JK TYRE & INDUSTRIES LTD.

VIKRANT TYRE PLANT, MYSURU. KARNATAKA

WELCOME

TO

NATIONAL AWARD FOR EXCELLENCE IN ENERGY MANAGEMENT 2024

Presenters

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Srinivasa R	Srinivas@jkmail.com	9632444311

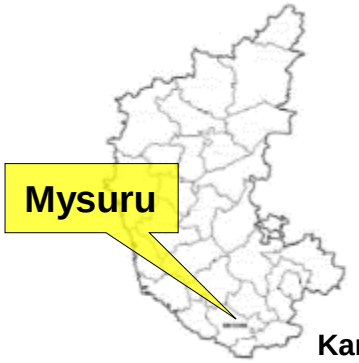
1.PLANT / UNIT INTRODUCTION

JK ORGANIZATION

Late Lala
Juggilal Singhania

Late Lala
Kamlapat Singhania

VIKRANT TYRE PLANT, MYSURU



3 Plants in Mysuru	Current Capacity (MT/Day)
Bias Plant	185
Radial Plant	195
OTR Plant	26
TOTAL	406 (~8,500 tyres/ day) 3000 Employees

TYRE BUSINESS : JK TYRE & INDUSTRIES

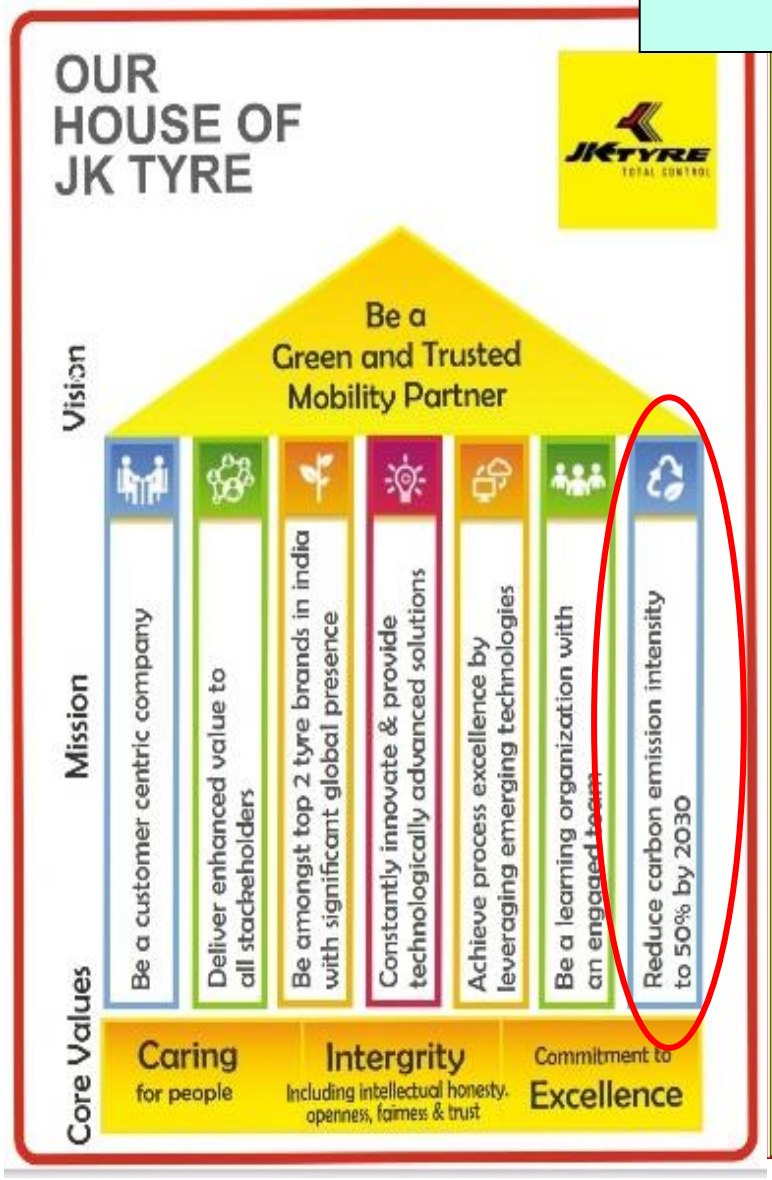
- JK Tyre & Industries Ltd is a part of prestigious JK Organization
- Pioneered Radial Tyre revolution in India
- Technical – Self-reliant.
- Capacity – Initial capacity : 55 Tons/ Day (at Kankroli in 1977)
  Current capacity : > 2,000 Tons/ Day
  Annual Turnover : > Rs. 10,300 Crores
- 12 Plants – Mysuru (Karnataka) - 3 Plants:
  Kankroli (Rajasthan) - 1 Plant,
  Banmore (MP) - 1 Plant
  Chennai - 1 Plant
  Laksar (Uttarakhand) - 3 Plants
  Mexico (Tornel) - 3 Plants

VTP : SYSTEM CERTIFICATIONS (since early 1990s)

VTP - SYSTEM CERTIFICATIONS (since early 1990s)

Si No	Certification	Plant 1 Bias	Plant 2 Radial	Plant 3 OTR
1	ISO 9001:2015 / IATF 16949: 2016 QMS (Quality Mgmt) (1994)	✓	✓	✓
2	ISO 14001: 2015 EMS (Environment Mgmt.) (1999)	✓	✓	✓
3	ISO 45001:2018 (Occupational Health & Safety) (2019)	✓	✓	✓
4	ISO 50001:2018 EnMS (Energy Mgmt.) (2013)	✓	✓	✓
5	SA 8000 : 2014 (Social Accountability) (2016)	✓	✓	✓
6	ISO 27001:2013 (Information Security Mgmt.) (2016)	✓	✓	✓
7	ISO/IEC 17025:2005 - NABL Accreditation (for Laboratory) (2016)	✓	✓	NA
8	IMEA – Gold Award 2010 (Participated in 2006 & 2007 and won Silver award)			
9	TPM Certification (Excellence) JIPM, Japan (2010)			
10	CII Sohrabji Godrej Green Business Centre – GreenCo PLANTINUM Award (2018)			
11	TPM Certification (Consistency) JIPM, Japan (2015)			

ENERGY POLICY



SUSTAINABILITY POLICY

JK Tyre & Industries Ltd commits itself to minimising its impact on our environment through

- Providing a safe and pleasant workplace free from Hazard & Risk;
- Create environmentally sustainable culture, where responsibility is assigned and understood;
- Being an Socially & environmentally responsible neighbour in our community;
- Conserving natural resources by adopting reduce, reusing and recycle concept;
- Reduce Energy consumption by ensuring the responsible use of energy throughout the organisation;
- Increase the share of Renewable energy throughout the organisation
- Participating in efforts to improve environmental protection and understanding
- Taking steps to improve environmental performance continually;
- Conducting rigorous audits, evaluations, and self-assessments of the implementation of this policy;
- Working with suppliers who promote best environmental & sustainable practices
- Enhancing awareness among our employees, volunteers, and users – educating and motivating them to act in an environmentally responsible manner.

Authorised and Approved by
Arun K. Bajoria
Director & President (International Operations)

JK TYRE & INDUSTRIES LTD.

ENERGY POLICY

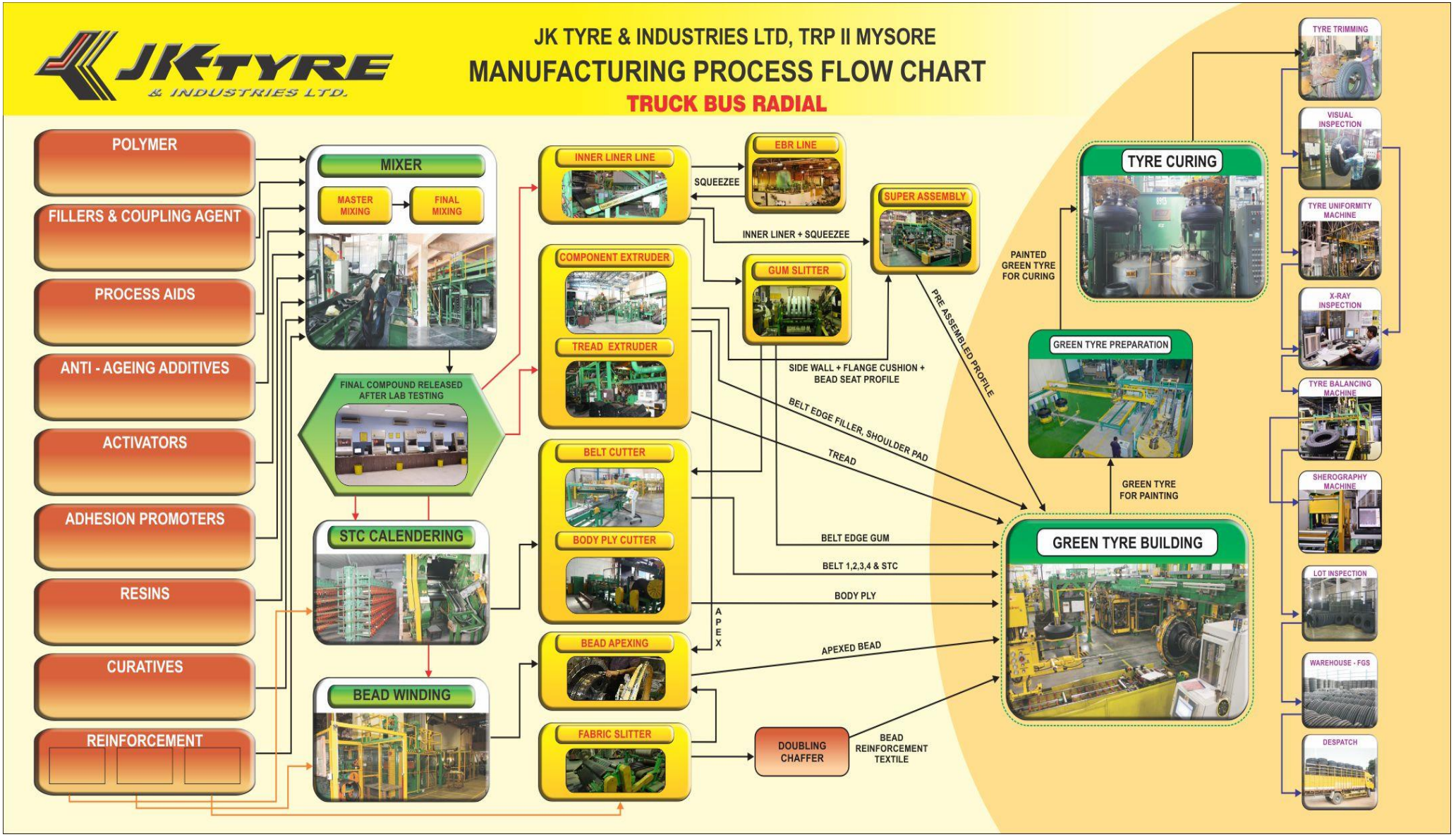
We at JK Tyre are committed to design, manufacture and distribute our products & services in an energy efficient manner to meet our mission statement of becoming a green company. We will continually improve our energy performance for sustainable growth by:

- Complying with all applicable legal and other requirements related to our energy use, consumption and efficiency.
- Taking measure in Energy Management System by being proactive, innovative and cost effective including procurement of energy efficient product & services.
- Enhancing effectiveness of energy management system by ensuring the availability of information and necessary resources to achieve the objectives and targets.
- Integrating energy policy into our business planning, decision making and performance review at appropriate level.

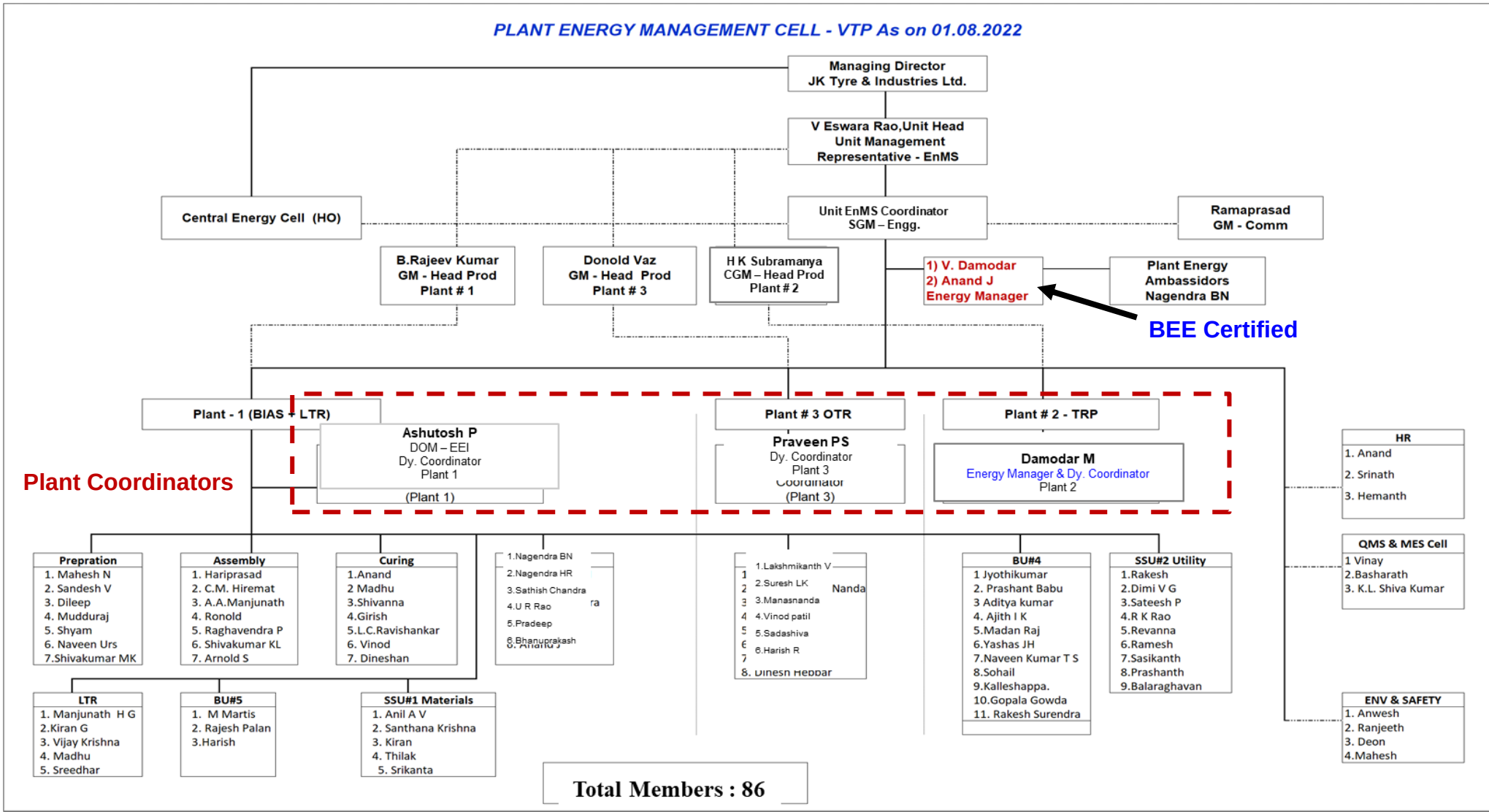
We commit to communicate this policy to all our employees, persons working for and on our behalf and also will make it available to all interested parties on request.

JK TYRE & INDUSTRIES LTD.

2.MANUFACTIRUNG PROCESS

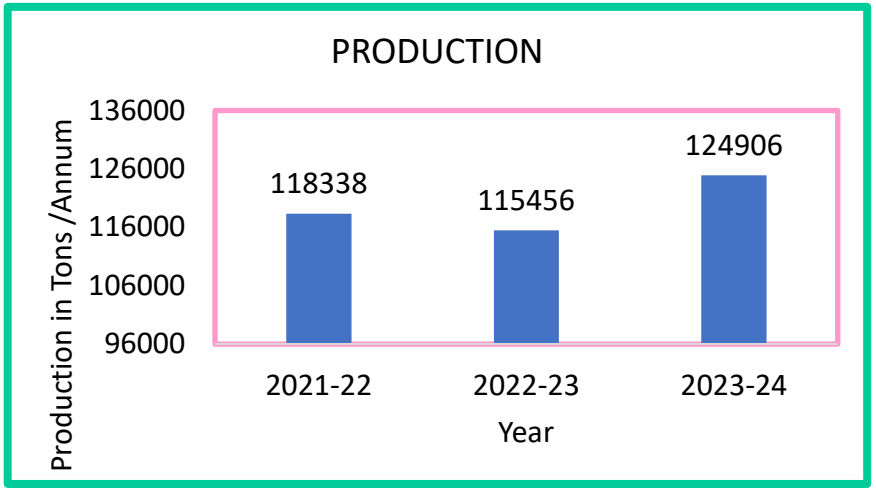


ENERGY MANAGEMENT TEAM

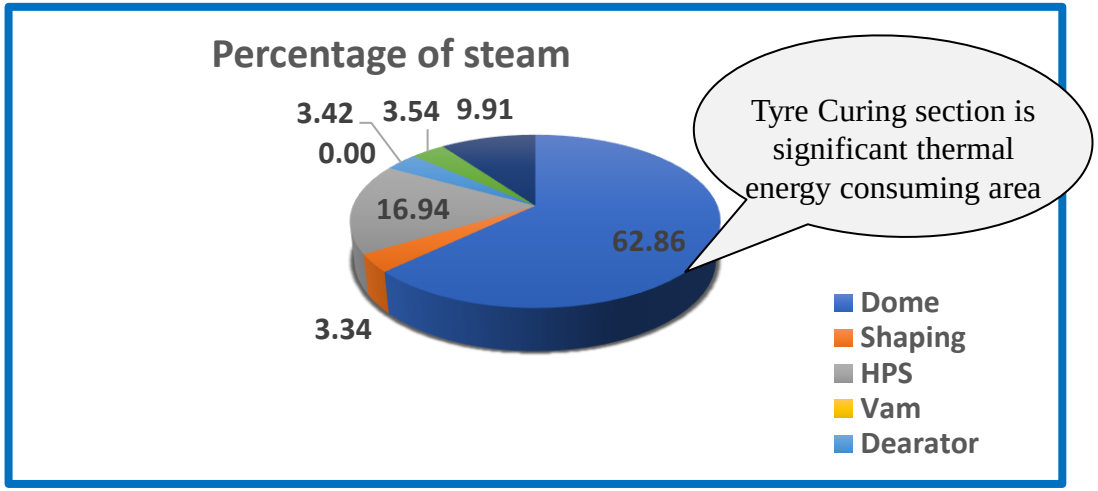


3. SPECIFIC ENERGY CONSUMPTION

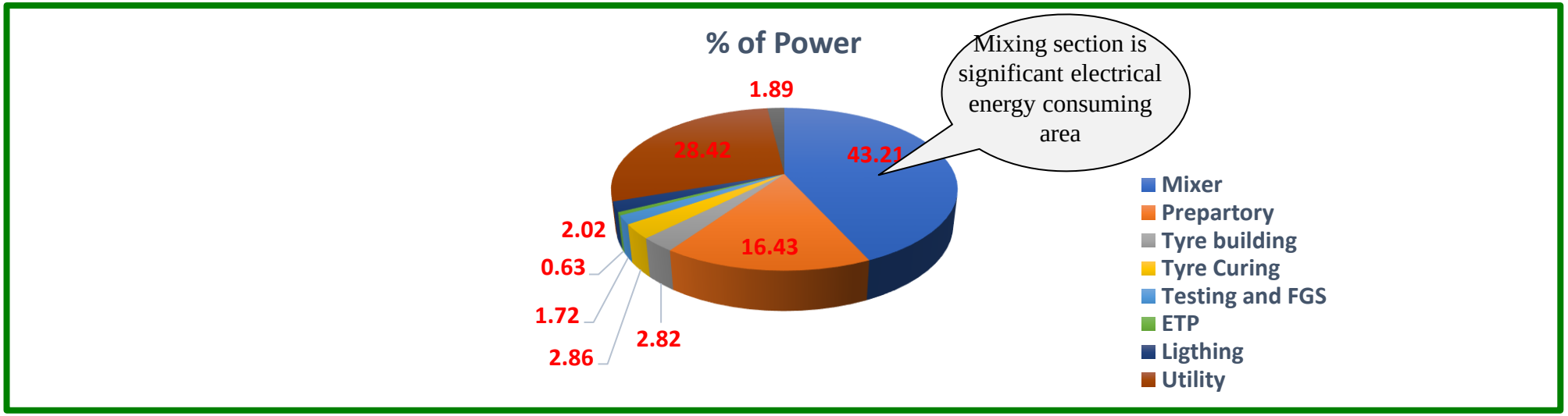
BASIC DATA - PRODUCTION



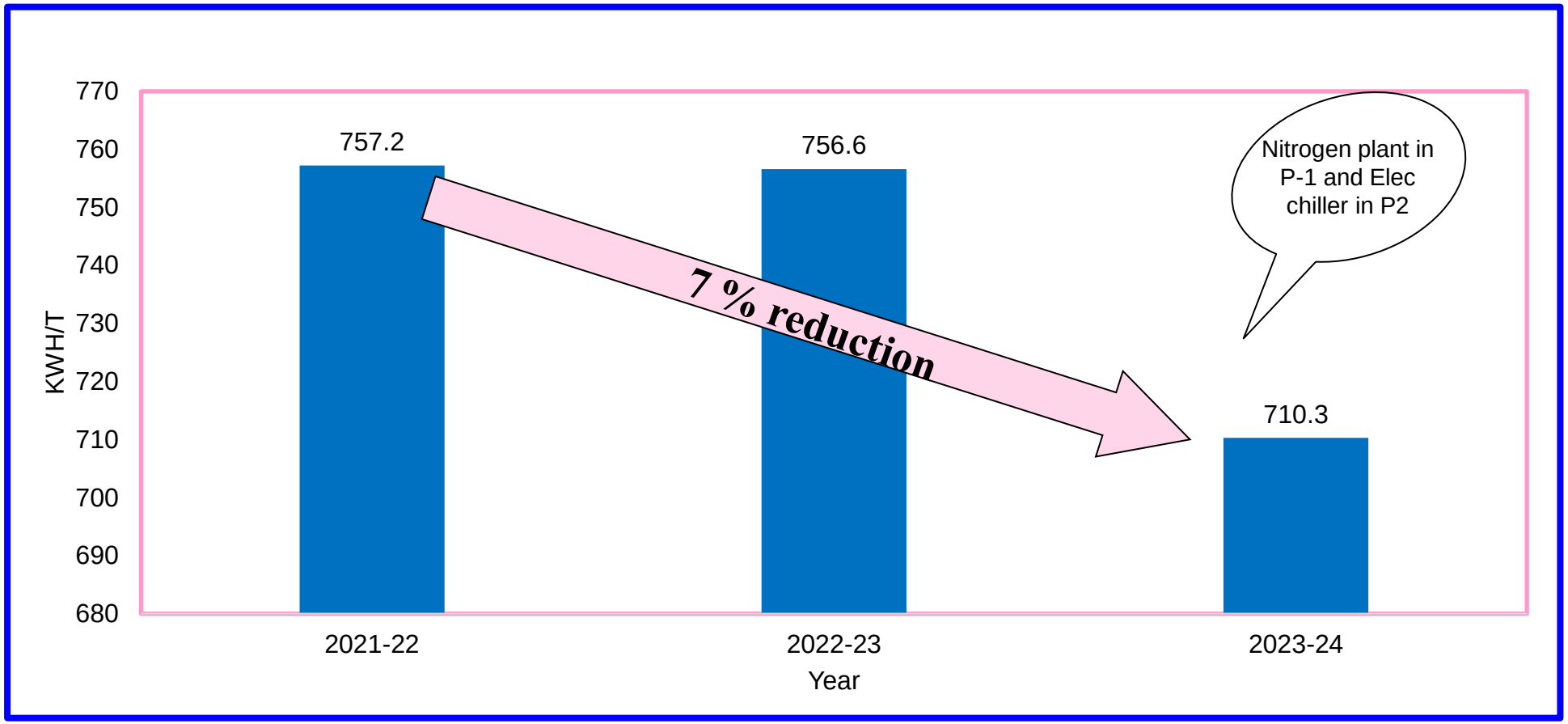
BASIC DATA – STEAM BALANCE



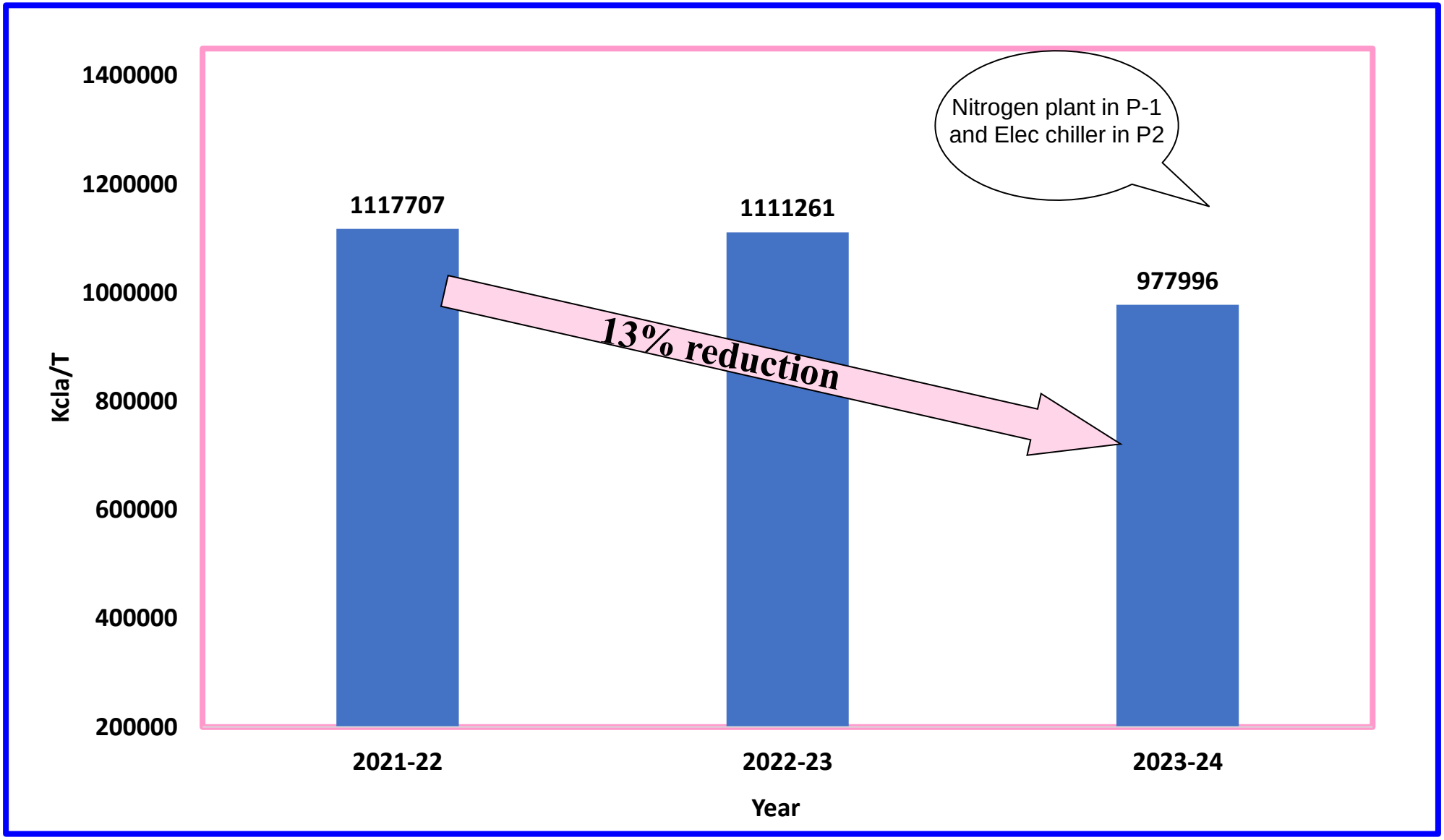
BASIC DATA – POWER BALANCE



ENERGY CONSUMPTION - POWER (Kwh/Ton)



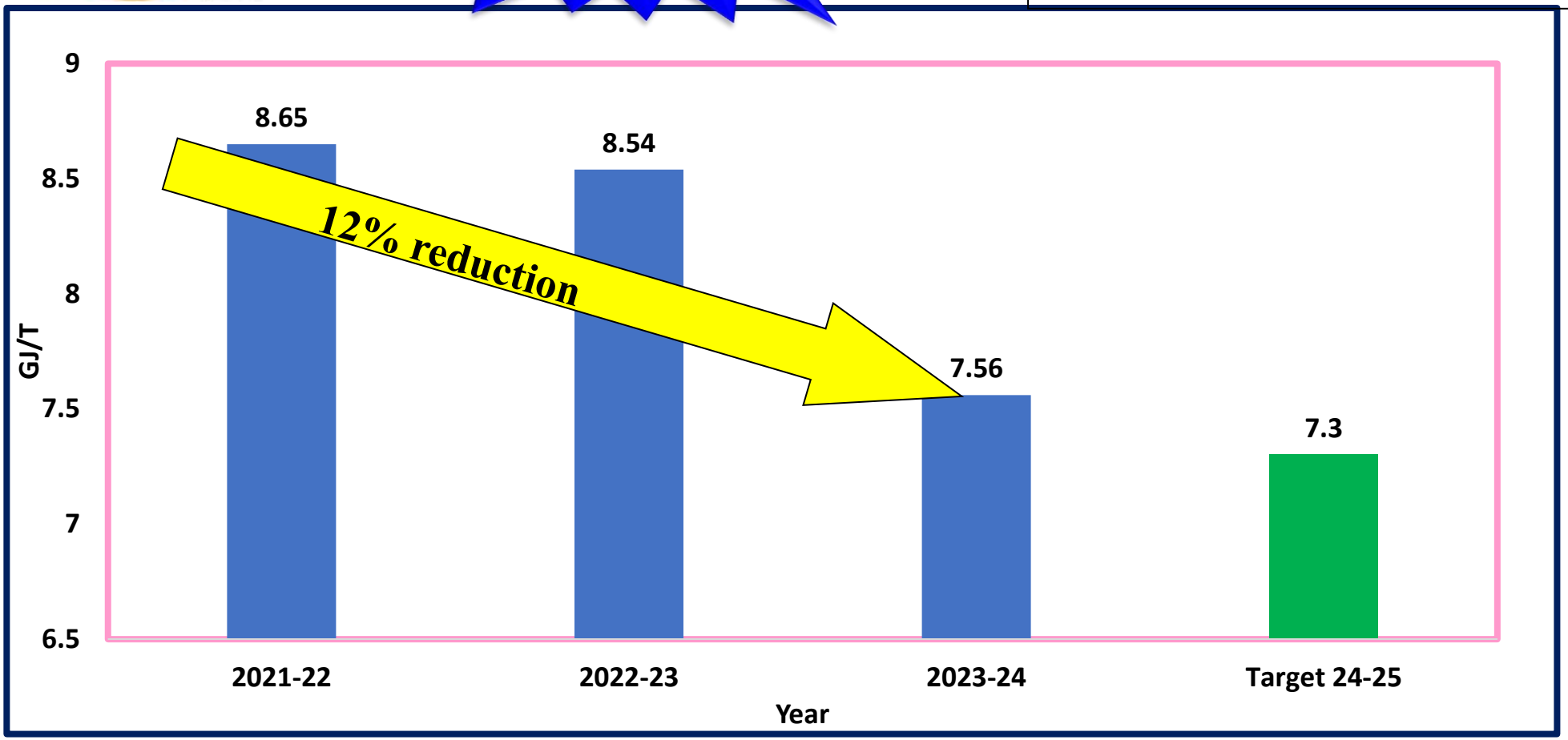
ENERGY CONSUMPTION – THERMAL (Kcal/Ton)



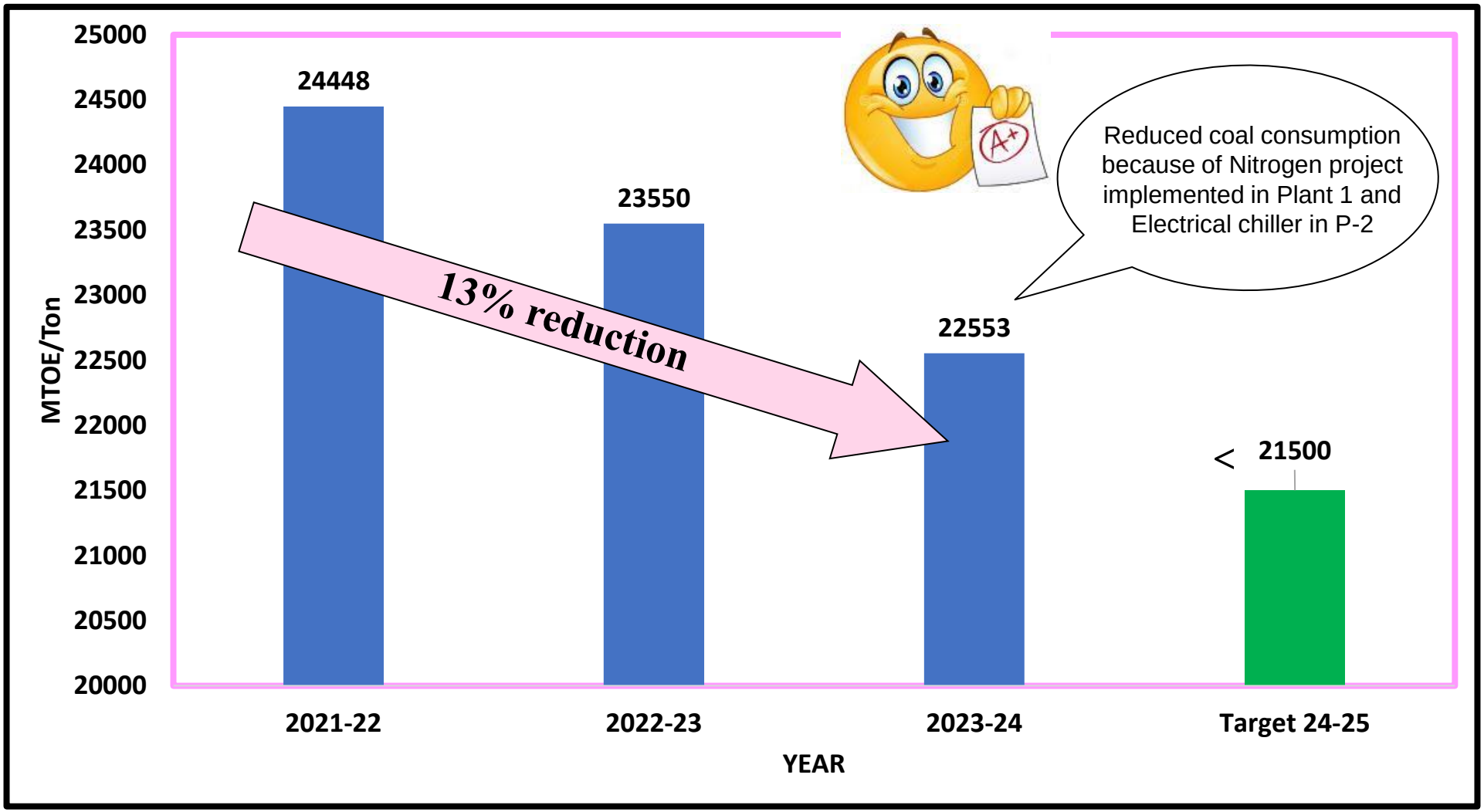
OVERALL ENERGY CONSUMPTION (GJ/TON)

Total reduction 12% since FY 21

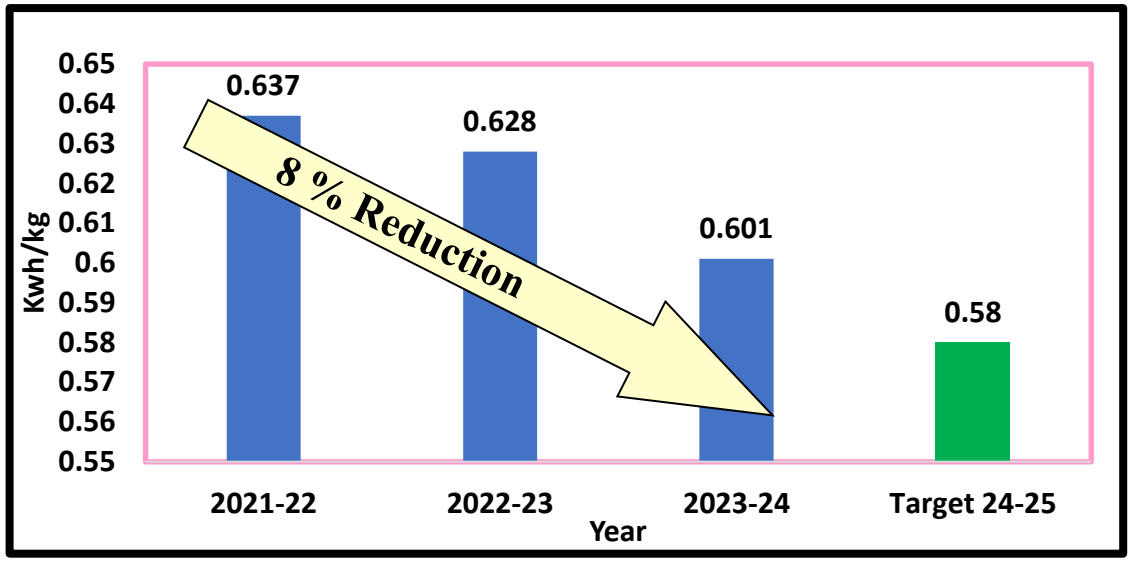
VTP is one of the oldest plant in the group, despite limitations - older equipment's & production cuts we were able to achieve the energy targets & compete with new generation plants



THERMAL ENERGY CONSUMPTION (MTOE)



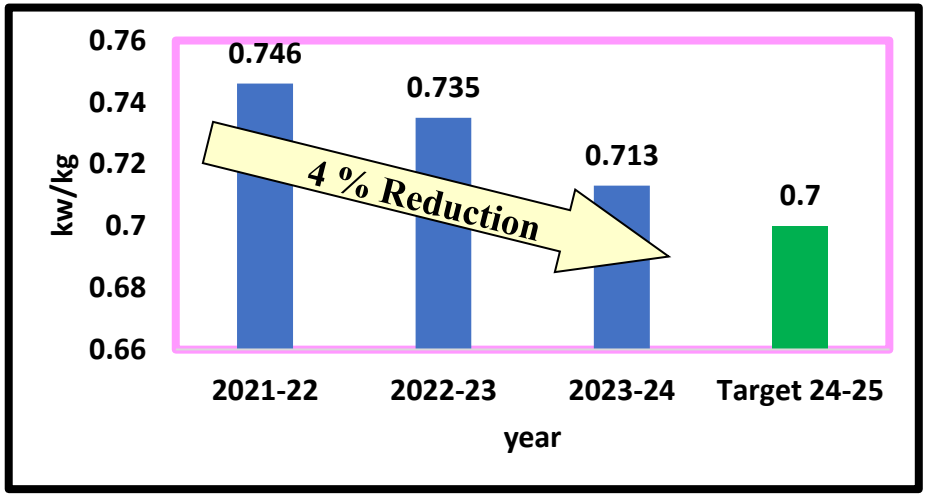
SPECIFIC ENERGY CONSUMPTION - POWER (Kwh/Kg)



PLANT # 1

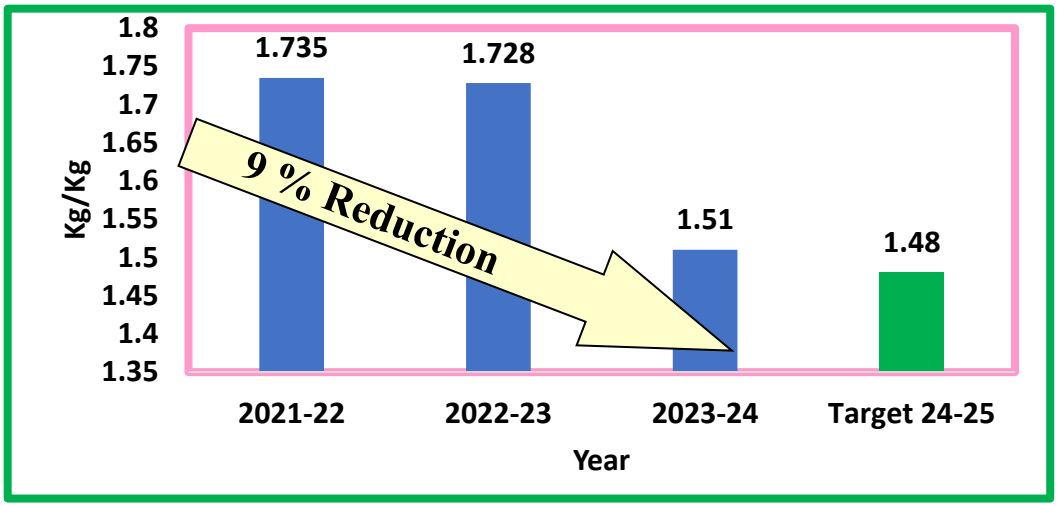
Good

PLANT # 2



Achieved energy targets despite low production & other challenges. This is the clear impact / result of implementing the energy conservation projects

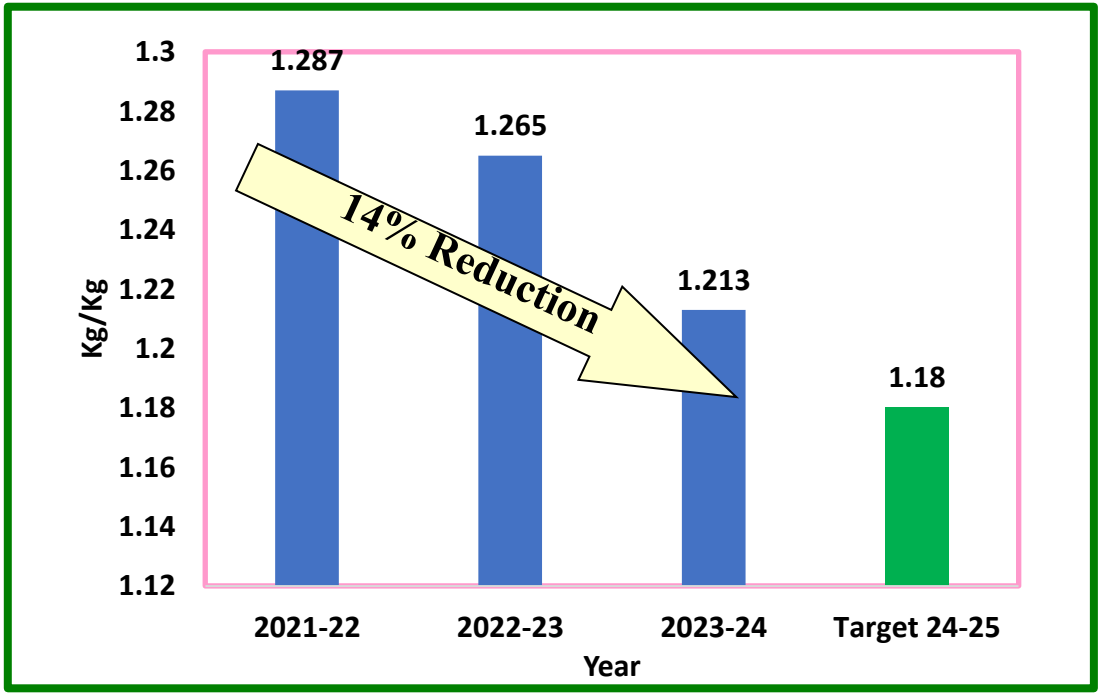
SPECIFIC ENERGY CONSUMPTION - STEAM(Kg/Kg)



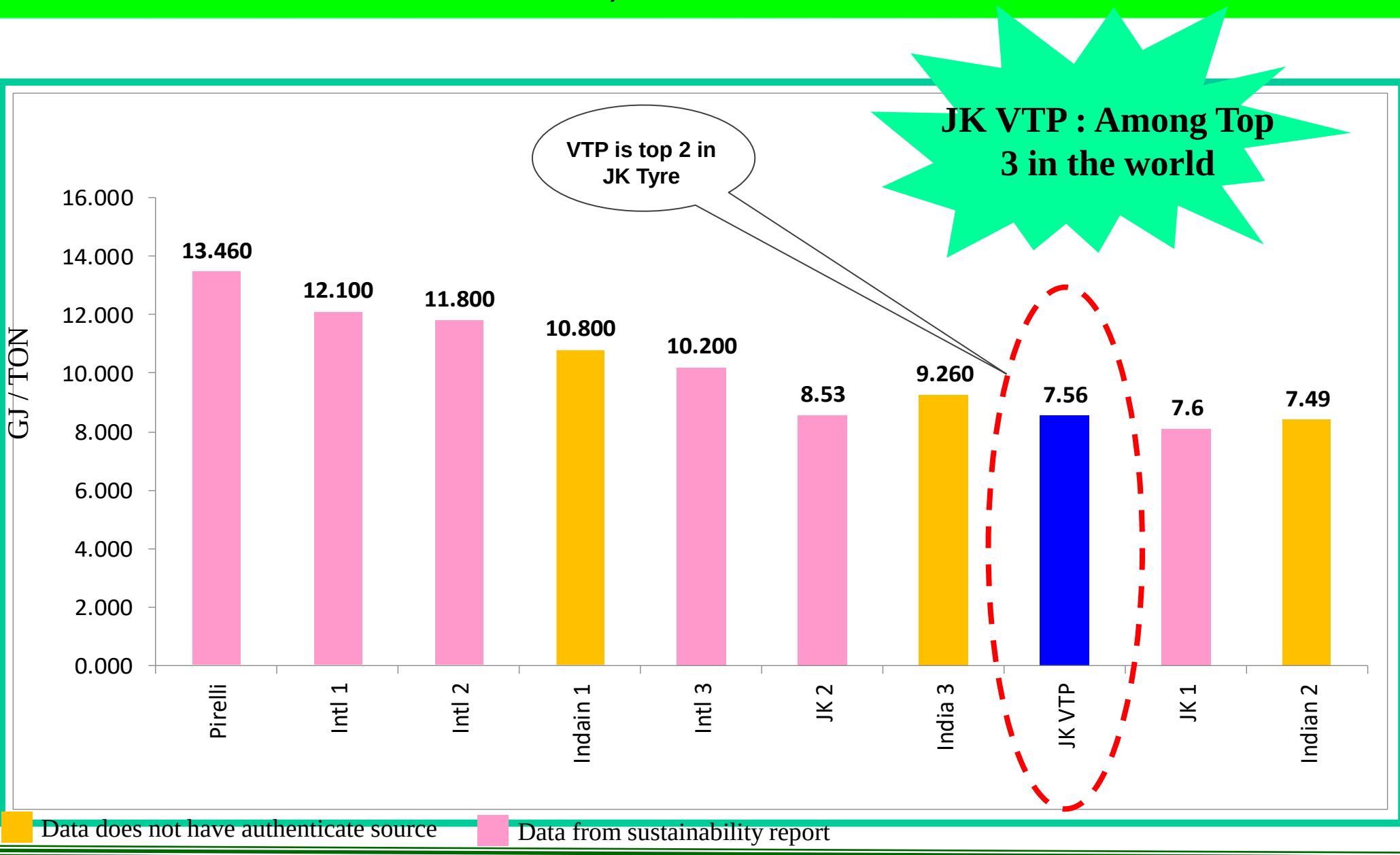
PLANT # 1

Good

PLANT # 2



INFORMATION ON COMPETITORS, NATIONAL & GLOBAL BENCHMARK



ENERGY SAVING PROJECTS IMPLEMENTED : 2021-22

Project Sr no	Brief Description of project	Approved Amount in Lacs	Saving per year (Rs. In Lacs)		Energy Saving Planned	
			Planned Yearly	Achieved	Qty	UOM
1	Nitrogen conversion in place Hot Water in bias curing (savings in coal & power)	242	170	189	1750000	KWH
					7000	MT
2	For Ice blasting HP air main inlet line and SAV areaHP air mian line 50NB air regulator to be fix to control more air prerssure loss and to avoide inflation error during ice blasting	1.5	3	4	48500	KWH
3	Engg_VFD for the 110 kw hydrulic pump	5.5	6	6.18	77256	KWH
4	Installation of Individual energy meters to Auxiliary equipment's in Mixers & utility section for micro level monitoring of power consumption on daily basis & necessary optimization for energy savings	45	25	30	40427	kwh
5	Improvement of overall Plant Power factor from 0.97 to 0.99 and reduce the distribution Loss by installation of2X 500KVAr APFC panel for PCC-1, 2500KVA transformer	24	15	15.8	74460	KWH
6	Improvement of overall Plant Power factor from 0.96 to 0.98 and reduce the distribution Loss by installation of 500KVAr APFC panel for PCC-2, 1250KVA transformer	8.6	15	14.5	193333	Kwh
7	SAV & Curing area AHU retrofit with EC fans	65	35	33	440000	Kwh
8	Recovery of boiler CBD heat to increase boiler feed temperature	8	10	9.76	177.5	MT

ENERGY SAVING PROJECTS IMPLEMENTED : 2022-23

SL No	Short Description of Capex Need	Quantiy	Equipment/ Area involved	Champion/ Driver	Category	Time to Complete	Amount Required (Rs. In Lacs)	Saving per year (Rs. In Lacs)	Simple Payback (Years)	Savings /day	unit	Saving /annum	Saving in Kcal
1	Power Saving by Replacement of Old IE2 Rewinded Motors with IE3 Energy Efficient Motors	4	Dip Unit & Banbury	Ashutosh/ Dilip	Electrical	3 months	4	4.4	0.91	200	kwhh	71000	61060000
2	Power Saving by Replacement of Old Mill Motor 184 KW motor drawing more no load current due rewinded many times (Cracker Mill)	1	4 Roll Calender	Ashutosh/ Dilip	Electrical	3 months	8.5	5.5	1.55	250	kwhh	88750	76325000
3	Power Saving by replacement of Old IE2 Rewinded Motors replace with IE3 Eerggy efficient motors at Heat Exchanger (Cool Cycle Pump- process Supply- 2Motors & Hot Water Supply -2 Motor))	4	Utility	Ashutosh/ Nagendra	Electrical	4 months	7.2	5.5	1.31	250	kwhh	88750	76325000
4	Power Saving by provision of VFD for 3 Roll Calander Feed Mill	1	3 Roll Calendar	Ashutosh/ Hiremat	Electrical	3 months	7.5	4.8	1.55	220	kwhh	78100	67166000
5	Power Saving by provision of VFD for Banbury Mixer # 5 Dump Mills	1	Banbury	Ashutosh/ dilip	Electrical	3 months	10.0	5.5	1.82	250	kwhh	88750	76325000
6	Improvement of overall Plant Power factor from 0.97 to 0.99 and reduce the distribution Loss by installation of2X 500KVAr APFC panel for PCC-1, 2500KVA transformer	2	TS-2 SUBSTATION , PCC-1 PANEL	JK/RKG	Electrical	3 months	24	15.8	1.52	**600.0**	kwhh	213000	183180000
7	Air consumption reduction in Mixer-6 Dust collector & carbon Day bin purging system through introduction of flow meter & PLC control	1	BANBURY	JK/RKG	utility	4 months	5	2.63	1.90	100	kwhh	35500	30530000
8	Engg_VFD for the 110 kw hydrulic pump	1	Utility	AP/SP	Electrical	6 months	6.5	5.52	1.18	200	kwhh	71000	61060000
9	For Ice blasting HP air main inlet line and SAV areaHP air mian line 50NB air regulator to be fix to control more air prerssure loss and to avoide inflation error during ice blasting	1	Utilty	SRR/GNS	utility	4 Month	1.5	2.49	0.60	100	kwhh	35500	30530000
10	Hot water conversion to Nitrogen plant	1	Utilty	Ashutosh/ Nagendra	utility	12 months	341.60	190.00	1.80	10	Ton of coal	3050000	10675000000

ENERGY SAVING PROJECTS IMPLEMENTED : 2023-24

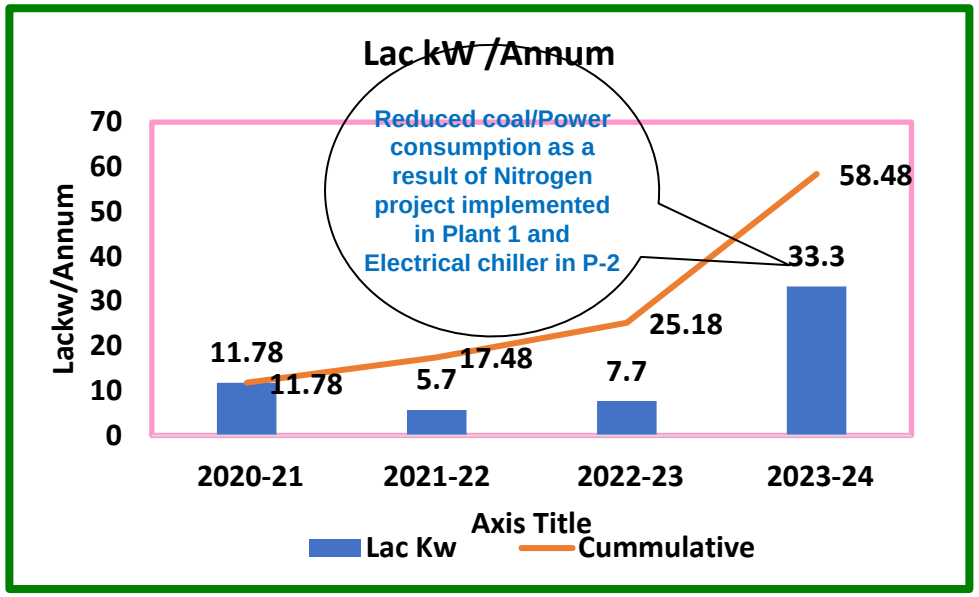
SL No	Short description of capax Need	Quantity	Equipment/ Area involved	Champion/ Driver	Category	Amount Required (Rs. In Lacs)	Saving per year (Rs. In Lacs)	Simple Payback in yers	Savings /day	unit	Saving /annum	Saving in Kcal	Savings in Mkcal	Saving in TOE	Pay bck in Month
1	Existing Hydraulic pump replacement with energy efficient pump.	1	Utility	BNN	Electrical	3.0	2.5	1.2	100.0	KW	35500	30530000	30.53	3.053	14.7
2	Replacement of Existing water plant inefficient pumps to energy efficient pump.	6	Utility	BNN	Electrical	12.0	8.4	1.4	400.0	KW	142000	122120000	122.12	12.212	17.1
3	Rerouting /Sizing Compressed air lines and headers isolation valves to eliminate independent sections during partial or low load operations.	1	Utility	BNN	Electrical	5.0	2.8	1.8	125	KW	44375	38162500	38.1625	3.81625	21.1
4	Replacement of old Mill 184 KW slip ring motor drawing more no load current due rewinded many times	1	Dual Mill #1	Ashutosh/ Dilip	HIGH	9.5	7.7	1.2	350	KW	124250	106855000	106.855	10.6855	14.8
5	Replacement of old Mill 200 KW slip ring motor drawing more no load current due rewinded many times	1	Dual 84 inch Cracker mill	Ashutosh/ Dilip	HIGH	9.5	6.6	1.4	300	KW	106500	91590000	91.59	9.159	17.3
6	75 KW Energy efficient pump with VFD inplace of IE2 110 KW motor	1	Water Plant	Ashutosh/ Nagendra	HIGH	12.5	8.8	1.4	400	KW	142000	122120000	122.12	12.212	17.1
7	Old IE2 Rewinded 45 KW Motors replace with IE3 Eerggy efficient motors at water plant	2	Utility & Santosh Calender	Ashutosh/ Nagendra	HIGH	5.5	3.3	1.7	150	KW	53250	45795000	45.795	4.5795	20.0
8	SAV AHU 3 and Fisher cutter fan to be replaced with energy efficient fan	2	Utilty	Satish	Electrical	14.00	7.36	1.90	2288	KW	812240	698526400	698.5264	69.85264	22.8
9	Replacing Preparation area blower fans to Energy Efficient fans	2	Utilty	Revanna	Electrical	7.00	3.91	1.79	155	KW	55025	47321500	47.3215	4.73215	21.5
10	Platen press top insulation and steam line insulation	1lot	Curing	Satish	Thermal	3.50	15.40	0.23	2	TONS OF STEAM	710	555652173.9	555.652174	55.56522	2.7
11	Replacing 300 TR VAM to350 TR VFD operated Electrical chiller	1	Chiller	Damodar	Thermal	90.00	61.77	1.46	30	TONS OF STEAM	10650	8334782609	8334.78261	833.4783	17.5
12	Installing VFD for 160KW LP air compressor	1	Compressor	GG/Srinivas	Power	14.00	7.26	1.93	288	KW	102240	87926400	87.9264	8.79264	23.1
13	Installation of 37 kw pump in Hydrualic tank to reduce the pumping power	1	Pump	Damodar	Power	7.00	10.08	0.69	400	KW	142000	122120000	122.12	12.212	8.3
14	Instalation of 37 KW VFD in VAM cooling tower pump to reduce the pumping ppower	1	Pump	Shashikumar	Power	5.00	3.15	1.59	125	KW	44375	38162500	38.1625	3.81625	19.0
15	37kw VFD for curing Air washer system	1	Utilty	GG/Srinivas	Power	5.00	3.63	1.38	144	KW	51120	43963200	43.9632	4.39632	16.5
16	Banbury Hot Well Pump Optimization with VFD & Piping Modification	1	Mixer	JK/RKG/RK	Electrical	6.50	6.65	0.98	264	KW	93720	80599200	80.5992	8.05992	11.7
17	100KVAR Capacitor Panel for MCC#3	1	Utility	Praveen	Proven	2.90	2.60	1.12	100	KW	35500	30530000	30.53	3.053	13.4
18	Installation of Energy efficient motor with Pump for Utilities to reduce Dead Load	1	HYDRAULIC	Suresh/ Praveen	Proven	5.30	5.20	1.02	200	KW	71000	61060000	61.06	6.106	12.2
19	Coal boiler conversion into Biomass fuel	1	utility	Ashutosh/ Nagendra	Proven	1165.00	468.00	2.49	4400	kw	1342000	1154120000	1154.12	115.412	29.9
									15	T of coal	4575	16012500000	16012.5	1601.25	
20	Hot water conversion to Nitrogen plant	1	Utilty	Ashutosh/ Nagendra	Proven	650.00	341.60	1.90	16	T of coal	4880	17080000000	17080	1708	22.83

ENERGY SAVING PROJECTED IN 2024-25

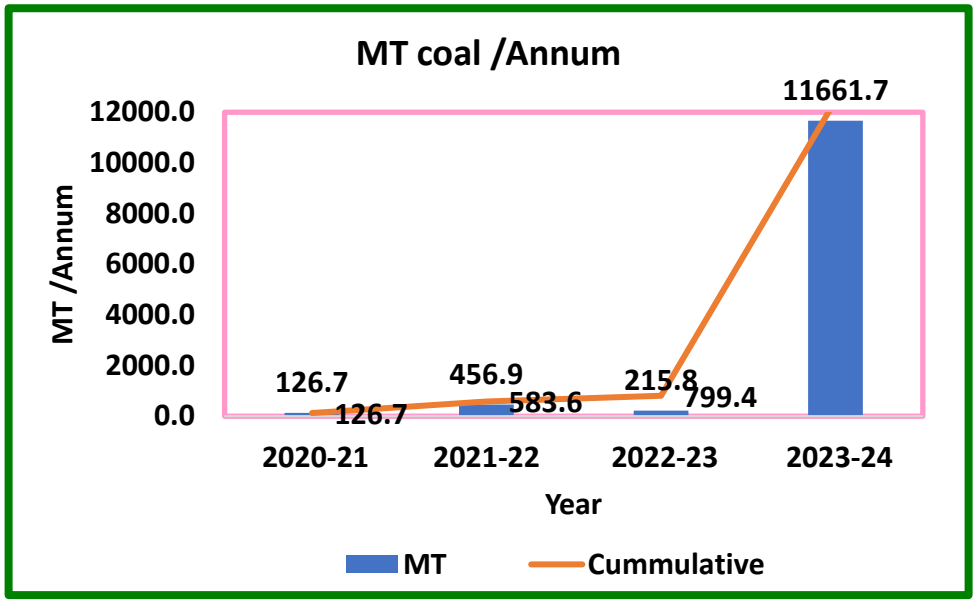
SL No	Short description of capex Need	Quantity	Equipment/ Area involved	Champion/ Driver	Category	Time to Complete	Amount Required (Rs. In Lacs)	Saving per year (Rs. In Lacs)	Simple Payback (Years)	Savings /day	unit	Saving /annum	Saving in Kcal	Saving in Mkcal	Savings in TOE
1	Replacement of old Mill 110 KW slip ring motor drawing more no load current due rewinded many times	1	3 roll calendar Mill	Ashutosh/Dilip	Electrical	6 months	8	**4.4**	1.82	200.00	KW	71000	61060000	61.06	6.11
2	VFD for Banbury Mixer #5 Dump Mill	1	Banbury	Ashutosh/dilip	Electrical	8 months	9.0	**6.6**	1.37	300.00	KW	106500	91590000	91.59	9.16
3	Replacement of Thermax Boiler ID fan motor -110 KW with IE3 motor	1	Thermax Boiler	BNN/Ashurosh	Electrical	8 months	5.0	**2.6**	1.90	120.00	KW	42600	36636000	36.636	3.66
4	VFD for Banbury Mixer #3 Dump Mill	1	Banbury	Ashutosh/dilip	Electrical	8 months	14.0	**7.7**	1.82	350.00	KW	124250	106855000	106.855	10.69
5	30 TPH Boiler Fuel feeding system conveyors existing higher rating motors and higher size gear boxes-Gear box resizing with Energy efficient motors -Phase 1	1	Thermax Boiler	BNN	Electrical	6 months	12.0	**7.7**	1.56	350.00	KW	124250	106855000	106.855	10.69
6	In water treatment plant, Service water and clarifier 15 KW pump to be replaced with7.5 kw Energy Efficient pumps	2	Utilty	Damodar /Sathish /Ramesh	Utility	3 months	2.60	3.36	0.77	120	KW	42600	36636000	36.636	3.66
7	Modification of Thermax Boiler for Bio mass feeding	1	Utilty	Damodar /Sathish /Ramesh	Utility	10 months	90.00	56.80	1.58	2	TONS OF COAL	710	2485000000	2485	248.50
8	SAV AHU 2 and 4 fan to be replaced with energy efficient fan	2	Utilty	Damodar /Sathish /Ramesh	Utility	8 Months	14.00	8.06	1.74	288	KW	102240	87926400	87.9264	8.79
9	Replacement of 75kw ejector pump to 30Kw single stage pump	1	Utilty	Damodar /Sathish /Ramesh	Utility	4 months	5.00	5.60	0.89	200	KW	71000	61060000	61.06	6.11
9	Conversion of Dome to Platen	8	Curing	Madanraj/Gopal/ Damodar	curing	12 months	300.00	36.81	8.15	1.25	TONS OF COAL	444.5	1600278261	1600.27826	160.03

OVERALL IMPACT OF ENERGY SAVING PROJECTS

Power (Lakh kWh)



Thermal (Coal in MT)



Year	No of Energy Projects	Amount Invested	electrical saving	Thermal Saving	Total Savings	Pack back	Remarks
		Millions	Mkw	Mkcal	INR millions	Years	
2020-21	12	13.8	1.178	456	13.6	1.01	Nitrogen project in Plant -2
2021-22	8	16.2	0.57	1645	6.7	2.42	Dome to Platen / Return condensate- Plant-2
2022-23	10	19.42	0.77	777	8.9	2.18	Dome to Platen - Platen 2
2023-24	21	212	3.33	41982	24.2	8.76	Nitrogen Plant -P1, Boiler -P1and 373 TR Chiller in plant -2
2024-25	9	45.9	0.68	4085	14	3.28	Projected savings - Dome to platen in P2 , biomass conversion in Boiler in Plant -2

General procedure for financial resources allocation for projects

- Identification of Significant energy use
- Monitoring of EnPI for identified significant use
- Benchmark / target for identified significant energy use
- Energy gap analysis & energy loss mapping
- Identification of energy projects / kaizens to bridge gap
- Prepare Energy Management program with savings & Payback information
- Submission of energy projects to HO for budget approval (> Rs 2 Lacs investment)
- Review of projects, approval and allocation of resources by Management
- Implementation of projects at site
- Post Implementation savings audit and reviews
- Monthly energy project status review by Unit Head & HO

Kaizen Title: Erection & Commission of Bio Mass operated 30 TPH Boiler .

Problem or present status

- VTP plant is heavily reliant on coal, with a consumption rate of 88%, which results in high CO2 emissions and increased operational costs. Despite efforts to integrate renewable energy sources, biomass usage is limited to only 12%.

  This dependence on coal not only impacts our environmental footprint but also puts us at a competitive disadvantage compared to our sister plants BTP and CTP, which have achieved renewable energy consumption rates of 70% and 40%, respectively.

IMPACT ON PPROBLEM

- Specific Coal consumption is high
- Co2 Generation more & Impact on Environment
- Operating cost / fuel cost more

IDEA

- We plan to relocate and modify a 30 TPH Thermax traveling grate high-pressure boiler from our Laksar plant to VTP #1 Mysore plant."

Investment & Savings

- Total investment : 11 Crore
- Savings per moth : 35 lacks
- ROI : Less Than 3 years

Standardization :

- SOP, Drawing & design documents

ROOT CAUSE IDENTIFICATION

Why # 1	CO2 Generation more & Impact on Environment & fuel cost high
Why # 2	Biomass usage is limited to only 12%. And coal usage 88 % so cost high
Why # 3	Existing IJT Boiler Not withstand more with Bio mass
Why # 4	Boiler Not Design for more Bio mass usage .

IJT Boiler design for coal

Thermax Boiler design for Bio mass

6.INNOVATIVE PROJECT IMPLEMENTED

1. Energy savings Change management

J K Tyre & Industries Limited

Location: VTP	Function: Engineering	subfunction : Utility	Project start date: 08-01-2022	Project End date: 24-Dec-2023

Application Case Study

Team Leader: Nagendra B N

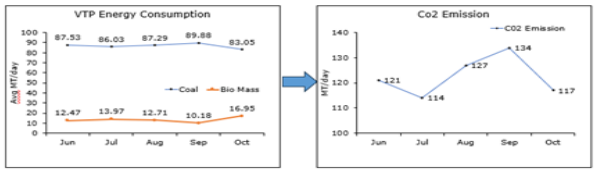
Team Member: Asuthosh P , Nagendra H R , Ananda j ,Ravishnakar

Define Problem (P):

High CO2 emmissions and conversion costs in VTP stem from excessive coal consumption, driven by higher fuel rates.

Actual Photo and Trend:

Coal & Renewable Energy Consumption Trend:



Observation:

Plan

Current Scenario:

Currently, our 20 TPH coal-fired boiler uses a fuel mix of 78% imported coal, 10% Indian coal, and 12% biomass to meet our process requirements.

Project Plan :

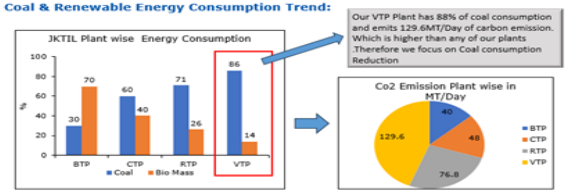
We plan to relocate and modify a 30 TPH Thermax traveling grate high-pressure boiler from our Laksar plant to VTP #1 Mysore plant." "The boiler will be converted to a medium steam pressure process boiler with a capacity of 30 TPH, ensuring it meets the steam requirements for production at Plant 1 and 3."

Goal

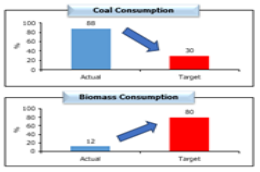
"Our goal is to run the modified boiler with 80% biomass and 20% imported coal, significantly reducing greenhouse gas emissions and achieving fuel cost benefits."

Analysis:

Coal & Renewable Energy Consumption Trend:



Target Setting



- As part of our commitment to reducing carbon emission intensity by 50% by 2030, we have set a strategic goal for our VTP Plant to drastically reduce coal consumption from 88% to 30%.
- Concurrently, we plan to increase biomass consumption from 12% to 80%.
- This transition to biomass not only aligns with our corporate policy but also significantly lowers our carbon emissions.
- By undertaking this initiative, we are taking a pivotal step towards meeting our environmental targets and reinforcing our dedication to sustainability.

Implementation:

Do

Implementation

- Relocate the 30 TPH boiler from the Laksar plant to VTP #1 Mysore plant."
- Modified the boiler design to accommodate medium steam pressure and ensure compatibility with the existing infrastructure."
- Tested the boiler's functionality with the new fuel combination of 80% biomass and 20% imported coal."
- The detailed design changes include alterations to the fuel feeding system, combustion chamber modifications, and adjustments to the steam pressure control mechanisms.

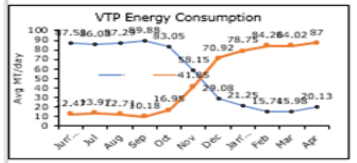
Performance Monitoring:

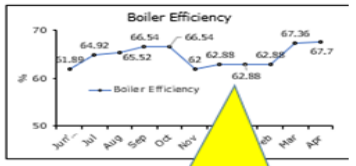
Monitor the boiler's performance in terms of steam production, fuel efficiency, and emissions."

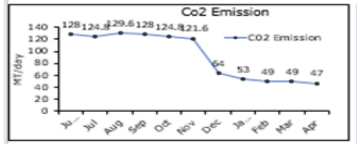
"Compare the new boiler's performance with the existing 20 TPH boiler to assess improvements in biomass utilization and reduction in coal consumption."

Key metrics include biomass consumption rate, coal consumption rate, greenhouse gas emissions are showed in graph

Result Check: (before and after)

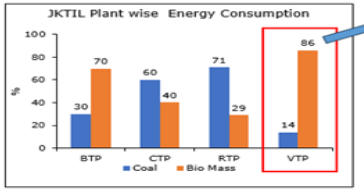




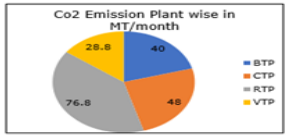


Observed lower boiler efficiency from the month Nov'23-Feb'24 because of :

- Low Feed Water Temperature
- Higher Main Steam Pressure then required
- No Tune-up for Auto Fuel system



- Now VTP have set the benchmark in all our JK Tyres plants for biomass consumption of 86% and CO2 emission reduction of 30000 MT/annum.



Gains :

Tangible Gains

- Coal Consumption has reduced from Avg 82 to 18 MT/day
- Total Bio Mass Consumption has increased from Avg 12 to 91 MT/day
- Total Carbon Emission Reduced to 30000 MT/Annum
- Annual saving of Rs. 4.58 Crores/Annum
- More Bio mass usage helpful reduction in green house gases and reduction in fuel cost .
- Running the boiler with 80% biomass significantly reduce greenhouse gas emissions, contributing to our corporate sustainability targets.

Intangible Gains

1. Reduction in Carbon Foot print
2. Improved sustainability and compliance with environmental regulations
3. Enhanced reputation and competitive edge within the industry

Investment 11 Crore
ROI > 2.5 Years

Conclusion

The VTP plant's reliance on coal (88%) results in high CO2 emissions and operational costs, especially compared to our sister plants BTP (70% renewable) and CTP (40% renewable). To address this, we plan to shift and relocate a 30 TPH Thermax travelling grate high-pressure steam boiler from our Laksar plant to VTP #1 Mysore. The boiler will be converted to a medium steam pressure process boiler, maintaining a 30 TPH capacity to meet the steam needs of Plants 1 and 3. The project's main objectives are to run the boiler with 80% biomass and 20% imported coal, significantly reducing greenhouse gas emissions and fuel costs. We have successfully overcome challenges such as initial coal dependency, limited biomass infrastructure, stable boiler operation with high biomass, and maintaining steam quality for tyre curing. This initiative sets a new benchmark at VTP for biomass consumption at 86% and CO2 emission reduction by 30,000 MT annually.

Prepared By: Anand J	Reviewed By: Nagendra B N	Approval By: Naveen Kumar H M
Signature:	Signature:	Signature:

Kaizen Title: Nitrogen curing system

Problem or present status

curing was carried out with hot water circulation in all Bias & LTR presses. Hot water generation requires - HW Pressure - 28 KSC , 24 KSC & 20 KSC and temp - 168^{0}C. Steam consumption 80 MT/day and power consumption - 5573 Units/day. Being a Green company , in order to reduce the carbon footprint, proposed to go for Nitrogen curing. Nitrogen curing is an advanced technology in Tyre curing, offering many benefits including improved productivity, enhanced bladder life, quality of product and reduction in energy consumption(Power, Steam and Water).

IMPACT ON PPROBLEM

- Specific power consumption is high
- Specific Steam consumption is High

IDEA

- Nitrogen curing implementation

Investment & Savings

- Total investment : 2.4 crores
- Net savings in Rs/month : 15 lacs
- ROI : 1.5 Years

Standardization :

- SOP,FMEA & design documents

ROOT CAUSE IDENTIFICATION

Why # 1	Steam consumption & power consumption more
Why # 2	Hot water generation requires steam and power
Why # 3	Hot water curing system

Nitrogen curing system

2. Energy savings through Change management

J K Tyre & Industries Limited

Location: VTP	Function: Engineering	subfunction : Utility	Project start date: 08-01-2022	Project End date: 15-Nov-2023

Application Case Study

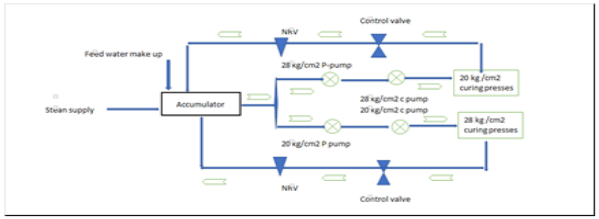
Team Leader: Nagendra B N

Team Member: Anand J, Sathis , Devraj

Define Problem (P):

High steam consumption and power consumption and conversion costs in VTP stem from excessive steam consumption, driven by higher fuel rates.

Process Name: UTILITY – CURING



Observation:

Current Scenario:

curing was carried out with hot water circulation in all Bias & LTR presses. Hot water generation requires - HW Pressure - 28 KSC , 24 KSC & 20 KSC and temp - 168°C. Steam consumption 80 MT/day and power consumption - 5573 Units/day

Project Plan :

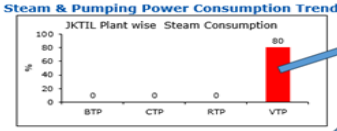
After successful trials and implementation of Nitrogen curing at our Radial Tyre Plant, it is proposed to introduce Nitrogen curing in 90 presses(Bias +LTR) . hence, It proposed to install Nitrogen storage station by M/S PROXAIR. The N2 storage tank is proposed to be installed near at Material gate of VTP

Goal

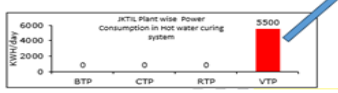
"Our goal is to run Curing with Nitrogen curing system , significantly reducing steam consumption / water consumption /Chemical consumption /greenhouse gas emissions and achieving fuel cost benefits & Scrap Redcution ."

Analysis:

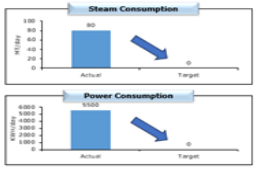
Steam & Pumping Power Consumption Trend:



Our VTP Plant has 80MT/day of Steam consumption and 5500 KWH/day. Which is higher than any of our plants .Therefore we need to focus on Steam & Power consumption Reduction

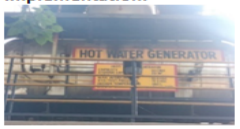


Plan



- As part of our commitment to reducing **carbon emission intensity by 50% by 2030, we have set a strategic goal for our VTP Plant to drastically reduce Steam consumption for Hot Water from 80 to 0 MT/day and Power consumption reduction from 5500 units to 0.**
- This transition of nitrogen curing system not only aligns with our corporate policy but also significantly lowers our carbon emissions.
- By undertaking this initiative, we are taking a pivotal step towards meeting our environmental targets and reinforcing our dedication to sustainability.

Implementation:



1. Near Old FO boiler area – N2 storage yard Location finalized
2. Necessary civil works completed as per M/s Praxair construction drawings
3. Necessary Pre approval obtained from PESO, GOVT OF INDIA
4. Pipe line laying work as per the requirement of N2 curing system

Performance Monitoring:

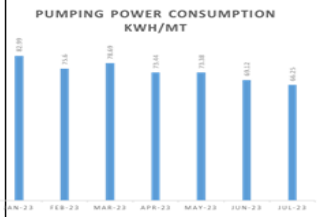
Monitor the Nitrogen curing system in terms of Quality of tyres ,steam production,pumping power, and emissions."

"Compare the Hot water curing system Huge savings observed in steam Generation reduction , coal consumption , water consumption, chemical consumption and pumping power "

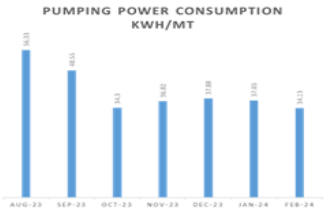
Key metrics include pumping power , steam consumption greenhouse gas emissions are showed in graph

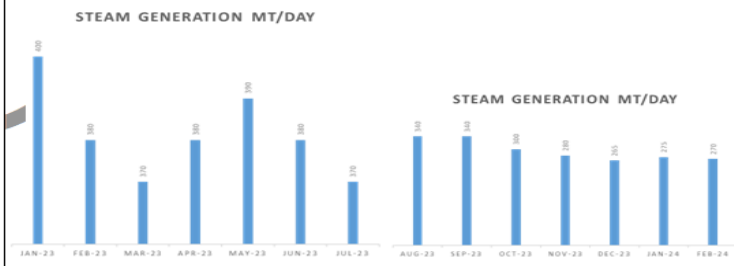
Result Check: (before and after)

Before



After





Gains :

Tangible & Intangible Gains

- Reduction in steam consumption - 80 MT/day - 15 MT of coal /day
- Reduction in Power - 5573 Units/day
- Reduction in Co2 -8679 tons
- Reduction in water consumption - 90 KL /day
- Improved House keeping near by the presses

1. Reduction in Carbon Foot print
2. Improved sustainability and compliance with environmental regulations
3. Enhanced reputation and competitive edge within the industry

Investment 2 Crore
ROI < 1.8 Years

Conclusion : Being a Green company , in order to reduce the carbon footprint, proposed to go for Nitrogen curing. Nitrogen curing is an advanced technology in Tyre curing, offering many benefits including improved productivity, enhanced bladder life, quality of product and reduction in energy consumption(Power, Steam and Water). Nitrogen curing completed for all Bias & LTR curing presses successfully - savings of 15 MT of coal significantly reducing greshouse gas Emmissions & fuel cost

Prepared By: Ananda J	Reviewed By: Nagendra B N	Approval By: Naveen Kumar H M
Signature:	Signature:	Signature:

3 Energy savings through Equipment modification

Kaizen Title: Energy saving through replacement of least energy efficient VAM chiller to Electrical dual compressor water cooled chiller

Problem or present status

The Tyre process is have High Capacity Mixers , Heavy air consumption Testing machine and TBM machine , Boilers and steam supply for curing , HVAC for TBM . These energy utilization and specific energy consumption was high and was a tuff task to reduce . Since the Mission vision target was 50% reduction in CO 2 emission , reduction in Scope 1 and 2 was a challenge .

IMPACT ON PPROBLEM

- Specific Energy High
- Coal consumption is more
- Water specific is more

IDEA

- Replacement of least energy efficient VAM chiller to Electrical dual compressor water cooled chiller

Investment & Savings

- Investment : 90 lacs
- Net savings in Rs : 18 lac /month
- ROI : 0.8 years

Standardization :

- SOP,FMEA & design documents
- Horizontal deployment

ROOT CAUSE IDENTIFICATION

Why # 1	Specific energy consumption higher side
Why # 2	Coal consumption not matching the target
Why # 3	Steam consumption is more
Why # 4	VAM steam consumption is high due to inefficient VAM

BEFORE

AFTER

6.INNOVATIVE PROJECT IMPLEMENTED

3 Energy savings through Equipment modification

Case Study / Improvement Projects- Specific Coal consumption reduction

UTQM.00.FR.02 | Rev:00 | Jan-23

Define Problem (P)

Location:	RTP	Function :	UTILITY	Sub function / Category:	CHILLER
Project start date:	May-23	End Date:	March-24		SCC
Problem Definition:			Project No :	06/RTP1/2024	

Total Specific Coal consumption on higher side
Effect ;
1.Energy in kcal /kg will be more
2.Co2 emission on higher side

Actual Photo and Trend:

Total Specific Coal Consumption trend

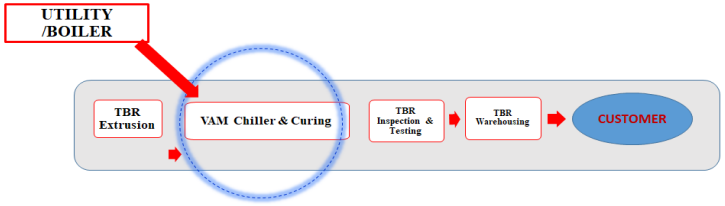
Key Problems	S	Q	P	C	En	E	Total (S+Q+C+E+En)
Dome Steam System	5	4	2	3	3	1	18
Shaping Steam System	4	4	3	3	3	1	18
VAM Chiller Steam System	5	5	4	5	5	4	28
Boiler Blow Down	4	4	3	3	5	3	22
HPS Steam System	3	3	3	4	4	3	20

VAM Chiller System was consider as top priority

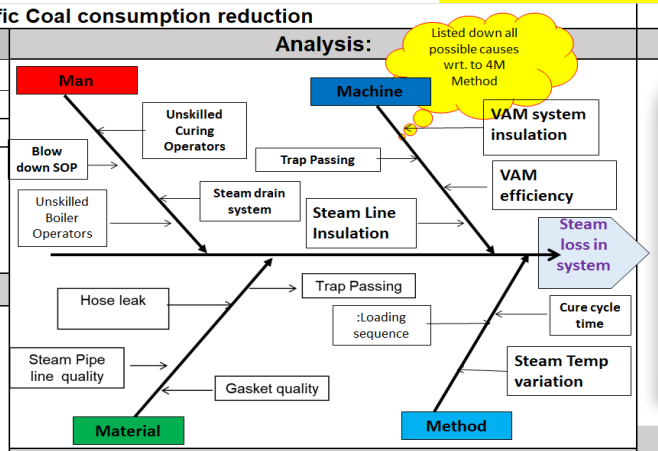
Observation:

- Conversion cost will be more
- Water consumption is more
- Energy in kcal /kg will be more
- SPC is more

Flow chart:



Analysis:



Why why analysis

Why-1	**Total Coal specific consumption on higher side**
Why-2	**Total Steam specific consumption on higher side**
Why-3	**Vam Steam consumption higher**
Why-4	**Both vam Chiller running for maintain the Room temp**
Why-5	**Vam running with low efficiency and not upgraded**

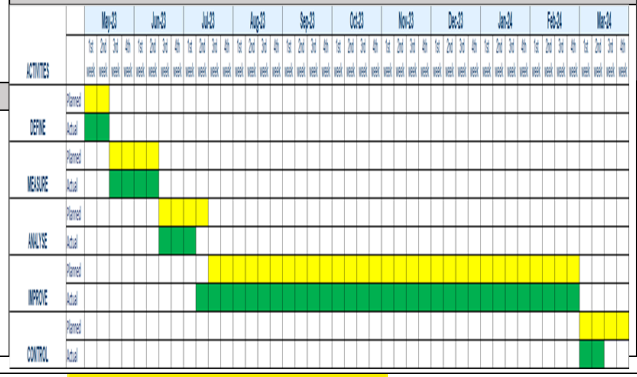
Root cause

Both vam Chiller running under lower efficiency for maintaining the chilled water temp for TBM room temperture

SOLUTION:

To replace the inefficient VAM chiller system to energy efficient Chiller

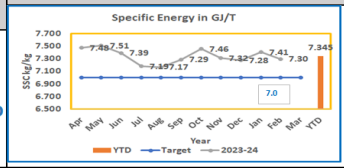
ACTION PLAN

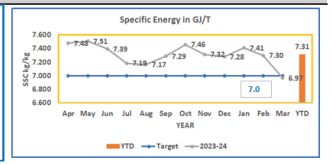


Action/Countermeasure (D)

- **Reduced total steam specific consumption**
- **Elimination of process chilled water temp deviations.**
- **Reduction in energy in kacl /kg of product.**
- **Specific coal consumption reduced.**
- **Water saving of 385 kl per year achieved.**
- **Reduction of CO2 emission**

Result Check (C)





INVESTMENT AND SAVING

Investment		
Chiller 373 TR	60	Lacs
Cable work	3	Lacs
Pipe line	5	Lacs
Balancing Valve	4	Lacs
Insualtion of pipe line	1.2	lacs
Erection and commissioning	1.5	Lacs
Total Investment	**74.7**	**Lacs**
Tangabile savings		
Steam saving per day	40	tons
Coal saving per day	8.7	Tons
Cost of coal per ton	8000	Rs
Coal saving per day	69600	Rs
Extra power utilised	3000	units
Cost of power	24000	RS
Net gain per day in Rs	45600	Rs
Savings per Month	1368000	Rs
Savings per year	16416000	Rs
Energy savings	29610000	Kcal
Energy savings in kcal/kg	348.05	Kcal/kg
Return on Investment	**0.455**	**Year**

Team

Leader : DAMODAR

Member1: SATHISH .P
Member2: Ramesh Raju
Member3: Srinivas

Conclusion and Horizontal Deployment :

In Curing we are having 80 numbers of presses assembled in 10 lines. Way forward to achieve 50% reduction in CO2 reduction of Steam in Scope 1 was a major challenge . On routine round in Curing observed leaks in traps , Gasket , hose and heat losses in presses . Based on analysis to take the activity of reducing steam loss in curing Planned to study the losses

Deptt. Head	Mr DAMODAR

Kaizen Title: Electrical Power saving through switching off one of the two cool water pumps in Heat Exchanger

Problem or present status

Out of 92 TCPs only 21 TCPs (Non Truck size) required cold water pressure in the process, Remaining 71 TCPs does not require Cooling water, hence for venturi system for these presses required only around 8 kg/cm². 2 Numbers of cooling water pumps were on use, with 2900 RPM and 75 KW capacity consuming power to the extent of 2300 units / day,

IMPACT ON PPROBLEM

- Specific power consumption High
- High energy loss
- Water loss

IDEA

- **Electrical Power saving through switching off one of the two cool water pumps in Heat Exchanger**

Investment & Savings

Investment	: 8 lacs
Saving In units	: 800 units/day
Net savings in Rs	: 17lacs /annum
ROI	: 0.5 years

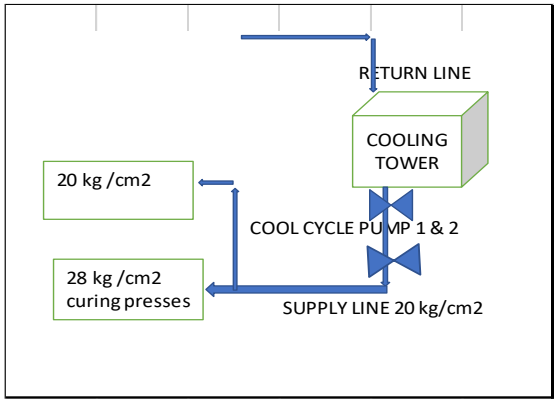
Standardization :

- SOP,FMEA & design documents
- Horizontal deployment

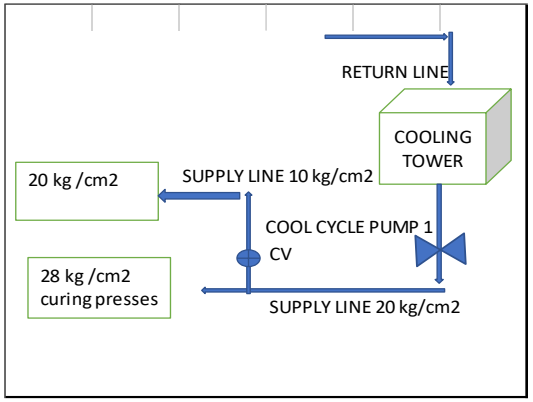
ROOT CAUSE IDENTIFICATION

Why # 1	Curing press cooling water pressure was 20 kg/cm2
Why # 2	Truck curing pressure venturi line CW pressure requirement was 10 kg/cm2
Why # 3	No dedicate system for venturi system
Why # 4	Installation of control valve to reduce CW pressure from 20 kg/cm2 to 10 kg/cm 2

BEFORE



AFTER



6.INNOVATIVE PROJECT IMPLEMENTED

4. Energy savings through Process Optimization

J K Tyre & Industries Limited

Document No.:UTQM.00.SQ-67

Location: VTP	Function: Engineering	subfunction : Utility	Project start date: 12-01-2024	Project End date: 15-02-2024

Application Case Study

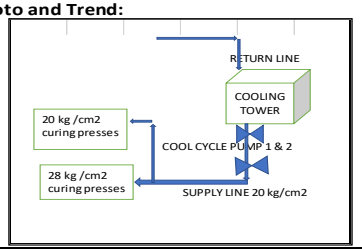
Team Leader: Nagendra B N

Team Member: J Ananda / Sathis chandra / Pradeep

Define Problem (P):

After Nitrogen curing implimenatation , out of 92 TCP , only 21 TCP required coal water pressure with 20 kg/cm 2 and and all TCP venturi system required only 8 kg/cm 2 , , so unnecessary 75 KW 2 pump running with daily power consumed 2300 units . thier is not dedicate or seperate system for cold water and venturi system .

Actual Photo and Trend:



Observation:

Plan

Current Scenario:

Currently, 2 Numbers of cooling water pumps were on use, with 2900 RPM and 75 KW capacity consuming power to the extent of 2300 units / day .

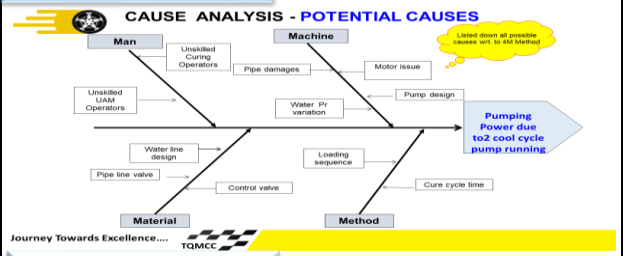
Project Plan :

Considering less water pressure requirement for Vacuum venturi system, introduced 6 inch control valve with control system to reduce 20kg/cm² to 8 kg/cm² . Realizing less consumption, we have switched off one of the pump and observed the entire operation with one pump only.

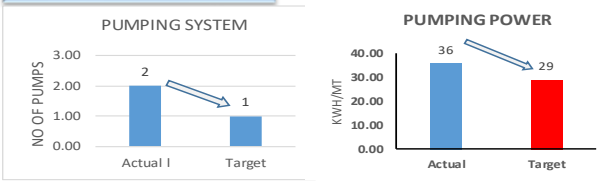
Goal

"Our goal is to run only one pump to full fill both cold water requirement as well as venturi system , in order to reduce pumping power of coolling wate system from 2300 units/day to 1500 units /day - specific pumping power reduced from 36 KHW/MT to 29 KWH / MT

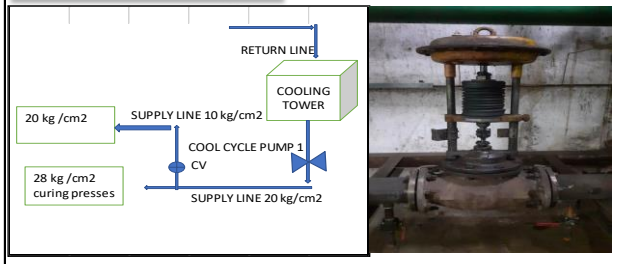
ANALYSIS



TARGET



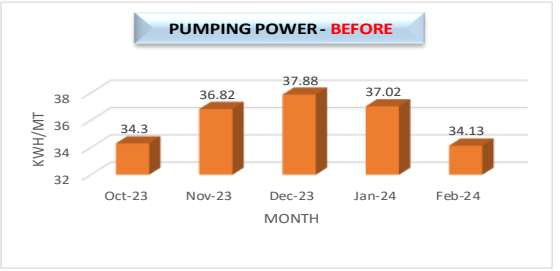
IMPLIMENTATION

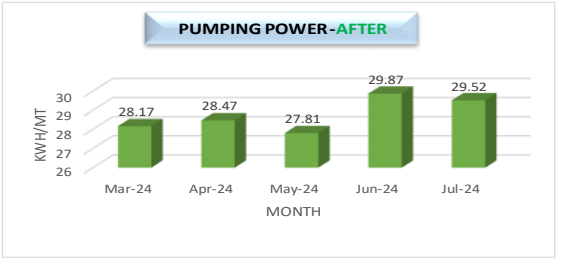


Performance Monitoring:

Instalation of pressure control valve to reduce cooling water supply from 20 kg/cm2 to 10 kg/cm 2 , now only one pump running and puping power reduced 850 units/day . no complaint from process dept and smooth runnng both veturi and cold water side both in Bias & LTR presses .

Result Check: (before and after)





Gains :

Tangible Benefit

1. Reduction in power 850 units/day
2. utility pumping power reduced
3. pump maintenance cost reduced .

In Tangible Benefit

1. Reduction in Carbon Foot print
2. Improved sustainability and compliance with environmental regulations
3. Enhanced reputation and competitive edge within the industry

Conclusion

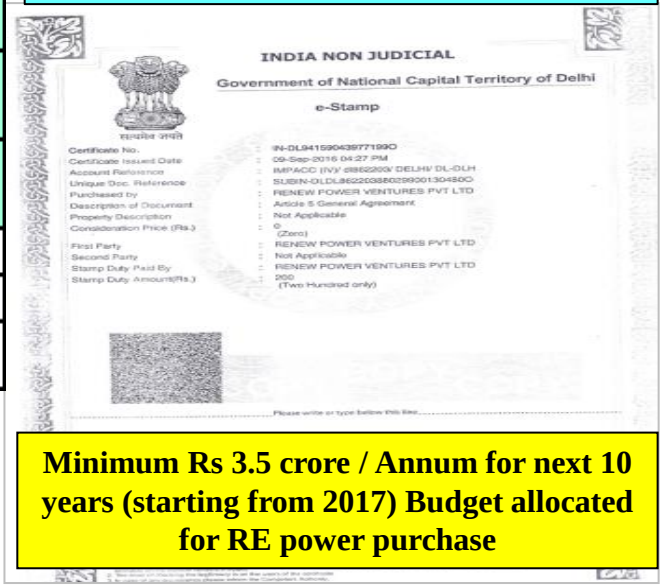
After successful trials and implementation of Nitrogen curing Bias presses no requirement of cold water pressure with 20 kg/cm 2 , only venturi purpose cold water required around 8 kg/cm 2 , so control valve provided with diversion of 20 kg/cm2 cold water circuit and 8 kg/cm 2 venturi system - initially 2 pump 75 kw running and now only 1 pump 75 kw running around 850 units power saved per day and carbon emission also reduced .

Prepared By: Ananda J	Reviewed By: Nagendra B N	Approval By: Naveen Kumar H M
Signature:	Signature:	Signature:

7. UTILIZATION OF RENEWABLE ENERGY SOURCES

Type	Units	Annual Consumption	% of total power
Unit purchased from Renew Energy	Million KWh	86.25	93.3
Units generated from Roof Top Solar	Million KWh	0.75	0.8
Units generated from recovery Turbine	Million KWh	0.75	0.8
Unit purchased from CESCOM	Million KWh	2.81	3.0
Unit purchased from IEX	Million KWh	1.86	2.0
Total Power	Million KWh	**92.42**	**100**

REC Power Purchase Agreement (wind energy)

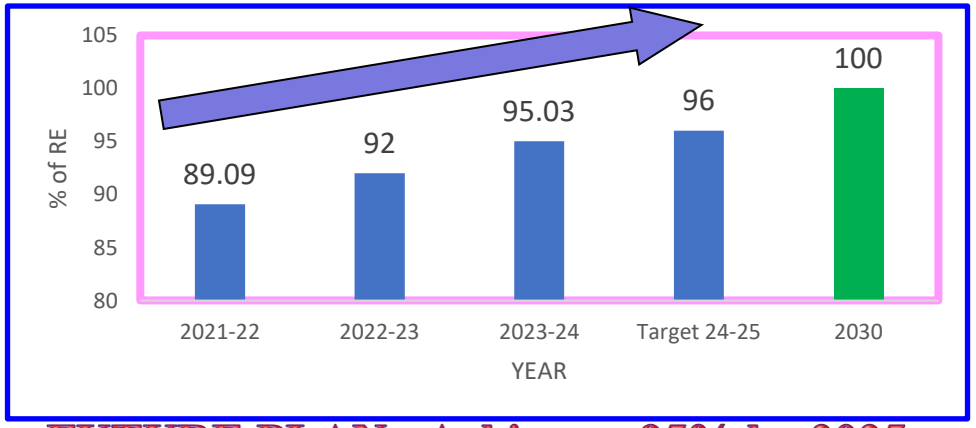

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Minimum Rs 3.5 crore / Annum for next 10 years (starting from 2017) Budget allocated for RE power purchase

95% of total power consumed is from Green Source in FY23-24



FUTURE PLAN : Achieve > 95% by 2025

Carbon Sink

Sr.	Location	No of Trees	No of Shrubs	Net Estimated Carbon Sink of JKTIL due to tree plantation (tCO2) from beginning to March 2022
1	Kankroli Tyre Plant	84,570	338,584	12510.80
2	Banmore Tyre Plant	133,586	37,434	11006.37
3	Chennai Tyre Plant	15,287	6,999	2363.87
4	Vikrant Tyre Plant	83,058	117,865	15848.43
5	Cavendish Industries Ltd.	11,259	248,752	2510.71
	Total	327,760	749,634	44240.18

7a. UTILISATION OF WASTE MATERIAL AS FUEL

1) Use of Dry Leaves

- We do not generate industrial waste which can be used as fuel.
- Other waste such as Wood packing scrap material, trimmed branches, Dry leaves is sent for briquetting & re used in boiler as fuel.
- CO_2 foot print reduced by around 53 Ton / annum (by offsetting coal)

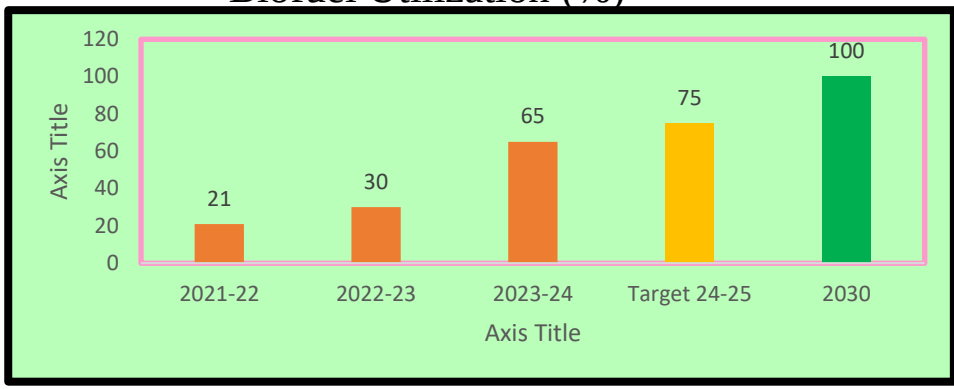
2) Re Use of Coal Dust

- Coal dust generation during coal crushing process/floor sweeping , dust being wasted through fly loss
- Pallet making machine installed to convert the coal dust into pallet form and re-used at boiler

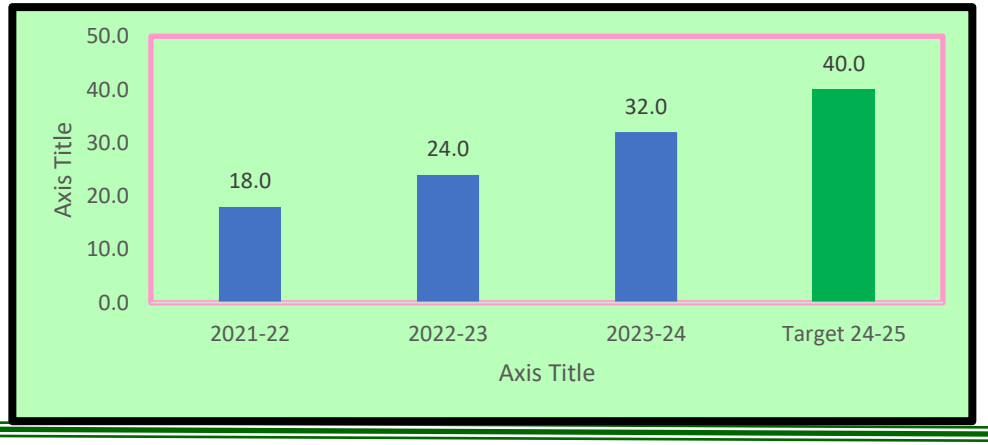
3) Use of Biomass

Biofuel utilization increased from 2.5% to 28%
(daily 500 kgs pallets making using coal dust)
Cost Savings of Rs. 14 lakhs /annuum

Biofuel Utilization (%)

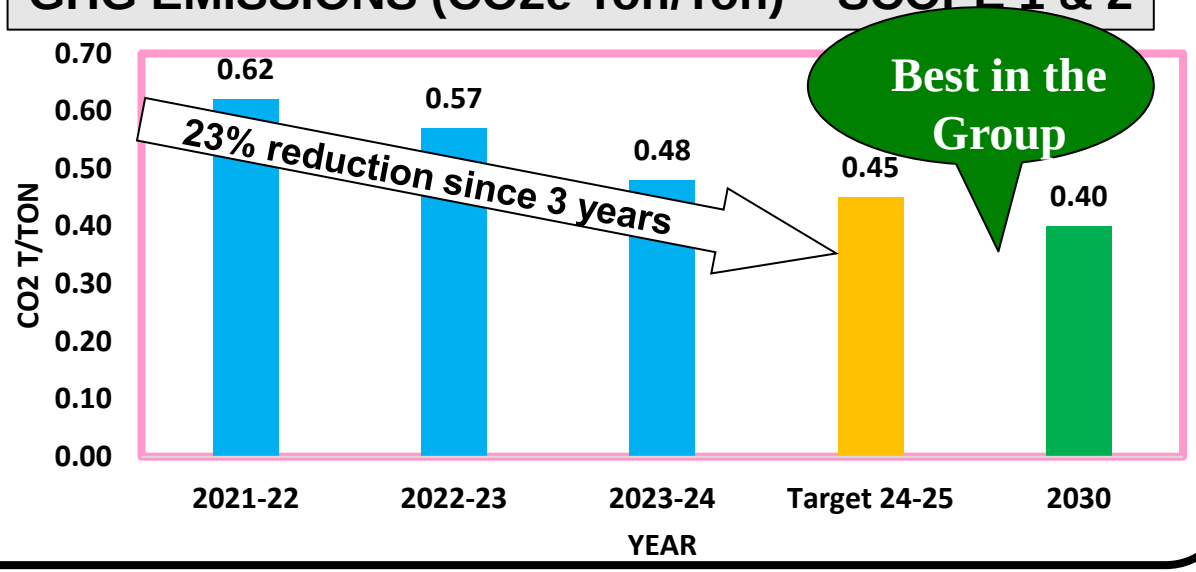


Total Coal savings from (1&2) (Tons / annum)

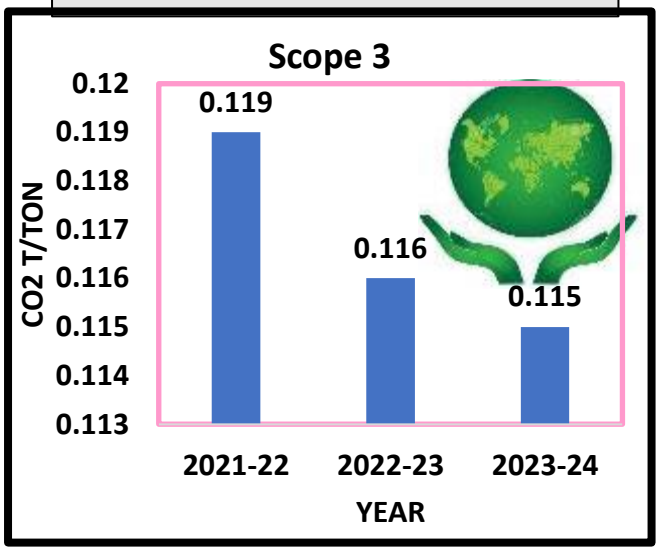


8. GHG INVENTORISATION (ISO14064-1:2019)

GHG EMISSIONS (CO2e Ton/Ton) – SCOPE 1 & 2



SCOPE 3 Emissions



TOTAL GHG EMISSIONS (CO2e Ton/Ton) – SCOPE 1,2 &3

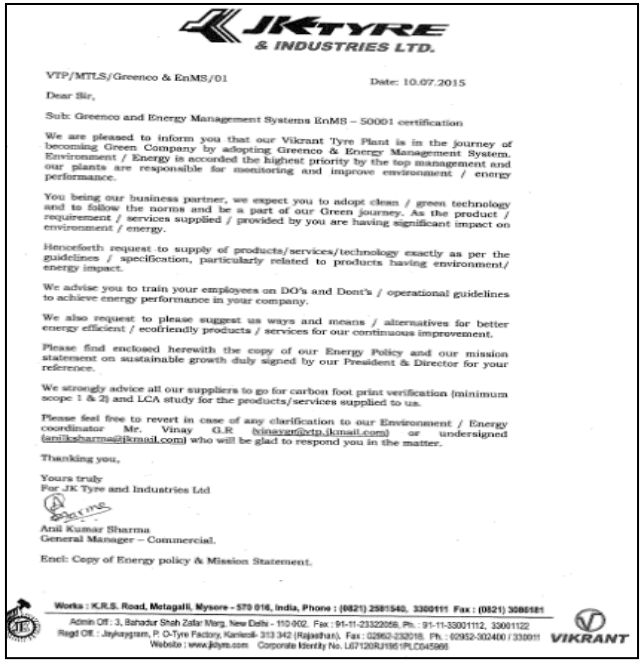
	JK Tyre Including Cavedish	JKTIL (Excluding Cavendish)	KTP	CTP	VTP	BTP	Cavendish
Emission	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)	Emission Intensity (tCO2e/MT)
2022-23	**1.1257**	**0.9171**	**1.0038**	**0.7159**	**0.6867**	**1.1424**	**1.5523**

Verification report & Opinion statement

VTP is Benchmark in JK Tyre

09. GREEN SUPPLY CHAIN

Green purchase guidelines



JK TYRE & INDUSTRIES LTD.

VTP/MTLS/Greenco & EnMS/01 Date: 10.07.2015

Dear Sir,

Sub: Greenco and Energy Management Systems EnMS – 50001 certification

We are pleased to inform you that our Vikrant Tyre Plant is in the journey of becoming Green Company by adopting Greenco & Energy Management System. Environment / Energy is accorded the highest priority by the top management and our plants are responsible for monitoring and improve environment / energy performance.

You being our business partner, we expect you to adopt clean / green technology and to follow the norms and be a part of our Green journey. As the product / requirement / services supplied / provided by you are having significant impact on environment / energy.

Henceforth request to supply of products/services/technology exactly as per the guidelines / specification, particularly related to products having environment/ energy impact.

We advise you to train your employees on DO's and Dont's / operational guidelines to achieve energy performance in your company.

We also request to please suggest us ways and means / alternatives for better energy efficient / ecofriendly products / services for our continuous improvement.

Please find enclosed herewith the copy of our Energy Policy and our mission statement on sustainable growth duly signed by our President & Director for your reference.

We strongly advice all our suppliers to go for carbon foot print verification (minimum scope 1 & 2) and LCA study for the products/services supplied to us.

Please feel free to revert in case of any clarification to our Environment / Energy coordinator Mr. Vinay G.R (vinaygr@vtp.jkmail.com) or undersigned (anil.jkcharma@gmail.com) who will be glad to respond you in the matter.

Thanking you,

Yours truly
For JK Tyre and Industries Ltd

Anil Kumar Sharma
General Manager – Commercial.

Encl: Copy of Energy policy & Mission Statement.

Works : K.R.S. Road, Metagalli, Mysore - 570 016, India. Phone : (0821) 2581540, 3300111 Fax : (0821) 3086181
Admin Off : 3, Bahadur Shah Zafar Marg, New Delhi - 110 002. Fax : 91-11-23323059, Ph. : 91-11-33001112, 33001122
Regd Off : Jaykaygram, P. O-Tyre Factory, Kankroli- 313 342 (Rajasthan). Fax : 02952-232018, Ph. : 02952-302400 / 330011
Website : www.jktyre.com Corporate Identity No. L67120RJ1951PLC045966

VIKRANT

Green Procurement Guide lines - VTP

Raw Material	Non hazardous, eco friendly, Biodegradable, REECH compliance chemicals
Appliances – AC, Fridges	Minimum 3 star
Motors	Min IE 4
Paints	Low VOC Paints
Taps	Push Type
Tube light & Bulbs	LED
House Keeping cleaning agents	Eco friendly cleaning agents

100% Compliance

All material code in SAP updated with Energy performance requirement.

- Taking measures in Energy management system by being proactive , innovative and cost effective including procurement of energy efficient products & services.
- As a Green Responsible company, we have re-sourced / re-organized / re-structured our suppliers close to our manufacturing plants. Suppliers in South cater to south plant & North to North plants

Eg. :- Carbon Black - Earlier supplied from Kolkata to VTP & Chennai supplied carbon black to KTP now the supplies reorganized so that Chennai supplies to VTP & CTP and Kolkata supplies to KTP, LTP & BTP. This resulted is overall savings in emission from supply chain

- **INVOLVING SUPPLIERS IN CII GREENCO JOURNEY** - We are encouraging our suppliers to go for GreenCo certification

10. EMS SYSTEM AND OTHER REQUIREMENTS

Existing monitoring system

ENERGY REVIEW

Daily shop floor review

Plant # 1&3 : At 11:30hrs – By Unit Head & Plant Head

Plant # 2 : At 10:00 hrs - By Unit Head & Plant Head

Monthly review

Energy Performance review -by 1st week of Every Month (Unit Head)

Energy review – 1st Week of every month by Mfg. Director

Business Review Meeting (BRM) – 2nd Week of every month - President

❖ Annual Performance Review – EnMS Management Review Meeting

❖ Annual Performance Review meeting at HO

❖Benchmarking of Targets w.r.t industry standards – Annually

❖Review of targets is done based on high impact projects

Top Management Review

ISO 50001:2018 CERTIFICATE

bsi.

Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

JK Tyre & Industries Ltd.
Vikrant Tyre Plant
KRS Road
Metagalli
Mysore 570 016
Karnataka
India

Holds Certificate No: ENMS 595612

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

The Manufacture of Automotive Bias, Radial & Off the Road Tyres, use of Electricity from State Electricity Board and from other Renewable sources including IEX (Indian Energy Exchange), Generation of DG Power (as standby), Generation of Solar Power, Generation of power through Recovery Turbine, Generation of Steam through Coal Fired Boilers, Generation of Compressed Air, Generation of Chilled Water for Process use.

For and on behalf of BSI:

Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2013-04-29
Latest Revision Date: 2019-05-05

Effective Date: 2019-03-22
Expiry Date: 2022-03-21

Page: 1 of 2

...making excellence a habit.

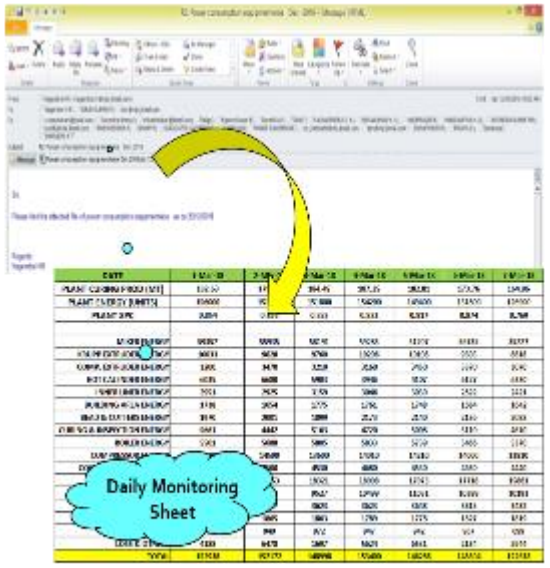
11. NET ZERO COMMITMENT

- Phasing out coal fired boiler by modifying and upgrading existing Boiler,
- Utilization of 100% Biomass and CNG gas
- 100% renewable energy by 2030 by Installing Solar Plant
- Reduction in Co2 emission to 50% by 2030
- Clean technology adaptation like Hot Nitrogen in curing process
- Carbon sequentialization by planting one million trees by 2030
- Increase use of Renewable material in Tyre

TEAM WORK, EMPLOYEE INVOLVEMENT & MONITORING

REVIEW MEETINGS - Daily shop floor review-Chaired by unit head & plant heads, Monthly review, Annual Performance Review, Energy review –chaired by Mfg. Director, Business review(BRM) - Chaired by President Benchmarking of Targets w.r.t industry standards, Review of targets is done based on high impact projects

DAILY MONITORING SYSTEM



Action plan for day to deviation implemented & effectiveness reviewed in next day meeting

STRATEGIES FOR EMPLOYEE AWARENESS & INVOLVEMENT

Most Energy Efficient Plant

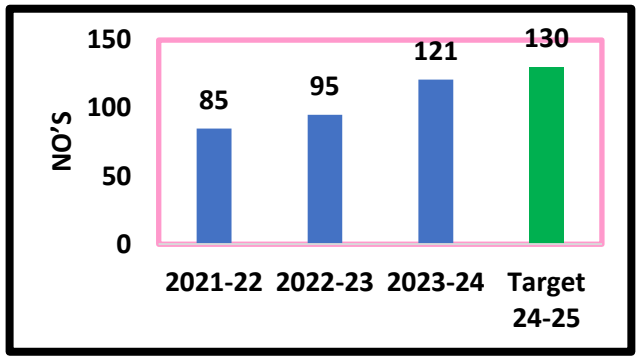
Apex Group	Core Team	Front line	Working group
○ Formulate Policy ○ Give Direction • Review Energy consumption • Review status of Energy projects • Provide resource	○ Set target to Reduce Energy consumption • Implement Energy projects ○ Benchmarking ○ Energy Audits ○ Provide resource ○ Support & guide plant team ○ Compliance to legal & other requirements ○ Train plant team	○ Control / avoid Energy loss • Process control ○ Monitoring & measurement of relevant EnPI ○ Train Working group – Spread awareness	○ Participate in improvement activities • Energy Kaizen ○ Control / avoid Energy loss by adhering to Work Instruction & SOP's

Avoid Loss , Improved Awareness

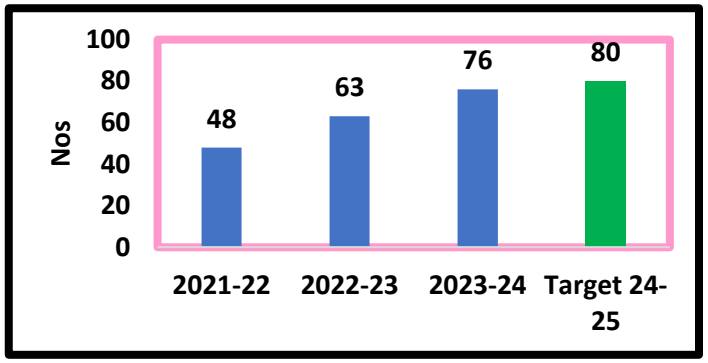
- On the job training is also being imparted to employees in regard to conservation of energy.
- Employees have been identified for undergoing training in department where significant energy use .
- Energy conservation tips are being displayed in the prominent places like utility, production hall etc
- Employee suggestions on conservation of energy. Suggestions are evaluated & implemented
- Employees in CFTs have made many Kaizens to conserve energy.

TEAM WORK, EMPLOYEE INVOLVEMENT & MONITORING

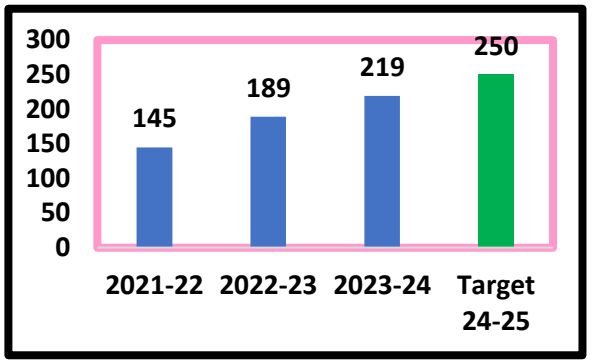
Energy Kaizens (Nos)



Training on energy conservation (Hrs)



Energy related suggestions (Nos)



KAIZEN SHEET

Company	MM/YY	Sl.No
JKTIL		

Productivity	Quality	Cost	Delivery	Safety	Morale	Energy	Environ-ment

Kaizen Title: *Reduce Breakdown in CSSR Tyre Building Machine*

Implemented Area: Banbury

Problem/Present Status:

Power contactor & Inching regulator problem in CSSR Tyre Building – M/c

Before Improvement:

Implemented by:
Mr. Hiremath
Mr. Sandeep
Mr. Mahesh

Result/Benefit:

(a) Qualitative
- Maintenance Fitter fatigue reduced
- Team morale improved

Real Root Cause Identification:

Inching Regulator & Power contactor problem
↓
Regulator & Power contactor failed
↓
↓
No other provision to reduce the main motor speed
↓
Initial Design :No Drive to reduce the speed

Improvement:

(b) Quantitative
- Reduction in power consumption by 5325 Kwh
- Reduction in CO_2 emission by 2.8 Ton / Annum Oil leakages eliminated from avg 2 ltrs / month to Zero
- Productivity improved by Average 960min / month
- Annual savings of ` 41,000 / annum

Standardization:
Machine Drawing updated

Root cause: *Frequent Failure of Regulator & contactor due to – Contactor logic system*

Idea to eliminate root cause: Provide variable frequency drive

Counter-measure: Introduce variable frequency drive instead of controlling the movement by contactor logic

How many places this Kaizen can be deployed horizontally –

-na-

AWARDS, ACKNOWLEDGEMENT

CEM AWARD OF EXCELLENCE IN ENERGY MANAGEMENT by CEM Canada

State Export Excellence Award from Govt. Of Karnataka

GREENTECH AWARD- WINNER

Single Use Plastic Free certified

CII-ITC Centre of Excellence for Sustainable Development

Confederation of Indian Industry

SUP free

Certificate

Single-use Plastic Free

JK Tyre & Industries Ltd,
Vikrant Tyre Plant, Mysuru

This is to certify that JK Tyre & Industries Limited at the location mentioned above, is Single-use Plastics free as verified by the Confederation of Indian Industry, under the provisions of the Plastics-use Protocol: Verification and Certification.
This Certificate is valid from 11 July 2023 to 12 July 2024.

Ms Seema Arora
Deputy Director General
Confederation of Indian Industry (CII)
Centre of Excellence for Sustainable Development (CESD)

Certificate Date: 14 July 2023 Certificate No.: CII/PuP/2023/017

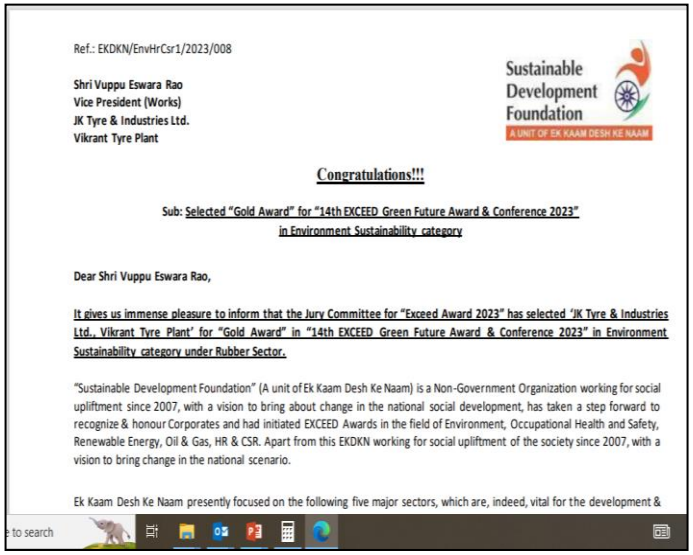
This certificate has been awarded after the company fulfilled the requirements for phasing out single-use plastics and provided evidence for it. Responsibility for the data provided to CII rests solely with the company. The conditions of certification, and items are detailed in the Annex.

CII National Award for Excellence in Energy Management 2023

CII National Award for Performance Excellence in RE sector

AWARDS, ACKNOWLEDGEMENT

EKDAM - Exceed Environment Gold Award



Ref.: EKDKN/EnvHrCsr1/2023/008

Shri Vuppu Eswara Rao
Vice President (Works)
JK Tyre & Industries Ltd.
Vikrant Tyre Plant

Sustainable Development Foundation
A UNIT OF EK KAAM DESH KE NAAM

Congratulations!!!

Sub: Selected "Gold Award" for "14th EXCEED Green Future Award & Conference 2023" in Environment Sustainability category

Dear Shri Vuppu Eswara Rao,

It gives us immense pleasure to inform that the Jury Committee for "Exceed Award 2023" has selected 'JK Tyre & Industries Ltd., Vikrant Tyre Plant' for "Gold Award" in "14th EXCEED Green Future Award & Conference 2023" in Environment Sustainability category under Rubber Sector.

"Sustainable Development Foundation" (A unit of Ek Kaam Desh Ke Naam) is a Non-Government Organization working for social upliftment since 2007, with a vision to bring about change in the national social development, has taken a step forward to recognize & honour Corporates and had initiated EXCEED Awards in the field of Environment, Occupational Health and Safety, Renewable Energy, Oil & Gas, HR & CSR. Apart from this EKDKN working for social upliftment of the society since 2007, with a vision to bring change in the national scenario.

Ek Kaam Desh Ke Naam presently focused on the following five major sectors, which are, indeed, vital for the development &

BSC GOH 5star rating

Five Star
Environmental Sustainability Audit
— Five Stars —

Valid until 28 October 2022

This is to certify that

JK Tyre & Industries Ltd,
Vikrant Tyre Plant, Mysuru

after an extensive evaluation by a British Safety Council auditor, has been awarded a rating of Five Stars.

Lawrence Waterman, OBE
Chair of The Board of Trustees

Mike Robinson
Chief Executive

BRITISH SAFETY COUNCIL

INDIAN ACHIEVERS AWARD

INDIAN ACHIEVERS' AWARD
2021-22

presented to

JK Tyre & Industries Ltd.
Vikrant Tyre Plant, Mysuru

In Recognition of Outstanding Professional Achievement & Contribution in Nation Building

Harish Chandra
President

S. Ravi Shankar
Hon. Secretary

INDIAN ACHIEVERS' FORUM
Promoting Achievements which Inspire Businesses & Communities
iafindia.com

Quality Sustainability Gold award Winner Organized

ISQ
Quality for Prosperity

CERTIFICATE - GOLD

Awarded to

S.K.Shetty , JK Tyres & Industries

Project: Conversion Of Hot Water Curing System To N2 Curing

In recognition of being winner in the national level of

Quality Sustainability Award 2021

On 1st October 2021 organised by Indian Society for Quality

QUALITY SUSTAINABILITY AWARD

Indian Society for Quality

JANAK MEHTA
President – ISQ

VIJAY KALRA
Chair – Quality Earth Forum

CII 3R Awards

3R AWARDS

CII
Confederation of Indian Industry

Certificate of Appreciation

This certificate is awarded to

JK Tyre & Industries Ltd, Vikrant Tyre Plant

for their efforts towards managing own waste in India and participation in the CII 3R Awards 2021 under manufacturing sub-category

Dr. Anil Kakodkar
Chairman, Grand Jury, CII 3R Awards 2021
Chairman, Rajiv Gandhi Science & Technology Commission

P Palaniappan
Chairman
CII Task Force on Waste to Worth

AWARDS, ACKNOWLEDGEMENT

Won Special Jury Award in ISQ TOPS convention 2023

GREENTECH ENVIRONMENT AWARD WINNER 2022

FAME EXCELLENCE AWARD towards livelihood creation & 3R's- Platinum and Excellence in Environment protection -diamond

NATIONAL ENERGY CONSERVATION AWARD from BEE

GREENCO PLATINUM PLUS by 2024-25

Thank You