

ORIENT CEMENT LIMITED
Chittapur, Karnataka

Great
Place
To
Work[®]

Certified

MAR 2024-MAR 2025

INDIA

Team Members

P Murali Mohan Raju

DGM - Process

Rohit S Anashetty

AGM - Instrumentation

B Pradeep Varma

Manager - Electrical

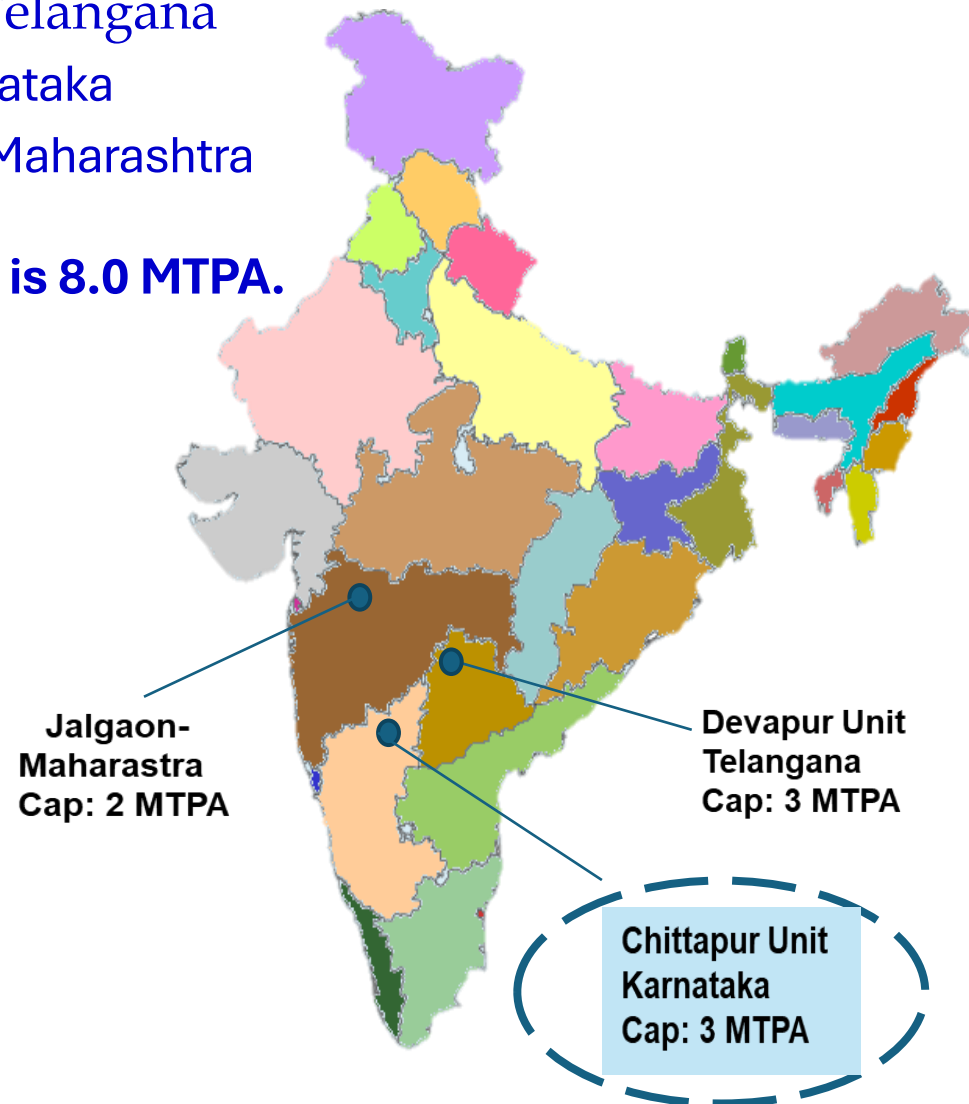
☐ Orient Cement is operating at 3 locations in India:

- Integrated Plant - Devapur, Telangana
- Integrated Plant - Chittapur, Karnataka
- Cement Grinding Unit - Jalgaon, Maharashtra

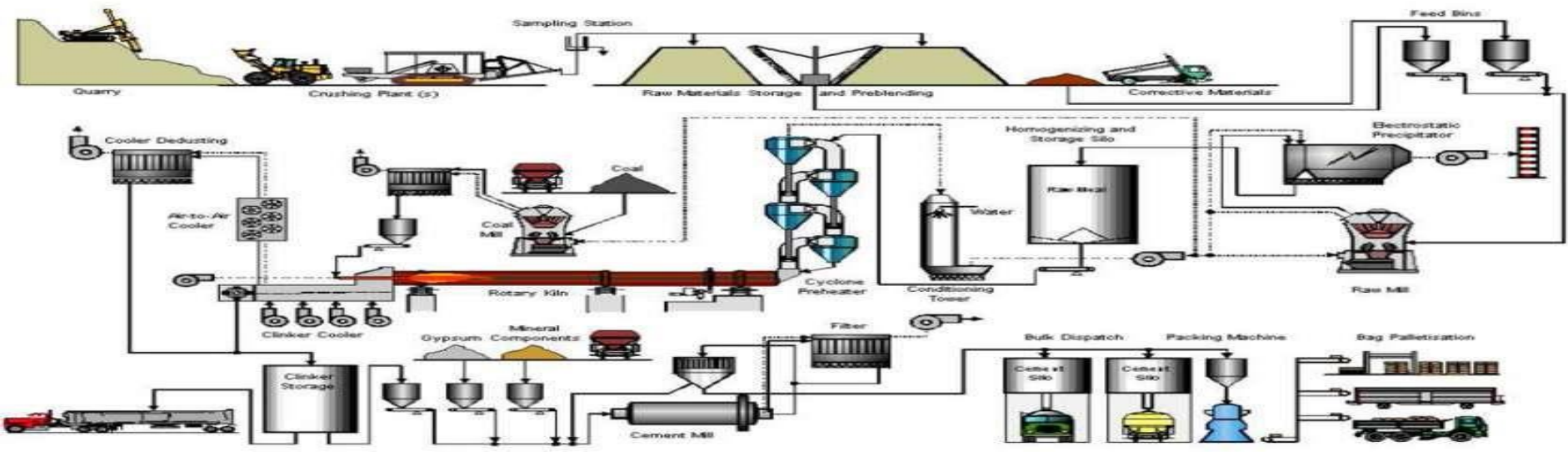
☐ Overall Capacity of Orient Cement is 8.0 MTPA.

Plant is certified with IMS:

- QMS 9001 : 2015
- EMS 14001 : 2015
- OHSAS 18001: 2007
- EnMS 50001: 2018
- FMS 41001 : 2018
- **Green Pro Certified by CII**
- **Member of GCCA**
(Global cement & concrete association)



Process



Products



Birla.A1 StrongCrete




Birla.A1 Premium Cement (PPC)



Birla.A1 Premium Cement 53 Grade(OPC)



Birla.A1 Premium Cement 43 Grade(OPC)



**Plant Location : Itga (V), Chittapur (Tq),
Kalaburagi (Dist.)
Karnataka (India)**

Commercial Production Started : Sep 2015

Clinker	: 2MTPA
Cement	: 3MTPA
CPP	: 45MW
WHRS	: 10.1 MW

Plant & Colony	: 266 Ha
Green Belt	: 273749 Saplings (Till 31st March 2023)

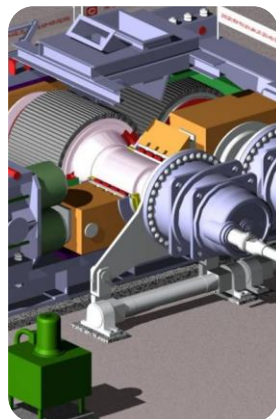


Crusher

Make : L&T

Capacity:
1200 TPD

Operating
@ 1190
TPD



Raw Mill-1

Make: FLS
HRP3.0

Capacity:
250TPH

Operating @
320TPH

Raw Mill-2

Make: FLS
HRP3.0

Capacity:
250TPH

Operating @
320TPH



Coal Mill

Make : FLS
ATOX27.5

Capacity: 64
TPH (Indian
Coal)

Operating @
28 TPH
(Pet coke)



Kiln

Make : FLS

Capacity:
6600 TPD

Operating
@ 6820
TPD



Cement Mill-1

Make : FLS
OK39.4

Capacity:
250TPH (OPC)
@ 3000 cm²/gm
Blaine

265TPH (PPC) @
4000 cm²/gm
Blaine

Operating @
230TPH (OPC)
@3200
cm²/gm
Blaine

310 TPH (PPC)
@ 3600
cm²/gm
Blaine



Cement Mill-2

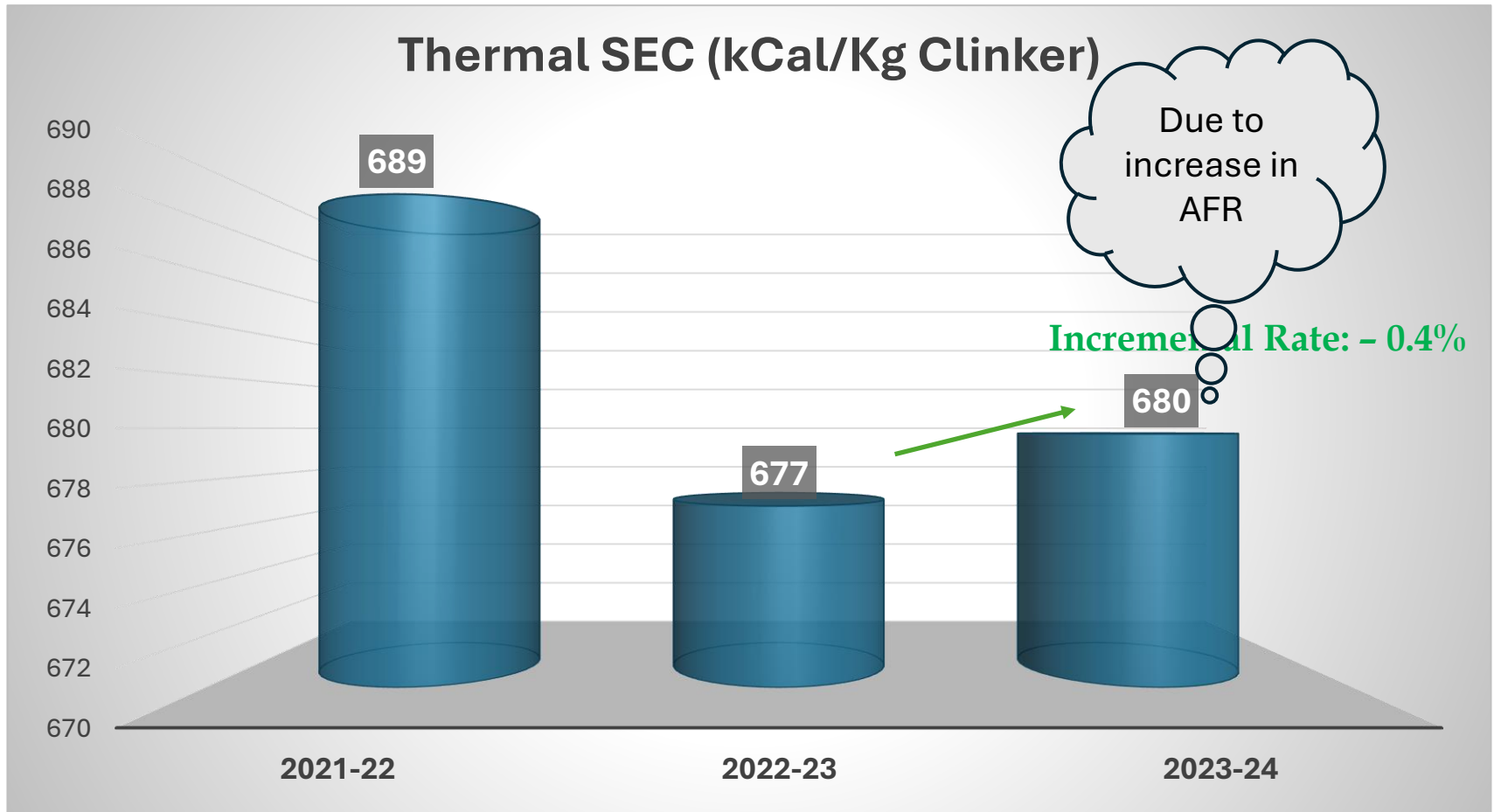
Make : FLS
OK39.4

Capacity:
250TPH (OPC)
@ 3000 cm²/gm
Blaine

265TPH (PPC) @
4000 cm²/gm
Blaine

Operating @
230TPH (OPC)
@3200
cm²/gm
Blaine

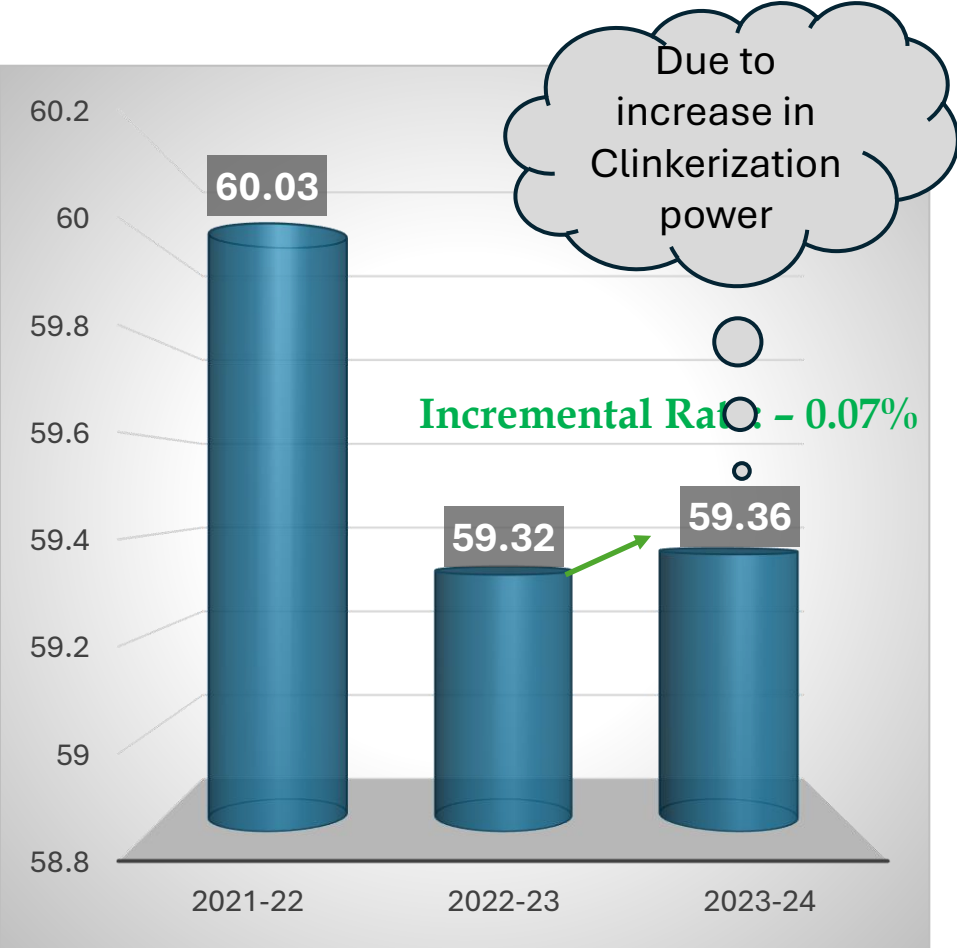
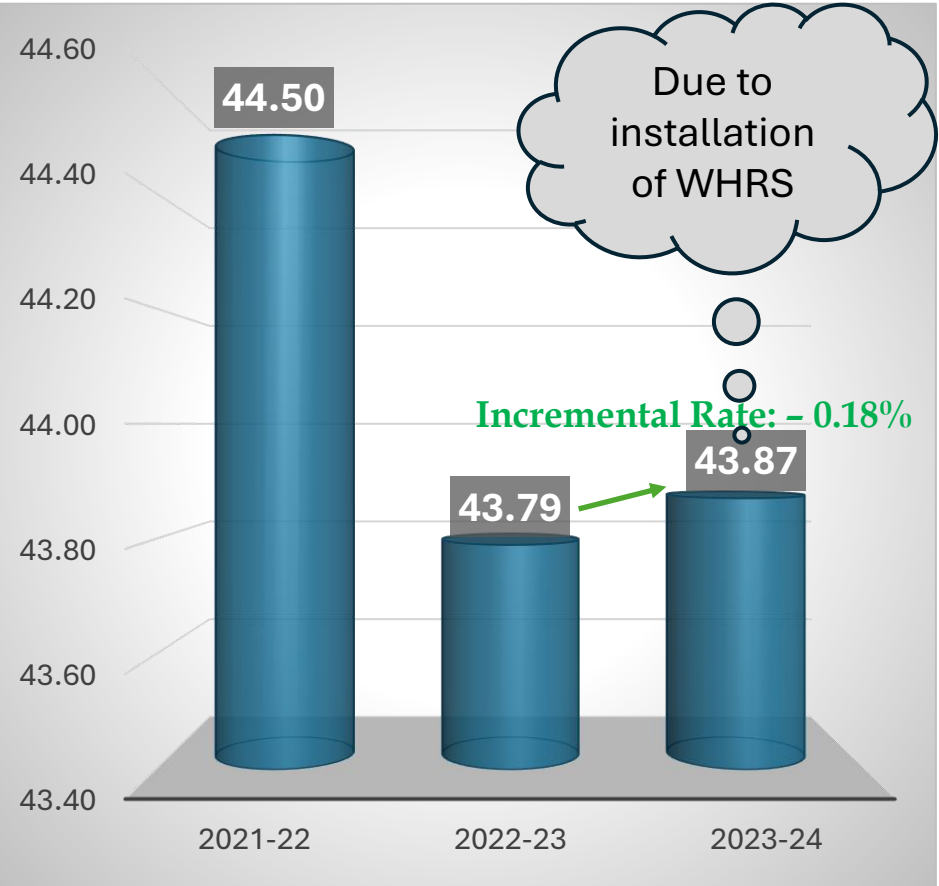
310 TPH (PPC)
@ 3600
cm²/gm
Blaine



SEC :- Specific Energy Consumption

Up to Clinkerization
(KW/MT of Clinker)

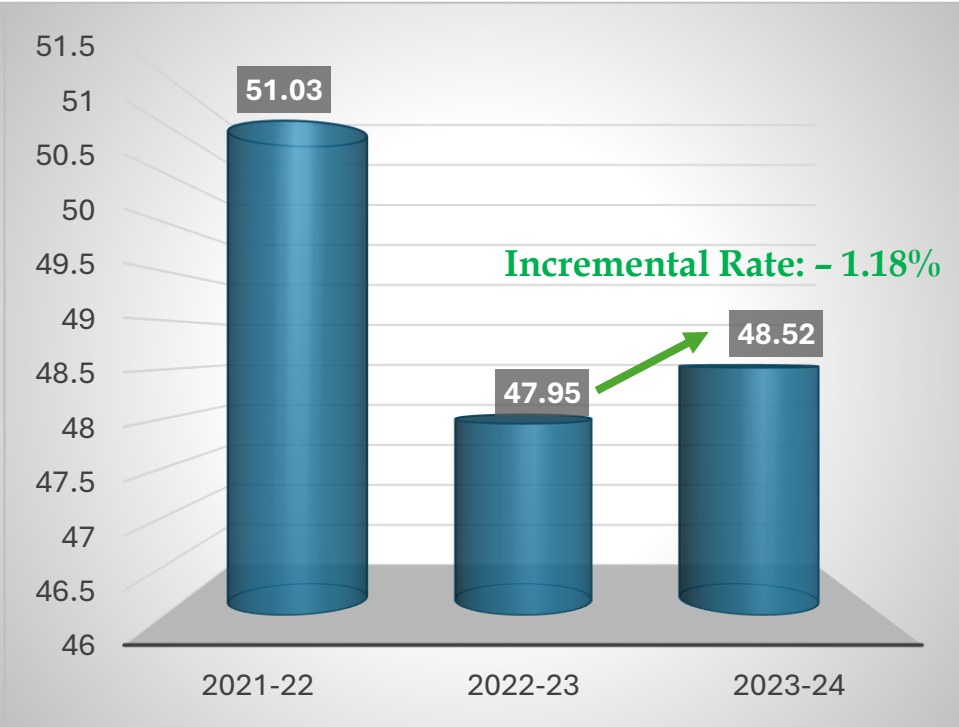
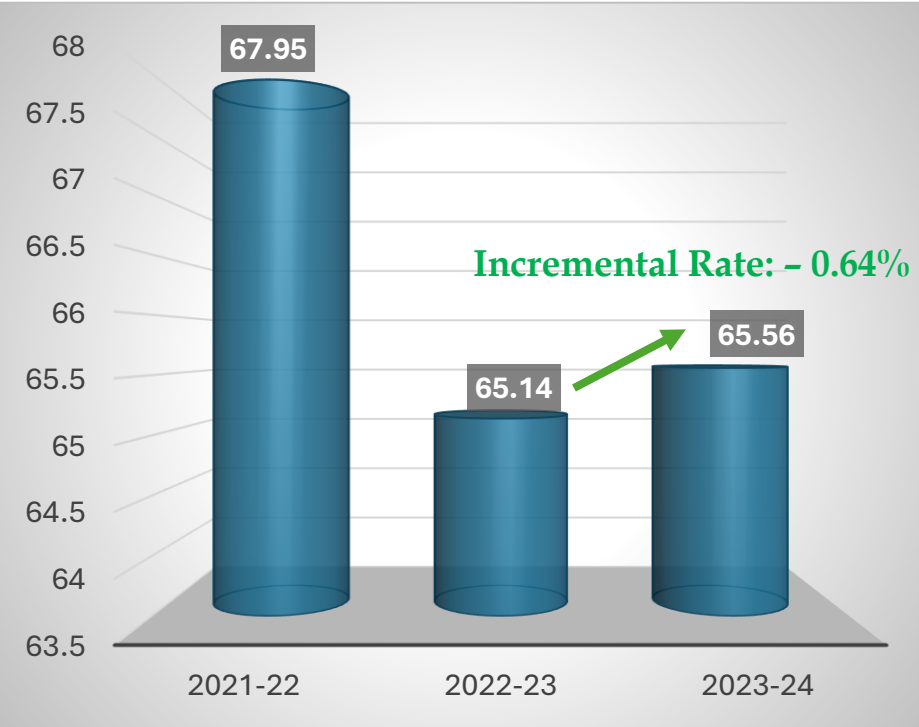
Overall Cement
(KW/MT of Cement)



Electrical SEC

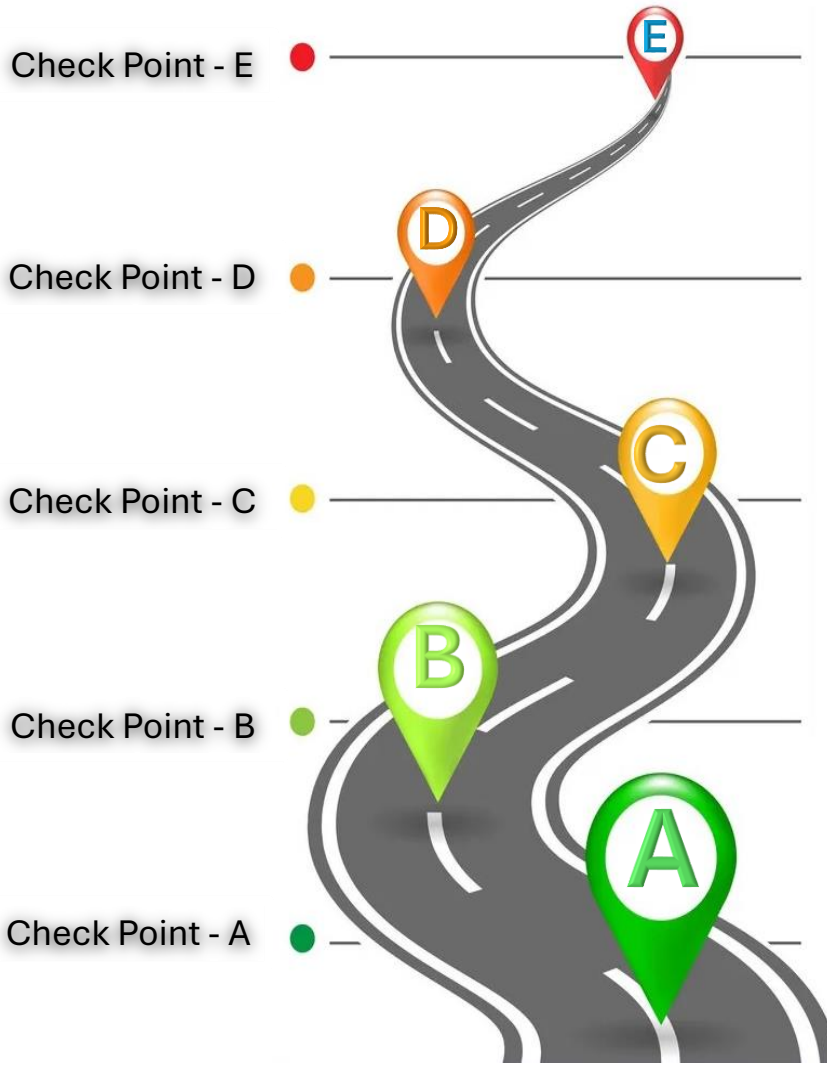
Overall Cement OPC
(KW/MT of Cement)

Overall Cement PPC
(KW/MT of Cement)



Specific Energy Consumption	National Benchmark	Yearly Best Figures of OCL, Chittapur	SEC on 2023-24
Thermal - Kcal/Kg Clinker	675	677 (FY 2022-23)	680
Electrical-kWh/T of Clinker	42.59	43.79 (FY 2022-23)	43.87
Electrical-kWh/T of Cement	56.10	59.32 (FY 2022-23)	59.36

❑ The power achieved based on 60% - 40% of OPC & PPC products



Fine Coal transport phase density Improvement

All Process fans efficiency improvement

Replacement of Burner pipe

Installation of VFDs for Nuisance Bag filter Fans

Waste heat recovery power plant installed & starting journey towards the Electricity Generation

Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million KCal)	Investment (Rs in Million)	Annual Savings (Rs in Million)
1.	Optimization of Kiln Coal transportation phase density.	1.92	NIL	0.10	1.57
2.	Cement Mill-1 Fan Efficiency improvement from 76.3 % to 85.4 %.	6.45	NIL	0.10	4.87
3.	Cement Mill-2 Fan Efficiency improvement from 75.6 % to 85.4 %.	5.10	NIL	0.10	3.85
4.	Improvement of cooler ESP fan efficiency from 40.5% to 86.15% by replacing the new impeller.	9.40	NIL	0.50	7.10
5.	Replacement of all old and inefficient lighting system by Energy efficient Lighting system i.e., LED.	4.51	NIL	4.35	3.41
6.	Intelligent flow controller in compressed air system for pre clinkerization.	2.47	NIL	1.15	1.8

Year	No of Projects	Investments (INR Million)	Savings (INR Million)
FY 2021-22	09	1.18	25.50
FY 2022-23	09	3.05	17.02
FY 2023-24	05	19.79	20.59

Sl. No.	Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
		In lac kWh	Ton/year	Rs in Million	Rs in Million	
1.	Heat resistant paint applied in Kiln shell	-	5.36	12.1	2.05	2.03
2.	Cooler exit duct coating avoided by water spray line modification	1.15	-	0.95	0.525	6.63
3.	Idle running for coal unloading circuit by reducing the wagon unloading time	2.592	-	2.02	-	Immediate
4.	VFD installed for crusher bag filter fan 111FN303	1.05	-	0.861	0.45	0.52

Sl. No.	Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
		In lac kWh	Ton/year	Rs in Million	Rs in Million	
5.	Bag filter fan interlock with packer operation	0.51	-	0.367	-	Immediate
6.	Dispersion plate installed in fly ash entry in both Cement mill	0.20	-	0.145	0.25	1.72
7.	Changed HPSV lamps to LED lamps in Raw mill section	0.146	-	0.104	0.67	8.12
8.	Raw mill circuit bag filters stopping in monsoon	4.14	-	0.29	-	Immediate
9.	Compressor pressure reduced 5.8-5.3	0.05	-	0.20	-	Immediate

Sl. No.	Major Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
		In lakh Wh	KCal/kg Clk	Rs in Million	Rs in Million	
1.	Replacement of screw conveyors with air slides in Packing Plant.	0.52	-	0.391	0.283	8
2.	Intelligent flow controller for compressor air system for post clinkerization.	2.47	-	1.8	1.15	7
3.	PID loops optimizing with AI technology in Pyro section.	0.54	1526911000	3.7	3.7	12
4.	Raw mix optimizing with AI technology.	2.58	1314269000	3.1	0.633	2
5.	Replacement of reversible belt conveyor (11KW) with Pneumatic diverting gate.	0.39	-	0.324	0.272	10

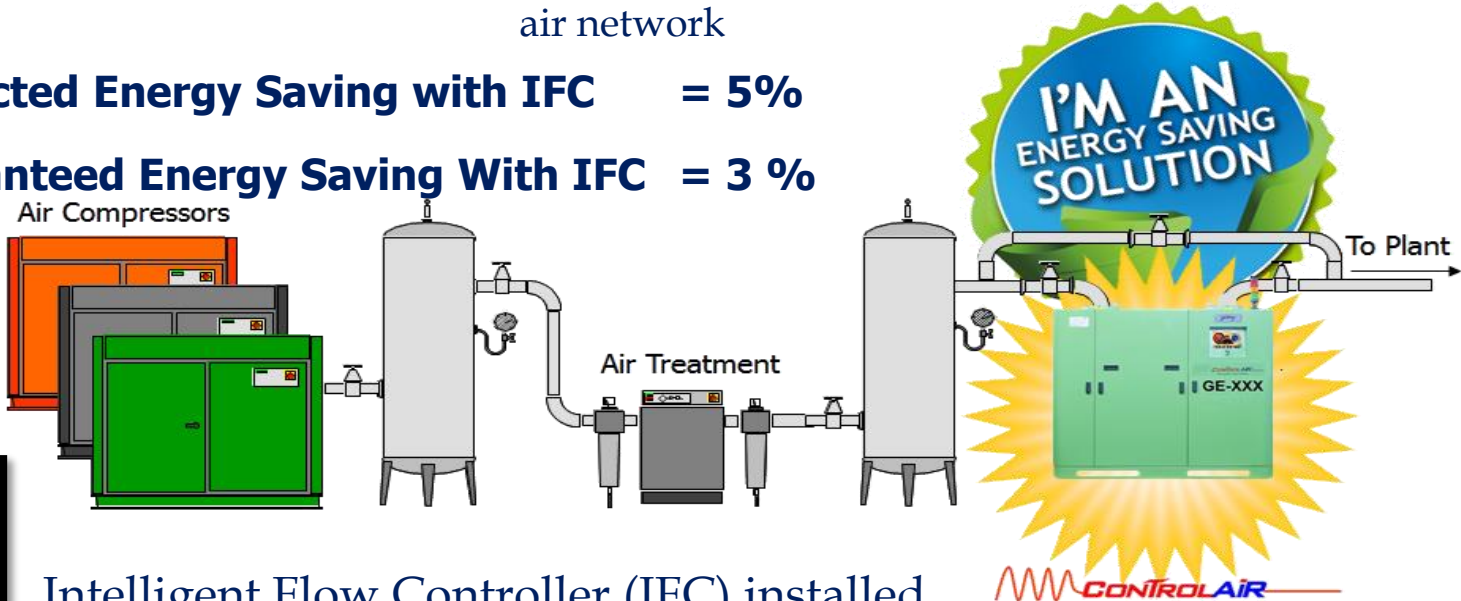
Sl. No.	Major Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
		In lac kWh	Kcal/kg Clk	Rs in Million	Rs in Million	
6.	Improvement of Excavator efficiency.	-	0.96 LPH	1.518	Nil	Immediate
7.	Floating Platform arrangement for mines pit water pump.	1.15	-	0.48	0.48	12
8.	Replacement of HPSV lamps to LED	0.675	-	0.343	0.689	24
9.	Cement mill roller & table zero gap adjustment	2.576	-	18	Nil	Immediate

Sl. No.	Major Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in month
		In lakh Wh	kCal/kg Cl.	Rs in Million	Rs in Million	
1.	Intelligent flow controller in compressed air system for Pre -Clinkerization	1.18	-	2.8	1.6	10
2.	Replacement of existing pump with efficiency pump suggested by CII	1.5	-	8.0	6.0	9
3.	Replacement of screw conveyor system of packer no. 4 with air slides ⁶	1.1	-	3.19	2.83	11
4.	Replacement of reversable belt conveyor with pneumatic diverting gate in Additive circuit	0.6	-	3.11	2.47	10
5.	Replacement of Sodium vapour lamps with LED lamps	0.67	-	3.49	6.89	2

Intelligent flow controller for compressor air system

Control Air IFC- Demand Side Management System- GE-45 (2250 scfm), in Pyro compressed air network

- **Projected Energy Saving with IFC = 5%**
- **Guaranteed Energy Saving With IFC = 3 %**



Intelligent Flow Controller (IFC) installed in Pyro compressed air network.

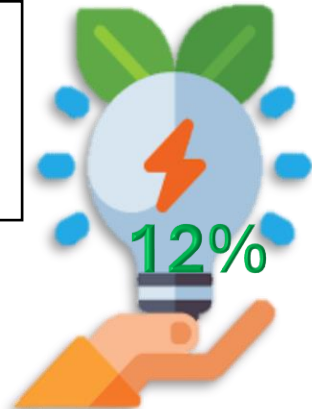
Without ControlAiR IFC

➤ Energy consumption without IFC= **6370 kWh**

With ControlAiR IFC

➤ Energy consumption with IFC = **5623 kWh**

- **Proposed Energy Savings = 5%**
- **Guaranteed Energy Savings = 3%**
- **Achieved Energy Savings = 12%**



Feasibility Study:

Feasibility Study of pumps was done by CII , and it was found that only a single pump of higher capacity is sufficient, instead of operating two pumps of lower capacity which cause excessive energy losses.

Solution:

Replace existing two lower capacity pumps by install single high efficiency pump with correct head & flow



Before

Flow : 100 m³/hr
Head : 70 m
 Rated Power: 30 Kw
 No of Pumps runnin: 2

After

Flow : 200 m³/hr
Head : 50 m
 Rated Power: 45 Kw
 No of Pumps running: 1

Benefits

- Energy Savings - **15 KW**
- Total Annual savings - **8.0 Lakhs**
- Investment - **6 Lakhs**
- Simple payback period- **9 months**

Replacement of Reject screw Conveyor system of packer 4 with air slides



❑ Problems:

- Sometimes Jamming of screw conveyors taking 3-4 hours of restless effort to Clear the Jam.
- During this time, the Packer stands still, and few times resulted in delay of Wagon loading.

❑ Advantages after Replacement:

- Direct saving in terms of power consumption.
- We are not facing any jamming issue till now; as we faced in screw conveyor system.
- Maintenance cost is also very less.
- Now the area looks wide, and it is also easier to do housekeeping work.

- 4Kwh of running load is saved from this modification.
- Saving of 0.02 Unit/Ton of cement dispatch is achieved.
- **Annual Saving** = Saving of 0.02 Unit/Ton X (Approx LY dispatch in Ton) X (per unit cost)

$$= 0.02 \times 2100000 \times 7.6 = \text{Rs } 3,19,200 / \text{Annum}$$

- 7 Air slides used = 7X19000 = 133000
- Fan cost with motor = 50000
- Valve cost & piping cost = 10000
- Service cost = 90000
- Total cost = **Rs 2,83,000**

PAYBACK PERIOD
11 months

Replacement of reversible belt conveyor (11KW) with Pneumatic diverting gate.



Total modification cost:

Diverting gate, fabrication and erection : **5,20,000/-**

Maintenance cost per year:

Belt conveyor	:	27,000/-
Skirt rubbers (36 No.s)	:	24,480/-
Scrapers (6 No.s)	:	:36,696
Idlers	:	49,000/-
Chute repair works Approx- 2 m ²	:	30,700/-
Belt replacement with joint cost	:	20,000/-
Manpower maintenance cost	:	60,000/-
TOTAL	:	2,47,876/-

Power Saving on removing belt conveyor

Average running hours	:	18hrs/day
Motor Consumption	:	6 Kwh
	:	108 Kwh
8 Rupees/Kwh	:	864/-Rupees
1 year	:	3,11,040/- Rupees

- Zero spillages of return material.
- Chute Wear-out issues reduced due to fall of material from comparatively lesser height.
- Very less maintenance problems coming due to elimination of complete belt conveyor.
- Belt conveyor operational power cost got reduced.
- Cost of belt conveyor spares got reduced.

PAYBACK PERIOD
10 months

Replacement of HPSV lamps to LED

Improving Illumination and Energy Savings in Packer and Truck Loading Area.

❑ PROBLEM:

- Due to 70W sodium vapour lamps installed at packer and truck loading area whose colour was **yellow** the packer operator and loading persons sometimes got confused with colour of bags (yellow and white).

❑ SOLUTION:

- Planned replacement of 70W HPSV (Sodium vapour lamps) with 35W ORIENT ELECTRIC MAKE LED Lamps having white colour light. Having clear vision of white and yellow colour bags.

❑ BENEFITS:

- Lighting power consumption reduced.
- Better illumination and clear vision for differentiating the colour of bags.
- Life of lamps increased from six months to 2 years.

❑ This is also one of the contributors of Improvement in TAT



	TYPE	QTY (NOS)	COST OF EACH UNIT (RS.)	TOTAL COST (RS.)	POWER CONS /YR (KWH)	POWER CONS IN AMOUNT/YR (RS.)
NEW	35 W LED	265	2600	689000	47983	249511
EXISTING	70 W HPSV	210	1200	252000	79103	599237
	150 W HPSV	55	1800	99000	36135	
TOTAL SAVING PER ANNUM (RS.)						349725

PAYBACK PERIOD

24 Months

Innovative Project – Awarded a Patent

Problem Description: The kiln is a rotary furnace comprising the Burning Zone and Calcination Zone, subjected to heavy combustion for converting raw mix powder to clinker (C3S, C2S, and C4AF as major components). While maintaining the Burning Zone at around 1300-1400°C, the kiln sometimes overheats and radiates more heat than necessary. This excess heat after the completion of the chemical reactions leads to overheating of the shell and radiation of excess heat, indicating over-combustion due to high coal firing relative to material intake. Also the high ambient temperature supports stable combustion . This radiation is measured using a sensor installed under the furnace.

Proposed Solution: When the actual radiation temperature exceeds the base value, it indicates excessive combustion inside the furnace. By sensing this heat, the system reduces coal appropriately.

Benefits:

- Coal savings of approximately 0.6 – 1% of coal fired for kiln firing.
- Thermal Energy Saving: 13.77 Million kCal
- Improved refractory life.
- Enhanced efficiency and cost savings



AI Based feed mix optimization

Introduction:

- Feed mix software (on Python platform) is jointly developed by Orient Team and Wurth Team by analyzing the Plant's 6 months running data. Several prediction models created to derive best raw mix feed ratio by considering the AFR types, raw material availability and other site conditions.
- Feed mix optimizer UI (user interface) application installed in PC's for Chittapur unit. We have also established the same tool for Devapur line-2 and line-3 units by doing some minor modifications. Now application is being executed for both plants. Further, we have installed the software in 3 PC's without OEM's support. One is being utilized for Chittapur unit and one is for Devapur line-2 & 3 units and other one has been kept as stand-by.
- Software Application iterates the previous day's 24 hours process (44 no's) parameters and QC (91 no's) parameters with the pre-defined limits and targets range. It chooses the best data by simulating with millions of permutations & combinations and recommends with top 3 combinations for the current day and previous day's actual results.
- These recommendations and targets will be circulated to process and QC teams for their further analysis and considerations.

UI Application Interface Initial Screen :

A	B	C	D	E	F	G	H	I	J	K	L	M	
FEED DATA						Recommendations and Targets							
COST DATA						Variables		Top1	Top2	Top3	Yesterday		
RANKING SHEET						REALIGN DATA							
TAG MAPPING						GENERATE INPUT							
LIMITS						SIMULATE							
TARGETS						RESULT							
						KF 212 Mi Res							
						Main Fuel 90 Mi Res							
						Fuel Mix							
						PC Temp							
						Avg. RM1&2 212 Mi Res							
						Total LimeStone Type1 %							
						Total Bauxite %							
						Total Lithomarge %							
						Total Other Additive %							
						KF LSF_pred							
						Clinker C3S_pred							
						Kiln Feed_pred							
						Clinker C3A_pred							
						Clinker LIQD_pred							
						Fuel / KF Ratio_pred							
						Sp.Power (constant)_pred							
						Cost Index							

Ranking given based on our Importance:

	A	B	C	D
1	Variable	Order of Importance	Sorting Base	Use
2	Cost Index	1	Lower	1
3	Kiln Feed_pred	2	Higher	1
4	Sp.Power (constant)_pred	3	Lower	1
5	Fuel / KF Ratio_pred	4	Lower	1
6	KF LSF_pred	5	Lower	1
7	Clinker C3S_pred	6	Lower	1
8	Clinker LIQD_pred	7	Lower	1
9	Clinker C3A_pred	8	Lower	1

Data Simulation Process:

```
C:\Windows\system32\cmd.exe
C:\Users\ORIENT\Documents>cd C:\Raw Mix Feed Packages\OCL_FeedMix_PythonScript\Stage-2
C:\Raw Mix Feed Packages\OCL_FeedMix_PythonScript\Stage-2>python FMIX.cpython-39.pyc
Total Number of combinations generated are 1875000
Starting 1875000
Number of combinations retained after validation of KF LSF_pred model : 1875000
Number of combinations retained after validation of Clinker C3S_pred model : 1875000
Number of combinations retained after validation of Kiln Feed_pred model : 1875000
Number of combinations retained after validation of Clinker C3A_pred model : 1875000
Number of combinations retained after validation of Clinker LIQD_pred model : 1875000
Number of combinations retained after validation of Fuel / KF Ratio_pred model : 1875000
Number of combinations retained after validation of Sp.Power (constant)_pred model : 1875000
Total Number of combinations dropped are 0
```

Final Recommended Outputs:

Recommendations and Targets - 21st Aug				
Variables	Top1	Top2	Top3	Yesterday
KF 212 Mi Res	2.50	2.50	2.76	2.76
Main Fuel 90 Mi Res	3.30	3.30	3.30	1.99
Fuel Mix	0.23	0.23	0.23	0.13
PC Temp	891	891	891	901
Avg. RM1&2 212 Mi Res	2.30	2.63	2.30	2.63
Total LimeStone Type1 %	91.0	91.0	91.0	90.1
Total Bauxite %	0.97	0.97	0.97	1.37
Total Lithomarge %	6.30	6.30	6.30	6.51
Total Other Additive %	1.71	1.71	1.71	2.08
KF LSF_pred	94.3	94.3	94.3	94.5
Clinker C3S_pred	48.5	48.5	48.5	48.6
Kiln Feed_pred	454.5	454.4	453.5	453.1
Clinker C3A_pred	8.11	8.11	8.11	8.11
Clinker LIQD_pred	28.6	28.6	28.6	28.6
Fuel / KF Ratio_pred	0.06	0.06	0.06	0.06
Sp.Power (constant)_pred	7.72	7.72	7.74	7.71
Cost Index	1039	1039	1039	1212

Final Recommended Outputs:

Recommendations and Targets		20th Aug Actual	19th Aug Actual	18th Aug Actual	17th Aug Actual	16th Aug Actual	15th Aug Actual	14th Aug Actual	Yest's Reco mm
Variables	Today's Top1								
KF 212 Mi Res	2.50	2.76	2.71	2.84	2.76	2.79	2.77	2.79	2.50
Main Fuel 90 Mi Res	3.30	1.99	2.08	1.89	1.61	1.50	1.61	1.83	3.30
Fuel Mix	0.23	0.13	0.26	0.31	0.33	0.31	0.17	0.12	0.36
PC Temp	890.6	900.6	906.9	900.8	893.08	892.08	894.92	905.12	896.9
Avg. RM1&2 212 Mi Res	2.30	2.63	2.54	2.70	2.82	3.17	2.48	2.50	3.04
Total LimeStone Type 1 %	91.02	90.05	90.06	90.22	90.03	89.82	90.18	89.98	91.15
Total Bauxite %	0.97	1.37	1.67	1.85	1.99	2.22	1.85	1.72	1.24
Total Lithomarge %	6.30	6.51	7.10	6.77	6.15	6.17	6.29	6.49	6.89
Total Other Additive %	1.71	2.08	1.18	1.16	1.83	1.78	1.68	1.81	0.73
KF LSF pred	94.25	94.52	95.21	95.30	95.27	95.31	95.13	95.30	95.03
Clinker C3S pred	48.49	48.58	48.72	48.62	49.24	49.45	49.04	49.31	48.62
Kiln Feed pred	454.46	453.08	444.17	448.58	443.20	455.50	451.46	445.58	445.19
Clinker C3A pred	8.11	8.11	8.10	8.12	8.11	8.11	8.13	8.10	8.11
Clinker LIQD pred	28.62	28.63	28.57	28.48	28.45	28.43	28.43	28.44	28.55
Fuel / KF Ratio pred	0.06	0.06	0.07	0.07	0.08	0.07	0.06	0.06	0.07
Sp.Power (constant) pred	7.72	7.71	7.82	7.66	7.73	7.63	7.66	7.68	7.83
Cost Index	1039	1212	1186	1239	1303	1149	1168	1212	1014

Usage of Electrical Renewable Energy Sources

Year	Technology (electrical)	Type of energy	On site/ Off site	Installed capacity	Generation GWH	% of overall electrical energy
FY 2021-22	Wind turbines	Wind Energy	Offsite	-	12.47	9.7
	Photo voltaic	Solar	Off site	-	11.2	8.70
FY 2022-23	Wind turbines	Wind Energy	Offsite	-	22.43	14.62
	Photo voltaic	Solar	Offsite	-	11.55	7.54
FY 2023-24	Wind turbines	Wind Energy	Offsite	-	11.31	7.14
	Photo voltaic	Solar	Offsite	-	11.31	7.14

Alternate Fuel usage for the FY 2021-22

Sl No.	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1.	Agriculture waste	11593	2753	30706	2.37
2.	Carbon black	889	5943	5286	0.41
3.	Pharma waste	2490	2369	5898	0.45
4.	Liquid AFR	3495	2428	8487	0.65
5.	Plastic Waste	1040	3704	3851	0.3
6.	RDF & M Waste	1128	1799	2030	0.16
7.	Dolachar	15.5	2489	38.63	0.003
Total AFR Usage (%)					4.34

Alternate Fuel usage for the FY 2022-23

Sl. No.	Waste Details	Quantity (MT/year)	GCV (KCal/kg)	Heat value (million Kcal/year)	Waste as percentage of total fuel
1.	Agriculture waste	931	2780	2588	0.19
2.	Carbon black	1461	6657	9726	0.70
3.	Pharma waste	4522	2554	11549	0.84
4.	Liquid AFR	2974	2568	7367	0.55
5.	Plastic Waste	1495	3899	5829	0.42
6.	RDF & M Waste	8640	2423	20931	1.51
7.	Rice Husk	4580	3269	14972	1.08
8.	Toohar Husk	20	3333	67	0.00
9.	Soya Husk	1234	3354	4139	0.30
Total AFR Usage (%)					5.60

Alternate Fuel usage for the FY 2023-24

Sl. No.	Waste Details	Quantity (MT/year)	NCV (KCal/kg)	Heat value (million Kcal/year)	Waste as percentage of total fuel
1.	Agriculture waste	18	3100	56	0.00
2.	Carbon black	11164	6322	70578	4.70
3.	Pharma waste	1515	2691	4076	0.20
4.	Liquid AFR	664	2503	1662	0.09
5.	Plastic Waste	4661	3482	16230	0.79
6.	RDF & M Waste	11465	2335	26770	0.78
7.	Rice Husk	5819	3258	18958	1.12
8.	Toohar Husk	3252	3388	11018	0.65
9.	Soya Husk	1584	3588	5683	0.27
Total AFR Usage (%)					8.60

Alternate Raw Material Usage for the last 03 years... ..

Year	Alternative raw material	Material replaced	Quantity used (MT/ Year)	Waste as percentage of raw material
2021-22	Red mud	laterite	20435	0.83
2022-23	Red mud	laterite	67534	2.22
2023-24	Red mud	laterite	75861	2.42

❑ **Target for CO2 emission reduction and action plan :**

- Installed waste heat recovery power plant.
- PPC dispatch to be increased from 40% to 50%.
- 35% fly using in PPC and 18.01 in SC.
- PI usage.

❑ **Absolute Emissions :**

Year	UOM	2021-22	2022-23	2023-24
Suspended Particulate Matter (SPM)	mg/Nm ³	21.63	21.98	21.72
Oxides of Nitrogen (NO _x)	mg/Nm ³	203.22	277.16	273.41
Oxides of Sulphur(SO _x)	mg/Nm ³	20.22	23.07	25.33





Certificate of Registration

ENERGY MANAGEMENT SYSTEM - ISO 50001:2018

This is to certify that:

Orient Cement Ltd.
Chittapur
PO Itaga
Malked Road
Chittapur - Taluk
Kalaburagi Dist 585 292
Karnataka
India

Holds Certificate No:

ENMS 715352

and operates an Energy Management System which complies with the requirements of ISO 50001:2018 for the following scope:

Mining of Limestone, Crushing, Clinkerization, Cement Grinding, Packaging & Dispatch of Cement & Clinker, utilizing Electricity, Coal & Diesel; Generation & Export of Power.

For and on behalf of BSI:

Theuns Kotze, Managing Director Assurance - IMETA

Original Registration Date: 2019-11-08

Latest Revision Date: 2022-11-05

Effective Date: 2022-11-08

Expiry Date: 2025-11-07

Page: 1 of 1



...making excellence a habit.™

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract. An electronic certificate can be authenticated [online](#). Printed copies can be validated at www.bsi-global.com/ClientDirectory or telephone +91 11 2692 9000. Further clarifications regarding the scope of this certificate and the applicability of ISO 50001:2018 requirements may be obtained by consulting the organization. This certificate is valid only if provided original copies are in complete set.

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PR. Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.



**National Accreditation Board for
Testing and Calibration Laboratories**

Certificate No.:
TC-10271

  **National Accreditation Board for
Testing and Calibration Laboratories**

CERTIFICATE OF ACCREDITATION

**ORIENT CEMENT LIMITED, CHITTAPUR (QC
LABORATORY)**

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

VILLAGE ITGA, GULBARGA, KALABURAGI, KARNATAKA, INDIA

in the field of

TESTING

Certificate Number: TC-10271
Issue Date: 28/01/2022
Valid Until: 27/01/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

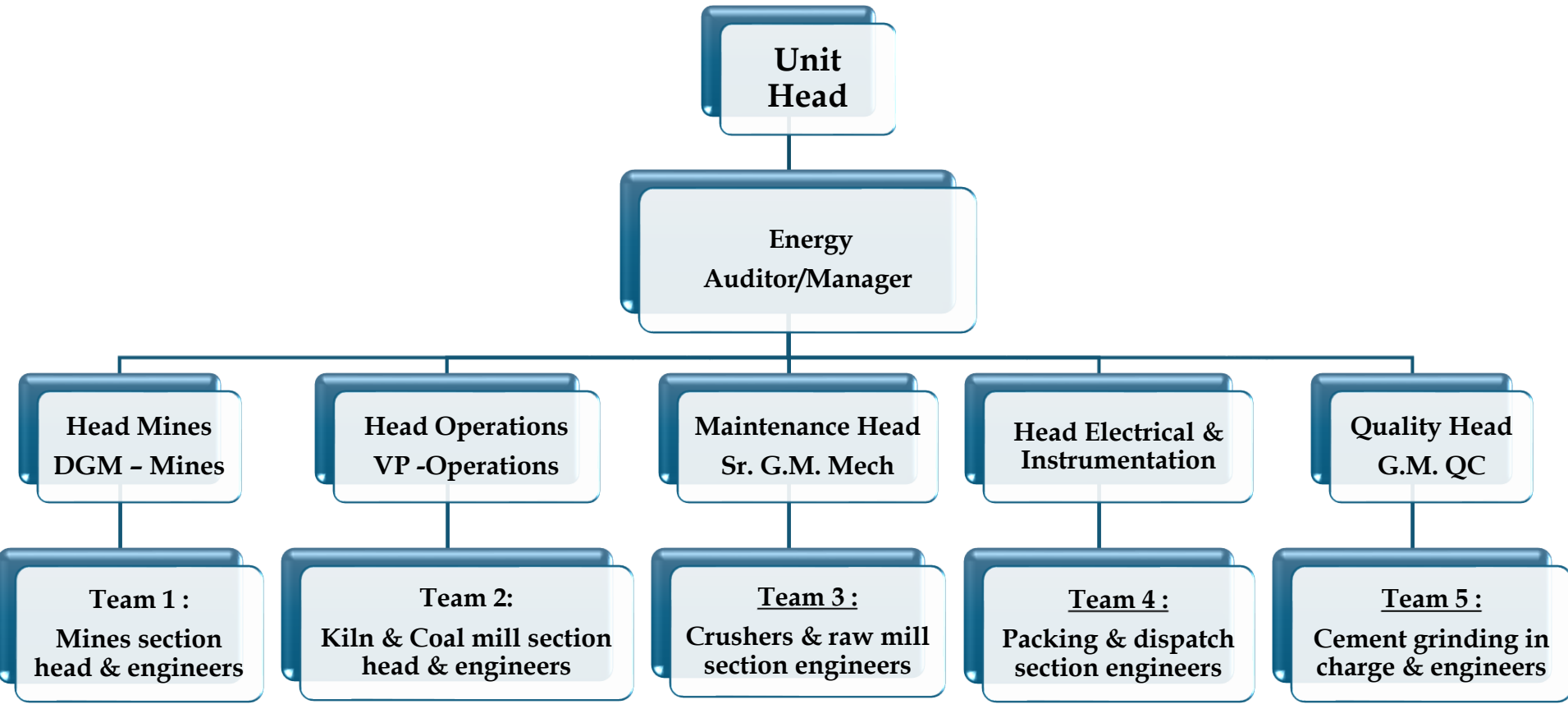
Name of Legal Identity : ORIENT CEMENT LIMITED

Signed for and on behalf of NABL




N. Venkateswaran
Chief Executive Officer

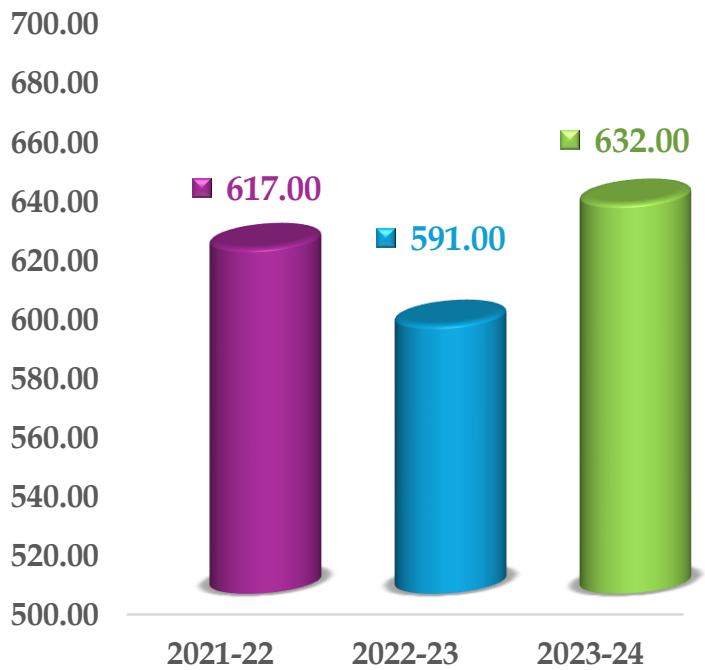
Energy Management Committee



Reduction of motor standard energy loss by upgradation of pump

- Two pump with capacity of 100 cu.m / hr with connected power of 30 kW each for machinery cooling water
- Inspired with CII recommendation and upgraded same with single pump with capacity of 200cu.m /hr with connected power of 45 kW
- Resulting power saving of 15 kWh
- Annual saving of 8 Lakhs
- Investment 6 Lakhs
- ROT 9 months
- Replicable

"Carbon footprint" Kg of CO₂/MT of Cement



CK BIRLA GROUP

ORIENT CEMENT LIMITED

CORPORATE POLICY ON CARBON FOOTPRINT REDUCTION

Orient Cement Limited committed towards climate change, explore, adoption of technologies and input processing materials which reduce carbon footprint,

- ✓ Identify and implement low carbon technology and processes across all the Plants.
- ✓ Measure and Monitor Carbon footprint numbers and new plans identify, plan and to reduce future Carbon footprint numbers.
- ✓ Adopt aggressive abatement actions to reduce life cycle footprint and drive growth through best practices and innovation.
- ✓ Identify and implement on continuous sustainability projects.
- ✓ Awareness, knowledge sharing of best practices towards reduction of impact of climate change and adherence to Global warming temperature below 2°C.



SATYABRATA SHARMA
PRESIDENT - MANUFACTURING

1st Nov'22

❑ Direct equivalent CO₂ emission per MT of cement.

'Net Zero Carbon Footprint' Target Commitment

- Net Zero Target Year / Commitment if any:
Achieve "Net Zero Carbon" status by 2070.
- **Roadmap for achieving the target:**
We pursue various levels as given below to achieve the target.
- **Scope 1 emissions:** The Company continuously pursues the following measures to reduce its Scope 1 emission:
 - Reducing specific thermal energy.
 - Reducing specific electrical energy.
 - Reducing the clinker factor.
 - Improving the Thermal Substitution Rate.
 - Improving the utilization of low-grade limestone.
 - Increasing the use of renewable energy.
 - Generating power using WHRS.
 - Collaborating closely with technology suppliers for developing secondary CO₂ abatement technologies for Carbon Capture Utilisation and Sequestration (CCUS)

'Net Zero Carbon Footprint' Target Commitment

- **Scope 2 emissions:** The Company continuously pursues the following measures to reduce its Scope 2 emission:
 - **Migration towards renewable energy** - 50% of the total energy has to come from renewable energy and Waste Heat Recovery Systems (WHRS).
 - Reduction in plant-specific electrical energy.

- **Scope 3 emissions:**
 - Currently, the Company is working on the logistics' CO2 footprint by migrating towards bulk transportation and improving fleet efficiency.
 - Minimizing employee business commutation by leveraging the benefits of digitization.
 - Migration towards bio fuels.
 - Migration towards electric vehicles.

- **Any voluntary initiatives commitment (i.e., RE 100, EP 100, SBTI etc.):**
We are exploring the possibility of getting our CO2 targets validated by SBTI in the next 2-3 years.



AWARDS AND ACCOLADES



Recognized as Excellent Energy efficient Unit-2023



Confederation of Indian Industry

**24th National Award for
Excellence in Energy Management 2023**

This is to certify that

Orient Cement Limited, Chittapur

has been recognized as

"Excellent Energy Efficient Unit"

*This acknowledgement is based on the evaluation by the panel of judges at the
"National Award for Excellence in Energy Management" held during 13 - 15 Sep 2023, Hyderabad*

K S Venkatagiri
Executive Director
CII - Geotraj GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Geotraj GBC

Recognized as National Energy Leader-2023



Confederation of Indian Industry

**24th National Award for
Excellence in Energy Management 2023**

This is to certify that

Orient Cement Limited, Chittapur

has been recognized as

"National Energy Leader"

for their consistent and progressive performance in energy management.

*This acknowledgment is based on the evaluation by the panel of judges at the
"National Award for Excellence in Energy Management" held during 13 - 15 Sep 2023, Hyderabad*

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC



society of
energy engineers
and managers
सीमसेम

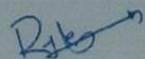


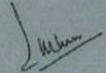
CERTIFICATE OF EXCELLENCE

This is to certify that **SEEM PLATINUM AWARD 2022**
has been conferred on

Orient Cement Limited
Chittapur

Category : **Cement - Integrated Unit**
On 21 September 2023, At India Islamic Cultural Centre, New Delhi.


Jayakumar Nair
President, SEEM


G. Krishnakumar
General Secretary, SEEM

Declared as winner in ENVIRONMENT EXCELLENCE - 2023



- ❑ One of the lowest energy consumption plant for both electrical and thermal.
- ❑ Achieved 1st Best Managed company in Cement sector.
- ❑ Achieved 50th place in best 100 companies in Great Place To Work Survey.

THREE REASONS TO CHEER...

Best Workplaces™
in Manufacturing

Great Place To Work. INDIA 2024

Great Place To Work.®

Certified
MAR 2024-MAR 2025
INDIA

Best Workplaces™
Building a Culture of Innovation by All

Great Place To Work. INDIA 2024

AMONG THE TOP 25 5TH CONSECUTIVE YEAR AMONG THE TOP 50

NOW, A CEMENT THAT BUILDS LEGACIES

THANK YOU!



ORIENT
CEMENT

 : muralimohanraju.p@orientcement.com

 : +91-7829992123