

CII - 19th National Award for “ Excellence In Energy Management - 2018”



→ **Mr. Vivek V. Joshi**

General Manager - Head - CMS CVBU Pune

→ **Mr. Pramod Kaulgud**

Senior Manager - CMS CVBU Pune

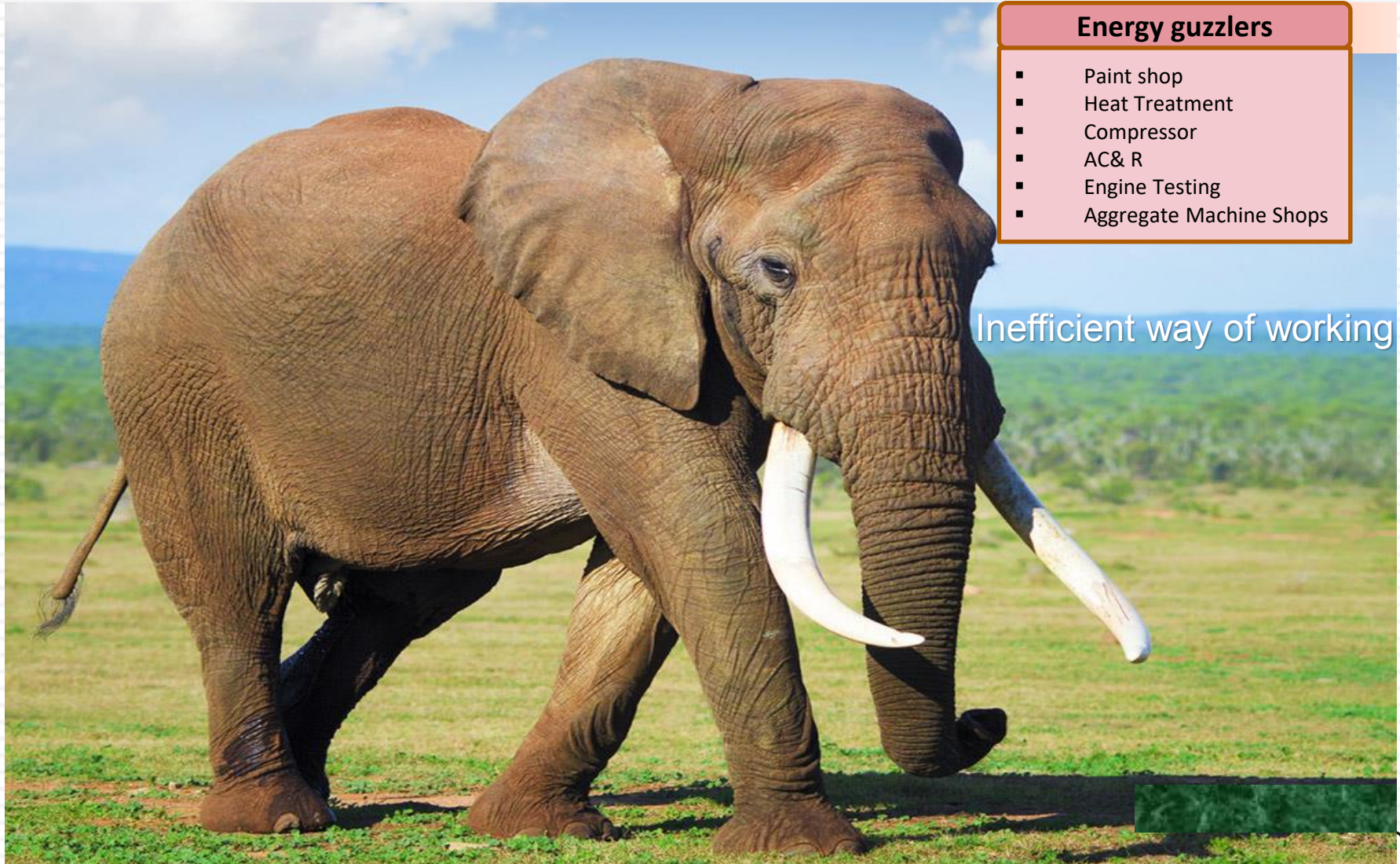
→ **Mr. Sudhir S. Bhale**

Dy General Manager - Head - CPED Electrical

Our Purpose

**We Innovate Mobility Solutions With
Passion To Enhance Quality Of Life**

CVBU Pune Energy Up to Jun 2017



Energy guzzlers

- Paint shop
- Heat Treatment
- Compressor
- AC& R
- Engine Testing
- Aggregate Machine Shops

Inefficient way of working



Conversion of light Diesel Oil (LDO) fuel to Natural Gas (NG) heating at Long member pretreatment process.

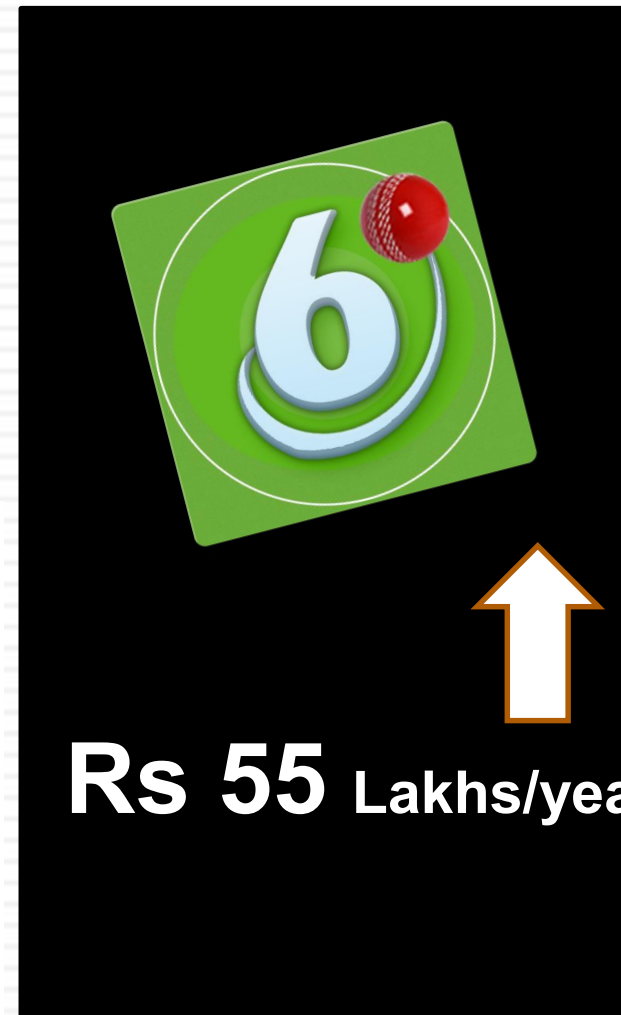
Process : Pretreatment (Degreasing & Phosphating)
Component : Long Member
Location : E Block CVBU Pune



Encon Make Gas
Heating system



Total Saving of –Rs 55 Lakhs per annum



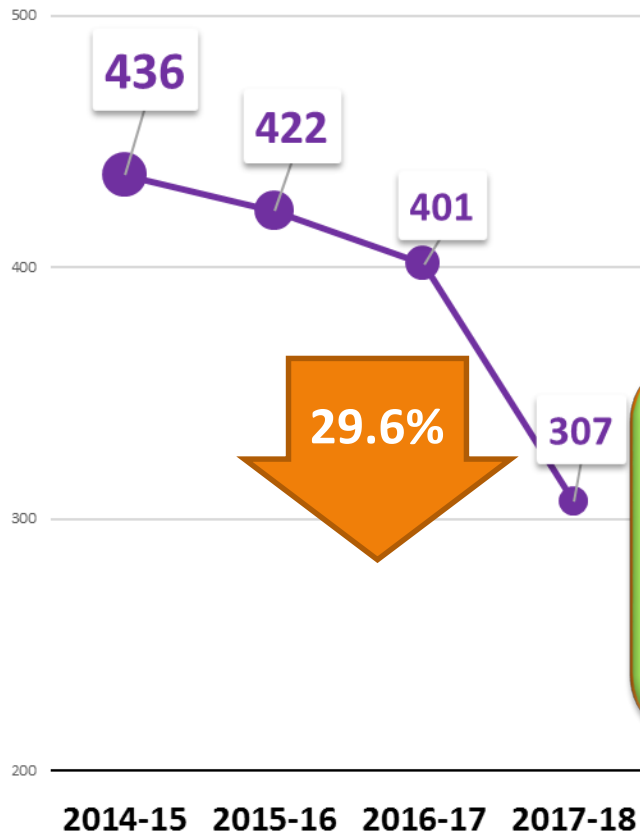
Rs 55 Lakhs/year

1. Sp. Energy Consumption in last 3 years

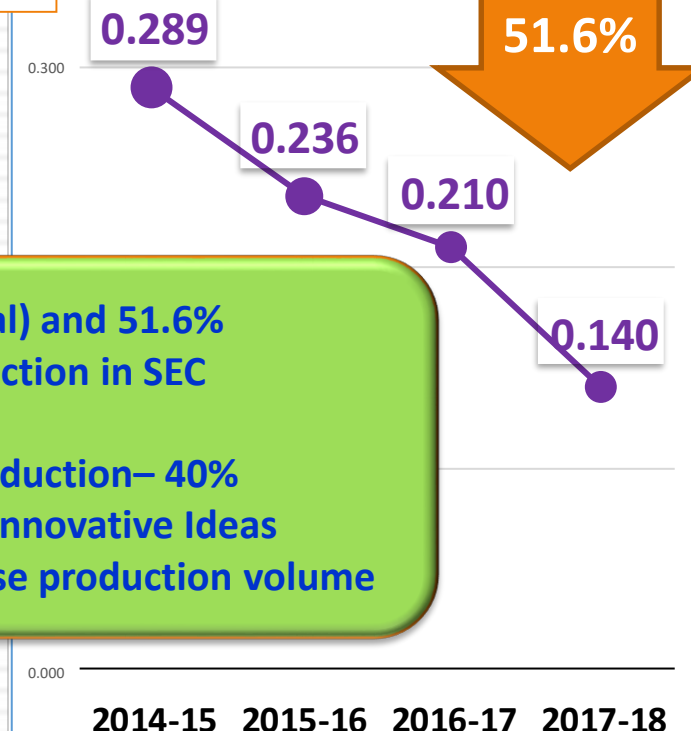
- Sp. Energy consumption (thermal & electrical) trend



Electrical :- Specific Energy Performance in KWh/Eq.Veh.



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



29.6% (Electrical) and 51.6% (Thermal) Reduction in SEC

- Mgt Loss Reduction– 40%
- Technical / Innovative Ideas
- 42 % increase production volume

Benchmark

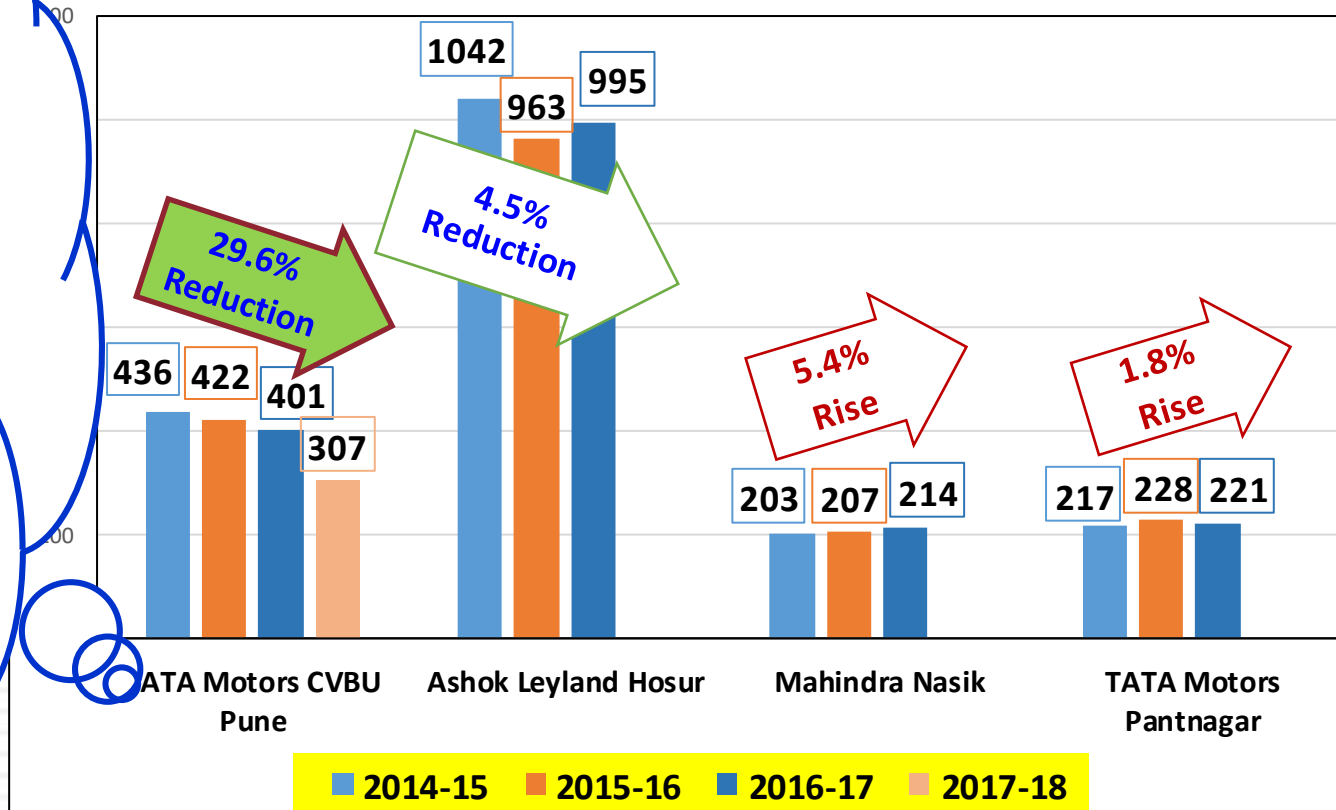
2. Information on Competitors, National & Global benchmark

Comparison of Energy Performance year on year with EnPI of industry / sector benchmark

National Level

TATA Motors CVBU Pune Plant is having all the manufacturing process like Paint shop, Press shop, Weld shop, Engine shop, Gear shop, Heat treatment, Axle shop, Different TCFs Assy. Lines, etc.

Comparison of Specific Electrical Energy Performance (KWh/Eq.Veh.)

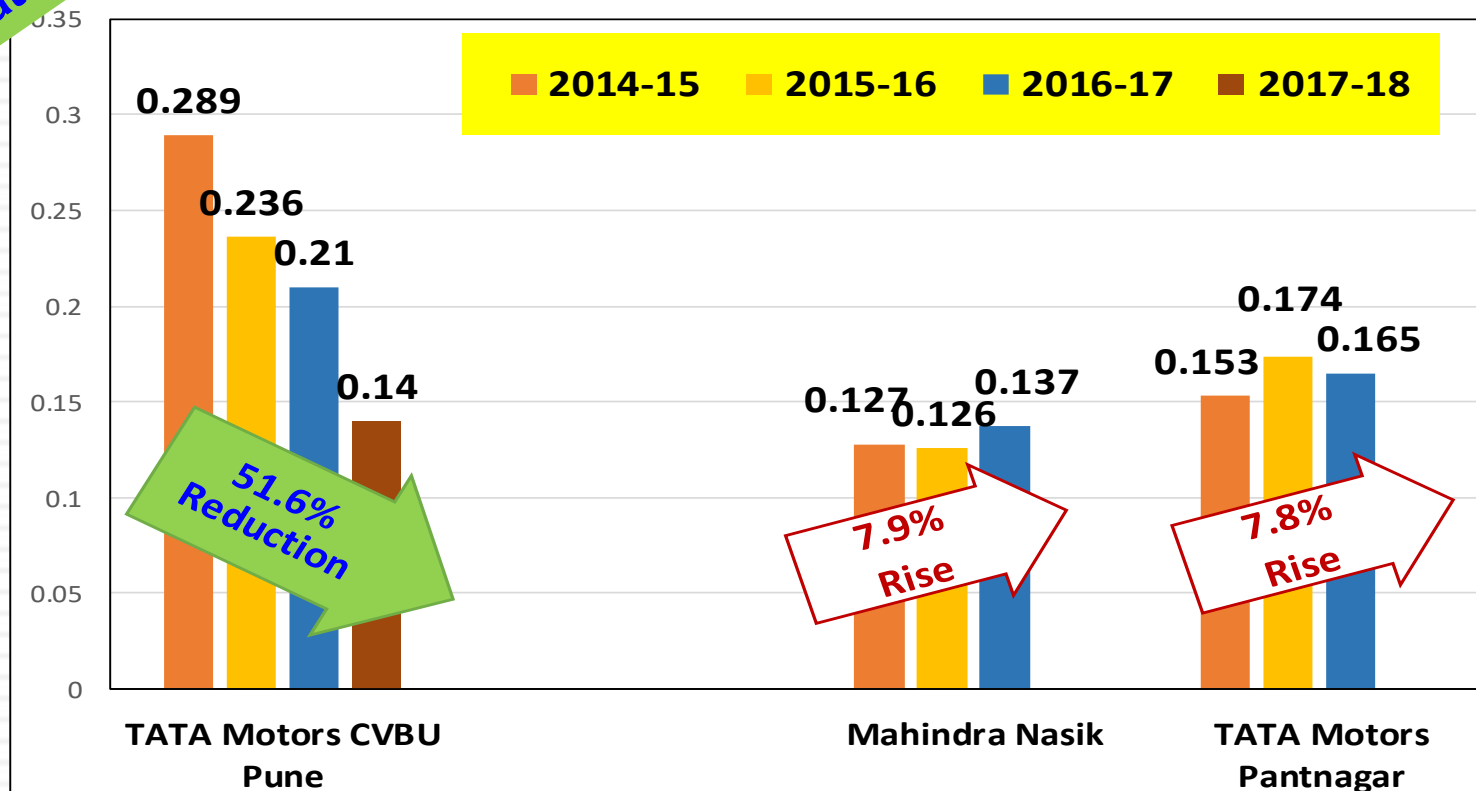


2. Information on Competitors, National & Global benchmark

Comparison of Energy Performance year on year with EnPI of industry / sector benchmark

Comparison of Specific Thermal (Fuel) Energy Performance (Million KCal/Eq.Veh.)

National Level



<https://www.scania.com/group/en/wp-content/uploads/sites/2/2018/03/scania-annual-and-sustainability-report-2017.pdf>

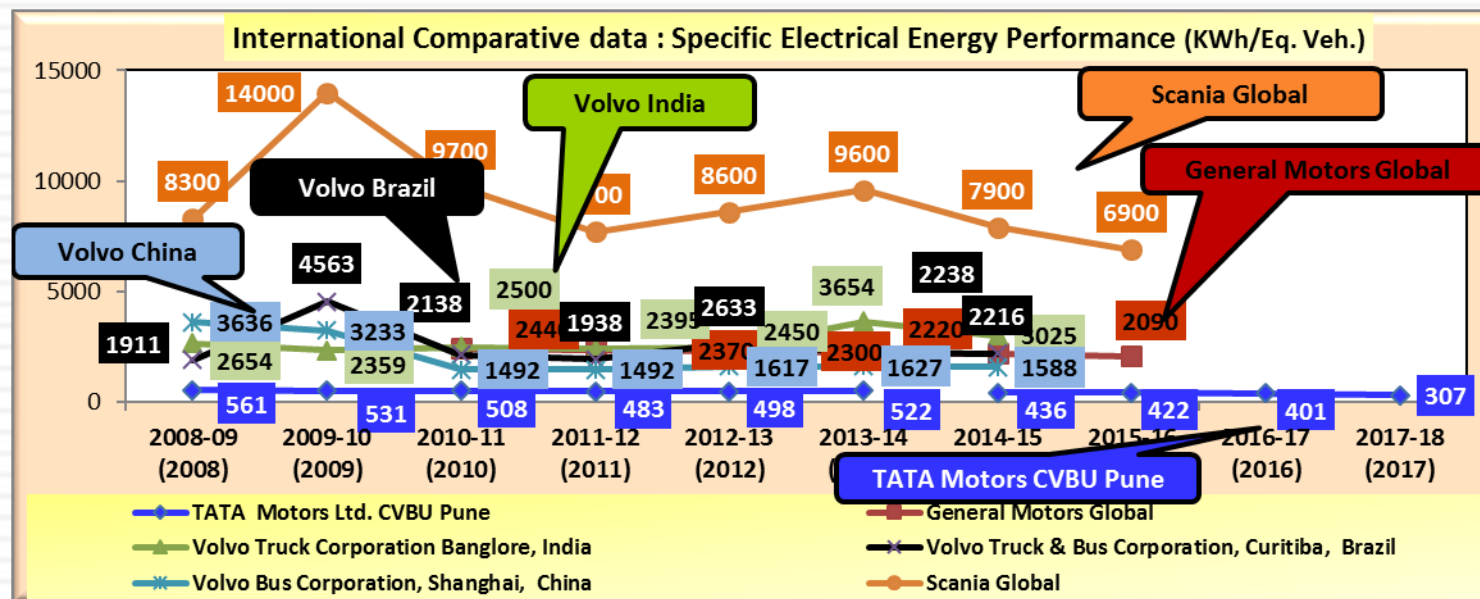
© Confederation of Indian Industry

2. Information on Competitors, National & Global benchmark

Global Benchmark

TATA Motors CVBU Pune Energy performance is better than its Global competitors but still we would like to highlight the following aspects.

- Apple to apple comparison is very difficult to compare
- Manufacturing models are different, eg. In CVBU Pune, we are having all manufacturing processes.
- Climatic conditions varies



Last Three Years Implementation

3b. Energy Saving projects implemented in FY 2016-17

List of Major Implemented Energy Conservation Projects



Installation of 20W LED Tubes in place of conventional 40W Fluorescent Tubes Booth Area. (Phase-I & II : Qty 6000 Nos.)

- Energy Cost Saving → **Rs. 62.2 Lakh**
- Investment → **Rs. 47.1 Lakh**



Upgradation of air end of existing IR-1 centrifugal compressor to new design pressure of 100PSI

- Energy Cost Saving → **Rs. 14.6 Lakh**
- Investment → **Rs. 59 Lakh**



Electrical water heating system converted into NG Gas Heating

- Energy Cost Saving → **Rs. 22.8 Lakh**
- Investment → **Rs. 25 Lakh**

3c. Energy Saving projects implemented in FY 2017-18

List of Major Implemented Energy Conservation Projects



Energy Efficient LED Tube light fittings (18W) implemented in place of Normal Tube light fittings. (Qty 10,729 Nos.)

- Energy Cost Saving → **Rs. 98.65 Lakh**
- Investment → **Rs. 42.9 Lakh**



Conversion of LDO heating to NG Heating system - Long Member Pretreatment process at E-blk Paint shop.

- Energy Cost Saving → **Rs. 54.28 Lakh**
- Investment → **Rs. 50 Lakh**



Time switch with build-in real time clocks have been provided to control operation of utilities like shop blower fans, washing machine heaters, air supply plants etc.

- Energy Cost Saving → **Rs. 4.55 Lakh**
- Investment → **Rs. 3.28 Lakh**

Innovations

4. Innovative Projects implemented

LDO to NG for Pretreatment

Source of Idea

1st Time

Replication Potential

In all Industries

1) “First Time Implemented on National Level Project” - Elimination of polluting Light Diesel Oil (LDO) fuel with clean Natural Gas based heating system for Long Member pre-treatment process

Process : Phosphating and degreasing

Component : Long Member

Location : E Block /E2 Bay

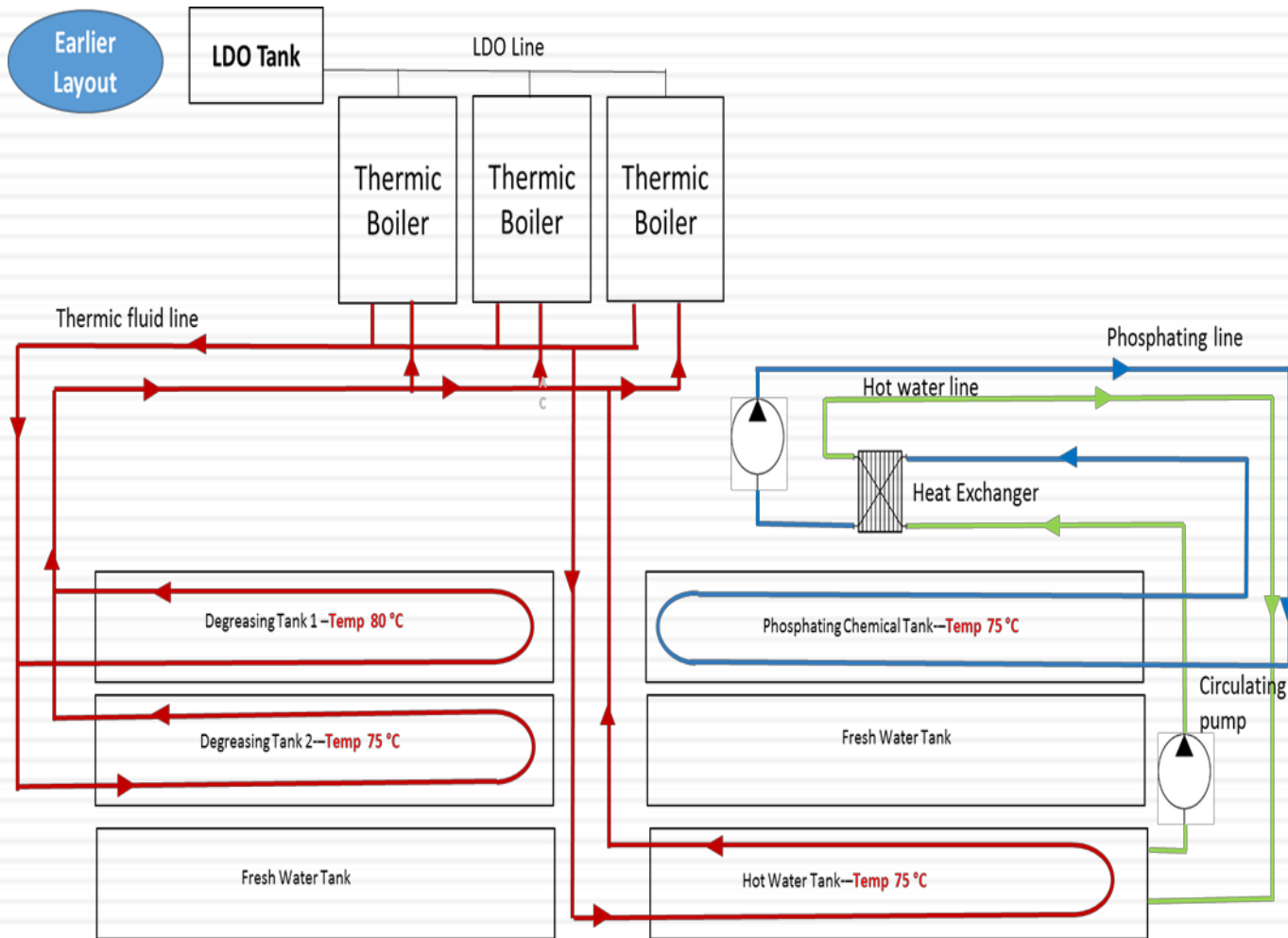


Situation Before Kaizen

- In long member for pretreatment degreasing & phosphating ,LDO thermic fluid was used for heating purpose.
- It is inefficient heating system as Thermic fluid was being heated at 200 °C to achieve to 80°C at tank level to over come transmission and system losses on account of auxiliary circulation pumps and heat exchangers, hence cost of process was appr.114 Lakhs /year.
- process cost of Long member per component was Rs 153 /-
- Age old system (30 years old) . Hence high breakdown time and cost of maintenance .
- It was very dirty system and was occupying 350 sq. mtrs for LDO Tank and boilers etc.

4. Innovative Projects implemented

Layout Before Kaizen



LDO tank

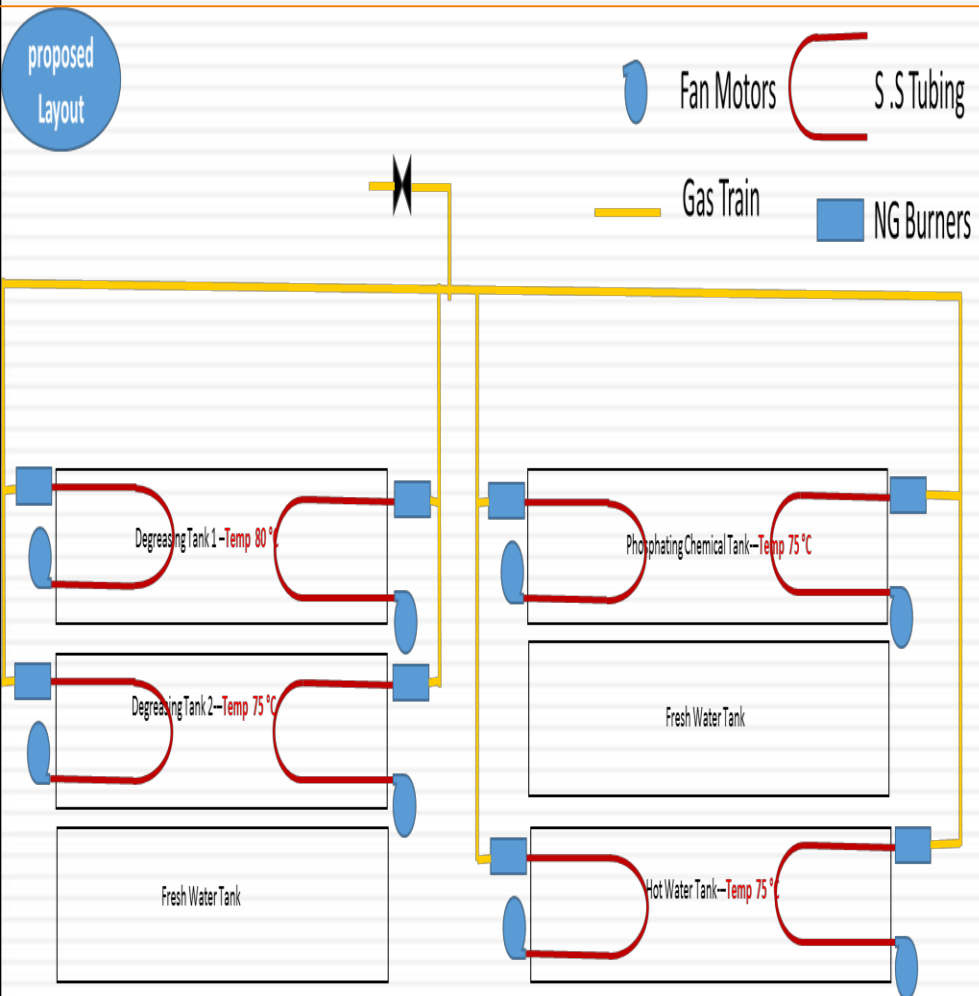


Thermic Boilers

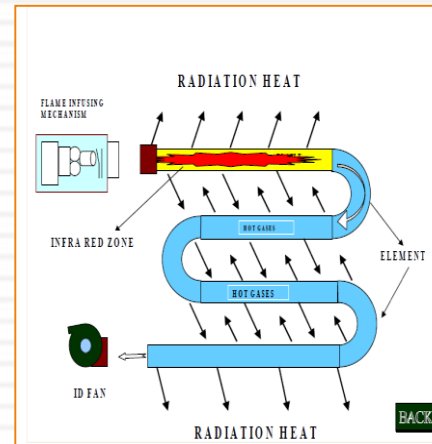


4. Innovative Projects implemented

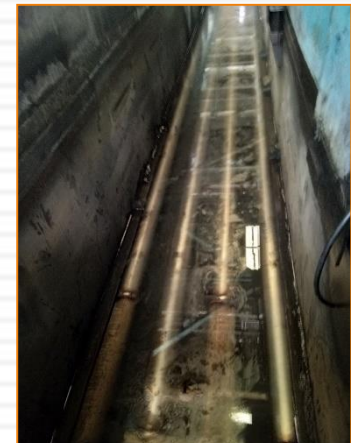
Layout After KAIZEN



Function of NG Heating system



Modification work done :



4. Innovative Projects implemented

KAIZEN Result

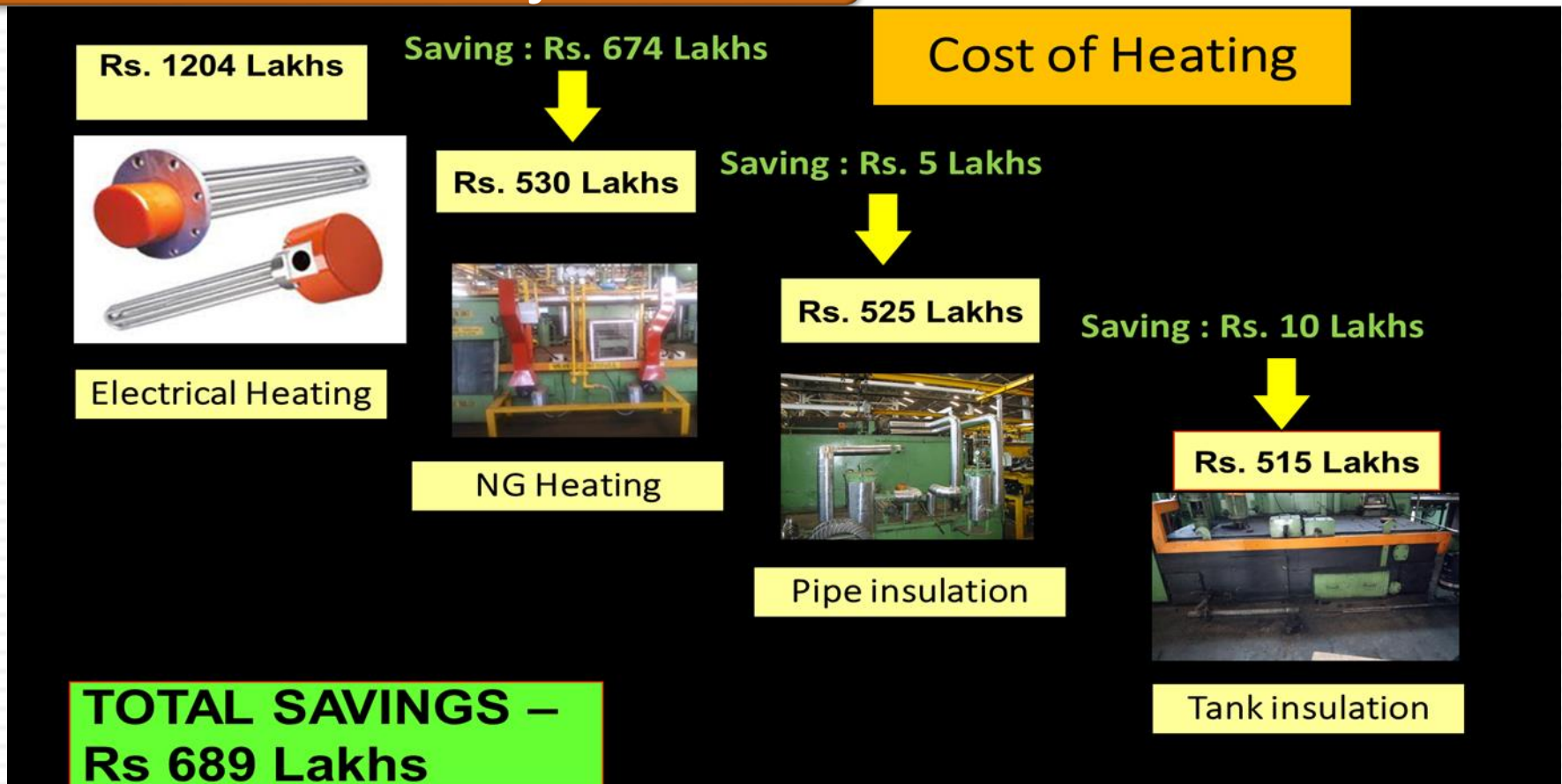
No	Parameter	Before Kaizen	After Kaizen	Saving	% Improvement
1	Process Cost per component in (Rs. Per Component)	153	72	81	53 % cost reduction
2	Cost of fuel for process (Rs. in Lakhs)	114	60	54	47 % cost reduction
3	Space required – (Sq. meter)	350	25	325	93 % space reduction
4	Electric energy required (KWH)	250 KWH	1.76 KWH	248.24 KWH	99 % Electrical energy Reduction

Equivalent CO₂ reduction: **570 tons of CO₂** reduced per annum

4. Innovative Projects implemented

Fifth Generation Washing Machine Project

Source of Idea	CII & 1 st Time
Replication Potential	In all Industries



4. Innovative Projects implemented

Sr. No.	Innovative Projects	Applicability		
		TML Group	In Auto Industries	Across Industries
1	Energy Bank Concept	√	√	√
2	In Pretreatment Application -LDO Fuel to NG Fuel	√	√	√
3	5 th Generation Washing Machine	√	√	√
4	Provision of Prefill tank to reduce Motor Load	√	√	√
5	Improvement in Measure of Performance (MOP)	√		
6	WHRS for Engine Test Bed Exhaust	√	√	√ (Can be tried for other Heating Process)

Awards & Recognition

Sr No	Details of the Awards
1	<ul style="list-style-type: none"> • CII Excellent Energy Efficient Unit Award-2013
2	<ul style="list-style-type: none"> • CII Excellent Energy Efficient Unit Award-2014 • CII Green Co Gold Rating
3	<ul style="list-style-type: none"> • CII Excellent Energy Efficient Unit Award-2015
4	<ul style="list-style-type: none"> • CII Excellent Energy Efficient Unit Award-2016
5	<ul style="list-style-type: none"> • CII Excellent Energy Efficient Unit Award-2017 • BEE Certificate Of Merit 2017 • MEDA Award 2017 • CII GreenCO Gold Recertification