Confederation of Indian Industry

23rd
National Award for
Excellence in Energy Management 2022

Steel Coated Product Limited, Vasind

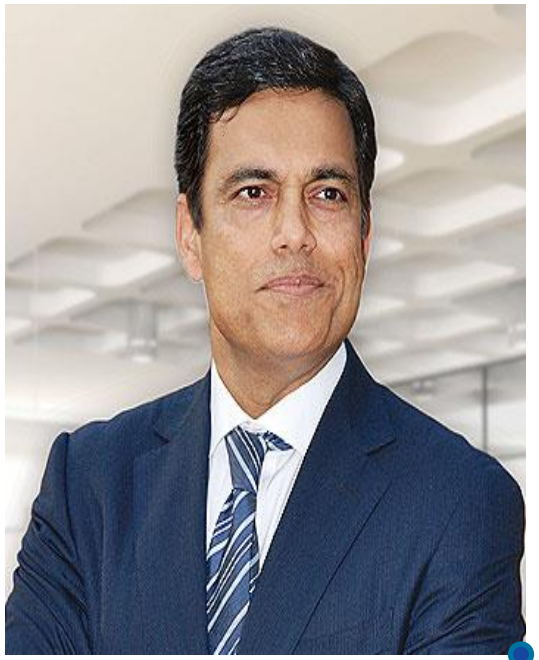
Presenters:
Mr. Anish Karahe- AGM

1. Brief introduction on Company – Founder of JSW

FOUNDER OF JINDAL GROUP

Shri. O. P. Jindal

Legacy



Shri. Sajjan Jindal

Mr. Sajjan Jindal

- ✓ JSW Steel
- ✓ JSW Steel Coated Products Ltd
- ✓ JSW Energy
- ✓ JSW Infrastructure
- ✓ JSW Cement
- ✓ JSW GBS
- ✓ JSW Sports
- ✓ JSW Foundation

"Where others see walls….., I see doors….."

Whatever we do, the aim is always to bring positive change and make things **Better Everyday**

1. Brief introduction on Company – Process & Product

JSW Steel

- Vijayanagar – 13 MTPA
- Salem – 1.2 MTPA
- Dolvi – 10 MTPA
- JSWBPSL – 3.5 MTPA
- JSWISPL – 1 MTPA

JSW SCPL

- Engaged in producing the Coated Products

- First facility of JSW Group in 1982
- GI/GL 1.5 MTPA,
- PPGI/GL 0.475 MTPA
- CAL 0.5 MTPA
- Export oriented, located near port and west Indian market

Kalmeshwar – 0.96 MTPA

Tarapur – 1.2 MTPA

Vasind 2.0 MTPA

100% Subsidiary of JSW Steel. India's Leading Coated Steel Producer (4.2 MTPA)

MAIN PRODUCTS

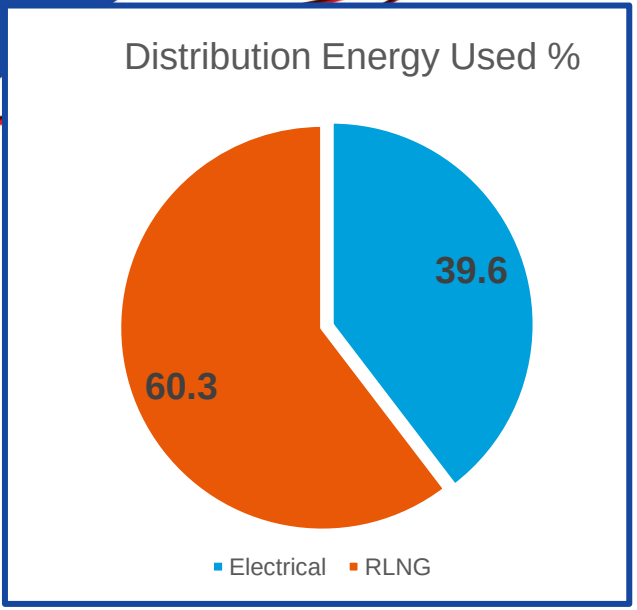
1. Galvanizing
2. Galvalume
3. Colour coated coil & sheets
4. CAL

Vasind
2 MTPA

Rolling	Galvanizing	Colour Coating
CRM3 CRM4 PLTCM	CGL - 1 CGL – 2 CGL - 3 Slitting -2 CTL - 2 Profiling - 3	CCL - 1 CCL – 2 CCL - 3 Embossing Line

Continues Annealing Line

Energy Consumption



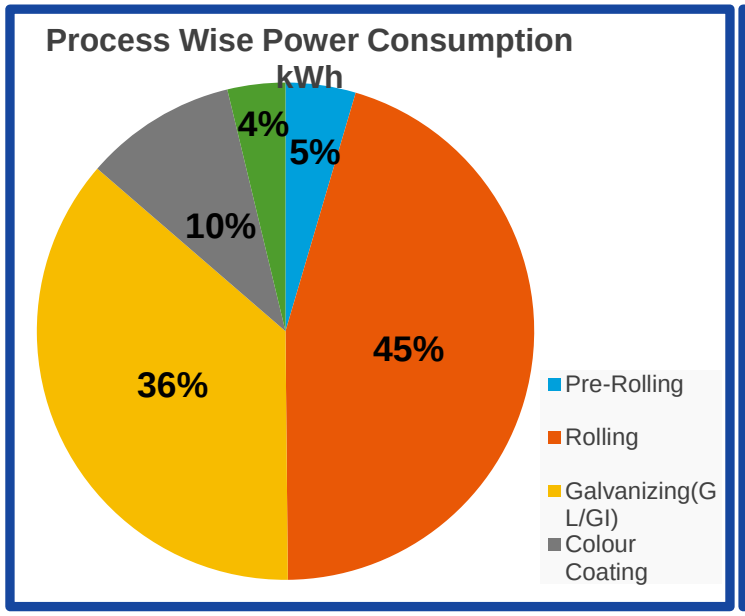
Process Wise Energy Consumption of Vasind FY-22

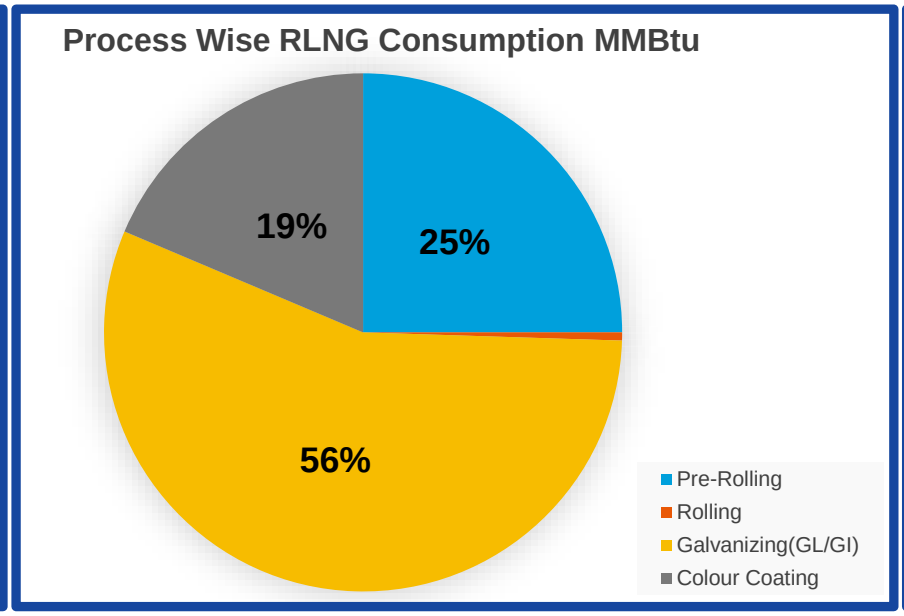
Area	Power(Lac kWh)	RLNG(Lac MMBtu)	Energy in Gcal
Pre-Rolling	85	2.82	78435
Rolling	843	0.06	73976
Galvanizing(GL/GI)	679	6.31	217420
Colour Coating	184	2.10	68871
Auxilary	70	0.00	6263
Grand Total	1862	11.29	444965

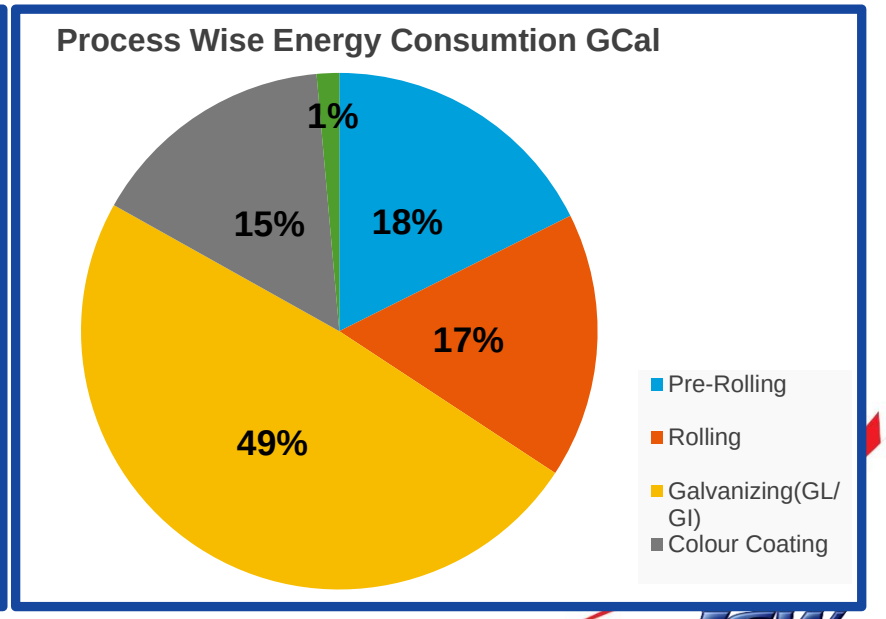
Energy Sources

RLNG (GAIL)	Electrical Power (OA)
11.29 Lacs MMBtu/A	1862 Lac kWh/A
160141 GCal/A	284584 GCal/A

Total : 444725 GCal



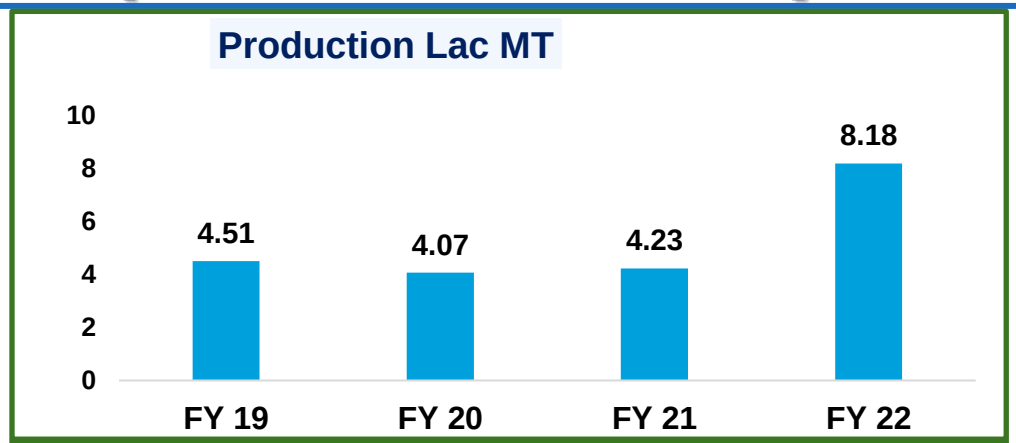


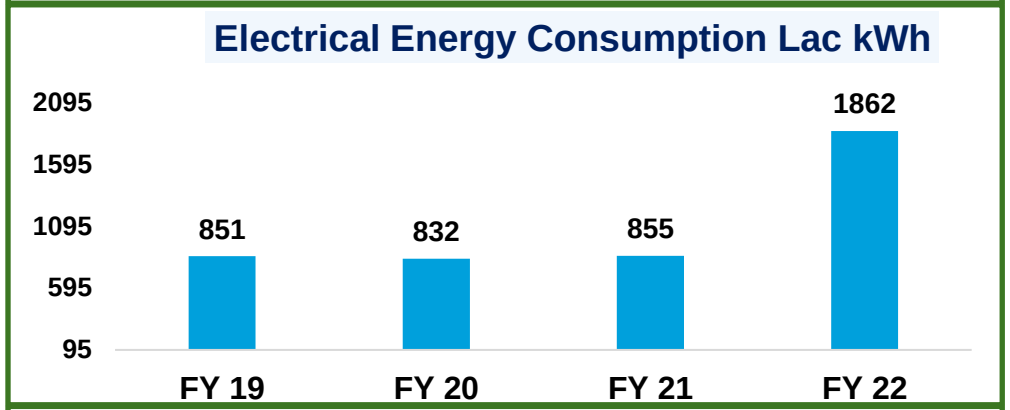


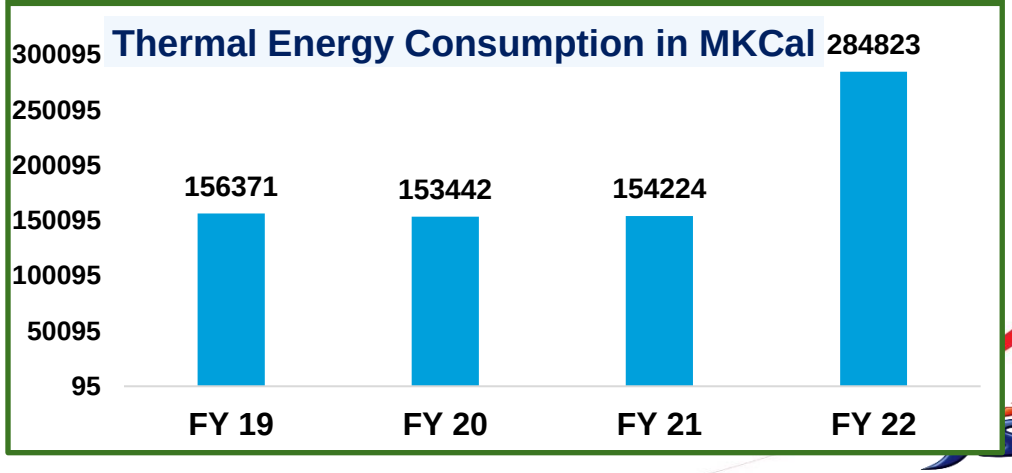
3. Specific Energy Consumption in last three years

Plant Energy Consumption					
Energy	Unit	FY 19	FY 20	FY 21	FY 22
Electricity	Lakh Kwh	851	832	855	1862
Thermal	Million Kcal	156371	153442	154224	284823
Specific Energy Consumption	MTOE/t	0.0412	0.0399	0.04	0.041

Plant Capacity Utilization					
Year	Unit	FY 19	FY 20	FY 21	FY 22
Installed Capacity	Lacs ton	4.5	4.5	4.5	8
Actual Production	Lacs ton	4.51	4.07	4.23	8.18
Capacity Utilization	%	100.2	90.4	94.0	102.3







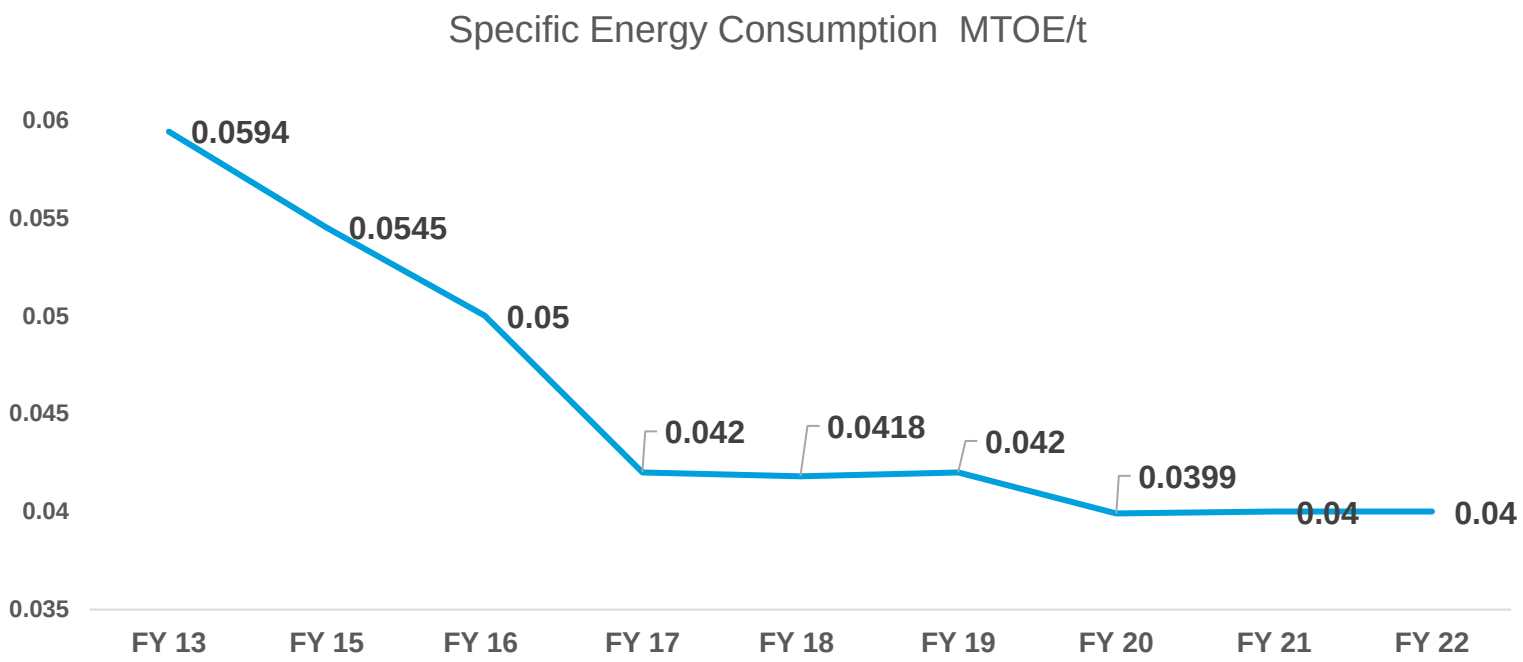
3. Specific Energy Consumption in last three years

Perform Achieve Trade (PAT) Cycle

PAT-1				
Energy Consumption (MTOE/T)			Energy Saving MTOE	ESCerts Awarded
Notified	Notified Target	Achieved and Verified		
0.0594	0.0575	0.0545	2042.3	1875

PAT-2				
Energy Consumption (MTOE/T)			Energy Saving MTOE	ESCerts Recommended
Notified	Notified Target	Achieved and Verified		
0.044	0.0414	0.042	0	-294

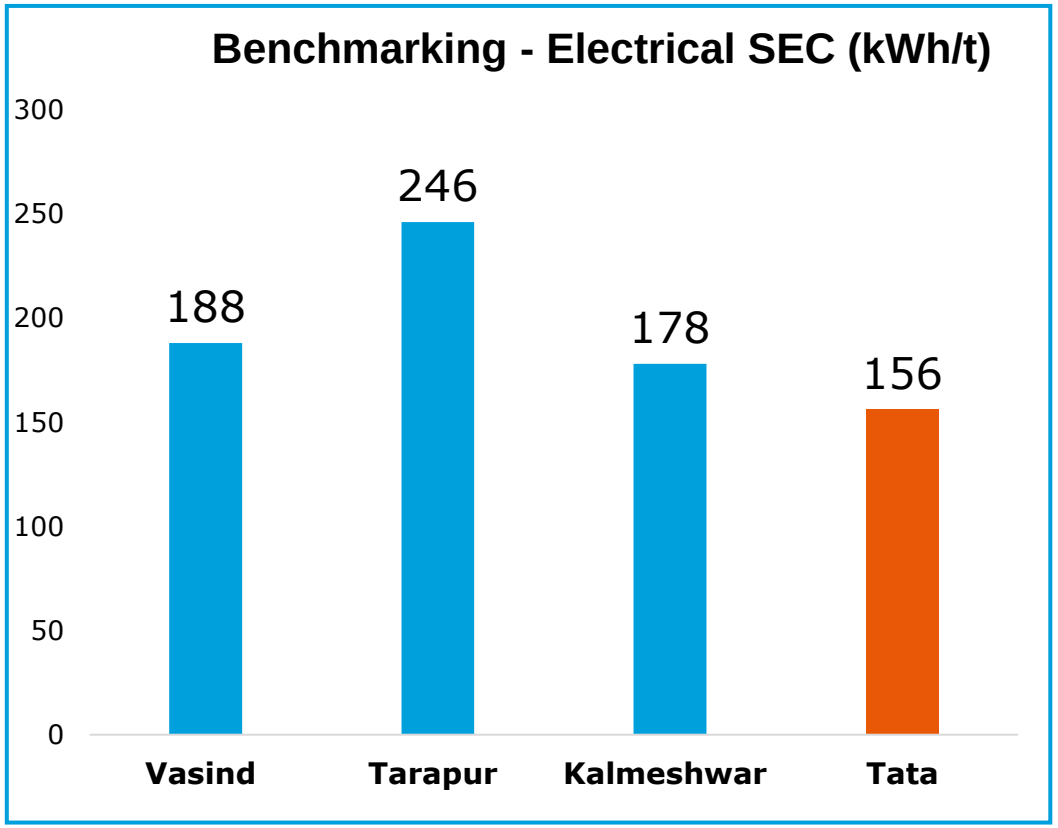
SEC Reduction in PAT-1 8.2%

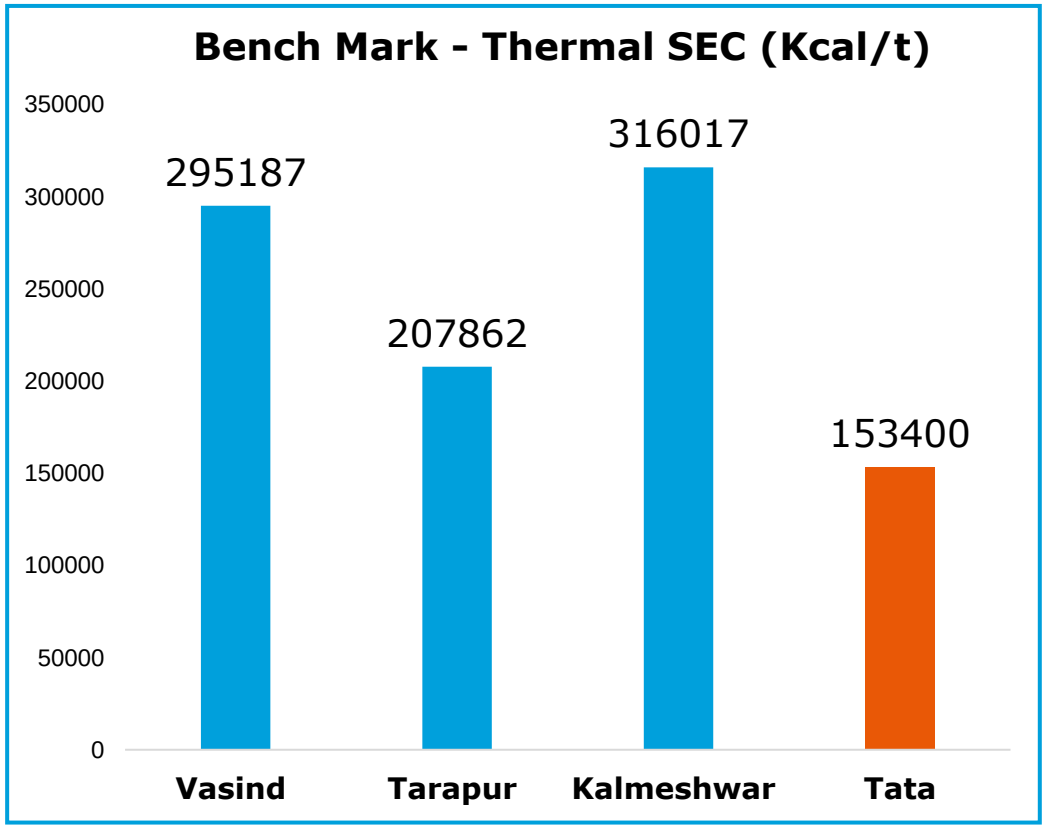


SEC Reduction in PAT-2 4.54%

SEC Reduction in Last 6 Years 12.75%

4. Information on Competitors /National & Global Benchmark

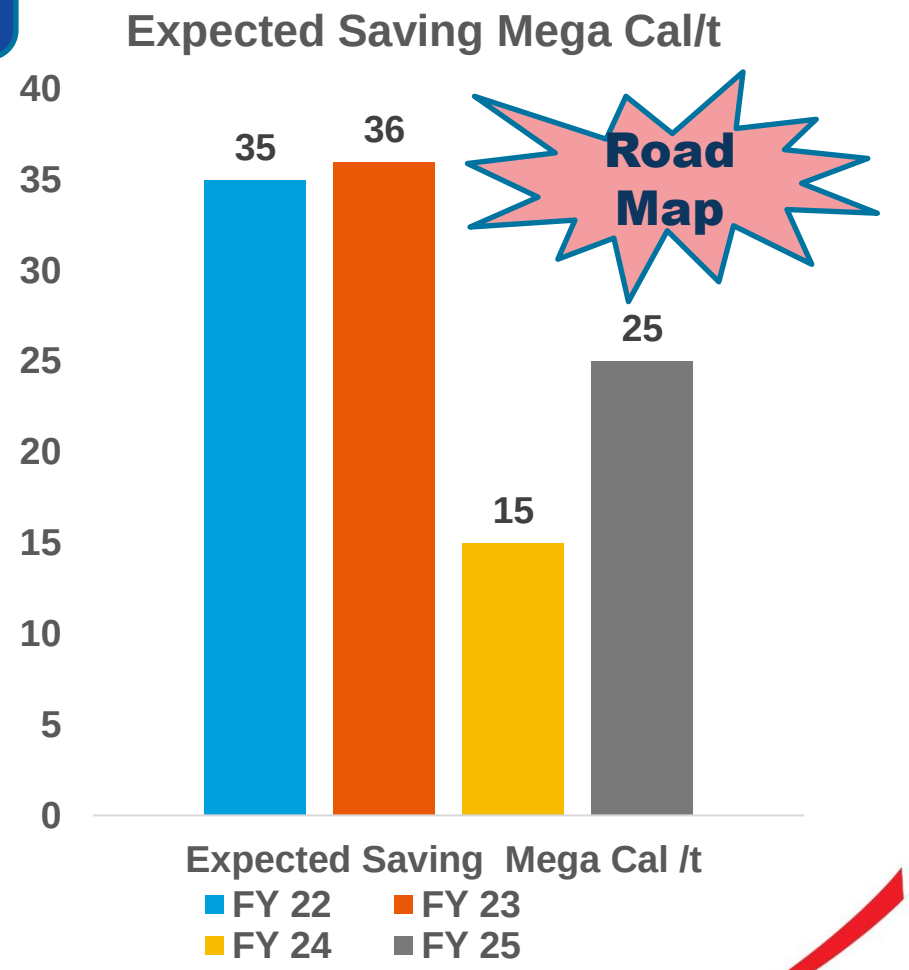




Tata BSL Khapoli CII Data of 2018-19

4. Information on Competitors /National & Global Benchmark

	Initiatives	Expected Energy Savings GCal / t
FY 22	1. PLTCM Commissioning-World class technology 2. Capacity enhancement – new upcoming lines CGL3, CGL4, CCL3 3. IE 3 motors	0.035
FY 23	1. Use of Solar Power (4.5 MWp)	0.036
FY 24	1. Conversion of 14 MW DC Motors to AC with common DC Bus 2. Energy Efficient Equipment	0.015
FY 25	1. Installation of 35 MW Solar Power plant by JSW Energy for Coated Business. 2. Replace all old motors with IE 3 motors	0.025

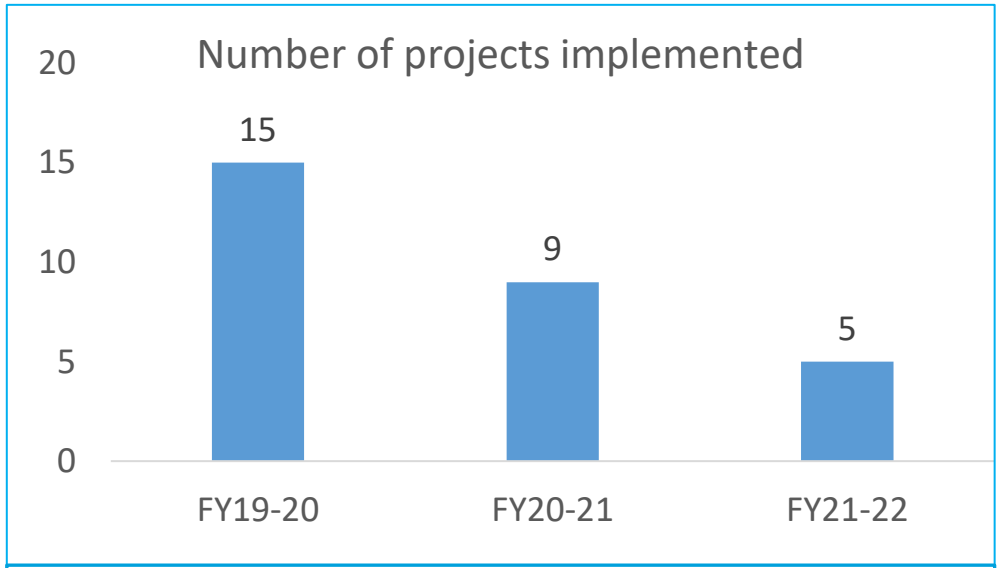


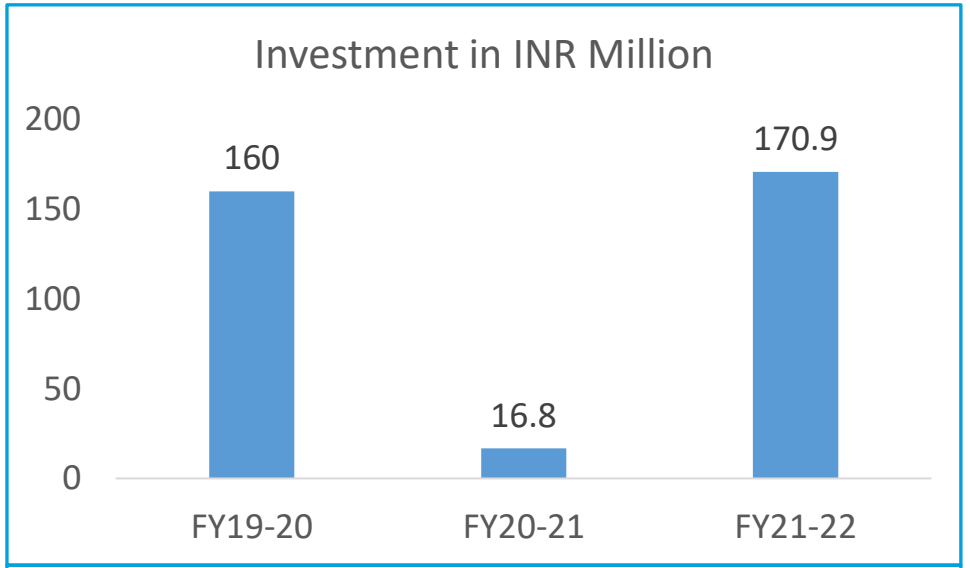
Total 26% SEC will be reduced (From- 0.411 to 0.301 G Cal/t

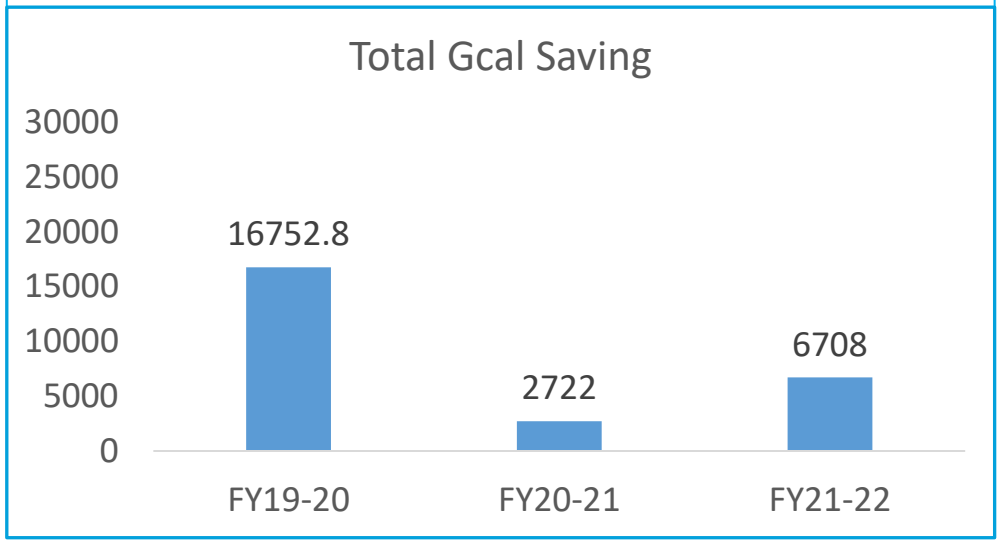
5. Energy Saving project implemented in last 4 years

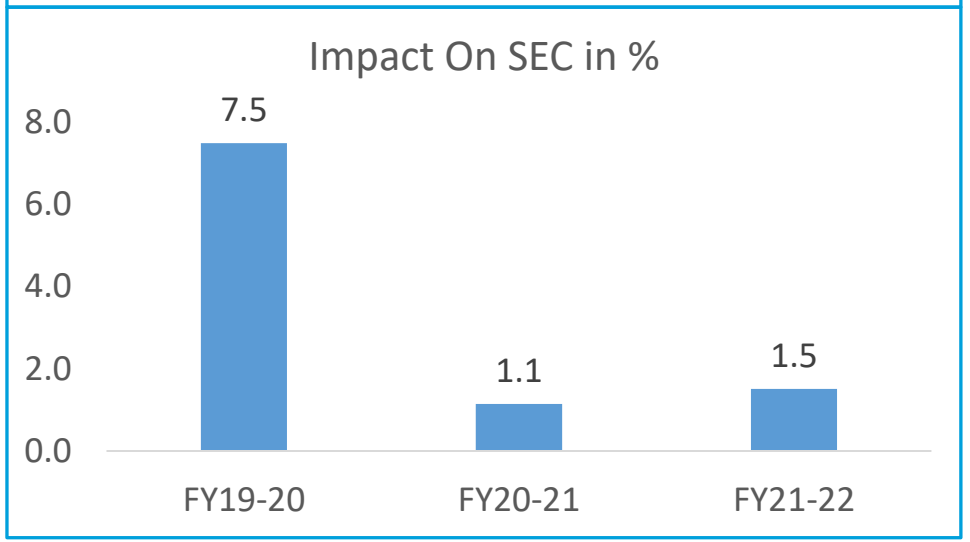
FY	No. projects	Investment in INR Million	Electrical Saving in Million kWh	Thermal Saving in Million Kcal	Saving in INR Million	Impact On SEC in %
FY18-19	9	90	4.7	24796	41	12.0
FY19-20	15	160	2.93	14233	47	7.5
FY20-21	9	16.8	1.7	1260	15.7	1.1
FY21-22	5	170	7.8	0	63.27	1.5

5. Energy Saving project implemented in last 3 years









5. Energy Saving project implemented in last 3 years

ENCON Measures FY 20

ZERO INVESTMENT Projects

ENCON Measures	Electrical Savings (kWh)	Thermal Savings (GCal)	Savings (Rs Million)	Investment (Rs Million)	Payback (Months)
Cooling tower pump to be replaced with high efficiency pump	149052	0	1	0.56	6.3
Reduce speed of CRM 4 Coolant pump during idle running and reduce the pressure to 5 bar during normal operation	71000	0	1	0	0.0
Replacement of water cooled damper with non water cooled damper	0	283.5	1	0.2	2.8
Burner optimization in 5 t boiler	0	519.372	2	0.4	3.1
Replacement of old motor ,55 KW of HP Pump with Energy efficient motors.(IE 3)	14256	0	0	0.13	15.2
Oxygen analyzer to be installed at CGL-2 Stack	0	257.04	1	0.5	7.8
Oxygen analyzer to be installed at CGL1 Stack	0	1379.7	4	0.5	1.5
Replacement of inefficient ventilation blowers of mill motor with high efficiency blowers.	229000	0	2	1.5	10.9

CONTD…

5. Energy Saving project implemented in last 3 years

ENCON Measures FY 20

ENCON Measures	Electrical Savings (kWh)	Thermal Savings (GCal)	Savings (Rs Million)	Investment (Rs Million)	Payback (Months)
Provision of local burner at CCL-2 oven to reduce fuel consumption	0	9072	27	16	7.1
Fixed power optimization by speed increased from 120 to 150 mpm	1800000	2721	20	140	84
Optimize terminal voltage of the transformers by adjusting tap position	177000	0	1	0	0.0
Pilot Blower of 9.3 kw made off after line start .	50000	0	0	0	0.0
Replacement of old motors Two nos,45 KW of Pump house and One no 30 KW of Exit Hydraulic Pump with Energy efficient motors.(IE 3)	45990	0	0	0.3	10.9
Stop CGL-1 Pump house and use CCL pumphouse after modification of Piping and installtion of Spare Pump	365000	0	3	0.5	2.3
Replacement of old motors Two nos ,45 KW of Pump house with Energy efficient motors.(IE 3)	35040	0	0	0.3	14.3
Total	**2936338**	**14233**	**62.2**	**160.89**	**31**

Zero Investment Projects

5. Energy Saving project implemented in last 3 years

ENCON Measures FY 21

ENCON Measures	Electrical Savings (kWh)	Thermal Savings	Savings (Rs Million)	Investment (Rs Million)	Payback (Months)
Installation of VFD in Crane LT and CT to reduce power consumption	22000	0	0.15	0.30	23.99
Improve power factor from 0.965 to 0.999 by installing APFC	1200000	0	8.18	16.00	23.46
Installation of VFD at CCL1 RTO combustion blower	80000	0	0.55	0.00	0.00
CCL-1 , All steering / staggering unit pump motor off Auto after line stopped due to any reason.	20461	0	0.14	0.00	0.00
CCL-2 , All steering / staggering unit pump motor off Auto after line stopped due to any reason.	18105	0	0.12	0.00	0.00
CGL-1, All steering / staggering unit pump motor off in Auto after line stopped for more than 15 Min.	30769	0	0.21	0.00	0.00
CCL Pump house connect with New pump of CGL-1 and CCL pump house stop. Combined use of New cooling tower pump for CGL-1 and CCL	47538	0	0.32	0.00	0.00
CCL-2 RTO is to be made off during sample testing and idle hrs	363000	0	2.48	0.50	2.42
Recoiler Staggering 1&2 Pump Motor On/off in auto according to recoiler selection.	0	1250	3.60	0.00	0.00
Total	**1781873**	**1250**	**15.75**	**16.80**	**11.3**

Zero Investment Projects

5. Energy Saving project implemented in last 3 years

ENCON Measures FY 22

ENCON Measures	Electrical Savings (kWh)	Thermal Savings (GCal)	Savings (Rs Million)	Investment (Rs Million)	Payback (Months)
Installation of 1.5 million ton PLTCM with advance energy efficient technology	5000000	0	40.5	100	29.6
Fixed power optimization by speed increased from 65 to 100 mpm	1875000	0	15.2	70	55.3
CGL-1, Br5 M1 and Recoiler Motor cooling blowers to be replaced with low power high efficiency blowers.	25538	0	0.2	0.2	11.6
Reduction in Compressor Power by 1700 kWh/Day. A. Installation of Flow meter in air lines B. Leakage arrest at all unit. C. effective loading /unloading setting.	561000	0	4.5	0.7	1.8
Installation of pyrometer and close loop control of Induction oven and blower	340000	0	2.9	0.5	2.1
Total	**7801538**	**0**	**63.33**	**171.40**	**4.4**

5. Energy Saving project implemented in last 3 years

Objectives (FY-23)	Potential Saving				Investment Required Rs Lac
	kWh/A	RLNG (MMBtu/A)	G Cal/A	Rs Lac/A	
Rectify the steam traps and increase the condensate recovery (2% Reduction in RLNG)	0	4080	1028	84	50
Install ControlAiR Intelligent Flow Control (IFC) System for air compressors (10% Red in Compressor Power)	620500	0	534	43	100
Replacement of Old inefficients motors with IE3/4 Motors (4% Red)	79200	0	68	6	20
Replacement of CT/LT of 5 nos Old cranes slipring control with VFD (20 Units/Day)	36500	0	31	3	25
CGL-2 CAG D1 blower to be replaced with high efficiency blower	323000	0	278	23	15
CRM-3 Fume Exhaust blower to be replace with high efficiency motor	269000	0	231	19	15
CRM3-Conversion of DC to AC motors and speed increased from 450 to 1400 mpm to optimize power & increase productivity.	1250000	0	1075	88	3500
Installation of Inverted U type furnace at CGL 2	0	14011	3531	287	1000
DC to AC drive conversion system at RW 4	6558	0	6	0	60
Installation of roof top solar panels in Opex model at Vasind	4032000	0	3468	282	0
Total	**6616758**	**18091**	**10249**	**834**	**4785**

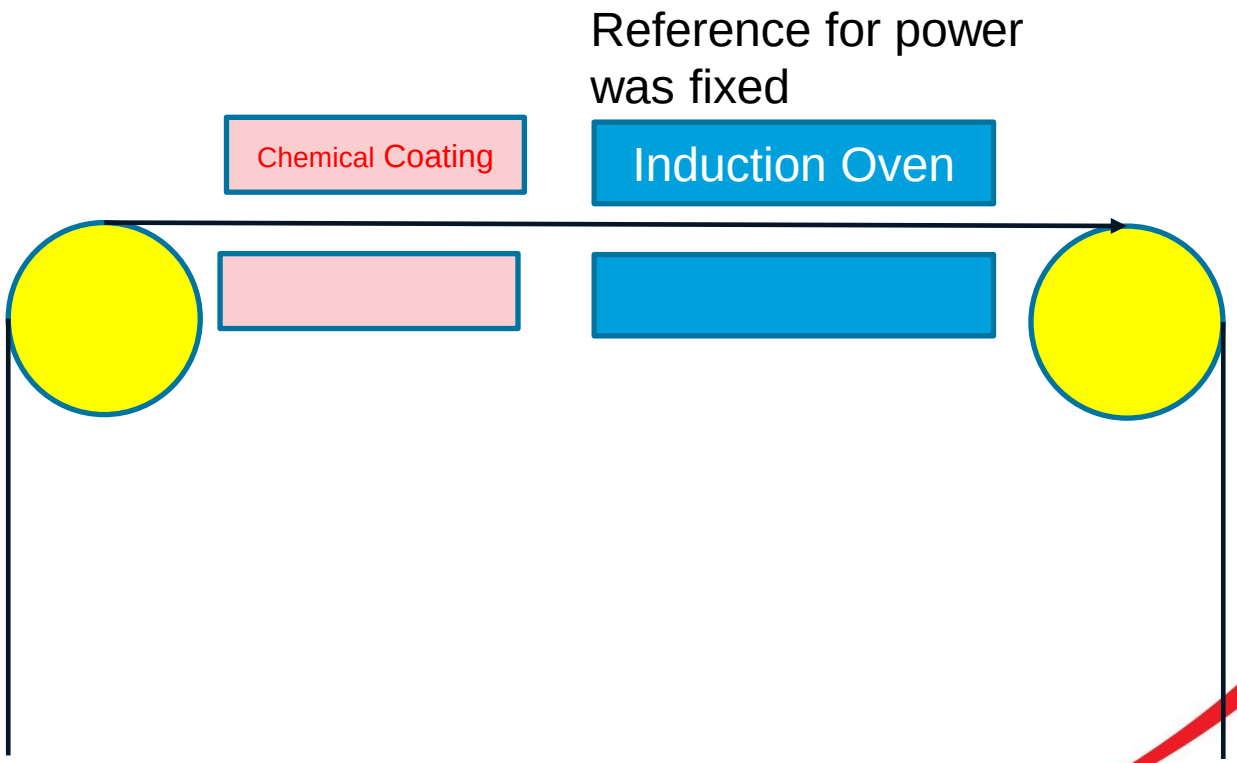
No 1 Projects Implemented

Use of Pyrometer to close loop control of Induction Oven Power

PROBLEM STATEMENT

- At CGL2 Galvalume sheet dry after Chemical Coating by using Induction Oven
- Induction oven running at fixed power
- If line speed low or thinner size material processed sheet passed away from Oven carry high temperature then required as per process

Induction Oven Control (Before)



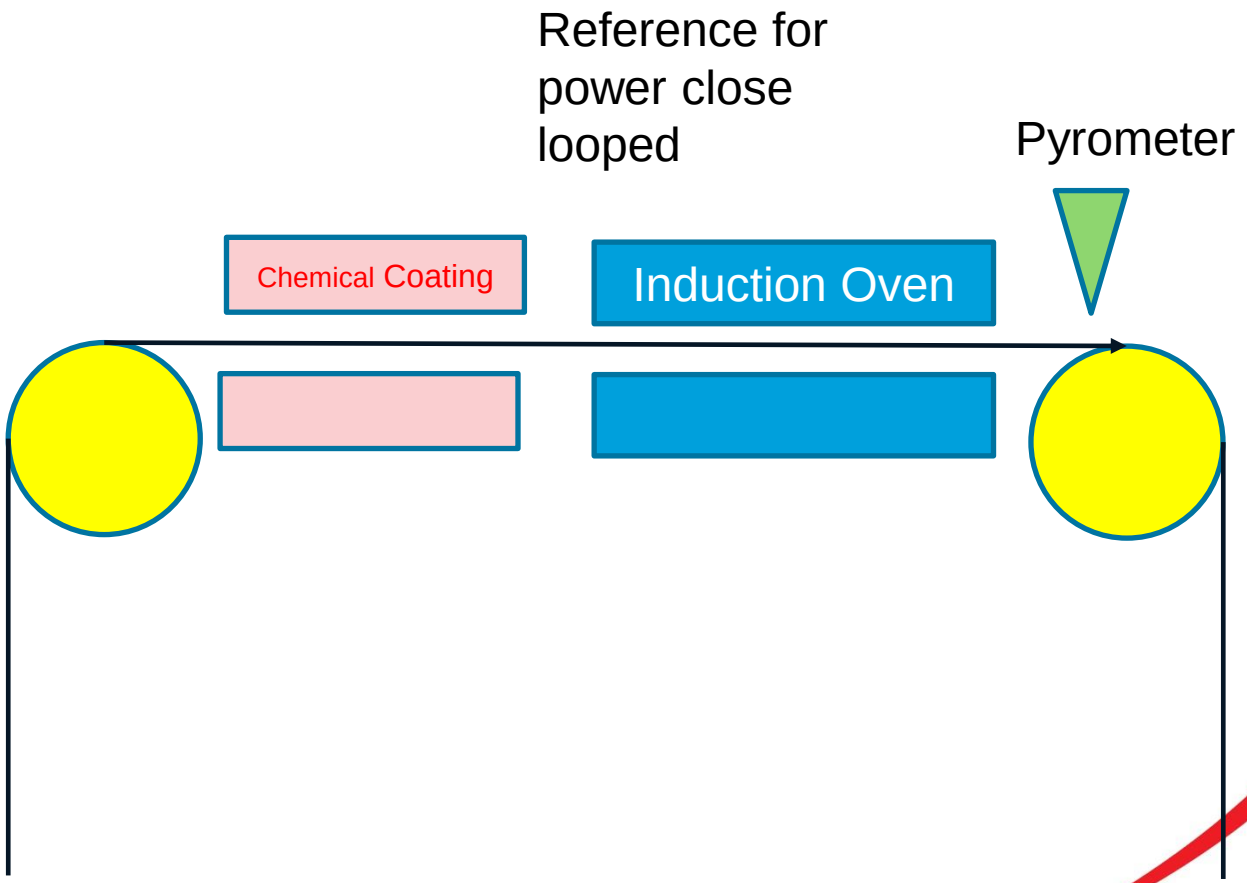
No 1 Projects Implemented

Use of Pyrometer to close loop control of Induction Oven Power

Solution Proposed

- Installation of Online Pyrometer for sheet temperature measurement at exit of Oven
- Measure the Tons per hour output from oven by calculating Sheet Width*Thickness*Line Speed
- Set the process required sheet temperature after the Oven
- Control the Oven heating reference in close loop with the sheet actual temperature
- Total investment required INR 5 Lac and potential saving per Annum 3.4 Lac kWh Electrical power, and INR 2.89 million per year.

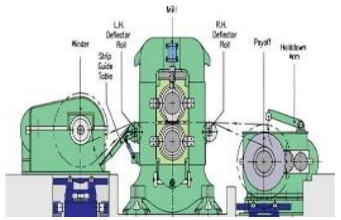
Induction Oven Control (After)



No 2 Projects Implemented

Pickling Linked Tandem Cold Mill

BEFORE → Investment Rs.800 Cr → **IN FY - 19**



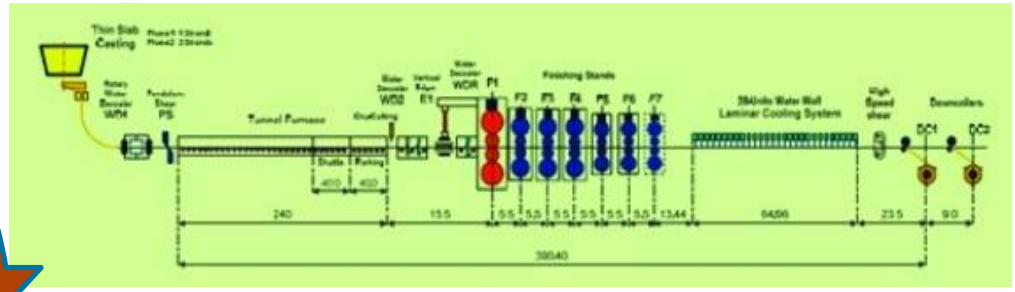
HRS | Pickling | Cold Rolling

Power 107 kWh/t

RLNG 0.1 MMBtu/t

Energy Consumption 0.081 Gcal/t

Turn around



Pickling Linked Tandem Cold Mill (PLTCM)

Power 70 kWh/t

RLNG 0.05 MMBtu/t

Energy Consumption 0.064 Gcal/t

Estimated Energy Saving-42792 Gcal/A @ 1.3 Million Ton Production

Combination of three process

Use of Energy Efficient AC motors

MV VFD drives & advance Level –II automation

7. Utilization of renewable Energy Sources

Renewable Energy generation

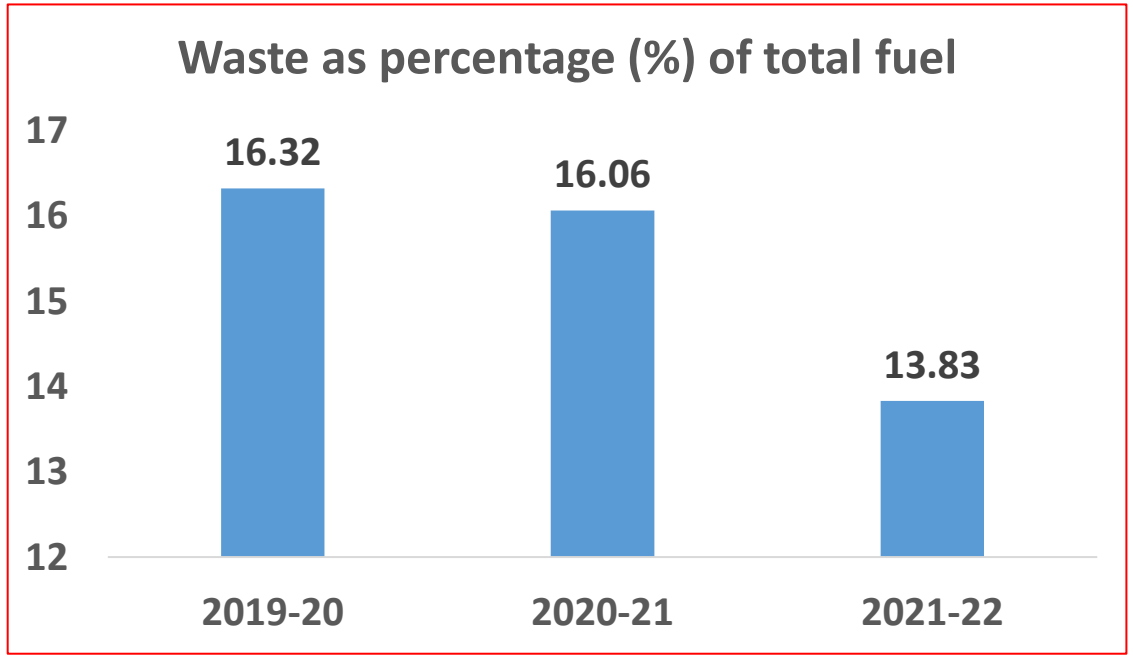
Financial year	Technology (Electrical)	Type of Energy	Onsite/ Offsite	Solar System (kWp)	Solar Power	Total power used Million kWh	% Used
FY 20	PV	Solar	Onsite	5.5	93294	80	0.11
FY 21	PV	Solar	Onsite	5.5	92294	85.5	0.11
FY 22	PV	Solar	Onsite	5.5	90294	186.2	0.05

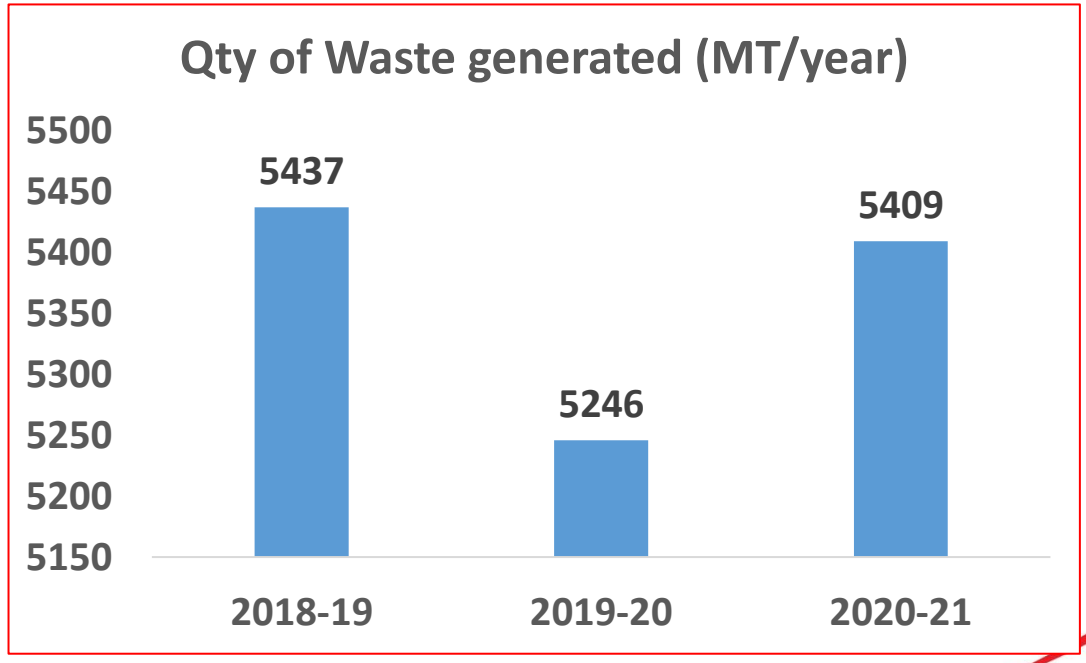
RPO Target

FY	Total Power (MU)	RPO TARGET		REC PURCHASED		Value Rs Lac
		SOLAR	NON SOLAR	SOLAR	NON SOLAR	
FY 20	78.6	2751	9969	2751	9969	228
FY 21	87.3	874	7863	0	0	0
FY 22	161.73	2021	15364	0	0	0
TOTAL	**327.6**	**5646**	**33196**	**2751**	**9969**	**228**

8. Waste Utilization and Management

S. No.	Year	Waste Details	Quantity	GCV kCal	Heat Value M kCal	Waste as percentage of total fuel
1	2019-20	Paint VOC	5246	7000	36722	16.32
2	2020-21	Paint VOC	5409	7000	37863	16.06
3	2021-22	Paint VOC	8388	7000	58720	13.83





9 GHG Inventorization – Carbon Neutrality

Carbon Neutrality refers to achieving net zero carbon dioxide emissions by balancing carbon emissions with carbon removal by carbon offset or eliminating carbon emission altogether

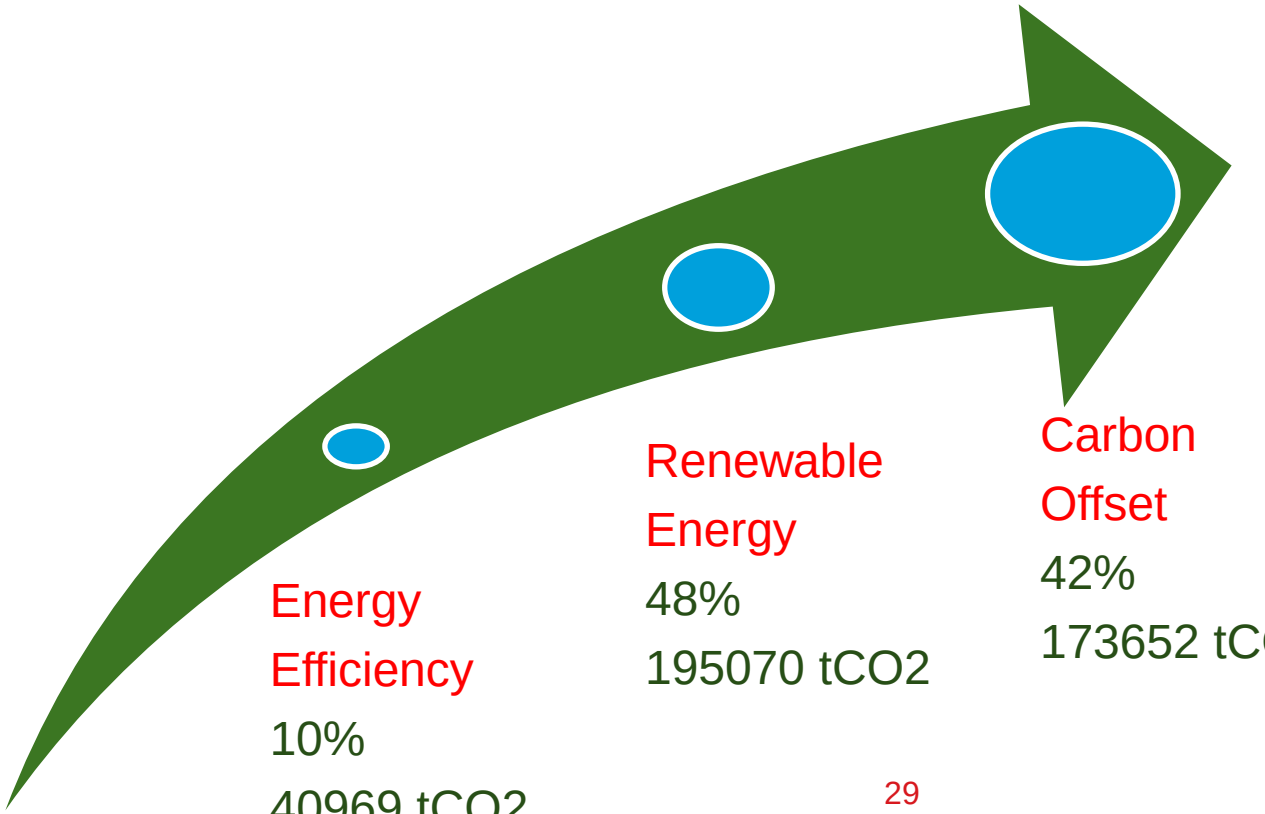
PARAMETERS	VSD	TPR	KLM	COATED
Energy Consumption (GJ)	903588	1602358	1408565	3914511
CO2 Emission (tCO2)	78937	148550	143774	371261

1.8 MTPA to 4 MTPA

PARAMETERS	VSD	TPR	KLM	COATED
Energy Consumption (GJ)	7835359	5660080	3135920	17296061
CO2 Emission (tCO2)	409692	296236	190078	930291

9 GHG Inventorization – Carbon Neutrality

Parameter	Unit	VASIND	Reduction in 10% Energy Consumption	Replacement of 90% Electrical Power by Renewable Energy	Replacement of 90% Thermal Energy Emission by Carbon Offset	Final Carbon Emission
CO2 Emission	tCO2	409692	40969	195070	173652	0
	%	100	10	48	42	0



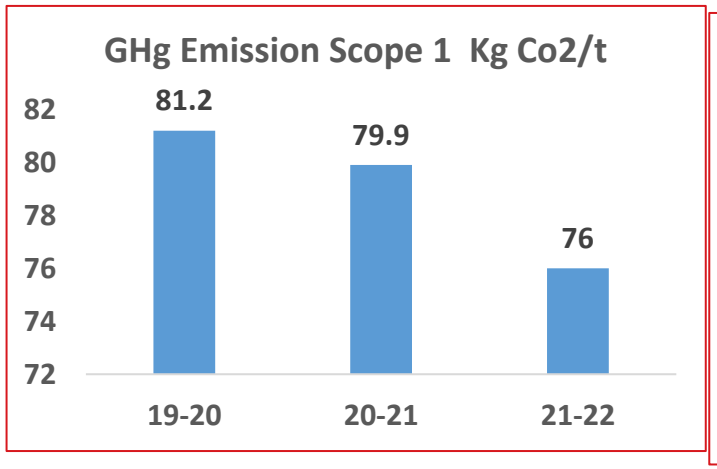
Target - 2030

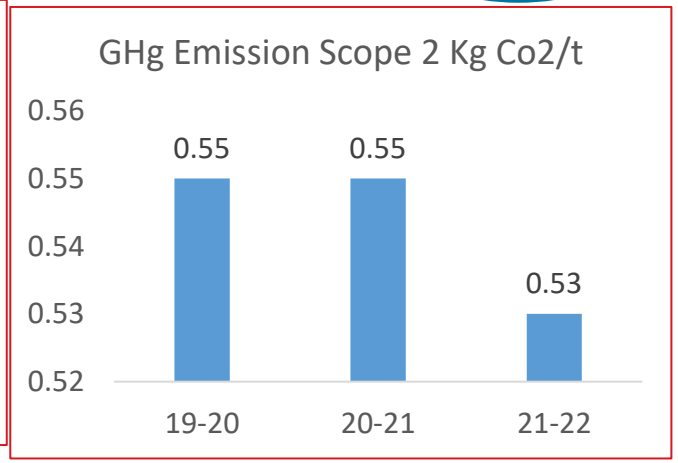
9 GHG Inventorization – Inventorization

Sr No	Detail of Area Green Zone	Area (Sq Mtr)	Total Trees	Shrubs	Lawn Sq Mtr
1	Factory inside	40676	1800	8500	25800
2	R.C Farm House, Guest House	91475	2500	8000	85000
3	SVTC, Other open Space	42000	350	100	1500
4	Colony 1,2,3	21866	650	1500	21866
		196017	**5300**	**18100**	**134166**

As on Date --->	8568	17235	102555
Total Tree planted -→	**128358**		
CO2 t / year Offset	25671.6		

Calculation based on Carbonify.com
5 trees for 1 ton of CO2 /year





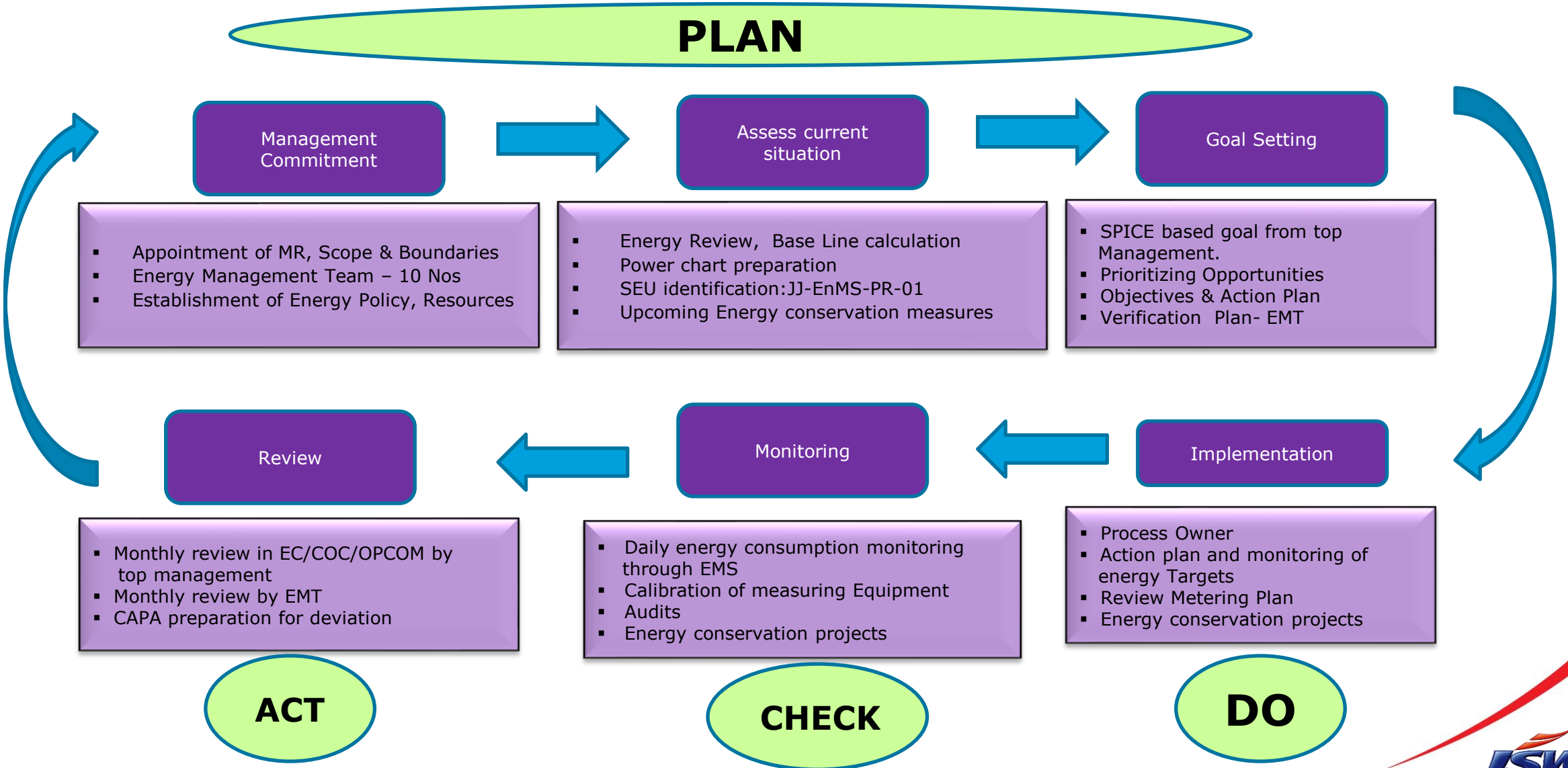
Sustainability and GHG CO2 emissions

Target to reduce the CO2 Emission by 3% in FY-23 and to become Carbon neutral plant by Fy-30, by adopting following initiatives-

1. **Installation of 4.5 MWp solar power plant.- FY-23**
2. **Conversion of DC to AC for both the Old Cold rolling Mills- FY-23**
3. **Installation of 35 MWp Solar power plant by JSW Energy for coated business-FY-25**
4. **Replacement of all the old AC motors with IE-3 Motors- FY-26**
5. **Plantation of 50000 trees till FY-30 every year - 5000**

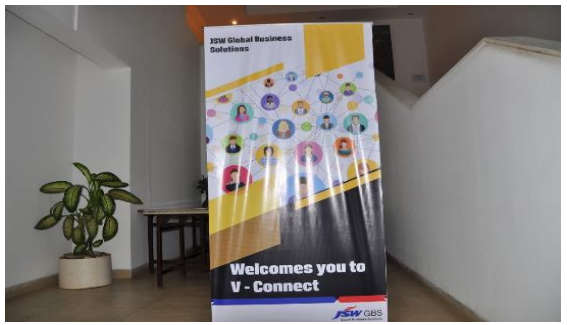
10. Team Work, Employee Involvement & Monitoring

Monitoring system -------



10. Team Work, Employee Involvement & Monitoring

Supplier Meet



Stake Holders	Initiatives
Employee	Energy Awareness, Paper less Invoicing, EnFA,
Customer	Awareness, product catalogue, CCMS Customer Audit , Desk top Audit , Google meetings
Supplier	ARIBA, EnMS –ISO 50001
Society	Awareness – Skit, Training

LED CONVERSION - CSR			
Impact	**Quantity**	**Power Consumption**	**Saving**
BEFORE	Total HPSV Lights Installed 1800 Nos.	173 kW	Power Saving 4.54 Lacs kWh / Annum
AFTER	Installed LED Lights 958 Nos.	84 kW	Potential saving Rs.26.37 Lacs/Annum

10. Team Work, Employee Involvement & Monitoring

Society – Energy Week

Energy week Celebration

Energy Exhibition

Energy Conservation Skit

Energy Exhibition

Recognition

11. Implementation of ISO 50001

Energy Policy	Board Displayed Awareness sessions
ISO 50001	Energy Review, SEU , EnPI
Annual Objective	EC--> COC→ OPCOM→ Individual KRA
Audits	Internal Cross location audits, External Audits
Review	SPICE, Daily, Weekly, Monthly
Monitoring	Power & Fuel consumption Monitoring through EMS
Training	Internal, External, Technical, EnMS trainings

JSW Better Everyday

JSW Steel Coated Products Ltd.

ENERGY POLICY

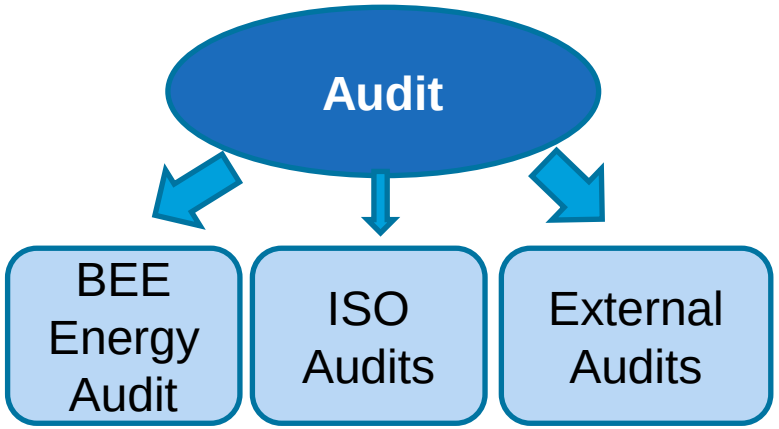
We are committed to efficient utilization of all types of energy. We shall achieve this through continual improvement in energy performance by:

- Monitoring and controlling consumption of all types of energy.
- Setting energy conservation objectives and targets and provision of information and resources for their implementation.
- Purchase of energy efficient products and services.
- Use of energy efficient designs in new, modified and renovated equipment's and processes.
- Comply with all applicable legal and other requirements related to energy use, consumption and efficiency.
- Reviewing Energy Policy, Energy Objectives & Targets annually and updated as necessary.

We shall encourage use of renewable energy and promote awareness of energy conservation among persons working for and on behalf of our organization.

Date : 01.08.2018
Revision No. : 06

A.S. Dahiya
Head- Coated Products



Energy Conservation Awareness Society
2250 Nos. Energy Efficient Chulla Distribution
40 Nos Solar Street lights in near by Villages
2500 Nos LED Bulbs distributions

Review

S	Safety Systems, Compliance & Governance
P	People
I	Innovation & Quality Management
C	Customer Delight
E	**Energy,** Environment & Safety

13. Long term Vision on EE

1. Installation of 35 MW Solar Power plant by JSW Energy for Coated Business.
2. Replace all old motors with IE 3 motors

FY 24

1. Conversion of 14 MW DC Motors to AC with common DC Bus
2. Energy Efficient Equipment

FY 23

1. Use of Solar Power (4.5 MW)

FY 23

1. PLTCM Commissioning – World Class Technology
2. Capacity enhancement – new upcoming lines CGL3, CGL4, CCL3
3. IE 3 motors

FY 22

Carbon neutral

FY 30

Awards, Achievement & Recognition in ..... Energy

MEDA 14th State Level Energy Conservation Award

MEDA 13th State Level Energy Conservation Award

MEDA 12th State Level Energy Conservation Award

Global Energy Award by CEM

Platinum in APEX India Energy Award 2019

CII National Energy Leader Award 2020

CII- 19th/20th/21st National Award -Excellent Energy Efficient Unit

What we Earn is not important,
but what we Save is most important…

Conserve Energy ..!!!!! Save Earth…..!!!

Thank You