THE KCP LIMITED CEMENT UNIT-II, RAMAKRISHNAPURAM

25th National Award for

"Excellence in Energy Management 2024"

10th – 12th September 2024

LEADER

SRI.V.MADHUSUDANA RAO
PLANT HEAD

TEAM MEMBERS::

R.VARAPRASADA RAO-DGM(E&I)
AVRG BHAVANARAYANA-DGM(QC)
V.SRIKANTH-AGM(MECH)

OUR MANAGMENT PROFILE

Sri. VELAGAPUDI RAMAKRISHNA
Founder-KCP Group of Companies

Dr. V.L INDIRA DUTT
Chairperson & Managing Director

Dr. V.L DUTT
Executive Chairman

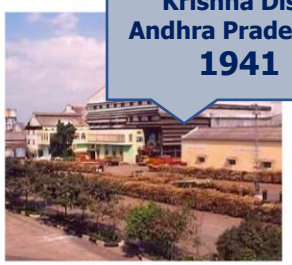
- **KCP's Ultimate goal is to achieve the status of "Greenest Cement Plant" among all cement units in India and be the role model.**

Smt. V. KAVITHA DUTT
Joint Managing Director

About “The KCP Limited”

“Celebrating 83 years of success”

1941 — 800TCD sugar plant at Vuyyuru, Krishna Dist. Andhra Pradesh in 1941



1955 — Heavy Engineering Plant I, setup at Tiruvottriyur, Chennai in 1955

1958 — India’s first dry process cement plant at Macherla in 1958

1995 — Fives Cail-KCP for the design and manufacture of Sugar Plants in 1995

1999 — KCP Vietnam Industries Limited, The KCP Limited setup to manufacture sugar –

1999 — Hydel Power Division (8.25mw) setup at Nekarikallu in 1999

2006 — Wind power (3.25mw) Tirunelveli in Tamilnadu in 2006

2011 — Greenfield Cement Plant Commissioned at Muktyala, AP with an Installed capacity of 1.86 MTPA in 2011

2013 — Commissioning of 1.15 MW Solar at Muktyala Cement Plant in 2013

2015 — Commissioning of 18.00 MW CPP at Muktyala Cement Plant in 2015

2016 — Hotel Mercure Hyderabad KCP 2016

2019 — Expansion of cement production capacity at Muktyala from 1.86 MTPA to 3.52 MTPA - 2019

2022 — Arakkonam Packing Terminal 2022

Mar’2025 — 16.0MW WHRS under execution. Commissioning in Mar’2025

“Legacy Continues”

OUR UNIT MILESTONES

MILESTONE

FY 2024

FY2024-25: 16MW WHRS,Line-1 up gradation, Cooler-2 Modification Under Execution stage

FY 2023

Introduced Premium Product Super Sreshtaa, Line-2 AFR System Commissioned

FY 2022

Recorded Lowest Clinker Power Consumption 42.06 kwh/MT of Clinker

FY 2020 & 21

Recorded National Lowest Clinker Power Consumption 42.62 kwh/T. Clinker.

FY 2018 & 19

Line-2 Plant Erection & commissioned, Total Capacity Clinker-3.06 MTPA & Cement-3.52 MTPA

FY 2017

Recorded National Lowest Clinker Power Consumption43.32 kwh/MT of Clinker

FY 2015 & 16

1x18 MW CPP and Brick Plant Commissioned

FY 2013

1.15MWP India's First Captive Solar Power Plant commissioned

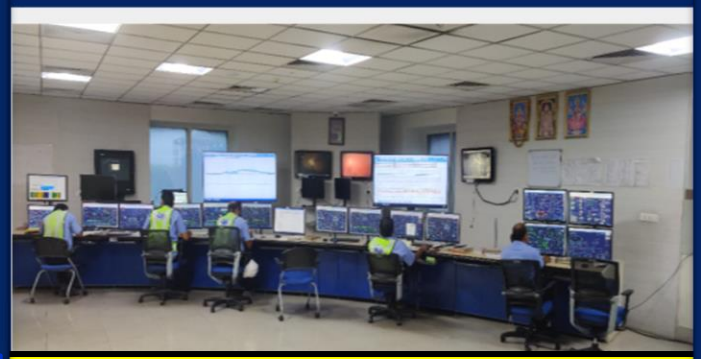
FY 2011

Line-1 Commissioned Capacity Clinker-1.32 MTPA, Cement-1.52 MTPA

1. Energy Efficient Motors
2. More than 60% Motors are VFD operated
3. All Process Fans with VFD and w/o Damper
4. Robotic Lab with XRF,XRD &PSA

KCP's STATE OF ART TECHNOLOGY

KHD-PH 8864-6 STAGE



CCR- FLS AUTOMATION

FLS ROBOTIC LAB

LOESCHE LM-46.4

KHD-PSC3-103.12T

GEBR. PFEIFFER
MPS 4500B

ELECTRICAL ENERGY CONSUMPTION
THERMAL ENERGY CONSUMPTION
ENVIRONMENT EMISSIONS

REDUCTION

INCREASE

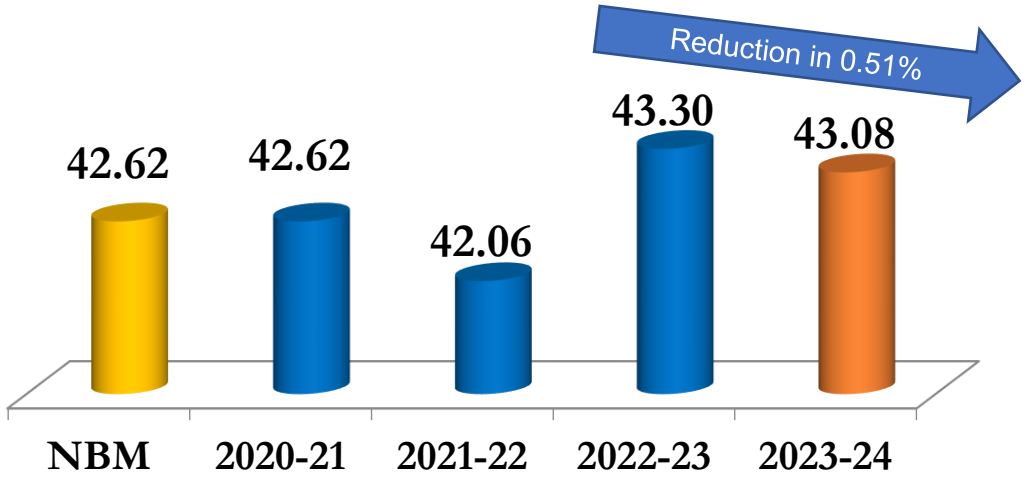
SYSTEM AVAILABILITY
EQUIPMENT RELIABILITY
CONSISTENT QUALITY

THE K C P LIMITED, CEMENT UNIT-II
MUKTYALA – 3.52 MTPA

LOESCHE
LM-53.3+3 C/S

Electrical Energy Performance

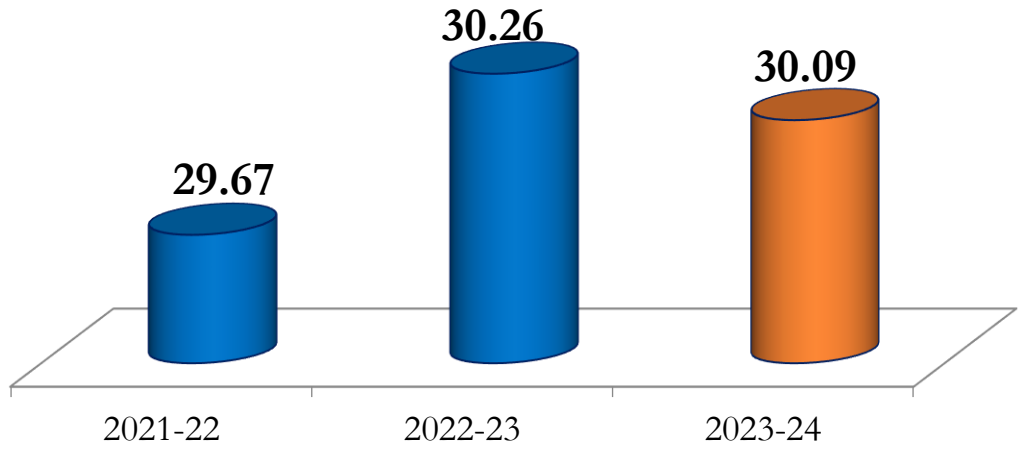
Specific Power Consumption, Kwh/ T. Clinker



Increase in Sp.Power is due to …

1. Increase in clinker C3S to produce RHPC and SS.
2. Raw mix LSF increased led to use of more high grade Limestone. Hence, RM grinding power increased.

Cement Grinding Specific Power Consumption, Kwh/T.Cement

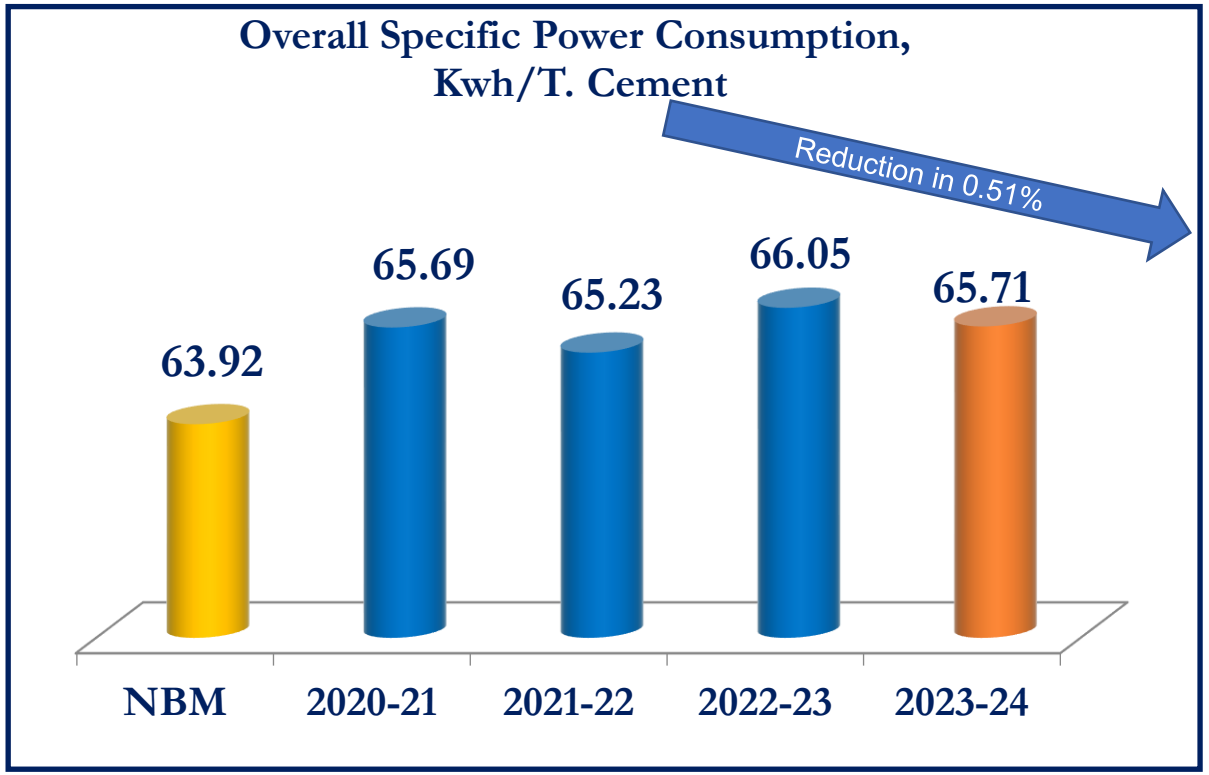


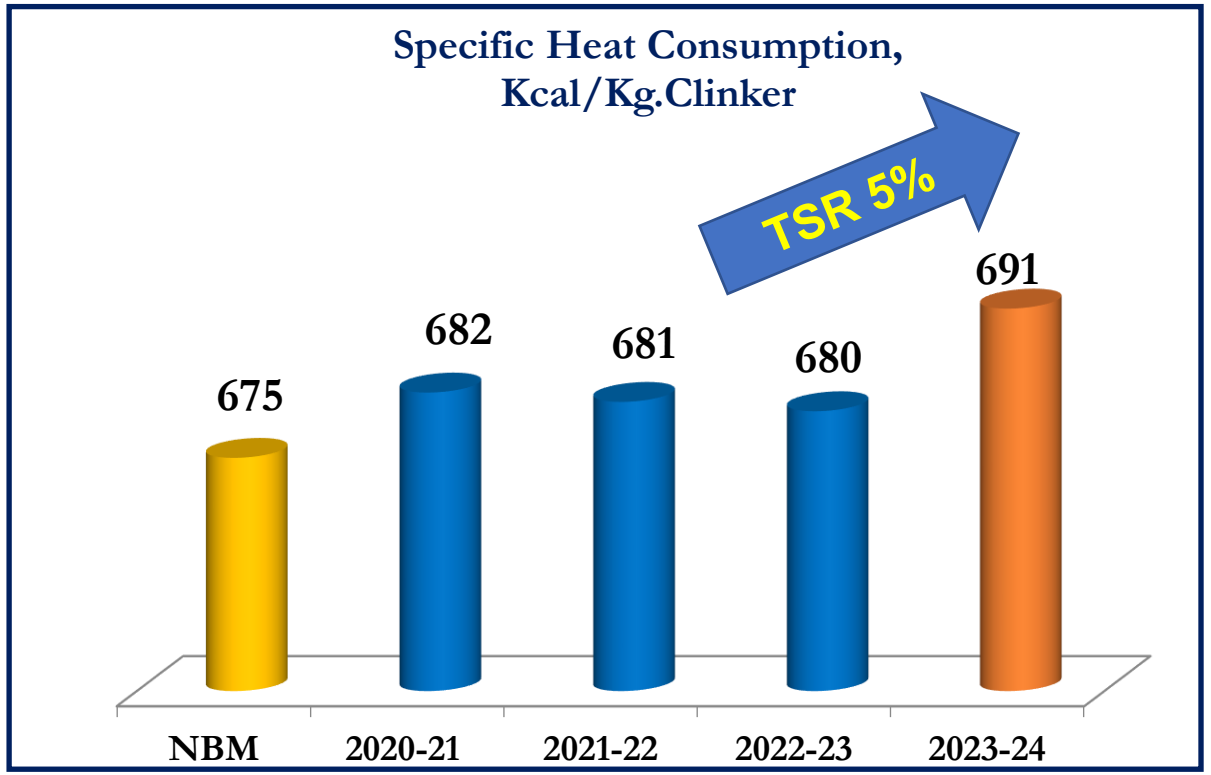
Increase in Sp.Power is due to …

1. Introduction of high blain(+350m2/Kg) premium products-Super Shrestaa & RHPC

Sp. Power is combined for both Lines

Electrical & Thermal Energy Performance





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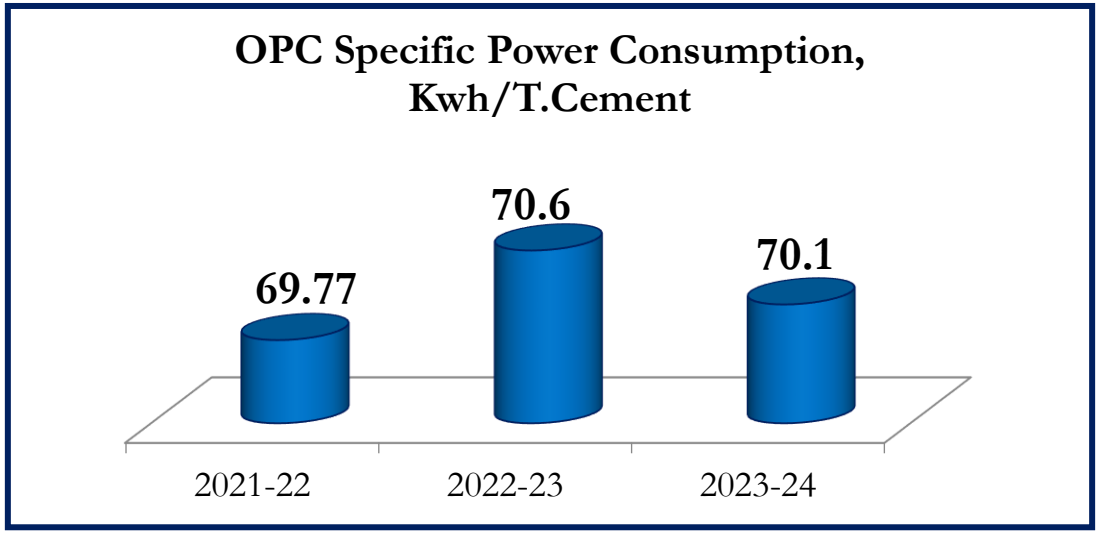
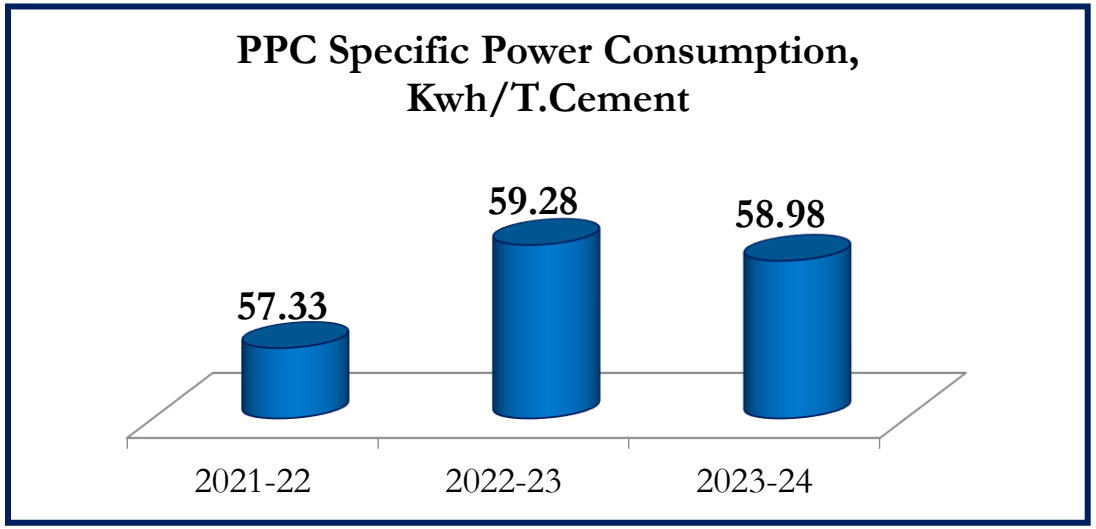
Increase in Sp.heat Consumption due to…

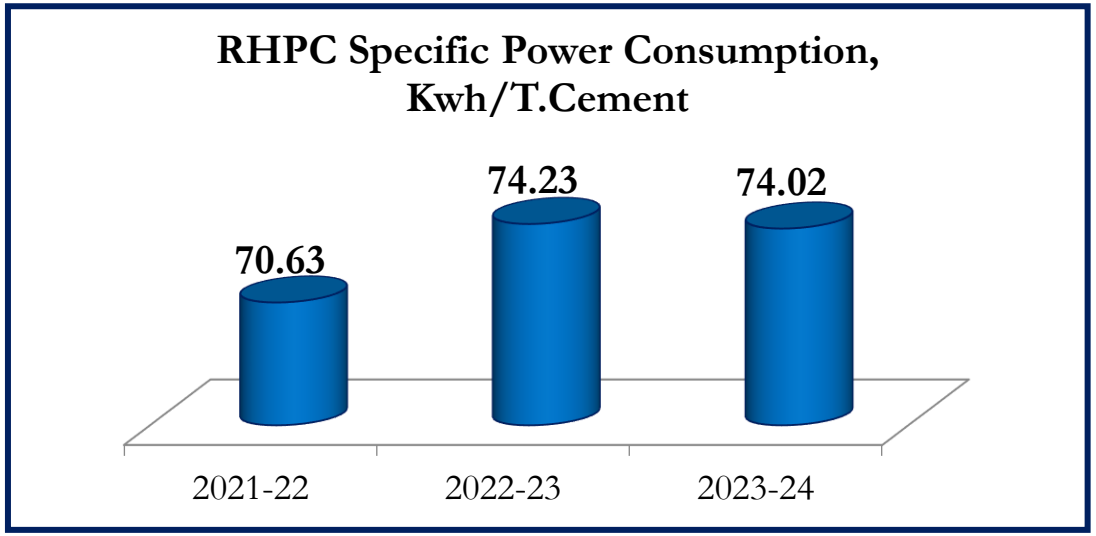
1. Usage of green fuel increased by around 5% in line-2

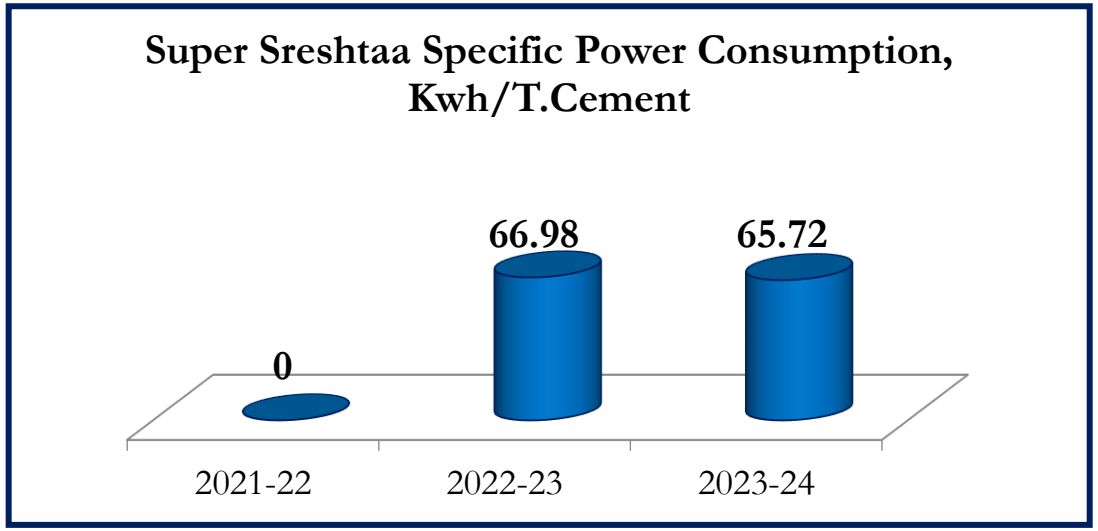
Sp. Power & Sp.Thermal Energy is combined for both Lines

Product wise Energy Performance in Last 3 years



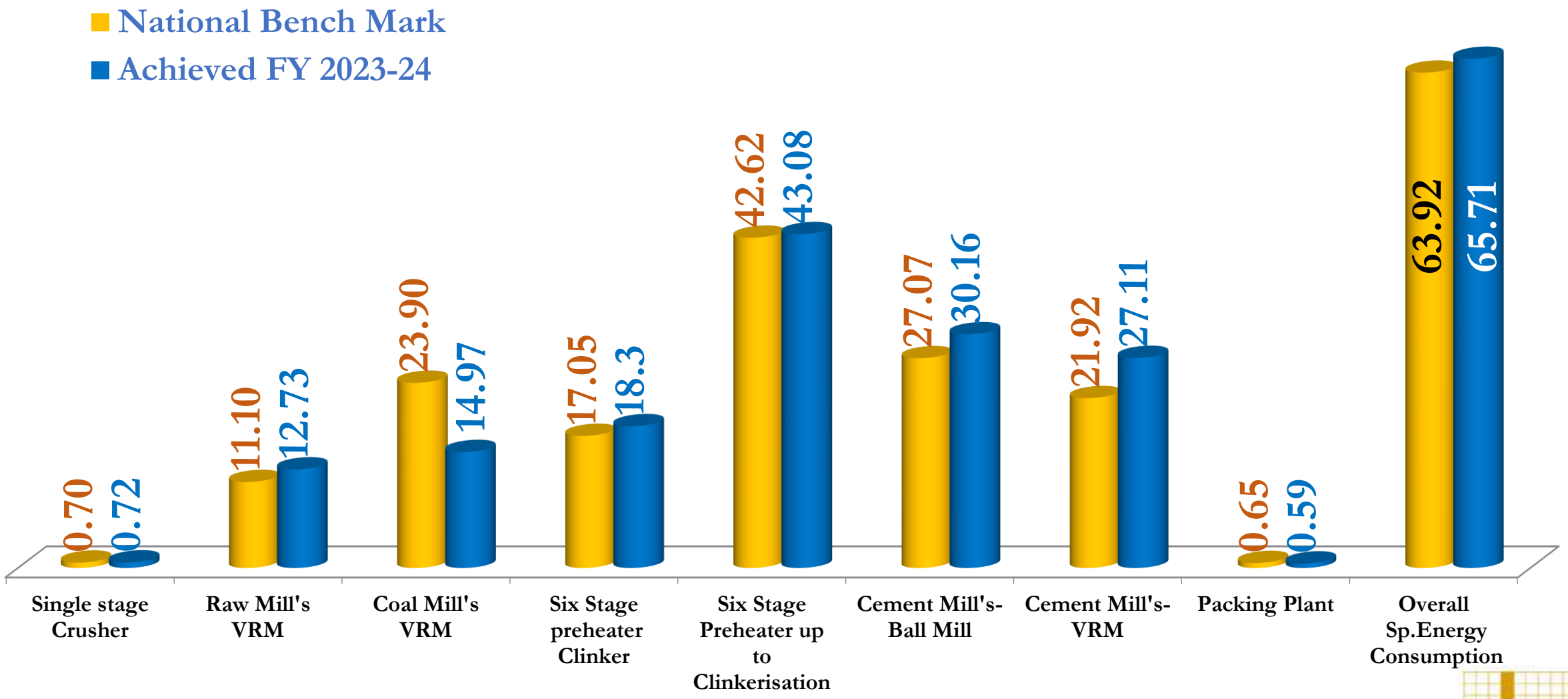




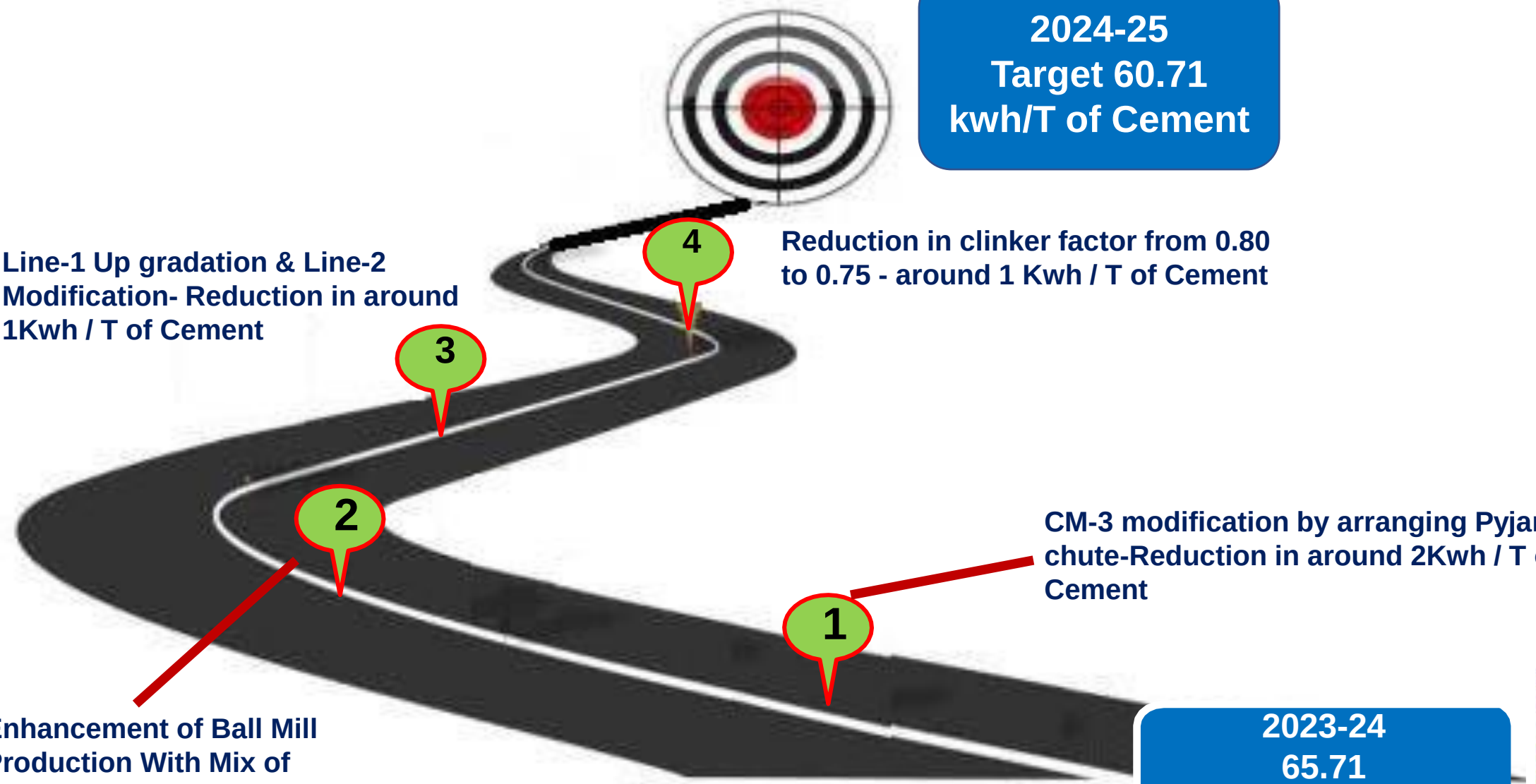


PRODUCT RATIO in % for FY 2023-24 - OPC:PPC:RHPC:SS // 40:43:1:16

SECTION WISE ELECTRICAL ENERGY NATIONAL BENCHMARK VS ACHIEVED



Road map for achieving Target Electrical energy



2024-25
Target 60.71
kwh/T of Cement

4 Reduction in clinker factor from 0.80 to 0.75 - around 1 Kwh / T of Cement

3 Line-1 Up gradation & Line-2 Modification- Reduction in around 1Kwh / T of Cement

2 Enhancement of Ball Mill Production With Mix of Grinding Aid 1.0 Kwh/T of Cement

1 CM-3 modification by arranging Pyjama chute-Reduction in around 2Kwh / T of Cement

2023-24
65.71
kwh/T of Cement

Road map for achieving Target Thermal energy

Long Term Projects on Energy Efficiency

S.No	Description of the Project	Estimated Investment, Rs. Crores	Target	Payback, Months
1	Installation of 16.0 MW Waste Heat Recovery for Line-1&2 Kiln	160.00	2025	60
2	Line-1 Cooler Modification & Line-2 Cooler extension	30.00	2025	36
3	Installation of 10.00 MW Solar Power Plant	40.00	2025	85
4	Line-1& 2 Preheater HR Aluminizing	1.80	2024	24
5	Coal Mill-2 Gas Ducting modification with Pre-Collector arrangement	0.20	2024	20

ENERGY CONSERVATION MEASURES IMPLEMENTED IN LAST 3-YEARS

Energy Conservation Projects implemented

Detail	UOM	2021-22	2022-23	2023-24	Total
Total no.of Encon Projects	Nos.	13	10	10	33
Encon Projects with Nil Investment	Nos.	5	7	7	19
Total Investment	Rs.Lakhs	428.20	4.70	254.07	686.97
Total Savings	Rs.Lakhs	1480.58	112.20	210.42	1803.20
Electrical Energy Saved	Lakh Units	42.72	2.23	2.05	47.00
	Rs.Lakhs	256.32	13.38	12.30	282.00
Thermal Energy Saved	Coal (Ton/year)	11554.00	950.00	1880.00	2024.00
	Rs. Lakhs	1224.70	99.40	197.70	1336.80
Impact on SEC	KWH/Ton of Cement	65.23	66.05	65.71	Reduced SEC by 0.7%.
	Kcal/ Kg of Clinker	681	680	691	Green fuel consumption increased to 5%

Energy Saving Projects Implemented in 2023-24

S.No	Energy Saving Project	Energy Saving, Lac Rs/Annum	Investment	Payback
Zero Investment				
1	Cement Mill-3 Bag house discharge Air slides Optimisation	8.44	0	0
2	Blending Silo-2 top feed distribution Airslides Optimisation	3.36	0	0
3	Power Factor Improvement by replacing LT Capacitors	18.00	0	0
4	Optimization of process Cooling tower by addition of RM-2 LC AHU	2.7	0	0
5	Development of E-Rickshaw	4.20	0	0
6	Arrangement of mist spray for ACC fans in CPP	4.22	0	0
7	False Air arrest in Hybrid filter bypass duct in CPP	6.40	0	0
With Investment				
8	**Line-2 AFR Feeding system to utilized Green Fuel**	**135**	**250**	**24 months**
9	Replacement of conventional lights with LED Lights-110 Fixtures	2.4	1.50	09 months
10	Kiln-1 shell painting with Lithopone & Sodium silicate	25.7	2.57	01 month
	Total	**210.42**	**254.07**	

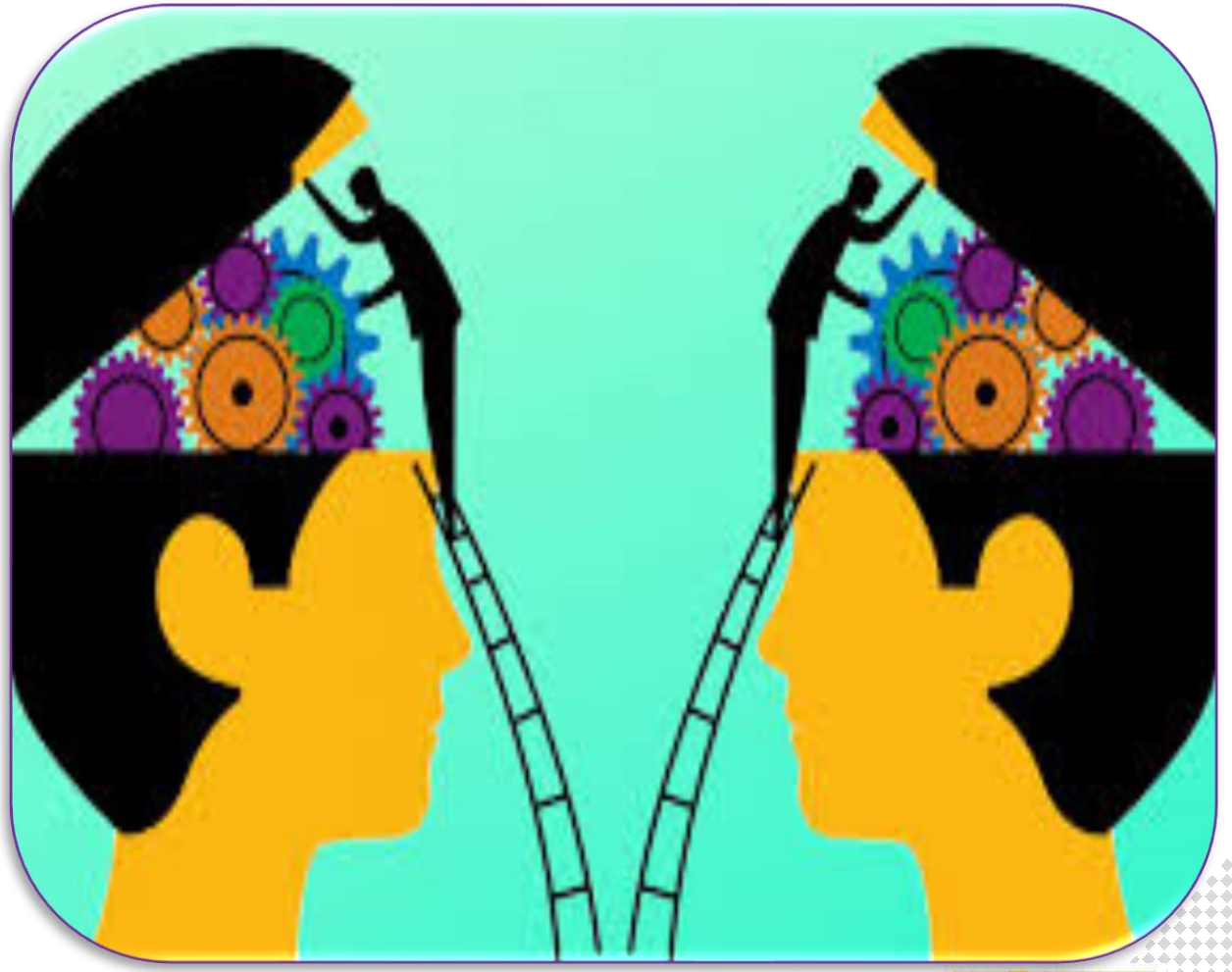
Energy Saving Projects Implemented in 2022-23

S.No	Energy Saving Project	Energy Saving, Lac Rs/Annum	Investment	Payback
Zero Investment				
1	In house modification for fly ash silo extraction discharge air slide modified and replaced blower motor from 5.5kw to 3.7kw	0.8	0	0
2	In house modification for CM-1 Bag house Discharge airslide blowers interconnectivity	1.5	0	0
3	In house modification for CM-2 Bag house Discharge airslide blowers interconnectivity	1.6	0	0
4	In house modification for CM-3 Flyash circuit by arranging interconnectivity of roots blowers	2.8	0	0
5	Implementation of interlock with PPC Based operation for Flyash weigh bin BF Motor to avoid idle run hrs	4.1	0	0
6	Implementation of programable logic for 4A1MS1 with 4A1BC1-to avoid idle run hrs	0.3	0	0
7	Avoided idle running hours of CM-1&2 water spray pump motor	0.2	0	0
With Investment				
8	Installation of Solar Water Heaters in colony Executive Block	1.00	3.0	36 months
9	Replacement of Conventional Lights with LED Lights	0.50	1.50	36 months
10	Fuel Savings by Improvement of Cooler Recuperation Efficiency in Line-1 (Lower Cooler Recuperation Efficiency)	99.4	0.20	01 month
	Total	**112.20**	**4.7**	

Energy Saving Projects Implemented in 2021-22

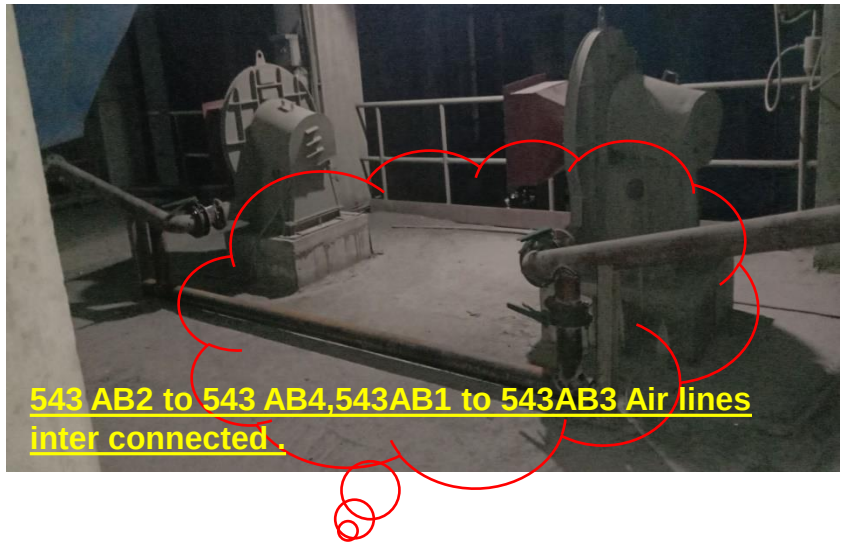
S.No	Energy Saving Project	Energy Saving, Lac Rs/Annum	Investment	Payback
Zero Investment				
1	Power Savings attained by changing motor connection in auxiliary Cooling Tower Fans	0.79	0	0
2	Fuel Savings by Improvement of Cooler Recuperation Efficiency in Line-2 (Lower Cooler Recuperation Efficiency)	406.00	0	0
3	Fuel Savings by Improvement of TA Temperature in Line-2 (High Temperature drop across TA duct)	75.00	0	0
4	Fuel Savings by Improvement of Cooler Recuperation Efficiency in Line-1 (Lower Cooler Recuperation Efficiency)	461.60	0	0
5	Fuel Savings by Improvement of TA Temperature in Line-1 (High Temperature drop across TA duct)	134.10	0	0
With Investment				
6	Installation of Solar Water Heaters in colony A5,E3 and Executive Blocks	7.20	9.0	15 months
7	CM-3 Booster fan and Hot air duct Installation	384.00	416.00	13 months
8	Replacement of Conventional Lights with LED Lights	3.36	1.40	05 months
9	Optimization of Packer-1&2 Bags Cleaning Blower	0.61	0.10	01month
10	Optimization of Process Cooling Tower by keeping AHU-CT bypass	0.62	0.10	01month
11	Optimization of Flyash tanker Unloading Compressor	3.75	0.60	01month
12	Raw Mill-2 Fan inlet duct modification	1.18	0.10	01month
13	Installation of Level sensor in Cement mill-3 reject hoppers	2.37	0.90	04 months
	Total	**1480.58**	**428.2**	

INNOVATIVE IDEAS IMPLEMENTED



1. CEMENT MILL-3 BAG HOUSE DISCHARGE AIRSLIDE BLOWERS OPTIMISATION

Before Modification Bag House discharge blowers (543 AB1, AB2,AB3 & AB4) are running continously



543 AB2 to 543 AB4,543AB1 to 543AB3 Air lines inter connected .

Horizontal Modification Carried out for 543AB1 & 543AB3 Blowers

Before Modification

Volume of air flow by blowers 543AB1,543AB2,543AB3,543AB4 = 900 + 900 + 900+900 = 3600 m3/hr

Total volume of air required for Air slides=1687.5 m3/hr(Area of Airslides-9m2, air permeability - 2.5m3/min/ m2,safety factor-25%)=1687.5 m3/hr)

Total power consuming by 4Nos.of blowers = 27.60 KW

(4Nos.*7.5KW motors, Operating load:4Nos.*6.9KW)

After Modification

By isolating 543 AB1,543AB4 air slide blowers 900+900 = 1800 m3/hr.

Total power consuming by 2Nos. blowers=13.80 KW

Energy Saved: 13.8KW & Cost Saved: Rs.8.44Lakhs Per Annum

2. OPTIMISATION OF BLENDING SILO -2 TOP FEED DISTRIBUTION AIR SLIDE BLOWERS

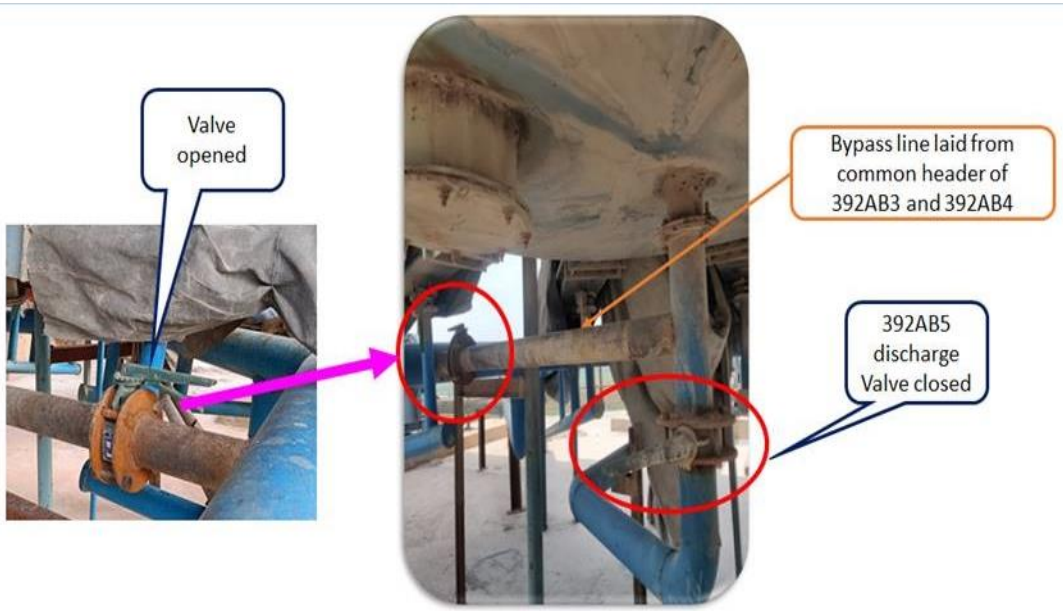
Before Modification

- Existing Volume of air flow to the silo-2 feed Distribution air slides by the air slide blowers 392AB3 (7.5 KW), 392AB4 (7.5KW) & 392AB5 (5.5 KW) = 1500 + 1500 + 600 = 3600 m3/hr

Total volume of air required for Airslides 392AS3, 392AS4 & 392AS5

(Area of Airslides-13.707 m2, air permeability-2.5 m3/min/ m2 ,

safety factor-25%) = 2570 m3/hr



After Modification

- By isolating 392AB(5.5kw) air slide blower(600 m3/hr.)

Reduced air flow to the air slides = 3000 m3/hr.

Power consumption reduced to 3300 kwh/month

Annual Savings = 3300kwh*12months* 8.5 Rs/kwh =Rs.3,36,600/- Per Annum

3.FALSE AIR ARREST IN HYBRID FILTER BYPASS DUCT IN CPP

- Hybrid filter false air ingress identified due to damage in bypass duct.

Corrective action

- Arrested false air at bypass duct outlet near ID Fan

Result

Before modification ID fan power / day: 1400 KWh
After modification ID fan power / day : 1050 KWh
Net savings in power / day : 350 KWh
Savings interms of Rs./ day : 350 * 8.50= Rs.2975/- (Kwh @ Rs.8.50)
Savings : 214days*Rs.2975 = Rs.6.40 Lakh per Annum

4. ARRANGEMENT OF MIST-SPRAY FOR ACC FANS IN CPP

BEFORE

Without Mist Spray arrangement at the bottom of Fan.

AFTER

Mist Spray arrangement at the bottom of Fan.

During summer season, found increase in ACC Fans operating speed.
It resulted power increased by avg. 40KWh for all 6Nos. fans during peak hours of the day.

Modification:

Arranged Mist spray at bottom of the fan to control ambient air temperature and optimized ACC Fan Speed in VFDs.

Savings:

Power saving: 400 KWH/Day(10 hours operation in a day)
Coal saving: 0.3 Mt/Day

Total Cost Saving: 4.22 Lac. Rs.

COST SAVING IN WATER MIST SPRAY SYSTEM							
S.no	Description	UOM	Units/ Hr	Units/ day	Cost in Rs	Cost saving in Rs /month	Cost for four months
1	Power saving	KW	40	400	3,400	1,02,000	Rs.4,08,000
2	Coal saving	Mt	0.03	0.3	1,800	54,000	Rs. 2,16,000
3	Investment for Mist-Spray Arrangement RS.						Rs.2,01,400
4	Total Net savings in Rs. (1+2-3)						Rs.4,22,580/-

Operational Data

Without Mist Spray arrangement at the bottom of Fan.

Mist Spray arrangement at the bottom of Fan.

S.No	Date of data collected	Time of data collected	Vacuum PV	Load in MW	Ambient temperature in degree C	Relative Humidity of air	ACC fan RPM						Power consumption of fans in KW/HR
							Fan-01	Fan-02	Fan-03	Fan-04	Fan-05	Fan-06	
Before mist spray													
1	14-04-2023	11.30am	-0.86	9.00	32.00	33.06	877.00	877.00	877.00	877.00	877.00	877.00	68
2	14-04-2023	12.20pm	-0.85	9.00	37.00	27.40	945.00	945.00	945.00	945.00	945.00	945.00	84
3	14-04-2023	01.40pm	-0.85	9.00	40.00	26.65	1034.00	1034.00	1034.00	1034.00	1034.00	1034.00	108
After mist spray													
1	18-08-2023	11.00am	-0.89	9.00	32.00	46.33	566.00	566.00	566.00	566.00	566.00	566.00	40
2	18-08-2023	12.10pm	-0.88	9.00	37.00	45.74	720.00	720.00	720.00	720.00	720.00	720.00	48
3	18-08-2023	01.45pm	-0.87	9.00	40.00	44.65	856.00	856.00	856.00	856.00	856.00	856.00	60

Result:

Power and Coal saved and maintained relative humidity of air at ACC.

5. POWER FACTOR IMPROVEMENT BY REPLACING LT CAPACITORS

Before

In LT Power distribution, 2000KVAR Capacitor banks performance got deteriorated.

25kvar*40Nos.are weakened more than 50% and another set of 25kvar*40Nos.are fully discharged due to aging effect.

All these banks were installed in the year 2010, with this maintaining power factor 0.97

After

Replaced 80Nos. of 25kvar capacitor banks with new one and improved power factor up to 0.992. It was carried out in September 2023

Benefit

Grid Power factor improved from 0.970 to 0.992

Cost Saved around Rs.18.00 Lakh / Annum

Investment: Rs.6.70Lakh

6. OPTIMIZATION OF PROCESS COOLING TOWER

Before Modification

After Modification

Before:
Raw Mill-2 Load Center AHU are running with it's dedicated water cooling tower with operating load: 7 Kwh

Modification:
Provided connectivity to the AHU from Line-2 Kiln Process Cooling Tower.

Dedicated Cooling Tower for AHU was stopped after this modification, Net Power Saving: 7KWh

Benefit:
Energy Saving : 50300 KWH/Yr.
Cost Saving : 2.7 Lakh/ Annum

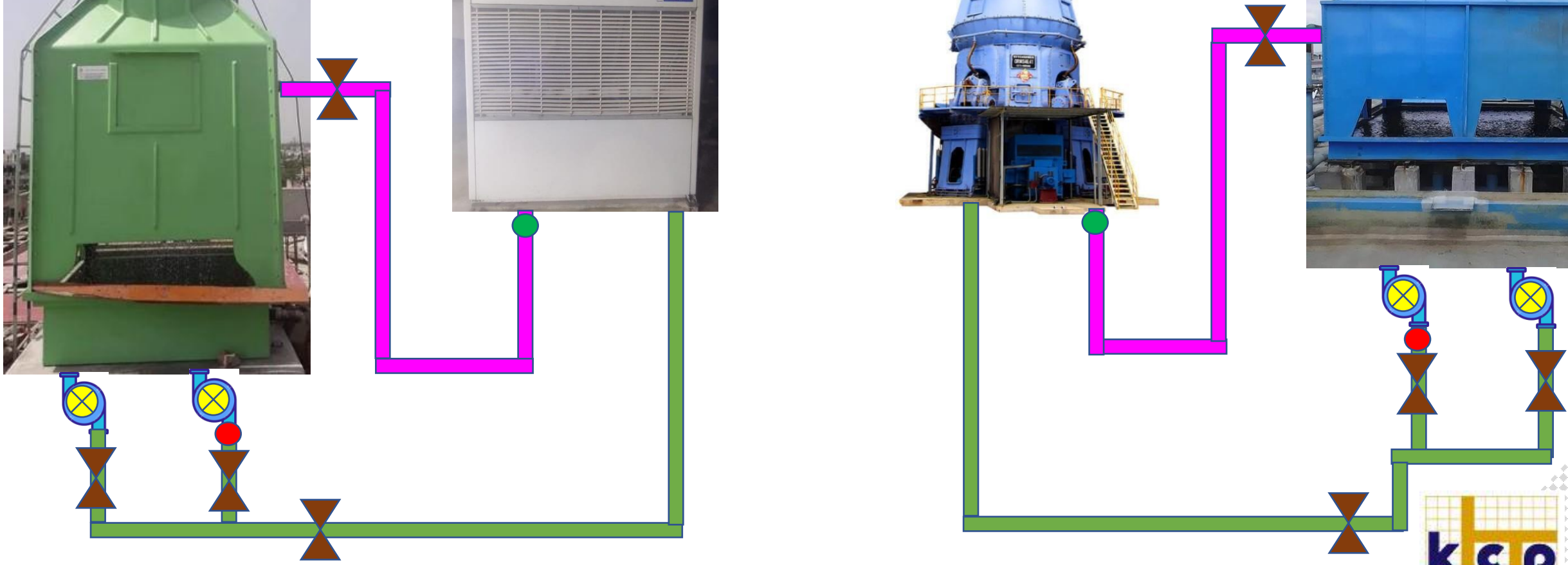
OPTIMIZATION OF PROCESS COOLING TOWER

RM AHU CT- 30TR

RM AHU

RM&PYRO AUX.

PROCESS CT-300TR



Before modification: AHU CT connected to AHU & Process CT connected to RM & Pyro Aux. dedicatedly

OPTIMIZATION OF PROCESS COOLING TOWER

RM AHU CT- 30TR

RM AHU

RM&PYRO AUX.

PROCESS CT-300TR

55 m3/h

95 m3/h

After modification: Inter connected both cooling towers with control valves. Process CT connected to AHU as well RM & Pyro Aux. & RM AHU CT will be standby.

7. INNOVATIVE IDEA: DEVELOPMENT OF E-RICKSHAW FOR GARBAGE COLLECTION IN PLANT & COLONY

Garbage is being collected and Transported through Maxi Truck. It is causing Sound and Air Pollution. Also, fuel & maintenance cost is high. Finding out an alternative method for cost effective and pollution free transportation of garbage.

Development of Electric Rickshaw (E-Rickshaw)

Savings

- Total Project cost for E-Rickshaw (One-time investment): Rs.0.94 Lacs.
- Market Cost of E-Rickshaw : Rs. 4.0 Lacs
- **Saving on e-Rickshaw (Market rate Rs. 4 L – project cost 0.94 L) : Rs.3.06 Lacs**.

Maintenance cost savings:

- Maxi Fuel & Maintenance cost per Annam: Rs.1.30 Lacs
- E-Rickshaw Maintenance cost per Annam: Rs.0.14 Lacs
- **Net Saving cost per Annum: Rs.1.16 Lacs.**

Benefits

- Pollution Free
- Eco friendly
- Less maintenance

8. REPLACEMENT OF CONVENTIONAL LIGHTS WITH LED LIGHTS

S.No	Existing	Proposed	Saved in watts	Nos	Total Savings in Watts
1	70W HPSV Fittings	40W LED Fitting	30	73	2190
2	100W HPSV Flood light	50W LED Flood light	50	5	250
3	150 W HPSV Flood lights	100W LED FLOOD LIGHT	50	10	500
4	300W HPSV Flood lights	200W LED FLOOD LIGHT	100	12	1200
5		Total	230	100	4140
6	Energy Saved per Hr.				4.14 KW
7	Energy Saved per Annum @ 10hrs/ day				15111 KWH
8	Cost Saving=4.14KWH* 10Hrs/dayX365DaysX 8Rs/KWH= Rs.120800/-				
9	Investment: Rs.2.15Lacs.				
10	ROI : 1.77 Years :: Say 2 years				

BEFORE

AFTER

UTILIZATION OF RENEWABLE ENERGY

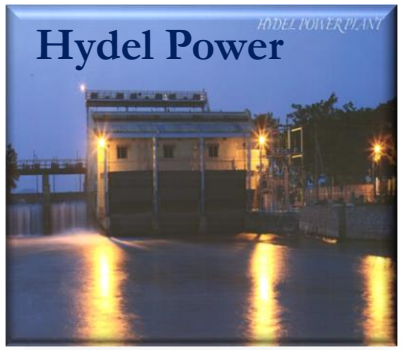
Total Renewable Energy

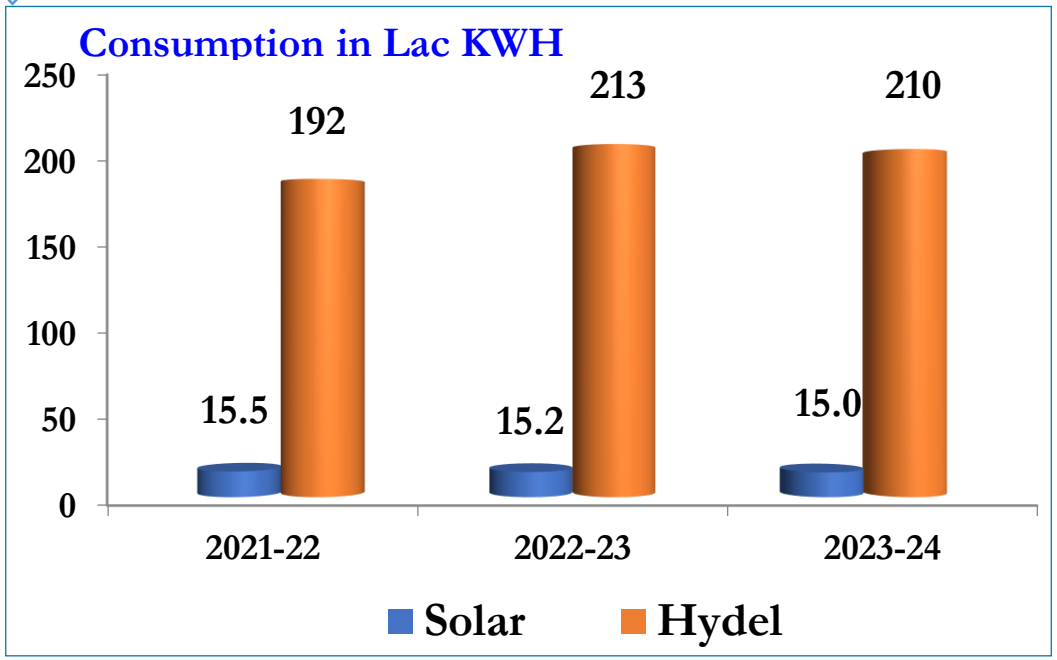
- 12.65 MW

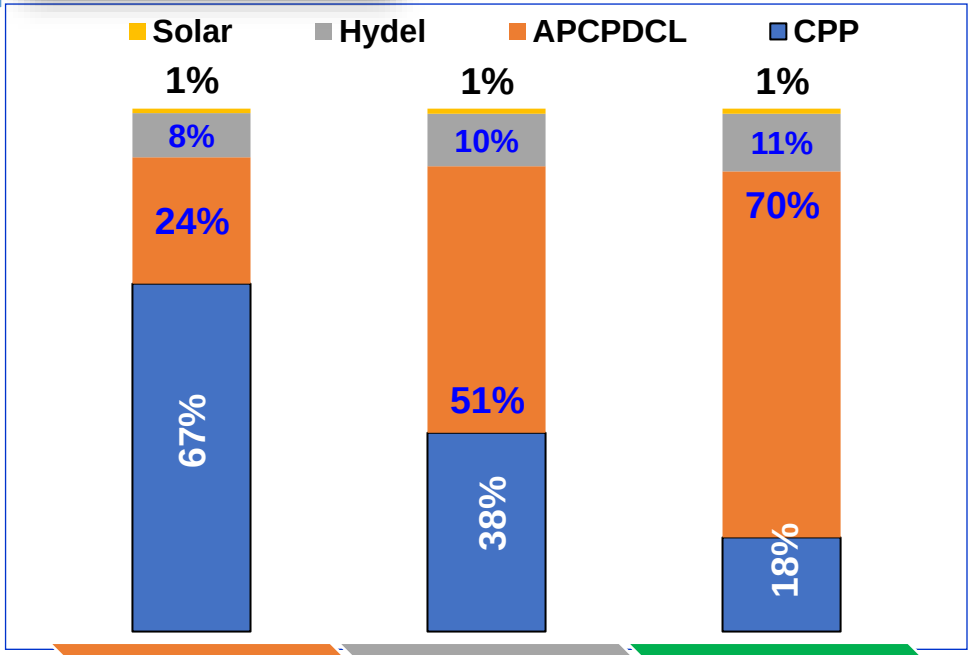
1.15 MW Solar Power

8.25 MW Hydel Power

3.25 MW Wind Power







Green Power Energy Utilization

RPP Obligation: 2023-24

THE KCP LIMITED
CEMENT UNIT - II
NOTE FOR APPROVAL

Ref:KCP/CPU-II/APRN/ /2024 27.02.2024

Respected Madam,

Sub: Approval for purchase of REC to meet RPO obligation FY2023-24.

Ref: APERC regulation 5 of 2022, dated: 29.09.2022

We would like to bring your kind notice that with reference to the above, all power consumers should meet the RPO obligation either by Self Generation / Purchase of Renewable Power from market or by purchase of Renewable Energy Certificates in IEX/PXIL to fulfil statutory compliance. According to the consumption pattern of financial year 2023-24 the below staticstics are arrived to purchase of REC certificates.

RPPO Calculation for FY 2023-24

S.No	Description	UOM	Total
A	Coal Based power plant net Consumption	MWH	32832
B	Solar REC (Captive Consumption)	MWH	1189
C	Open Access Power Purchasr -IEX	MWH	1856
D:(A+B+C)	Total Energy Consumed	MWH	35876
E	RPPO Applicable for FY 23-24	%	19%
F:(D*E)	Energy Eligible for RPPO	MWH	6817
G	Renewable energy purchased / wheeled (Through STOA HYDEL Wheeling)	MWH	476
H:(F-G)	After Hydel Adjustment power eligible to RPPO	MWH	6341
I	1MWH=1REC	REC	6341
J	REC Cost per certificate in market	Rs	400
K	**RPPO Cost**	**Rs**	**₹ 25,36,205**
L	18% GST on purchase of RECs	**Rs**	**₹ 4,56,517**
M	IEX Trading margin Amount @ Rs.20/- each REC	**Rs**	₹ 1,26,810
N	18% GST on Trading margin of RECs	**Rs**	₹ 22,826
O	IEX Charges & Taxes	**Rs**	**₹ 6,06,153**
P	Trader margin Amount @ Rs.25/- each REC	**Rs**	₹ 1,58,513
Q	18% GST on Trading margin of RECs	**Rs**	₹ 28,532
R:(K+O+P+Q)	**Total RPP Obligation Amount**	**Rs**	**₹ 33,29,403**

Total cost to meet RPO Obligation for FY 2023-24 is aprox. **33.29 Lac Rs**.

Submitted for your kind approval for further proceedings please.

Encl: RPPO Workings FY 2023-24

With kind regards,

R.Varaprasad Rao
DGM (E&I)

V.Madhusudana Rao
Vice President-Operations

Anis Tyebali Hyderi
CEO

Approved / Not approved

Chairperson & Managing Director

RAMAKRISHNAPURAM . Muktyala (V), Jaggayyapeta (M), Krishna Dt.,
Andhra Pradesh: Pin – 521 457

Certificate of Purchase of Renewable Energy Certificate

IEX INDIAN ENERGY EXCHANGE
INNOVATION TECHNOLOGY FUTURE

INDIAN ENERGY EXCHANGE LTD.

Certificate of Purchase of REC(s)

Certificate Number : C-IEX_REC002301 **Issued On: 27-Mar-2024**

The KCP Limited

Number of Certificates: 6341

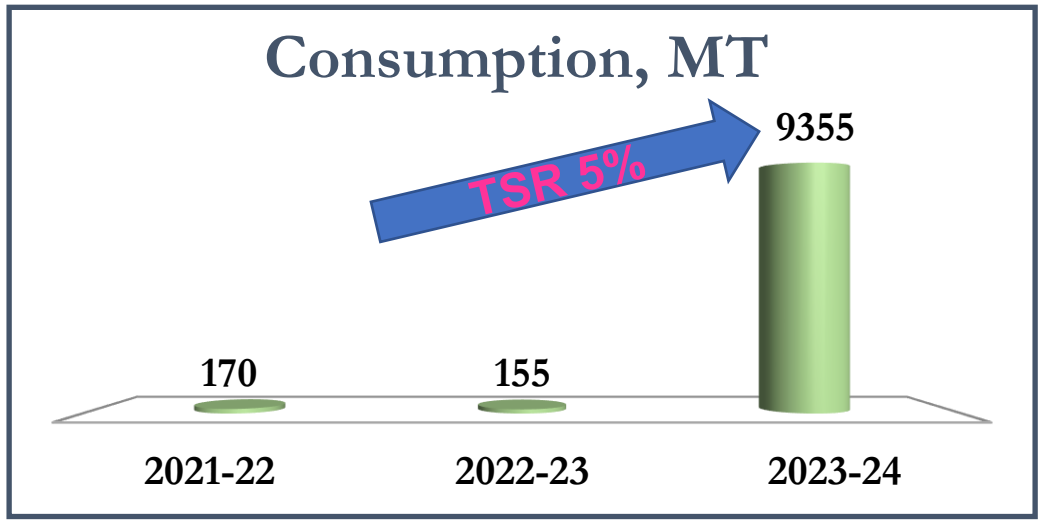
This certifies that The KCP Limited is the holder of 6341 non transferable Renewable energy certificate(s) bought on 27-Mar-2024 , through Indian Energy Exchange Limited.

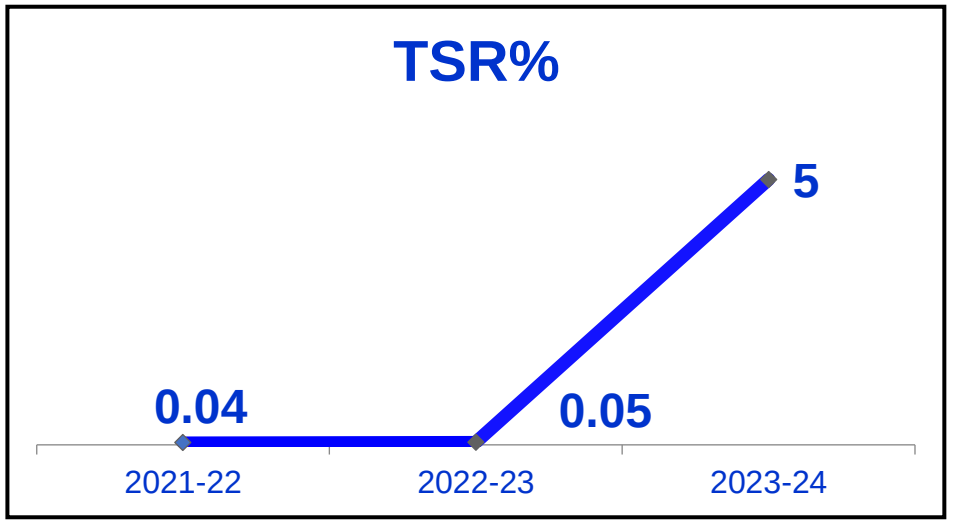
This certificate represented hereby is issued and shall be held subject to all the provisions of the regulations of Honorable CERC as amended from time to time and the Bye-laws, Rules and Business Rules of Indian Energy Exchange Limited.

This is a computer-generated statement hence doesn't require signature.

Utilization of Green Fuel

- WOODEN CHIPS
- PLASTIC WASTE
- MIX AGRO WASTE
- USED LUBRICANT
- RICE HUSK
- PYROLYSIS OIL



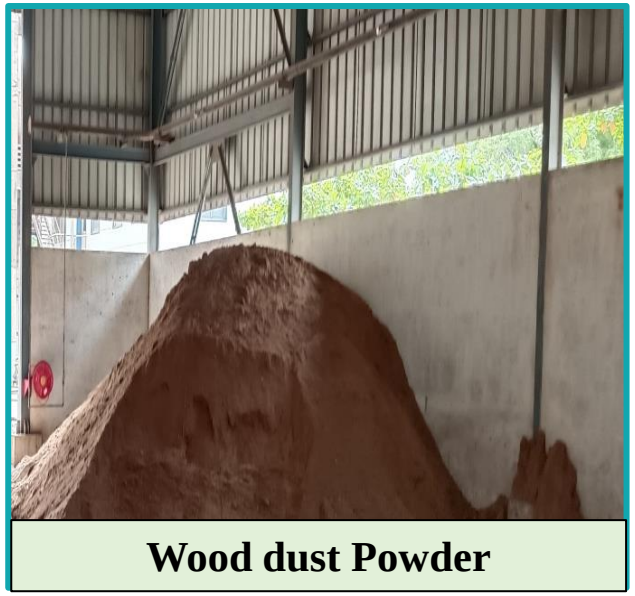


After Successful commissioning of Green fuel feeding system for Line-2 kiln recorded 5 % TSR

AFR Feeding system	Incineration in Pre Calciner	Green Fuel Feeding through Loader

Utilization of Green Fuel

Red Chili Spent Powder



Wood dust Powder

Municipal Solid Waste

Plastic Waste

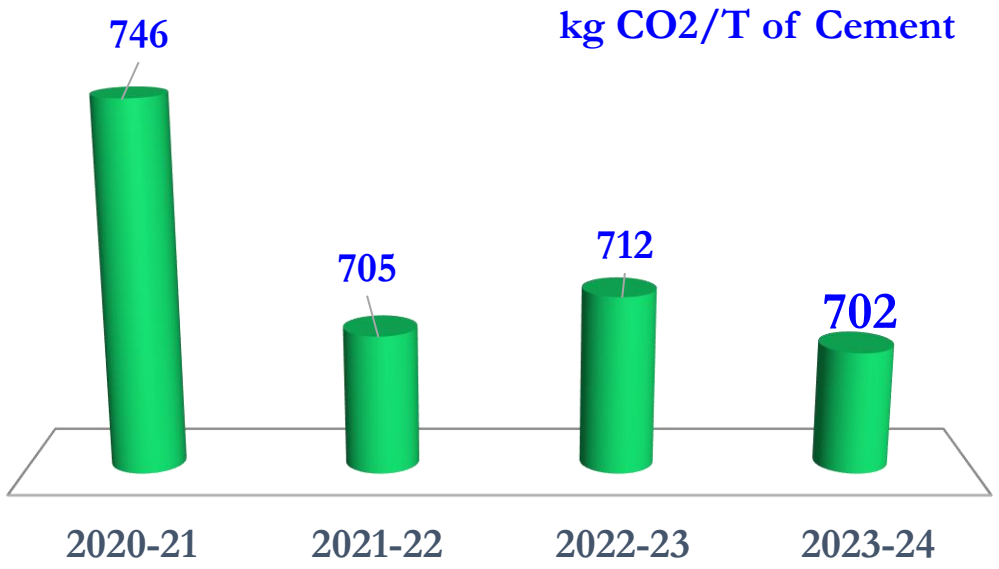
Rice Husk Un Loading

Collection of Garbage in Colony

Firing Waste Lubricant oil in PC

Pyrolysis oil for kiln heat up

GREEN HOUSE GAS Emissions



Carbon Foot Print Activities				
Year	Scope 1 emissions CO2e (MT)	Scope 2 emissions CO2e (MT)	Scope 3 emissions CO2e (MT)	kg CO2e/MT of Cement
2020-21	692	48	6	746
2021-22	651	49	5	705
2022-23	674	34	3	712
2023-24	665	34	3	702

- Battery operated vehicle inside the plant for internal people transportation
- Reducing the lead distance of transporting the cement by selecting the nearest distance either from UNIT-I or UNIT-II Cement manufacturing units.
- Reduction of NOx emission levels by adoption of newer technologies like installation of low NOx pyro jet burner along with long pre-calciner with pyro top supplied by Humboldt Wedag.
- Utilization of fly ash to the maximum permissible extent and promotion of higher PPC volumes to the maximum extent.
- Following Reverse Logistics for transportation of Cement and bringing Coal, Gypsum and Additives.

Road Map to achieve "*Net Zero Carbon Footprint" Commitment*

Net Zero Target: ***Achieve "Net Zero Carbon" status by 2050 and beyond***

Roadmap for achieving the target: We pursue various actions as given below to achieve the target.

Scope-1 Emissions:

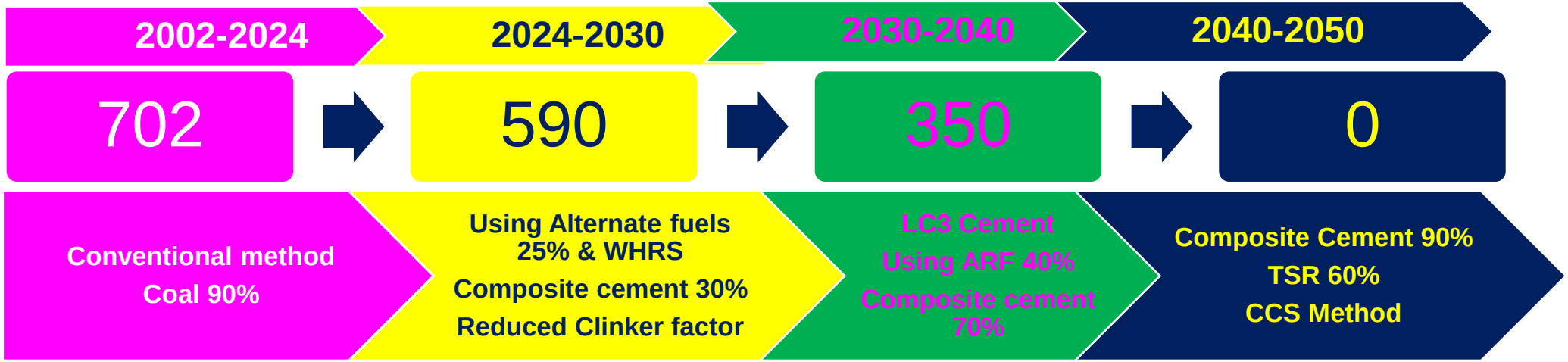
- Improvement in TSR-25%(substitution of fossil fuels by alternative ones) by 2030.
- Reduction of Specific Thermal Energy by 1.47% in Pyro process.
- Reduction of Clinker factor from 0.80 to 0.72 by using alternate Raw Materials and introduced blended cements.

Scope-2 Emissions:

- Establishment of Waste Heat Recovery System-50% of the total energy from renewable energy by Mar'25. (including Hydel Energy, Solar Energy & Waste Heat Recovery System).
- Reduction of Specific Electrical Energy by 5.3% in overall cement production by adopting latest technologies

Scope-3 Emissions:

- Maximize the volume of Cement dispatches through Bulk tankers by reducing bag dispatches.
- Optimise the Reverse logistics by receiving Raw materials like Coal, Gypsum, Laterite etc.. and cement dispatches in the same tucks to improve efficiency.
- Setting up of wagon loading system.



PLANTATION PROGRAMS

WORLD ENVIRONMENT DAY

PLANT ANNUAL DAY

PLANTATION AT MINES ON CMD MADAM'S BIRTHDAY

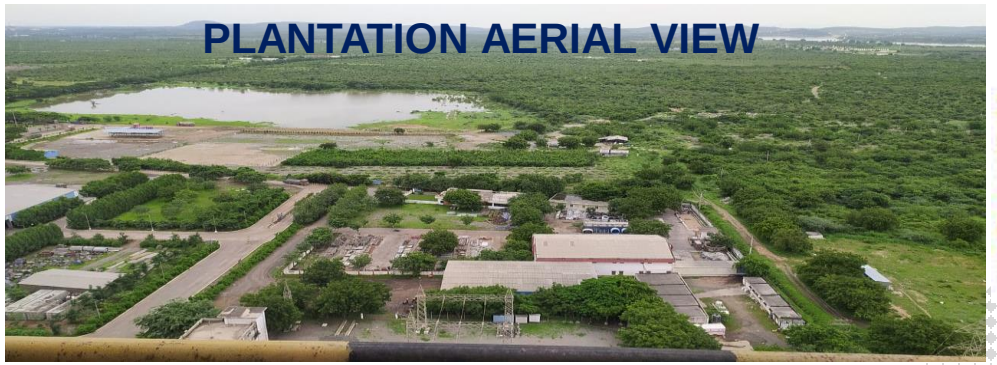
ENCOURAGEMENT TO USE E-VEHICLES

EV Vehicles inside Plant

Cycling by Employees

Car and bike Pooling

PLANTATION AERIAL VIEW



PLASTIC ELEMINATE & USAGE OF ORGANIC BIO DIGESTER

- Under plastic free KCP abhiyan, all plastic bottles replaced with steel bottles in meeting hall, training hall, at employee work stations and in guest house.
- We started segregating plastic waste from colony municipal waste and co-processing it in our kiln.
- Eliminate plastic usage in our colony.
- Total Plastic waste collected up to 31st March 2024 is 4.3 tones.

Green supply chain Management

The KCP Limited
Cement Unit-II, Ramakrishnapuram

Green Purchase Policy

Following standard systems & procedures defined for selecting vendors for critical equipment supplies/Major equipment and compliance of same is monitored from time to time.

- KCP is having a purchase manual with pre-defined procedure for all procurements.
- Procurement of EEF LT Motors.
- Procurement of Eco Friendly A/C package units, and VOC free paints.
- Reduce environmental footprint by means of material, energy & water conservation.
- Ensure that asbestos products not procured in the plant.
- Sourcing raw materials from nearby sources so that travel distance is reduced and vehicle usage is curtailed thereby helping environment in minimizing carbon & sound pollution. Usage of Roads and other relevant resources like diesel/ lubs/ tyres shall also be reduced.
- Installation of speed controllers in our new heavy vehicles.
- Procurement of Energy Efficient rated electrical appliances. All the transporters including raw materials transporters shall be advised for strict compliance of Green supply chain transport policy.

Vice President - Operations

Dated: 01 April 2019

Green Supply Chain Implementations:

1. Creating awareness on Environmental Impacts.
2. Rethinking of material requirements and consumption for sustainability.
3. Reducing the use of hazardous material.
4. Improved energy efficiency Materials Purchase.
5. Reducing the pollution and noise levels and using recycled materials and recycling waste.
6. Customer preference.
7. Continuously compliance the environmental regulations.

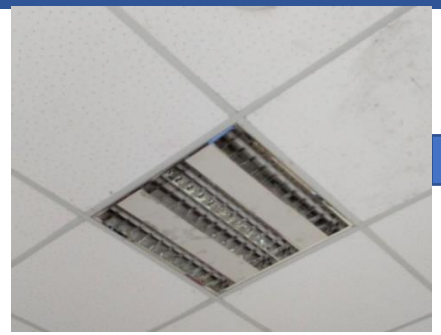
- Manufacturing of fly ash based pavers, Hallow & Concrete bricks

  Capacity: 20,000 – 25,000 no's per day (Investment: Rs. 2.0 cores.)
- The fly ash & Bed material generated in CPP are being used for the manufacturing of Hallow bricks, Concrete solid bricks & Colored Pavers.
- Recycling of CPP waste neutralization water to Cement Plant for equipment process & Cooling to avoid scaling in Pipe lines.`

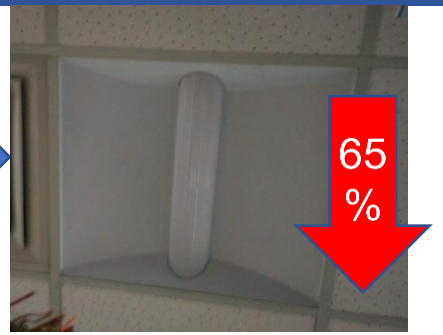
Green supply chain Best Practices

Before:
All bag filter fans in DOL Operation

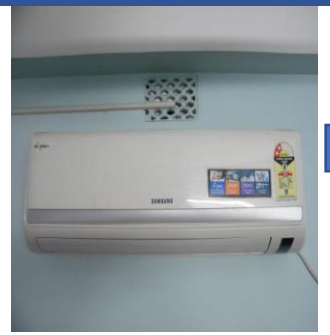
After:
Installed 22 No's VFD s for all the bag filter fans



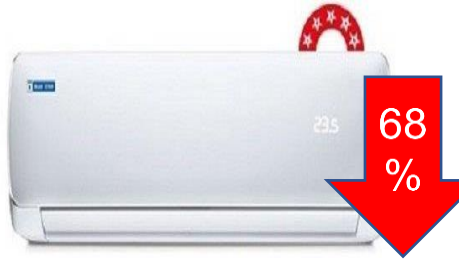
FTL Lights



150 No's LED Lights

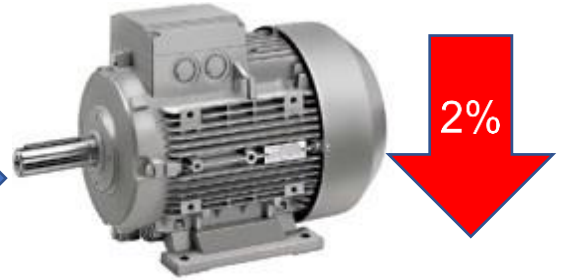


Switch over 3 Star Rating AC



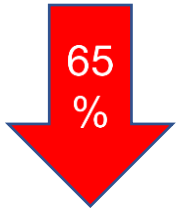
5 Star Inverter Rating

Before: IE2 Motor



After: IE3 Motor

3 Star Rating



5 Star Rating

Initiatives:

- 100% safety on roads as voice enabled GPS is installed which alerts the driver on possible risk.
- Ship more cement covering more distance than before.
- Better planning is ensured by the company with its stakeholders - transporter, dealer, trucker and society.
- Vehicle service center.

Energy Management Organization in the plant

Chairman
Energy management Committee

Sri. V.MADHUSUDANA RAO
PLANT HEAD

Energy Auditor/ Energy Manager

- **Head Mines**
- **Head Process**
- **Head Mechanical**
- **Head E&I**
- **Head QC**
- **Head CPP**

Team Members
Section In charges, Engineers & shop floor people

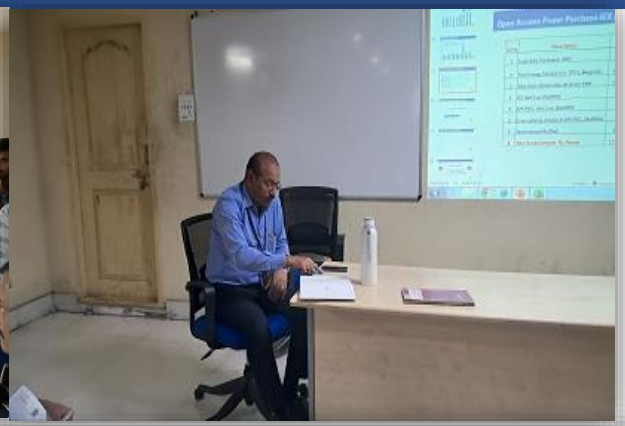
Energy Management : Rolls & Responsibilities

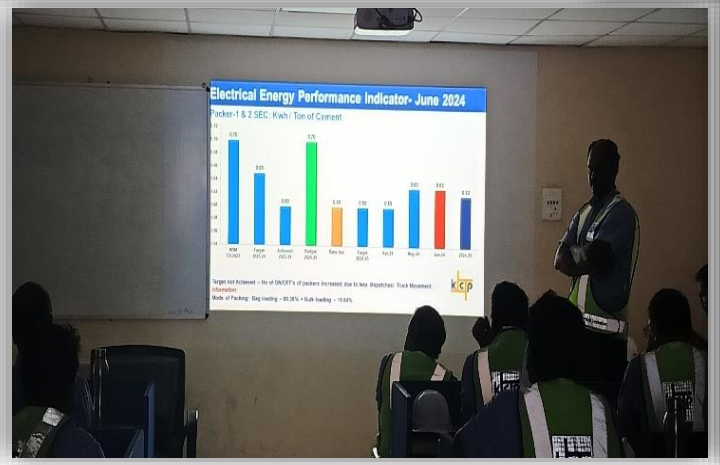
Designation	Roles & Responsibilities
Plant Head	• Drives energy saving culture in the organization. • Set targets for reduction in various parameters inline with the vision & Energy policy. • Fiscal validation of Energy saving projects and necessary financial allocation.
Department Heads, Energy Manager	• Review status of Energy saving projects through Daily Review Meetings. • Drive employee involvement initiatives.
Team Members	• Identification & Implementation of energy conservation projects. • Drive employee involvement initiatives. • Generate energy conservation ideas. • Measure, Monitor & analyze section wise energy consumption in the factory.

Energy Performance Monitoring Report-2023-24

S.N.	DESCRIPTION	Sp.Energy Consumption	Responsibility	TARGET 2023-24	ACTUAL
1	LS CRUSHER	Kwh/Ton of Lime Stone	CH.SRINIVASA REDDY	0.70	0.70
2	RAW MILL-1	Kwh/Ton of Raw meal	M.SATYANARAYANA	12.00	13.22
3	RAW MILL-2	Kwh/Ton of Raw meal	Y.KISHORE BABU	12.50	12.36
4	KILN-1	Kwh/Ton of Clinker	P NARASIMHA RAO	18.00	18.13
5	KILN-2	Kwh/Ton of Clinker	J V S GUNNAIAH RAJU	18.00	18.44
6	COAL MILL-1	Kwh/Ton of Coal	P.SRINIVASARAO	15.00	14.54
7	COAL MILL-2	Kwh/Ton of Coal	E RAMU	15.50	15.31
8	CEMENT MILL-1	Kwh/Ton of Cement	M.RAMESH	27.00	30.57
9	CEMENT MILL-2	Kwh/Ton of Cement	CH SURESH REEDY	27.00	29.72
10	CEMENT MILL-3	Kwh/Ton of Cement	CH V RAMARAJU	24.50	22.45
11	PACKING PLANTS	Kwh/Ton of Cement	P BIXAM & N S RAJU	0.65	0.59
12	UTILITIES	Kwh/Ton of Clinker	G.MALLESH	1.7	1.72
13	SERVICES	Kwh/Ton of Cement	MD.RAHIM	2.0	1.2
14	HEAT CONSUMPTION	KCal/Kg of Clinker	B.YOGESWAR	675	680
15	EXPLOSIVE ENERGY	Tons/Kg of Explosive	P.RAMAKRISHNA	9.5	9.80

Glimpses of Monthly Energy Review Meetings, Training and Knowledge sharing Sessions

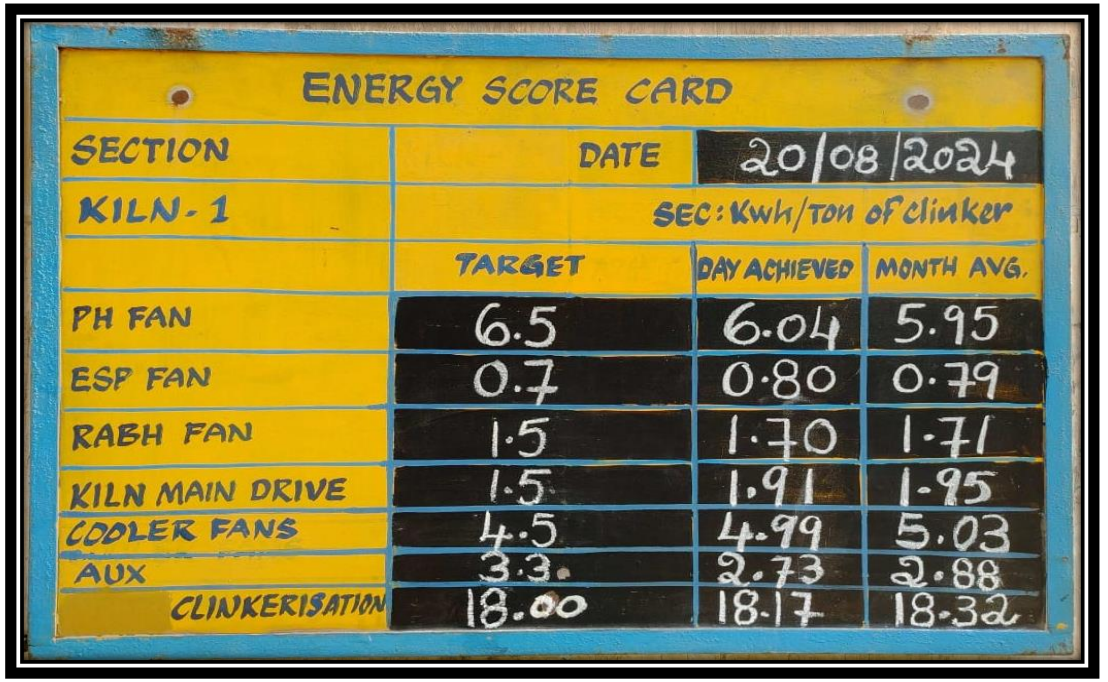




Section Wise Energy Scorecard & Energy Conservation projects Implementation Methodology

Energy Projects Implementation Methodology

- Identify the potential Energy saving equipment's /Areas by Plant Engineers.
- Categorized into No investment, Low investment and High investment.
- No/Low investment project Implementation-Immediately.
- High investment projects proposals–Put up for CAPEX approval for Management.
- Review of project implementation, Completion status.
- Reporting the benefits/savings through monitoring and reviewing the performance.



ENERGY SCORE CARD

SECTION	DATE	20/08/2024	
KILN-1	SEC: Kwh/ton of clinker		
	TARGET	DAY ACHIEVED	MONTH AVG.
PH FAN	6.5	6.04	5.95
ESP FAN	0.7	0.80	0.79
RABH FAN	1.5	1.70	1.71
KILN MAIN DRIVE	1.5	1.91	1.95
COOLER FANS	4.5	4.99	5.03
AUX	3.3	2.73	2.88
CLINKERISATION	18.00	18.17	18.32

Focus for the Energy Efficiency

- Daily Monitoring
- Trainings
- Innovative Modifications
- Periodical upgradation of new technological equipment

Strategies adopted for Team work & employee involvement

- ✓ Kaizen & Suggestion Scheme
- ✓ Cross Functional Team
- ✓ Quality Circles
- ✓ Chat with Unit Head
- ✓ Employee Energy Score Card
- ✓ Participation in Seminars
- ✓ External trainings
- ✓ Energy Conservation week
- ✓ Safety Messages sharing in Gate meeting / monthly safety magazine
- ✓ National Safety Day Celebrations
- ✓ Safety Committee meetings
- ✓ Monthly Fun Hungama Celebrations
- ✓ Monthly Energy committee meetings
- ✓ Safety Walks










Employee Recognition at shop floor level

Integrated Management System

9001:2015


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
The KCP Limited
Cement Unit - II (Manufacturing Division), Ramakrishnapuram, Muktyala Village, Jaggayyapet Mandal, Krishna District - 521457, Andhra Pradesh, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
Manufacture & sale of clinker and cement

ISO 9001: 2015
Quality Management System

14001:2015


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
The KCP Limited
Cement Unit - II (Manufacturing Division), Ramakrishnapuram, Muktyala Village, Jaggayyapet Mandal, Krishna District - 521457, Andhra Pradesh, India

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:
Manufacture of clinker and cement

ISO 14001 : 2015
Environmental Management System

45001:2018


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
The KCP Limited
Cement Unit - II (Manufacturing Division), Ramakrishnapuram, Muktyala Village, Jaggayyapet Mandal, Krishna District - 521457, Andhra Pradesh, India

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following scope:
Manufacture of clinker and cement

ISO 45001 : 2018
Occupational Health & Safety Management system

50001:2018


DNV

MANAGEMENT SYSTEM CERTIFICATE

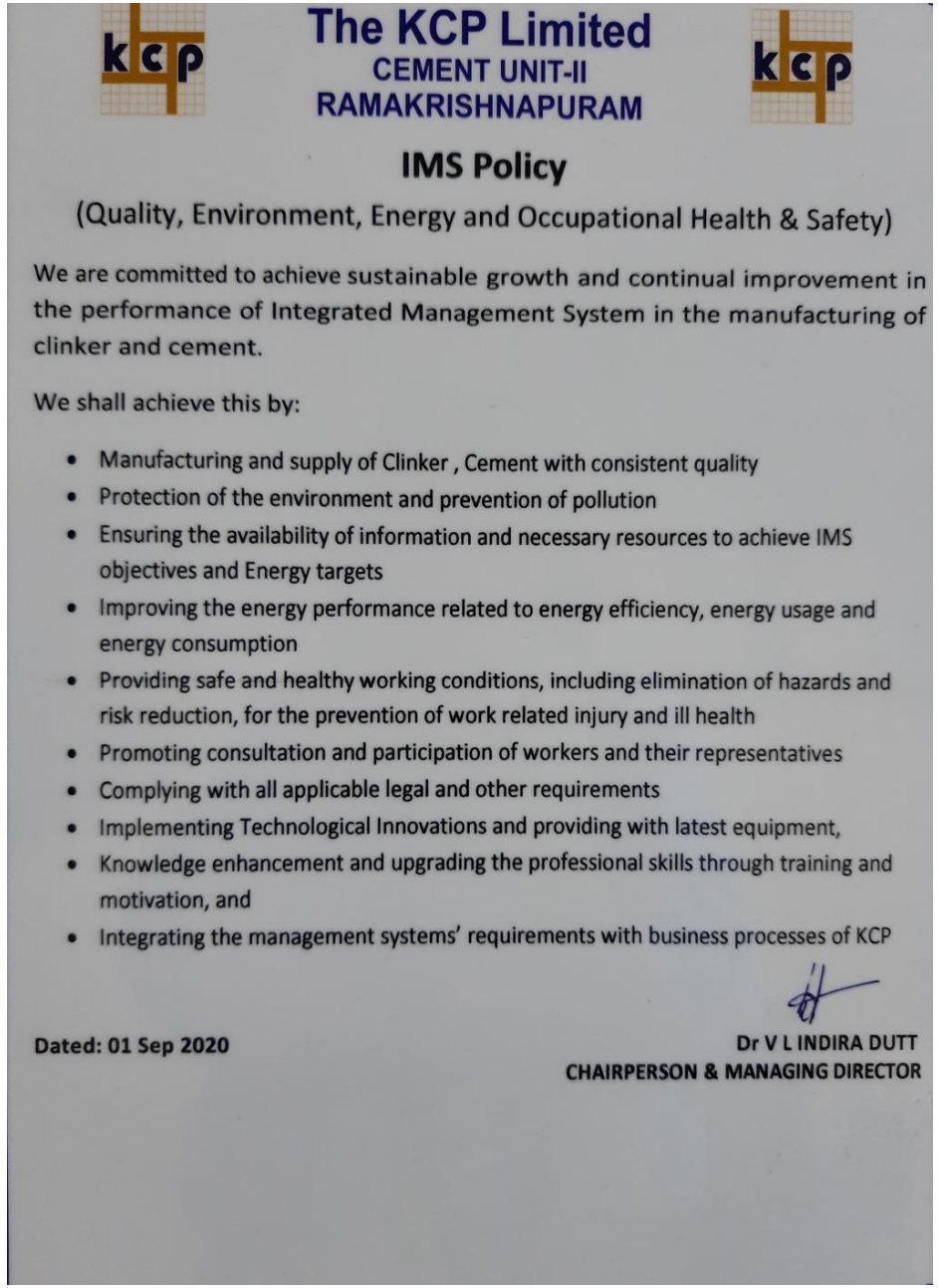
This is to certify that the management system of
The KCP Limited
Cement Unit - II (Manufacturing Division), Ramakrishnapuram, Muktyala Village, Jaggayyapet Mandal, Krishna District - 521457, Andhra Pradesh, India

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
Manufacture of clinker and cement

ISO 50001 : 2018
Energy Management System

IMS Policy & Learning from CII Awards ...



The KCP Limited
CEMENT UNIT-II
RAMAKRISHNAPURAM

IMS Policy

(Quality, Environment, Energy and Occupational Health & Safety)

We are committed to achieve sustainable growth and continual improvement in the performance of Integrated Management System in the manufacturing of clinker and cement.

We shall achieve this by:

- Manufacturing and supply of Clinker , Cement with consistent quality
- Protection of the environment and prevention of pollution
- Ensuring the availability of information and necessary resources to achieve IMS objectives and Energy targets
- Improving the energy performance related to energy efficiency, energy usage and energy consumption
- Providing safe and healthy working conditions, including elimination of hazards and risk reduction, for the prevention of work related injury and ill health
- Promoting consultation and participation of workers and their representatives
- Complying with all applicable legal and other requirements
- Implementing Technological Innovations and providing with latest equipment,
- Knowledge enhancement and upgrading the professional skills through training and motivation, and
- Integrating the management systems' requirements with business processes of KCP

Dated: 01 Sep 2020

Dr V L INDIRA DUTT
CHAIRPERSON & MANAGING DIRECTOR

Confederation of Indian Industry

Learning from CII Awards ...

- To bring in recognition to the Organisation through unique innovative practices.
- Creating platform for sharing of knowledge which takes to sustainable growth through optimum utilization of resources, diversified Quality Products, Processes and Services for all our Stakeholders.
- Understand the Industry best and implement the same in our Organisation.
- Creating a competitive edge amongst the industries through right person is assigned for the right job and that they grow and contribute towards organizational excellence
- Employee engagement & belongingness increased

Journey towards Green Power

THERMAL POWER PLANT,
MUKTYALA – 1X18 MW

TOTAL – 26 MW UNDER EXECUTION

WHRS – 16.0 MW

SOLAR – 10 MW

THE KCP LIMITED, CEMENT UNIT-II, MUKTYALA, *Awards & Accolades*

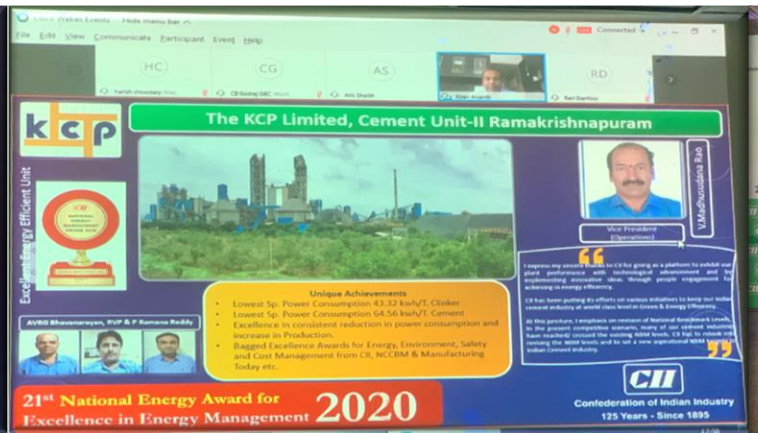
Our Unit won QCFI' National Sustainable **Excellence Awards in 2024**

- **Energy**
- **Bio-Diversity**
- **Water Excellence**
- **Environmental Excellence**
- **Health & Safety Excellence**

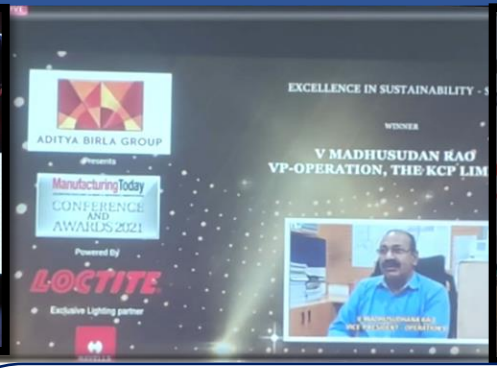
THE KCP LIMITED, CEMENT UNIT-II, MUKTYALA, *Awards & Accolades*

- 2023: CPU-II has won APSECM State Energy Excellent unit in Silver Category
- 2023: CPU-II has won CII's "Energy Efficient Unit" Award
- 2022: CPP has won CII's "Excellent Energy Efficient Unit"
- 2022: CPU-II has won CII's "Energy Efficient Unit" Award
- 2021:National Award for "Excellent Energy Efficient Unit" for the year 2020-21 from CII in Cement Sector
- 2021: National Energy Leader award for the year 2020-21 from CII in Cement Sector

- 2021:Sectorial Topper in Cement Sector by CII-SR EHS Excellent Gold Award 2021
- 2020: National Award for Excellence in water Management
- 2020: Bagged First Place in Sectorial and Sustainability, in recognition of best practices in Environment, Health & Safety.
- 2020: National Excellence Energy Efficient in Energy Management
- 2019: 5 Star for Excellence in EHS practices
- 2019: Excellence in Sustainability by Manufacturing Today
- 2019: National Excellence Energy Efficient in Energy Management



THE KCP LIMITED, CEMENT UNIT-II, MUKTYALA, *Awards & Accolades*



- 2018-19: NCB-Excellence in the field of Energy and Environment
- 2018: National Energy Efficient in Energy Management
- 2017-18: NCB-Excellence in the field of Energy and Environment
- 2017: National Excellent Energy Efficient in Energy Management
- 2016-17: NCB-Best Electrical Energy Performance Award
- 2016: National Energy Efficient in Energy Management

- 2016: 3 Star for Appreciation in EHS practices
- 2015: National Excellent Energy Efficient in Energy Management
- 2015: Most useful Presentation Award
- 2014-15: NCB-Best Electrical Energy Performance Award
- 2014: National Excellent Energy Efficient in Energy Management
- 2014: National Energy Conservation Award (BEE) in Cement Sector by Government of India, Ministry of Power
- 2013-14: NCB-Best Electrical Energy Performance Award

Thank You

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