AWARENESS	
3	11-06-2015	Rachana Dies and Moulds	Plot NO. 86 Sector No. 10 PCNTDA Bhosari PUNE 26	ISO 14000 AWARENESS	
4	11-06-2015	M/S T- Squire Tools	T - 47 General Block MIDC Bhosari PUNE 26	ISO 14000 AWARENESS	
5	07-11-2015	TARA Tools	Sector No. 7 Plot No. 152 PCNTDA Bhosari PUNR	ISO 14000 AWARENESS	
6	14-11-2015	Savitri Automation	D-3 Block MIDC Chinchwad	ISO 14000 AWARENESS	

Visited [22 number of vendors as a part of ISO14001, Water Foot Print and water conservation awareness programme.](#)

11	28-01-2016	Autophina	680 Kudle Wadi	ISO 14000 AWARENESS	
12	05-02-2016	Vib's India Pressing	J- 291 MIDC Bhosari Pune 26	ISO 14000 AWARENESS	
13	05-02-2016	Uchil Industries	W -145 S block MIDC Bhosari	ISO 14000 AWARENESS	
14	05-02-2016	Span Precision Componenets	Shed no. 866/7 S. No. 39/1A Manik Baug Vadgaon Bk. Pune 51	ISO 14000 AWARENESS	
15	05-02-2016	Sharada Industries	W -199B S block ,MIDC Bhosari Pune 411 026	ISO 14000 AWARENESS	
16	05-02-2016	Vib's India Pressing	W 273 MIDC Bhosari Pune 26	ISO 14000 AWARENESS	
17	20-02-2016	Gloria	Chinchwad	ISO 14000 AWARENESS	
18	23-02-2016	Japtech Industries	Chakan	ISO 14000 AWARENESS	
19	23-02-2016	Mehta Pressings	Bhosari	ISO 14000 AWARENESS	
20	27-02-2016	MEPL	Ranjangaon	ISO 14000 AWARENESS	
21	27-02-2016	TATA BATTERIES	Ranjangaon	ISO 14000 AWARENESS	
22	04-03-2016	Autophina	680 Kudle Wadi	ISO 14000 AWARENESS	

Improvement in Bus Routes of TML Employee Bus Transport System by TML thro' different transport contractors / associates

- Employees transport is outsourced activity to different vendors
- Fuel saving awareness created among vendors, based on their suggestions reorganization of bus routes carried out

Year	Name of associate / vendor	Name of service provided to vendor	Annual Fuel Saving (Diesel) in KL	Annual Fuel Cost Saving Rs. in Million	Type of inputs / projects provided to the vendor/ associate
2013-14	M/s AGA Transport; M/s BVG Transport; M/s Supreme Transport; M/s GW Transport	Improvement in Bus Routes	125.189	9.529	<ul style="list-style-type: none"> ✓ Revised PMG Routes --(PMG 4 ,5,11,13,19) ✓ PMG Bus all routes revised ✓ Bus routes closed & Bus stops of these routes clubbed with other buses. ✓ 6.15PM & 7.15PM OT Routes reduced (22 Routes to 10 Routes) ✓ 5.15 pm Regular G shift only out routes closed . (15 Routes)

Improvement in Bus Routes of TML Employee Bus Transport System by TML thro' different transport contractors / associates

Year	Name of associate / vendor	Name of service provided to vendor	Annual Fuel Saving (Diesel) in KL	Annual Fuel Cost Saving Rs. in Million	Type of inputs / projects provided to the vendor/ associate
2014-15	M/s AGA Transport; M/s BVG Transport; M/s Supreme Transport; M/s GW Transport	Improvement in Bus Routes	134.739	8.487	<ul style="list-style-type: none"> ✓ Six numbers bus routes closed (2 Nos. B-shift & 4Nos. C-shift) & one c-shift bus route changed. ✓ Bus routes closed, Old bus contractor changed to new bus contractor (3 routes) & one G-shift bus route starting point changed. ✓ Two numbers bus routes closed, Three bus routes some stops removed & Two numbers bus route starting point changed. ✓ Bus Route Starting point changed

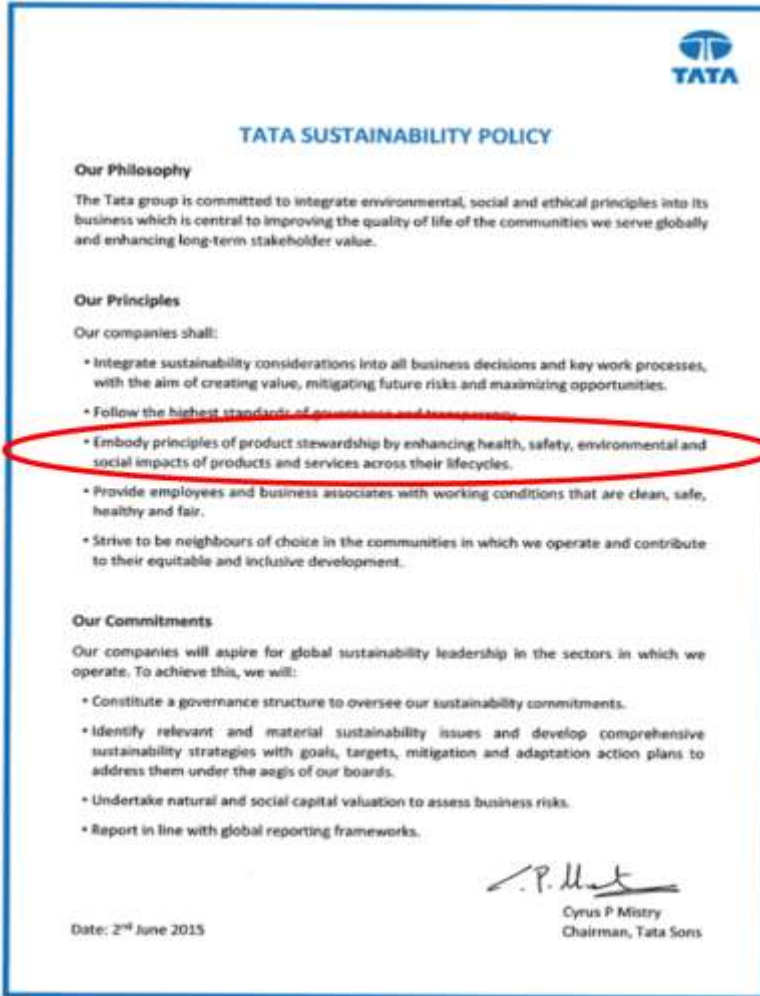


Life Cycle Assessment



Life Cycle Assessment (LCA) Approach at Tata Motors

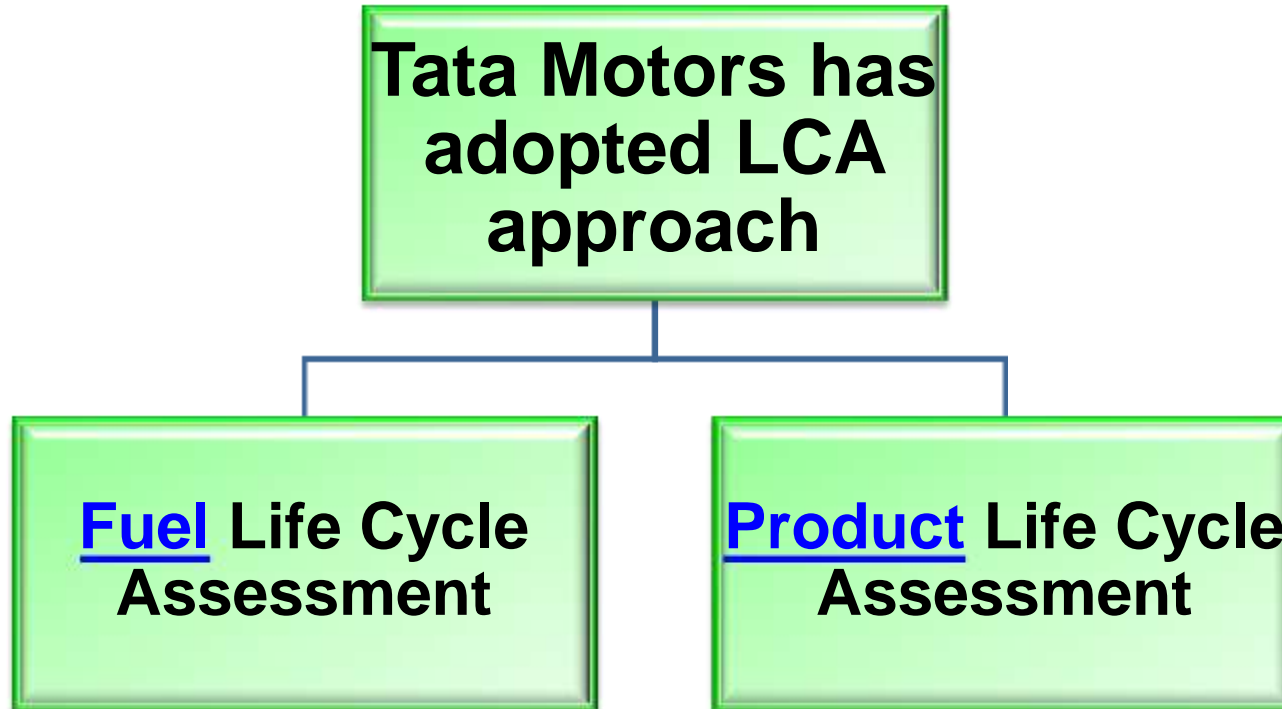
TATA Sustainability Policy :



Embody principles of product stewardship by enhancing health, safety, environmental and social impacts of products and services across their lifecycles.



Life Cycle Assessment (LCA) Approach at Tata Motors



[Life Cycle Assessment \(LCA\) Approach at Tata Motors](#)

[Product Life Cycle Assessment :-](#)

[Product Life Cycle Assessment \(LCA\) Approach](#)

- ✓ Using a software tool “**GaBi**” supplied by PE International, Germany – **1st Indian Automobile Company using LCA tool.**
- ✓ Conducted LCA of auto components initially during 2010-12.
- ✓ Conducted LCA of a car during FY 2013-14
- ✓ Conducted LCAs of four products (2 PV and 2 CV) during the FY 2014-15.
- ✓ **1st Indian Automobile Company completing LCA of a car, benchmarking with global auto leaders like BMW, VW, Mercedes Benz.**





Tata Motors CVBU Pune plant **won the CII – National Award for ‘Excellence in Energy Management-2015’** & declared as **Excellent Energy Efficient Unit in Automobile sector**, for last three consecutive year 2013, 2014 & 2015.



Tata Motors Chikhali Pune plant received Vasundhara Awards-2015:- TATA Motors Car Plant Chikhali Pune has won **Vasundhara Award -2015** under the “Large Scale Industry” Category.

This award is a recognition of the achievements in the field of Energy, Environment & Climate Change.



Tata Motors Pune plant received CII-GBC GreenCo Best Practices Award-2015:- CII-GBC Assessor's Panel has recognized TATA Motors Ltd. for the excellent efforts in **"Best Practices in Life Cycle Assessment"** for the GreenCo Best Practices Award. TATA Motors Ltd., Pune was presented **a Shield and a Certificate** as a recognition for the best practices implemented during the Awards function held on 24th Jun-2015 at Mumbai.



Thank You!