ORIENT CEMENT LIMITED, DEVAPUR UNIT

CK BIRLA GROUP

ORIENT CEMENT

CII National Award for Excellence in Energy Management 2024

Mr. Satyabrata Sharma
President – Manufacturing

Mr. Bala Giridhar
Vice President-Works

Best Workplaces™ in Manufacturing
Great Place To Work. INDIA 2024

Among the Top 25

Great Place To Work. Certified MAR 2024–MAR 2025 INDIA

5th Consecutive Year

Best Workplaces™ Building a Culture of Innovation by All
Great Place To Work. INDIA 2024

Among the Top 50

Team Members

Mr. B.Pavan Kumar – GM (Mechanical)
Mr. Devesh Raaj Panjiray- DGM (Process)
Mr. P.Ramakrishna- Manager (Process)

ORIENT CEMENT LIMITED - PLANT PROFILE

OUR VISION & VALUES

Vision

Build Sustainably to Be a Valued Partner in Progress.

Values

- Collaboration
- Humility to Learn
- Walk the Talk
- Respect for All
- Agility with Speed
- Passion to Excel
- Celebrate Diversity

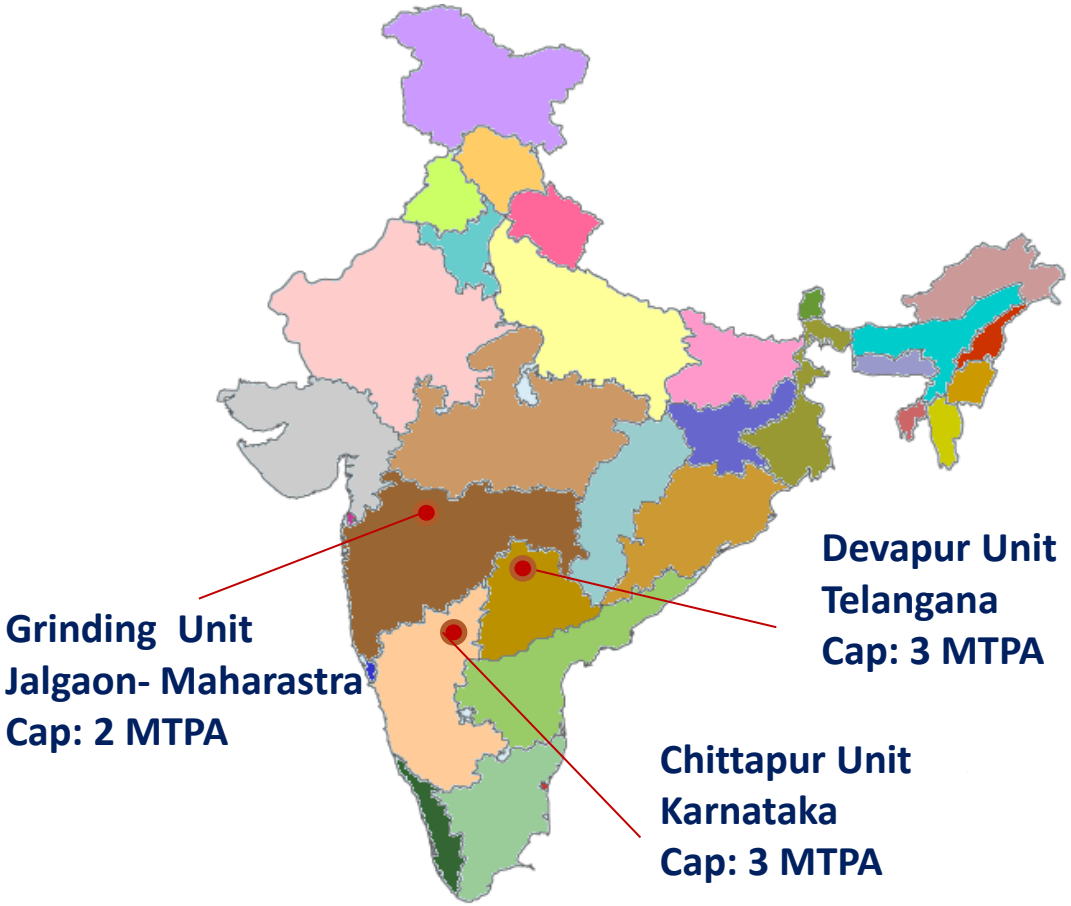
Plant is certified with IMS:

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 50001:2018
- TPM-Phase I & II (Excellence and Excellence in consistent)
- NABL Accredited Quality Control Laboratory
- **Member of CSI (WBCSD)**
- **Green Pro certified by CII**
- **Great Place to Work Certified 5th consecutive Year**

Overall Capacity of Orient Cement is 8.0 MTPA.

Orient Cement operating 3 Cement Plants in India:

- Integrated Plant (incl:CPP) - Devapur, Telangana
- Cement Grinding Unit - Jalgaon, Maharashtra
- Integrated Plant (incl:CPP) - Chittapur, Karnataka



PRODUCT DETAILS

Birla.A1
Dolphin

Birla.A1
OrientGreen

Birla.A1
StrongCrete

Birla.A1
Premium Cement
(PPC)

Birla.A1
Premium Cement
53 Grade(OPC)

Birla.A1
Premium Cement
43 Grade(OPC)

CAPACITY ENHANCEMENT – DEVAPUR UNIT

1982	1990	1997	1999	2009	
Plant Cap.: 0.45 MTPA	Plant Cap.: 0.90 MTPA	Plant Cap.: 1.18 MTPA	Plant Cap.: 1.75 MTPA	Plant Cap.: 3.0 MTPA	
					
Line-I Plant Commissioned	Line-II Plant Commissioned	Line - I ,Internal modification	Line I, Up gradation with PC	Line – III Commissioned	CPP-50 MW Installation

Section	Line-1		Line-2	Line-3
Raw Mill	Ball Mill with Polycom as Pre Grinder Capacity - 240 TPH Make : Polycom -Krupp Polysius & Ball Mill-FLS		Central discharge Ball Mill with HIC as pregrinder Capacity - 160 TPH Make : Ball Mill - KHD & HIC -Barmac	Finished mode Roller press Capacity -300 TPH Make : KHD
Coal Mill	Ball Mill (Kiln Firing) Capacity - 16 TPH Make : FLS	VRM (PC Firing) Capacity - 16 TPH Make : Pfeiffer	Ball Mill Capacity - 20 TPH Make : KHD	VRM Capacity - 40 TPH Make : Pfeiffer
Pyro Process	K- String 4 stage Suspension Pre heater & PC -String 5 stage Suspension Pre heater with Separate Line Calciner. Rotary Kiln with Grate Cooler (Folex Cooler) Capacity -3600 TPD Make: FLS . Plant Commissioned in 1982 and upgraded in 1999		Five Stage Suspension Pre heater with In Line Calciner. Rotary Kiln with Grate Cooler Capacity -2800 TPD Make: KHD. Plant Commissioned in 1990 and upgraded	Six Stage Suspension Pre heater with In Line Calciner. Rotary Kiln with SF Cross Bar Cooler Capacity -4200 TPD Make: FLS Plant Commissioned in 2009
Cement Mill	Ball Mill with Roller Press as Pre Grinder, Capacity: 260 TPH Make : Roller Press : KHD Ball Mill: FLS		Ball Mill with Roller Press as Pre Grinder Capacity - 230TPH Make : Roller Press & Ball Mill : KHD	-

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LAST THREE YEARS ENERGY PERFORMANCE

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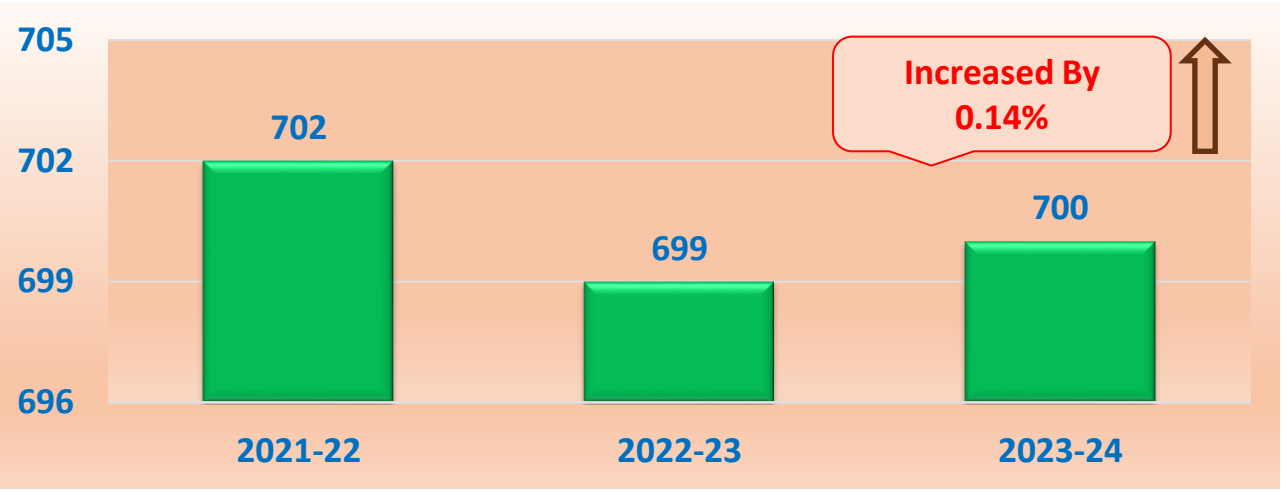
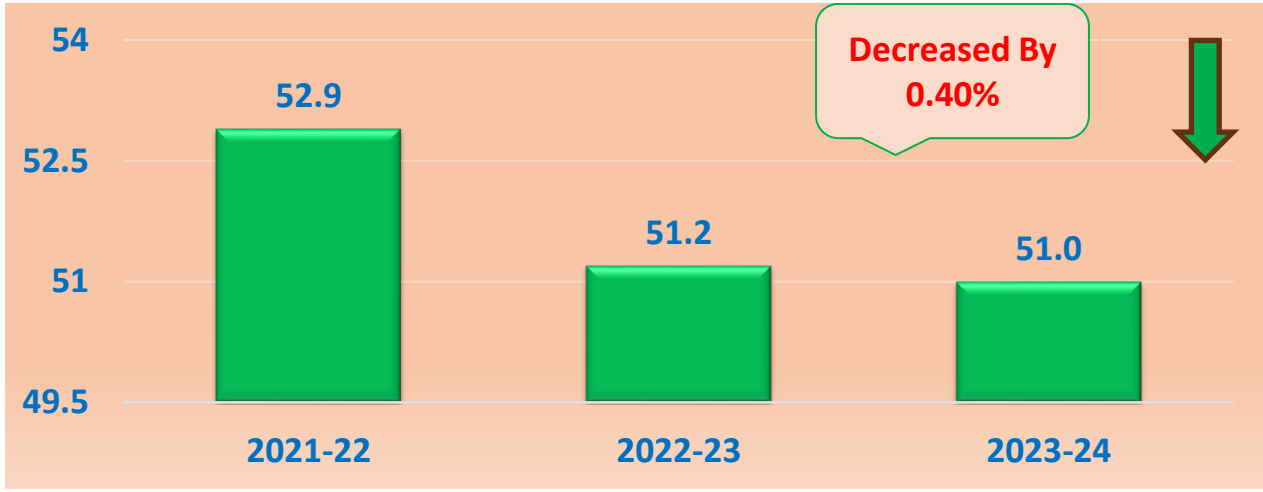
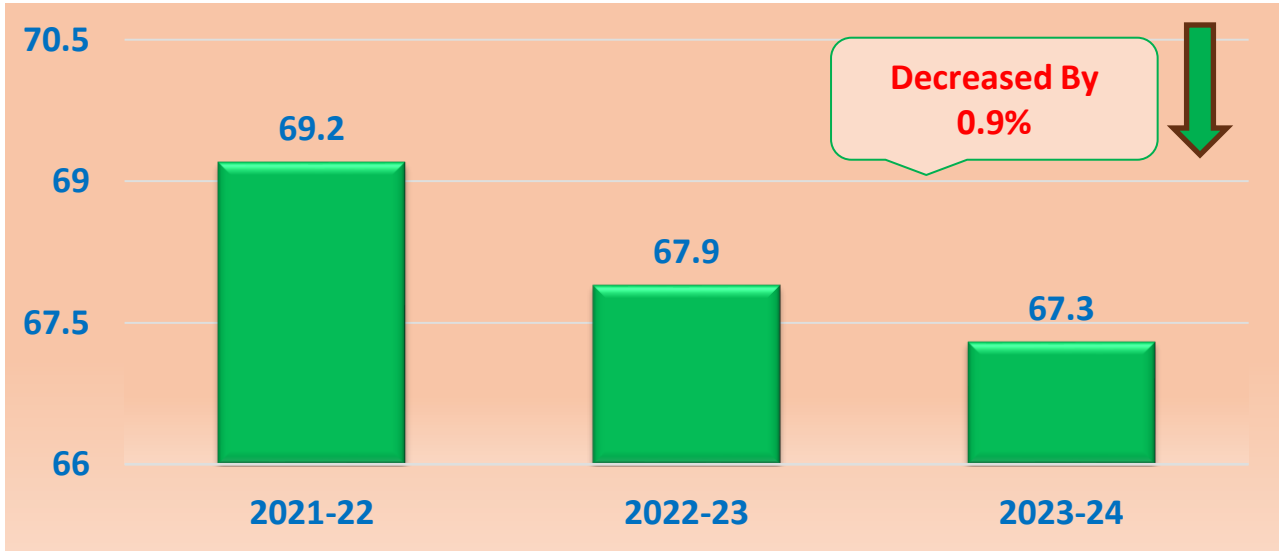
Specific Heat Consumption Common – Kcal/ Kg Clinker



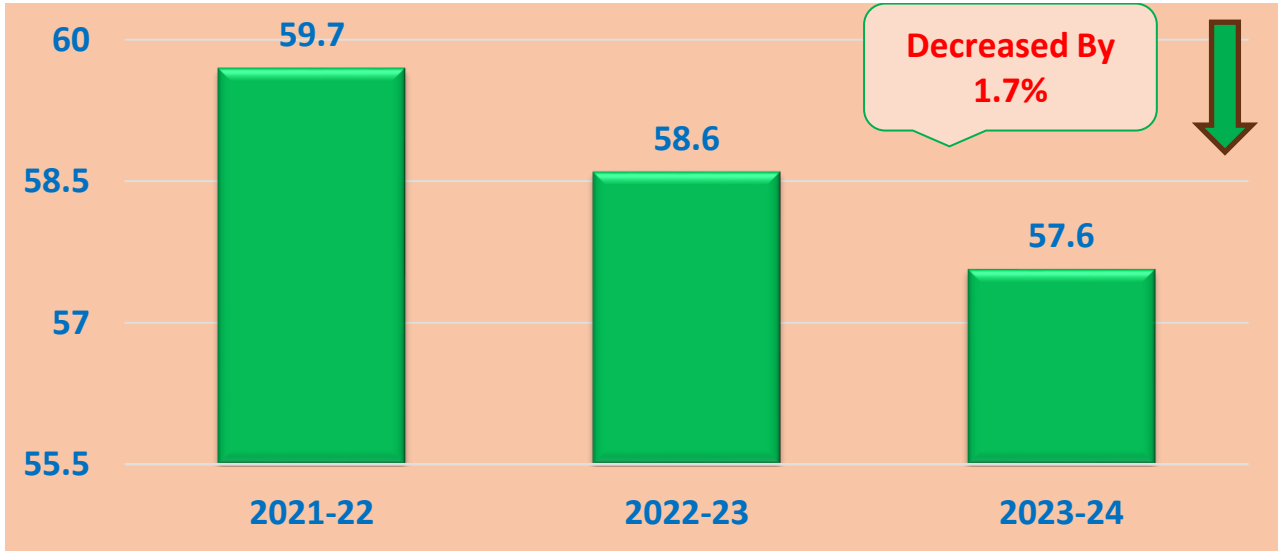
Sp. Power up to Clinker Common (Kwh/ MT)



Sp. Power up to cement Common (Kwh/ MT)

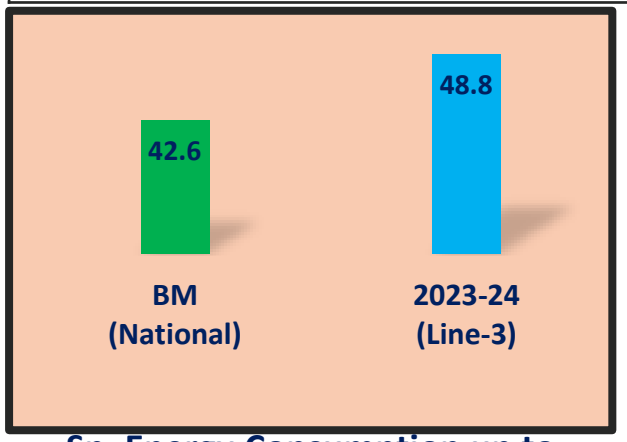


Sp. Power up to PPC (Kwh/ MT of Cement)

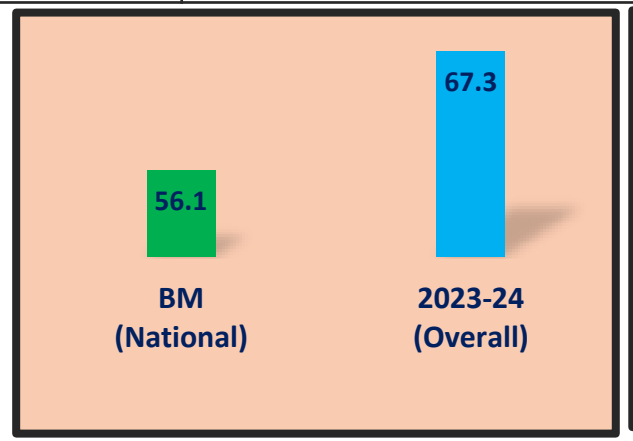


INFORMATION ON COMPETITORS, NATIONAL & GLOBAL BENCHMARK

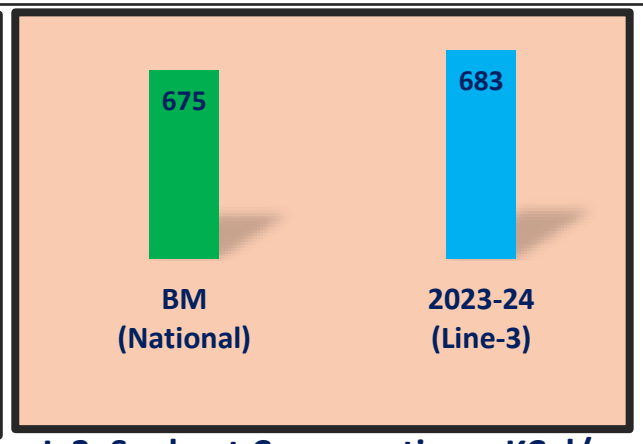
Parameters	Electrical SEC	Thermal SEC
SEC (Specific Energy Consumption) of the Unit	67.3	700
Unit of Measurement	kWh/MT Cement	Kcal /Kg Clinker
Name of Competitor I	Maratha Cement Works	UTCL- Baga Cement Works
SEC Values for Competitor I	75.68	706
Name of Competitor II	UTCL- Baga Cement Works	Chettinad – Kallur Works
SEC Values for Competitor II	67.4	728
Name of Competitor III	M/s Dalmia Bharath Ltd- Dalmiapuram	M/s Ramco Cements Ltd. - Jayanthipuram
SEC Values for Competitor III	66.0	733
NATIONAL BENCHMARK		
Name of the Company	Plant-1	Plant-1
SEC Value	56.1	675
Unit of Measurement	kWh/MT Cement	Kcal /Kg Clinker
Difference with National Benchmark Company	11.2	25
Reference:-	ENERGY BENCHMARKING for the Indian Cement Industry (CII) V 6.0 and year 22-23 CII Award Presentation	



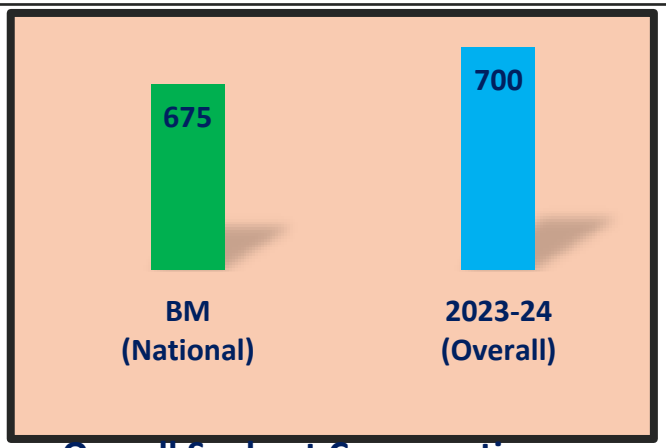
Sp. Energy Consumption up to Clinker – KWh/MT



Sp. Energy Consumption Up to Cement – KWh/MT



L-3, Sp. heat Consumption – KCal/ Kg of Clinker



Overall Sp. heat Consumption – KCal/ Kg of Clinker

ROAD MAP TO ACHIEVE TARGET/NATIONAL/GLOBAL BENCHMARK

ROAD MAP FOR REDUCTION OF ENERGY CONSUMPTION

1. Installation of energy saving device in split of packaged AC units.
2. Installation of energy efficient pump sets/VFD to pumps.
3. Install roof top solar PV for buildings.
4. Install waste heat recovery system.
5. Installation of BLDC fans to replace conventional ceiling fans.
6. Replace IE1 motors with energy efficient IE3 motors (energy efficient motors replacement for selected motors).
7. Replacement of existing cooler with latest generation cooler in line-1 & 2.

Achieve BM

ENERGY CONSERVATION PROJECTS PLANNED IN FY 2024-25

S. No	Energy Saving Proposals	Electrical energy saving per annum (Million kWh)
1	Installation of Waste Heat Recovery System	27714
2	Installation of Roof top Solar PV for buildings	339
3	Installation of MV drive in place of GRR for VRM-3 Vent Fan	705

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ENERGY SAVING PROJECTS IMPLEMENTED IN FY 2021-22

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Year	Energy saving projects	Investments (INR Million)	Electrical Savings (Million kWh)	Savings (INR Million)	Impact on SEC/ SHC (Electrical kWh /MT cement or Kcal/Kg cement)
FY 2021-22	Kiln-1, Kiln feed Kiln & PC mixing bin venting modification (Bag filter stopped)	0.010	0.044	0.174	0.021
FY 2021-22	Optimization of Kiln-1 kiln feed extraction (feeding only single silo)	0.000	0.204	0.814	0.095
FY 2021-22	Installation of VFD for Kiln-1 Main ESP Fan and Motor changed from HT (225 kW) to LT (200 kW).	0.500	0.317	1.267	0.148
FY 2021-22	Line-1 Cooler fan-2B outlet duct modification.	0.200	0.222	0.887	0.104
FY 2021-22	Clinker hopper dust collector discharge modification in CementMill-1 (two blower are stopped)	0.120	0.067	0.269	0.031
FY 2021-22	Line-2 Cooler fan-1 Relocation for outlet duct modification & VFD installation	0.500	0.230	1.030	0.108
FY 2021-22	Line-2 Cooler fan-2 VFD installation	0.500	0.333	1.501	0.156
	Total Savings	1.832	1.415	5.660	0.662

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ENERGY SAVING PROJECTS IMPLEMENTED IN FY 2022-23

Year	Energy saving projects	Investments (INR Million)	Electrical Savings (Million kWh)	Savings (INR Million)	Impact on SEC/ (Electrical kWh /MT cement or Kcal/Kg cement)
FY 2022-23	VFD installation in Kiln-3 Coal Conveying blower	0.100	0.032	0.191	0.015
FY 2022-23	Kiln-1 PC firing Coal conveying blower Discharge Line Modification	0.020	0.032	0.191	0.015
FY 2022-23	RM-2 Silo Top Air Slide Blower Air Pipeline Modification	0.020	0.029	0.182	0.014
FY 2022-23	VFD Installation in Packer-3 Old Dust collector.	0.180	0.040	0.240	0.019
FY 2022-23	Optimization of Raw Mill 3 SKS fan during the High clinker stock management	0.000	0.288	1.580	0.141
FY 2022-23	Raw mill 1 Vent Fan Motor changed from 250kW to 200kW and System optimized.	0.020	0.079	0.480	0.039
FY 2022-23	K-string, Kiln Feed Air Slide Blower discharge line modification in Line 1	0.030	0.011	0.070	0.005
FY 2022-23	Idle running of Separator gear box oil cooling water pump avoided in CementMill-1	0.000	0.010	0.060	0.005
FY 2022-23	Grinding media optimization in Cement Mill-1	0.000	0.889	5.340	0.434
	Total Savings	0.391	1.409	8.451	0.689

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ENERGY SAVING PROJECTS IMPLEMENTED IN FY 2023-24

Year	Energy saving projects	Investments (INR Million)	Electrical Savings (Million kWh)	Savings (INR Million)	Impact on SEC/ (Electrical kWh /MT cement or Kcal/Kg cement)
FY 2023-24	Reduction of Inlet Air temperature of compressors by providing duct	0.030	0.013	0.094	0.006
FY 2023-24	Replacement of RM1 Polycom DC IE1 motor with energy efficient IE3 motor	0.120	0.016	0.111	0.008
FY 2023-24	Remote operation of additive circuit in Rawmill-1&2	0.276	0.036	0.249	0.017
FY 2023-24	Installation of Sensor based Drain Valves in compressed air circuit	0.410	0.195	1.364	0.094
FY 2023-24	Isolation of Fly ash steel silo dust collector	0.300	0.018	0.828	0.009
FY 2023-24	Water spray in PH downcomer duct in Line3 during Raw mill stoppage	0.000	0.054	0.378	0.026
FY 2023-24	Installation of VFD for Line1 Rice husk feeding Belt conveyor	0.000	0.024	0.168	0.012
FY 2023-24	Isolation of Fly ash BE dust collector	0.150	0.017	0.916	0.008
FY 2023-24	Replacement of Convectional light fittings with LED fittings	3.221	0.158	1.109	0.076
	Total Savings	4.507	0.531	5.216	0.255

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Reduction of inlet air temperature for air compressor by providing duct

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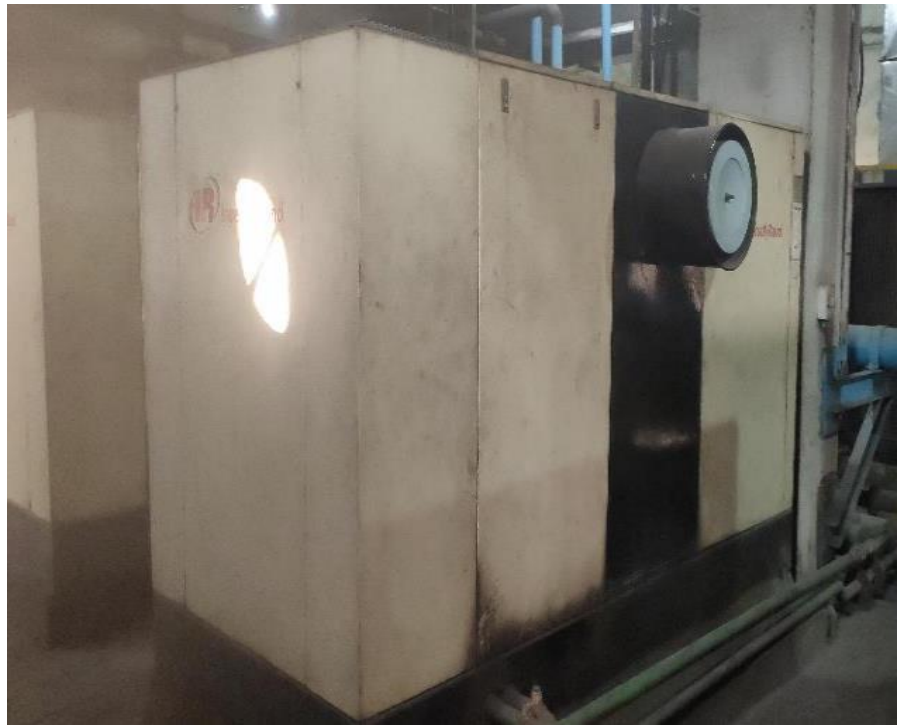
Problem & Observation:

Inlet/ Suction air to the compressors is being taken in for compression at a temperature which is higher than ambient temperature. The basic Thumb rule behind providing cooler air to the compressor is that “Every 4°C rise in inlet air temperature results in a higher energy consumption by 1 % to achieve equivalent output”.

Presently Hot air from the motor cooling fans is being directly sucked into the compressor. This air is at a higher temperature than the ambient temperature.

Action Taken:

Line-3 IR-132 , Packing plant IR-MM55 & Compressor & Carbon black IR55 Compressor suction filter for intake air at ambient temperature work completed which resulted reduction in inlet air temperature.



Reduction of inlet air temperature for air compressor by providing duct

Savings calculation:

Name/Tag		Packing Plant	Line-3	Carbon Black Compressor
Capacity	cfm	325	788	360
Power	kW	55	132	55
Model no		IR-55	MM-132	IR-55
Inlet Air Temp	^{0}C	30.1	27.5	27.5
Actual inlet Air Temp	^{0}C	34.2	29.5	29.5
DT	^{0}C	4.1	2	2
Ambient temp	^{0}C	27	27	27
%Saving	%	1.02	0.5	0.5
Annual Saving	kWh	5200	5632	2540
Saving cost	INR	36400	39424	17780
Total Savings	INR in Lacs	0.94 (Total kWh * Power cost Rs/Unit, 13370*7)		

Benefits:

The annual savings is INR 0.94Lakh. The investment amount for this is INR 0.3 Lakhs which have a payback period of 4 months.

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Replacement of IE1 motors with energy efficient IE3 motors

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Problem & Observation:

The plant has motive power as the highest contributor to energy consumption. The motors are presently in IE1 to IE2 Rating along with multiple motors of conventional non-IE class ratings. These motors have been re-wound and operating at a lower efficiency due to ageing and rewinding.

Action Taken:

We have replaced Polycom Dust collector old motor with IE3 motor.

Before Power Consumption	After Power Consumption	Savings
21 kWh	19 kWh	2 kWh
Savings in Day		48 kWh
Annual Savings		15840 kWh
Annual Savings Rs		110880 Rs.
Motor cost		120000 Rs

Benefits:

The annual savings is INR 1.11 Lakh. The investment amount for this is INR 1.20 Lakhs which have a payback period of 13 months.

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Remote operation of additive circuit in Raw Mill- 1 & 2

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Problem & Observation:

Line 1 & 2 Raw Mill additive circuit has been operated in Local mode, observed idle running in all drives.

Action Taken:

Upgraded power feeder remote provision provided in LT drives.

Before Power Consumption	After Power Consumption	Savings
34.8 kWh	24.9 kWh	9.9kWh
Avg 12 Hours Running in Day		118 kWh
Annual Savings		35640 kWh
Annual Savings Rs		249480 Rs.

Benefits:

The annual savings is INR 2.49 Lakh. The investment amount for this is INR 2.76 Lakhs which have a payback period of 13 months.

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Installation of Sensor based drain valves in compressed air circuit

Problem & Observation:

Compressed air drain valves are used for ejection of Condensate from the air receivers or air lines. In present system, Timer based valves are used to drain the condensate.

Action Taken:

Condensate ejection should be done based on the presence of condensate inside the system. Timer based valves don't consider the presence of moisture/Condensate in the receiver or line. Ejection simply happens every 20 s with or without water. We have installed sensor-based drain valves which will sense the presence of water/condensate in the system and only then eject it out of the system. Working of this system is like that of a steam trap wherein ejection happens only when water has accumulated.

Out of 100 Drain valves ,41 drain valves are replaced by sensor based heavy duty auto drain valves.

Calculations:

Power savings = 0.6x41x7920
=1,94,832

Cost savings =1,94,832 x 7.0

Total savings = 13.64 lakhs

Investment = 4.10 lakhs

Benefits:

The annual savings is INR 13.6 Lakh.

The investment amount for this is INR 4.10 Lakhs which have a payback period of 4 months.

Isolation of Fly ash steel silo Dust Collector fan

Problem & Observation:

Frequent jamming of Fly ash steel silo DC hopper and tripping of Fly- ash BE while emptying the dust collector due to flushing of material. Unable to take the BE maintenance for sufficient time due to DC discharge connected to Bucket Elevator.

Action Taken:

New Vent line provided from Fly ash steel silo to Fly ash RCC silo Vent Dust collector and Steel silo DC isolated.

Before Power Consumption	After Power Consumption	Savings
2.77kWh	0	2.77kWh
Running Hours (20hrs/Day)		55.4 kWh
Annual Electrical Savings		18282 kWh
Annual Electrical Savings in Rs.		1.28 Rs.in Lacs
Annual Maintenance & Manpower cost Rs.		700000
Total Annual Savings Rs in Lakhs		8.28

Benefits:

The annual savings is INR 8.28 Lakh. The investment amount for this is INR 3.0 Lakhs which have a payback period of 04 months.

Water spray in PH downcomer duct in Line3 during Raw mill stoppage

Problem & Observation:.

Not able to do continues water spray in PH down comer duct due to coating formation in duct and operation problem there is energy saving by doing water spray while RM3 stoppage by decreasing RABH & PH fan speed.

Action Taken:

We started water spray in PH down comer duct while RM3 stoppage which resulted in power saving of 200kWh

Before Power Consumption	After Power Consumption	Savings
530	330	200kWh
Running Hours (07hrs/Week)		1400 kWh
Annual Electrical Savings		54000kWh
Annual Electrical Savings in Rs.		3.78 Rs.in Lacs
Total Annual Savings Rs in Lakhs		3.78

Benefits:

The annual savings is INR 3.78 Lakh. The investment amount for this is Nil which have a payback of immediate.

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Installation of VFD for Kiln1 Rice husk feeding Belt conveyor

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Problem & Observation:.

Not able to run the rice husk feeding continuously due to uneven load of material causes CO generation in PC.

Action Taken:

VFD installed for Rice husk feeding belt conveyor drive and speed reduced from 1480 to 150 to 200RPM .

Before Power Consumption	After Power Consumption	Savings
7.5kWh	3.5	4.0kWh
Running Hours (20hrs/Day)		55.4 kWh
Annual Electrical Savings		24000kWh
Annual Electrical Savings in Rs.		1.68 Rs.in Lacs
Total Annual Savings Rs in Lakhs		1.68

Benefits:

The annual savings is INR 1.68 Lakh. The investment amount for this is Nil, which have a payback of immediate.

Isolation of Fly ash extraction BE Dust Collector fan

Problem & Observation:.

Frequent jamming of RCC fly ash bucket elevator& air slide venting dust collector.

Action Taken:

Fly ash bucket elevator venting got isolated by providing additional vent lines to the RCC fly ash silo top bag filter.

Before Power Consumption	After Power Consumption	Savings
2.5kWh	0	2.5kWh
Running Hours (20hrs/Day)		55.4 kWh
Annual Electrical Savings		16500kWh
Annual Electrical Savings in Rs.		1.15 Rs.in Lacs
Equipment & bags cost Rs.		8.0
Total Annual Savings Rs in Lakhs		9.15

Benefits:

The annual savings is INR 9.15 Lakh. The investment amount for this is INR 1.5Lakhs which have a payback period of 02 months.

Replacement of Convectional light fittings with LED fittings

Problem & Observation:.

The Plant is presently in the process of upgrading is lighting to energy efficient lighting in the LED technology. Howev
the rate of replacement must be increased to get a greater benefit.

Action Taken:

Rate of replacement of Lighting to Led should be increased to get the benefit of the present technology. We have been replacing conventional lighting with LEDs at all locations in the plant.

Before Power Consumption	After Power Consumption	Savings
109.5kWh	66.1	43.4kWh
Running Hours (10hrs/Day)		434 kWh
Annual Electrical Savings		154810kWh
Annual Electrical Savings in Rs.		11.09 Rs.in Lacs
Investment cost Rs.		32.2 Rs. in Lacs

Benefits:

The annual savings is INR 11.09 Lakh. The investment amount for this is INR 32.2 Lakhs which have a payback period of 35 months.

INSTALLATION OF RAW MEAL TRANSFER LINE FROM LINE 2 TO LINE 3

Problem & Observation:

We observed now a days (Fixed roller Profile dislodged frequently) Raw Mill production capacity is bottle neck for clinker production in Kiln 3.

Action Taken:

We installed raw meal transfer system near raw meal silo 2 that is transfer material from line 2 raw meal silo to raw meal 3 silo.

Benefits:

Smooth operation of Kiln 3 with high productivity.

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INSTALLATION OF COAL CONVEYING SYSTEM FROM COALMILL-1 TO VRM-1

Great Place To

Problem & Observation:

To convey fine coal from coal mill bin to VRM bin, to take leisure time of VRM maintenance which avoids the stoppage of Line-1 in critical / emergency.

Action Taken:

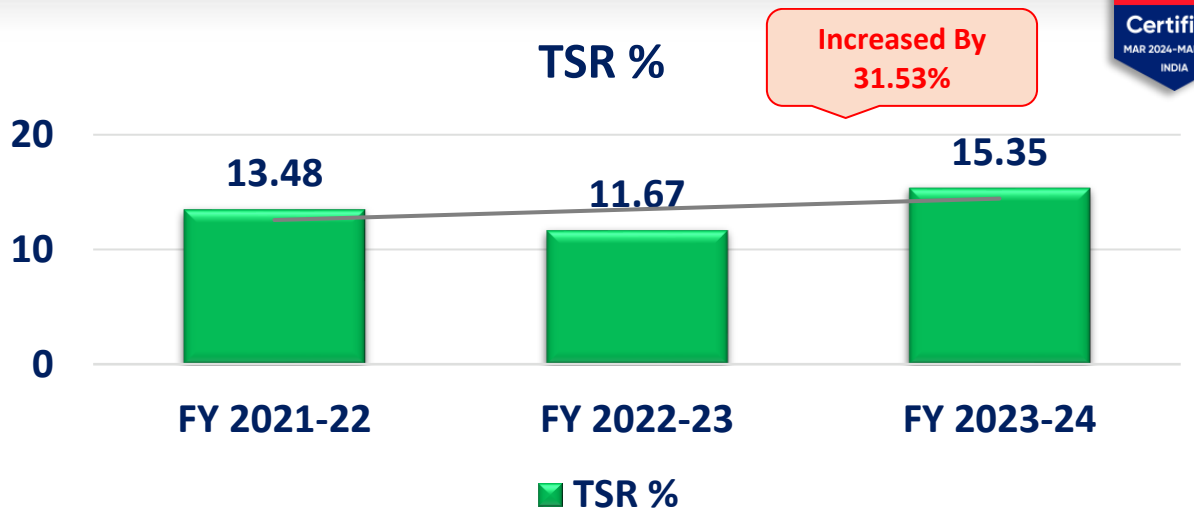
We installed coal conveying system from Coal mill-1 to VRM-1. Fine coal of 10TPH is being conveyed daily.

Benefits:

VRM-1 breakdowns reduced as time is being given for maintenance which was not possible earlier.

WASTE UTILIZATION AND MANAGEMENT

- **Rice Husk** direct feed to preheater through Rice husk feeding system.
- **Carbon Black** direct feed in coal mill through carbon black dense phase system.
- **Recovered waste** mixed with rice husk.
- **Hazardous Waste** mixed with raw coal.
- **Cotton stalk, Coconut Fiber, Wood chips** direct feed to the preheater system.
- **Municipal Waste** mixed with rice husk.



S. No	FY	Waste as fuel	Quantity (MT)	GCV (Kcal/kg)	Waste as percentage of total fuel	TSR %
1	FY 2021-22	Biomass (MT/year)	44703	3312	7.72 %	13.48
2		Solid waste (MT/year)	16654	5777	5.37 %	
3		Liquid Waste (MT/year)	2642	2820	0.39 %	
4	FY 2022-23	Biomass (MT/year)	22196	3310	4.34 %	11.67
5		Solid waste (MT/year)	19019	5718	6.13 %	
6		Liquid Waste (MT/year)	5494	3646	1.19 %	
7	FY 2023-24	Biomass (MT/year)	57133	3302	9.44%	15.35
8		Solid waste (MT/year)	15498	6067	5.03%	
9		Liquid Waste (MT/year)	4488	3645	0.88%	

WASTE UTILIZATION AND MANAGEMENT

LAFR System in Line-3

Line -3's 5 TPH Rice husk feeding system installed in Line-2

Old carbon black system

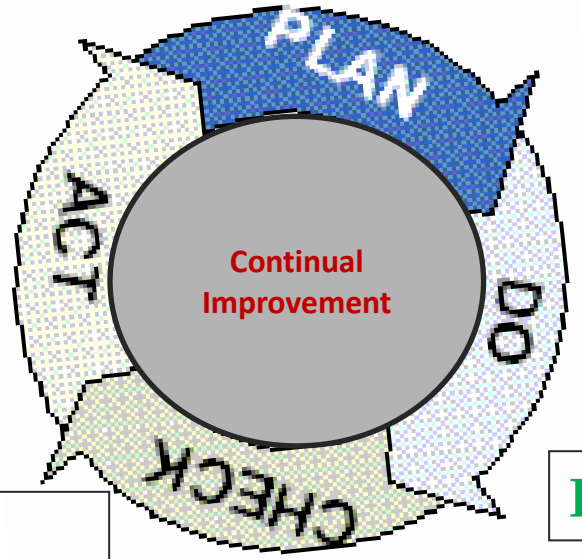
New carbon black system

Enhance capacity of Line-3 Rice Husk system (5 TPH to 15 TPH)

IMPLEMENTATION & REVIEW PLAN

- Capturing of Energy consumptions
- Discuss and Compare
- Identify the Problem
- Identify Causes along with Actions/ solutions

Analyse and Act on results



Implement solutions

Check for Results

A special team has been designated for monitoring of Energy consumptions. Electrical as well as Thermal consumption is been monitored on daily basis and highlighted to down the level. The daily Energy consumptions of concerned departments are discussed during daily review meeting. Actions and brainstorming are done based on actual vs targets.

TEAMWORK, EMPLOYEE INVOLVEMENT & MONITORING

List of active members of Energy Management Cell within the organisation:

1. Mr. Atul Kumar Agrawal (EA-11170)
2. Mr. Devesh Raaj Panjiray
3. Mr. Sameer Gandhi
4. Mr. Vijaypal Ratna
5. Mr. Goutham
6. Mr. P. Ramakrishna (EA-34984)
7. Mr. A.Thirupathi
8. Mr. Shailesha Rajawat (EM-300528)
9. Mr. B.Raghu

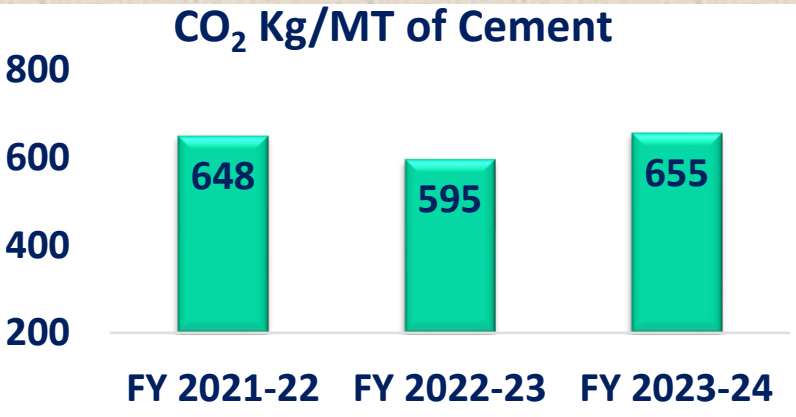
Responsibilities of Energy Manger:-

a) Planning and Conducting Energy review meetings
b) Energy monitoring activities.
c) EnMS – ISO 50001, Documentation and compliance to standard.
d) Energy conservation projects
e) Conducting periodical Energy Audits
f) Create Awareness & training to employees on Energy conservation activities.
g) Compliance to PAT schemes etc.

Energy Management Activities:-Activities are monitoring of section wise and main motors electrical consumption, Monitoring Thermal energy consumptions, Heat balance, Leakage monitoring, Suggesting new energy efficient equipments and modifications, Explore usage of alternative fuels, Conduct energy audits, awareness & training etc.

Scopes for CO2 reduction

Increase usage % of AFR	Increase PPC, SC+PSC/ PCC mix proportion	Renewable & WHR Energy	Reduction of Energy consmn through - ENCON Idea's	Process optimization



CK BIRLA GROUP

ORIENT CEMENT

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

ORIENT CEMENT

ENERGY MANAGEMENT SYSTEM

Great Place To Work.

Energy Management system installed for online capturing of all Energy consumption details of Major fans ,HT drives and above 75kW drives different departments and specific energy usages.

ORIENT CEMENT : DEVAPUR

DAILY POWER REPORT — Date: 18-Apr-23

	ON DATE							MONTH TO DATE					
EQPT./SEC.	UNITS	PROD	R.Hrs.	RATE	LOAD	* SP.ENERGY		UNITS	OUTPUT	Run.	RATE	LOAD	SP.
NAME	KWH	TONS		TPH	KW	ACT.	target	KWH	TONS	Hrs	TPH	KW	ENGY
MINES AUXILARY	5908					0.47	0.2						
LS CRUSHER TOTAL	16057					1.27	1.3						
LSC-3	**21965**	**12609**	**12.5**	**1009**	**1757**	**1.74**	**1.50**	**364723**	**233186**	**229**	**1019**	**1594**	**1.56**
RM-1 Total	**110427**	**5568**	**24.0**	**232**	**4601**	**19.83**	**18.20**	**1869219**	**95903**	**403**	**238**	**4643**	**19.49**
KILN -1 Total	**85605**	**3585**	**24.0**	**149**	**3567**	**23.88**	**24.00**	**1554552**	**64404**	**432**	**149**	**3599**	**24.14**
CM-1 Total	**70381**	**3082**	**12.6**	**245**	**5595**	**22.84**	**24.65**	**1121793**	**45780**	**200**	**229**	**5604**	**24.50**
RM-2 Total	**86511**	**4032**	**24.0**	**168**	**3605**	**21.46**	**20.50**	**1511181**	**66020**	**418**	**158**	**3612**	**22.89**
KILN -2 Total	**74052**	**2655**	**24.0**	**111**	**3086**	**27.89**	**27.20**	**1310224**	**47481**	**432**	**110**	**3033**	**27.59**
CM-2 Total	**101883**	**3884**	**19.4**	**200**	**5246**	**26.23**	**29.45**	**2130512**	**81337**	**407**	**200**	**5237**	**26.19**
P.PLANT	**9747**	**6822**				**1.43**	**1.55**	**176773**	**125236**	**0**			**1.41**
RM-3Total	**101186**	**5763**	**19.7**	**293**	**5144**	**17.56**	**16.70**	**1887341**	**109211**	**373**	**293**	**5064**	**17.28**
KILN -3 Total	**97363**	**4682**	**24.0**	**195**	**4057**	**20.80**	**20.40**	**1585981**	**73788**	**384**	**192**	**4127**	**21.49**
COLONY	8890							147610					
TOTAL POWER	772410							13798030					
UP TO CLINKER (average)						**54.70**		0					**54.92**
UP TO CEMENT (average)						**78.53**		0					**79.00**
UP TO CEM. PPC (average)						**60.47**		0					**60.83**
UP TO CEM. HS PPC (average)						**0**							**79.15**

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:	Initial certification date:	Valid:
160095-2014-AQ-IND-RvA	09 April 1997	24 August 2023 – 23 August 2026
160112-2014-AE-IND-RvA	10 April 1999	24 August 2023 – 23 August 2026
10000322562-MSC-RvA-IND	24 August 2005	24 August 2023 – 23 August 2026

This is to certify that the management system of

Orient Cement Limited

P.O. Devapur Cement Works, Mancherial - 504218, Telangana, India
N.H. No. 6, Nashirabad Village, Jalgaon - 425309, Maharashtra, India
5-9-22/57/D, 2nd, 3rd & 4th Floor, GP Birla Centre, Adarsh Nagar, Hyderabad - 500063, Telangana, India

and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Integrated Management System standard:

ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

This certificate is valid for the following scope:

Manufacture and supply of cement

Place and date:
Chennai, 09 August 2023

For the issuing office:
DNV - Business Assurance
ROMA, No. 10, GST Road, Alandur,Chennai - 600 016, India

MGMT. SYS. RvA C 024

IAF

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance India Private Limited, ROMA, No. 10, GST Road, Alandur, Chennai, PIN - 600 016, India.

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:	Initial certification date:	Valid:
210226-2016-AE-IND-RvA	09 February 2017	04 September 2023 .. 23 August 2026

Expiry date of last certification cycle:
23 August 2023
Date of last re-certification:

This is to certify that the management system of

Orient Cement Limited

P.O. Devapur Cement Works, Mancherial - 504218, Telangana, India

and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Energy Management System standard:

ISO 50001:2018

This certificate is valid for the following scope:

Manufacturing of Cement

Place and date:
Barendrecht, 04 September 2023

For the issuing office:
DNV - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

MGMT. SYS. RvA C 024

IAF

Erle Koek
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

CK BIRLA GROUP

ORIENT CEMENT

Integrated Management System Policy

Orient Cement Limited aims to be a leading company by providing consistent quality products and customer satisfaction through capabilities building, use of best practices, reliable relationships with all stakeholders and innovative cement products with a commitment to maintain environment friendly, safe, healthy and sustainability working condition in all its operations.

We are committed to:

- Operating the plant energy efficiently and increase the usage of alternative fuels & minimizing the energy losses;
- Complying applicable legal & other requirements;
- Protection of environment includes prevention of pollution by optimising the consumption, responsible sourcing, reuse and recycle;
- Eliminating hazards, reducing risks and exploring opportunities by continual improvement of all processes to enhance the IMS performance, professional development and knowledge sharing;
- Developing safety culture, safeguarding employees, workers, and their representatives from injury & ill health through their consultation and participation in safety assessment and adherence to PPE;
- Available information is utilised for enhancing objectives & targets with optimal resources.

SATYABRATA SHARMA
President - Manufacturing

Future aspects for Green Supply Chain Management :

- Usage of Hazardous waste.
- Usage of agro based waste.
- Ideas towards reduction of Carbon emissions.
- Adoption of automation technologies.
- Safety standards and reliability
- Ban of single use plastic in Colony/Plant.
- Maximizing reverse logistics.

CK BIRLA GROUP

ORIENT CEMENT

ORIENT CEMENT LIMITED

CORPORATE GREEN PROCUREMENT POLICY

Orient Cement Limited ensures & practices potential environment and associated impacts while purchasing Products & Services in the supply chain.

We committed to:

- Continuous creation of awareness on Environment and its impacts.
- Measures towards reduction of foot print by Energy efficiency appliances and water conserving equipment.
- Procurement and sourcing of Raw materials from nearby sources to reduce vehicle movement/diesel consumption and encourage local stake holders.
- Measures towards increase the Rail mode for incoming and out going material transportation.
- Create awareness among the suppliers to use of biodegradable material for packing.
- Explore and Increase the procurement of AFR/Hazardous waste materials for cement manufacturing process.
- Green supply chain with increase in bulk transportation.
- Purchase & replacement of equipment that have higher energy efficiency.

Road map to achieve 'Net ZERO Carbon'

'Net Zero Carbon Footprint' Target Commitment

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:
  - 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).
  - Improving the utilization of low-grade limestone.
  - 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).
  - Collaborating closely with technology suppliers for developing secondary CO2 abatement technologies for Carbon Capture Utilization and Sequestration (CCUS).

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' CO_2 footprint by migrating towards bulk transportation, biofuels and electric vehicles.

We are exploring the possibility of getting our CO_2 targets validated by SBTI in future.

LEARNING FROM CII ENERGY AWARD OR ANY OTHER AWARD PROGRAMS

- We would like to thank CII Team to their efforts towards Energy initiatives.
- We have learnt lot of things from CII award functions such as New Initiatives, New technology and new ideas which we had implemented in our Plant and got huge benefits in energy savings.
- CII Provided us Knowledge exchange platform, we shared our ideas, and we inspired from other competitors.
- We applied replacement of IE1 motors with energy efficient IE3 motors, replacement of Conventional lights with LED and installation of sensor-based drain valves in Compressed air receiver tanks in our plant got huge benefit.
- We installed many VFDs and removed the Fan inlet dampers in different locations in our Plant.

WAYFORWARD:

INSTALL ROOF TOP SOLAR PV FOR BUILDINGS

Present Status:

Office Buildings in the plant have a potential for installation of Solar Panels on the rooftop in order to generate extra power that can feed the offices and buildings. The roof areas can be utilized in order to make the buildings self sufficient

Savings Calculation:

	Units	Technical Office	Admin Office
Total approximate area available	m2	940	567
Recommended solar PV plant	KWp	105	65
Annual energy generated from SPV	MWH/year	211	128
		339 MWH	
Annual Monetary cost Benefit	Rs/years	15.25 Lakhs	
Cost of SPV system	Rs	60.3 Lakhs	
Simple payback period	months	48	

Benefits:

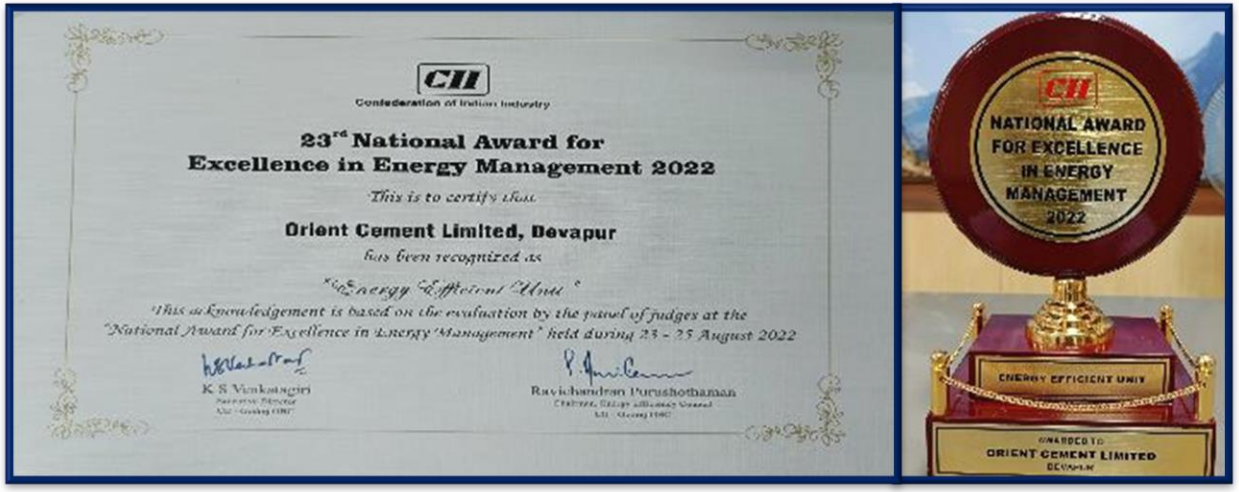
The estimated annual Energy offset potential is INR 15.25 Lakh. The investment required for this is INR 60.3 Lakhs which will have a payback period of 48 months.

ORIENT CEMENT

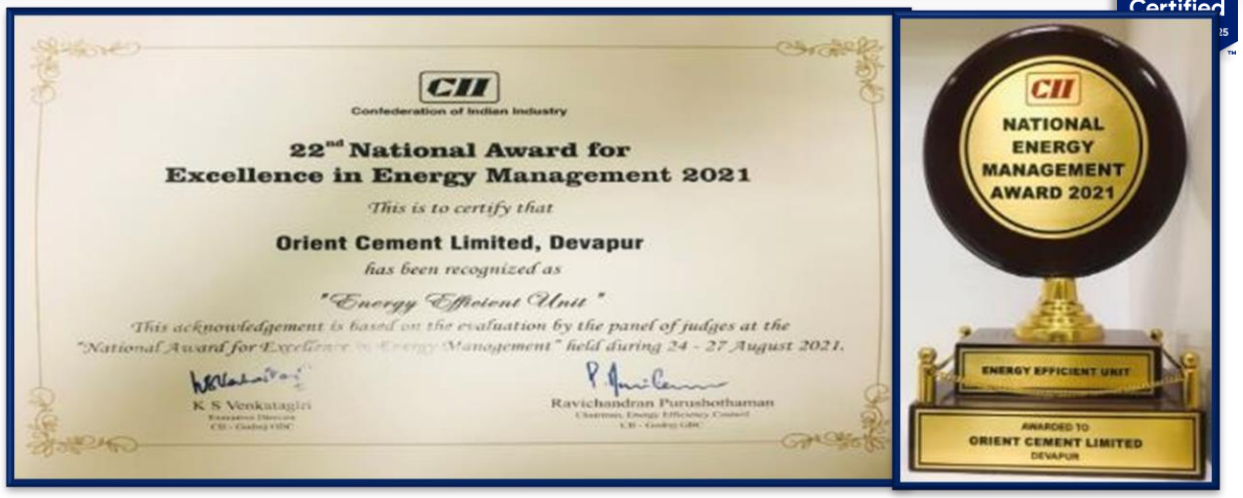
AWARDS & ACCOLADES

Great Place To Work.

AWARDS & ACCOLADES



"Energy Excellence Award 2022" received from "CII"



"Energy Excellence Award 2021" received from "CII"

APEX INDIA EXCELLENCE AWARD 2021 in the Category of "Platinum" for Energy Efficiency**.**

"GreenTech Energy Award 2021".

"Telangana State Energy Conservation Award-2021" received on 19th Dec 2021

AWARDS & ACCOLADES

"Excellent Energy Efficient Unit Award 2023" received from "CII"

"Telangana State Energy Conservation Award-2023" received on 20th Dec 2023

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