CK BIRLA GROUP

ORIENT CEMENT

ORIENT CEMENT LIMITED

Chittapur, Karnataka

Great Place To Work.® Certified APR 2023 – APR 2024 INDIA

Team Members

Santosh kumar Sharma
Vice President - Operations

P Murali Mohan Raju
AGM - Process

A Sudheer
Manager - Electrical

❑ Orient Cement is operating 3 Cement Plants in India:

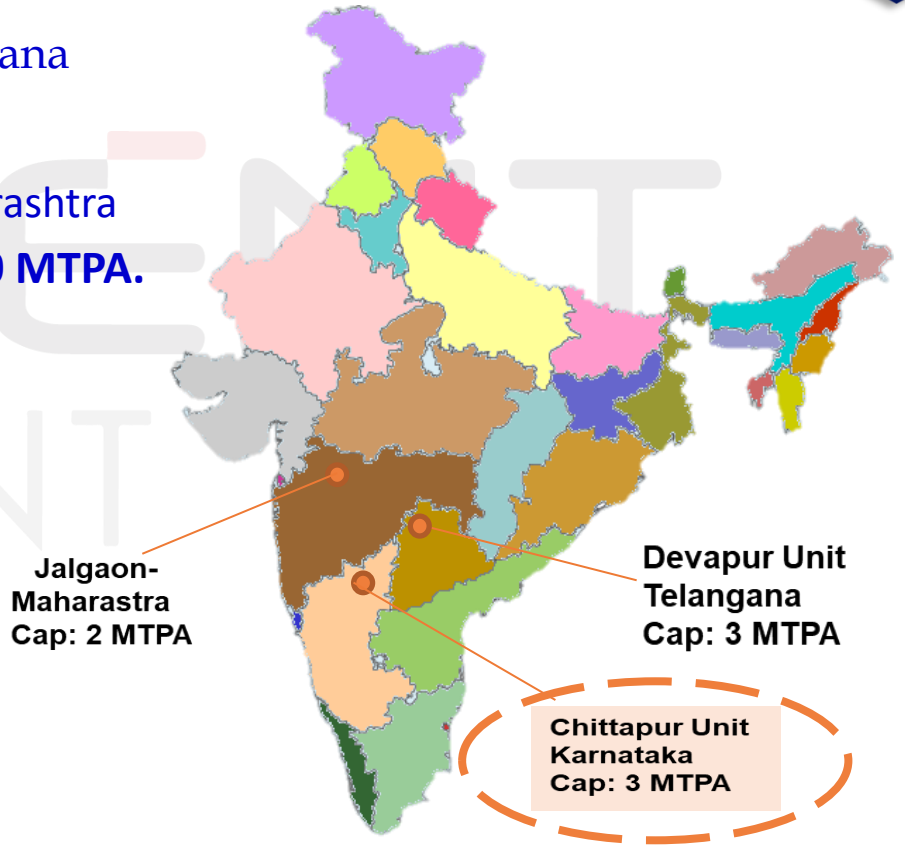
- ➢ Integrated Plant - Devapur, Telangana
- ➢ Integrated Plant - Chittapur, Karnataka
- ➢ Cement Grinding Unit - Jalgaon, Maharashtra

❑ **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
- **Member of CSI (WBCSD)**
- **Green Pro Certified by CII**
- **Member of GCCA**

(Global cement & concrete association)



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Cement Manufacturing Process….

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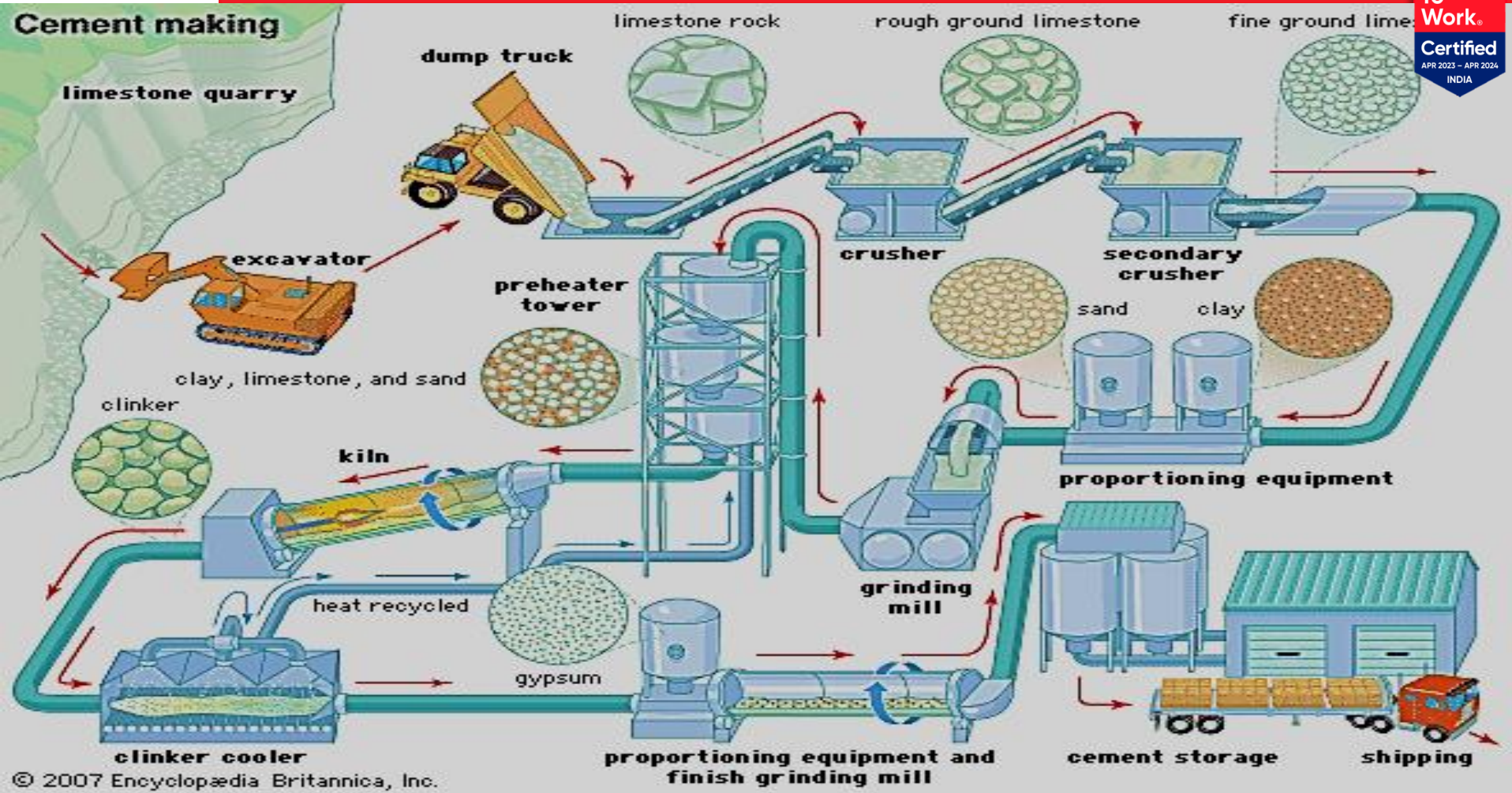

OUR PRODUCTS

Plant features

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

Commercial Production : Sep 2015

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

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

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Major Equipment details.. .. ..

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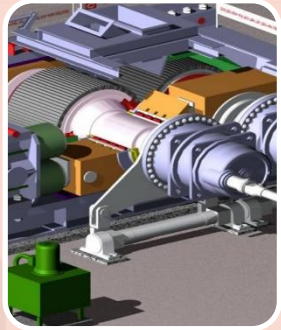
Crusher

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 cm^2/gm Blaine

265TPH (PPC) @ 4000 cm^2/gm Blaine

Operating @

230TPH (OPC) @3200 cm^2/gm Blaine

310 TPH (PPC) @ 3600 cm^2/gm Blaine

Cement Mill-2

Make : FLS OK39.4

Capacity:

250TPH (OPC) @ 3000 cm^2/gm Blaine

265TPH (PPC) @ 4000 cm^2/gm Blaine

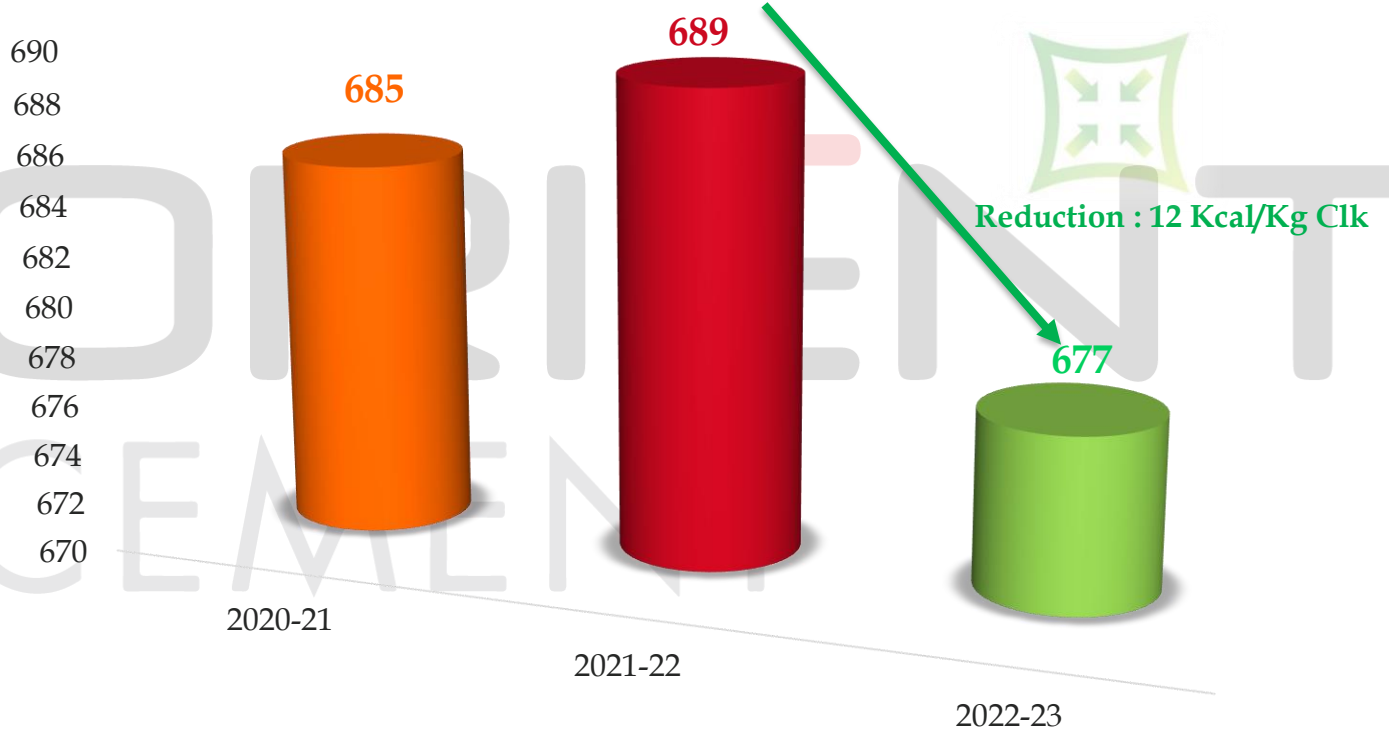
Operating @

230TPH (OPC) @3200 cm^2/gm Blaine

310 TPH (PPC) @ 3600 cm^2/gm Blaine

Sp. Energy Consumption in last 3 years (FY20-21 to FY22-23)

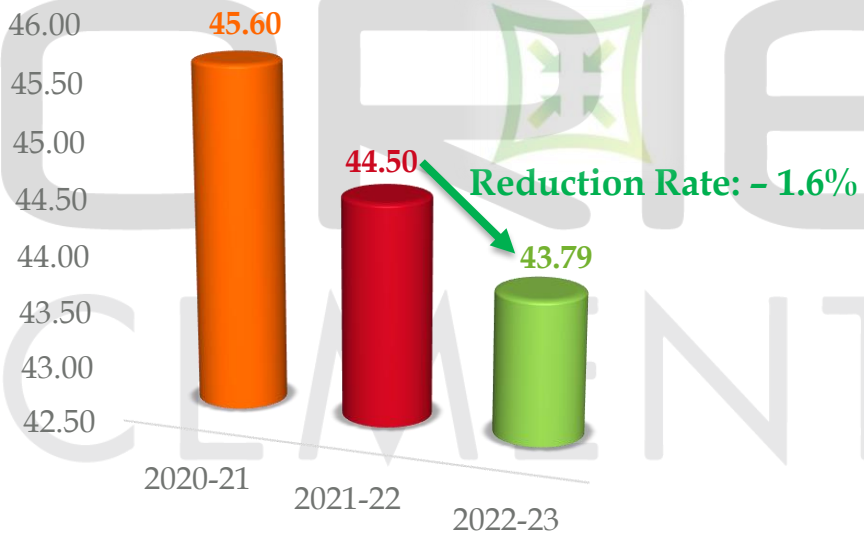
Thermal SEC (Kcal/kg clinker)



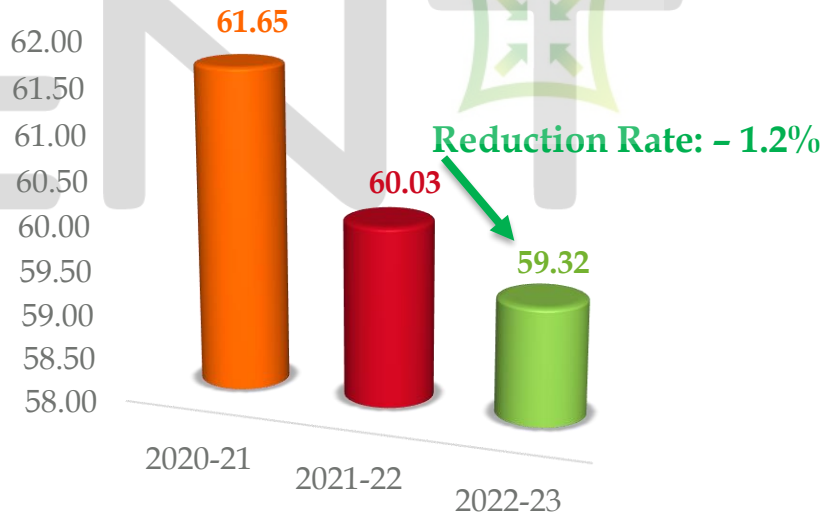
Sp. Energy Consumption in last 3 years (FY20-21 to FY22-23)

Electrical SEC

Up to Clinkerization (KW/MT of Clinker)



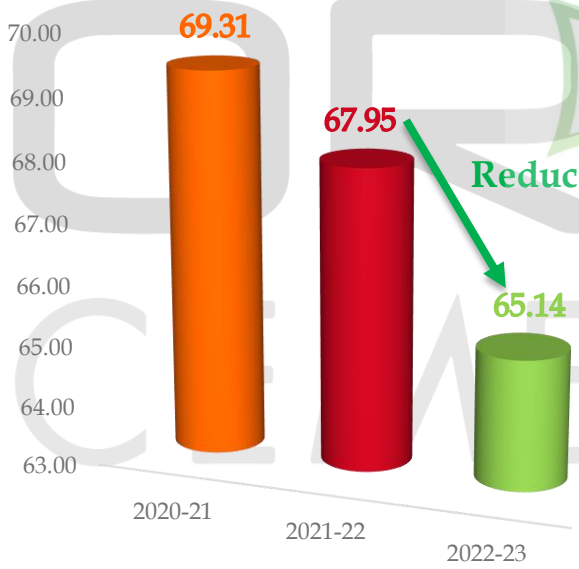
Overall Cement (KW/MT of Cement)



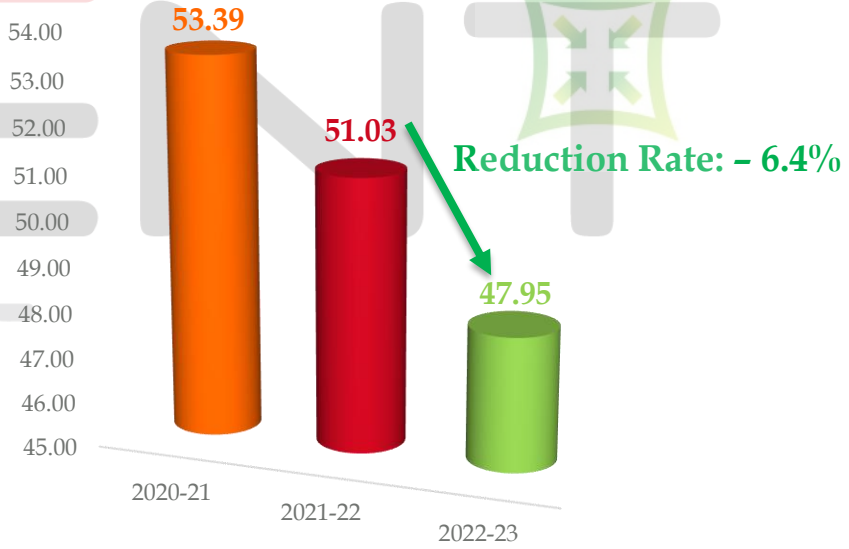
Sp. Energy Consumption in last 3 years (FY20-21 to FY22-23)

Electrical SEC

Overall Cement OPC (KW/MT of Cement)



Overall Cement PPC (KW/MT of Cement)



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Comparison with National Benchmark

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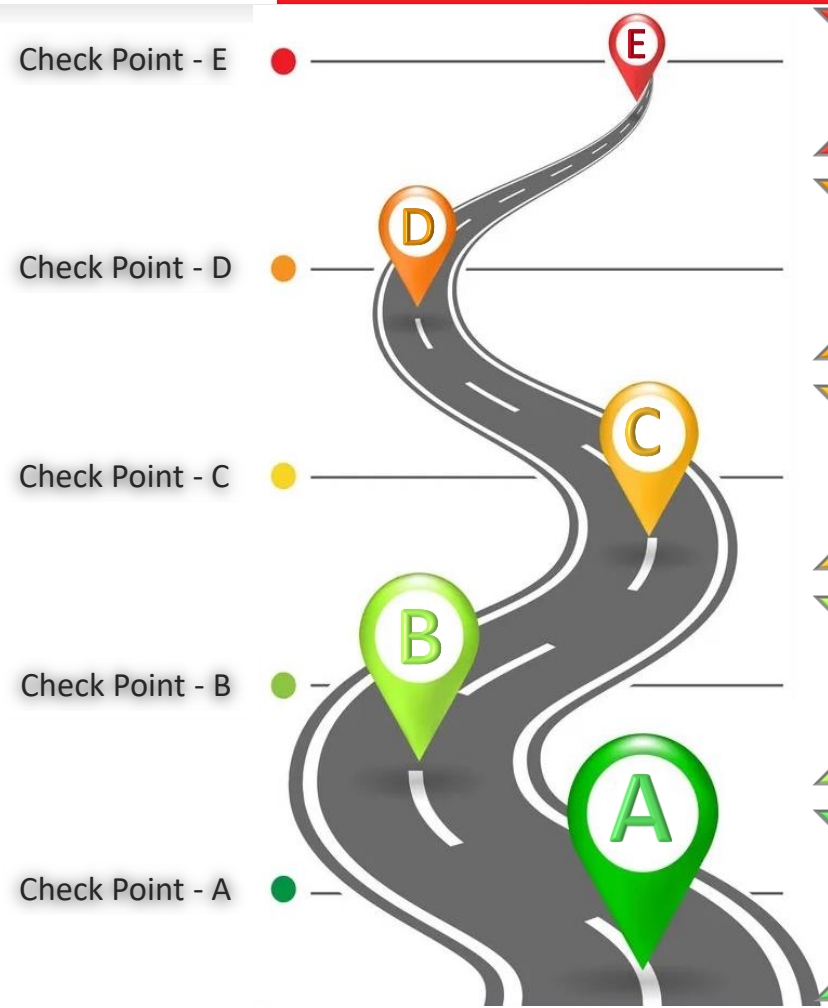
Specific Energy Consumption	National Benchmark	Yearly Best Figures of OCL, Chittapur	SEC on 2022-23
Thermal - Kcal/Kg Clinker	675	677 (FY 2022-23)	677
Electrical-kWh/T of Clinker	42.59	43.79 (FY 2022-23)	43.79
Electrical-kWh/T of Cement	56.10	59.32 (FY 2022-23)	59.32

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

Road map to Achieve National/Global Benchmark



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

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Major Energy Conservation Project planned in FY 2023-2024

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Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million KCal)	Investments (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

Major Energy Conservation Project planned in FY 2023-2024

Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million KCal)	Investments (Rs in Million)	Annual Savings (Rs in Million)
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

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Energy Conservation Project Details of last 03 years…..

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Year	No of Projects	Investments (INR Million)	Savings (INR Million)
FY 2020-21	07	9.2	34.90
FY 2021-22	09	1.18	25.50
FY 2022-23	09	3.05	17.02

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Major Energy Saving Projects Implemented FY 2020-21

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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.	Compressor's discharge pressure reduced from 6.0 to 5.8 bar.	2.31	-	1.88	-	Immediate
2.	Idle running of material handling section reduced.	0.12	-	0.1	-	Immediate
3.	Applied heat resistance paint in kiln hood.	-	-	1.50	0.236	1.89
4.	Changed HPSV lamps to LED lamps.	0.52	-	0.42	0.80	22.86

Major Energy Saving Projects Implemented FY 2020-21

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.	Raw mill product residue optimized from 3.3 to 3.6% on 212 micron	3.70	-	3.02	-	Immediate
6.	Cement mill bag house heaters idle running hours reduced	0.47	-	0.38	-	Immediate
7.	Idle running of cooler ESP transport reduced	0.11	-	0.09	-	Immediate
8.	Raw mill bag house idle running reduced	0.55	-	0.45	-	Immediate
9.	HRB discharge Bag filter fan changed to VFD	0.86	-	0.70	1.186	2.57

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Major Energy Saving Projects Implemented FY 2021-22

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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

Major Energy Saving Projects Implemented FY 2021-22

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

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Major Energy Saving Projects Implemented FY 2022-23

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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

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Major Energy Saving Projects Implemented FY 2022-23

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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

Energy Conservation Project - 01

Replacement of Reject screw Conveyor system of packer 5 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.

Energy Conservation Project - 01

Power saving calculation

- 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 Last year dispatch in Ton) X (per unit cost)
  = 0.02 X 2100000 X 7.6 = Rs **3,19,200** / Annum

Calculation

- 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**

PAYBACKPERIOD 11 months

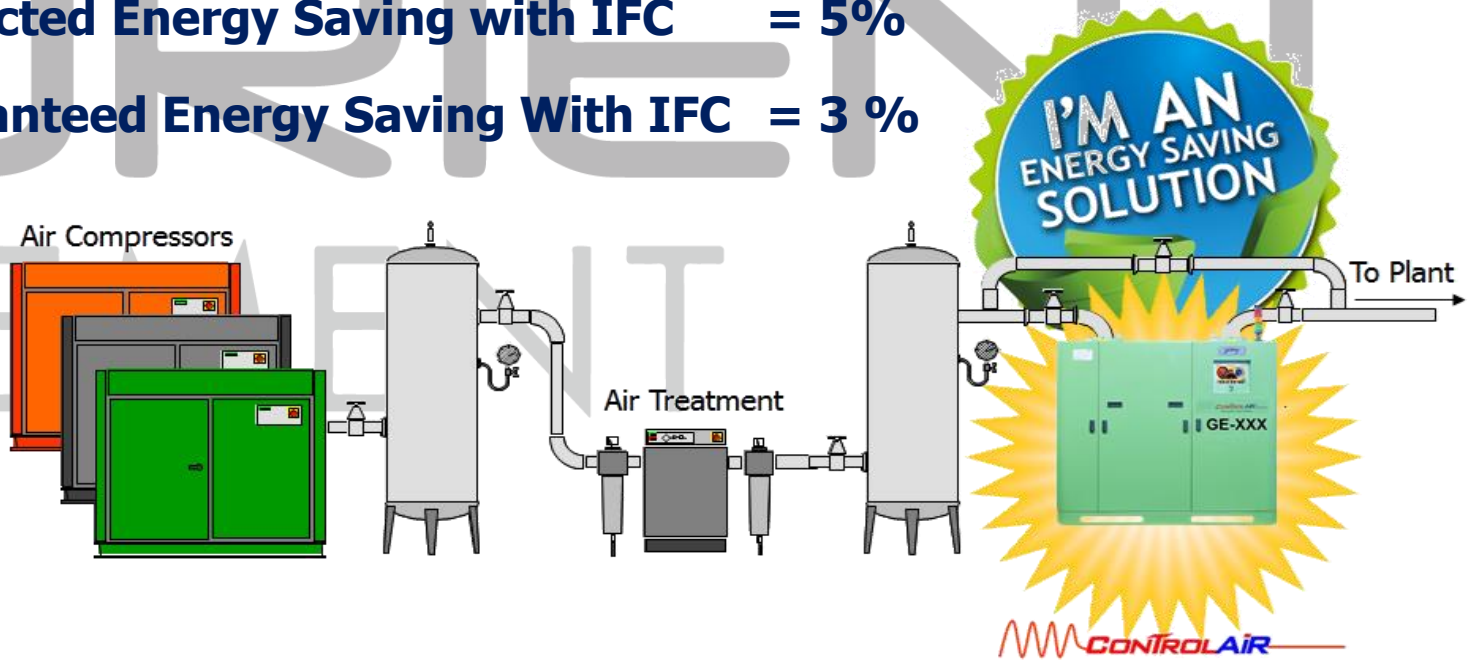
❑ **Horizontally to be implemented for another four Packers.**

Energy Conservation project - 02

Intelligent flow controller for compressor air system

ControlAiR IFC- Demand Side Management System- GE-45 (2250 scfm), in Cement mill compressed air network

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



Energy conservation project - 02

Intelligent flow controller for compressor air system

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

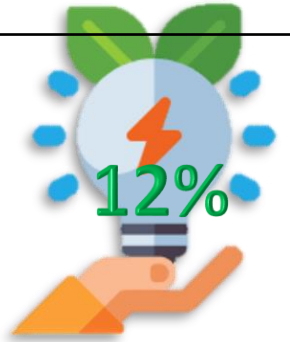
Without ControlAiR IFC

- 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%**



Energy conservation project - 03

PYRO PID loops Optimizing with AI technologies

Problems:

1.Before CO is continuously observed at PH exit when AFR is running, and kiln operation also disturbed with temp. variations.

2.PH fan specific power consumption increased because of excess air

3.Specific heat consumption is increased because of excess air.

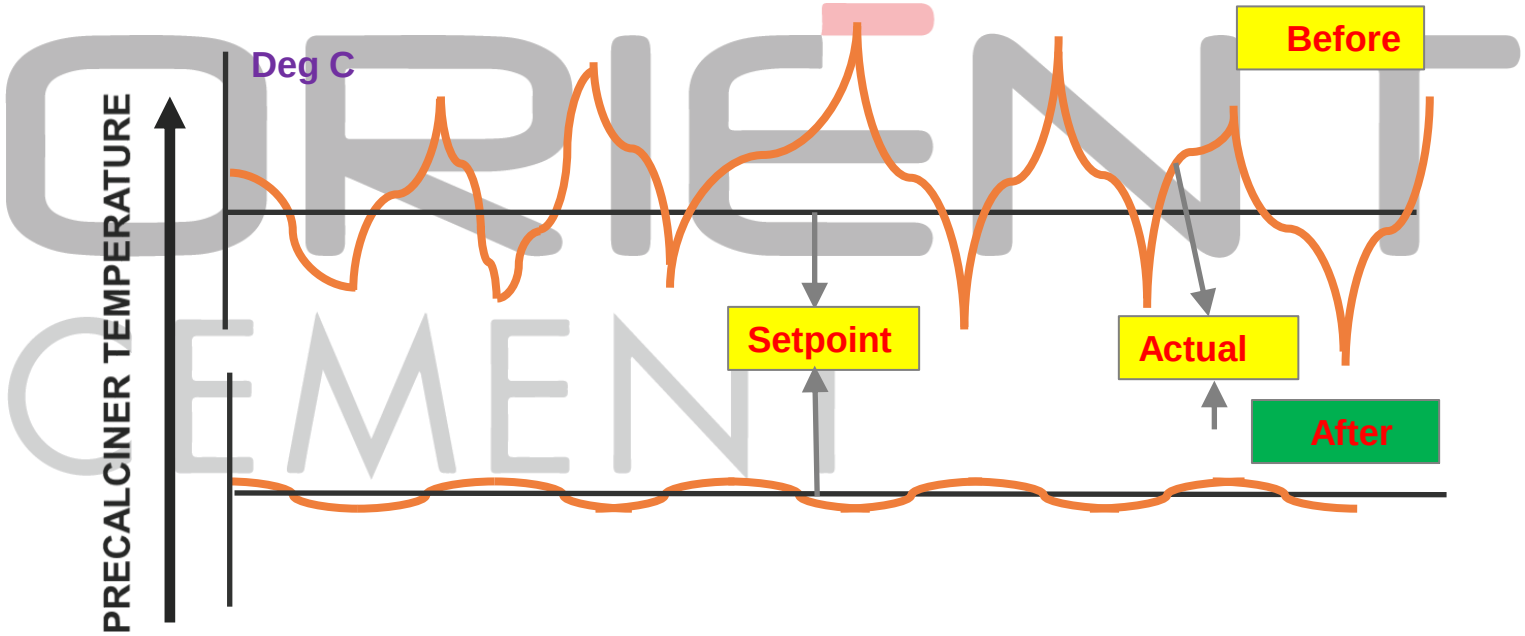
4. Coal mill was tripping with frequently on CO high.

Advantages:

1. Now PH exit CO is eliminated, and kiln operation is running at optimum condition.
2. PH fan specific power consumption also come down.
3. Specific heat consumption is in reduction.
4. Coal mill tripping with CO high is avoided.

Conti..

- **Optimization of PC temperature signal:** Developed Feed Forward logic for maintaining stable Precalciner Temperature while feeding Alternate Fuel Resource(AFR). The stabilized parameters where generated using OPTIMakx Artificial Intelligence (AI) tool.



PC Temperature PID Values_ Before and After

Cont..

Savings:

PH fan energy savings per day :240kWh/Day
Power cost :Rs.7.5 /kWh
Working days :223 Days
Cost savings through power : 223*7.5*240= Rs.401400/-

Thermal savings through Specific heat savings:
Production of clinker : 1526911000Kgs.
Specific heat savings : 1kCal/kg clin
Total specific heat saving : 1526911000kCal.
Fuel cost :Rs 2389kCal/Million kCal
Thermal cost savings : 2389*152691100= Rs:36,47,790/-
Total Savings :Rs.40,49,190/-
Project cost of digital modification :Rs.37,00,000/-
Pay back :11 months.

Energy conservation project - 04

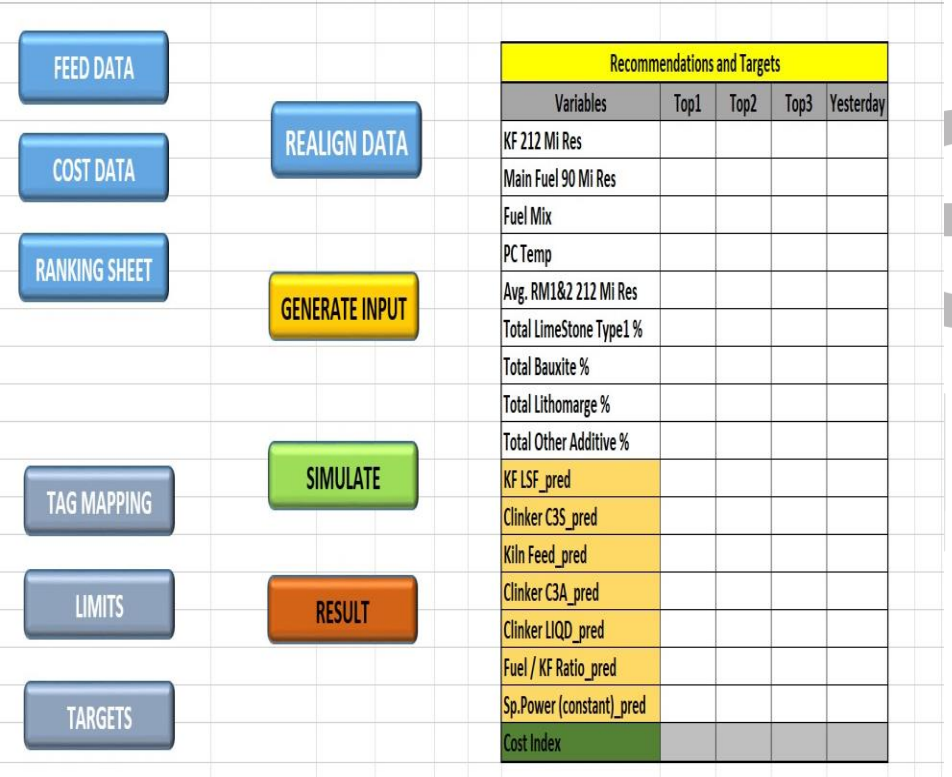
Raw mix optimizing with AI technology

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.
- 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.

Cont..

UI Application Interface Initial Screen :



Recommendations and Targets				
Variables	Top1	Top2	Top3	Yesterday
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				

Final Recommended Outputs:

Recommendations and Targets - 20th Dec				
Variables	Top1	Top2	Top3	Yesterday
KF 212 Mi Res	2.80	2.94	2.80	2.94
Main Fuel 90 Mi Res	3.83	3.83	3.83	2.33
Fuel Mix	0.28	0.28	0.28	0.18
PC Temp	903	903	903	913
Avg. RM1&2 212 Mi Res	2.30	2.30	2.73	2.73
Total LimeStone Type1 %	92.73	92.73	92.73	91.63
Total Bauxite %	1.75	1.75	1.75	2.14
Total Lithomarge %	4.01	4.01	4.01	4.31
Total Other Additive %	1.52	1.52	1.52	1.91
KF LSF_pred	97.48	97.48	97.53	97.77
Clinker C3S_pred	52.14	52.14	52.13	52.23
Kiln Feed_pred	426	425	426	425
Clinker C3A_pred	8.06	8.05	8.05	8.05
Clinker LIQD_pred	27.90	27.90	27.90	27.93
Fuel / KF Ratio_pred	0.07	0.07	0.07	0.08
Sp.Power (constant)_pred	7.47	7.48	7.47	7.45
Cost Index	1338	1339	1339	1558

Cont..

Savings:

Thermal savings through Specific heat savings:

Production of clinker : 1314269000 Kgs.
Specific heat savings : 1kCal/kg clin
Total specific heat saving : 1314269000kCal.
Fuel cost :Rs 2389kCal/Million kCal
Thermal cost savings : 2389*1314269000=Rs:31,39,789/-

Project cost of digital modification :Rs.6,33,000.
Pay back :2 months.

Energy conservation project – 05

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

Operation:

- Additive Reversable belt conveyor was feeding limestone and gypsum to two conveyors.

Problems:

- Due to sticky material, heavy spillages were observed along the belt even though scrapers was in good condition.
- New counter-weight operated scrappers was also installed in this belt, still our target was not achieved.
- After a period, material was fully accumulated below the belt and obstructing the conveyor operation which leads to joint failure and un-necessary breakdowns.

Energy conservation project – 05

❑ RESTRICTIONS IN MAINTENANCE OF BELT CONVEYOR:

- To replace the belt conveyor takes 12hrs and needs to stop both the mills which may reduce the dispatch targets.
- For regular maintenance i.e., Pulley lagging, drive station overhauling may take much time that also need to stop both the mills which may reduce the dispatch targets.
- Internal and external scrapers were attached to the belt even though that could not control the material spillages completely, This spillage materials need to be cleaned time to time to ensure equipment healthiness.
- Shift manpower was continuously engaged for regular maintenance and spillage material cleaning.

❑ PROBLEMS NOTED IN EXISTING CIRCUIT:

- Less maintenance time.
- Heavy return material spillages below the belt.
- Daily engagement of manpower for cleaning work and regular maintenance.
- Wear-out of chute plates due to fall of material from height.
- Un-necessary breakdowns of belt conveyor was due to foreign material entry.

❑SOLUTION FOR EXISTING SITE PROBLEMS:

- By replacing the belt conveyor with **Two way diverting gate** arrangement will overcome the problems raised by the reversable conveyor and will resolve all the issues in additive feeding circuit.

Energy conservation project – 05

❑ Benefits after installation of two-way diverting gate:

AFTER

- 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.

Energy conservation project – 05

Power & Energy saving calculation

❑ **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**

❑ **Intangible benefit: Belt conveyor & Motor with gear box is spare.**

PAYBACKPERIOD 10 months

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Energy conservation project - 06

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Improvement of Excavator efficiency

- Loading time 30 to 35 Sec per bucket (3:30 min to 4:10 min per trip) and Excavator TPH 320-330 MT/hrs

- Loading time 10 to 14 Sec per bucket (1:10 min to 1:40 min and Excavator TPH per trip) 350-360 MT/hrs

Energy conservation project - 06

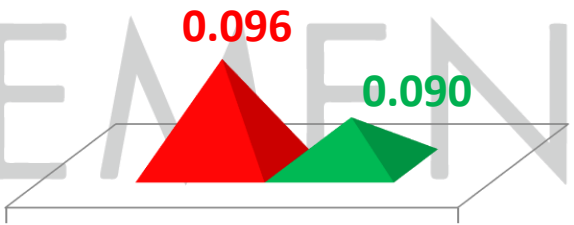
Advantages & HSD Cost Saving

❑ Direct Advantages:

1. Increase in Excavator TPH
2. Subsequent reduction in Excavator HSD Consumption.

❑ In Direct Advantages:

1. Crusher run hours per pile formation reduced from 31 hrs to 29 hrs.
2. Crusher power reduced.
3. More maintenance time for Crusher.



Specific Fuel Consumption(Ltr/MT)

❑ Considering present HSD rate @ Rs.88, there is a saving of 0.53 Rs/MT

Energy conservation project - 07

Floating Platform arrangement for mines pit water pump

- The water is pumped from Mines to plant with the help of 3 no's of 100HP submersible de-watering pumps.

Problems faced with earlier practice:

- Frequent failure of pumps.
- Difficult to remove the pumps back when failed, in case of water level rise.
- Life of each pump was 4-5 months only.
- Each failure results in a repair cost of 1.4 to 1.8 Lakhs, incurred a huge cost.
- Each pump needs around 4-5 months for repairing.
- Due to unavailability of pumps, we need to hire other de-watering pumps for continuous Mining operations.

Solution:

Humility to learn

- Decided and made a floating arrangement for our pumps with a much robust design.
- Life of the pumps increased to 10-12 months with continuous operation.
- Easy process for fitment and removal of pumps, in a short time around 5-6 Hours.
- Properly fixing and mounting of the pump with MS frame incurred expenses of Rs. 75000/- for three frames.

Now hired pump is on a floating arrangement.

Energy conservation project - 07

Cost Savings

Sl.No	Description	Unit Cost	Total Cost
1	Repair costs per year with old arrangement (6 Times a year)	6X1.6 Lakhs Rupees	9.6 Lakh Rupees
2	Repair cost per year after floating arrangement (3 times a year)	3X1.6 Lakhs Rupees	4.8 Lakh Rupees
Total cost savings per year			4.8 Lakh Rupees

Energy conservation project - 08

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

Energy conservation project - 08

RETURN ON INVESTMENT CALCULATION

SAVINGS DUE TO REPLACEMENT OF EXISTING 150W & 70W HPSV WELL GLASS FITTING WITH 35W LED FITTING ORIENT ELECTRIC MAKE AT PACKER FLOOR AND TRUCK LOADING AREA

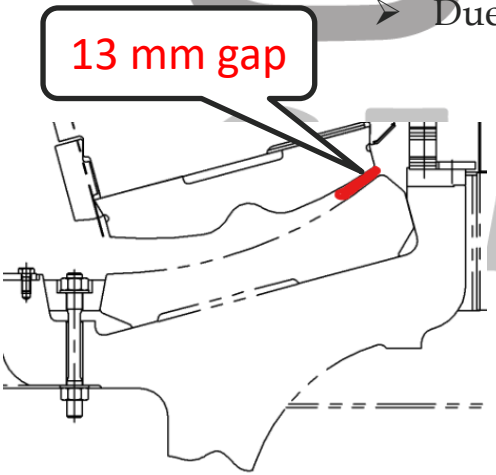
	TYPE	QTY (NOS)	COST OF EACH UNIT (RS.)	TOTAL COST (RS.)	POWER CONS /YR (KWH)	POWER CONS IN AMOUNT/YR (RS.)
NEW	35 W LED	265	2600	689000	47983	249511
EXISTING	70 W HPSV	210	1200	252000	79103	599237
	150 W HPSV	55	1800	99000	36135	
TOTAL SAVING PER ANNUM (RS.)						349725

RETURN ON INVESTMENT (ROI)	
INVESTMENT FOR NEW LED FITTINGS (RS.)	689000
SAVINGS IN 1 YR (Rs.)	349725
ROI	2.0 Years

Energy conservation project - 09

Cement mill roller & table zero gap adjustment

- Earlier 6mm ZERO gap is maintained in the table and roller in both the mills as per the OEM recommendation.
- In OK MILL **liner shifting** is observed in both the mills, FLS is recommended new table modification and supplied free of cost material to install new liner holding arrangement.
- Due to liners shifting problem in mill table, liners grinding path irregularity observed in CEMENT MILL-1, So 6mm ZERO gap is not able to maintain throughout the liners circumferential area.
- Due to this heavy vibrations was occurring while in operation which is not healthy.

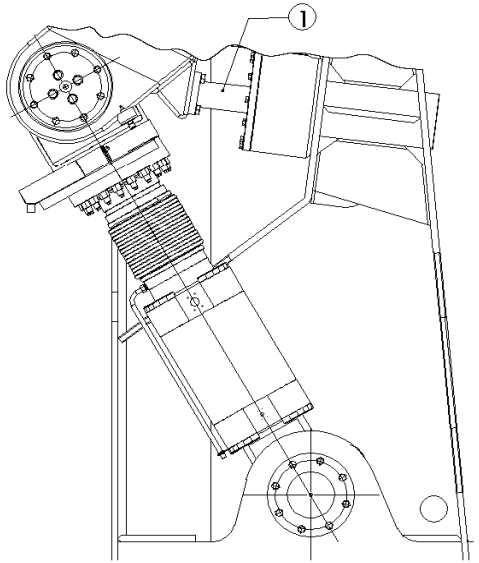


- Mill ZERO gap is maintained 13mm by keeping the 13mm thickness plate between the Roller and Table, At this position turn the stopper rod to contact stopper plate of pressure lever to maintain 13mm ZERO gap in operation.
- Continues monitoring of material on feeding belt by FLAP SYSTEM (No Material) arrangement on the belt.

Energy conservation project - 09

Cement mill roller & table zero gap adjustment

❑ RESULTS:



➢ **BEFORE:**

- Heavy vibrations.
- Damages mill internal fittings and parts.
- Unexpected mill stoppages/breakdowns.

➢ **AFTER:**

- Mill vibration is less.
- Less stoppages.
- Mill internal fittings and parts(Inner Clamps, bolts, outer Clamps Bolts Etc.,) failure reduced.

❑ **Same 13mm gap, Logic modification & Flap system is applied in CEMENT MILL-2 also to reduce vibrations without compromising the mill productivity.**

INTERNAL MANPOWER SKILL DEVELOPMENT AND USAGE

Internal Manpower Skill Development and Usage

Trained and developed internal workmen team to make Tarpaulin covering on raw materials

Internal Manpower Skill Development and Usage

- We have trained and developed internal workmen team to make Tarpaulin covering on raw materials.
- In earlier raw materials tarpaulin covering work done by external party it cost 7 Rs / Sq. Ft.

Calculation

7 Rs X 240000 Sq. Ft Approx. = 1680000 Rs /Year

In-House Team Cost

Manpower cost	- 211950 Rs/ Year
Tarpaulin cost	- 263000 Rs/ Year
Bamboo cost	- 53333 Rs/ Year
Total cost	- 528283 Rs/ Year
Total Cost Saving	- 1151717 Rs /Year

Benefits:

1. Improved internal manpower skills for permanent basis.
2. Cost Saved – 1151717 Rs/Year

Bricks thickness machine exchange with distance meter

Bricks thickness machine

- It is always useful and necessary to check the Kiln bricks thickness especially in critical zones whenever getting chance on Kiln stoppage. So, we search for the same and found that the thickness measuring machine cost is more than 7 lakhs which is very high, and usage are also limited.

Distance meter

- We thought differently and found the device called distance meter that is suitable for this type of activity and purchased the same with only cost of Rs. 3000/- and tested in stoppage and found it is working fine for this activity.

Comparison of Bricks thickness machine with distance meter

Brick Thickness Machine	Distance Meter
➢ High cost	✓ Very less cost
➢ Required calibration on regular basis	✓ Calibration not required on regular basis
➢ High time taking for measurement	✓ Very easy and not much time taking for measurement
➢ Only applicable for specific job	✓ Usable in multiple applications
➢ Repair is highly expensive	✓ Easily exchangeable due to less cost

Utilisation of Renewable Energy Sources… …

Thermal substitution with alternate fuel sources

Year	Technology (Thermal)	Type of Energy	Fuel Replaced	Installed Capacity (million KCal)	Usage (million KCal)	Overall thermal energy (%)
FY 2020-21	Combustion	Alternative Fuel	Coal	-	18905	1.57
FY 2021-22	Combustion	Alternative Fuel	Coal	-	56296	4.34
FY 2022-23	Combustion	Alternative Fuel	Coal	-	77438	5.60

Waste Utilisation as Fuel in last three years… …

Alternate Fuel usage for the FY 2020-21

Sl. No.	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1.	Agro waste	1978	2752	5443	0.48
2.	Carbon black	36	5621	202	0.02
3.	Pharma waste	1208	2413	2915	0.26
4.	Liquid AFR	3134	2770	8681	0.78
5.	Plastic Waste	42	7566	318	0.03
Total AFR Usage (%)					**1.57**

Waste Utilisation as Fuel in last three years

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

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Waste Utilisation as Fuel in last three years

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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**

Waste as Alternative Raw Materials in last three years

Alternate Raw Material Usage for the last 03 years… …

Year	Name of Alternative raw material	Name of material gets replaced	Quantity used (MT/ Year)
2020-21	Red mud	laterite	36808
2021-22	Red mud	laterite	20435
2022-23	Red mud	laterite	67534

Utilisation of Renewable Energy Sources

Usage of Electrical Renewable Energy Sources

Year	Technology (electrical)	Type of energy	On site/ Off site	Installed capacity	Generation	% of overall electrical energy
FY 2020-21	Wind turbines	Wind Energy	Offsite	-	9.2	7.24
	Photo voltaic	Solar	Off site	-	7.42	5.84
FY2021-22	Wind turbines	Wind Energy	Offsite	-	12.47	9.7
	Photo voltaic	Solar	Offsite	-	11.2	8.70
FY2022-23	Wind turbines	Wind Energy	Offsite	-	22.425	14.62
	Photo voltaic	Solar	Offsite	-	11.545	7.536

GHG Inventorisation

Information on GHG Inventorisation and public disclosure

Direct CO_2 emissions	UOM	Values
Total CO_2 from raw materials	[t CO2/yr]	1095575
Total CO2 from fossil-based kiln fuels	[t CO2/yr]	527246
Total CO2 from non-kiln fuels	[t CO2/yr]	148009
Total direct CO2: all sources	**[t CO2/yr]**	**17,70,830**

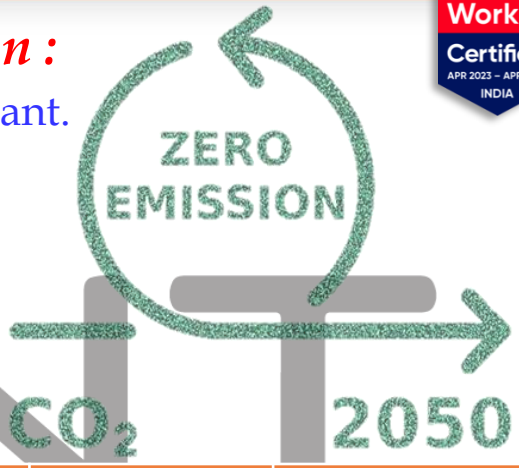
❑ *Scopes for reduction of CO_2*

- Maximum usage of AFR.
- Reduction of clinker to cement ratio.
- Optimization of specific power and heat consumption.
- Installation of Waste heat recovery plant.
- Supply chain.
- Maximize the usage of PI and other additives.

GHG Inventorisation

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

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

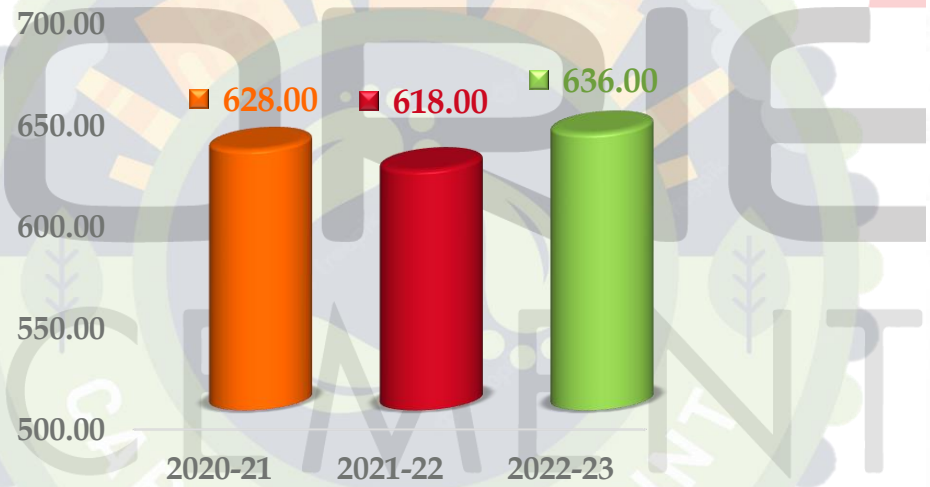


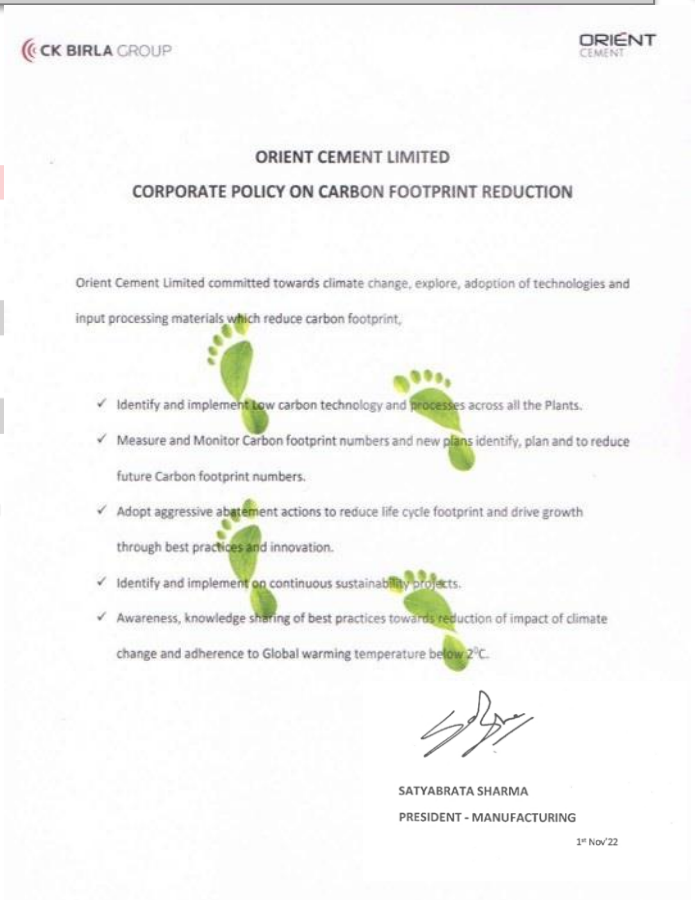
❑ *Absolute Emissions :*

Year	UOM	2020-21	2021-22	2022-23
Suspended Particulate Matter (SPM)	mg/Nm^3	22.36	21.63	21.98
Oxides of Nitrogen (NO_x)	mg/Nm^3	394.63	203.22	277.16
Oxides of Sulphur(SO_x)	mg/Nm^3	9.13	20.22	23.07

Carbon Footprint

"Carbon footprint" Kg of CO_2/ MT of Cement





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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 CO_2 emission per MT of cement.**

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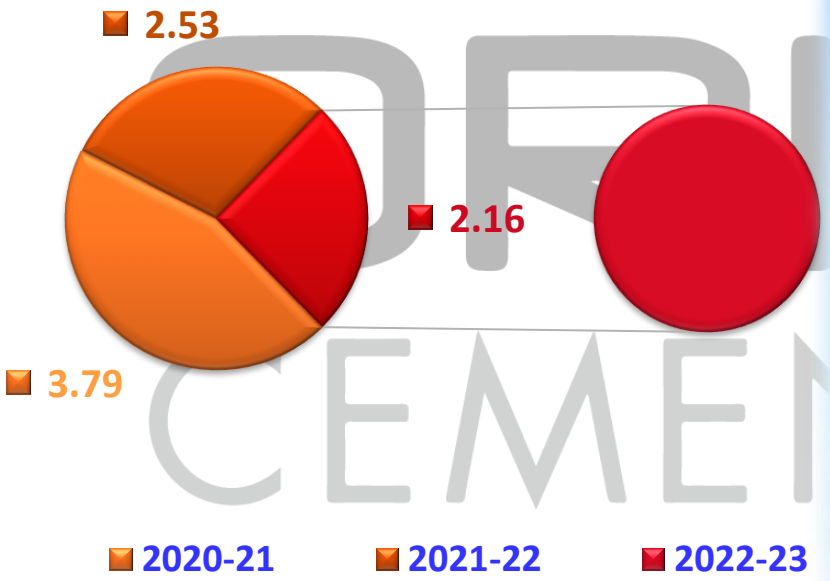
❑ Consistently Water positive during last 03 years.



Green Supply Chain Management Policy

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GREEN PROCUREMENT POLICY

Orient Cement Limited ensures & practice while purchasing Products & Services, we will assess potential environment impacts and associated impacts While procuring our products & services, we always ensure that less impact on Environment and manufactured with less harmful materials. While sourcing of Raw materials, ensure to from nearby sources to reduce travel distance of vehicles which minimise the carbon footprint. Ensure and follow procurement of Energy efficiency Electrical appliances.

We committed to:

- Continuous creation of awareness on Environment and its impacts.
- Measures towards reduction of foot print by Energy efficiency appliances, less harmful materials and lower water consumption.
- Procurement and sourcing of Raw materials from nearby sources to reduce vehicle movement/diesel consumption and encourage local stake holders.
- Procurement of Energy efficiency equipment's.
- Green supply chain with transporters on Raw materials and increase the bulk cement sale.
- Procure products which are Recyclable, Compostable, Reusable or biodegradable packaging.
- Purchase & replacement of lamps that have low energy usage and use lighting controls to reduce electrical consumption.

SATYABRATA SHARMA

PLANT HEAD
CHITTAPUR

Initiatives taken in Green Supply Chain

Green Supply Chain Management

❑ Green purchasing:

- Finding suppliers with environmentally sustainable products and services.
- Engaging local vendors for sourcing of raw materials.
- Procurement of energy efficient appliances, equipments and vehicles.
- Procurement of recyclable, re-usable and biodegradable materials.

❑ Green Raw Material:

- Usage of Alternate Fuels, RDF, Municipal waste & different waste and byproduct of various industries.
- Reusing waste or by products of CPP in cement mill.
- Usages of tailor waste, Teacups, Household waste, and waste material from nearby areas to replace the fuel (Coal).
- Initiative taken to collect the plastic material from plant colony and school from school students & using to replace the Fuel (Coal).
- Using waste material of Aluminum industry as raw material (Red Mud) in replacement of laterite.

❑ Green manufacturing:

- Using fewer nonrenewable natural resources, reducing pollution and waste, and keeping emissions to a minimum.
- Implementing green manufacturing processes.
- Adoption of Digital & automation technologies.








Initiatives taken in Green Supply Chain

Green Supply Chain Management

- **Green packaging:**
  - That includes everything from how the supplier sources materials to how consumers dispose of the packaging.
  - More efficient package design.
- **Green transportation:**
  - Improving delivery routes for less carbon emissions.
  - Hiring vehicles which are efficient and less diesel consuming.
  - Transportation of coal, clinker and Cement via wagon.
- **Green Warehousing:**
  - Installation of LED lights.
  - Installation of RFID at mines and packing weigh bridge area.
  - Consuming recycled water for internal gardening and dust suppression.
  - Usage of Rain harvesting water rather outsourcing.

Net Zero Carbon Footprint

'Net Zero Carbon Footprint' Target Commitment

ORIENT CEMENT

Road map to achieve 'Net ZERO Carbon'

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'Net Zero Carbon Footprint' Target Commitment

- Net Zero Target Year / Commitment if any:

  Achieve "Net Zero Carbon" status by 2050 and beyond.

- **Roadmap for achieving the target:**

  We pursue various levels as given below to achieve the target.

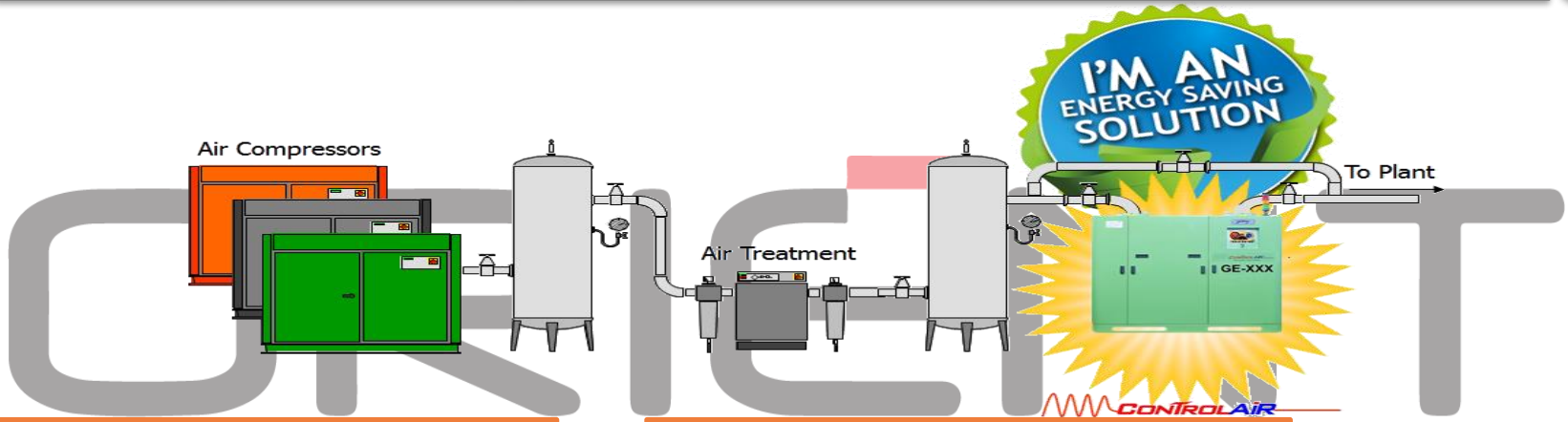
- Scope 1 emissions: The Company continuously pursues the following measures to reduce its Scope 1 emission:
  - Clinker factor reduction.
  - Improving the product portfolio with more blended cement.
  - Reduction of Specific Thermal and Specific Electrical Energy in the kiln and captive power plant.
  - Improvement in TSR - 25% Thermal Substitution Rate (TSR) (substitution of fossil fuels by alternative ones).
  - Enhanced utilization of alternative raw materials.
  - Migration towards renewable energy - 50% of the total energy to come from renewable energy and Waste Heat Recovery Systems (WHRS).
  - Establishment of Waste Heat Recovery Systems - 50% of the total energy to come from renewable energy and Waste Heat Recovery Systems (WHRS).
  - Improved operational efficiency.
  - Upgrading the plants from time to time by adopting the latest technologies.

Road map to achieve 'Net ZERO Carbon'

'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.
- **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.

Optimisation of post clinkerization compressed air system



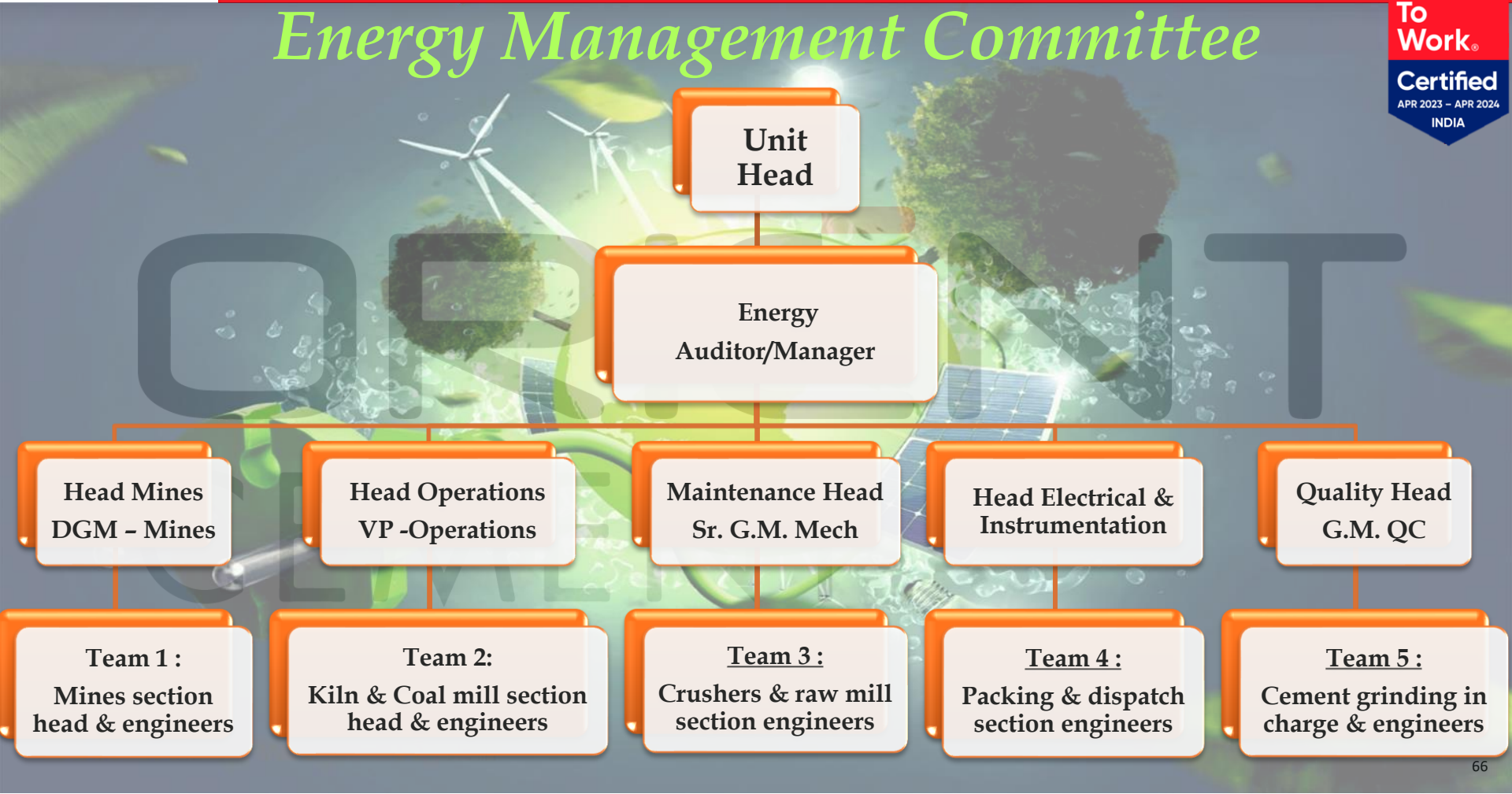
Background:

- Consumption of compressed air power at post clinkerization was increased.
- It was noticed on site observation that most of the time there is unloading.
- Hence the circuit is optimized with IFC(Intelligent flow controller)

Conclusions:

- The savings thus achieved is about *747 kWh/Day*.
- The reduced running hours will have the increased service life of equipment's.

Energy Management Committee



❑ Review meetings :

- ➢ Daily production and power report meeting is reviewed by Unit head .
- ➢ Breakdown analysis presentation by Cross functional team
- ➢ Planning of operation and maintenance.
- ➢ Environment and safety points are reviewed .

TENTATIVE REPORT

ORIENT CEMENT LIMITED : CHITTAPUR

Daily Production Report on 31-03-2023

Production & Dispatch

Production & Dispatch	Opening Stock (MT)	Production/Receipt			Despatch/Cons.			Closing Stock (MT)
		On Date	MTD	YTD	On Date	MTD	YTD	
Clinker	49,373	-	159,905	2,042,617	8,360	184,309	2,081,651	45,152
Cement (OPC - 53 Gr.)	3,383	4,940	115,769	1,325,629	6,301	117,455	1,327,094	1,697
Cement (OPC - 43 Gr.)	3,176	-	17,391	240,621	957	20,016	241,475	550
Cement (HS PPC) Strongcrete	3,212	80	10,513	127,309	966	13,072	129,315	653
Cement (PPC)	3,555	6,150	88,451	882,863	4,954	86,962	869,493	1,195
Orient Green					265	3,849	12,473	
Total Cement	**13,326**	**11,170**	**232,124**	**2,576,422**	**13,443**	**241,355**	**2,579,851**	**4,095**

Equipment Performance

Equipment Description	Running Hours			Tonnage Per Hour			Remark
	Today	MTD	YTD	Today	MTD	YTD	
LS Crusher	-	216	2,549	-	1,142	1,124	
RM 1	-	388	5,133	-	326	323	
RM 2	-	335	4,410	-	324	314	
Coal Mill	-	498	6,614	-	28	28	
KILN	-	539	7,185	-	296	284	
CM 1(OPC 43 Gr)	-	38	558	-	225	222	
CM 1(OPC 53 Gr)	1.67	287	3,140	216	225	225	
CM 1 (HS PPC) Strongcrete	0.42	24	258	190	185	184	
CM 1(PPC)	20.33	184	1,395	303	304	299	
CM 2(OPC 43 Gr)	-	40	523	-	221	224	
CM 2(OPC 53 Gr)	21.00	227	2,738	218	226	227	
CM 2 (HS PPC) Strongcrete	-	32	428	-	193	186	
CM 2(PPC)	-	107	1,552	-	305	300	

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Specific Power and heat Consumption report

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ORIENT CEMENT LIMITED ,Chittapur
SPECIFIC POWER AND HEAT CONSUMPTION REPORT Mar-2021

Sr. No.	Section Description / Date	Best MTD	Targets	1-Mar-21	2-Mar-21	3-Mar-21	4-Mar-21	5-Mar-21	6-Mar-21	7-Mar-21	8-Mar-21	9-Mar-21	10-Mar-21	11-Mar-21	12-Mar-21	13-Mar-21	14-Mar-21	15-Mar-21	16-Mar-21	17-Mar-21
1	LS CRUSHER																			
	Production (MT)	321012		14046	13859	9080	13403	9590	9892	11263	13100	9482	10792	12819	9773	6368	11167	12868	3477	9087
	Running hours			11.50	11.75	7.83	10.75	9.25	10.50	10.17	12.25	8.83	9.50	11.33	9.58	5.58	10.17	11.92	3.50	8.50
	Power Consumed ,KWh (Act+Losses)			17508	16481	10474	14557	15706.96	15445.88	16939.12	18712	13061	13979	17597	13285	8565	16717	18738	5397	12661
	Production Rate (ton/hr)	1173		1221.39	1179.49	1159.64	1246.79	1036.76	942.10	1107.47	1069.39	1073.84	1136.00	1131.42	1020.15	1141.22	1058.03	1079.53	993.43	1069.06
	Specific Power (kWh/ton)	1.35	1.6	1.25	1.19	1.15	1.08	1.64	1.56	1.50	1.43	1.38	1.30	1.37	1.36	1.34	1.50	1.46	1.55	1.39
2	RAW MILL-1																			
	Production (MT)	175526		7529	7356		6097	7306	7539	6501	2544	7171	7158	7324	7090	2856	6595	7623	7021	5794
	Running hour			24.00	23.50		19.92	23.17	24.00	20.75	8.25	22.83	23.08	24.00	23.00	9.08	21.25	24.00	22.25	18.80
	Power Consumed (KWh)			96747	94500		78994	94752.09	97232	83846	33216	91320	91293	94659	89554	36627	82394	95489	88281	74095
	Production Rate (ton/hr)	320		313.71	313.02		306.07	315.32	314.13	313.30	308.36	314.10	309.27	305.17	308.26	314.54	310.35	317.63	315.55	308.19
	Specific Power (kWh/ton)	12.79	13.25	12.85	12.85		12.96	12.97	12.90	12.90	13.06	12.73	12.79	12.92	12.63	12.82	12.49	12.53	12.57	12.79
3	RAW MILL-2																			
	Production (MT)	192620		3345	4925	6624	6950	6393		7414	7405	4365	4629		7129	7626	6857		4865	533
	Running hour			10.50	16.00	21.00	22.67	20.67		23.83	24.00	13.83	14.92		22.58	24.00	21.42		15.17	1.67
	Power Consumed (KWh)			43826	64420	87346	90884	89221.46		95199	96697	56006	59198		90123	96144	84802		61518	7221
	Production Rate (ton/hr)	324		318.57	307.81	315.43	306.57	309.29		311.12	308.54	315.62	310.25		315.72	317.75	320.12		320.70	319.16
	Specific Power (kWh/ton)	12.58	13.25	13.10	13.08	13.19	13.08	13.96		12.84	13.06	12.83	12.79		12.64	12.61	12.37		12.65	13.55
	Specific Power Raw mills (kWh/MT)	12.68		12.99	12.94	13.19	13.02	13.43	12.90	12.87	13.06	12.77	12.79	12.92	12.64	12.67	12.43	12.53	12.60	12.85
4	COAL MILL																			
	Production (MT)	24922		811	817	811	812	819	810	824	808	818	819	833	842	843	845	828	832	784
	Running hour			21.92	19.58	22.17	23.17	21.50	23.00	22.00	21.50	21.67	21.00	22.25	20.50	20.50	19.83	21.33	20.17	17.92
	Power Consumed (KWh)			30087	24868	28746	27743	28662	28878	28002	28560	27433	25802	29409	27305	26715	26833	27729	28102	24730
	Production Rate (ton/hr)	61		37.00	41.73	36.58	35.05	38.09	35.22	37.45	37.58	37.75	39.00	37.44	41.07	41.12	42.61	38.82	41.25	43.75
	Specific Power (kWh/ton)	34.11		37.10	30.44	35.45	34.17	35.00	35.65	33.98	35.35	33.54	31.50	35.30	32.43	31.69	31.75	33.49	33.78	31.54
5	KILN & COOLER																			
	Production (MT)	224161		7355	7312	7344	7345	7346	7354	7345	7355	7343	7354	7353	7344	7345	7355	7374	7371	6888
	Running hour			24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
	Power Consumed (KWh)			114696	114531	115512	114650	114678	115465	114449	113012	112387	114200	114640	115403	114514	113863	115607	115022	104672
	Production Rate (ton/hr)	303		306.46	304.67	306.00	306.04	306.08	306.42	306.04	306.46	305.96	306.42	306.38	306.00	306.04	306.46	307.25	307.13	287.00
	Specific Power (kWh/ton)	15.44	21.4	15.59	15.66	15.73	15.61	15.61	15.70	15.58	15.37	15.31	15.53	15.59	15.71	15.59	15.48	15.68	15.60	15.20
	Specific Power Clinkerisation (kWh/ton clk)	43.59	47.23	43.21	42.99	44.06	42.62	44.50	43.87	43.44	43.53	42.83	42.49	43.60	42.43	42.77	42.87	43.07	43.21	42.90
	Specific Heat Consumption(Kcal/Kg-Clinker)	677	682	680	680	681	680	680	679	680	679	680	678	679	680	681	680	678	680	681
6	CEMENT MILL-1_OPC																			
	Production (MT)	74890		1648			3074	2362	4601	4018	4231	4347	3609	1949		4937	5572	1480	4242	4812
	Running hour			7.50			13.00	10.50	20.00	17.00	17.91	18.17	15.00	8.25		21.00	23.41	6.08	17.00	20.00
	Power Consumed (KWh)			39780			74090	59331	113570	97139.86	101793	104729	86480	45699		116495	127525	37122	99979	107882
	Production Rate (ton/hr)	247		219.73			236.46	224.95	230.05	236.35	236.24	239.24	240.60	236.24		237.95	238.02	243.42	249.53	240.60
	Specific Power (kWh/ton)	22.32	24	24.14			24.10	25.12	24.68	24.18	24.06	24.09	23.96	23.45		23.31	22.89	25.08	22.15	22.42
7	CEMENT MILL-1_PPC																			
	Production (MT)	80900											2718	4750	7184	431			2078	1157
	Running hour												9.00	15.75	24.00	1.50			7.00	4.00
	Power Consumed (KWh)												50388	89708	135006	8683			39984	24154
	Production Rate (ton/hr)	310											302.00	301.59	299.33	287.33			296.86	289.25
	Specific Power (kWh/ton)	18.28	19.5										18.54	18.89	18.79	20.15			19.24	20.86
8	CEMENT MILL-1_ STRONGCRETE																			
	Production (MT)	5019																		
	Running hour																			
	Power Consumed (KWh)																			
	Production Rate (ton/hr)	218																		
	Specific Power (kWh/ton)	25.37	26.5																	
	Specific Power CEMENT MILL-1 (kWh/MT)	20.58		24.14			24.10	25.12	24.68	24.18	24.06	24.09	21.63	20.21	18.79	20.06	22.89	25.08	21.20	22.12

Awards and Accolades 2022-23

Awards and Accolades 2022-23

- "Platinum Award" Under Apex India Green Leaf Award 2021 for Environment Excellence category.
- Winner for "22nd Greentech Environment Award 2022" for outstanding achievements in " Environment Protection" category.
- "Platinum Award" Under Apex India Green Leaf Award 2022 for Environment Excellence category.
- "Platinum Award" Under Apex India Occupational, Health & Safety Award 2022.
- Best Safety Officer - Award from Director of Factories, Boilers, Industrial safety and health, Government of Karnataka.
- SEEM National Energy Management Gold Award 2021.
- CII 23rd National award for "Excellent Energy Efficient Unit" 2022.
- CII 23rd National award for "National Energy Leader" 2022.

Awards and Accolades 2022-23

Mines Department

- First Prize -Best Practices Adopted (Special Award) (Group -1)
- First Prize - Environmental Monitoring (Group – 1)
- Second Prize - Waste Dump Management (Group -1)
- Second Prize - Reclamation and Rehabilitation (Group -1)
- First Prize - Overall Performance (State Level)
- First Prize - Overall Performance (Zonal Level)
- First Prize - Loading &Transportation (Group -B1)
- First Prize - Mine Workings (Group -B1)
- First Prize - Safety Management System (Group-B1)
- Second Prize - Maintenance of mining Machinery & Crusher (Group -B1)
- Second Prize - Drilling & Blasting (Group -B1)
- Third Prize - Publicity, Propaganda & Innovation (Group -B1)
- Third Prize - Electrical Installation (Group -B1)
- Third Prize - Swachh Bharath Abhiyan (Group -B1)
- Third Prize - Overall Performance (Zonal Level) (Group -B1)
- First Prize - Contractual Work Vis Safety & Safety is My Responsibility card (Group B1)
- First Prize - Swachh Bharat Abhiyan (Group B1)
- Second Prize - Occupation Health Welfare Amenities and Preparation of SOP's & Implementation (Group B1)
- Second Prize - Maintenance of mining Machinery & Crusher (Group B1)
- Third Prize - Drilling & Blasting (Group -B1)
- Third Prize - Mine Workings (Group -B1)
- Third Prize - Publicity, Propaganda & Innovation (Group -B1)
- Second Prize - Overall Performance (Group B2)
- First Prize - Waste dump management (Group B2)
- First Prize - Reclamation and Rehabilitation (Group-B2)
- First Prize - Mineral Conservation (Group B2)
- First Prize - Energy Conservation (Group B2)
- First Prize -Best Practice Adopted in Mines (Group B2)
- Second Prize - Sustainable Mining (Group B2)
- Second Prize - Sustainable Development (Group B2)
- Second Prize - Publicity and Propaganda (Group B2)

Captive Power Plant

- **Best Energy Efficient Plant** Coal - CPP Southern region under WINNERS category for Reducing Plant Net Heat Rate.
- **Efficient Management of Fly Ash** - CPP Southern region under WINNERS category.
- **Excellence in Water Management** WINNERS Under Zero Liquid Discharge Plant CPP- Coal Category.
- **State level safety Awards** for power boilers – 2nd Prize.

Safety Awards

- **State level award from Govt. of Karnataka** (Dept. of Factories, Boilers, Industrial Safety & Health) - Only Cement industry in Karnataka to receive the award.
- **Unnatha Suraksha Puraskara** from **National Safety Council**, Karnataka.
- **International ROSPA award** – Silver from Royal society for prevention of accidents (ROSPA), UK.
- **OHS platinum award** from Apex India, Delhi
- **"WINNER"** in Industry sector Safety Excellence from Greentech foundation, Delhi
- **Letter of Appreciation of Sr. Asst Director of Factories,** Kalaburagi – Govt. of Karnataka for Consistent Safety performance and without LTIs.

Apex India Green Leaf Award 2022 for Environment Excellence category

Apex India Green Leaf Awards 2022

APEX INDIA FOUNDATION

RECOGNISING EXCELLENCE* SPREADING AWARENESS

CERTIFICATE

This certificate is proudly presented to

Orient Cement Limited

Chittapur

Cement Sector

has been declared winner of

Apex India

Green Leaf Award 2022

for Environment Excellence

Platinum Award

PRESIDENT
APEX INDIA FOUNDATION

ISSUED ON
22nd March 2023

PLATINUM AWARD

APEX INDIA FOUNDATION

RECOGNISING EXCELLENCE* SPREADING AWARENESS

Congratulations

Ref: Apex India Green Leaf Awd'21/Jaipur

Shri Satyabrata Sharma
Sr. Vice President-Works
Orient Cement Limited
Chittapur, Karnataka

Date:23rd April 2022

Sub: Congratulations!!! Selected for "Platinum Award" under Apex India Green Leaf Award 2021 for Environment Excellence Category

Respected Sir,

We are highly delighted to inform you that the Management of **Apex India Foundation,** on the recommendation of the highly experienced Jury members, have distinguished **Orient Cement Limited, Chittapur, Karnataka** a recipient of '**Platinum Award**' under **Apex India Green Leaf Award 2021** for **Environment Excellence** in **Cement Sector.**

We cordially invite you to receive this prestigious award on behalf of your organization at the **Apex India Award Ceremony** coupled with **Apex India National Conference on Sustainable Environment & CSR** on **5TH May 2022** at **Hotel Crowne Plaza, Jaipur, Rajasthan (INDIA).**

The following Dignitaries have been invited to grace the Occasion:

- **Hon'ble Shri Mahendrajeet Singh Malviya (Cabinet Minister for Water Resources, IGNP, Water Resource PlanningDept.Government of Rajasthan)**
- **Hon'ble Shri Hemaram Choudhary-Hon'ble Minister (Forest, Environment & Climate Change) Government of Rajasthan**
- **Hon'ble Retd. Major General Shri P.K. Saighal (Defense Expert of India & TEDx Speaker)**
- **Hon'ble Shri Baldev Bhai G. Prajapati (National President, Laghu Udyog Bharti)**

It is worthwhile to mention that **Apex India Foundation** is organizing the conference **"Apex India National Conference on Sustainable Environment & CSR"** wherein eminent speakers from various Industries will participate and share their experiences on various topics related to the above theme which will fetch enormous benefits to your organization.

On this auspicious occasion, your presence along with other executives of your organization will be highly appreciated and will encourage us. We invite your company to be a part of this special event and request you to sponsor on this occasion & in return for sponsorship we're offering multiple advertising options throughout the season. We strongly believe that your company's commitment to Environmental protection & Systems will bring huge benefits and enhance the reputation of your company & provide you with much higher recognition. We are attaching **"Sponsorship Options"** for your reference and kind consideration.

We will share the program details along with Conference and Award participation form ASAP.

Your kind support and contribution to the Event will be highly appreciated.

Congratulations on receiving the most prestigious and deserving award.

Thanking you,
Kind Regards,

Encl:
1. Sponsorship Options PDF
2. Sponsorship Form
3. E-Certificate
4. Awards Participation form
5. Conference Brochure
6. Conference Form

Kuldeep Singh
President
Apex India Foundation
8920123575, 8368193585

2nd Floor, RZ-18A Lane No. 2, Main Pankha Road, Near Dabri Mor Metro Station, New Delhi - 45
Ph. : 011 25634828, Mobile : +91 83681 93585 | www.apexindiafoundation.com
E-mail to: mail@apexindiafoundation.com, awards.apexindia@gmail.com

ORIENT CEMENT

Outstanding achievements in " Environment Protection" category

Great Place To Work. Certified APR 2023 – APR 2024 INDIA

SEEM National Energy Management Gold Award 2021

APEX INDIA – OHS PLATINUM AWARD - 2022

APEX INDIA FOUNDATION
RECOGNISING EXCELLENCE* SPREADING AWARENESS

Congratulatians

Ref: Apex India Safety Awd'22/CHANDIGARH

Shri Satyabrata Sharma
Sr. Vice President-Works
Orient Cement Limited (C K Birla Group)
Chittapur

Date: 01st September2022

Sub: Congratulations!!! Selected for "Platinum Award" under Apex India Occupational, Health & Safety Award 2022

Respected Sir,

We are highly delighted to inform you that the Management of Apex India Foundation, on the recommendation of the highly experienced Jury members, have distinguished **Orient Cement Limited (C K Birla Group), Chittapur** a recipient of **'Platinum Award '** under **Apex India Occupational, Health & Safety Award 2022 in Cement** Sector.

We cordially invite you to receive this prestigious award on behalf of your organization at the Apex India Award Ceremony coupled with Conference - **"Apex India OSH Conference 2022** on **09th September 2022** at **Novotel Hotel, Chandigarh (INDIA).**

The following Dignitaries have been invited to grace the Occasion:

- **Hon'ble Shri Manoj Tiwari (Member of Parliament)**
- **Hon'ble Shri Pranvendra Kumar Rao Fellow Member IFE (India) Former Director, U.P.Fire Service) President, Institution of Fire Engineers (India)**
- **Hon'ble Retd. Major General Shri P.K. Saighal (Defense Expert of India & TEDx Speaker)**
- **Hon'ble Shri Dr. Avneesh Singh (Director General (Rtd.), DGFASLI Min. of L&E, Govt. of India.)**
- **Hon'ble Shri Baldev Bhai G. Prajapati (National President, Laghu Udyog Bharti)**

Apex India Foundation has always put all sincere effort to arrange conferences where renowned Safety, Health & Environment professionals from all over the world meet and share their experiences and exchange ideas so that it will be helpful for the organization to smoothen the functional cycle.

It is worthwhile to mention that **Apex India Foundation** is organizing the conference on "Apex India **OSH Conference 2022"** wherein eminent speakers from all over India will participate and share their experiences on various topics related to the above theme which will fetch enormous benefits to your organization.

On this auspicious occasion, your presence along with other executives of your organization will be highly appreciated and will encourage us. We invite your company to be a part of this special event and request you to sponsor this occasion & in return for sponsorship we're offering multiple advertising options throughout the season. We strongly believe that your organization's commitment to OHS Practices & Systems will bring huge benefits and enhance the reputation of your organization & provide you with much higher recognition. We are attaching **"Sponsorship Options"** for your reference and kind consideration.

We will share the program details along with Conference and Award participation form.
Your kind support and contribution to the Event will be highly appreciated.

Congratulations once again receiving the most prestigious and deserving award.

Thanks,
Best Regards,

Kuldeep Singh
President

1. Sponsorship Options PDF
2. Sponsorship Form
3. E-Certificate
4. Awards Participation Form
5. Conference Brochure
6. Conference Form

2nd Floor, RZ - 18A Lane No. 2, Main Pankha Road, Near Dabri Mor Metro Station, New Delhi - 45
Ph.: 011 25634828, Mobile: +91 8368193585 | www.apexindiafoundation.com
E-mail to : mail@apexinndiafoundation.com,awards.apexindia@gmail.com

CII 23rd National award for "Excellence in Energy Management" 2022

Great Place To Work. Certified APR 2023 – APR 2024 INDIA

Recognized as Excellent Energy efficient Unit-2022

Excellent Energy Efficient Unit

CII
Confederation of Indian Industry

23rd National Award for Excellence in Energy Management 2022

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 23 - 25 August 2022

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

CII 23rd National award for "Excellence in Energy Management" 2022

Great Place To Work. Certified APR 2023 – APR 2024 INDIA

Recognized as National Energy Leader-2022

National Energy Leader-2022

CII

Confederation of Indian Industry

23rd National Award for Excellence in Energy Management 2022

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 23 - 25 August 2022.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

Implementation of ISO 50001

bsi.

Certificate of Registration

FACILITIES MANAGEMENT SYSTEM - ISO 41001:2018

This is to certify that: Orient Cement Ltd.
Chittapur
PO Itaga
Malked Road
Chittapur - Taluk
Kalaburagi Dist 585 292
Karnataka
India

Holds Certificate No: **FMMS 738634**

and operates a Facilities Management System which complies with the requirements of ISO 41001:2018 for the following scope:

Facility Management for the Manufacture, Packing and Supply of Clinker & Cement, and Generation & Export of Power.

For and on behalf of BSI:

Theuns Kotze, Managing Director - IMETA Assurance

Original Registration Date: 2021-06-07
Latest Revision Date: 2021-06-07

Effective Date: 2021-06-07
Expiry Date: 2024-06-06

Page: 1 of 1

...making excellence a habit.™

bsi.

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.™

Achieved NABL Accreditation certification

We are happy to share our ORIENT CEMENT, Chittapur QC Lab
Achieved NABL Accreditation certification effective from 28.01.2022

NABL

National Accreditation Board for
Testing and Calibration Laboratories

NABL CERTIFICATE OF ACCREDITATION

NABL

National Accreditation Board for Testing and Calibration Laboratories

Certificate No.:

TC-10271

National Accreditation Board for Testing and Calibration Laboratories

NABL

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

Major Achievements

- One of the lowest energy consumption plant for both electrical and thermal.
- Achieved 1st Best Managed company in Cement sector.
- Achieved 70th place in best 100 companies in Great Place To Work Survey.

Great Place To Work.®
Certified
APR 2023 – APR 2024
INDIA

ORIENT CEMENT

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: +91-7829992123