



Welcome to RCCPL Private Limited - Maihar

MP BIRLA CEMENT
cement se ghar tak



Presenting Team Members

- Avinendra Singh - Head Mechanical
- Anil Sachan Manager E&I

Birla Corporation Limited is the flagship Company of the **M.P. Birla Group**. Incorporated as Birla Jute Manufacturing Company Limited in 1919, it was Late **Mr. Madhav Prasad Birla** who gave shape to it. As Chairman of the Company, he transformed it from a manufacturer of jute goods to a leading multi-product corporation with widespread activities. Under the leadership of **Mr. Rajendra S. Lodha**, the Company posted its best ever results in the years ended 31.3.2006, 31.3.2007 and 31.3.2008. The Company continued to record impressive growth in 2008-09 and 2009-10.

Mr Harsh V Lodha is now Chairman of the Company.

The Company is **primarily engaged** in the manufacturing of **cement as its core** business activity. The Company has **acquired 100% shares of Reliance Cement Company Private Limited** (Reliance Cement). This acquisition provides Birla Corporation Limited with the ownership of high-quality assets, taking its total capacity from 10 MTPA to 15.6 MTPA. after commissioning of Mukutban plant capacity further increases to ~ 20 MTPA

Birla Corporation currently produces cement at eight locations through its 11 manufacturing units with a combined capacity of almost 20 million tons per annum.



S.No.	UNIT	OPERATIONAL CAPACITY
1	RCCPL Pvt LTD – Maihar, IU	4.0 MTPA
2	RCCPL Pvt LTD- Mukutban IU	3.90MTPA
3	Satna Cement Works, IU	2.70 MTPA
4	Chandaria Cement Works, IU	4.20 MTPA
5	RCCPL Pvt LTD, Butibori, GU	0.50 MTPA
6	RCCPL Pvt LTD, Kundanganj, GU	2.21MTPA
7	Birla Corporation, Raebareli, GU	1.24 MTPA
8	Birla Corporation, Durgapur, GU	2.05 MTPA



VISION, MISSION & VALUES



VISION

**To be admired
For our Performance,
Ethics and Culture**

MISSION

**To be the best- in- class
in every sector we operate**

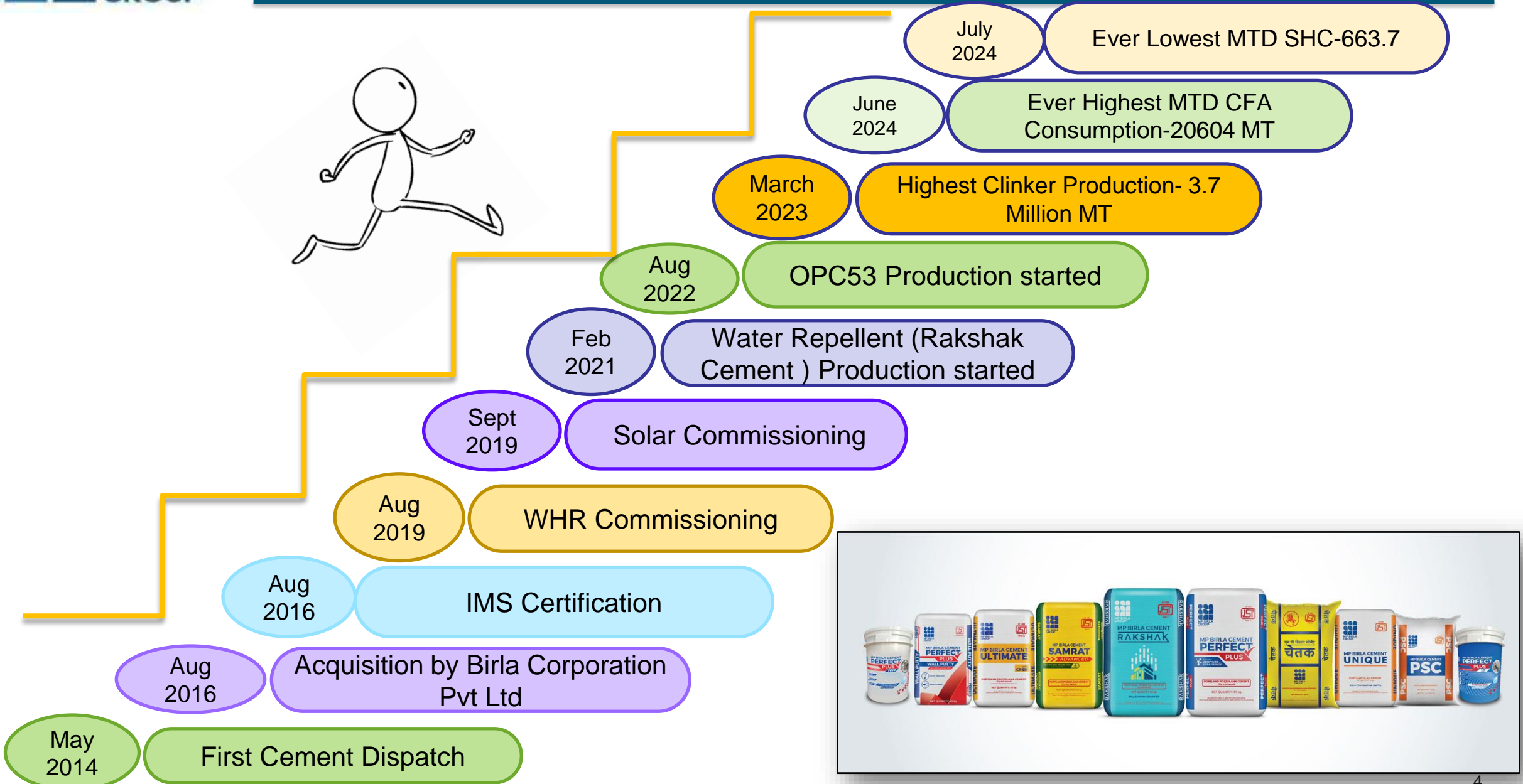


VALUES

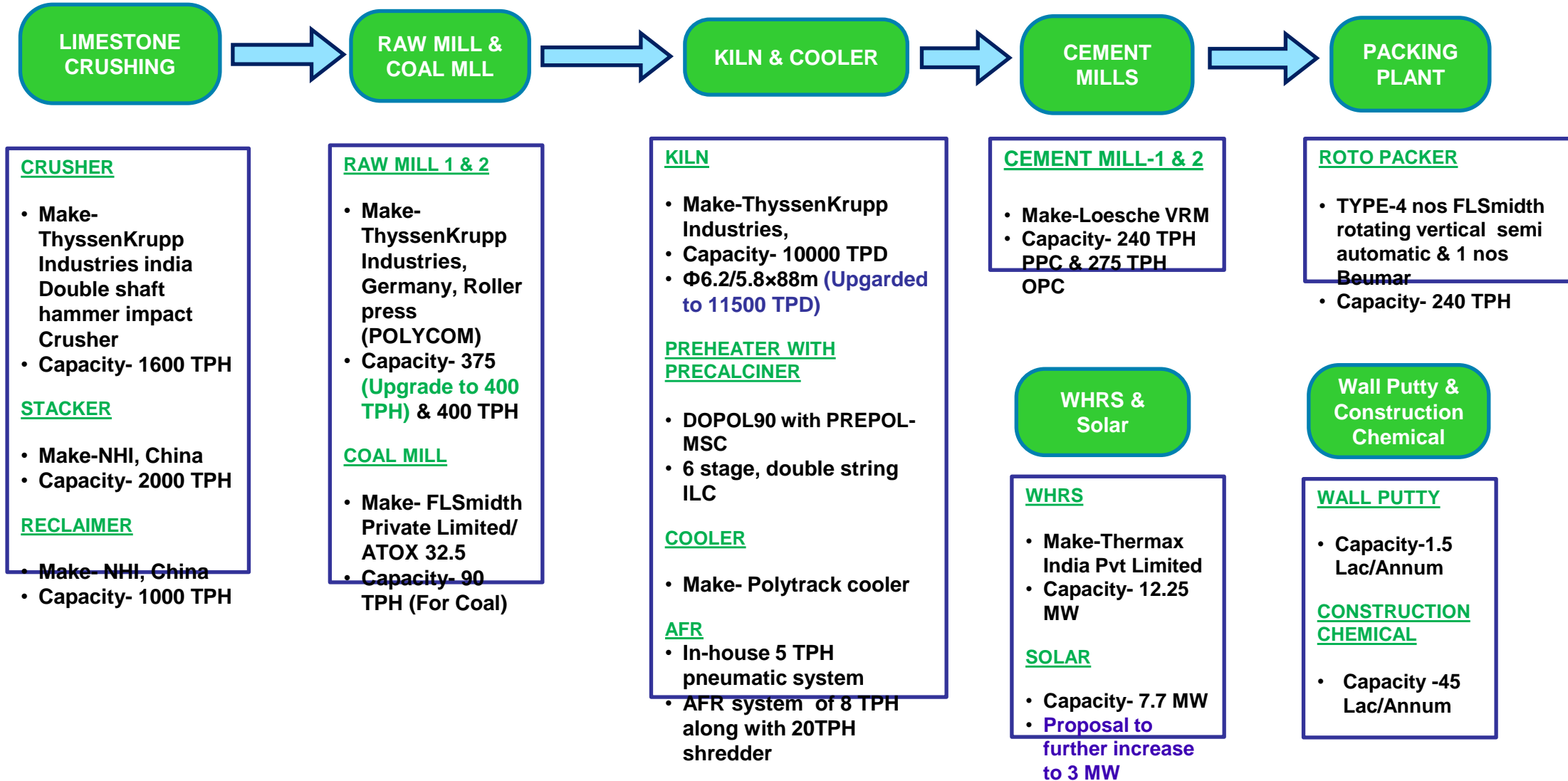
- **Integrity**
- **Professionalism**
- **Value Creation**
- **Social Commitment**



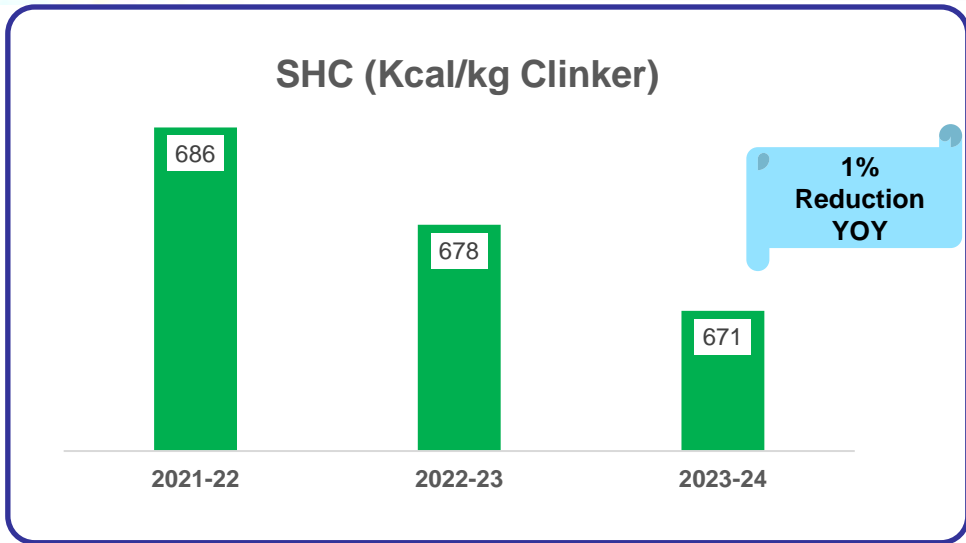
GENESIS OF THE MAIHAR CEMENT PLANT



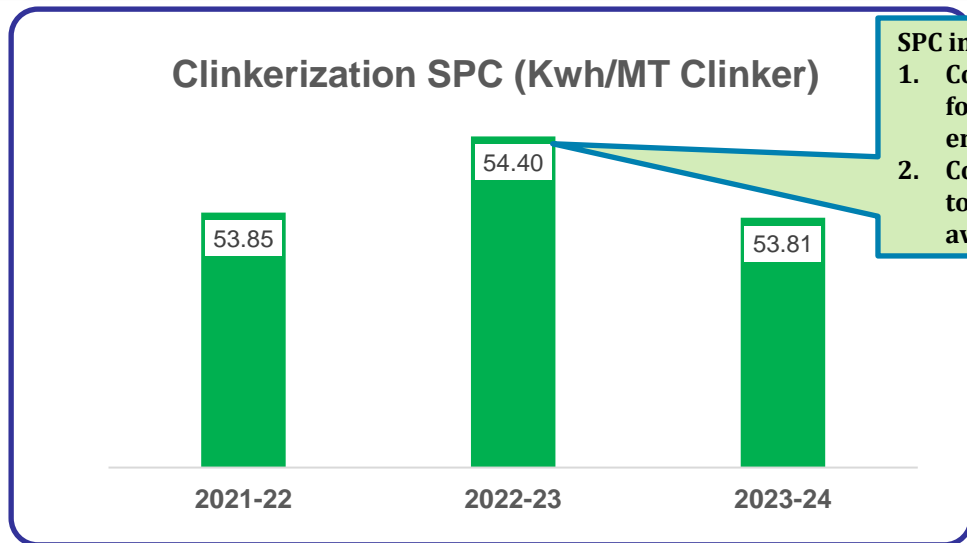
INTRODUCTION OF TECHNOLOGY/SPECIFICATION USED



Specific Energy Consumption (Thermal & Electrical) FY22 To FY24



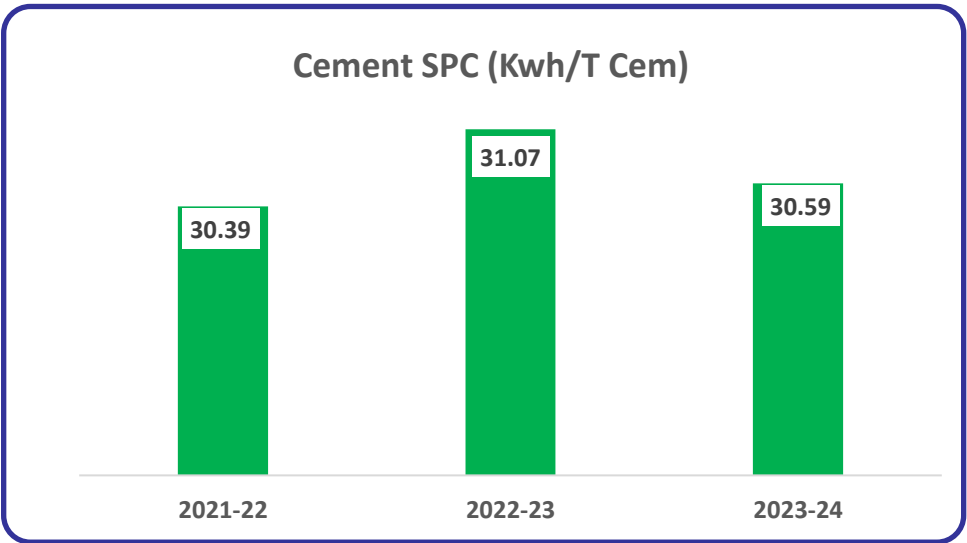
SPECIFIC HEAT CONSUMPTION



SPC increase in FY23

1. Cooler fans upgradation for clinker capacity enhancement.
2. Coal Mill SPC higher due to low HGI coal as per availability

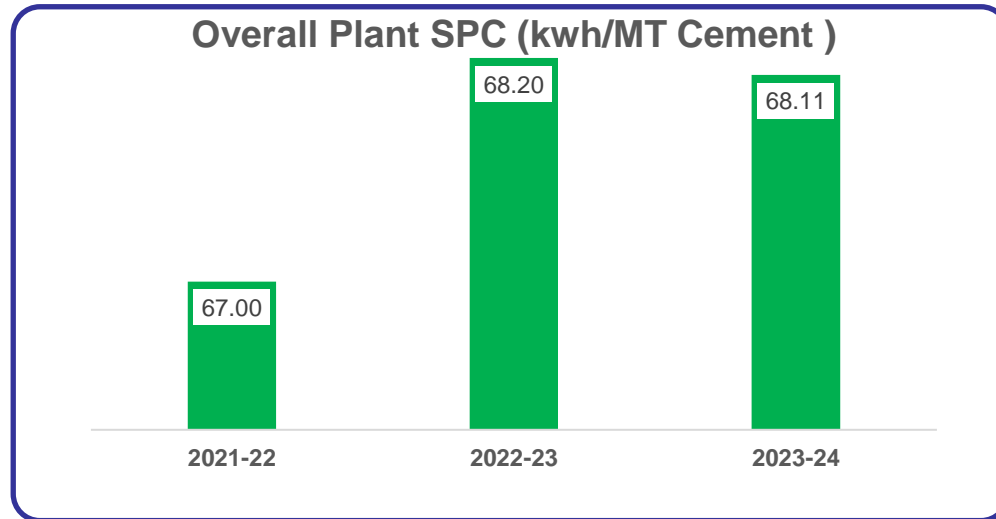
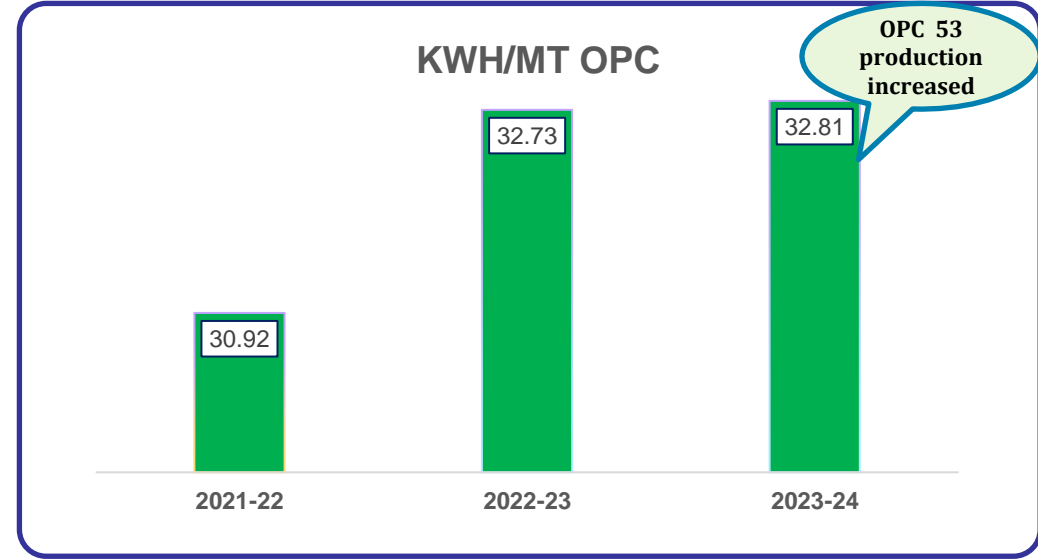
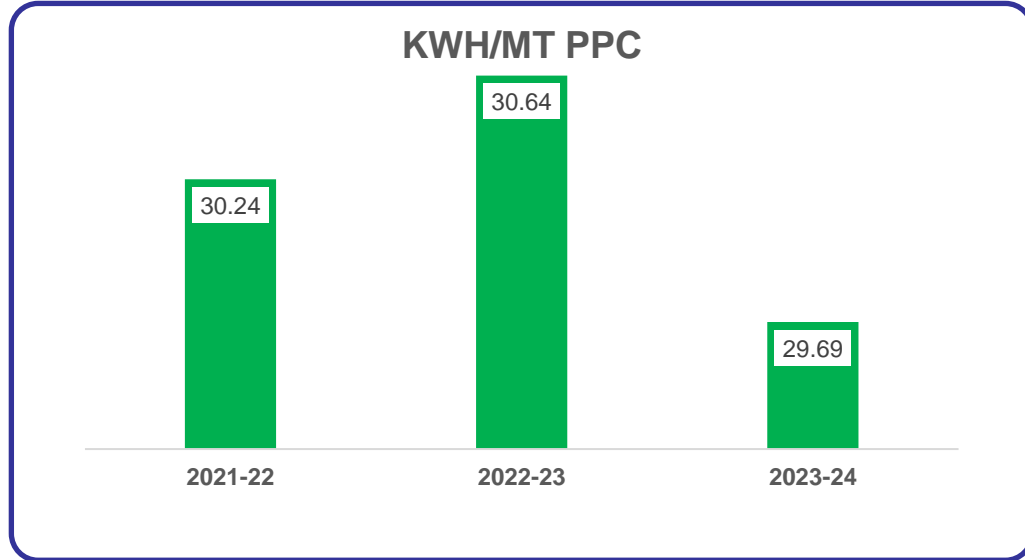
CLINKERIZATION SPC



CEMENT SPC

☐ Plant has initiated various energy conservation projects and by continuous improvement achieved KPI target.

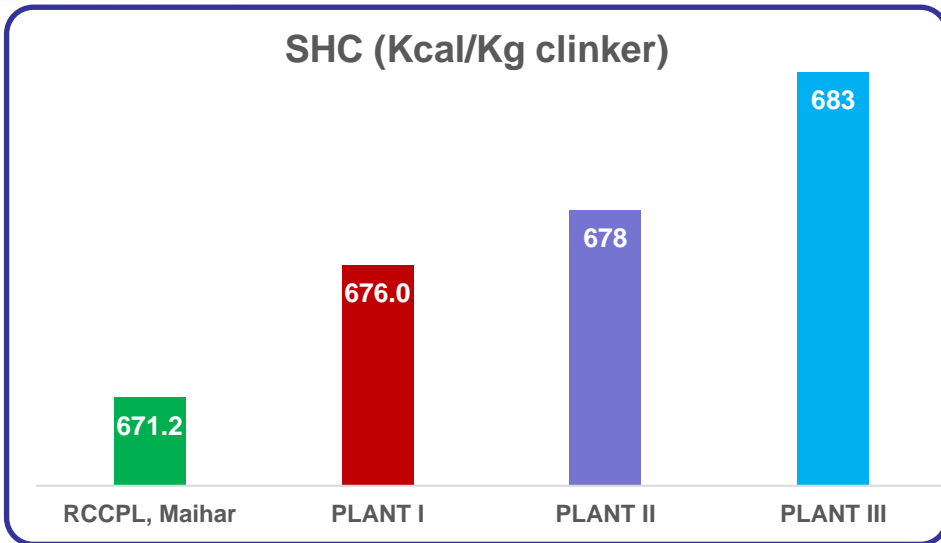
Specific Energy Consumption (Electrical) FY22 To FY24



Overall Plant SPC

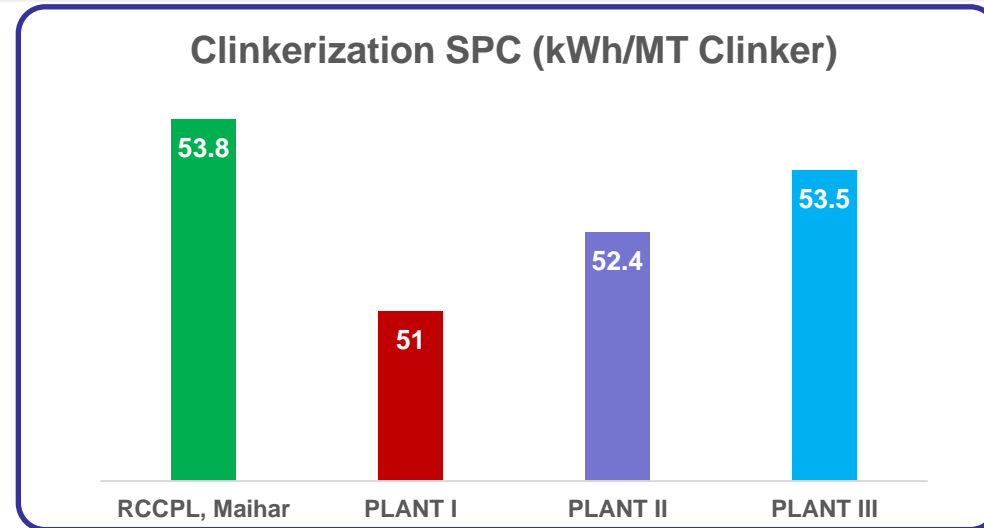
Competitors Benchmarking (Thermal & Electrical)

SHC (Kcal/Kg clinker)



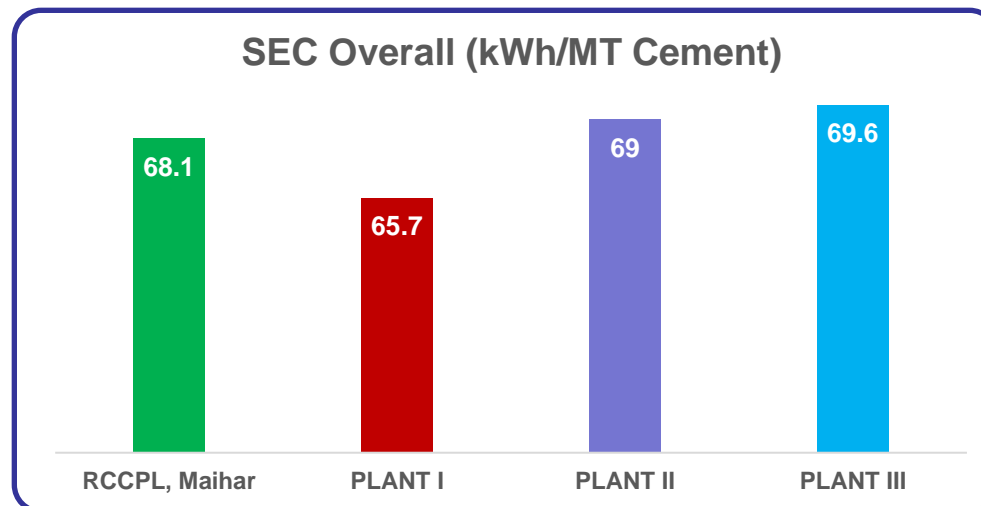
SPECIFIC HEAT CONSUMPTION

Clinkerization SPC (kWh/MT Clinker)



CLINKERISATION SPC

SEC Overall (kWh/MT Cement)



OVERALL PLANT SPC

1

How we are

Evaluation of existing plant performance KPIs with respect to best achieved values.

Review the gap and constraint from benchmarking KPI parameters of other cement plants

Identify the potential to stretch upto maximum / best targets and cost saving initiatives.

2

What Next

Manufacturing Transformation by following objectives:

- **Safety – Zero Harm.**
- Implementation of CO2 reduction initiatives .
- Improvement of reliability of the equipment.
- Reduction of clinker & cement power
- Reduction of sp. Fuel consumption.
- Higher usage of low cost CFA
- Higher usage of low cost gypsum over imported gyp.
- Improvement of TSR
- Stores & spares inventory reduction
- Fixed cost Optimization.

3

How to achieve

Implementation of “communities of practices” and “copy with pride” among all the units

Ideas generations exercise for reduction of cost, efficiency and reliability through small group activities (SGA)

Evaluations of the best ideas and implementation strategy.

Implementation of digital initiatives.

Skill development & Training (Technical / Latest developments)

Vision

To be the best manufacturing plants with respect to safety, cost and efficiency.

Modus Operandi



The ideas of cost optimization and efficiency improvement shall be inline with our company's Mantra of 4 Vs (Vision, Value, Velocity and Visibility)



Weekly review of the project status shall be done by respective unit head.



Monthly review of the project status shall be done along with monthly plant performance review meeting.



A sharing platform to be created in "One Drive" for regular updates of all the workings and updates



Rewards & Recognition



UPCOMING PLANNED ENCON PROJECTS IN 2024-25

S. No	PROJECTS	INVESTMENT (Million INR)	Annual Electrical Saving (Million KWH)	Annual Thermal Saving (Million Kcal)	Target of Completion
1	Installation of VFD's in clinker transport bag filter fans	1.4	0.156	0	Completed
2	Modification work in Mill fan inlet box enlargement to decrease pressure drop and Power reduction	2.275	0.195	0	Completed
3	Installation of Pendulum Flap valves at Cement mill reject hopper	1.1	0.1296	0	Oct'24
4	Replacement of Fly ash Bulker unloading compressor with lower pressure efficient compressor	6.1	0.864	0	Oct'24
5	VFD Installation in Pyro Compressor	1.8	0.144	0	Completed
6	Raw Mill duct CFD study and Modifications for pressure drop reduction	1.5	0.183	0	Mar'25

ENERGY SAVING PROJECTS IMPLEMENTED IN LAST THREE YEARS

Year	No of Major Saving Projects	Investment (INR Million)	Electrical Saving (Million KWH)	Thermal Saving (Million Kcal)	Total Saving (INR Million)	Impact on SEC/SHC (Electrical kWh /MT cement or Kcal/Kg cement)
FY 2021-22	7	11.2	4.41	2862	33.3	
FY 2022-23	8	39.05	0.6	30377	61.05	SHC Reduced by 7.8 Kcal /kg clinker
FY 2023-24	15	151.3	2.67	26071	56.5	SHC Reduced by 6.9 Kcal /kg clinker

ENERGY SAVING PROJECTS IMPLEMENTED: FY 2023-24

S. No	PROJECTS	INVESTMENT (Million INR)	Annual Electrical Saving (Million KWH)	Annual Thermal Saving (Million Kcal)
1	Reduction in Specific Heat Consumption from 678 to 671 kcal/kg Ck: <ul style="list-style-type: none"> ✓ Pre heater False air reduction from 6.5 to 5.5% ✓ PC temperature Optimization by 10 Deg C ✓ PA fan optimization from 2370 to 2100 by 270 rpm reduction ✓ Raw Mill residue optimization from 4% to 3.6% on 212 micron ✓ Kiln and PH cyclone heat resistant paint application in bottom 2 cyclone of both string 	4.25	0.24	13791
2	Kiln capacity upgradation from 10000 TPD to 11500 TPD <ul style="list-style-type: none"> ✓ PC veturi enlargement by 300 mm ✓ TAD duct area enlargement by 5 % ✓ Kiln feeding system upgradation 	145.8	0.1	2070
3	WHRS Generation improvement by 0.4 Mw/hr <ul style="list-style-type: none"> ✓ Install Cooler curtain at Grate 2 start (LP boiler take up) after mid Tap duct to increase WHR generation and AQC Id fan rpm optimization ✓ Chemical foam cleaning for proper heat exchange better flow of air through fins for reducing ACC fan RPM ✓ Elimination of WHRS AQC Id fan inlet damper 	(In-house)	1.43	

S. No	PROJECTS	INVESTMENT (Million INR)	Annual Electrical Saving (Million KWH)	Annual Thermal Saving (Million Kcal)
4	Cement Mills Operation optimization and TPH enhancement: <ul style="list-style-type: none"> ✓ Optimization of Mill fan with Mill feed at different rpm and feed level ✓ Dam ring optimization ✓ Optimize compressed air Purging time in Bag House ✓ Mill Bag house DP optimization to avoid feed cuts ✓ Idle run of heater of cement mill bag house (excluding Rainy season) ✓ Dense phase Drier start stop incorporate with Compressor-04 nos (Post clinkerisation) 	(In house)	8.43	
5	Packing Plant SPC reduction of 0.6 kwh/T by- <ul style="list-style-type: none"> ✓ Installation of VFD in Bag filter fans ✓ Compressed air optimization by compressor loading and unloading pressure ✓ Optimize compressed air Purging time in Bag filters ✓ Separate airline for each packer to avoid line losses during packer stop condition 	0.15	0.202	
6.	Isolation valve at compressed air circuit to save power (12-13% compressed air) in un-utilised subsection in cement grinding	(In house)	0.377	
7	Compressed air Audit for compressor pressure optimization and leakages arresting work of Cement and Packing section	1.5	0.09	

S. No	PROJECTS	INVESTMENT (Million INR)	Annual Electrical Saving (Million KWH)	Annual Thermal Saving (Million Kcal)
8	Raw Mill BH transport circuit (Chain conveyor) cyclic operation from continuous operation	(In house)	0.302	
9	Optimization of Utility power through Engineering control by- Installation of Isolation valve in water circuit to avoid pressure loss during no operation Flyash wagon operation in Cement Mills.	0.2	1.83	
10.	Reduction of Idle running of Coal mill auxilliary systems- <ul style="list-style-type: none"> ✓ Gearbox lubrication unit (System includes 3 nos. HP pump of 7.5kW each and 1 LP pump of 15kW) ✓ Roller lubrication (All Roller lubrication system pumps will stop after 20 mins of mill stop) ✓ Hydraulic system (All Hydraulic system pumps will stop after 20 mins of mill stop) 	(In house)	0.55	

Sl.No	PROJECTS	INVESTMENT (Lacs INR)	SAVINGS (Lacs INR/annum)
1	Reduction in Specific Heat Consumption from 686.4 to 678.2 by: <ul style="list-style-type: none"> ✓ Curtain wall installed in cooler Grate 1 to improve recuperation efficiency of cooler. ✓ False Air reduction in Preheater from 8% to 6% ✓ Kiln operation, reliability and productivity improvement ✓ Cooler Upgradation (static grate fan and aeration elements) 	385	573.2
2	Reduced Pyro compressor loading and unloading pressure by 0.2 bar	(In house)	11.88
3	Reduction of Idle running of clinker transport group	(In house)	2.20
4	Reduction of Idle running of Gypsum transport group	(In house)	3.19
5.	Reduction of Idle running of flyash transport group	(In house)	1.15

ENERGY SAVING PROJECTS IMPLEMENTED: FY 2022-23

Sl.No	PROJECTS	INVESTMENT (Lacs INR)	SAVINGS (Lacs INR/annum)
6	Logic made for reduction of idle run of cement mill transport group and aux circuit. 561BC3 will only run when reject to be handled or will run in auto mode for 5 min in 2hrs. hence save the power of belt conveyor and supporting bag filter.	(In house)	7.32
7	WHRS Power generation improvement and Reduction in Auxiliary consumption through leakage identification in ACC system by ultrasonic leakage detector instrument	4	11.25
8	VFD installed in Coal Mill Water spray pump L41WP2	1.5	0.26

ENERGY SAVING PROJECTS IMPLEMENTED: FY 2021-22

Sl.No	PROJECTS	INVESTMENT (Lacs INR)	SAVINGS (Lacs INR/annum)
1	Reduction of false Air in PH circuit by 1%	In house	68.5
2	Electrical energy saving through replacement of Cement Mill-1 mill fan with new high efficiency fan.	38	15.96
3	Electrical energy saving through installation of VFD in cement mill compressor	10	3.98
4	Electrical energy saving through installation of VFDs in packing plant bag filter fans 641FN1, 642FN1, 643FN1, & 644FN1.	32	13.05
5	Electrical energy saving through installation of VFDs in bag filter fans 532FN1, 531FN1, 562FN2, & 561FN2	32	5.8
6	Enhancement of RM-1 & RM-2 capacity	0	167.6
7	Coal mill Productivity Enhancement by- <ul style="list-style-type: none"> ✓ GRR speed from 92% to 100%. ✓ Increasing dam ring height by 10 mm, ✓ grinding pressure increased from 150 bar to 159 bar and separator seal gap adjustment 	0	58.5

Project No 1- Kiln capacity upgradation from 11000 to 11500 TPD

Problem Statement:

- Potential of increase in Kiln production with bottleneck study
- To reduce the Cost of production

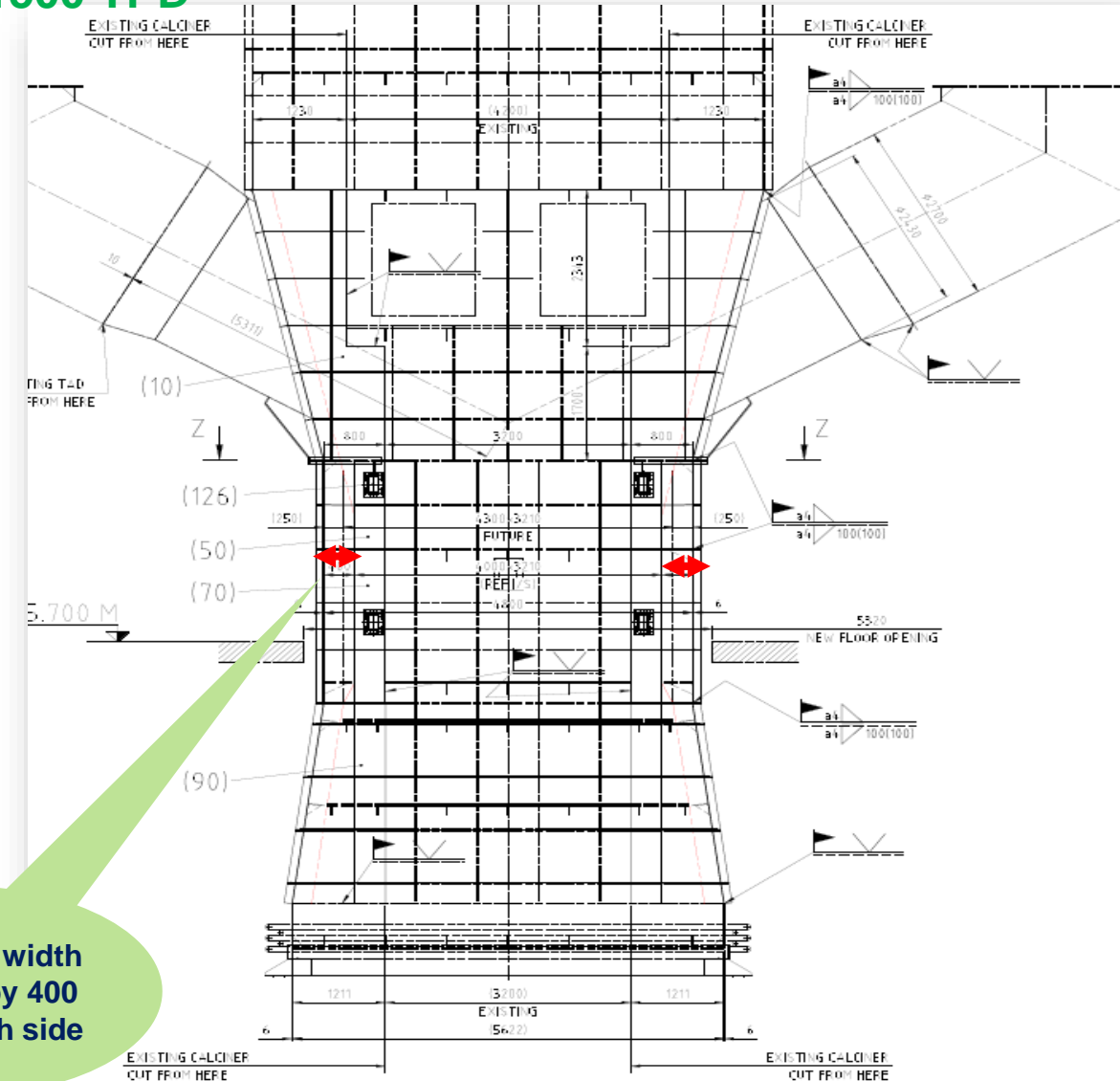
Modification:

- To maintain the velocity Profile in Kiln and Pre heater area at Kiln 11500 TPD , detail study was Conducted along with OEM
- PC venture area was increased by width increase by 400 mm to maintain velocity 22-24 m/s and avoid excess pressure drop in the PH system
- TAD duct area also increased by 5 % to maintain same velocity 30-32 m/s

Benefits/Impact:

- Clinker Productivity increase from 11000 to 11500 TPD.
- Clinker Production increase.

Replicable Potential : Yes



PC Venturi width widening by 400 mm on each side

Project No 2- Heat resistance painting of bottom 4 cyclones

Problem Statement:

- High Radiation losses in Pre Heater system
- Increase in Sp. heat consumption
- High surface temperature of PH bottom cyclones

Modification:

- Paint reduce heat loss due to radiation via reflecting radiation away from the surface. Due to low emittance value of the coating it absorbs less heat through radiation. Ultimately, the surface temperature decreases thereby reducing overall energy loss by radiation and convection thereby reducing heat consumption of clinkerization process
- Surface temp reduced by 15-20 °C

Benefits Achieved:

- SHC Saving- 2.6 Kcal/kg clinker Lacs

Replicable Potential : Yes



Heat resistance
paint
application



Project No 3- Raw Mill BH transport circuit cyclic operation from continuous operation

Problem Statement:

- Continuous operation of Bag house transport circuit.
- Idle equipment operation
- Increase Power consumption

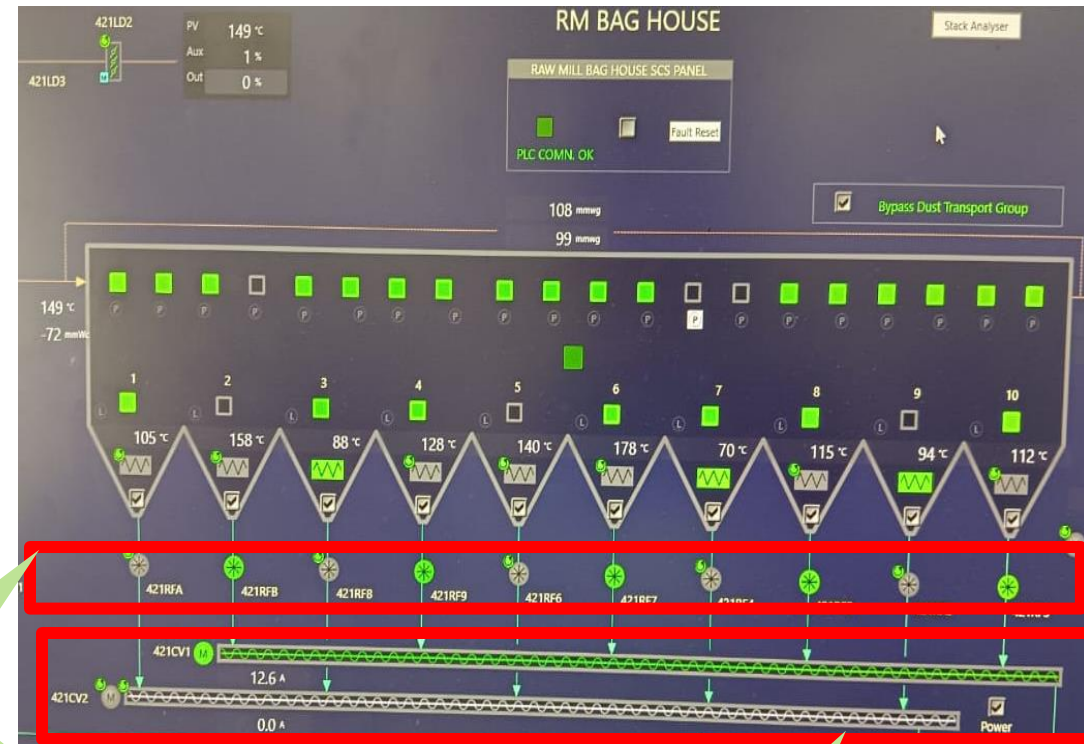
Modification:

- Logic modified as chain conveyor 1&2 and 5 nos RAL of each chain operation to be made cyclic with 10 min stop and run for next 10 min

Benefits Achieved:

- Power Saving- ₹ 7.5 Lacs/yr
- Power savings of ~14 kw/h
- Idle equipment operation reduced.

Replicable Potential : Yes



5 RAL of chain 1
stop and 5 RAL of
chain 2 ON

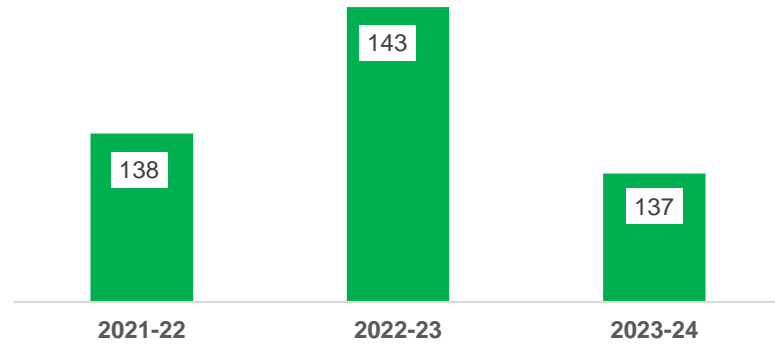
Chain conveyor-1 ON
and CV-2 STOP

6a. Utilisation of Renewable Energy sources (Onsite)

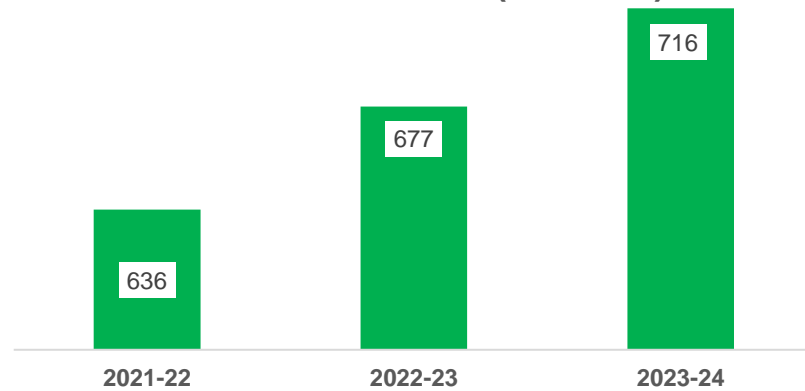
Onsite				
Year	Source-Solar	Installed capacity (in MW)	Total Generation (million kWh)	Share % w.r.t to overall energy consumption
FY 2021-22	Solar	7.7	13.82	4.89
FY 2022-23	Solar	7.7	14.29	4.67
FY 2023-24	Solar	7.7	13.67	4.44

GREEN AND CLEAN ENERGY : SOLAR AND WHRS GENERATION

Solar Generation (Lac Unit)



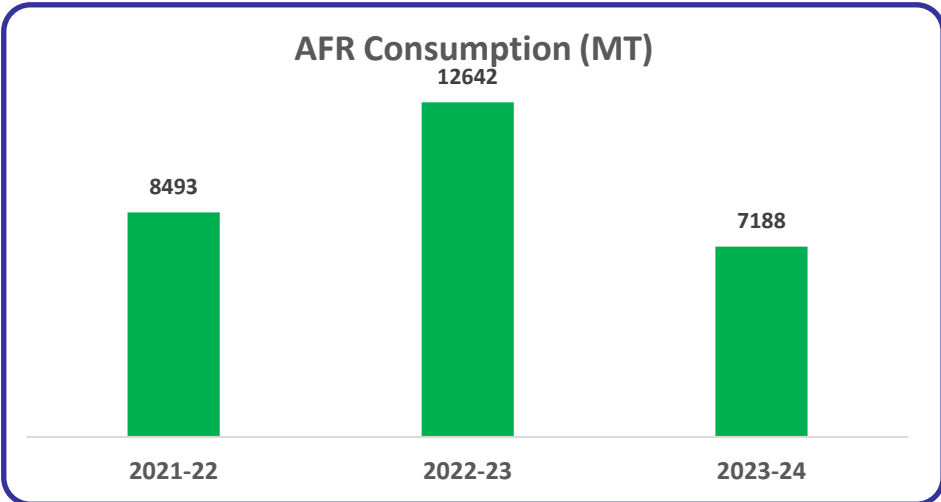
WHRS Generation (Lac Unit)



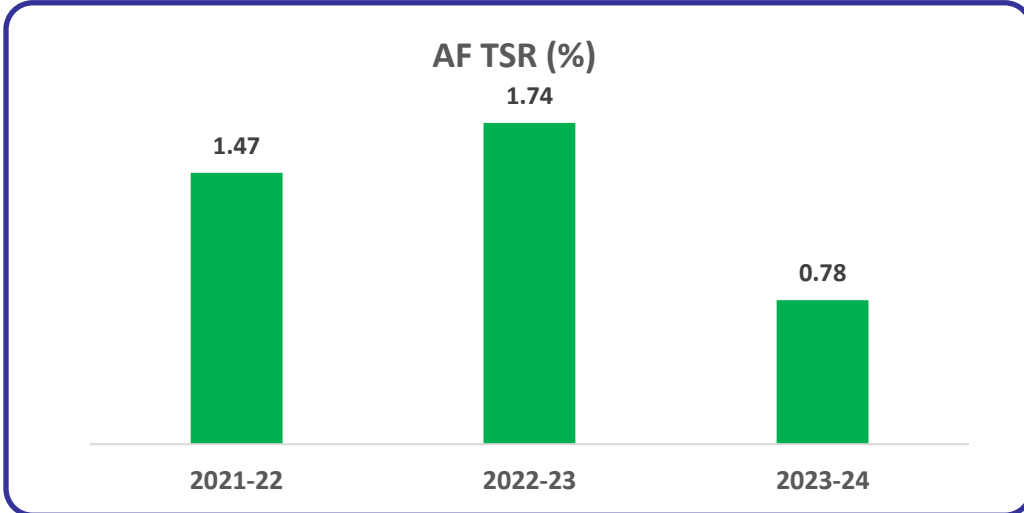
WASTE UTILIZATION AND MANAGEMENT



New AFR System of 8 TPH along with 20 TPH shredder installed which will increase TSR rate upto 7 %



AFR CONSUMPTION (MT)

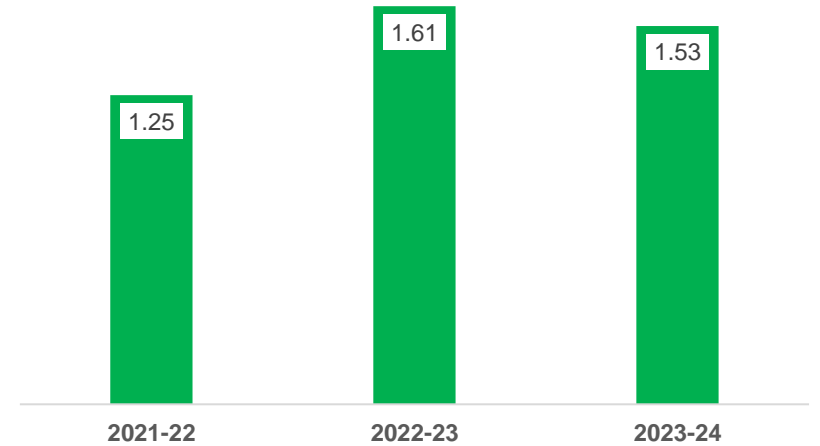


%TSR RATE

GREEN SUPPLY CHAIN MANAGEMENT



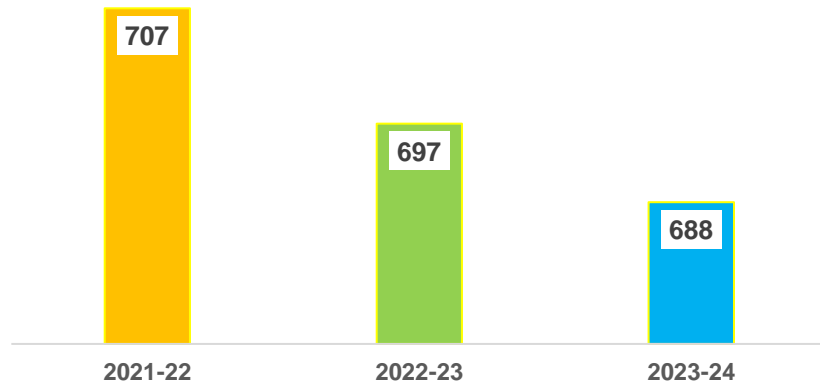
Cement Dispatch by Racks (Million MT)



- **BTAP SYSTEM:** Fly Ash procured through BTAP rake so as to reduce fly ash bulker freight cost.
- Procurement of coal from Sialgohari mines through trucks and the same trucks are being used for transporting of cement to near by markets so as to lower freight cost and reduce overall cost of cement.
- Dispatching of cement through Rail mode instead of road ways to save costing as rail freight is comparatively very lower.
- Procurement of CFA through railway racks instead of trucks .

GHG INVENTORISATION

Total kgCO₂ / Ton of Cement



CO₂ EMISSION FIGURES



Way Ahead:

- Internal target of Carbon Reduction <500 Kg CO₂ per Ton cement by 2030
- Dedicated Team is formed and preparing Road map with action plans for the reduction of Carbon footprints in the company

ENERGY MANAGEMENT SYSTEM

Analysis of Energy performance by Technical Head and Process Head on daily basis

Review of Energy Performance in coordination meeting on Daily Basis by Plant Head

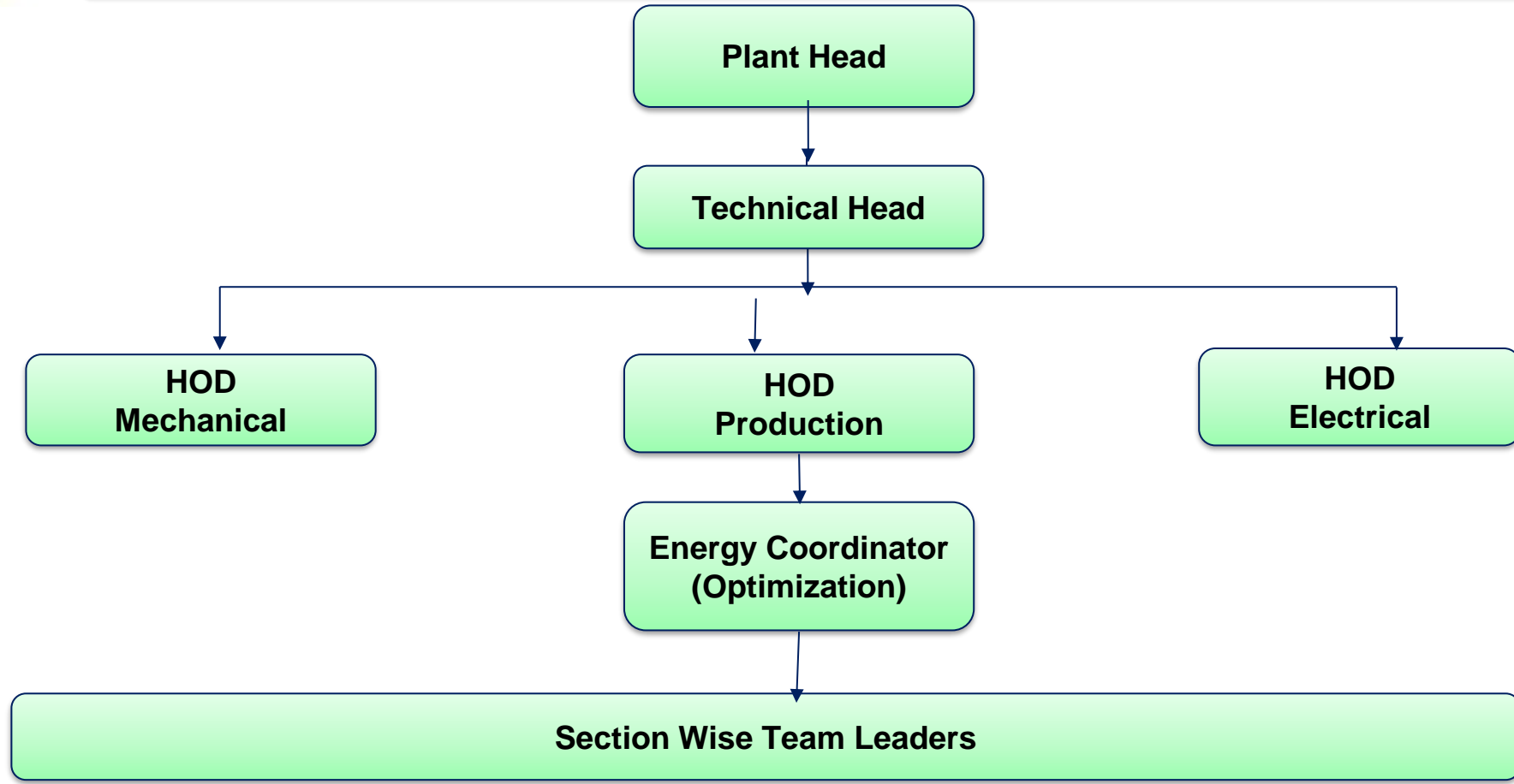
Project SIKHAR, Copy Community of Practices and Copy with pride (COP) meeting Chaired by Project leaders: Monthly

Fuel and AFR TSR Meeting by CMO on fortnightly basis

Energy and cost performance Review Meeting chaired by CMO : Monthly



ENERGY MANAGEMENT COMMITTEE



- Prod Section Head- RM & RMH
- Mech Section Head- Crusher/ RM & RMH
- E & I Section Head- Crusher/ RM & RMH

- Prod Section Head- Pyro
- Mech Section Head- Pyro
- E & I Section Head- Pyro

- Prod Section Head- Cement Mill
- Mech Section Head- Cement Mill
- E & I Section Head- Cement Mill

- WHR Mech engineer
- WHR E& I engineer
- Packing Plant E& I engineer
- Utility & WTP Mech Engineer
- Lighting and project E& I engineer

IMPLEMENTATION OF INTEGRATED MANAGEMENT SYSTEM



ISO 9001:2015
Certificate Issue Date- 01 Sept 2021
Expiry Date- 31 Aug 2024

ISO 14001:2015
Certificate Issue Date- 01 Sept 2021
Expiry Date- 31 Aug 2024

ISO 45001:2018
Certificate Issue Date- 01 Sept 2021
Expiry Date- 31 Aug 2024

Certificate No.- IND21.2063/IM/U

AWARENESS TRAINING and Reward & Reorganization PROGRAM

□ Awareness sessions and Reward & Recognition to workmen for their commendable work



AWARDS & ACCOLADES

1



2



1. Awarded by CII (Confederation of Indian Industry) as Energy Efficient unit in **24th National Award for Excellence in Energy Management 2023**, Mr Ashok Kumar (Deputy Director General of Bureau of Energy Efficiency) and Mr R Dinesh (Chairman CII) accredited the prestigious award.

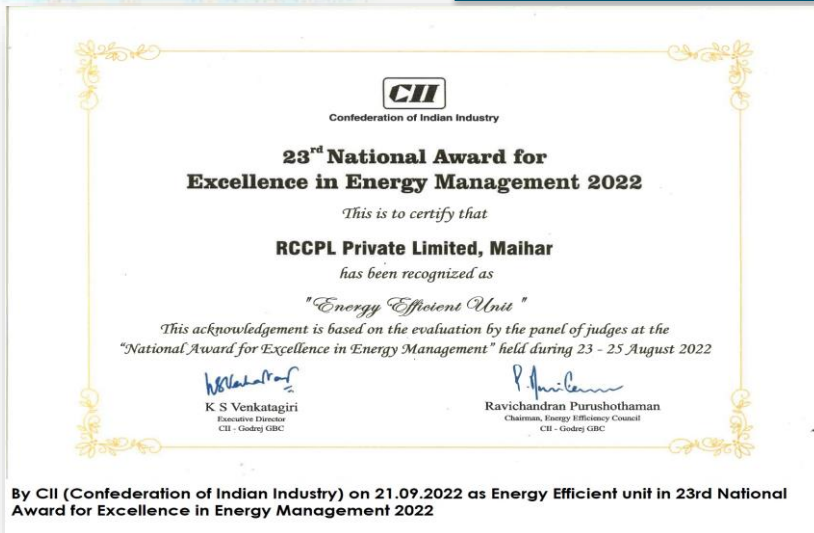
2. RCCPL Maihar won **“Gold”** Award in cement category for sustainable energy performance and Best energy efficient unit by SEEM national energy management India on Sep’23 at New delhi.

AWARDS & ACCOLADES



“Significant Achievement in Environment Management and Significant Achievement in Corporate Excellence” for CII-ITC Sustainability Awards

AWARDS & ACCOLADES



1. Award for energy efficiency unit in **23rd CII National Award** for excellence in energy management in Aug 2022 at New Delhi.
2. **Silver Award** in cement category for sustainable energy performance and best energy efficient unit by **SEEM national energy management India on Sep'22**
3. Award for energy excellence in integrated cement for **2019-22 during 17th NCCB international conference at New Delhi**

Thank You !!

