Confederation of Indian Industry

23rd National Award for

Excellence in Energy Management 2022

JSW STEEL COATED PRODUCTS LIMITED KALMESHWAR

 # Better Everyday #

Presenter:-1) Mr. Sanjeev Goyal - GM
2) Mr. J.H. Nigam-DGM 9823338194
3) Mr. Abhay Girhare - AGM
3) Mr. P. Karmarkar-Deputy. manager

CII National Energy Efficiency Circle Competition

JSW GROUP

Mr. Sajjan Jindal

Chairman & Managing Director

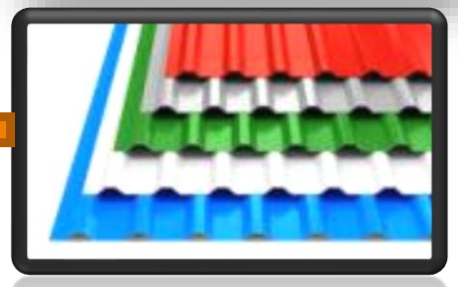
JSW Steel
JSW Energy
JSW Cement
JSW Paints
JSW Infrastructure

Mr. Parth Jindal

Managing Director

JSW Cement
JSW Paints

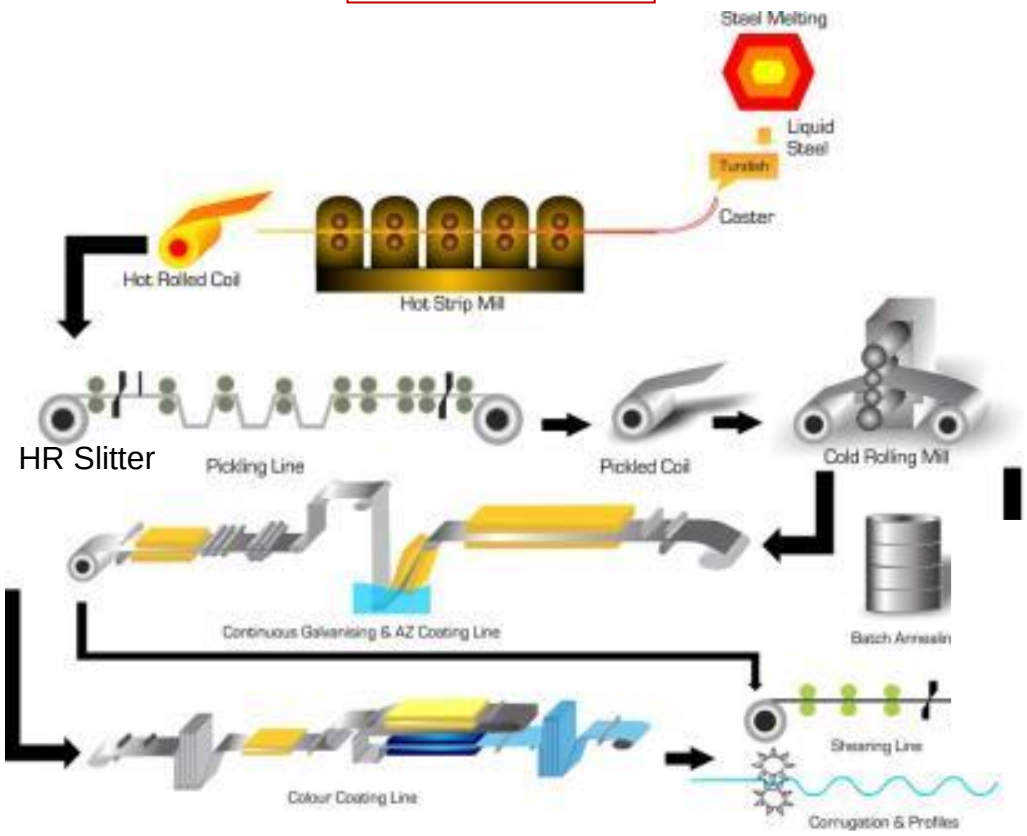
AT A GLANCE



JSW STEEL PRODUCTS

Process Overview

JSW Steel



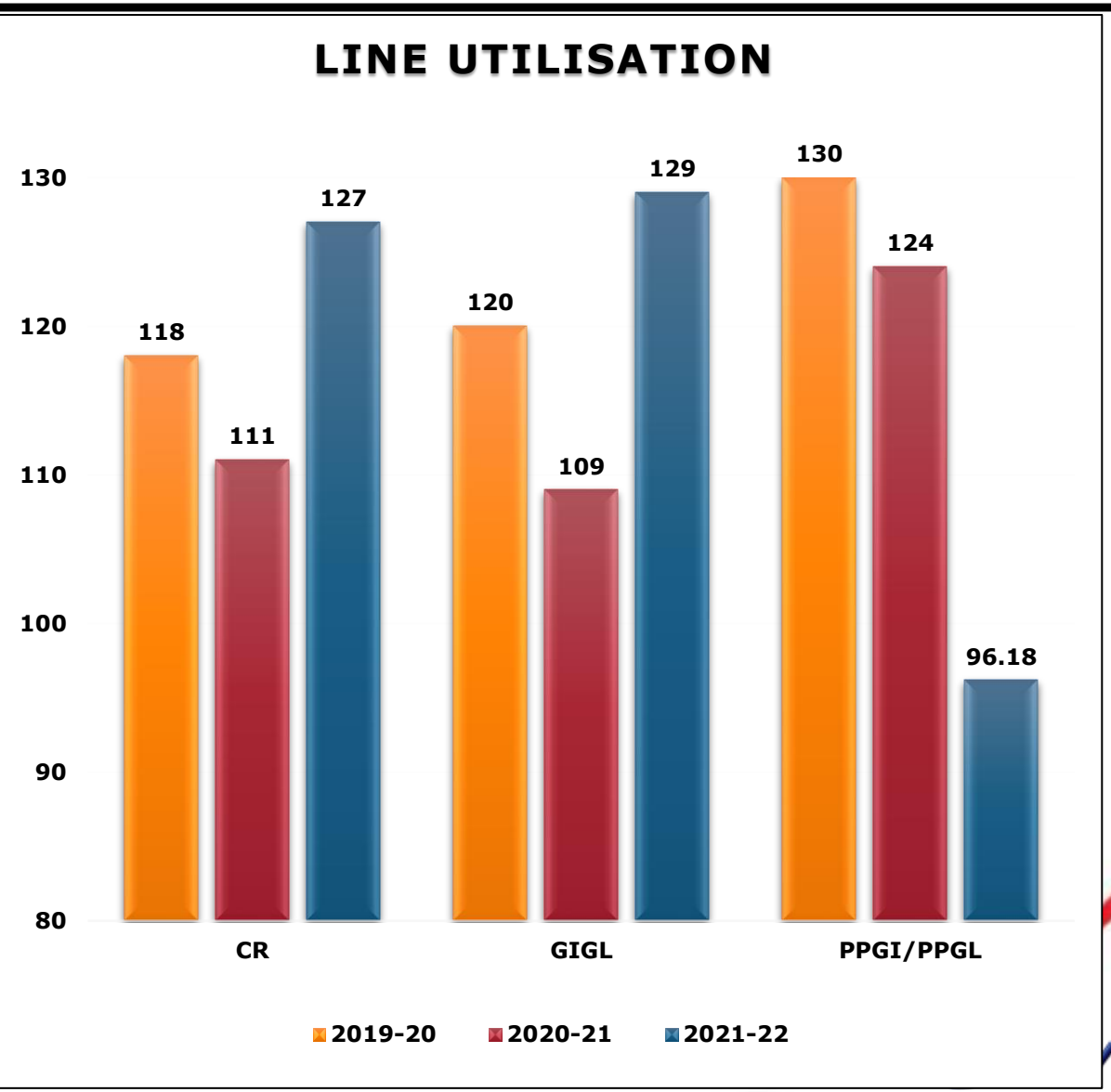
JSWSCPL

KALMESHWAR

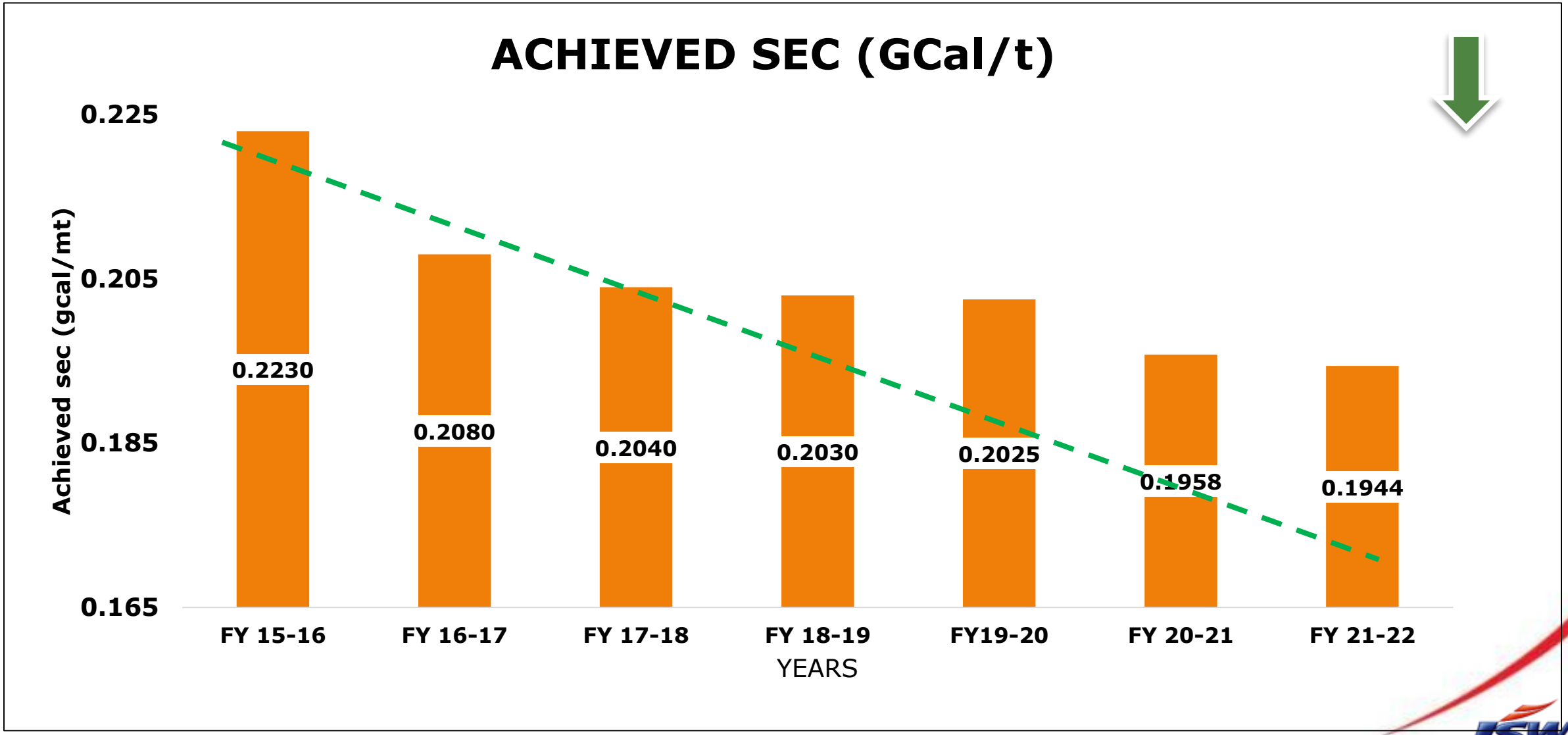
- **CPL (0.72 Mtpa)** — • Continuous Pickling Line
- **CRM (0.66 Mtpa)** — • Cold Rolling Mills
- **CGL/GAL (0.78 Mtpa)** — • Continuous Galvanizing / Galvalume Lines
- **CCL (0.60 Mtpa)** — • Continuous Colour Coating Lines

Plant Capacity Utilization

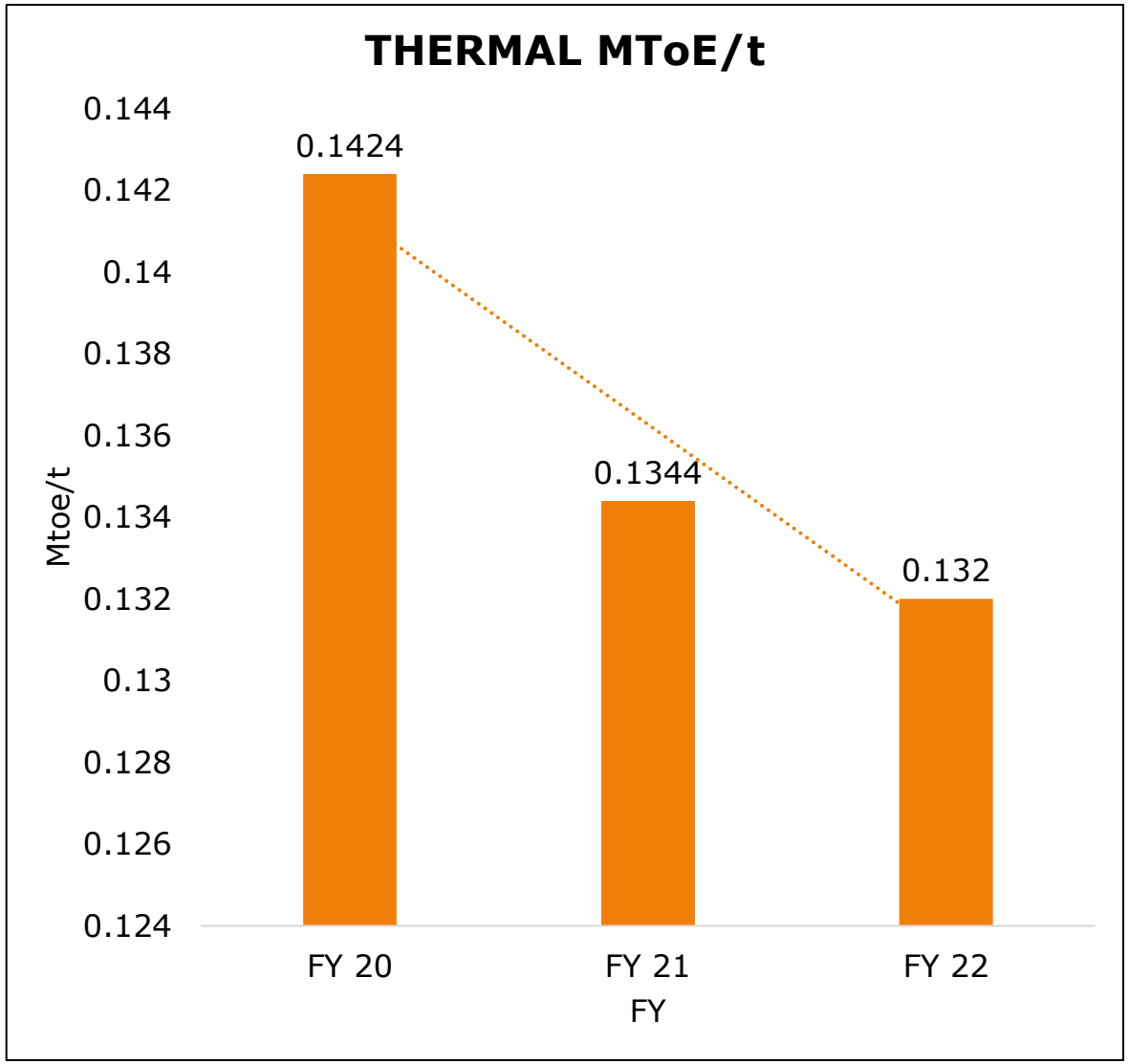
Parameter	FY	FY	FY
Cold Rolled Coil	**2019-20**	**2020-21**	**2021-22**
Installed Capacity MT	600000	600000	600000
Actual Production MT	712262	668960	760966
Utilization	118	111	127
GI/GL (Galvanizing & Galvalume Plane)	**2019-20**	**2020-21**	**2021-22**
Installed Capacity MT	580000	580000	580000
Actual Production MT	700264	631462	771765
Utilization	120	109	129
CCL(Color Coated Products)	**2019-20**	**2020-21**	**2021-22**
Installed Capacity MT	192000	192000	432000
Actual Production MT	250893	238670	415499
Utilization	130	124	96.18

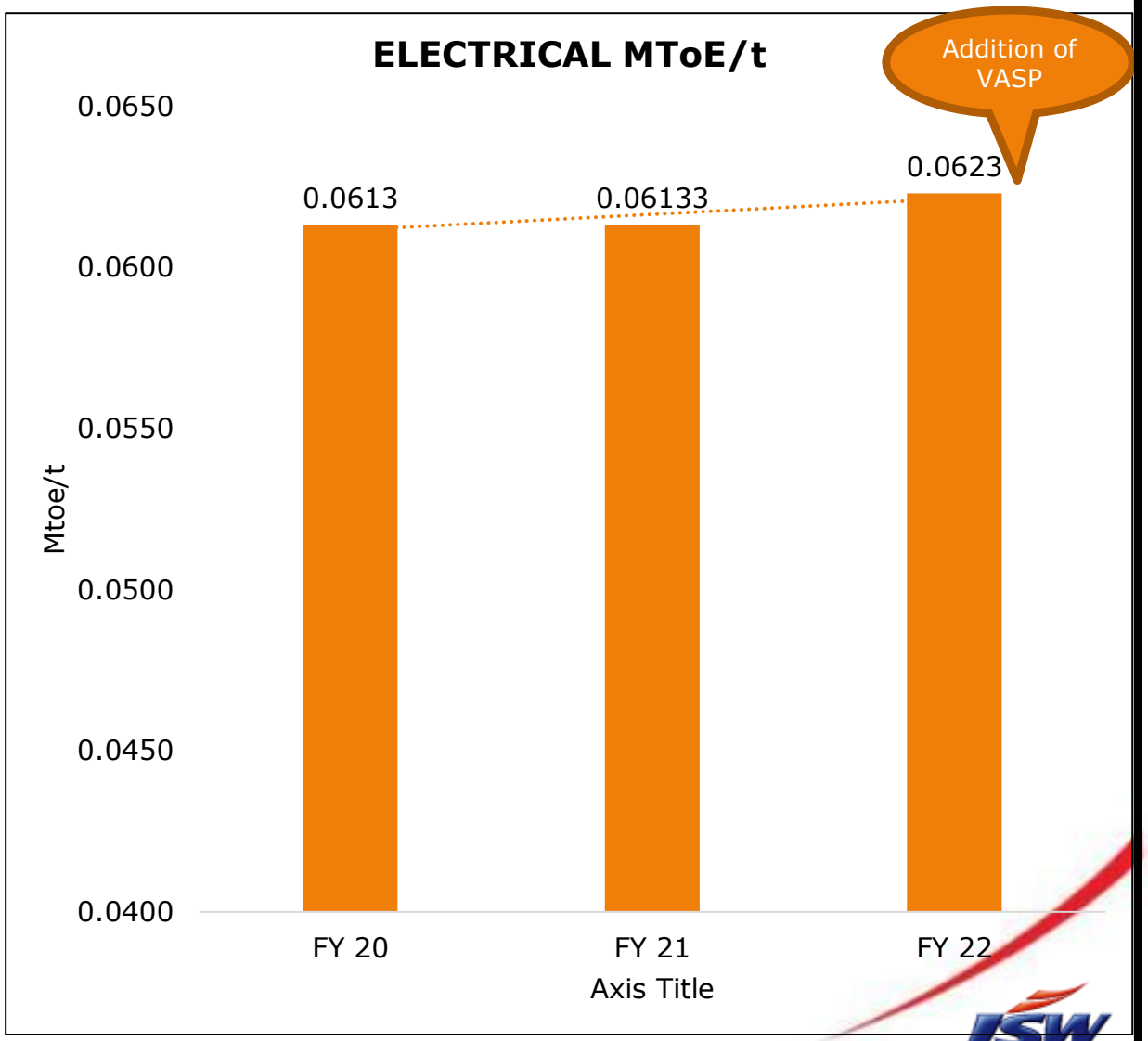


Specific Energy Consumption (GCal/MT) FY 16 to FY 22



Specific energy consumption (thermal and electrical trend)



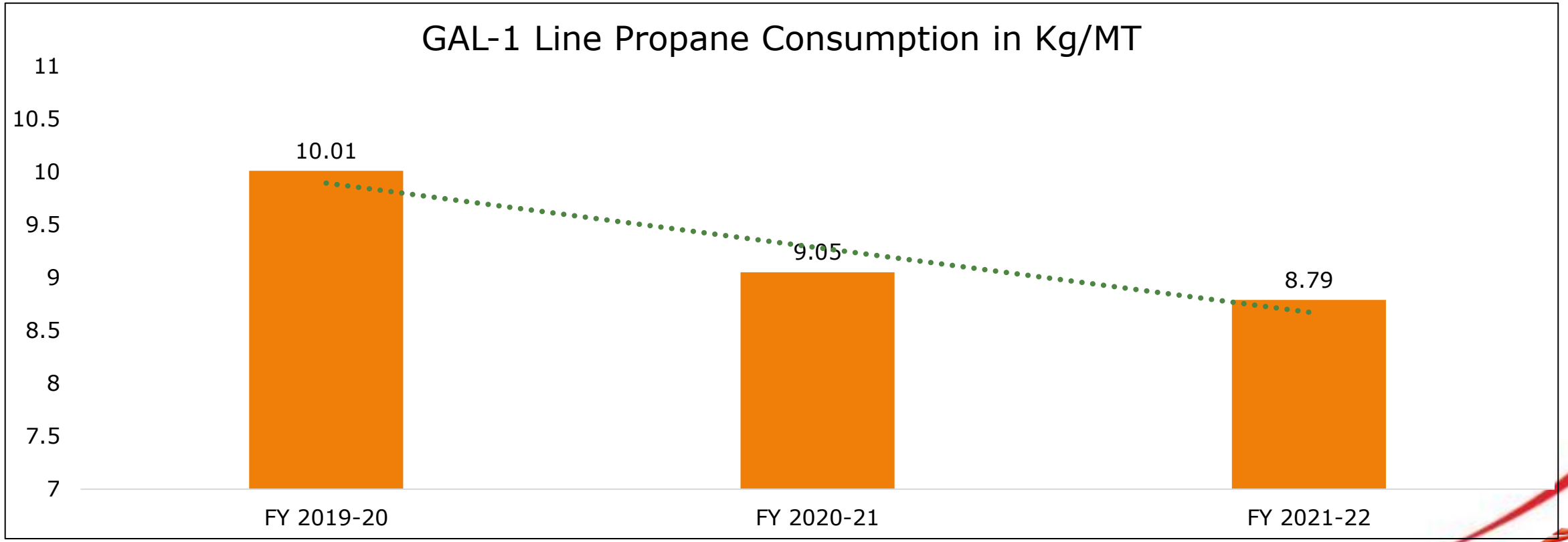


GALVALUME -1 LINE (improvement- 1.71%)

LINE SPEED INCRESED FROM 160 TO 180mpm

Specific propane consumption reduced from 11.85 to 11.54 kg/ MT

Specific energy reduced from 0.218 Gcal/MT to 0.216 Gcal/MT in Galvalume-1 line



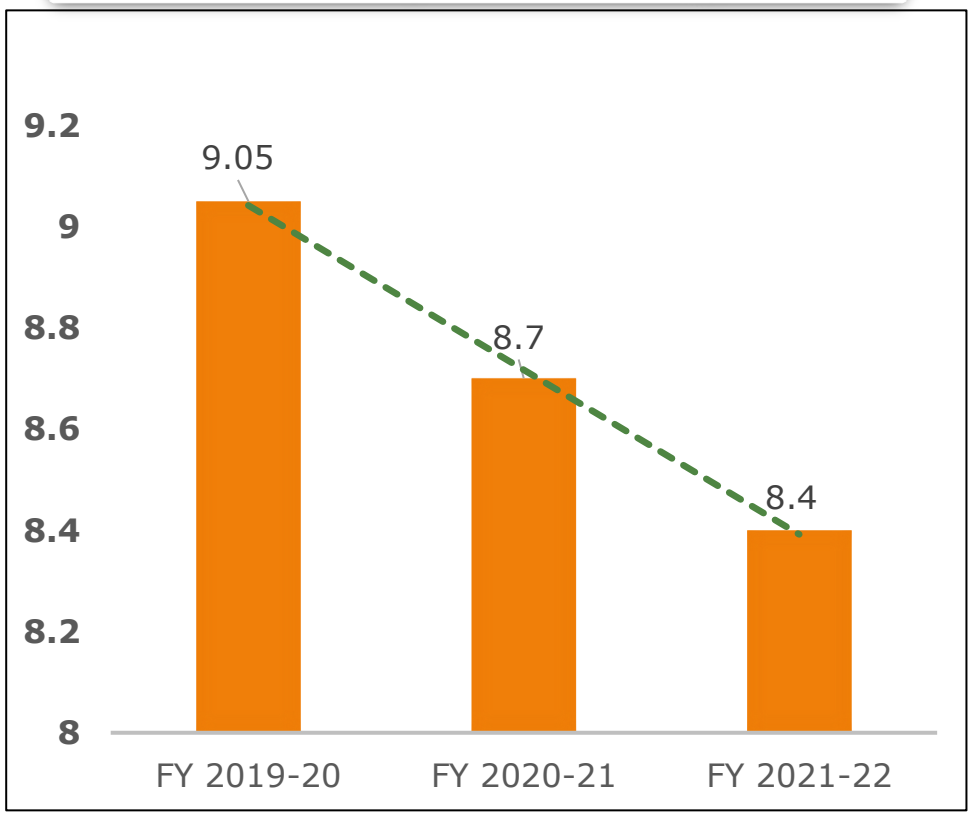
CCL -2 LINE

LINE SPEED INCRESED FROM 120 TO 160 mpm

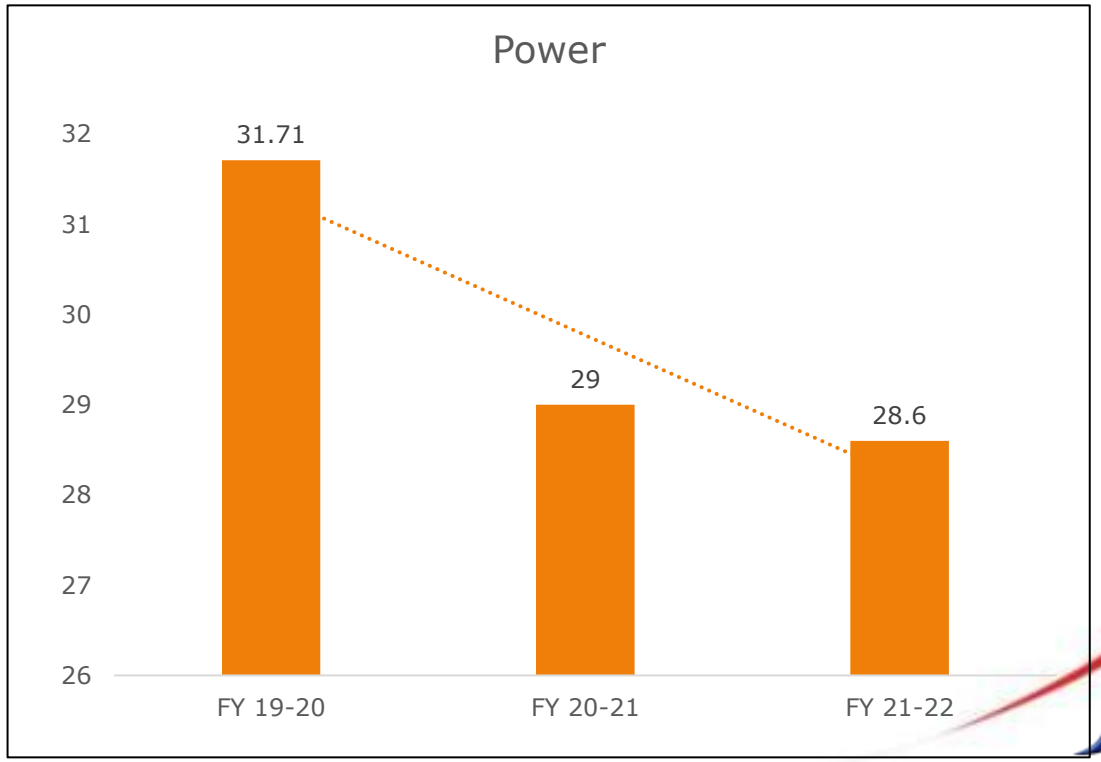
Specific propane consumption reduced from 9.05 kg/MT to 8.4 kg/MT

Specific Power consumption reduced from 31.71 kWh/MT to 28.6 kWh/MT in CCL-2 line

CCL-2 Propane cons. Kg/mt

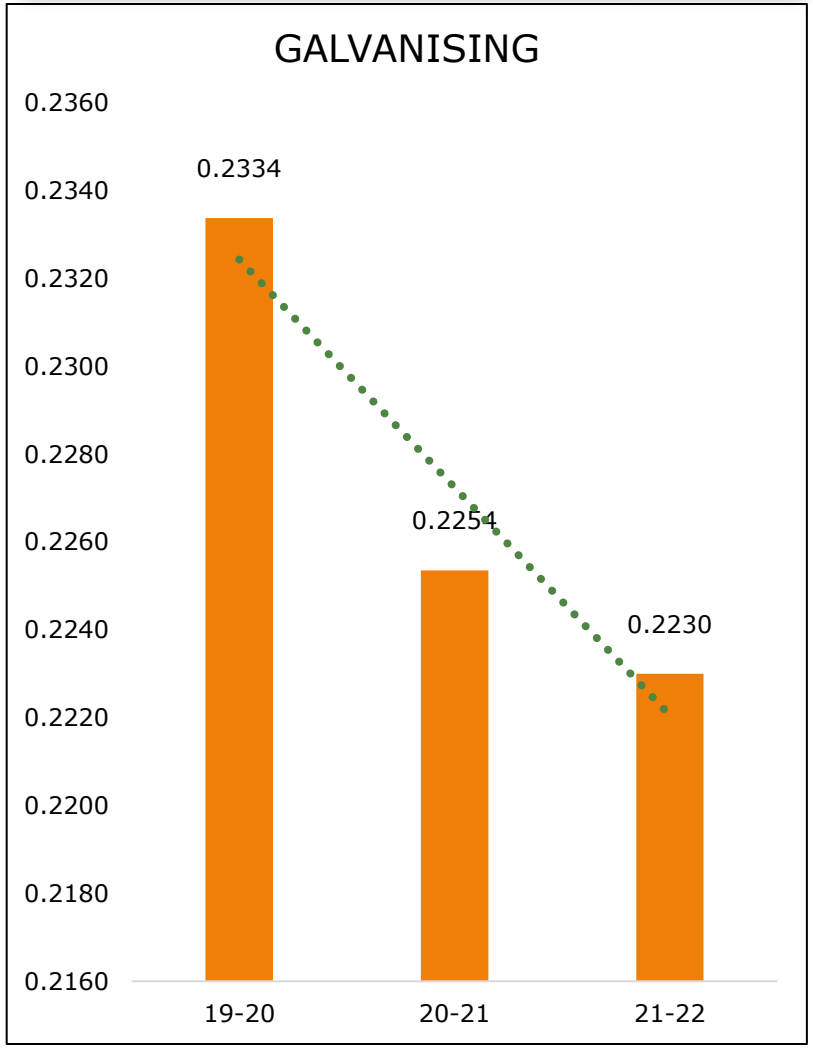


CCL-2 Power cons. Kg/mt

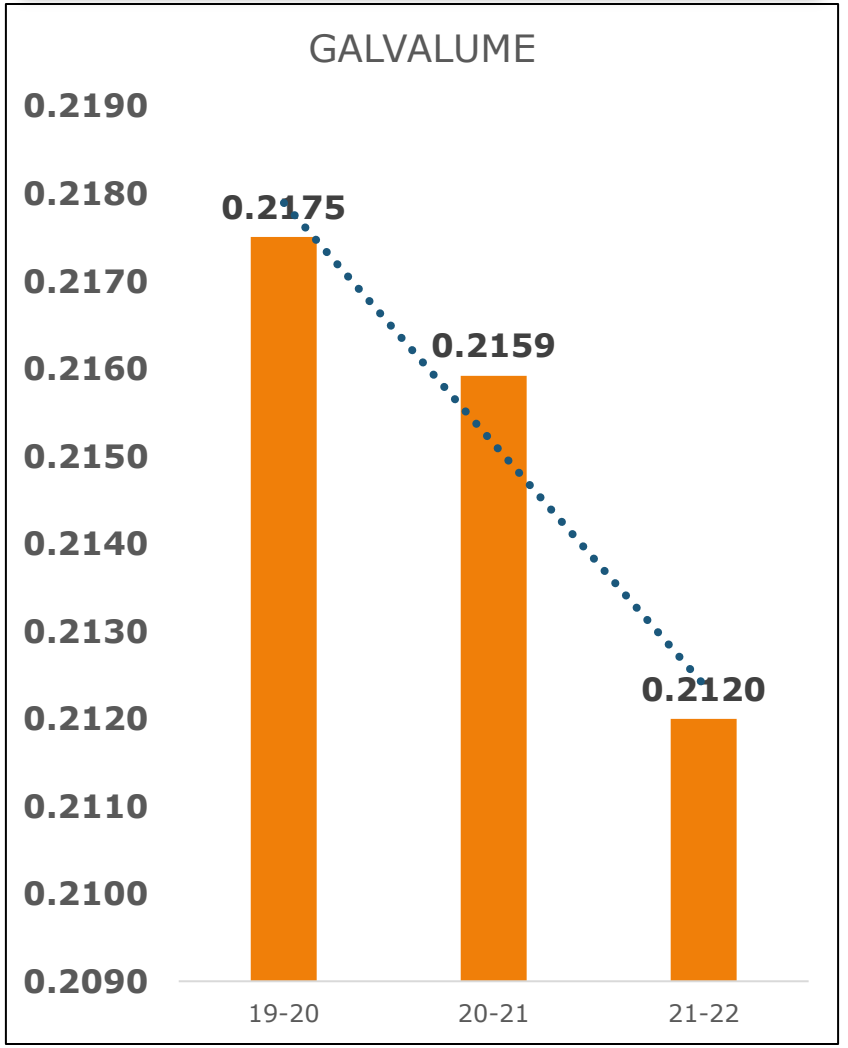


PRODUCT Specific energy consumption IN GCAL/t

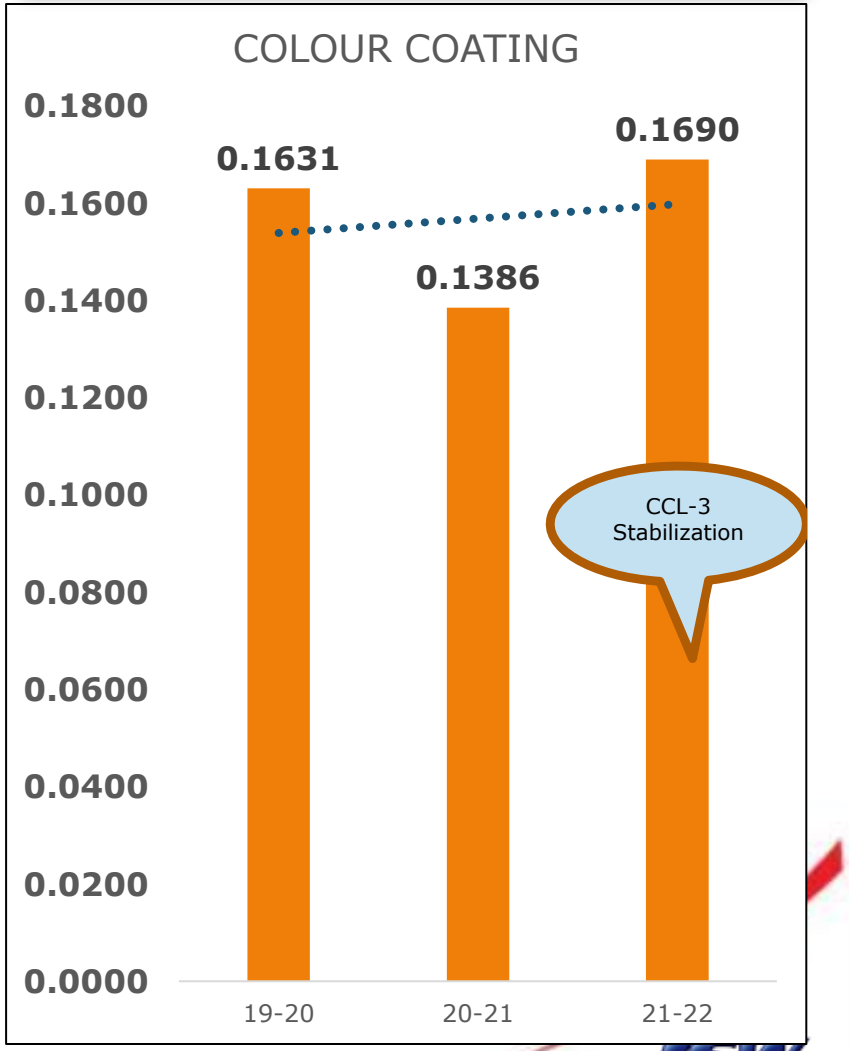
IMPROVEMENT %



IMPROVEMENT %



IMPROVEMENT %



Certified Energy Savings

JSW Steel Coated Products Ltd. Kalmeshwar
Registration No (As provided by BEE): INS0054MH

FORM – 3

Details of Energy Saving Measures Recommended in the Energy Audit Report (Year -2019)
[See Regulation 5 (2)]

S No.	Energy saving measures (suggested categories of areas of improvement and modifications for obtaining details of energy savings- See Annexure 3)	Investment million Rs.	Reasons for not implementing the measure	Life Cycle Years	Annual Energy Saving				
					Oil	Gas (MT)	Coal (Metric Ton)	Electricity (kwh)	Remarks
1	To change/repair the insulation of furnace body and seals of CGL – 1	88	-	25		47.2			Completed
2	To change the existing Recuperator with New Recuperator in #CGL -1 furnace	4.5	-	—		144			Completed

Signature — Name of the energy manager: J.K.Nigam; Name of the company: JSW Steel Coated Products Ltd

Signature — Plant Head: Mr Rajesh Jain, JSW Steel Coated Products Ltd, Kalmeshwar Nagpur

Signature — Name of the accredited energy auditor: Mr Sachin S Deshpande; Registration No; Seal; Accreditation Details; Company Address: A.B.S. Energy Auditors

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITOR

JSW STEEL COATED PRODUCTS LIMITED Kalmeshwar

Page 1 of 7

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						Oil	Gas (MT)	Coal (Metric Ton)	Electricity (kwh)	Remarks
1	Waste heat recovery from exit flue gas before Recuperator of #CGL-1 Furnace	3.0	-	Mar-22	15			522		Completed (Complete furnace replaced)

Signature — Name of the energy manager: J.K.Nigam; Name of the company: JSW Steel Coated Products Ltd

Signature — Plant Head: Mr Rajesh Jain, JSW Steel Coated Products Ltd, Kalmeshwar Nagpur

Signature — Name of the accredited energy auditor: Mr Sachin S Deshpande; Company Address: A.B.S. Energy Auditors

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4	Waste heat recovery from #CGL-2 furnace flue gas (between furnace and Recuperator)	10.0	JSWSCPL will check the feasibility with OEM as it may impact the quality of product	Mar-23	15			3960		To be taken up during CGL-2 furnace extension/upgradation
5	#Boiler-02 Insulation : To reduce the heat losses of Middle Header plates.	0.05			20			23		Completed

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6	To increase the effectiveness of APH by installing new Recuperator (or by proper maintenance) to ensure minimum air ingress in the APH of Boiler No. #2	0.03				132		Completed
7	Collect condensate from all plants except CGL #1 and using existing PH booster system	0.5				110		Partially Completed (1st Phase CGL-2 Completed)
8	To extract useful heat from Blow Down	0.82				32.34		Completed

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				Oil	Gas (MT)	Coal (Metric Ton)	Electricity (lwh)	
9	To replace/maintain steam traps of entire plant	1.0				366.67		Completed
10	CPL : Acid tank Insulation	0.063				40.50		Completed
11	To arrest compressed air leakage in compressed air line	0.5					324000	Completed
12	To install Intelligent Flow Controller (IFC) for Centrifugal compressor of capacity 4000 CFM	2.5					179520	Completed

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Page 5 of 7

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				Oil	Gas (MT)	Coal (Metric Ton)	Electricity (lwh)	
13	CAG Blower Temperature control system based on ambient temp. And sheet temp. in closed loop	0.5					97200	Completed
14	To change old inefficient pump with new energy efficient pumps.	1.500					99792	Completed
15	To replace selected standard efficiency motors with IE-3 motors	1.0					84000	Completed
16	SEU nos of conventional lights to be replaced with LED lights	0.73					75434	Completed

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Page 6 of 7

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				Oil	Gas (MT)	Coal (Metric Ton)	Electricity (kwh)	
17	Capacity optimization of CCL#2 line by increasing the process speed from 100MPM to 120MPM	1.0					326000	Completed
18	CCL-1 Inefficient Reciprocating compressors need to be replaced with new screw compressor	1.9					25200	Completed
19	Baby Boiler Non IBR for vulcanization in rubber plant for steam generation	2.4				5.6		Completed

SACHIN S. DESHPANDE (AEA0261) B.E.E. GOV. OF INDIA ACCREDITED ENERGY AUDITOR

Signature

Name of the energy manager : J.H.Nigam (EM-89913)
Name of the company : JSW Steel Coated Products Ltd
Full Address : A-10/1 MIDC AREA Kalmeshwar
Contact person : J.H.Nigam
Email Address : j.nigam@jsw.in
Telephone /Fax : 9823330194
Plant address : A-10/1 MIDC AREA Kalmeshwar Nagpur

Signature

Plant Head: Mr Rajesh Jain
JSW Steel Coated Products Ltd
Kalmeshwar Nagpur

JSW STEEL COATED PRODUCTS LIMITED JSW Kalmeshwar

Signature

Name of the accredited energy auditor : Mr Sachin S Deshpande
Registration No : AEA 0261 ; EA 2310
Seal :
Accreditation Details :
Company Address : A.R.S. Energy Auditors
7507184478

Page 7 of 7

ENCON MEASURES FOR IMPROVEMENT FY 22-23

Sr. No	Name of Project	Project Cost (Rs in Millions)
1	CGL-2 productivity enhancement	150
2	Gal-1 productivity enhancement.	62.2
3	Installation W- Type Recuprator in Gal-1	13
4	CCL-1 productivity enhancement.	120
5	RTO in CCL-1	20
6	Mill-1 & 2 Roll coolant pump replacement with energy efficient pump	3.6
7	Installation Tantalum heat exchangers	18
8	Centralized Chiller in CRM & CGL-2	41.3

ENCON MEASURES FOR IMPROVEMENT FY 22-23

Sr. No	Name of Project	Project Cost (Rs in Millions)
9	Battery Operated Forklift- 5 MT & 3 MT each	11.8
10	Installation of Chiller Unit at prime & finish quench	**13**
11	RLNG Conversion	129.8
12	Energy Efficient Ammonia Cracker	5.9
13	CCL-2 Line speed enhancement from 130mpm to 160 mpm	45
14	Additional RTO -CCL-2	25.5
15	Auto Power Scheduling System and Energy Monitoring System to control Over-injection.	8
TOTAL		**667.1**

Projects Implemented & Ongoing for Energy Savings

S.N	Name of project	Timeline and Agency	Saving/Annum	tCO2 Savings
1	Reconfiguration of Compressed Air Distribution System in entire complex and provision of new energy efficient Screw Compressor/Header modification and stopping Area-2 compressors.	External audit by M/s Atlas Copco (1500 Units/Day)	4,80,000 kWh	394
2	Replacement of furnace body and recuperator of CGL-1 furnace.	CGL-1 to GAL-2 conversion by M/s Thermovision. (Encon –M/s TUV India)	191 Tons (Propane)	606
3	Capacity Optimization of CCL-2 by Increasing Process Speed from 130 mpm to 135 mpm	Internal	2 MT of propane	5.97
4	Installation of IFC and ICC Controller for Centrifugal compressor & Screw Compressors.	External Audit finding. Godrej & Boyace (1500 Unit/Day)	179520 kWh	147
5	To change old inefficient pump with new energy efficient pump (5 Nos.)	ENCON External Audit finding	99706 kWh	82
6	New Color Coating line with Highest Fuel Efficiency of 0.3 MTPA.	Spec. Energy 0.14 GCal /MT w.r.t existing level of 0.18 GCal /MT.		

Projects Implemented & Ongoing for Energy Savings

Sr. No.	Name of project	Timeline and Agency	Saving Achieved Per Annum	tCO2 Savings
7	Boiler Efficiency Improvement by Replacement of Coal Fired Boiler with propane fired boilers	Completed Jan 2022 (Thermax India)	2808 MT of coal	5068
8	Boiler fuel substitution. Connected load reduced from 220kW to 65kW (ID fan , coal handling, ash handling not required).	Completed Jan 2022 1000 Units /Day	3,65,000 kWh	300
9	GAL-2 CAG Blower temperature control system based on Strip Thickness/ Production Rate and sheet temp. in closed loop.	Completed Jan 2022 800 Units/Day	2,62,000 kWh	215
10	Stopping of CCl-3 WHRB and feeding steam from main boiler.	Completed Jan 2022 1.8 Kg /ton	450 Tons	1712
11	Capacity optimization of CCL#2 line by increasing the process speed from 130MPM to 150MPM.	Completed Dwite (0.2 kg/Ton)	48 MT of propane	143.28
12	Installation of Radiation Pyrometer to Control Strip temperature instead of Zonal Temperature at CCL-2.	Completed M/s TPS Automation	90 MT of Propane	268

Projects Implemented & Ongoing for Energy Savings

Sr. No	Name of project	Timeline and Agency	Saving Achieved Per Annum	tCO2 Savings
13	Installation of 150 NM3/Hr Ammonia Cracker and Discarding Old Inefficient Cracker. 4.2Kw @ 230 Volts. 75+75 kw.	Completed M/s United Enterprises. (160 Unit/Day).	54000 kWh	44
14	Installation of 1500 KG/Hr Propane Vaporizer and Discarding old inefficient Vaporizer. Kanthal NiCr 80:20.	Aug 2022 M/s Anil Engineering (60 Units/Day).	18000 kWh	15
15	2 Canister RTO for CCL-2 @ Solvent load 200kg/hr for Prime Oven with new plate type counter flow heat exchanger with delta T 250 deg C.	July 2022 Thermovision (0.1 kg/MT).	21.4 MT of propane	42.984
16	2 Canister RTO for CCL-1 @ Solvent load 300kg/hr for Prime Oven with CCL-2 counter flow heat exchanger with delta T 250 deg C.	August 2022 Thermovision (0.8kg/Ton).	48 MT of propane	123.28
17	Auto Power Scheduling System and Energy Monitoring System to control Over-injection.	August 2022 POC by M/s HITACHI(3000 Unit/Day).	10,95,000 kWh	898

Projects Implemented & Ongoing for Energy Savings

Sr. No.	Name of project	Proposed encon projects and Agency	Saving Achieved Per Annum	tCO2 Savings
18	Revamping of MEE with 4 effect TVR and ATFD @ 100 KLPD to treat Rejects of RO.	Encon Measure Bio Energy Under ordering. (2100KG/Hr to 1500Kh/Hr Steam Consumption)	Coal saving of 370 MT	668
19	Optimising process speed of Gal-1 from 180 MPM to 220 MPM.	M/s Mass roll pro and Pioneer furnaces.	Both propane and power.	
20	Capacity optimization of CCL-1 line by line modification to increase speed from 55 to 90 MPM from 12TPH to 20TPH.	RTO ordered to M/s Thermovision	Propane saving 2 kg/ ton & power saving 3 units/ton	
21	Waste Heat Recovery System for CGL-2 furnace flue gas (Between furnace and recuperator).	External audit finding Pending(Encon –M/s TUV India)		
22	To install Meta Centre (ICC) to Control Decentralized Compressors at CCL-3.	M/s Godrej and Boyce (110 Unit/Day).	36,000 kWh	30
23	To Stop the 4000CFM Compressor and to Optimise the Power Consumption with Demand side Compressors.	125 Units/Day	36,000 kWh	30

Projects Implemented & Ongoing for Energy Savings

Sr. No.	Name of project	Timeline and Agency	Saving Achieved Per Annum	tCO2 Savings
24	To change old inefficient Roll Coolant pump of Mill-1 and 3 with new energy efficient pumps.	External Audit by M/s Grundfoss (140 Unit + 125 Units)	99705 kWh	82
25	Existing steam condensate and pumping traps at CPL to be replaced with effective evacuation system to transfer heat in APT.	Detailed Audit conducted by M/s Forbes Marshall offer received.	614 MT of coal	1012.3155
26	To replace graphite heat exchanger with energy efficient Tantalum type heat exchanger at CPL.	Detailed Audit conducted by M/s Forbes Marshall offer received.	327 MT of coal	527.877
27	Paint viscosity control to reduce thinner consumption and DFT measurement and control.	M/s Saint Clair and DJ designs.		Reduction in VOC
28	To provide energy efficient launder heating system in Gal-1 and Gal-2.	PR raised for Gal-1		
29	To redesign quench tank/ strip cooling system at Gal-2.	System to be modified for auto draining.		

Projects Implemented & Ongoing for Energy Savings

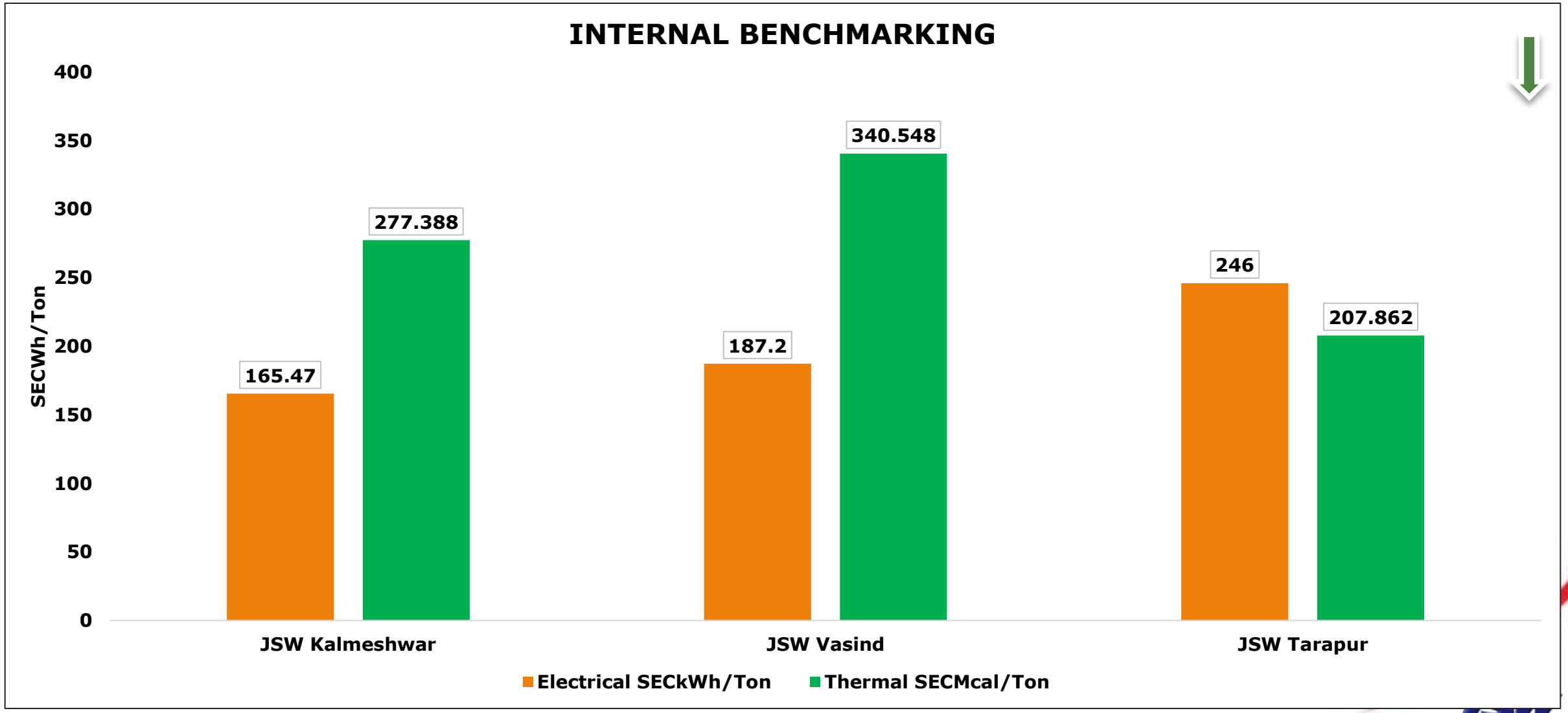
Sr. No.	Name of project	Timeline and Agency	Saving Achieved Per Annum	tCO2 Savings
30	To replace standard efficiency motor with IE3 motors	External audit by M/s TUV	3,00,000 kWh	252
31	500 conventional lights replaced with LED lights/low LUX level lights	Syska and Halonix	12000 kWh	10
35	To install Green Hydrogen for H2 generation with Electrolyser and Battery Bank @240 NM3/hr to meet furnace requirement.	Green Hydrogen. (5500 Unit/Day)	18,06,750 kWh	1201.602
36	Cooling tower audit for reducing evaporation rate and optimising cooling water circuit.		Water saving	
37	To install chiller /AHU at area-1 and area-2	41.39 Million Rs.		
38	Installation of 1MWp Solar Rooftop Plant.	M/s Radiance Renewables (Approx.- 4144 Unit/Day)	15,00,000 kWh	756
39	Installation of 3MWp Solar Rooftop Plant.	M/s Radiance Renewables	45,00,000 kWh	2268

To Comply with PAT-VII Target in Cycle FY22-25. Target – 0.0222 MToE
Received – 4779 Ecerts During PAT Cycle - 2

ENERGY SAVING PROECTS LAST FOUR YEARS

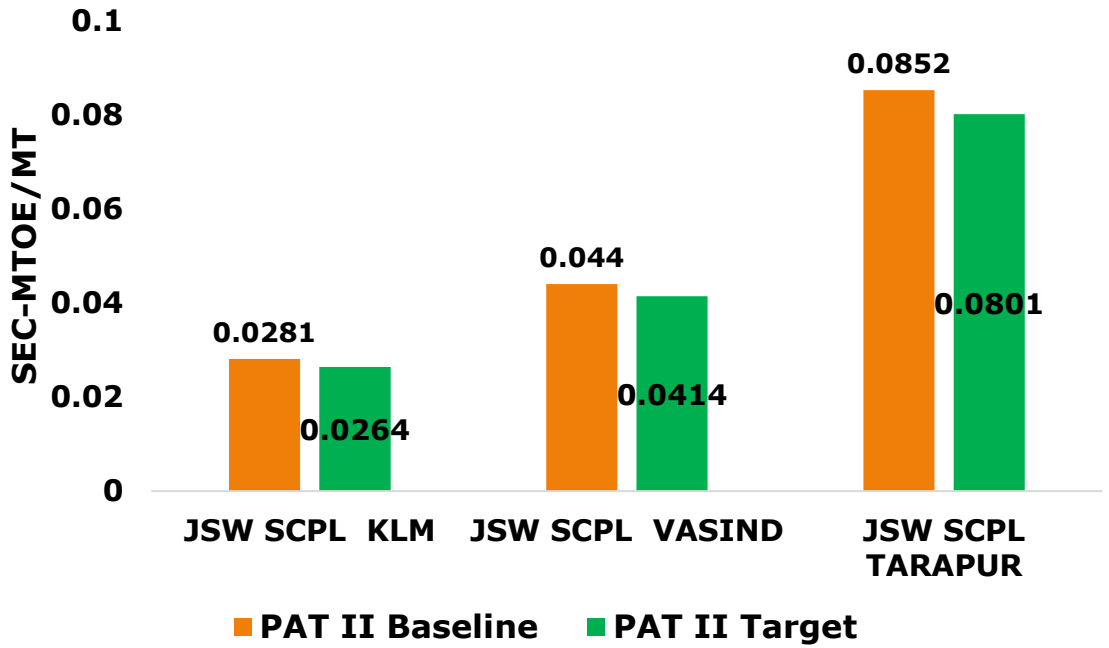
Year	No. of energy saving projects	Investment INR million	Electrical saving (Million Kwh)	Thermal saving million (Kcal)	Savings (INR Million)	Impact on SEC In Gcal/Mt (Electrical Thermal)
FY 2018-19	7	51.33	2.800	4345.88	21.34	From 0.2040 to 0.2030
FY 2019-20	15	32.82	3.390	5309.66	24.13	From 0.2030 to 0.2025
FY 2020-21	4	90.15	0.891	10756.17	53.02	From 0.2025 to 0.1958
FY 2021-22	11	2432.2	2.072	11070.84	34.42	From 0.1958 to 0.1944
FY 2022 -23	12	667.10				

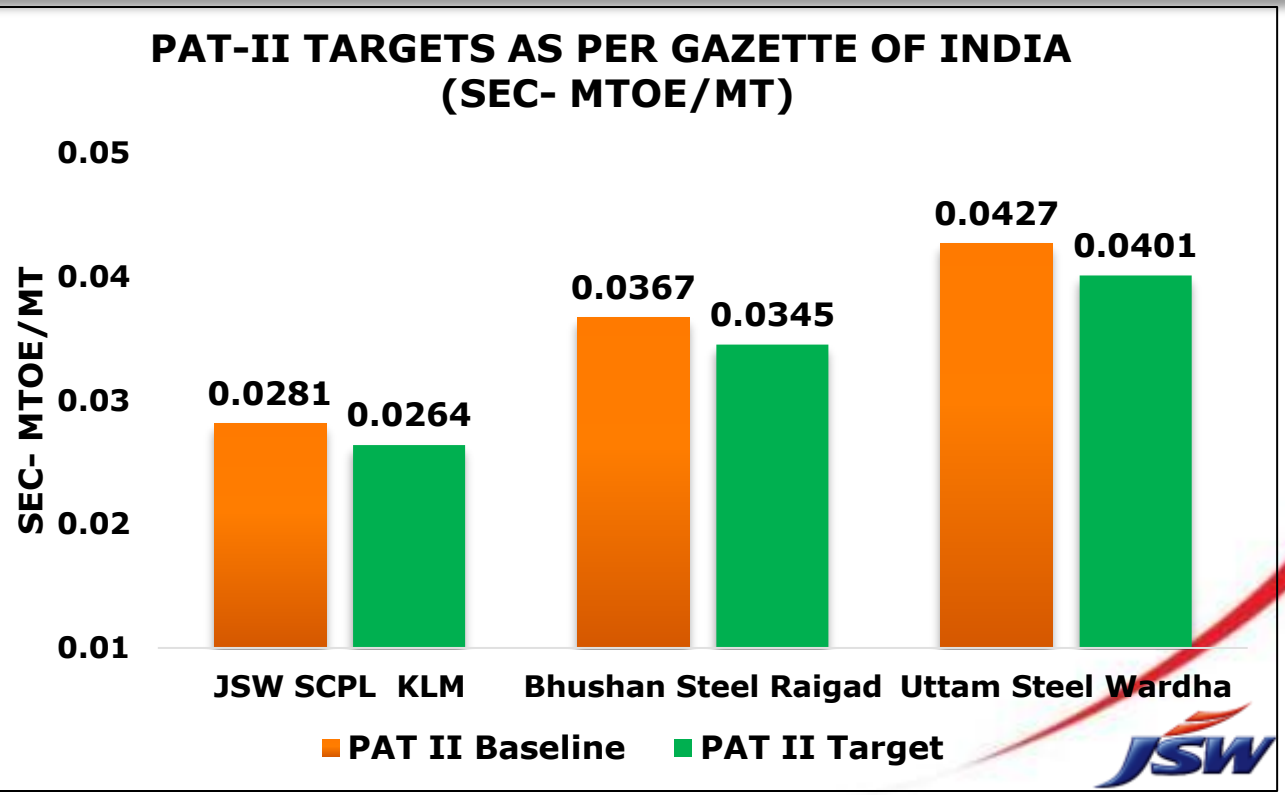
SEC ELECTRICAL AND THERMAL INTERNAL BENCHMARKING
INTERNAL BENCH MARKING WITHIN THE GROUP



WITHIN GROUP AND NATIONAL BENCH MARKING

1	• Following the best historical data as Target
2	• By this we Identify Best Available Technology.
3	• Identify Key Controlling Parameters
4	• Identify the gap between existing and benchmark for key controlling parameter
5	• Setting Targets Keeping in view of constraints
6	• Cross Location Energy Audits & best practices horizontal deployment
7	• Rolling, Galvanizing & Colour Coating meets for sharing best practices for respective process





Targets -short/long term

Energy & CO2 Target FY23			Energy & CO2 Target FY30		
Parameter	Unit	KLM	Parameter	Unit	KLM
Equivalent Production	MT	1280872	Equivalent Production	MT	1280872
Specific Energy Consumption	GCal/t	0.350	Specific Energy Consumption	GCal/t	0.30
Energy Consumption	GCal	448305	Energy Consumption	GCal	385971
CO2 Emission	tCO2	229276	CO2 Emission	tCO2	**77834**

Sl. No.	Target Parameter	UOM	Target for FY 23	21-22 Actual	Target for 2030
1.	Renewable Energy Consumption	MWh	1) 1+3 MWh – Rooftop Solar		0.0 MWh (RPO)
2.	Specific GHG emissions (Scope 1 + Scope 2)	tCO2e/t (product)	0.194	0.195	Carbon Neutrality
3.	Specific fresh water consumption	m3/t (product)	0.50	0.43	Water Neutrality
4.	Specific waste generation	kg/t (product)	68	70.72	52
5.	Waste recycled/utilised	%	97	99.5	99

Management Commitment Towards carbon Neutrality

Proposed CFMP – with Timelines and % Reduction of FY 30 baseline

Mandatory Compliance – 10.9%

- Reductions from regulatory compliance requirements
  - Perform Achieve and Trade (PAT) Mechanism – 1.5%
  - Renewable Purchase Obligation (RPO) – **6.9%**
  - Carbon sequestration through existing plantation – **2.5%**

2021 onwards

Energy Conservation Measures -0.9%

- Emission reductions from already planned energy efficiency improvement measures over and above PAT compliance – **0.9%**

2021 onwards

Energy switch – 57.9%

- Switch from propane to RLNG in Kalmeshwar **-0.6%**

2023 onwards

- Reductions from 100% switch of current fossil fuel based power to reliable round the clock mix of renewable power – **57.3%**

2025 onwards

Switch from fossil fuel based steam to biomass based steam generation – 4.8%

- Reductions from 100% avoidance of fossil fuel based steam generation – RLNG to biomass briquette in Vasind and Tarapur and propane to biomass briquette in Kalmeshwar – **4.8%**

2025 onwards

Offsets – 25.6%

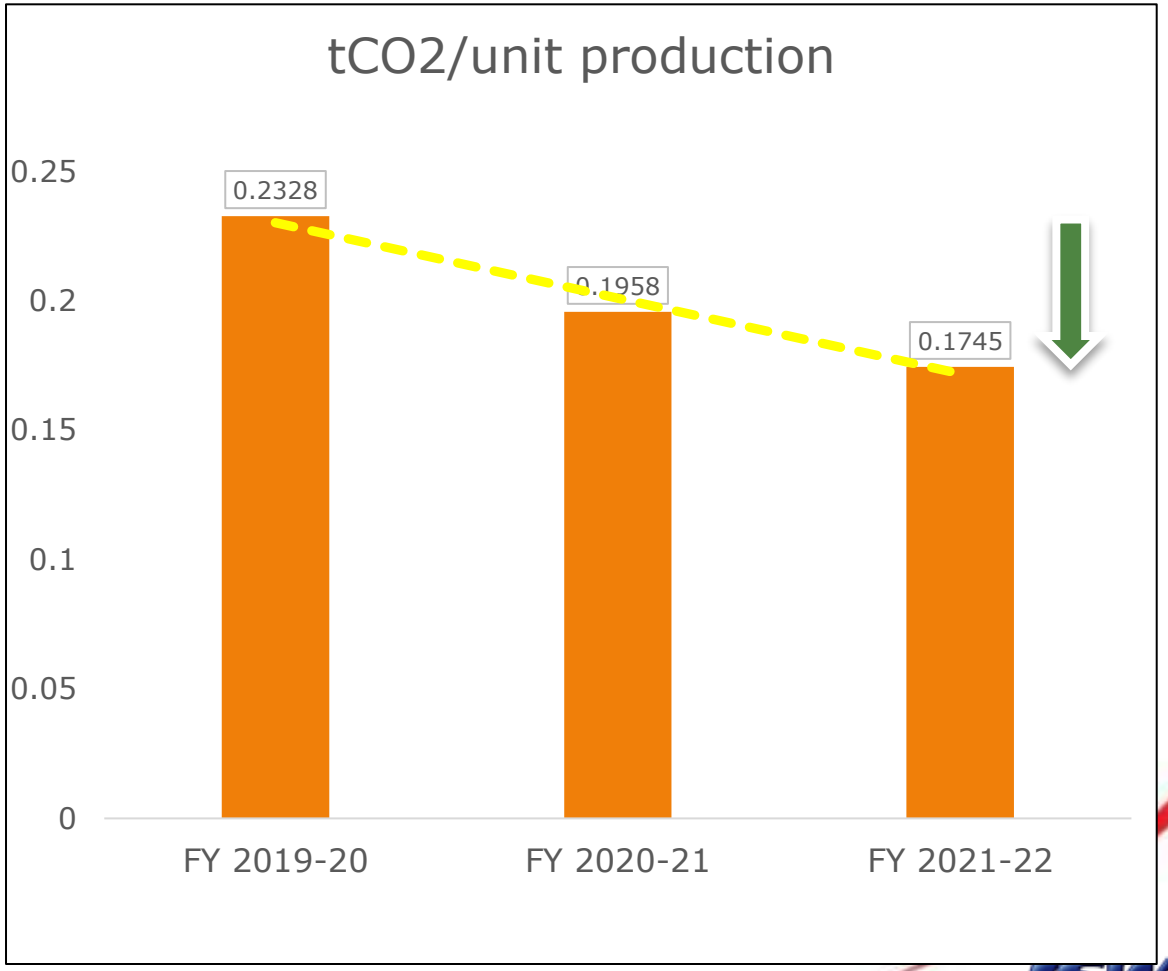
- Carbon sequestration through additional plantation
- Emission offsets through purchase of voluntary emission reductions (VERs) or through emission reducing programme of activities like project of distribution of multifuel fired cookstoves to rural/ tribal households undertaken by JSW Foundation

2029-30 onwards

GHG Inventorisation

Reduction In GHG Intensity

Year	Scope 1 (tCO2)	Scope 2 (tCO2)	TOTAL Emissions (tCo2)	Production (MT)	GHG Intensity
18-19	62038	94035	156073	666705	0.2341
19-20	69421	97269	166690	715902	0.2328
20 -21	66882	90209	157091	668960	0.1958
21-22	74578	111567	186146	1066218	0.1745

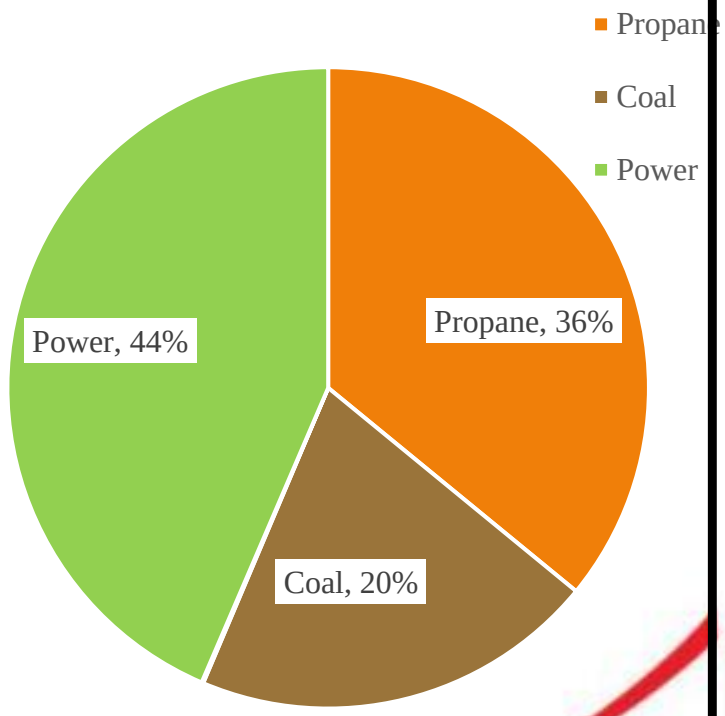


GHG Inventorisation

Management Commitment Towards Carbon Neutrality

Parameters	Unit	Scope-1			Scope-2	Total
		Propane	Coal	Diesel	Power	
CO2 Emissions	tCO2	67496	38392	156	81788	187831

S.No	Activities planned for reduction of carbon footprint	Target Year	Reduction in Emission (tCO2)	% of Total Emission
1	Reduction in emission due to switching from coal fired to propane fired boiler	FY 21-22	20929	11.1
2	Reduction in emissions due to fuel substitution from Propane to RLNG	FY 24-25	7237	3.9
3	Reduction due to Planned Energy Savings Projects	FY 23-24	19541	10.4
4	Reduction due to Solar roof top project 4MW	FY 23-24	4723	2.5
5	Thermal Power to be replaced by Hybrid Renewable Power	FY25-26	81788	44
TOTAL			134218	71.9



SUSTAINABILITY - Key Parameters

Parameter/ KPI	Unit	19-20	20-21	21-22	FY30
Specific Energy Consumption	GCal/t (product)	0.450	0.430	0.415	0.300
Specific GHG emissions (Scope 1 + Scope 2)	tCO2e/t (product)	0.215	0.197	0.1745	Carbon Neutral
Specific fresh water consumption	m3/t (product)	0.48	0.40	0.350	Water Positive
Waste recycled/utilised	%	98.5	99.11	99.5	99.99
PAT Cycle – 1 (2014 -2017)	MTOE	Target – 0.0303	Achieved – 0.0273	1642 Ecerts Awarded	
PAT Cycle – 2 (2018 -2021)	MTOE	Target – 0.0264	Achieved – 0.0208	4799 Ecerts Awarded	

Reduction in GHG Emission by Fuel Changeover Opex Cost Increased by 3.5 Times

Replacement of Coal Fired Boiler With Propane Fired Boiler

- **Objective** –Reduction in Co_2 Emission
- **Initiative** – Replacement Of Old Coal-fired Boilers With New Gas-fired Boilers

Coal Fired Boiler (Existing)

Propane Fired Boiler (New)

Benefits

- Enhancement in Boiler Efficiency
- Categorization of KLM Unit from existing Orange Zone to the desired Green Zone as per MPCB Norm
- Significant Step for achieving Carbon Neutrality by the Year 2030 (as per JSW Road Map)

INNOVATIVE PROJECT-UTILITIES(COMPRESSOR)

BEFORE

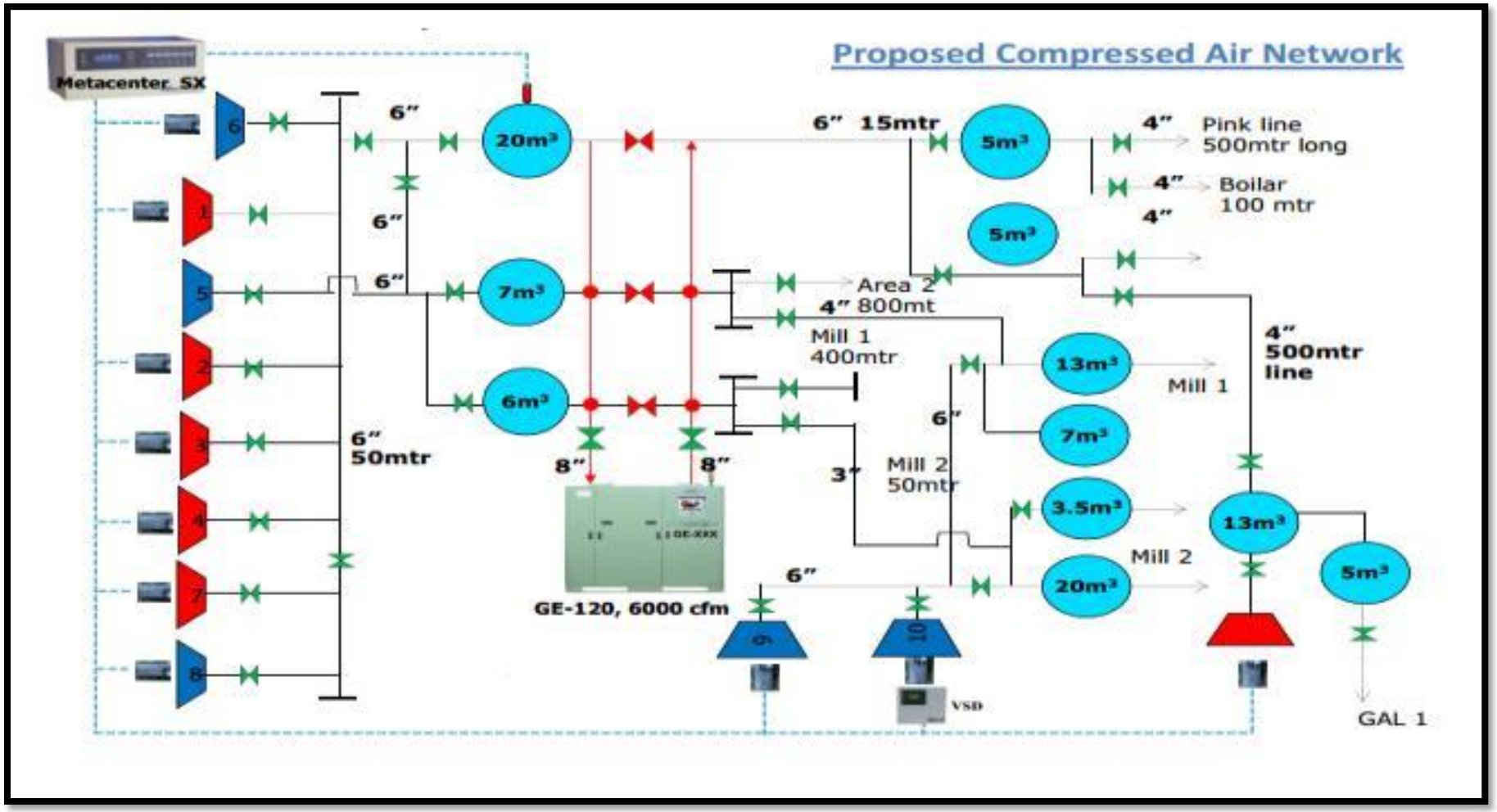
AFTER

- Consumption trend before improvement : 13.5 kWh/MT
- Consumption trend after improvement : 12.3 kWh/MT
- Energy saving due to improvement : 1.2 kWh/MT
- Energy saving for 65000MT coated production : 78000 kWh/month
- Cost of electricity per unit : 7.0 INR
- Monthly saving of electricity in INR : 546000 INR
- Yearly saving of electricity in INR : 6552000 INR

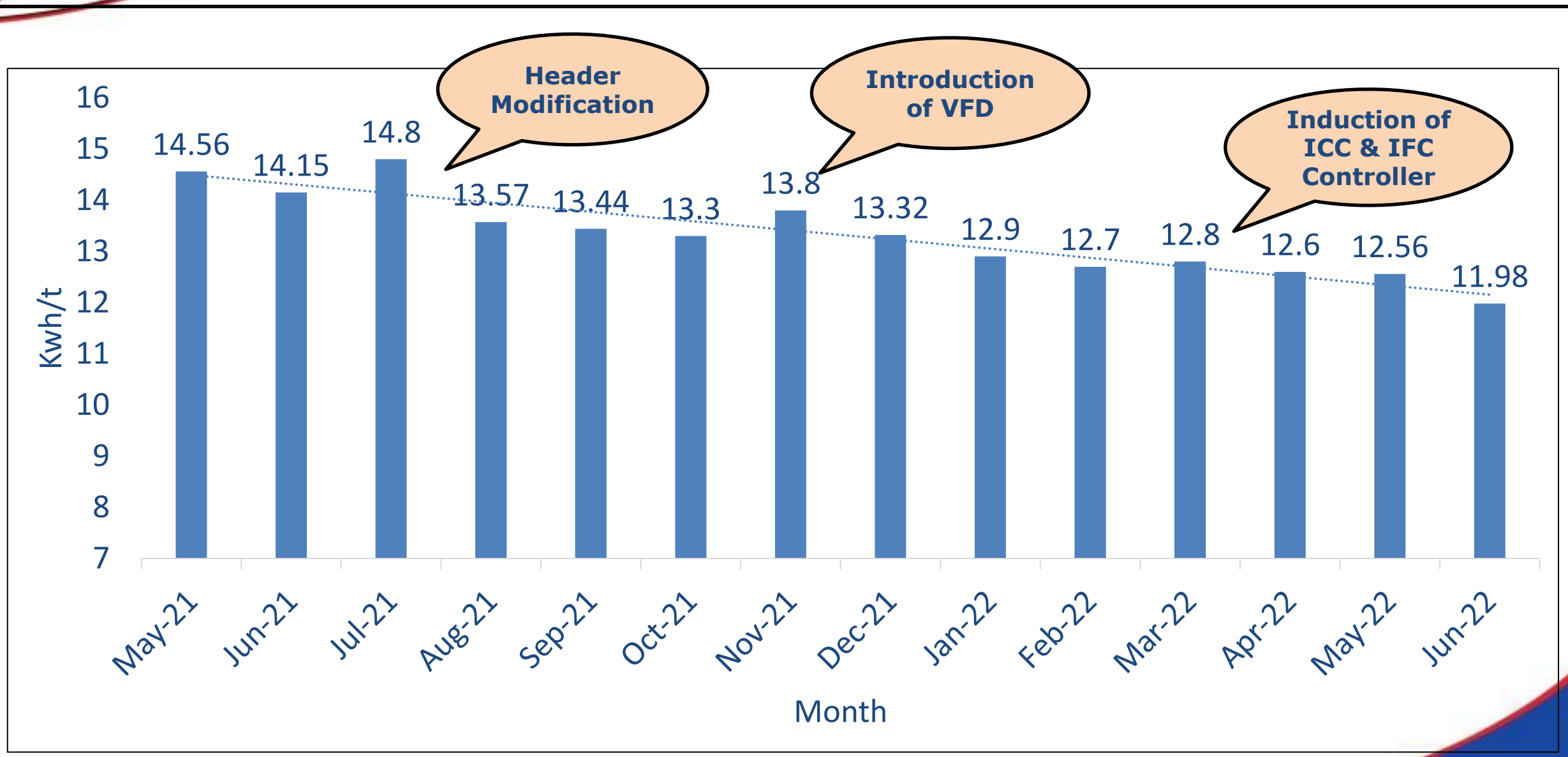
	Before	After
4000 CFM Comp.	6.8	6.4
Compressor-6	6.6	6.3
Compressor-7	6.6	6.3
Compressor-8	6.6	6.2
MILL SD	6.2	5.5
MILL VFD	6.2	5.2
CCL-2 A	6	5.2 & Stopped (Ready to start)
CCL-2 B	6.5	5.3 & Stopped (Ready to start)
CGL-1	5.7	5.2 & Stopped (Ready to start)
GALVA	6	5.2 & Stopped (Ready to start)

INSTALLATION OF SUPPLY SIDE FLOW CONTROLLER

INSTALLATION OF DEMAND SIDE CONTROLLER FOR ADDITIONAL 2000 UNITS/DAY SAVING



Compressed Air Consumption Pattern



KEY HIGHLIGHTS – BUSINESS MODEL

JSW Launches EV Policy for Employees

The EV revolution is here!

Introducing

GREEN GEAR

Dear JSWites,

The JSW Group becomes the First Indian Corporate House to launch 'JSW Green Gear" - the EV Policy for its employees.

JSW Green Gear will facilitate each one of you in adopting a sustainable and futuristic way of living by making the EV switch-over easy and affordable. Our aim as a responsible organization is to evolve and bring a constant change for a Better Every Day.

Policy Highlights

- **Grade L10-L12:** Up to Rs. 3 Lakhs incentive to employees for purchase of EVs under the car lease policy.
- **Grade L01 -L09:** Significant enhancement in loan amount on which interest subsidy will be reimbursed by the organisation for purchase of EVs.
- Charging Stations at all JSW premises. The charging infrastructure will be created at all plant and office locations for employees and visitors.
- Dedicated Parking Slots for EVs.

The policy comes into effect from 1st of January 2022 and a detailed policy document will be uploaded on myJSW portal.

Let's begin 2022 with a greener frame of mind and be a part of the change towards a sustainable future.

Regards,
Dilip Pattanayak
President & CHRO - Steel & Corporate

#IPledgeGreen

Better Everyday

- The JSW Group becomes the First Indian Corporate House to launch 'JSW Green Gear" - the EV Policy for its employees. JSW Green Gear will facilitate each one of you in adopting a sustainable and futuristic way of living. It will make the EV switch-over easy and affordable. Our aim as a responsible organization is to evolve and bring a constant change for a Better Every Day.

- The subsidy being offered under the new scheme will make EVs more affordable and accessible to our employees by providing:

1. Subsidy Policy
2. Lease Policy
3. Dedicated Green Zones Charging Infrastructure

Mr. Sajjan Jindal, Chairman, JSW Group, said,

- "Since the Prime Minister announced at Glasgow COP26 meeting that India strives to reach net-zero carbon emissions by 2070, JSW Group's new EV Policy is a unique initiative leading to increased adoption of EVs in India and enabling access to green mobility."

Electrical Vehicle

INITIATIVES TO REDUCE CARBON EMISSION

Bay-to-Bay Coil Transfer Cars in place of internal trucks for shifting Material

CONVENTIONAL INTERNAL TRUCK SYSTEM

NEW INTER-BAY COIL TRANSFER CAR

Use of Battery-Operated Fork-Lifts for Shifting, towards safer & maintenance-free functionality

OLD HANDLING SYSTEM

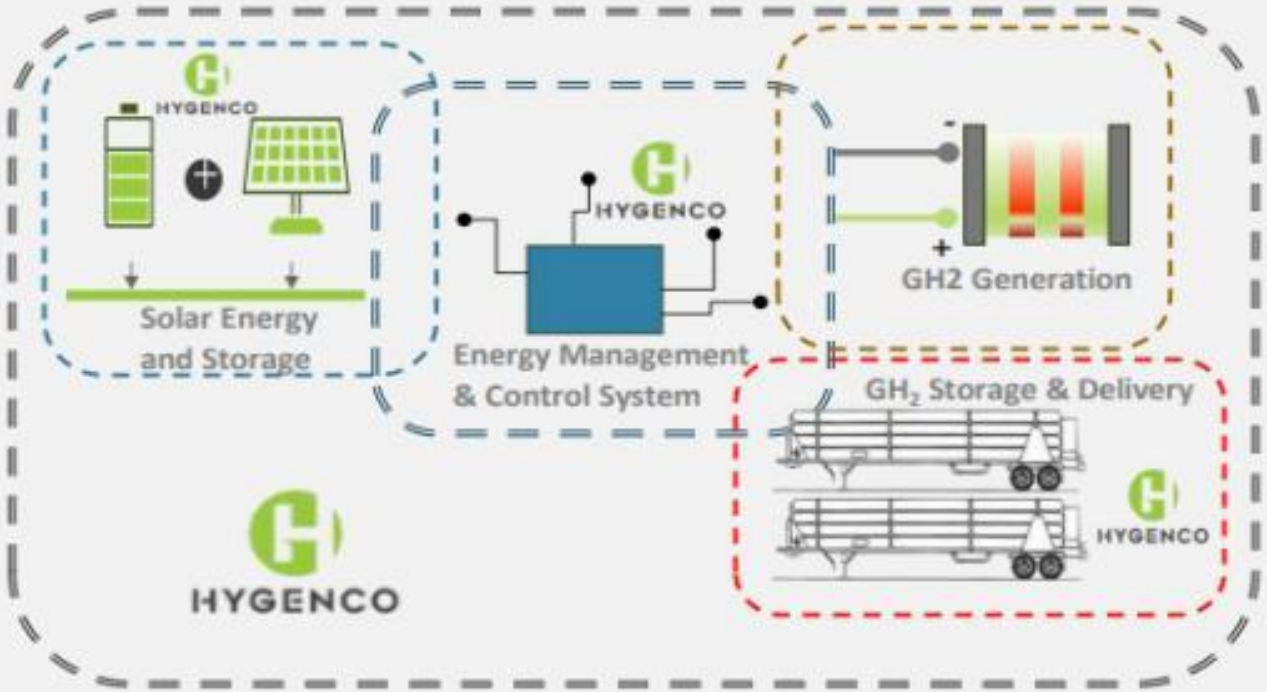
NEW HANDLING SYSTEM

One of the group company JSW Energy has tie up Australian company for Green Hydrogen Technology.

For Galvalume Line AlZn Ingots were imported from Australia, Now Vendor Developed in India.

KEY HIGHLIGHTS – BUSINESS MODEL (GREEN HYDROGEN)

Our solution for Kalmeshwar



With clear benefits

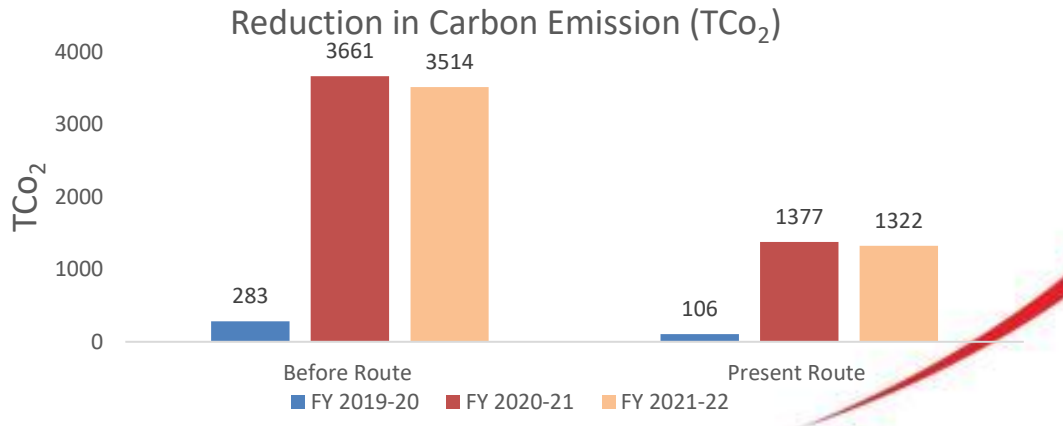
- Up to 100% decarbonization
- Preserve capital (Hygenco Inves.)
- Eliminate over-heads (Hygenco O&M)
- No PnL volatility from H2 supply prices (fixed upfront)
- 100% availability
- Zero maintenance
- Merchant Capacity (Scalable Solution)

SCOPE- 3 :-Initiatives for reduce Carbon Emission

We provide Hot Rolled Coil (HRC) to TATA BSL Khopli plant from our Dolvi Plant. Same Quantity HRC we take from TATA BSL Angul plant to our Kalmeshwar plant. Total transportation distance is reduced by taking above action.

BEFORE		AFTER	
Angul to Khopoli	1654 KM	Angul to Kalmeshwar	868 KM
Dolvi to Kalmeshwar	887 KM	Dolvi to Khopoli	88 KM
Total Distance	2541 KM	Total Distance	956 KM
Transportation distance reduced by 1585 KM			

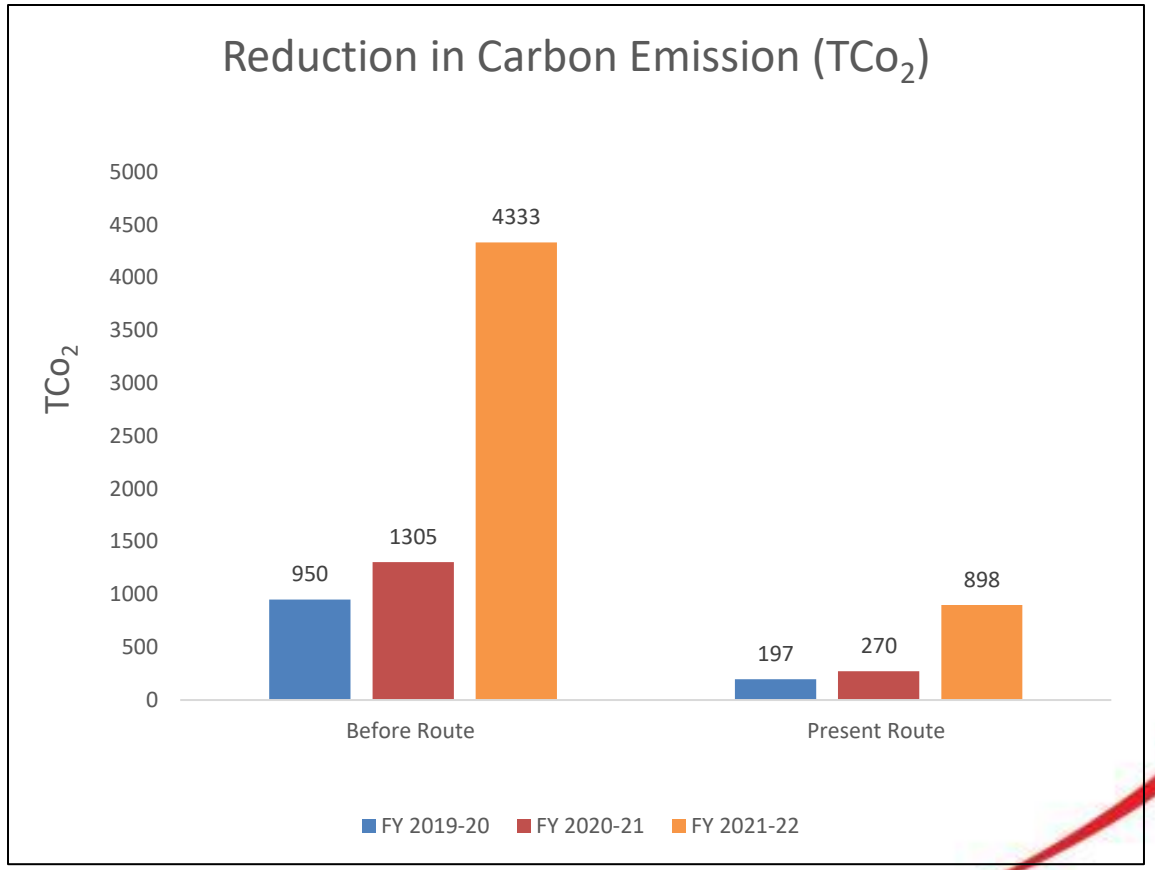
Year	Carbon Emission (TCo_2) Before Route	Carbon Emission (TCo_2) Present Route
FY 2019-20	283	106
FY 2020-21	3661	1377
FY 2021-22	3514	1322



SCOPE- 3 :-Initiatives for reduce Carbon Emission

Strategic Decision - Initially we imported Al-Si alloy from Sydney, Australia. Gradually we developed vendor within India. Eliminated sea transportation distance by 11143km and road distance by 315 km

Al-Si Alloy taken from India resulting less Co_2 emission		
Year	**Carbon Emission (TCo_2) - Import**	**Carbon Emission (TCo_2) - Domestic**
FY 2019-20	950	197
FY 2020-21	1305	270
FY 2021-22	4333	898



SUSTAINABILITY – Optimizing Rake Capacity

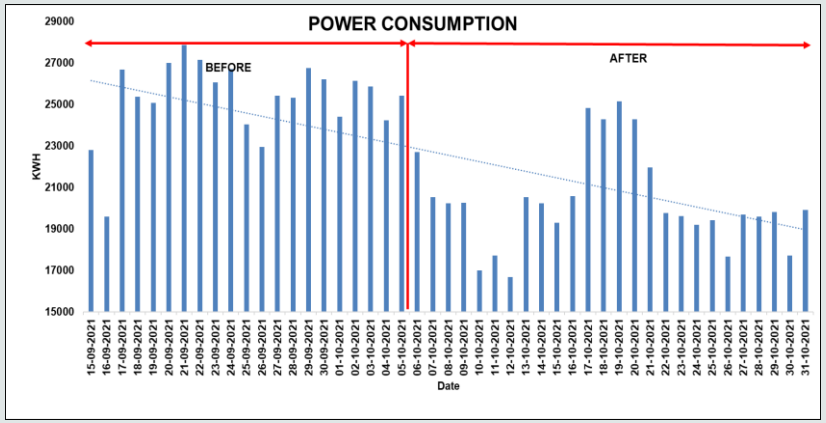
Digitalization

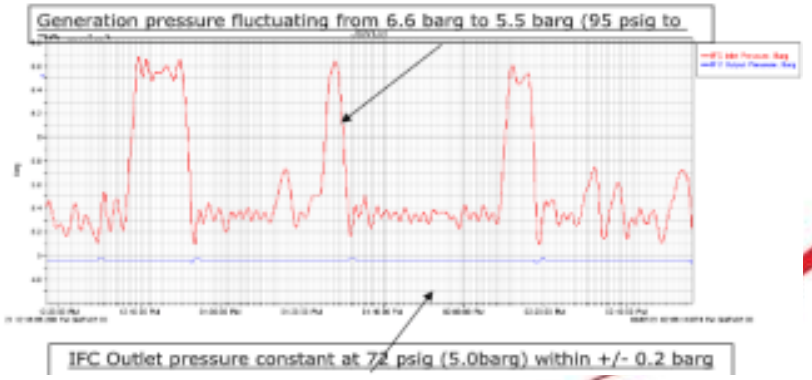
DIGITALIZATION PROJECT AT JSWSCPL, Kalmeshwar

Compressed Air Optimization by using ICC & IFC Controller (Industry 4.0 – Demand Side Control management)

The project was based on Energy Saving and Pressure Stabilization with Auto Control of Compressor by using Intelligent Compressor Control and Intelligent Flow Control to Optimize the Compressed Air at both Demand and Supply Side.

The Common Utility Compressed Air Energy Consumption reduced by 2500 KWH/day





DIGITALIZATION PROJECTS

Sr No	Business Idea	KPI Unit	KPI (From)	KPI (To)	INV (Cr)	AB (Cr)	TAT (Months)	Project Category	Status
1	✓ Sensor based width measurement in CPL	T/DAY	2000	2055	0.4	0.9	5	Productivity	• Technical offer received from Delta & EMG • PR to PO in Process
2	✓ Automation in Regeneration Acid and Waste Pickling Liquor Transfer at CPL	T/DAY	2000	2070	0.5	1.14	6	Productivity	• Technical offer Scope Finalized • Offer Expected in 2nd Week of Aug'22
3	✓ Digitization in Coil Liner marking	T/month	26	0	0.15	0.3	6	Scrap Reduction	• POC initiated at CCL lines - Data Provided for look up tables and Software Development • Data Recording and performance monitoring is under Progress
4	✓ Online Coating measurement and Control in CCL3 by using Mathematical Model		-	1.2	3.82	5	-	Quality	• Under Approval • Technical Offer Received
5	✓ Auto Power Scheduling with M/s. Hitachi	KWH/day		50000	0.45	0.64	6	Energy Saving	• POC initiated with M/s Hitachi • Outcomes will be explained by Hitachi in Sep'22
6	✓ Sensor Based Control to maximize M1 & M3	Mpm	250	350	0.57	4.2	6	Productivity Improvement	• Completed

GHG Inventorisation

Paint Transportation Via Bulker And Storages In Cylindrical Tank

	Reduction in Paint Drum handling System	UoM	Qty.
	Average Monthly Production	Ton	22000
Back Coat	Backcoat Consumption	Ltr	**79200**
	No of barrel	No's	396
Primer Coat	Primer Consumption	Ltr	**52800**
	No of barrel	No's	264
Top Coat	Primer Consumption	Ltr	200000
	No of barrel	No's	1000
	Total No of barrel	No's	1660
	Total No barrel Unloading ,Shifting to coater room and empty barrel shifting to secondary sale will be eliminated/month	No's	660
	Reduction in paint Drum handling System	%	39.76

Waste Management and its Utilization

A Journey of A Thousand Miles Begins With A Single Step In The Right Direction

1994 — Acid Regeneration Plant Commissioned With Capacity Of 30 KL/Day

2010 — Installed & Commissioned Zero Liquid Discharge Plant With Capacity Of 300KL/Day

2018 — Commissioned New Acid Regeneration Plant Capacity Of 150 KL/Day

2019 — Commissioned RO Plant Capacity Of 300 KL/Day

2020 — Provision Of New Sewage Treatment Plant

2020 — New CCL ETP Installed - 100KL/Day

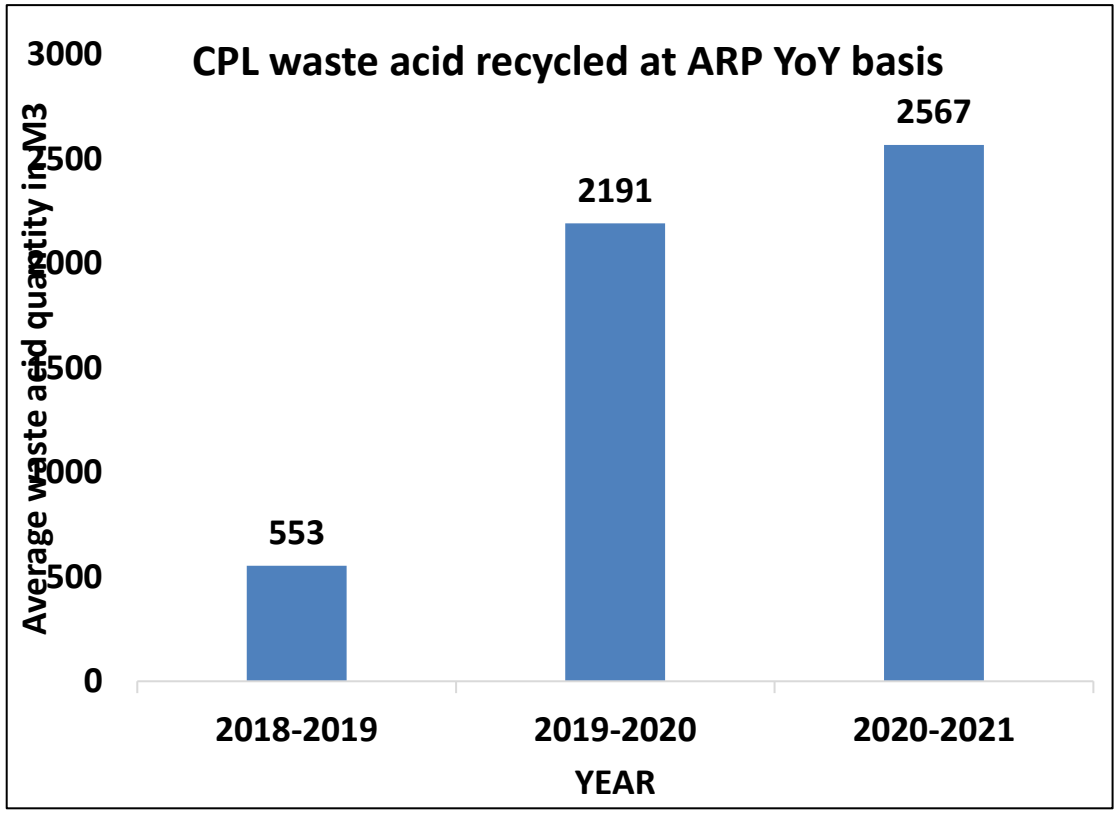
2020 — Modification of STP Plant

2020 — Installation of Propane Fired Boiler

2023 — MEE based on TVR & ATFD

Waste Management and its Reuse

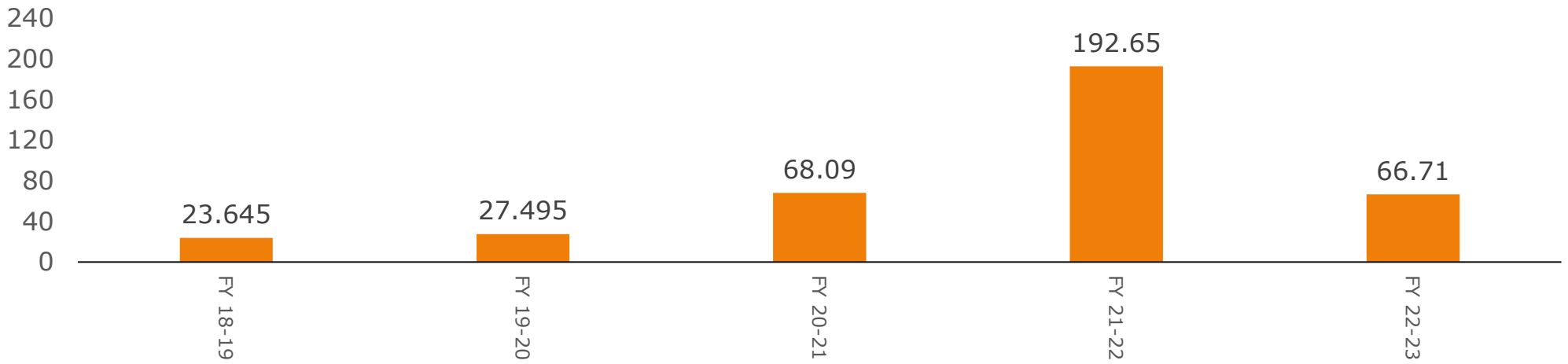
Installation of new Acid Regeneration Plant of capacity of 6.4 KL/Hr -Whereas our plant requirement is 3.5KL/Hr. Future provision made to cater the additional requirement for treating the hazardous waste pickled liquor.



Sl. No.	Parameter	UOM	FY 22 YTD (Actuals)	Target for FY 23	Cumm FY 23 Actual	Target for 2030
1.	Specific fresh water consumption	m3/t (product)	0.39	0.35	0.36	Water Neutrality
2	Waste recycled/utilised	%	99	97	99.5	99

SEPARATE BUDGET ALLOCATION FOR ENERGY CONSERVATION

Sr. no.	FY	Budget allocation (Cr.)
1	2018-19	23.645
2	2019-20	27.495
3	2020-21	68.09
4	2021-22	192.65
5	2022-23	66.71



AWARENESS SESSIONS FOR EMPLOYEES

Through Inter School (200 School of Vidarbha) Energy Conservation & Science Exhibition

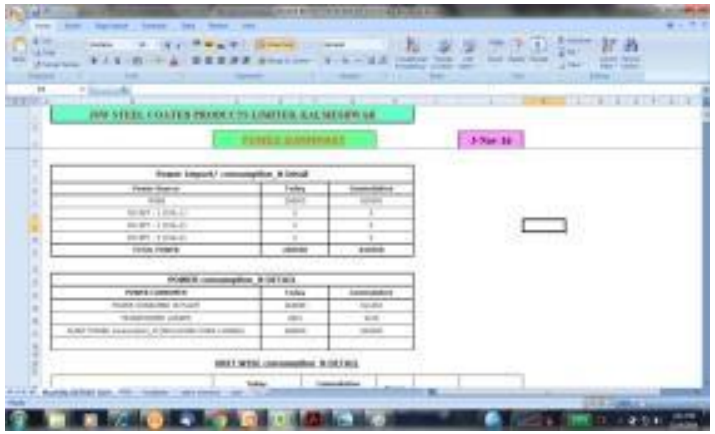
Through Energy Consumption Figures & Single Click Aux. Pump OFF Facility in all HMI's

AWARENESS SESSIONS FOR EMPLOYEES

Organized Urja Conclave for Energy Efficient Solutions (350 School Participated)

“Nukkad Natak” Organised on National Energy Week

Awareness Creation & Involvement of Employees for Energy Conservation



Daily Power Report Via Mail

Implementing ISO 50001

Display of Energy Policy

Recognition of Employees for their Initiatives by Awarding them with LED Bulbs

Major Achievements for Energy Excellence

Sr.No	Achievement	Year
1	1st Position in State Level Award for Excellence in Energy Conservation and Management	2020
2	1st Position in State Level Award for Excellence in Energy Conservation and Management	2020
3	1st Position in State Level Award for Excellence in Energy Conservation and Management	2021
4	**Excellent Energy efficient award 22nd National Award for Excellence in Energy Management 2021**	2021
5	4779 ESCerts Recommended during M&V audit against PAT-II	2020

Sr.No	Achievement	Year
6	Won the CII National Award for Low Carbon and Carbon Neutral Initiatives	2022
7	Appreciated under Best Energy Efficient Designated Consumer (Under BEE PAT Scheme)	2022
8	JSW Kalmeshwar Unit Received the Appreciation Award in CII Energy Management State Level Competition in Large Scale Industry	2022
9	**Winner in "VIA & Solar Vidarbha Udyog Gaurav Awards 2021" in "Large Scale Industry (LSI)" Category**	2021
10	Recognized as the winner of the 6th IPF Industrial Excellence Award	2022

Making Steel is our Profession……

……Generating Smiles is our Passion