Confederation of Indian Industry

**22nd**

**National Award for**

Excellence in Energy Management **2021**

# JSW STEEL COATED PRODUCTS LIMITED KALMESHWAR

**# Better Everyday #**

**Presenter:-1) Mr. Sanjeev Goyal - DGM**
**2) Mr. J.H. Nigam-AGM 9823338194**
**3) Mr. P. Karmarkar-Assist. manager**
**4) Mr. Ankush Hiware- Jr. Manager**

CII National Energy Efficiency Circle Competition

# JSW GROUP

**Mr. Sajjan Jindal**

**Chairman & Managing Director**

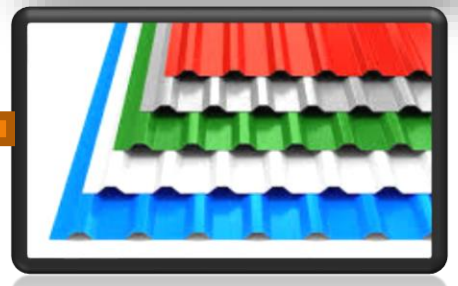
**JSW Steel**
**JSW Energy**
**JSW Cement**
**JSW Paints**
**JSW Infrastructure**

**Mr. Parth Jindal**

**Managing Director**

**JSW Cement**
**JSW Paints**

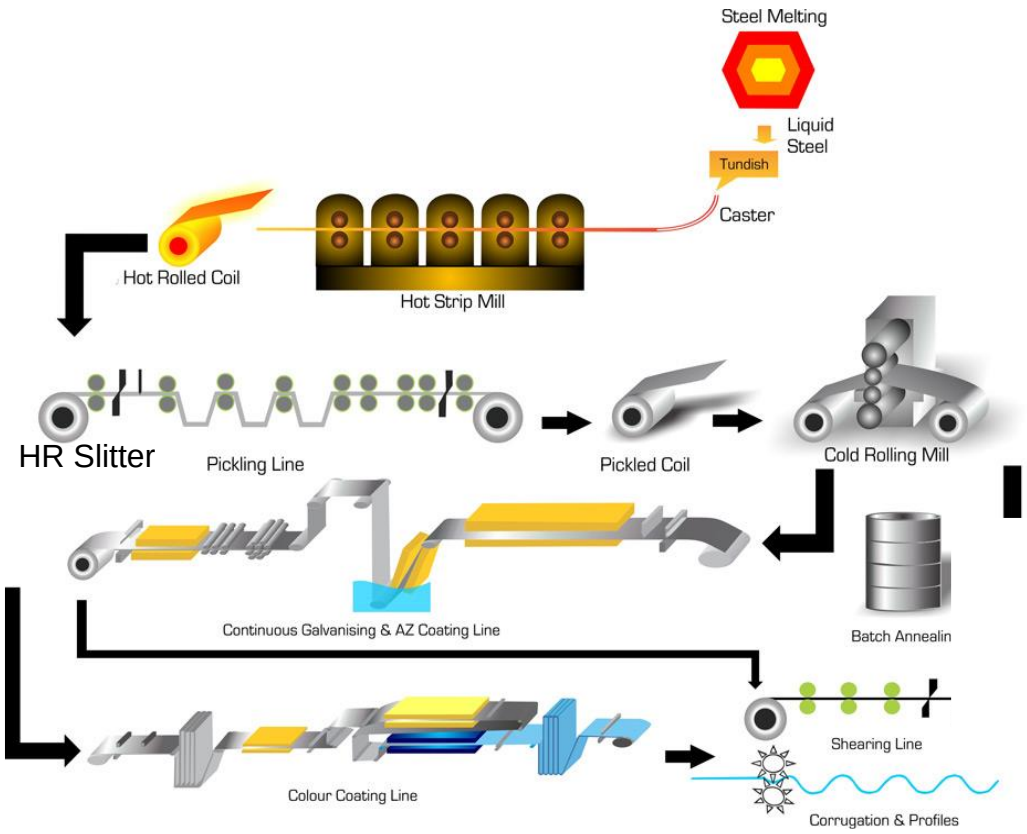
## AT A GLANCE



**JSW STEEL PRODUCTS**

# PROCESS OVERVIEW

## JSW Steel




**JSWSCPL**

## KALMESHWAR

**CPL (0.72 MMT)**
- Continuous Pickling Line

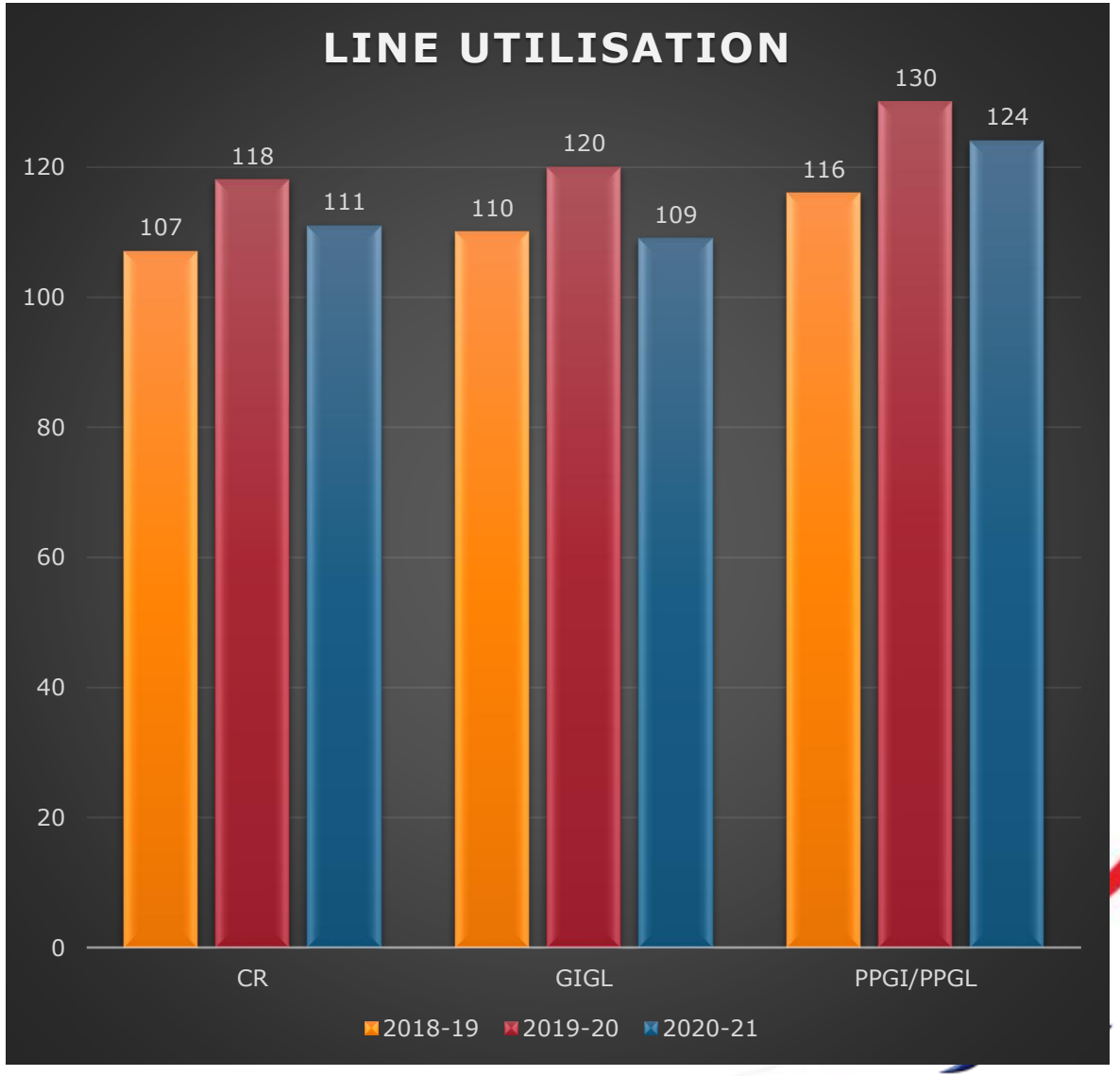
**CRM (0.66 MMT)**
- Cold Rolling Mills

**CGL/GAL (0.65MMT)**
- Continuous Galvanizing / Galvalume Lines

**CCL (0.48 MMT)**
- Continuous Colour Coating Lines

# COVID IMPACT PLANT CAPACITY UTILIZATION

| Parameter | FY | FY | FY |
|---|---|---|---|
| **Cold Rolled Coil** | **2018-19** | **2019-20** | **2020-21** |
| Installed Capacity MT | 600000 | 600000 | 600000 |
| Actual Production MT | 642656 | 712262 | 668960 |
| Utilization | 107 | 118 | 111 |
| **GI/GL (Galvanizing & Galvalume Plane)** | **2018-19** | **2019-20** | **2020-21** |
| Installed Capacity MT | 580000 | 580000 | 580000 |
| Actual Production MT | 641717 | 700264 | 631462 |
| Utilization | 110 | 120 | 109 |
| **CCL( Color Coated Products)** | **2018-19** | **2019-20** | **2020-21** |
| Installed Capacity MT | 192000 | 192000 | 192000 |
| Actual Production MT | 222002 | 250893 | 238670 |
| Utilization | 116 | 130 | 124 |

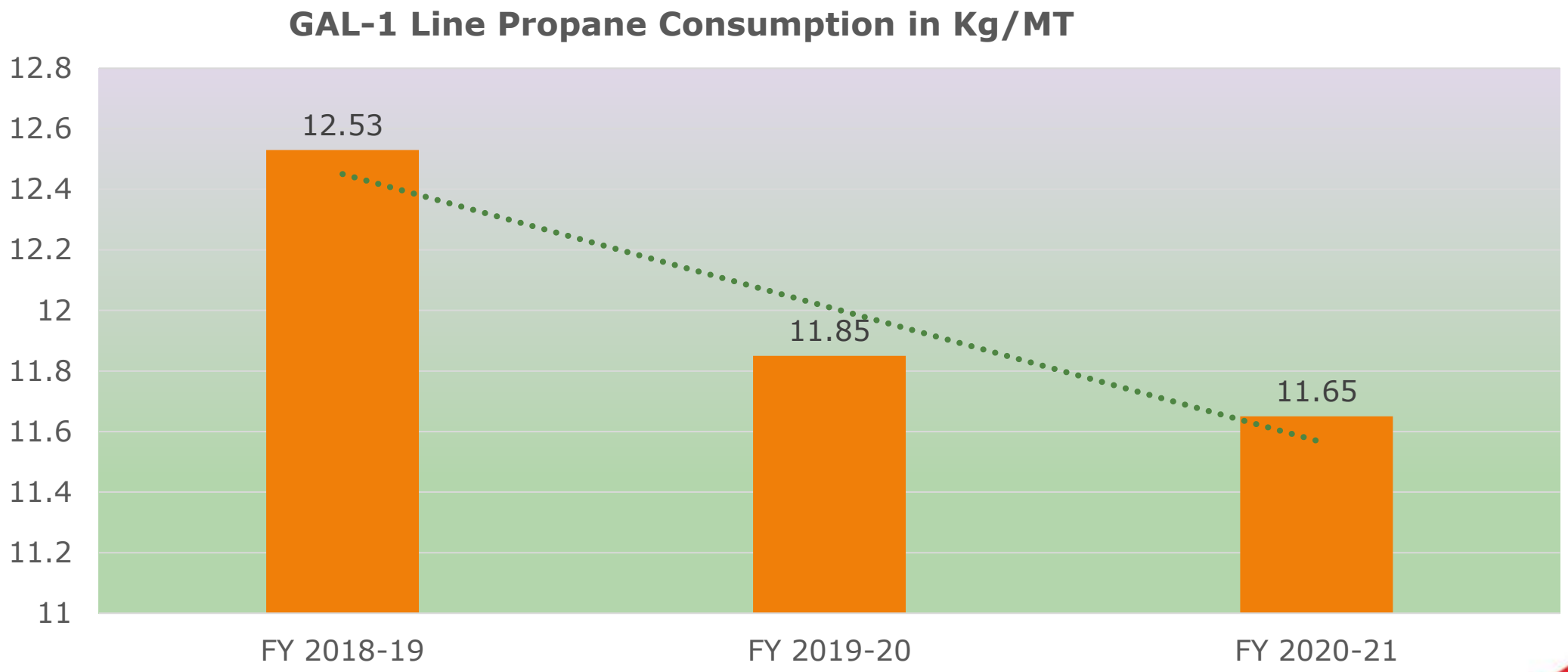


# GALVALUME -1 LINE (IMPROVEMENT- 1.71%)

**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



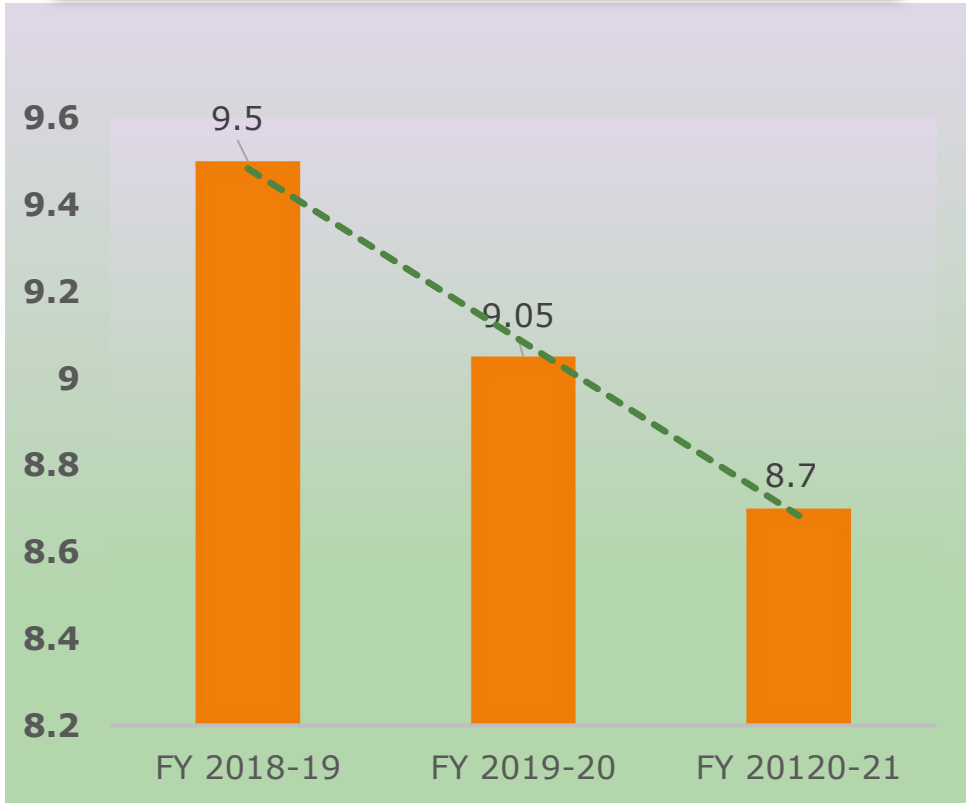
# CCL -2 LINE

**LINE SPEED INCRESED FROM 100 TO 120 mpm**

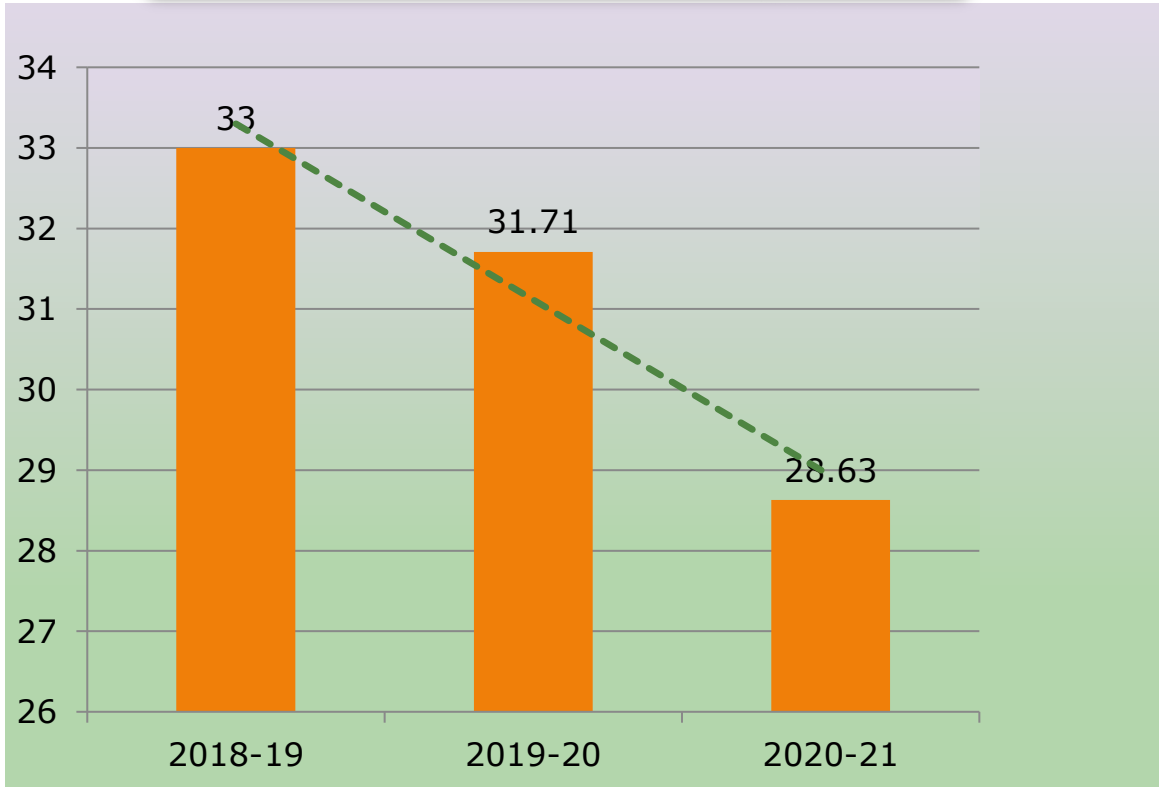
Specific propane consumption reduced from 9.05 kg/MT to 7.74 kg/MT

Specific Power consumption reduced from 31.71 kWh/MT to 28.63 kWh/MT in CCL-2 line

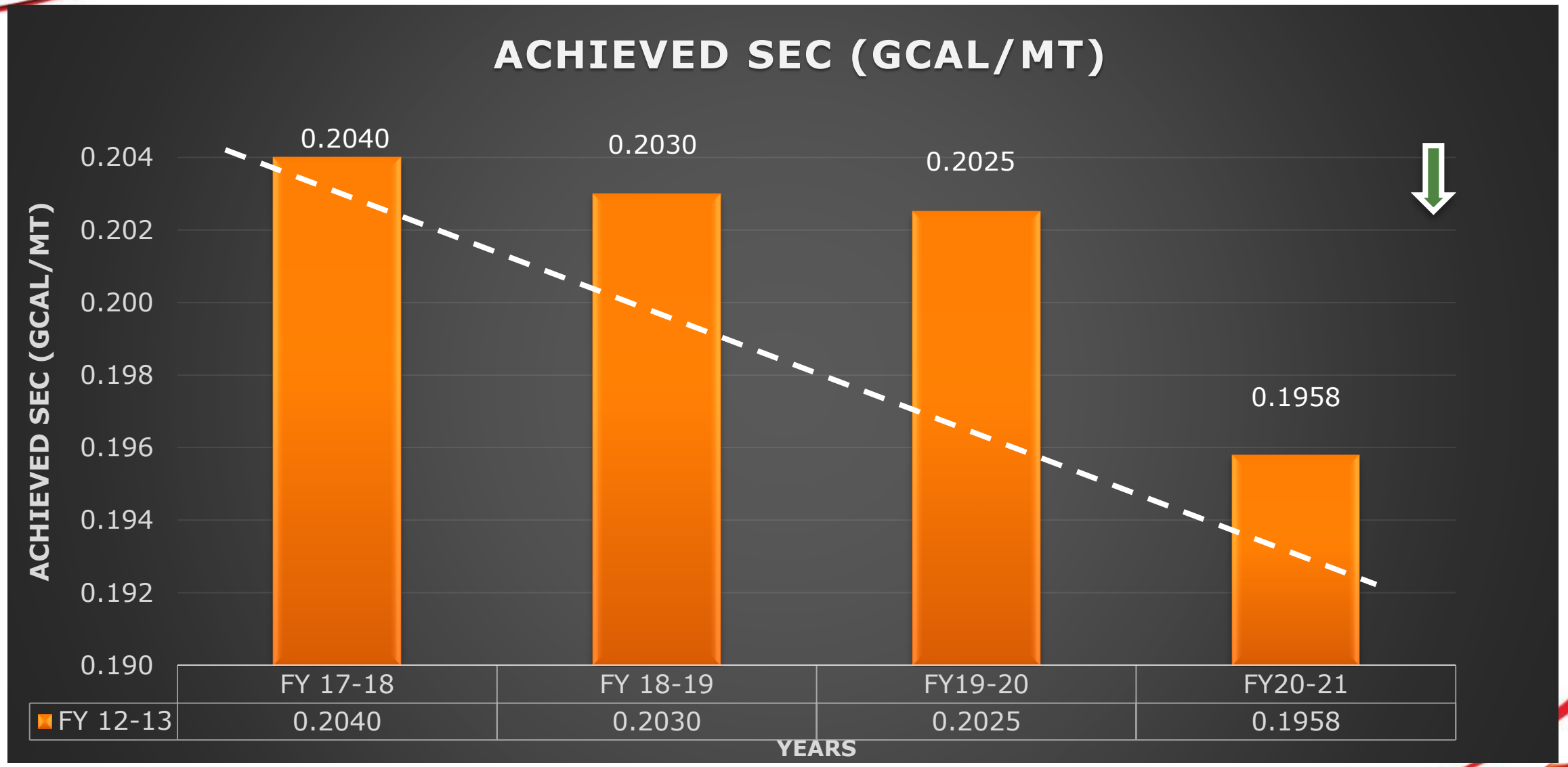
## CCL-2 PROPANE CONS. KG/MT



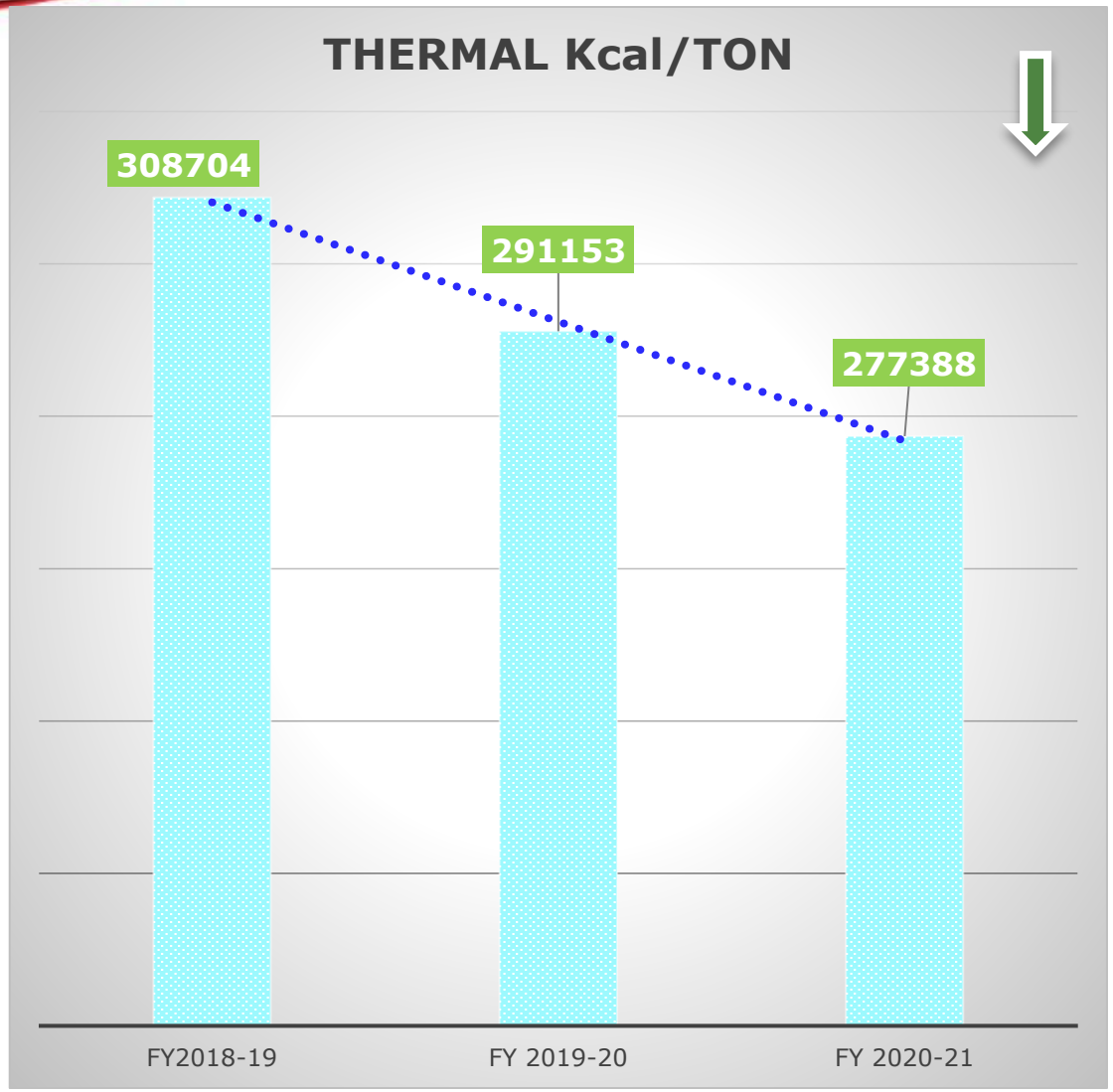

## CCL-2 POWER CONS. KG/MT

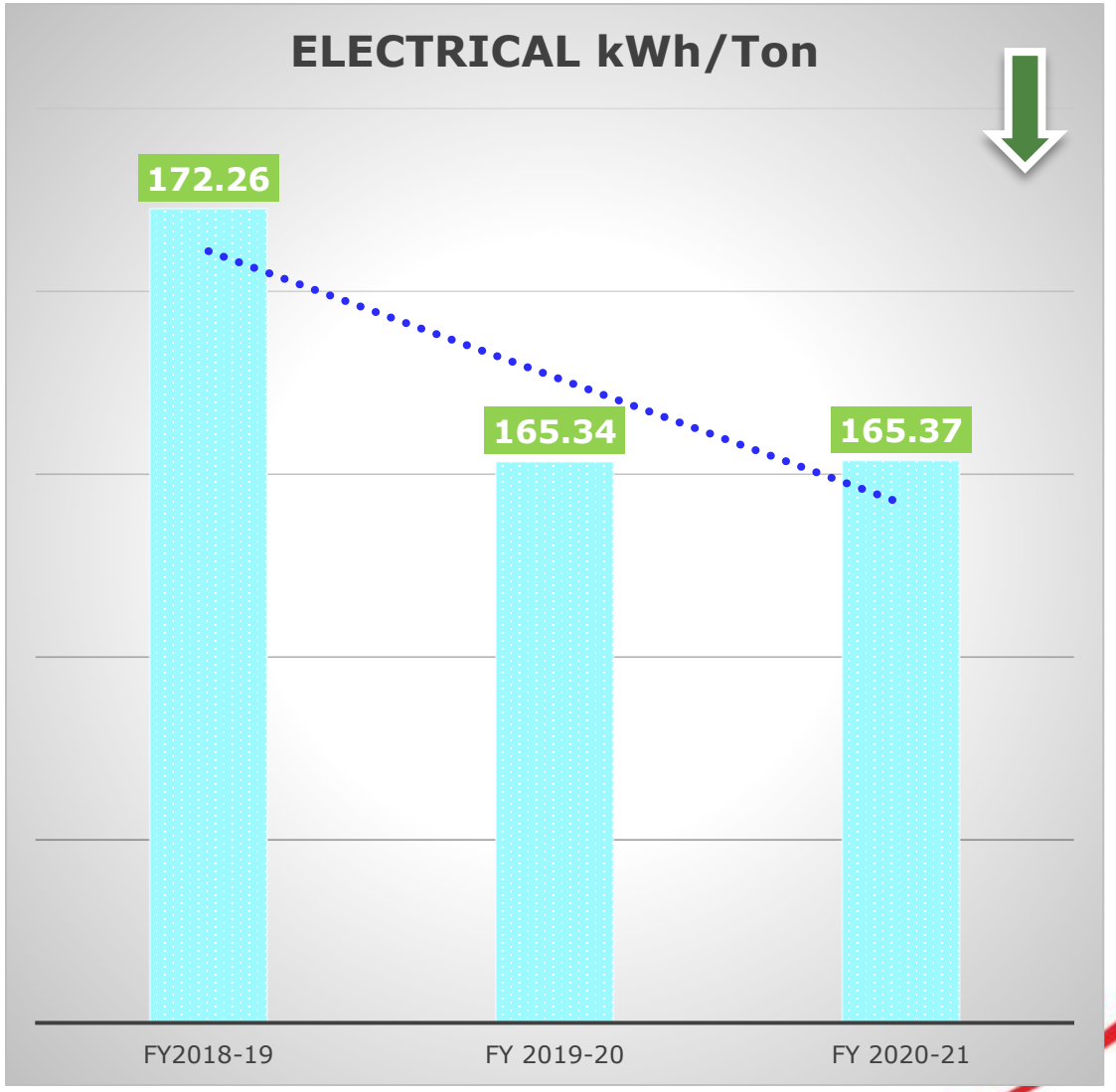


# SPECIFIC ENERGY CONSUMPTION ( GCAL/MT) 2018-21



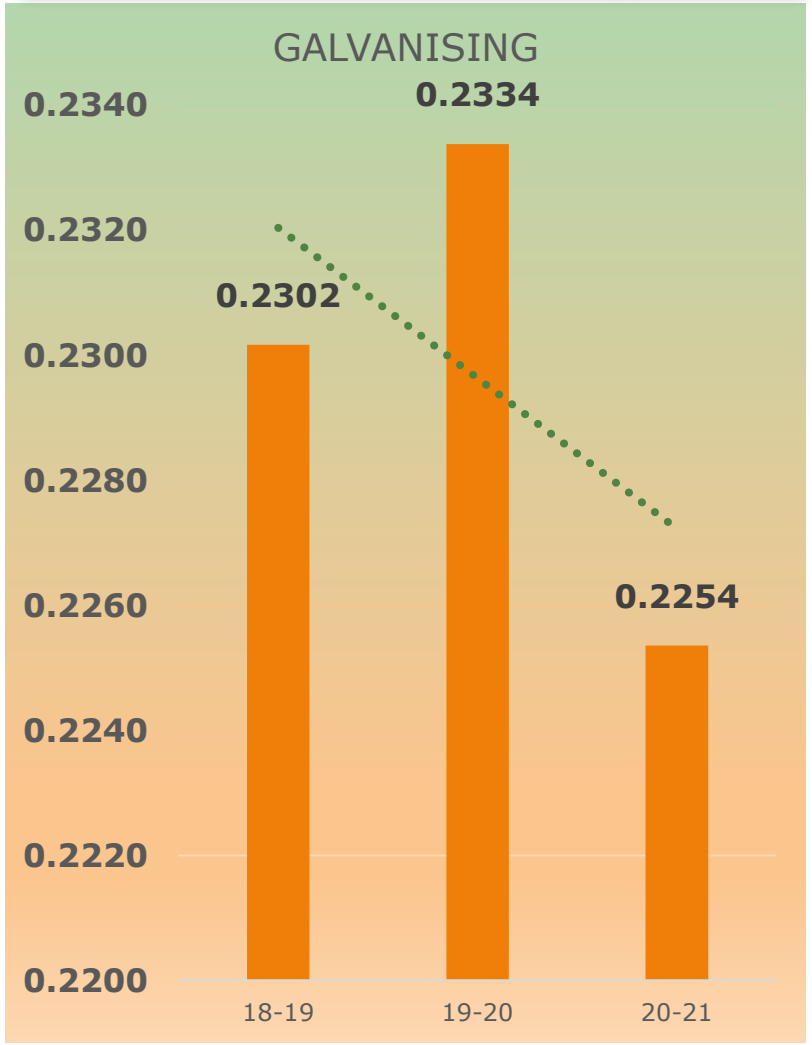
# SPECIFIC ENERGY CONSUMPTION (THERMAL AND ELECTRICAL TREND)



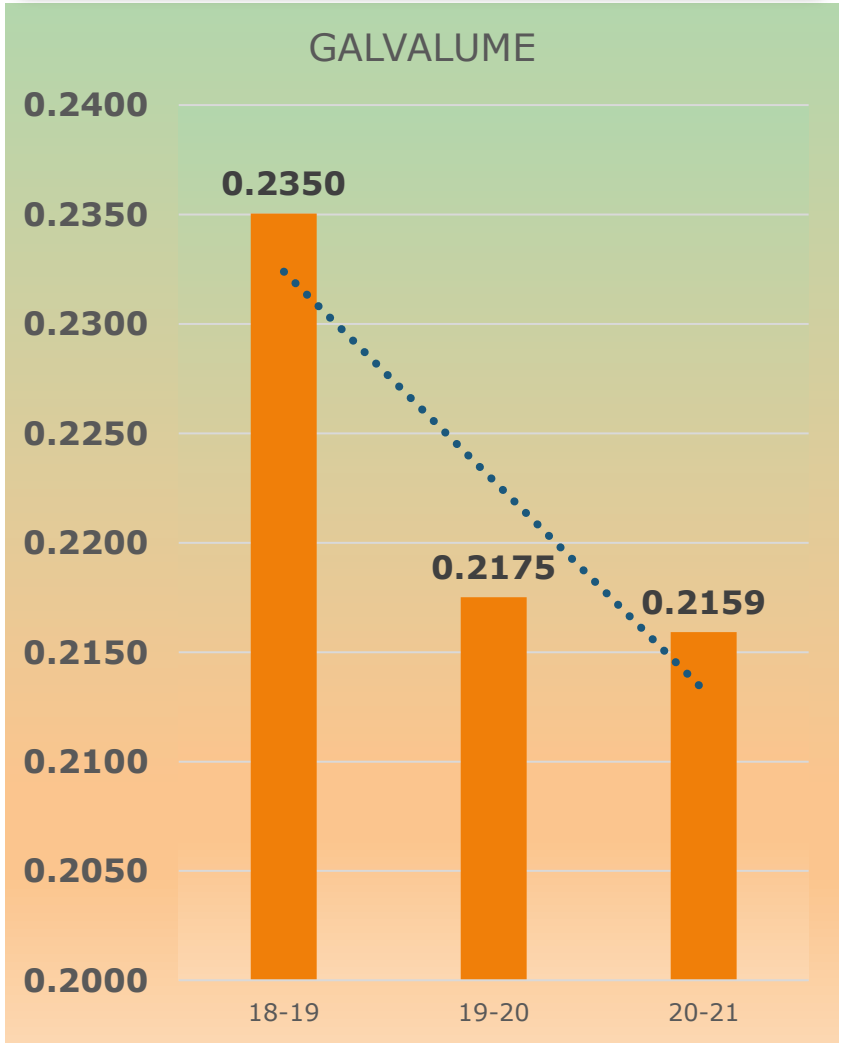



# PRODUCT SPECIFIC ENERGY CONSUMPTION IN CAL/MT

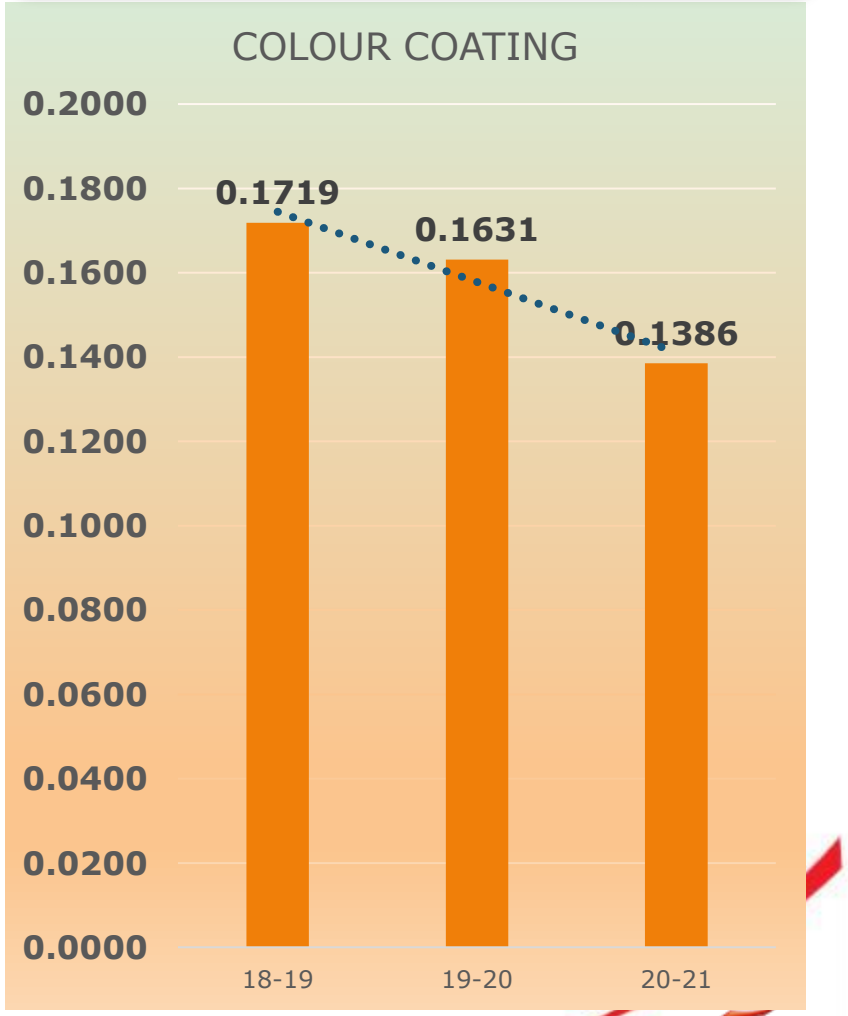
## IMPROVENT %




## IMPROVENT %




## IMPROVENT %



# ENCON MEASURES FOR IMPROVMENT

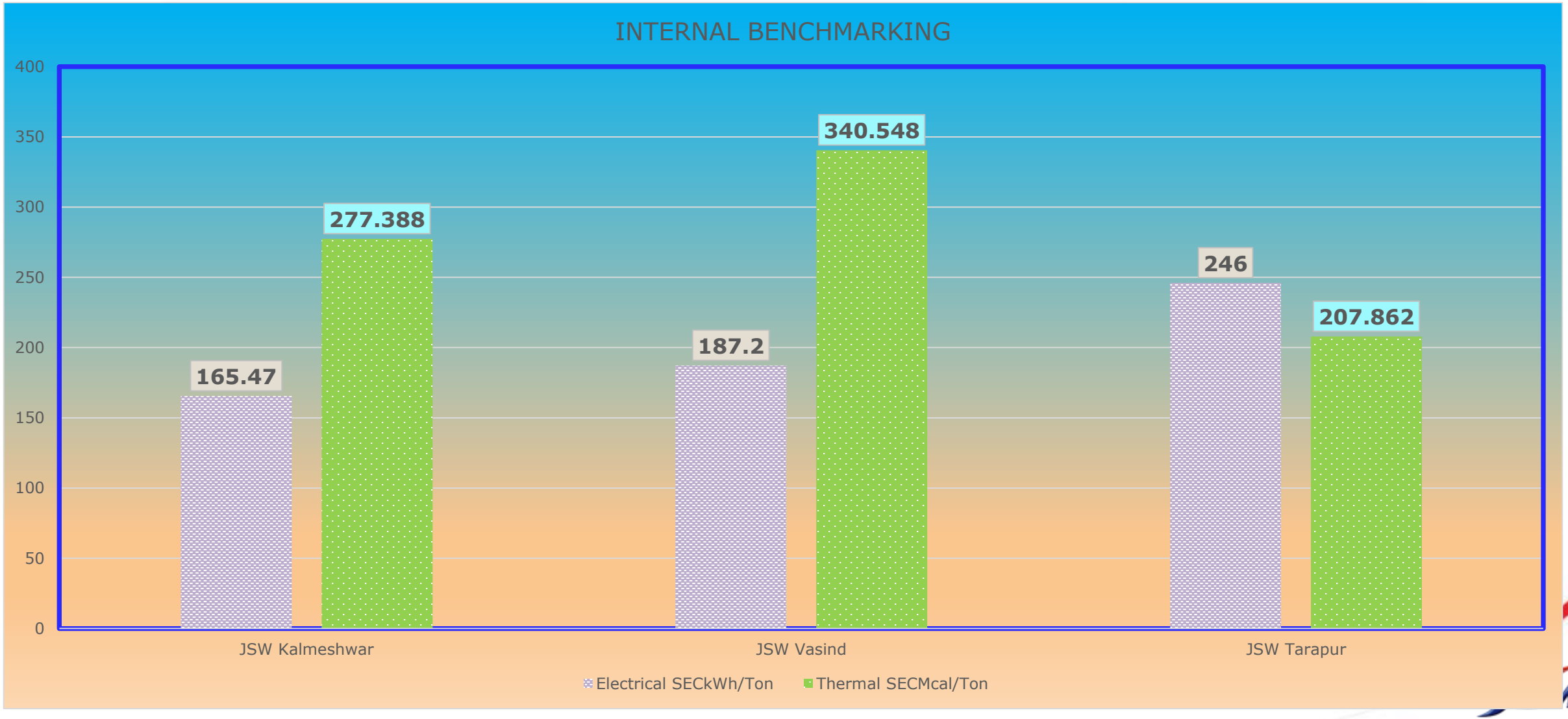
| S. No | Project Description FY 2020-21 | Savings (Lakhs kWh) | Savings Fuel (Million KCal) | Savings (Lakh Rs) | Investment (Million Rs.) |
|---|---|---|---|---|---|
| 1 | CCL2 line speed Enhancement from 100 MPM to 120 MPM capacity utilization during thinner gauge (Power 32 to 27kWh/Mt ) | 10 | 1920 | 142 | 1.50 |
| 2 | CCL1 line speed Enhancement from 45 MPM to 60 MPM capacity utilization during thinner gauge (Power 36 to 31 kWh/Mt) | 3.6 | 432 | 41.2 | 0.05 |
| 3 | Previously compressed air power was 27500 kWh per day for KLM plant now plant running at 25000 kWh per day by modification in piping circuit & VFD drives for compressor | 8.75 | | 61.25 | 1 |
| 4 | Galvalume Speed Enhancement of upto 180mpm. | | 505 | 21.107 | 10 |

# INTERNAL BENCH MARKING WITH SIMILAR PROCESS

| Sr No. | Equipment | CGL-2 | | | | | CGL1 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Conn. Load (KW) | Controlled through | Control Method | Power Cons./Day | | Conn. Load (KW) | Drive Status | Control Method | Power Cons./Day |
| 11 | Cold Well Motor | | 110 | Y-D | ON / OFF | 1750 | | 75 | Y-D | Open Loop | 1100 |
| 12 | Cooling Tower Fan | | 22 | DOL | Close Loop | 300 | | 22 | AC Drive | Close Loop | 250 |
| 12 | Entry Looper | | 132 | AC Drive | Part of Line Drive | 10 | | 55 | Hyd/ Y-D | Open Loop | 1100 |
| 13 | Exit Looper | | 132 | AC Drive | Part of Line Drive | 10 | | 55 | Hyd/ Y-D | Open Loop | 1100 |
| 14 | Entry Hyd Power Pack | | 18.5 | Dol/ Y-D | Open loop | | | 22 | DOL | Open Loop | |
| 15 | Exit Hyd Power Pack | | 18.5 | Dol/ Y-D | Open loop | | | 22 | DOL | Open Loop | |
| 16 | TLL/SPM Hyd Power Pack | | 22 | Dol/ Y-D | Open loop | 2100 | | 22 | DOL | Open Loop | 1800 |
| 17 | Quench Tank Pump | | 11 | AC Drive | Open Loop | | | 11 | DOL | Open Loop | |
| 19 | Compressor | | 160 | Y-D | Closed Loop | 3000 | | 75 | Y-D | Closed Loop | 1000 |

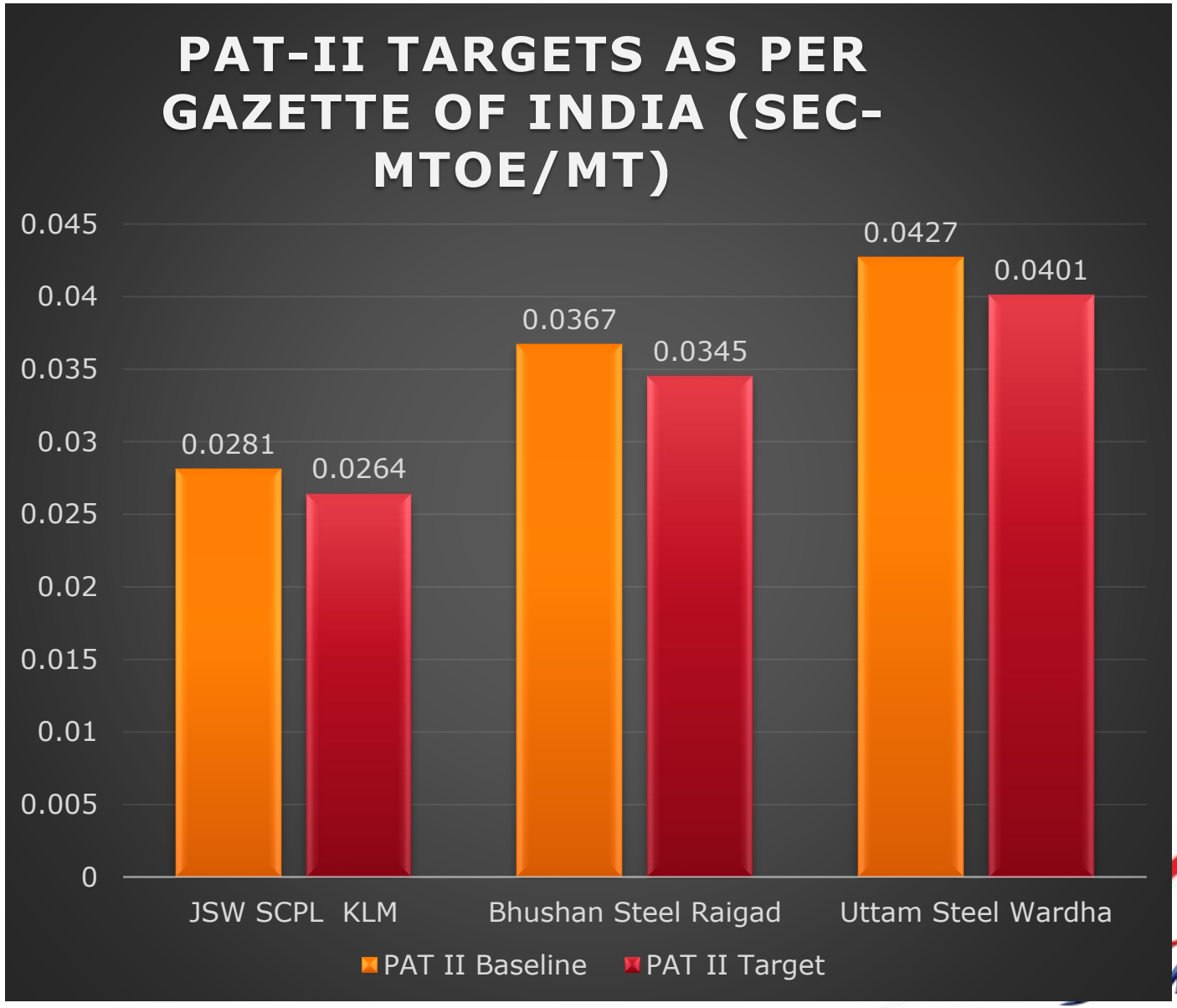
# SEC ELECTRICAL AND THERMAL INTERNAL BENCHMARKING

## INTERNAL BENCH MARKING WITHIN THE GROUP



# EXTERNAL BENCH MARKING

| | |
|---|---|
| 1 | Following the best historical data as Target |
| 2 | Internal bench marking with similar lines of the plant comparing the energy consumption |
| 3 | Comparing SEC of similar manufacturing like Tarapur, Vasind, Kalmeshwar Units and following the best Engineering practices |
| 4 | Comparing Energy consumption Data of similar manufacturing facilities in India |
| 5 | Usually follow recognized accepted good Engineering Practices |
| 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 FY22 | | | Energy & CO2 Target FY30 | | |
|---|---|---|---|---|---|
| Parameter | Unit | KLM | Parameter | Unit | KLM |
| Equivalent Production | MT | 1066218 | Equivalent Production | MT | 1066218 |
| Specific Energy Consumption | GCal/t | 0.415 | Specific Energy Consumption | GCal/t | 0.362 |
| Energy Consumption | GCal | 442481 | Energy Consumption | GCal | 385971 |
| CO2 Emission | tCO2 | 206846 | CO2 Emission | tCO2 | 77834 |

| Sl. No. | Target Parameter | UOM | Target for FY 22 | 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 |

# ROADMAP TO ACHIEVE GLOBAL BENCHMARK

## 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**

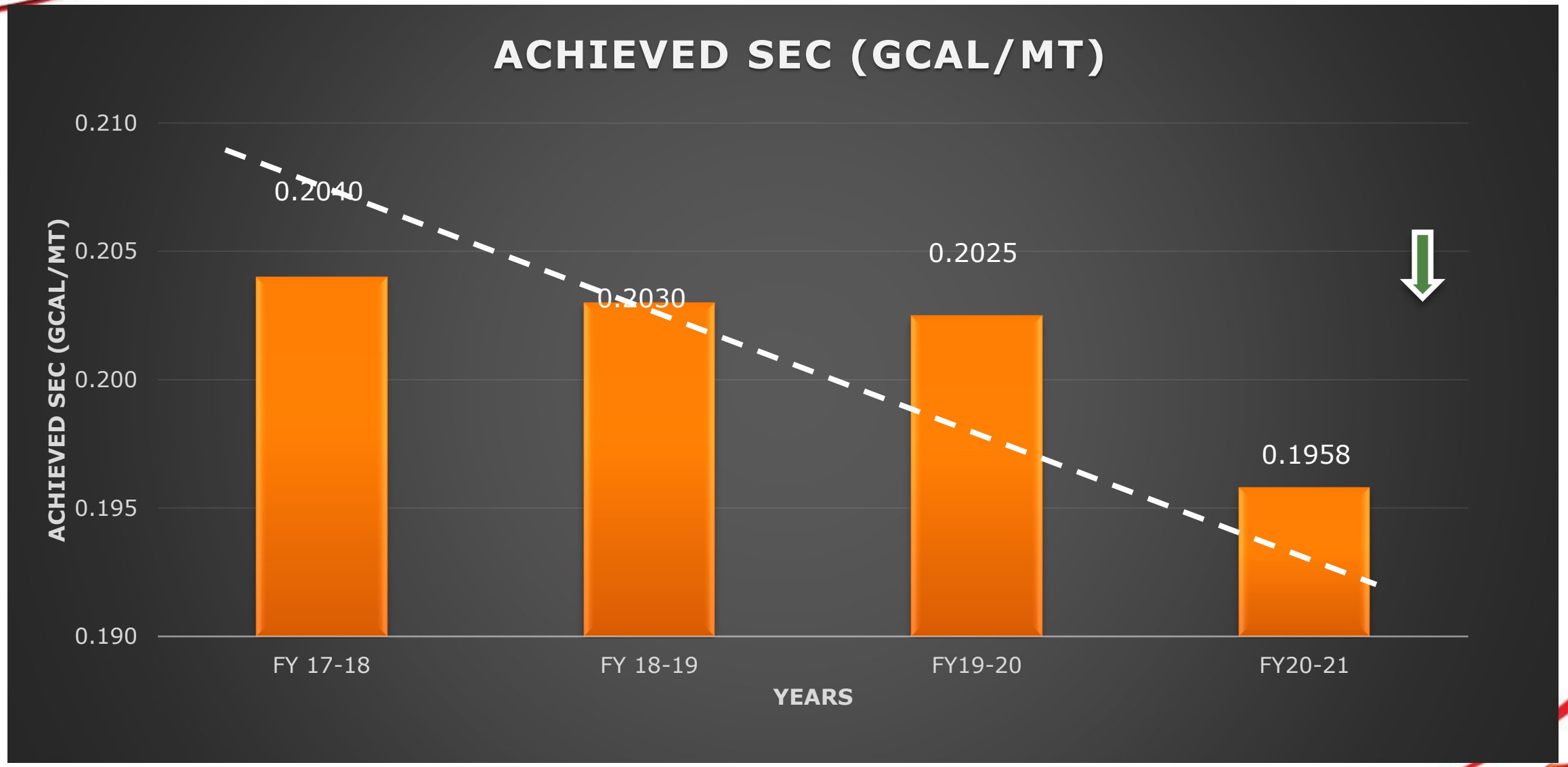
# MAJOR ENCON PROJECTS FY 2021-22

| Sr. No | Name of Project | Expected Benefit in Energy | Project Cost (Rs in Crs) |
|---|---|---|---|
| 1 | RPO Obligation compliance with Roof Top Solar Electrical Power (1+3 MWp) | Sustainability | 6.0 |
| 2 | 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 | 220 |
| 3 | Propane fired Tube Boiler | Pollution control & subsequently improve boiler efficiency w.r.t to present | 3.0 |
| 4 | Galvalume Speed Enhancement of 200mpm | Capacity utilization optimization & subsequently improve energy efficiency | 10.0 |
| 5 | DC to AC Conversion of CGL 1 Line | Saving of approx. 2 Lacs unit/ month | 4.50 |
| 6 | CCL2 line speed enhancement up to 150MPM | Saving of Approx. 10 lacs unit/Annum | 8.0 |
| 7 | Improving Efficiency of CGL1 Furnace | Reduction in Sp. Energy to 0.19 G Cal /MT from 0.23 G Cal/Mt | 9.00 |
| 8 | Energy Efficient IE3 Motors | Reduction in Electrical Power | 0.75 |
| | | **Total** | **261** |

# ENERGY SAVING PROECTS LAST THREE YEARS

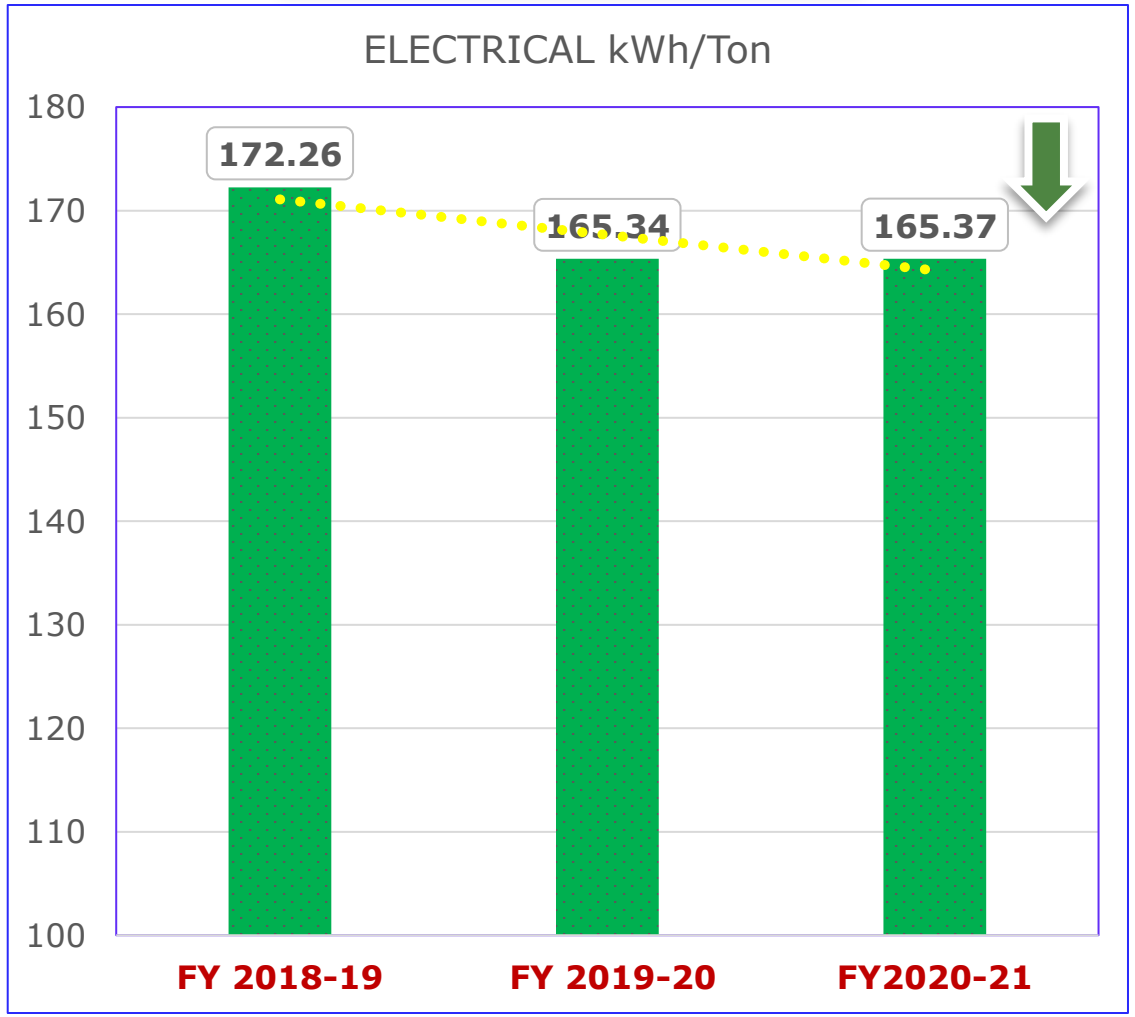
| Year | No. of energy saving projects | Investment INR million | Electrical saving (Million Kwh) | Thermal saving million (Kcal/Mtoe) | Savings (INR Million) | Impact on SEC (Electrical Thermal) |
|---|---|---|---|---|---|---|
| FY 2018-19 | 7 | 51.33 | 2.800 | 4345.88 | 21.34 | (Electrical Thermal) |
| FY 2019-20 | 15 | 32.82 | 3.390 | 5309.66 | 24.13 | (Electrical Thermal) |
| FY 2020-21 | 4 | 90.15 | 0.891 | 10756.17 | 53.02 | (Electrical Thermal) |

# REDUCTION IN SPECIFIC ENERGY CONSUMPTION ( GCAL/MT)

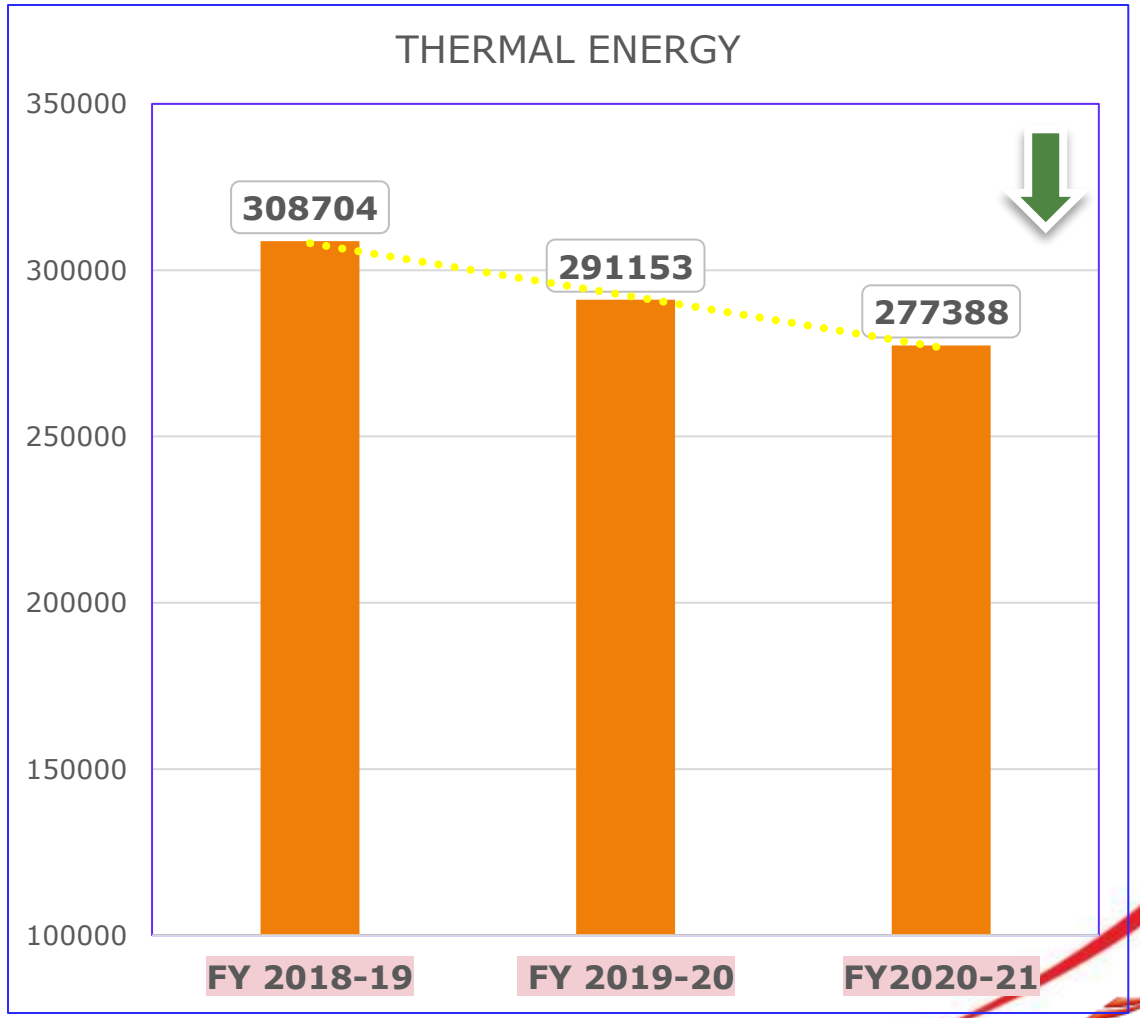


# REDUCTION IN SPECIFIC ENERGY

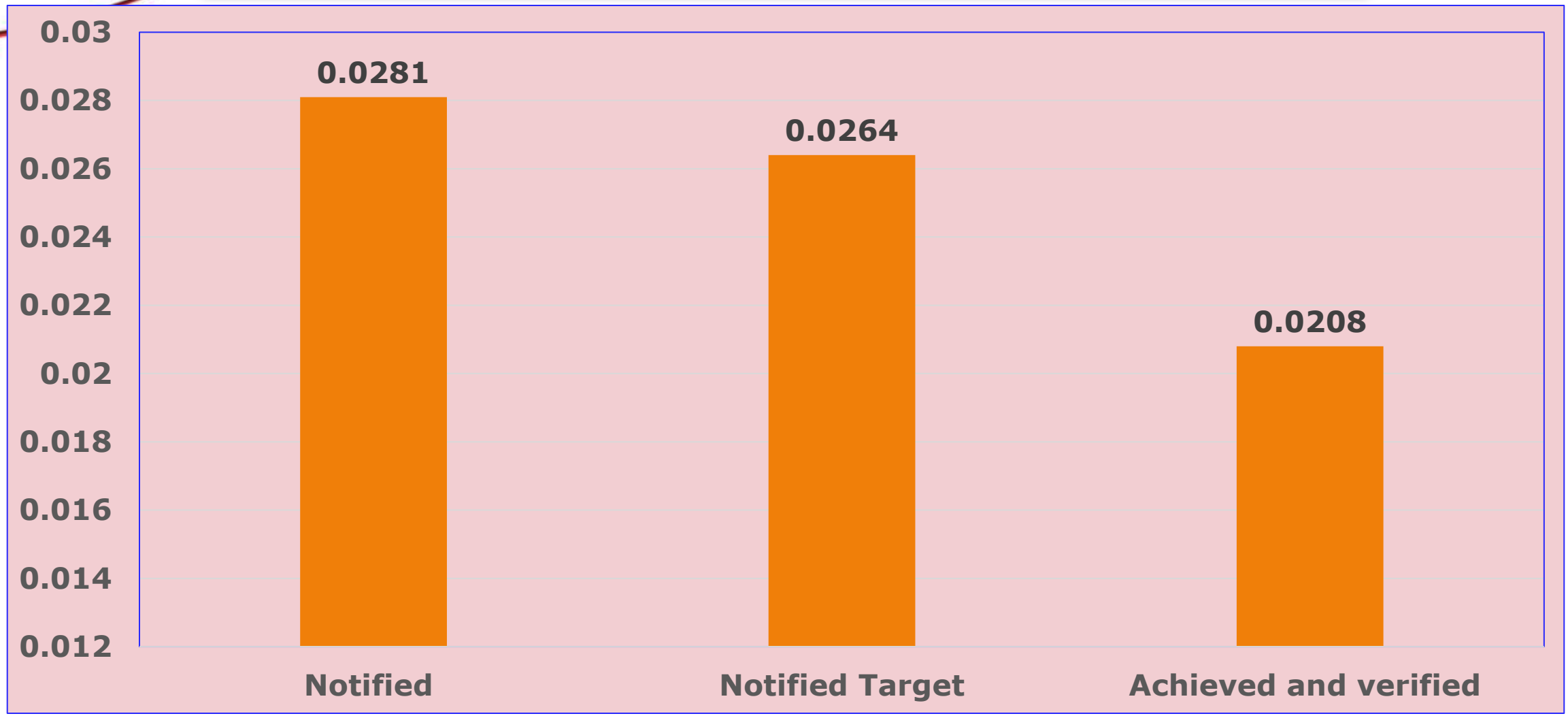
## ELECTRICAL KWH/TON




## THERMAL KCAL/TON



# PAT-2 ENERGY CONSUMPTION (MTOE/T)




## 4779-ESCERT RECOMMENDED/AWAITED

# INNOVATIVE PROJECT-UTILITIES(COMPRESSOR)

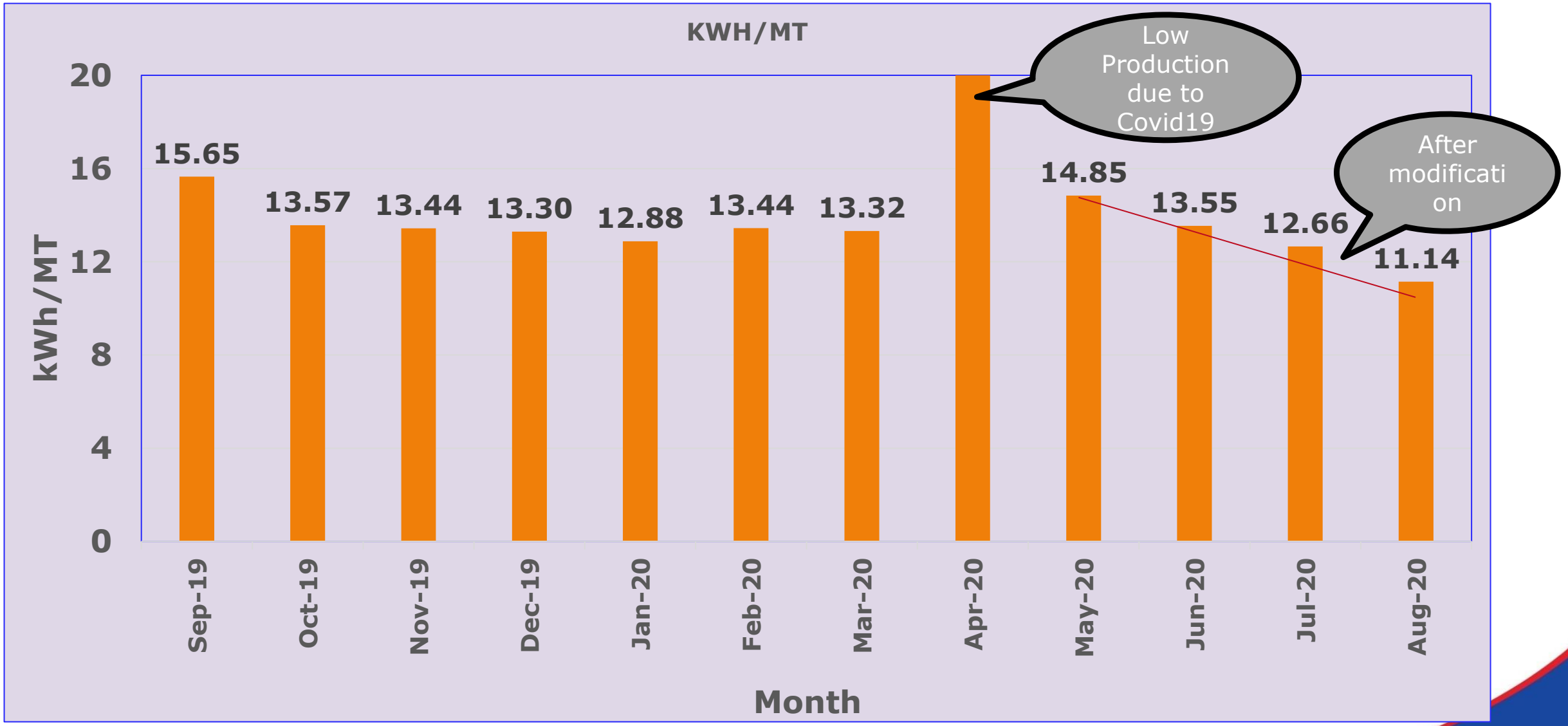
## BEFORE


**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**

## AFTER

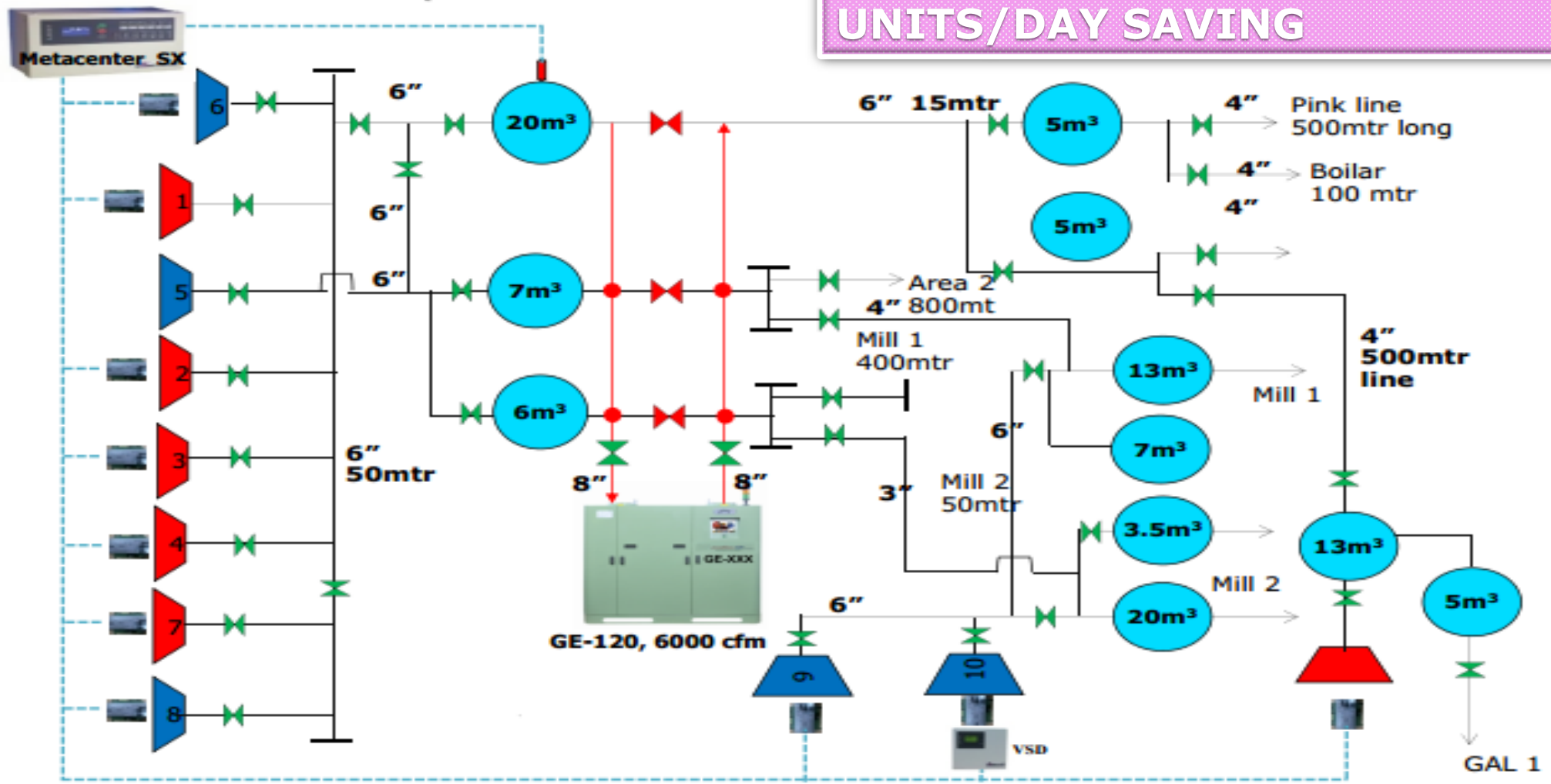
| | Before | After |
|---|---|---|
| 4000 CFM Comp. | 6.8 | 6.4 |
| Compressor-6 | 6.6 | 6.3 |
| Compressor-7 | 6.6 | 6.3 |
| Compressor-8 | 6.6 | 6.2 |
| MILL SD | 6.2 | 5.5 |
| MILL VFD | 6.2 | 5.2 |
| CCL-2 A | 6 | 5.2 & Stopped (Ready to start) |
| CCL-2 B | 6.5 | 5.3 & Stopped (Ready to start) |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

# Compressed Air Consumption Pattern

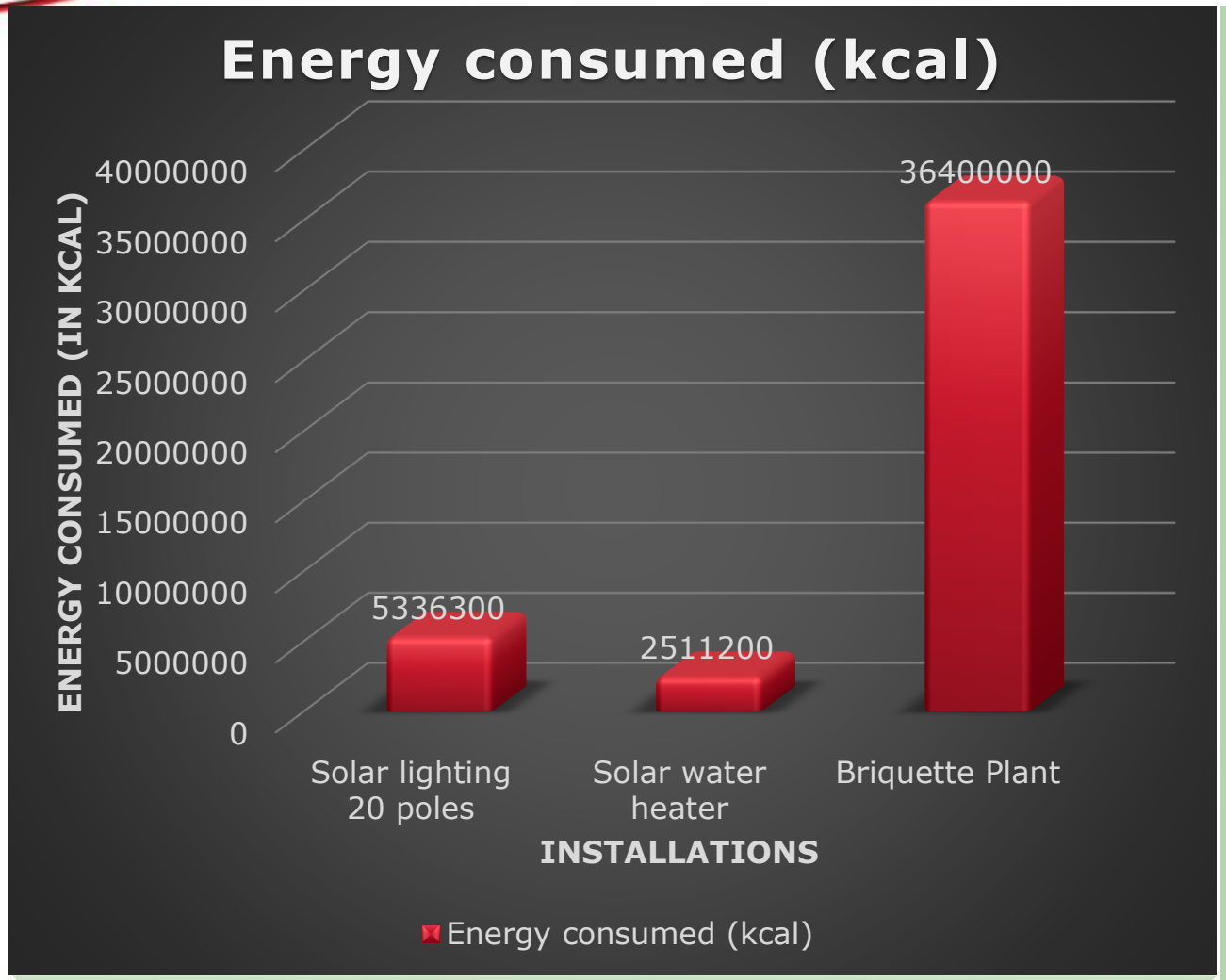


# INSTALLATION OF SUPPLY SIDE FLOW CONTROLLER

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



# RENEWABLE ENERGY USAGE




Renewable Energy from Solar Lighting =0.533 MTOE

Renewable Energy from Solar water Heater =0.2511 MTOE

Renewable Energy from Briquette Plant =3.6 MTOE

Total Energy Used in Plant =33,000 MTOE

% of Renewable Energy used = 0.133

- **Renewable Energy Usage= 0.133%**

# PROPOSED RENEWABLE ENERGY –SOLAR ROOF TOP 1 +3 MW

## INSTALLATION OF SOLAR ROOF TOP 1MWP' BY JAN 22

**Total proposed solar power AC capacity : 4 MWp**
**1MWp Generation 1520278 units/year**

**Open Access power consumption trend before improvement : 15-16 MWh/hr**

**Open Access power consumption trend after improvement : 13-14 MWh/hr**

**Per unit cost of Open Access power : 6.5 INR**
**Per unit cost of Solar power : 3.6 INR**

**Savings per year : 1,66,40,203 INR**

**RPO obligation 110.9 lakh kWh.**
**Solar and non solar.**

# WASTE UTILIZATION AND MANAGEMENT

## 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

**2021** – Modification of STP Plant

**2021** – Installation of Propane Fired Boiler

**2022** – Installation Of Roof Top Solar Power

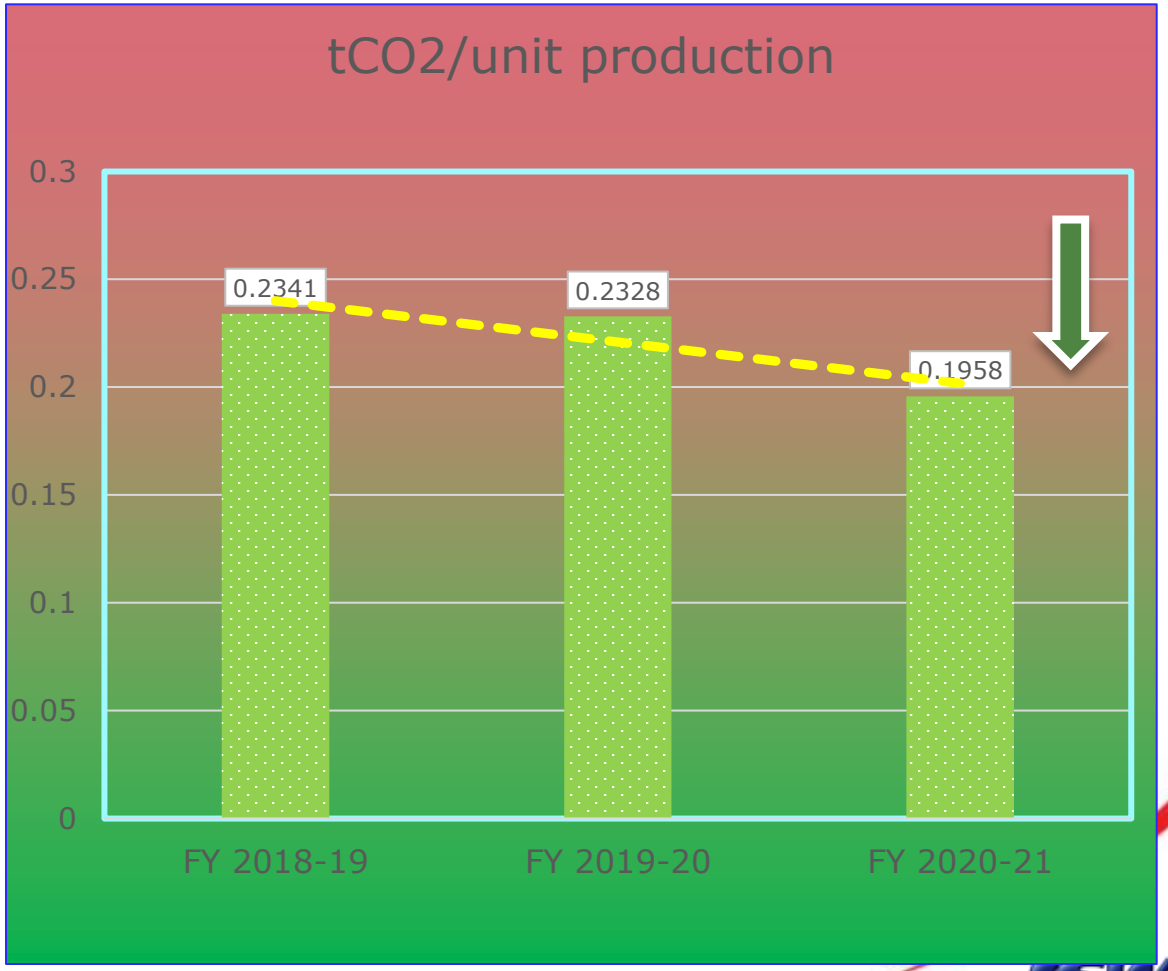
# WASTE UTILAZATION AND MANAGEMENT

| Sl. No. | Parameter | UOM | FY 21 YTD (Actuals) | Target for FY 22 | Cumm FY 22 Actual | Target for 2030 |
|---|---|---|---|---|---|---|
| 1. | Specific fresh water consumption | m3/t (product) | 0.57 | 0.50 | 0.43 | Water Neutrality |
| 2 | Waste recycled/utilised | % | 99 | 97 | 99.5 | 99 |

# GHG INVENTORISATION

## Reduction In GHG Intensity

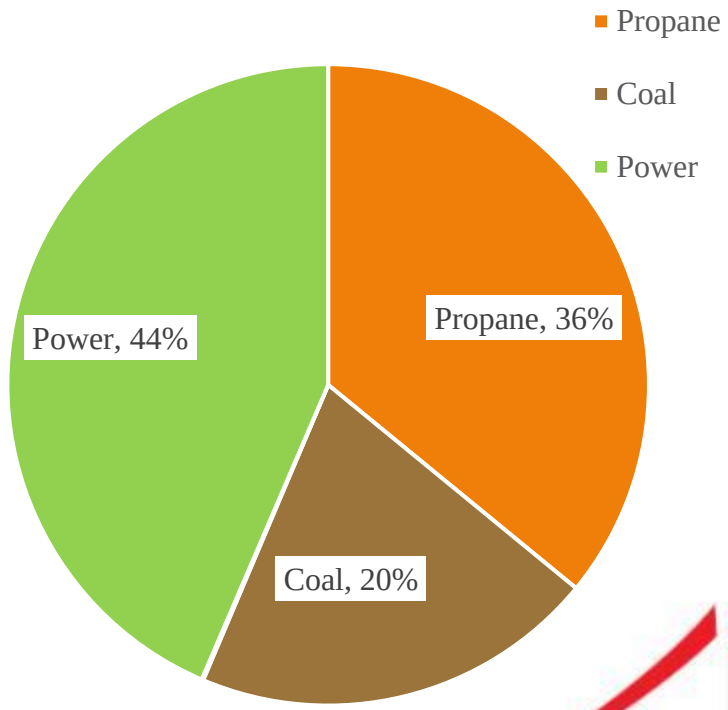
| Year | Scope 1 (tCO2) | Scope 2 (tCO2) | TOTAL Emissions (tCo2) | Production (MT) | GHG Intensity |
|---|---|---|---|---|---|
| 18-19 | 62038 | 94035 | 156073 | 666705 | 0.2341 |
| 19-20 | 69421 | 97269 | 166690 | 715902 | 0.2328 |
| 20 -21 | 66882 | 90209 | 157091 | 668960 | 0.1958 |



# 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 |



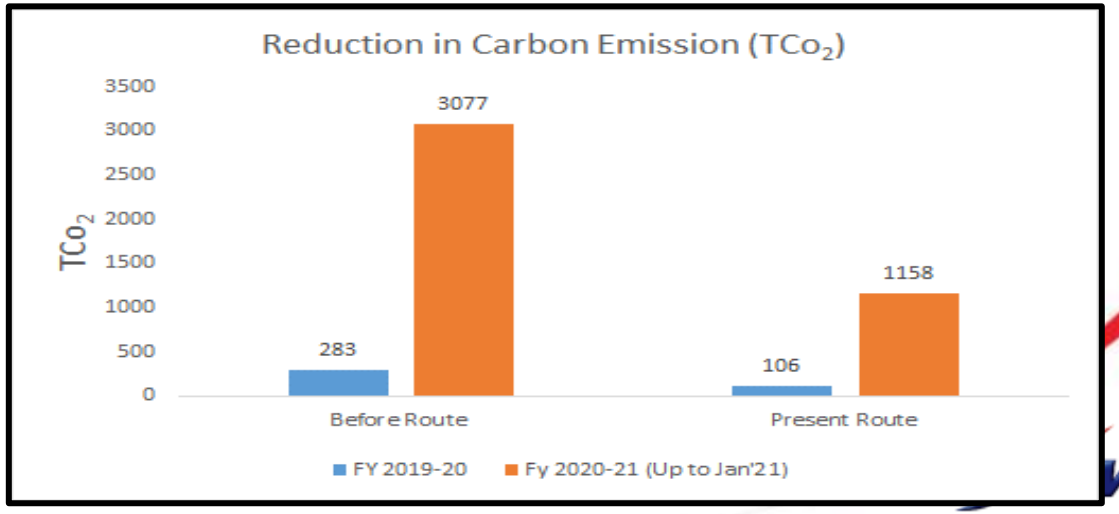
# GHG INVENTORISATION

## SCOPE- 3 :-Initiatives For Reduce Carbon Emission

**Strategic decisions to reduce carbon emission:-** Mutually agreement done between TATA Steel & JSW to provide HR Coils as per nearest Plant Location.

| 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 | 3077 | 1158 |



# 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 |


# MANAGEMENT COMMITMENT TOWARDS CARBON NEUTRALITY

## CO2 EMISSION REDUCTION

### 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%**

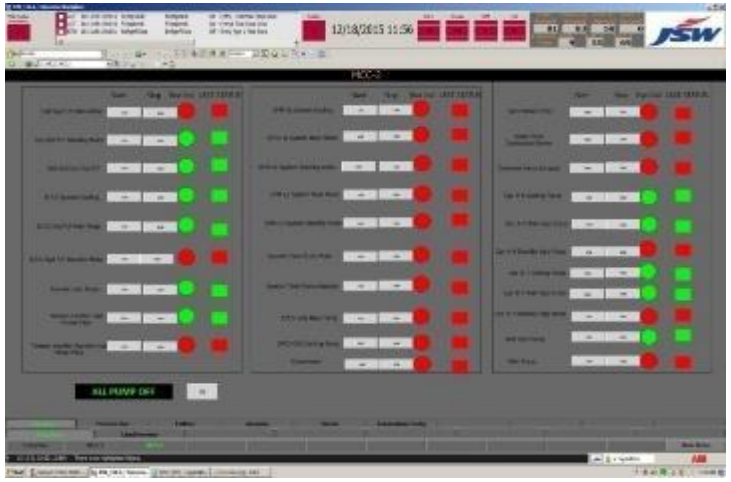
- Carbon sequestration through additional plantation
- Emission offsets through purchase of voluntary emission reductions (VERs) or through emission reducing programme of activities like project of distribution of multifuel fired cookstoves to rural/ tribal households undertaken by JSW Foundation

**2029-30 onwards**

# 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

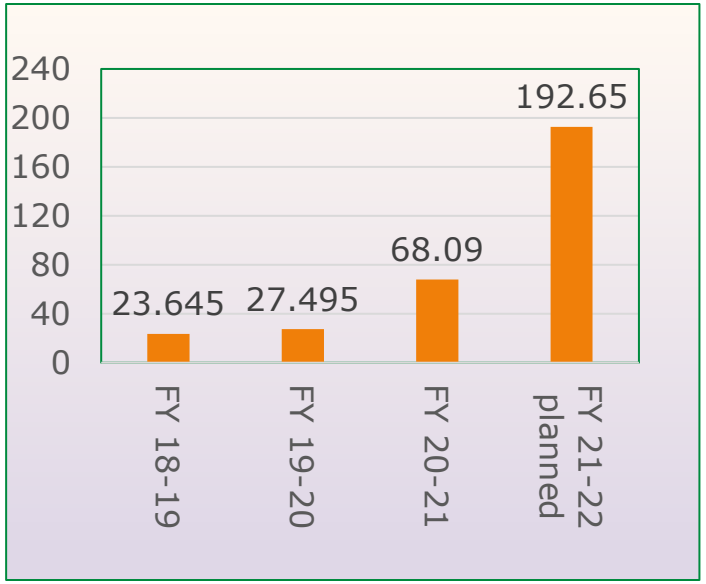
## Organized Urja Conclave for Energy Efficient Solutions (350 School Participated)




## "Nukkad Natak" Organised on National Energy Week

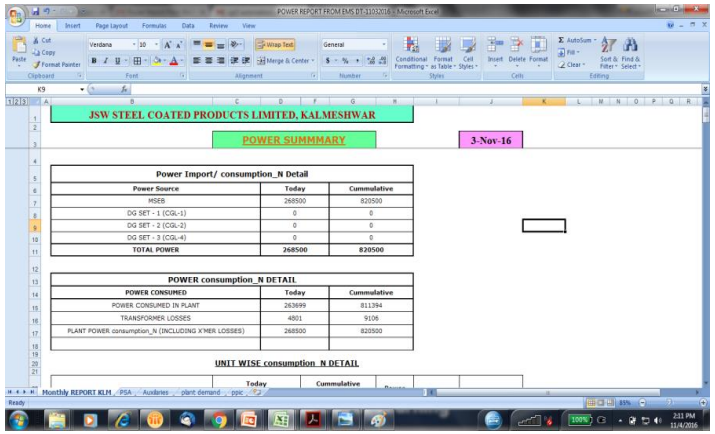

# SEPARATE BUDGET ALLOCATION FOR ENERGY CONSERVATION

| 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 |




| Sr. No | Name of Project | Expected Benefit in Energy | Project Cost (Rs in Crs) |
|---|---|---|---|
| 1 | 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 | 140.00 |
| 2 | VFD Drives for all Pumps and Blowers Application | Saving of Approx. 15 lacs of unit/Annum | 0.65 |
| 3 | Conversion of Propane with RLNG | Saving in Fuel Cost & sustainability | 30.00 |
| 4 | Redesigning of utility pipeline | Saving in pressure drop & transit losses | 2.00 |
| 5 | DC to AC Conversion of CGL 1. Line | Saving of approx. 2 Lacs unit/ month | 4.50 |
| 6 | Decentralization of Compressors | Saving of Approx. 10 lacs unit/Annum | 0.35 |
| 7 | Improving Efficiency of CGL1 Furnace | Reduction in Sp. Energy to 0.19 G Cal /MT from 0.23 G Cal/Mt | 9.00 |
| 8 | Energy Efficient IE3 Motors | Reduction in Electrical Power | 0.75 |
| 9 | RPO Obligation compliance with Roof Top Solar Electrical Power (1 MW) | Sustainability | 6.0 |
| | | **Total** | **192.7** |

# Awareness Creation & Involvement of Employees for Energy Conservation



JSW STEEL COATED PRODUCTS LIMITED, KALMESHWAR

POWER SUMMMARY

3-Nov-16

| Power Import/ consumption_N Detail | | |
|---|---|---|
| Power Source | Today | Cummulative |
| MSEB | 268500 | 820500 |
| DG SET - 1 (CGL-1) | 0 | 0 |
| DG SET - 2 (CGL-2) | 0 | 0 |
| DG SET - 3 (CGL-4) | 0 | 0 |
| TOTAL POWER | 268500 | 820500 |

| POWER consumption_N DETAIL | | |
|---|---|---|
| POWER CONSUMED | Today | Cummulative |
| POWER CONSUMED IN PLANT | 263699 | 811394 |
| TRANSFORMER LOSSES | 4801 | 9106 |
| PLANT POWER consumption_N (INCLUDING X'MER LOSSES) | 268500 | 820500 |

UNIT WISE consumption_N DETAIL

Today | Cummulative

**Daily Power Report Via Mail**

TÜV NORD

CERTIFICATE

for the Energy Management System as per
EN ISO 50001 : 2011

JSW STEEL COATED PRODUCTS LIMITED
A-10/1, MIDC Industrial Area,
Kalmeshwar, Dist. Nagpur - 441 501,
India

Manufacturing of Cold Rolled, Galvanized, Galvalume, Color Coated, HRPO, HRSP, Plain, Corrugated, Profiled Sheets and Coils.

DAkkS

**Implementing ISO 50001**

Steel Coated Products Ltd

A - 10/1, MIDC Industrial Area, Kalmeshwar, Nagpur - 441 501

ENERGY POLICY

ISO 50001:2011

We are committed to efficient utilization of all types of energy.

We achieve this by :

- Promoting awareness of Energy Conservation among all employees.
- Monitoring and controlling, consumption of all types of energy.
- Conservation of energy through various improvement initiatives.
- Conducting energy audits periodically.
- Use of energy efficient technology.
- Promoting the use of non-conventional energy.

1st April 2015

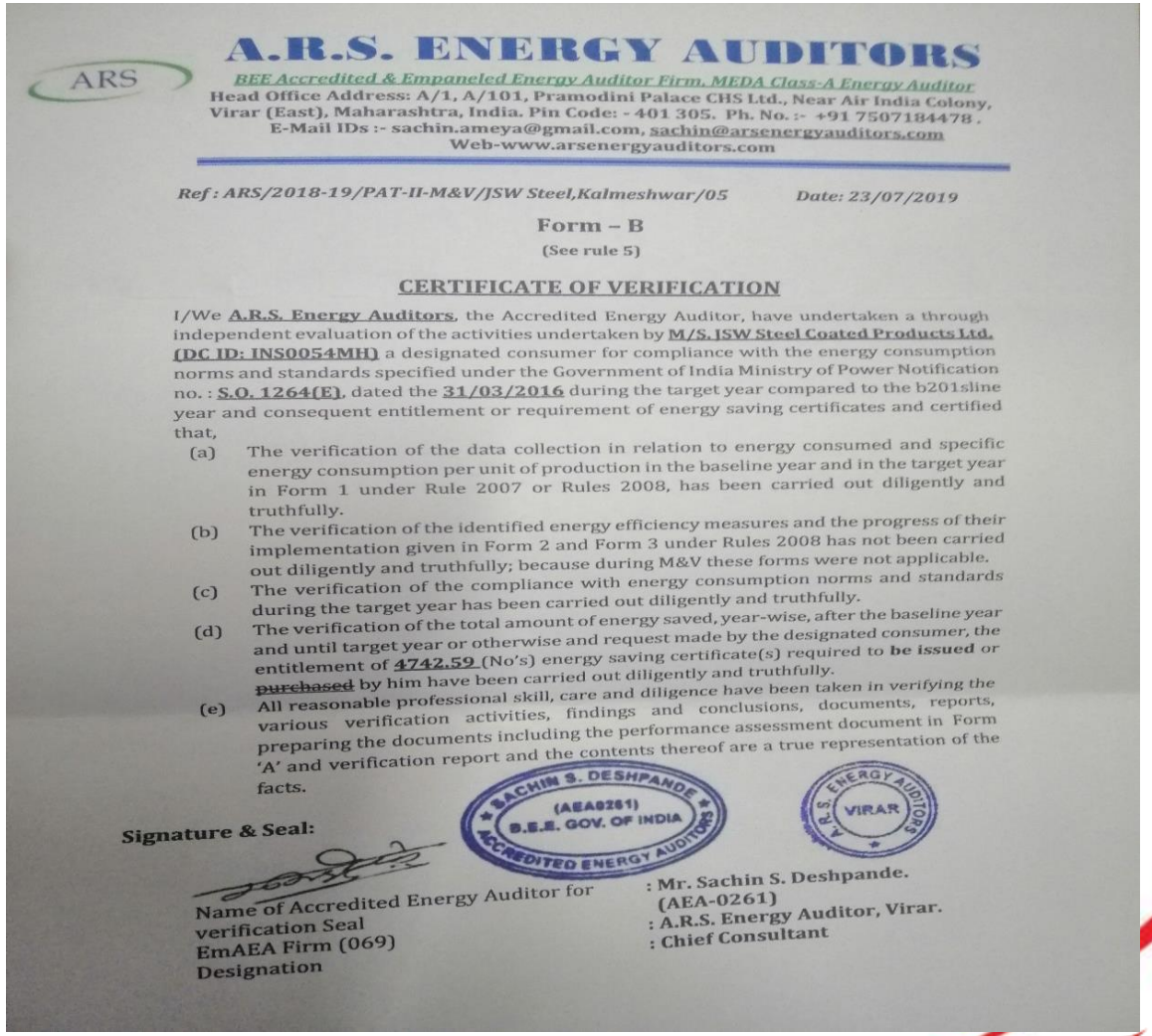
Dileep Bhatt
President (Coated Products)

**Display of Energy Policy**

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

# Major Achievements for Energy Excellence

| Year | PAT CYCLE | NECA Awards | MEDA Awards |
|---|---|---|---|
| 2019 | | Certificate of Merit | 2nd Position |
| 2020 | | | 1st Position |
| | 4779 ESCerts Recommended during M&V audit against PAT-II | | |



**A.R.S. ENERGY AUDITORS**

ARS

*BEE Accredited & Empaneled Energy Auditor Firm, MEDA Class-A Energy Auditor*
Head Office Address: A/1, A/101, Pramodini Palace CHS Ltd., Near Air India Colony, Virar (East), Maharashtra, India. Pin Code: - 401 305. Ph. No. :- +91 7507184478 .
E-Mail IDs :- sachin.ameya@gmail.com, sachin@arsenergyauditors.com
Web-www.arsenergyauditors.com

*Ref : ARS/2018-19/PAT-II-M&V/JSW Steel,Kalmeshwar/05* *Date: 23/07/2019*

**Form – B**
(See rule 5)

**CERTIFICATE OF VERIFICATION**

I/We A.R.S. Energy Auditors, the Accredited Energy Auditor, have undertaken a through independent evaluation of the activities undertaken by M/S. JSW Steel Coated Products Ltd. (DC ID: INS0054MH) a designated consumer for compliance with the energy consumption norms and standards specified under the Government of India Ministry of Power Notification no. : S.O. 1264(E), dated the 31/03/2016 during the target year compared to the b201sline year and consequent entitlement or requirement of energy saving certificates and certified that,

(a) The verification of the data collection in relation to energy consumed and specific energy consumption per unit of production in the baseline year and in the target year in Form 1 under Rule 2007 or Rules 2008, has been carried out diligently and truthfully.

(b) The verification of the identified energy efficiency measures and the progress of their implementation given in Form 2 and Form 3 under Rules 2008 has not been carried out diligently and truthfully; because during M&V these forms were not applicable.

(c) The verification of the compliance with energy consumption norms and standards during the target year has been carried out diligently and truthfully.

(d) The verification of the total amount of energy saved, year-wise, after the baseline year and until target year or otherwise and request made by the designated consumer, the entitlement of 4742.59 (No's) energy saving certificate(s) required to **be issued** or ~~purchased~~ by him have been carried out diligently and truthfully.

(e) All reasonable professional skill, care and diligence have been taken in verifying the various verification activities, findings and conclusions, documents, reports, preparing the documents including the performance assessment document in Form 'A' and verification report and the contents thereof are a true representation of the facts.

**Signature & Seal:**

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

A.R.S. ENERGY AUDITORS VIRAR

Name of Accredited Energy Auditor for verification Seal : Mr. Sachin S. Deshpande.
EmAEA Firm (069) : (AEA-0261)
Designation : A.R.S. Energy Auditor, Virar.
: Chief Consultant

# Making Steel is our Profession……

# ……Generating Smiles is our Passion