

BIRLA.A1
PREMIUM CEMENT

**Great
Place
To
Work.**

Certified
APR 2021-MAR 2022
INDIA

ORIENT CEMENT LIMITED
Chittapur, Karnataka

Team Member:

- Santosh Kumar Sharma- AVP- Operations
- P Murali Mohan Raju- Sr. Manager – Process

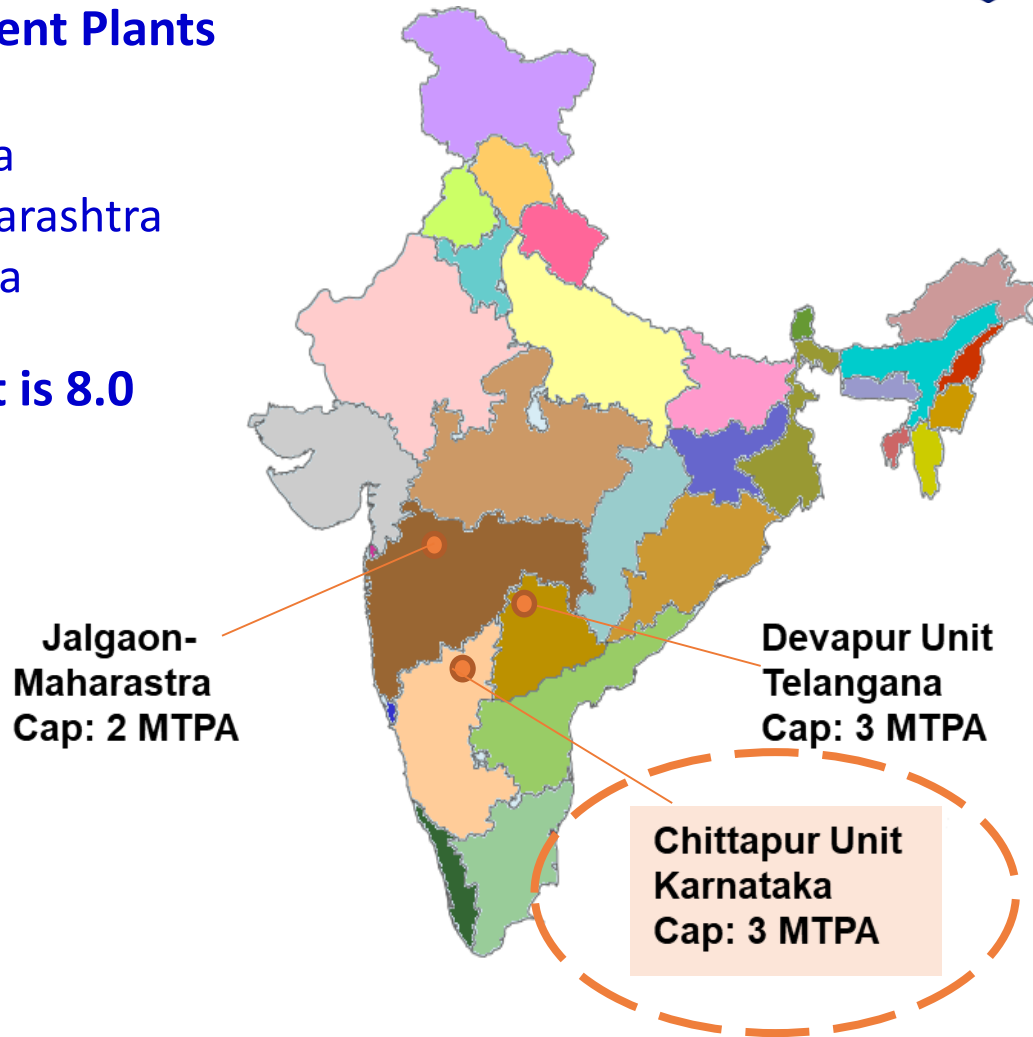
☐ **Orient Cement is operating 3 Cement Plants in India:**

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

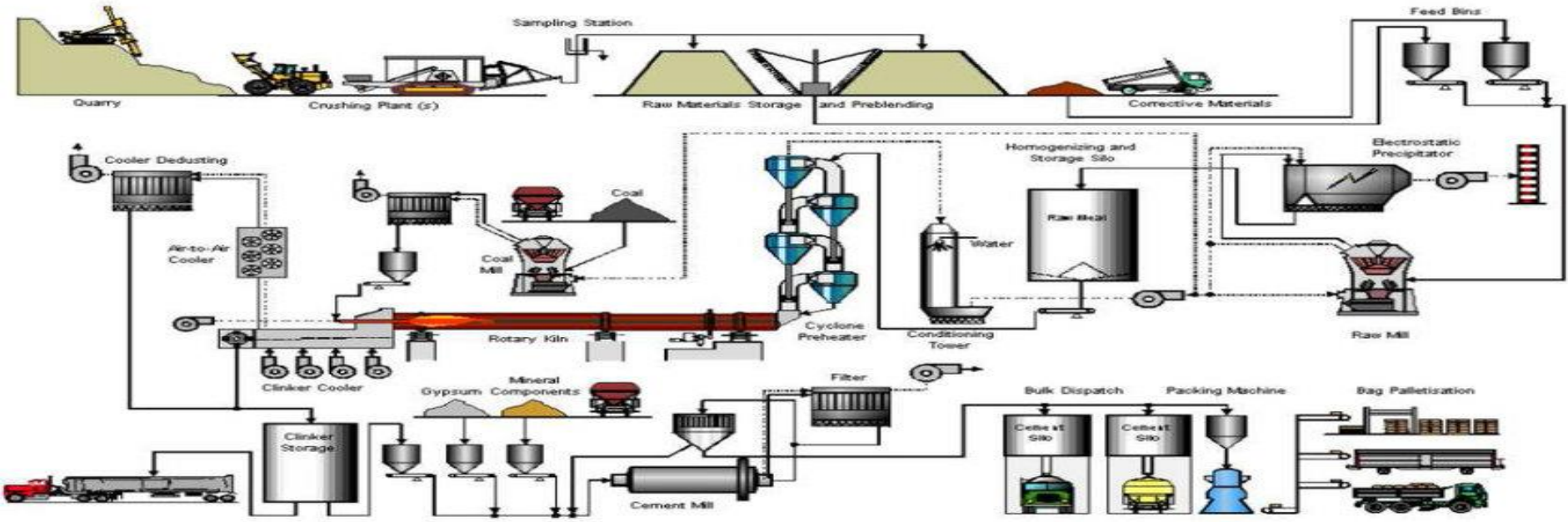
☐ **Overall Capacity of Orient Cement is 8.0 MTPA.**

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)



Process



Products



**Birla.A1
StrongCrete**



**Birla.A1
Premium Cement (PPC)**



**Birla.A1
Premium Cement
53 Grade(OPC)**



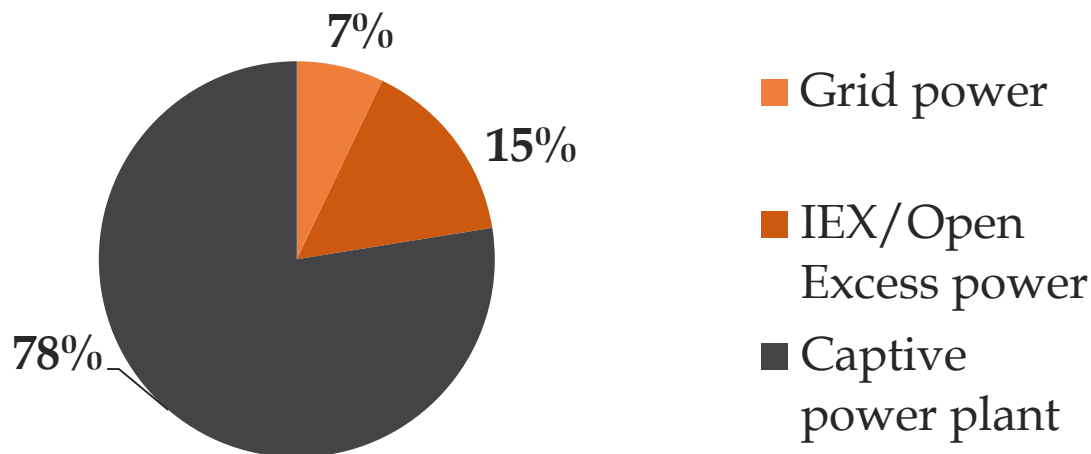
**Birla.A1
Premium Cement
43 Grade(OPC)**

- ✓ Plant Location : Itga (V),
Chittapur (Tq) ,Gulbarga (Dist.)
Karnataka.
- ✓ Commercial Production : Sep 2015
- ✓ Clinker : 2MTPA
- ✓ Cement : 3MTPA
- ✓ CPP : 45MW
- ✓ Plant & Colony : 266 Ha
- ✓ Mines : 519 Ha
- ✓ Green Belt : 256644 Saplings
(Till 31st March 2021)



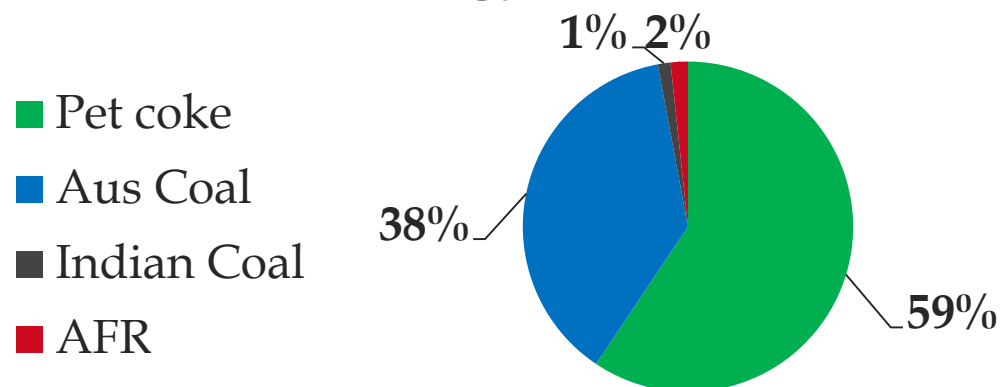
- Electrical Energy consumption – kWh FY 2020-2021

Electrical energy (lac kWh)

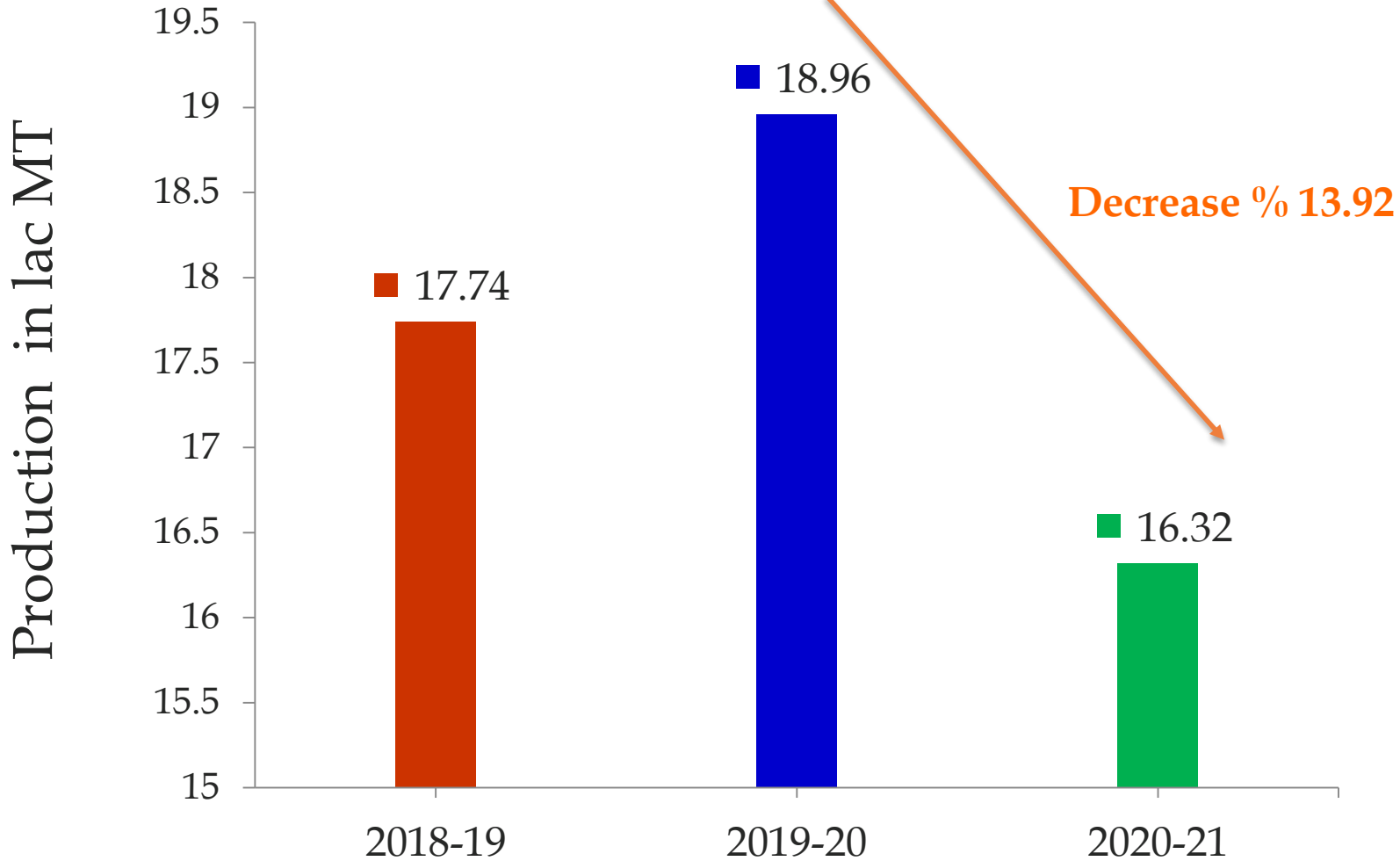


- Thermal energy consumption Kcal FY 2020-2021

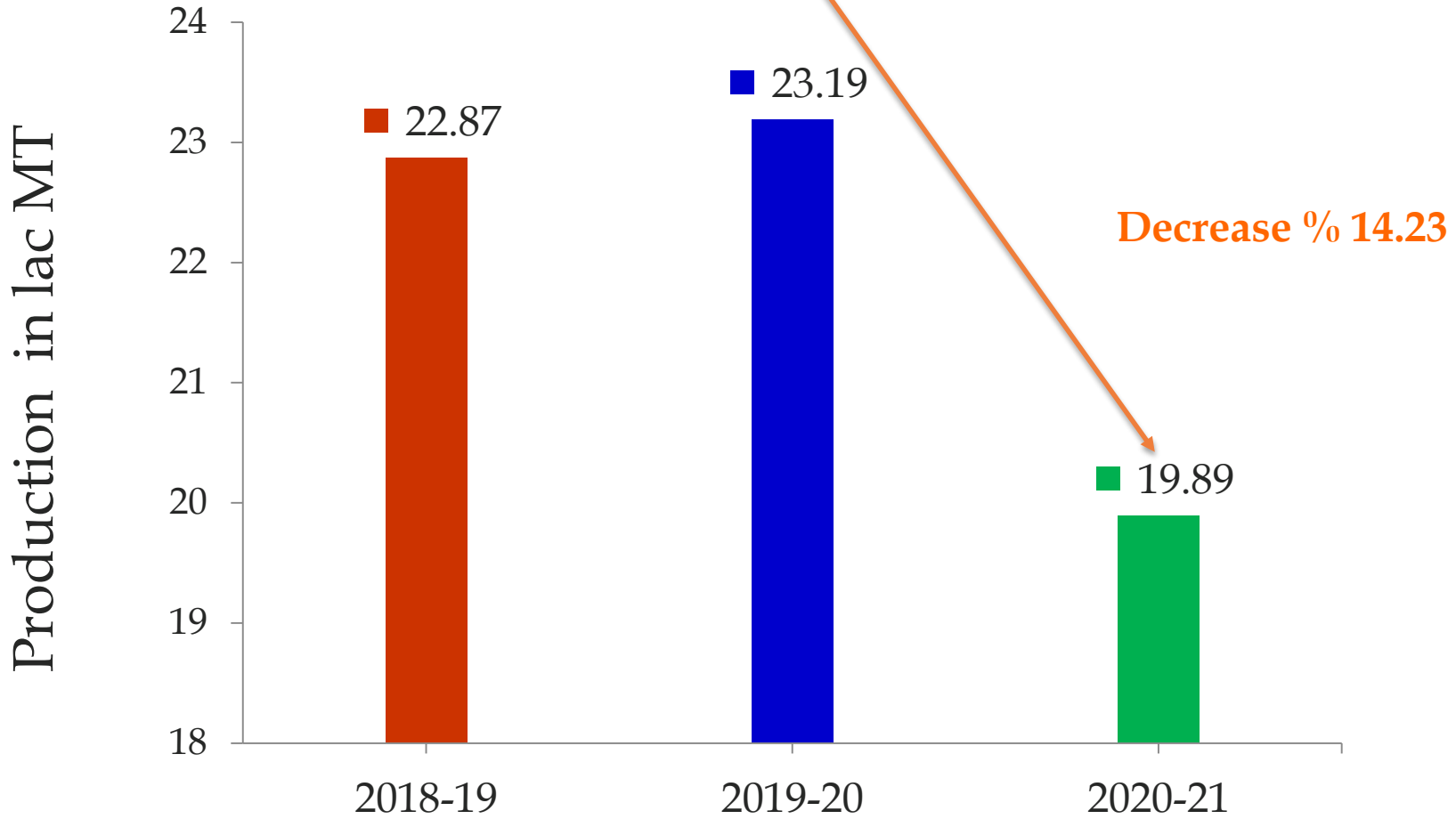
Thermal energy million (Kcal)



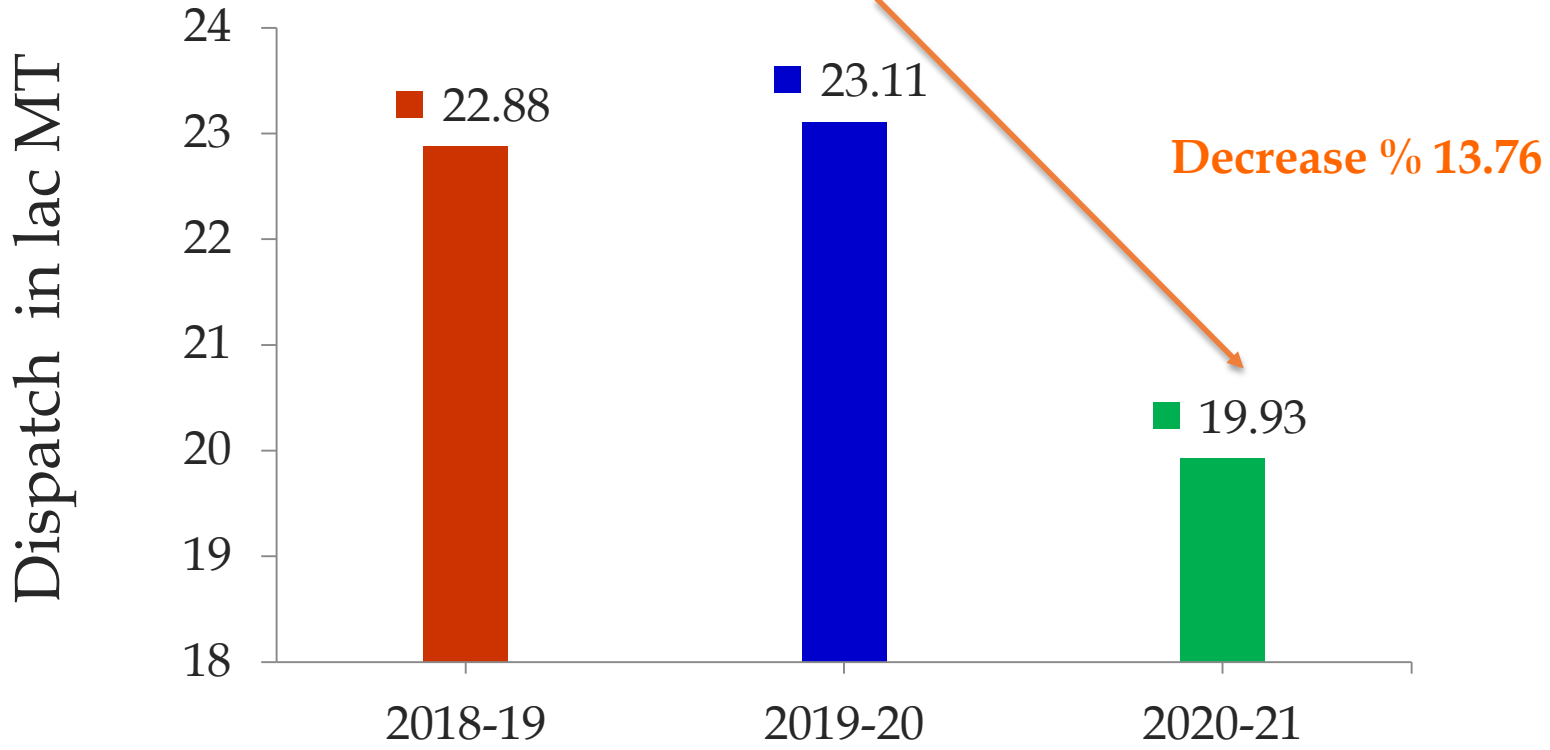
Production of Clinker



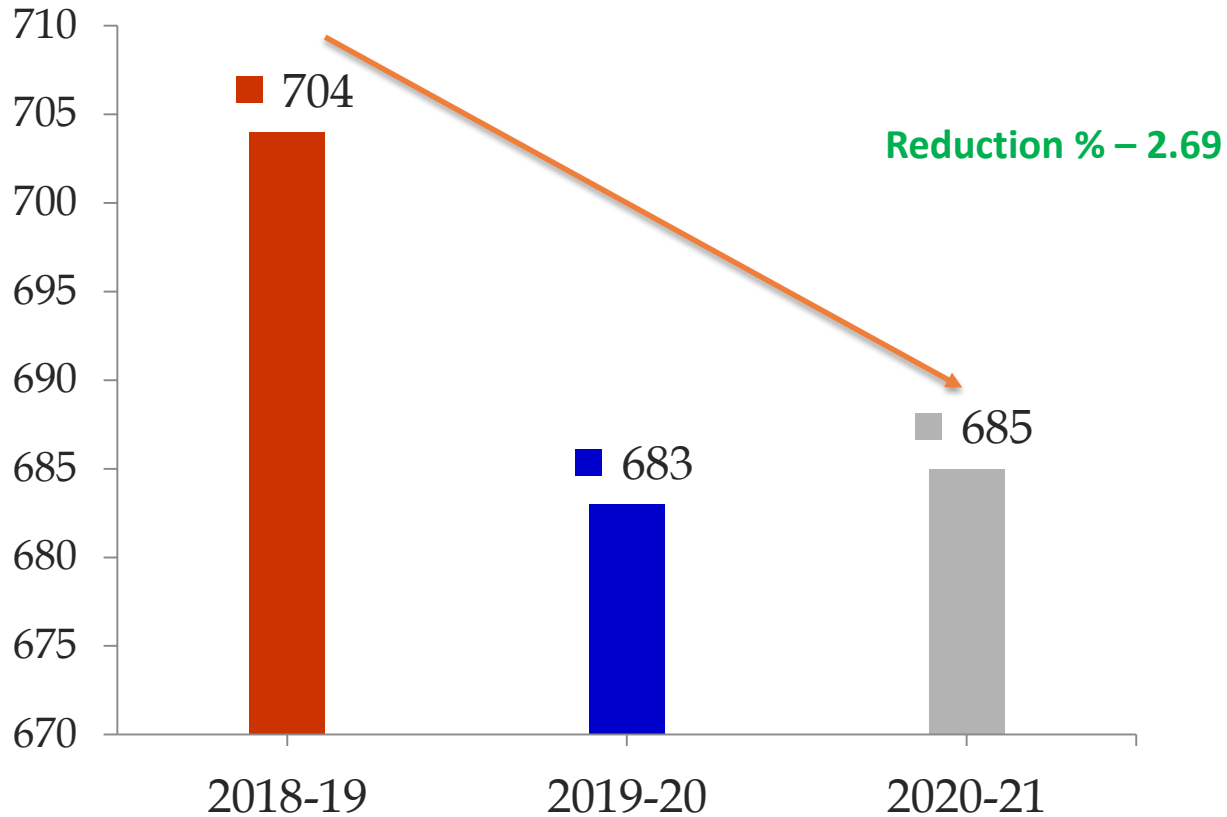
Production of Cement



Dispatch of Cement



Thermal SEC (Kcal/kg clinker)

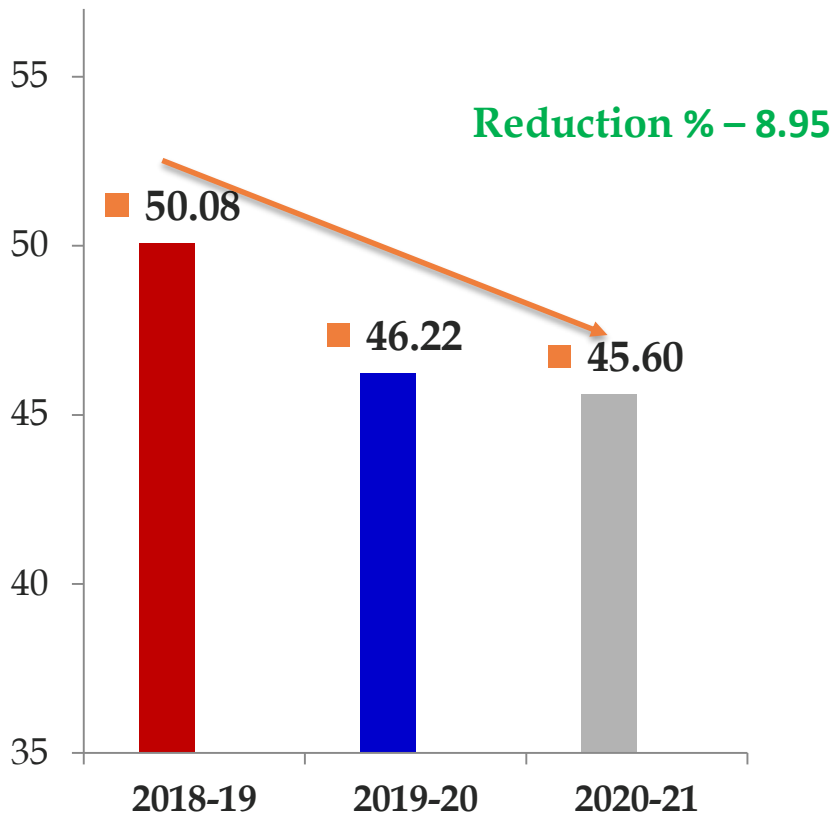


* This include number of heat up , Alternative fuel utilization & pet coke fuel.

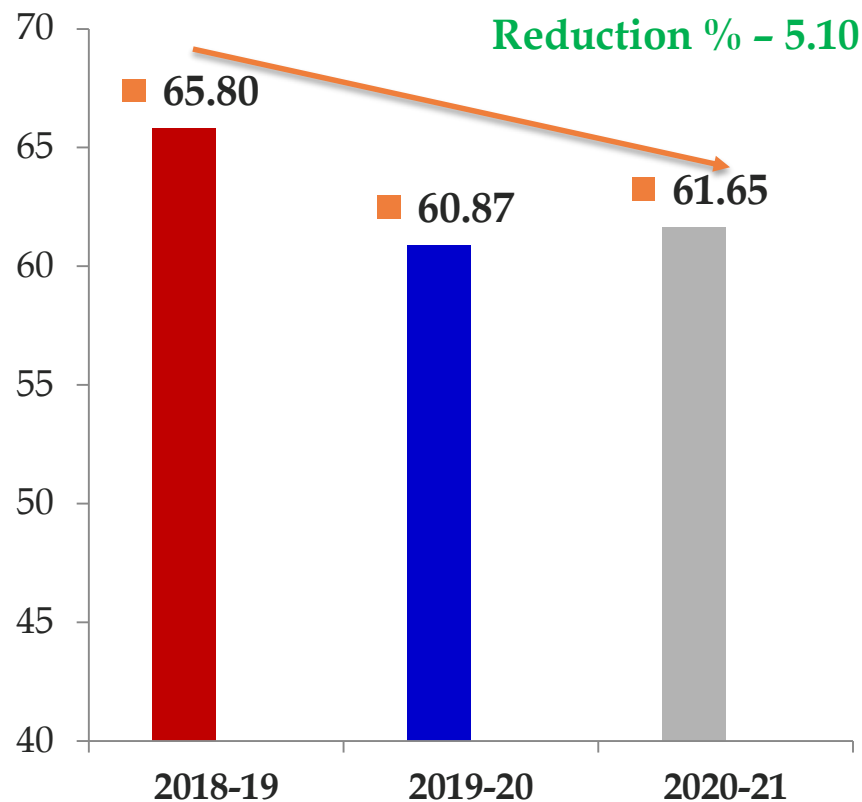
* Number of starts/stops as per market demand due to Covid 19

Electrical SEC

**Up to Clinker
(KW/MT of Clinker)**



**Overall Cement
(KW/MT of Cement)**

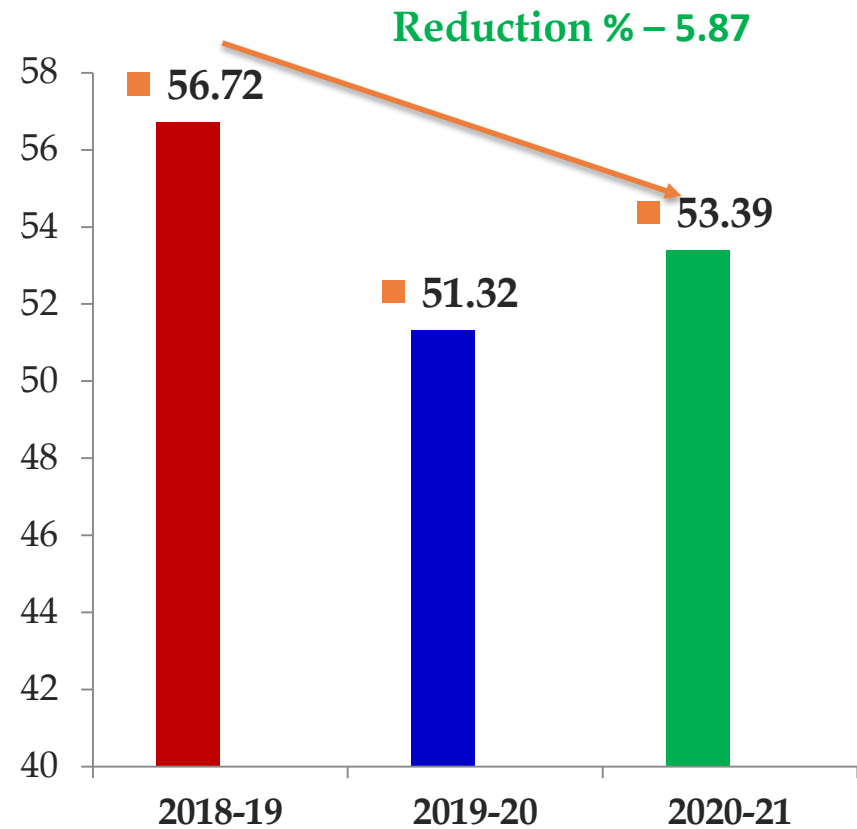
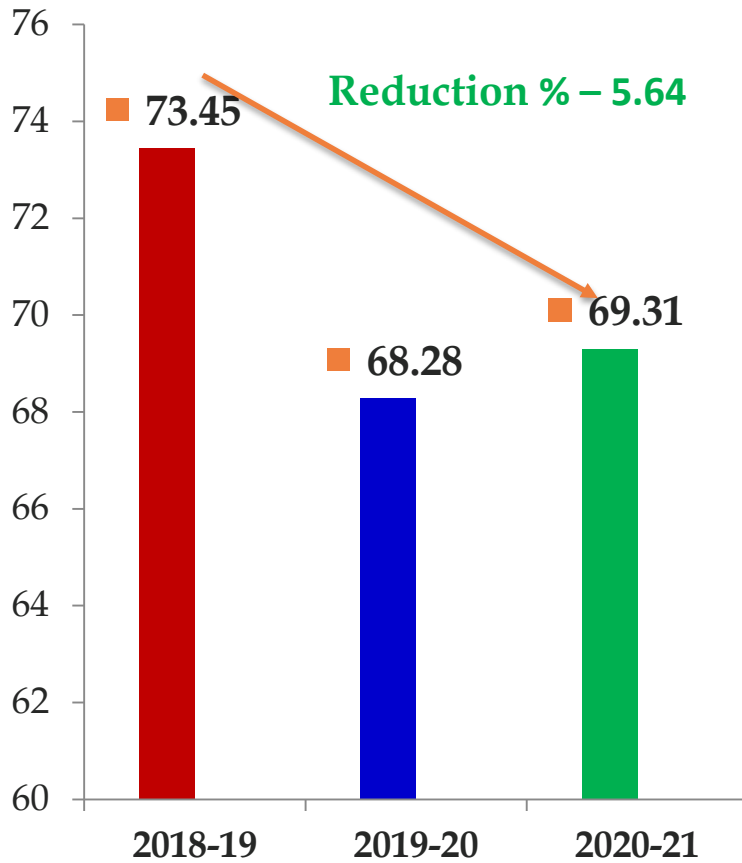


Power increase due to no of start stops increases.
Change over of products frequency also increases
due to packing plant incoming vehicles uncertainty

Electrical SEC

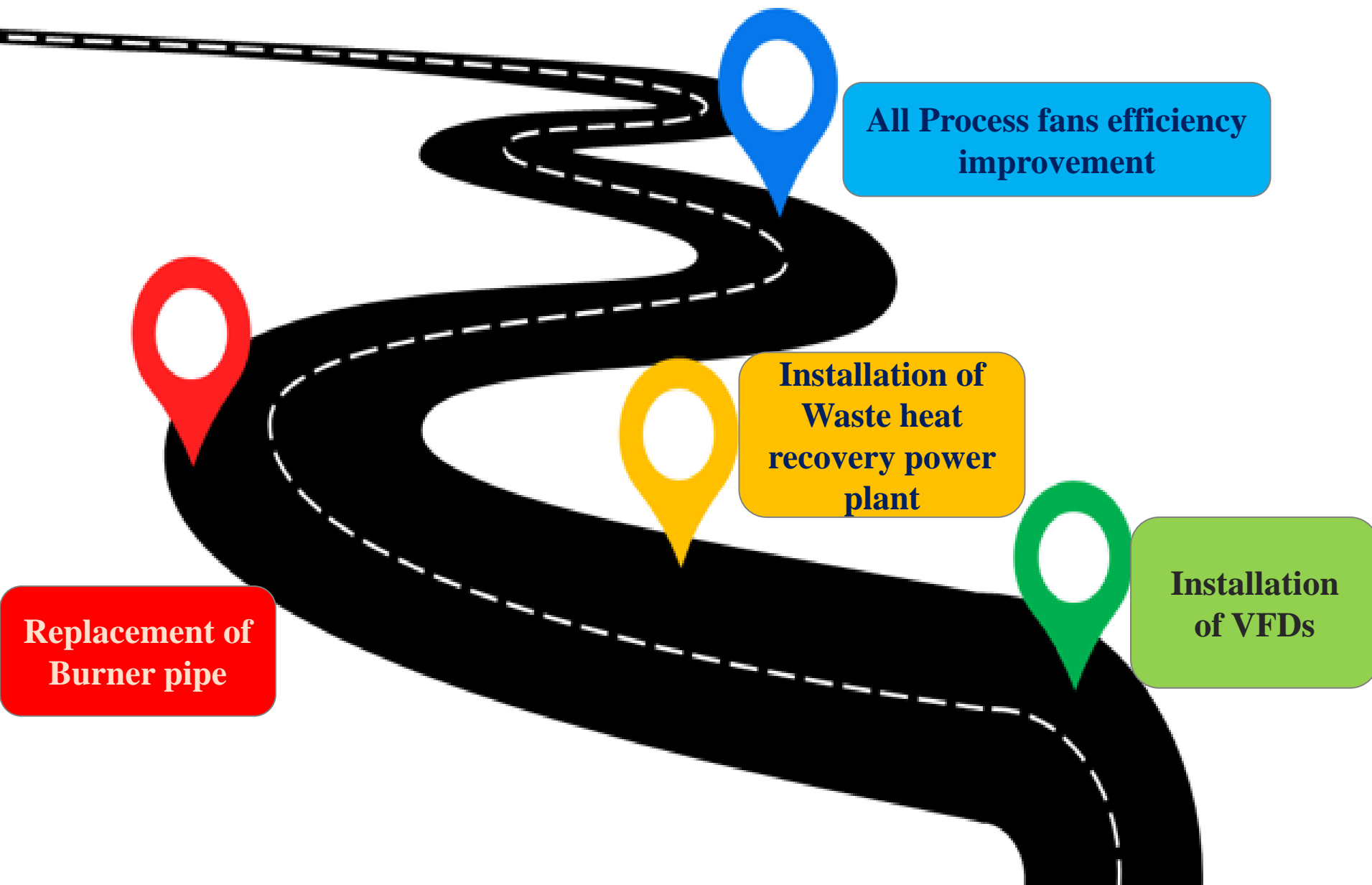
OPC (KW/MT of Cement)

PPC (KW/MT of Cement)



Specific Energy Consumption	National Benchmark	Yearly Best Figures of OCL, Chittapur	SEC on 2020-21
Thermal - Kcal/Kg Clinker	676	683 (FY 2019-20)	685
Electrical-kWh/T of Clinker	42.59	45.60 (FY 2020-21)	45.60
Electrical-kWh/T of Cement	56.10	60.87 (FY 2019-20)	61.65

❖ The power achieved based on 50-50% of OPC & PPC products



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		0.10	6.08
2	Improve Cooler Recuperation Efficiency from 61.7 % to 65.2 %		23.76	NIL	23.02
3	Cement Mill 1 Fan Efficiency improvement from 76.3 % to 85.4 %	6.45	NIL	0.10	4.87
4	Cement Mill 2 Fan Efficiency improvement from 75.6 % to 85.4 %	5.10	NIL	0.10	3.85

Sl. No.	Energy Conservation Projects	Electrical energy savings (In Lakhs kWh)	Thermal savings (Million kCal)	Investments (Rs in Million)	Annual Savings (Rs in Million)
5	Improve cooler ESP fan efficiency from 40.5% to 86.15% by replacing with new impeller	9.40	NIL	0.50	7.10
6	Replacement of all old and inefficient lighting system by Energy efficient Lighting system i.e. LED	4.51	NIL	4.35	3.41

Year	No of Projects	Investments (INR Million)	Savings (INR Million)
FY 2018-19	12		106.80
FY 2019-20	07	9.2	34.90
FY 2020-21	09	1.18	25.50

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/yr	Rs in Million	Rs in Million	
Optimization of fuel & Raw mix	-	923.08	8.3	-	Immediate
Optimization of Bag filters in Packing	11.2	-	8.4	-	Immediate
Optimization of Raw mill circuit bag filters	2.37	-	1.8	-	Immediate
Optimization of Bag filter in fly ash silo	0.68	-	0.5	-	Immediate
Optimization of fly ash compressor	3.6	-	2.7	-	Immediate

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/yr	Rs in Million	Rs in Million	
Optimization of OK mill (Cement mill) fan flow	2.7	-	2.3	-	Immediate
Modification of OK mill (Cement mill) grinding aid nozzle spray	36	-	27	-	Immediate
Optimization of cooler vent fan flow with kiln hood pressure PID	6	-	4.5	-	Immediate
Optimization of Preheater fan flow with Outlet pressure PID	18	615.38	19	-	Immediate
Optimization of Raw mill (roller press) fan flow	30	-	22.5	-	Immediate

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/yr	Rs in Million	Rs in Million	
Optimization of Raw mill (roller press) gap	10	-	7.5	-	Immediate
Optimization of crusher secondary motor load	3	-	2.3	-	Immediate

Energy conservation project	Electrical energy savings	Thermal savings	Total Savings	Investment	Pay back in months
	In lac kWh	Ton/yr	Rs in Million	Rs in Million	
Heat resistance paint on preheater and cyclone area	-	1337	10	4.2	5.04
Optimize lighting voltage in line	0.1	-	0.7	-	Immediate
Reduction in the generating pressure of Post clinker section compressors from 7.2 bar to 6 bar	3	-	1.8	-	Immediate

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	
Optimization of packing plant operation	10		7	1	1.71
Compressor air leakages in Pre clinker	3	21	2.4	1	5
Optimisation of Raw mill fans	4		2.4	1	5
Optimization of coal firing blowers	12	500	10.6	2	2.6

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	
Compressor's discharge pressure reduced from 6.0 to 5.8 bar	2.31	-	18.84	-	Immediate
Idle running of material handling section reduced	0.12	-	0.1	-	Immediate
Applied heat resistance paint in kiln hood	-	-	1.50	0.236	1.89
Changed HPSV lamps to LED lamps	0.52	-	0.42	0.80	22.86

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	
Raw mill product residue optimized from 3.3 to 3.8% on 212 micron	3.70	-	3.02	-	Immediate
Cement mill bag house heaters idle running hours reduced	0.47	-	0.38	-	Immediate
Idle running of cooler ESP transport reduced	0.11	-	0.09	-	Immediate
Raw mill bag house idle running reduced	0.55	-	0.45	-	Immediate
HRB discharge Bag filter fan changed to VFD	0.86	-	0.70	1.186	2.57

Applied heat resistance paint in kiln hood

Note on cross-checking:-	Clinker Prod	7000	TPD			
Description	Area corr.	Avg temp	Radiation	Convection	Heat Loss Total	
	[m2]	[Deg. C]	[kcal/h]	[kcal/h]	[kcal/h]	kcal/kg clinker
Before painting	347.2	146	303071	208002	511073	1.752
After painting	347.2	100	143848	106861	250708	0.860
Savings in delta		46			260364	0.893
Total heat saved in 230 days					1437211220	
Heat saved in Million kcal					1437	



Cement mill bag house heaters idle running hours reduced

Background:

- Cement mill bag house hoppers heaters running continuously even after stoppage of mill.
- No need of heaters if mill is not running.

Conclusions:

- The savings thus achieved is about **192kWh per day**.
- Each Mill is having four hoppers and each hoppers is having four heaters and each heater is taking **2kWh**, so total saving is 2X4X4= 32 units per hour



Kiln Brick lining Life

Challenge Faced:

- ❖ Damage of kiln bricks at outlet retainer position due to skewness
- ❖ Crushing of bricks due to point load due to kiln outlet retainer deformation
- ❖ High number of start stops due low market and covid 19
- ❖ If manpower call from other location, there was always threat for spread of contagious Covid 19



Kiln Brick lining Life

Solutions Implemented:

- ❖ Installation of SS plate after kiln outlet retainer for avoid point load on bricks
 - ❖ Installation of zig-zag lining by 300 mm length bricks along with normal 200 mm bricks to avoid skewness of bricks
 - ❖ Compatibility of raw mix and fuel mix for reduction in feed variation
 - ❖ Optimum liquid viscosity
-
- ❖ Refractory selection according to chemistry
 - ❖ Slow heat up of Kiln during light up time
 - ❖ PID installed for Kiln turning schedule
 - ❖ Front side air blasters stopped to avoid secondary air fluctuations and improve consistency in burner flame



Kiln Brick lining Life

Results Achieved:

- ❖ Kiln refractory life of 649 Calendar days and 440 Kiln Running days



Electrical Renewable Sources

Year	Technology (electrical)	Type of Energy	Onsite/ Offsite	Installed Capacity (MW)	Generation 2019-2020 (million kWh)	% of overall electrical energy
FY 2018-19	Wind turbines	Wind Energy	Offsite	-	5.2	3.49
FY 2019-20	Wind turbines	Wind energy	Offsite	-	12.7	8.8
	Photo voltaic	Solar	Offsite	-	4.4	3.05
	Hydro electric power	Small Hydro Plant	Offsite	-	3.9	2.7
FY 2020-21	Wind turbines	Wind Energy	Offsite	-	9.2	7.24
	Photo voltaic	Solar	Offsite	-	7.42	5.84

Thermal Renewable Sources

Year	Technology (thermal)	Type of Energy	Installed Capacity (million kCal)	Usage (million kCal)	% of overall thermal energy
FY 2018-19	Combustion	Alternative Fuel	-	42.80	3.43
FY 2019-20	Combustion	Alternative Fuel	-	44.15	3.41
FY 2020-21	Combustion	Alternative Fuel	-	18.90	1.71

AFR Usage for the FY 2018-19

Sl No	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1	Dolachar	4279	2615	11190	0.89
2	Carbon black	3796	5852	22214	1.77
3	Pharma waste	2192	2551	5592	0.44
4	Liquid AFR	1652	2150	3552	0.28

AFR Usage for the FY 2019-20

SI No	Waste Details	Quantity (MT/year)	GCV (kCal/kg)	Heat value (million kcal/year)	Waste as percentage of total fuel
1	Agro waste	917	3342	3065	0.23
2	Dolachar	1502	2298	3452	0.26
3	Carbon black	3879	5596	21707	1.67
4	Pharma waste	2287	2528	5782	0.44
5	Liquid AFR	3818	2656	10141	0.78

AFR Usage for the FY 2020-21

SI 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

Year	Name of Alternative raw material	Name of material gets replaced	Quantity used (MT/ Year)
2018-19	Red mud	laterite	13110
2019-20	Red mud	laterite	49090
2020-21	Red mud	laterite	36808

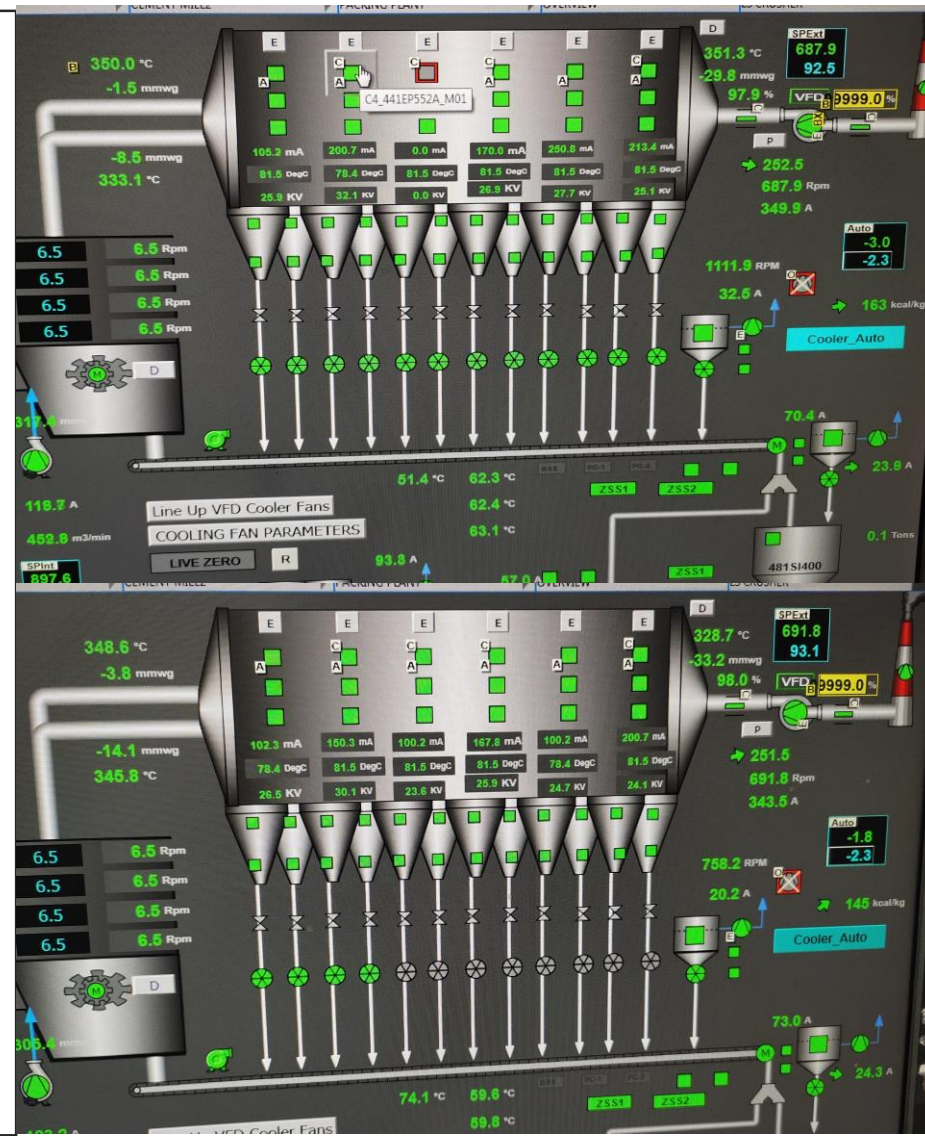
Optimisation of Cooler ESP transport Circuit

Background:

- The 12 Rotary air locks were running continuously in cooler ESP transport circuit.
- It was noticed on site observation that most of the time there is idle running.
- Hence the circuit is optimized to run continuously first 04 compartment's RAL, remaining 08 compartments rotary air lock to run 20min after every 40min stoppage without affecting the process.

Conclusions:

- The savings thus achieved is about 47kWh per day.
- The reduced running hours will have the increased service life of equipment's.



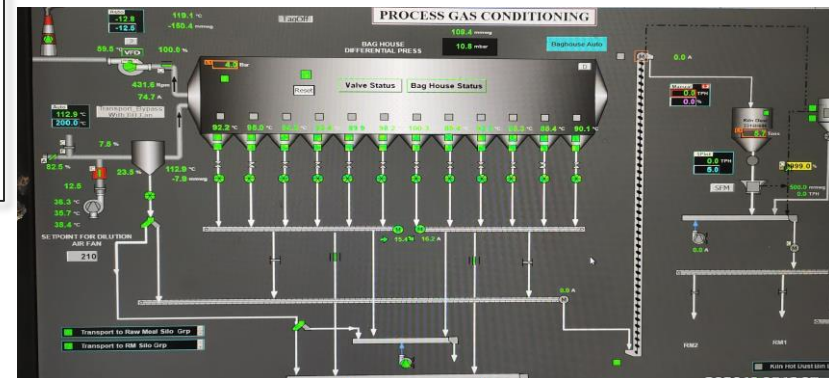
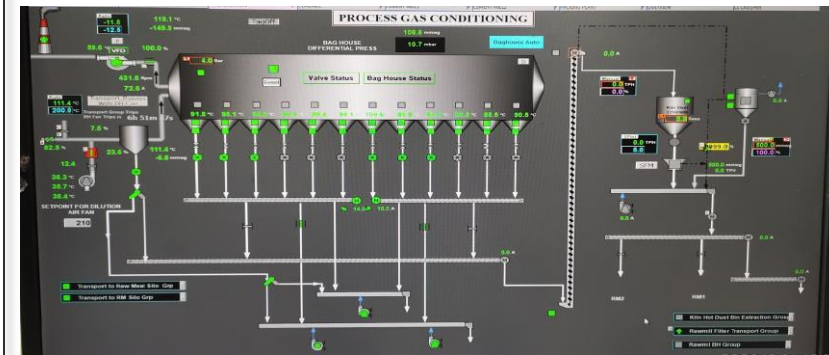
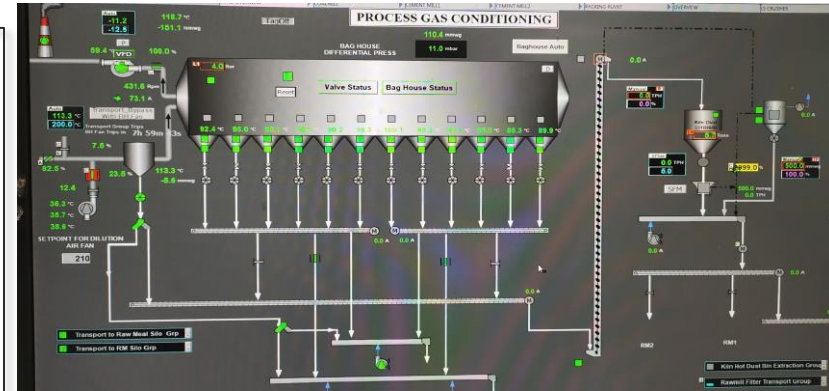
Optimisation of Raw mill bag house transport Circuit

Background:

- The 12 Rotary air locks and 2 drag chains were running continuously.
- It was noticed on site observation that most of the time there is idle running.
- Hence the circuit is optimized to run 30min after every 60min stoppage without affecting the process.

Conclusions:

- The savings thus achieved is about **238kWh per day**.
- The reduced running hours will have the increased service life of equipment's.



Information on GHG Inventorisation and public disclosure

Direct CO ₂ emissions	UOM	Values
Total CO ₂ from raw materials	[t CO ₂ /yr]	8,79,961
Total CO ₂ from fossil-based kiln fuels	[t CO ₂ /yr]	1,05,105
Total CO ₂ from non-kiln fuels	[t CO ₂ /yr]	53,717
Total direct CO₂: all sources	[t CO₂/yr]	10,38,783

Scopes for reduction of CO₂

- 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



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

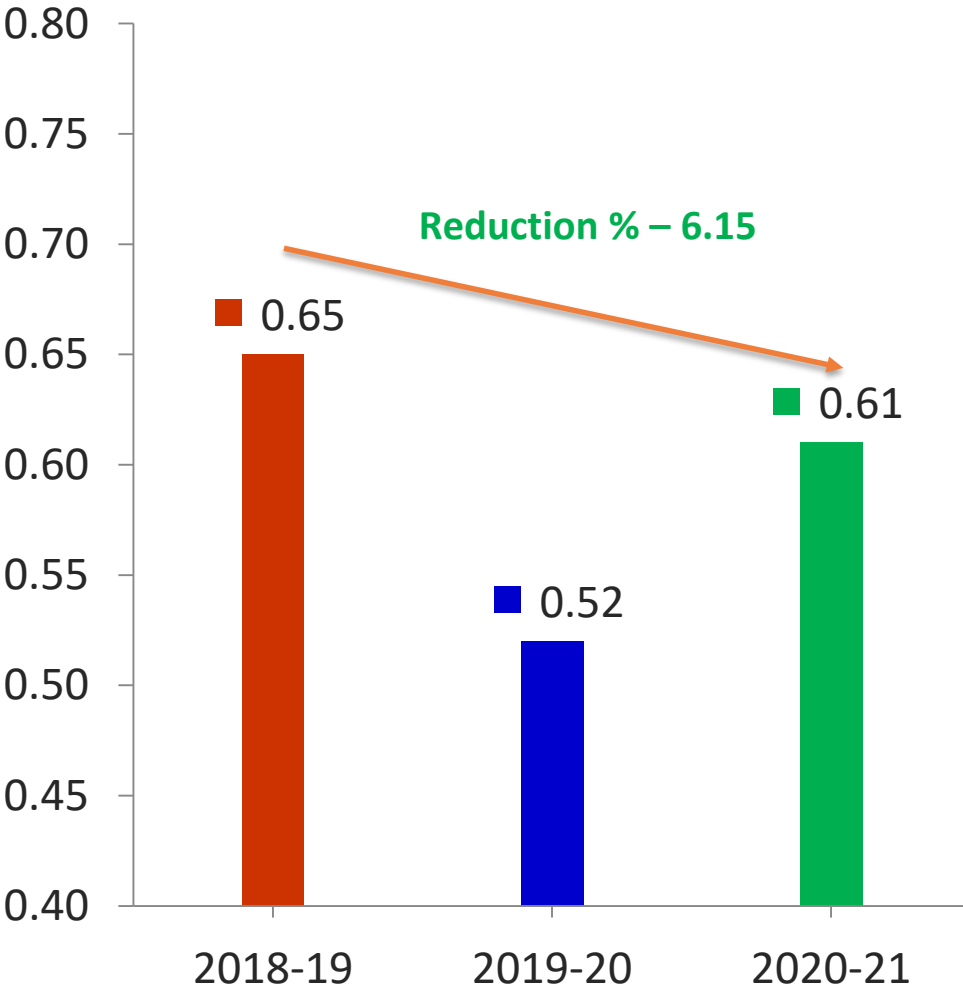
- Planning for installation of waste heat recovery power plant
- PPC dispatch increased from 45% to 50%
- 34.5% fly using in PPC and 15.01 in SC
- PI usage



❑ *Absolute Emissions*

Year	UOM	2018-19	2019-20	2020-21
Suspended Particulate Matter (SPM)	mg/Nm ³	21.06	19.45	22.36
Oxides of Nitrogen (NO _x)	mg/Nm ³	276.63	298.08	394.63
Oxides of Sulphur(SO _x)	mg/Nm ³	44.34	33.72	9.13

Carbon footprint ton of CO₂/ MT of Cement



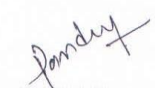
*Direct equivalent CO₂ emission for MT of cement

CK BIRLA GROUP
ORIENT CEMENT

ORIENT CEMENT LIMITED CORPORATE POLICY ON CARBON FOOTPRINT REDUCTION

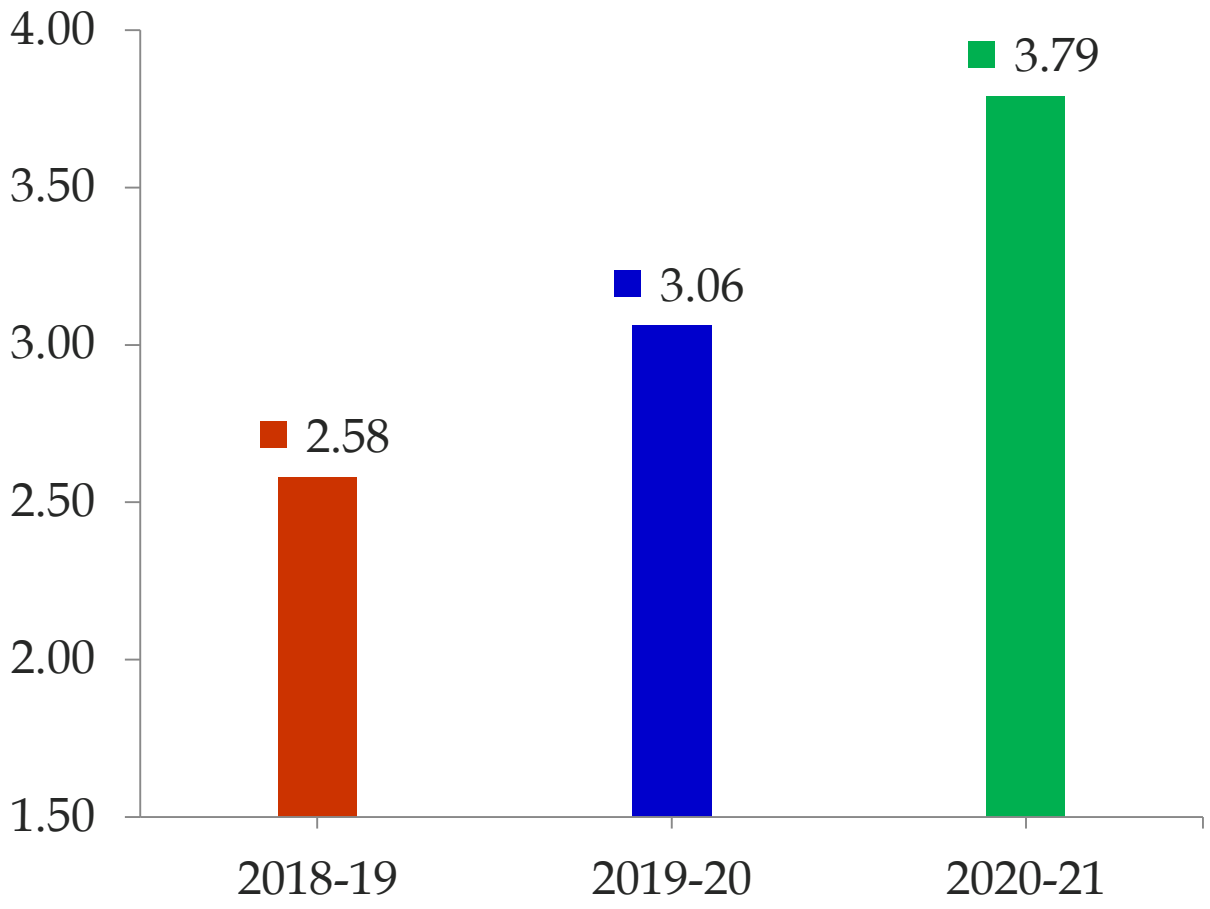
Orient Cement Limited committed towards climate change, explore, adoption of technologies and input processing materials which reduce carbon footprint,

- ✓ 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.



S K PANDEY
PRESIDENT MANUFACTURING

1st Apr'21



Consistently Water positive during last 3 years

ORIENT CEMENT LIMITED

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



- Engage local vendors for sourcing of raw materials.
- Procurement of energy efficiency & star rated electrical appliances.
- Procurement of recyclable, re-usable and biodegradable materials.
- Consume recycled water for internal gardening and dust suppression.
- Usage of Rain harvesting water rather outsource.
- Installation of LED lights.
- Installation of RFID at mines and packing weigh bridge area.
- Transportation of coal and clinker via wagon.
- Adoption of automation technologies.
- Hiring vehicles which are efficient and less diesel consumption



- Reverse logistics for all raw material vehicles
- Reverse logistics for Fly ash bulkers
- Coal rake again using for clinker sale
- Colony wastage incinerating in our Kiln
- Truck yard concreting done for quick movement
- TAT reduced by concreting of all roads for truck tippers
- Increased cement transportation by Rail

Packing plant truck yard



Additive tippler



MONTH	2020-21				2021-22			
	RAIL QTY	ROAD QTY	RAIL %	ROAD %	RAIL QTY	ROAD QTY	RAIL %	ROAD %
Apr	57108.30	2614.8	4%	96%	132009.7	33172.65	20%	80%
May	137582.25	21642.35	14%	86%	135369.2	26133	16%	84%
Jun	95993.29	8139.75	8%	92%	125929.6	40643.65	24%	76%
Jul	117924.67	14872.1	11%	89%	127298.4	45284.55	26%	74%
Aug	108874.64	14870.1	12%	88%				
Sep	126537.19	20364.4	14%	86%				
Oct	138217.62	37890.45	22%	78%				
Nov	126227.24	31748.8	20%	80%				
Dec	160874.74	46602.35	22%	78%				
Jan	170522.28	42613.75	20%	80%				
Feb	180871.95	52687.35	23%	77%				
Mar	208502.75	67387.6	24%	76%				
Total	1629236.92	361433.80			520607	145233.9		

Project Sabse Tej

Scope:

Double transport/handling reduction for 50 kilometres radius

Project Implemented: Sabse Tej

Normally lots of customers required cement (Small quantity) who are nearer than our authorised dealer.

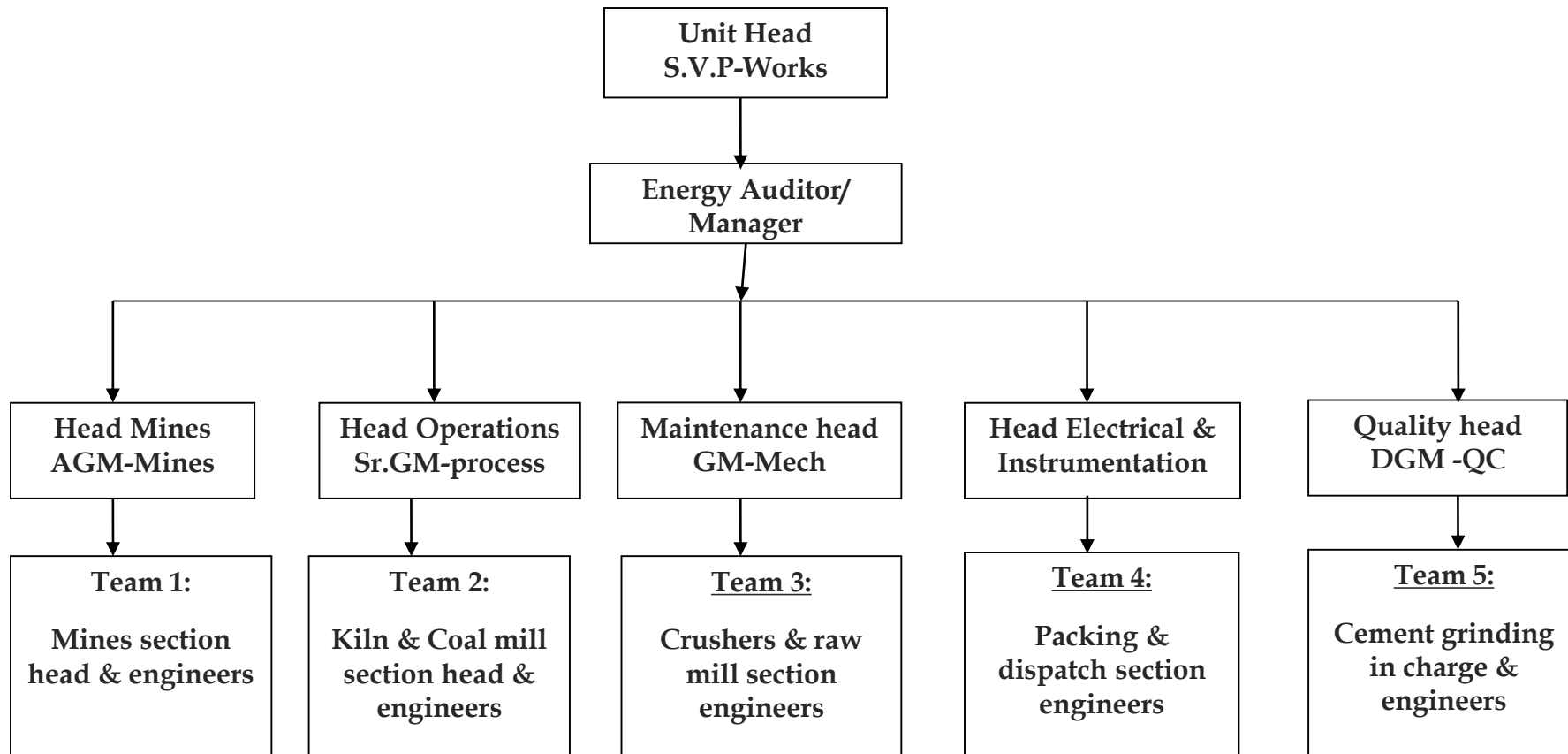
Through this project we are supplying cement directly to customer with consulting our dealer by small size of vehicles.

This project saves lots of double transportation and double loading & unloading of Cement

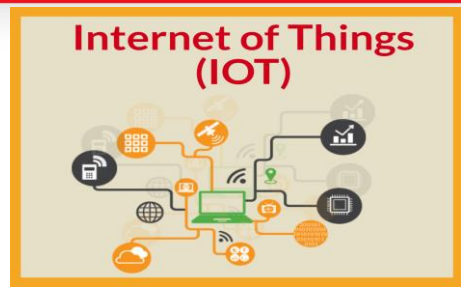
SAB SE TEJ DELIVER DISPATCH

MONTH	DISPATCH QTY. 2020-2021	DISPATCH QTY. 2021-2022
Apr	-	1,528.95
May	-	1,337.95
Jun	-	1,198.85
Jul	-	2,151.75
Aug	-	
Sep	-	
Oct	970.00	
Nov	1,059.80	
Dec	1,480.00	
Jan	1,610.00	
Feb	1,718.30	
Mar	1,970.00	
Total	8808.1	6217.5

ENERGY MANAGEMENT COMMITTEE



- Mobile app for Real Time section wise process parameters and specific power consumption details
- Instant stoppage notification
- Day running hours and production report on



Tax Invoice

Invoice No :- WI-DTA/08-21/147 Invoice Date:- 09-08-2021 Invoice for the Month:- Aug-2021 Project Name:- Implementation of Digital Technology for Process Fluctuation. Billed to Contact Details:- Mr. Shivakumar Billed to Legal Entity:- Orient Cement Limited Billed to Entity Address:- Village Itaga, Post Malkhed Road, Taluk Chittapur, District Kalaburagi, Kamataka- 585292 State:- Karnataka Code:29 GSTIN No:- 29AABCOS420A1ZK Billed to Contact Email id:- shivakumar@orientcement.com	Billed From Contact Details:- Girish K. Kanawade Billed From Legal Entity:- Wurth Information Technology India Pvt. Ltd. Billed from Entity Address:- A/ 402, GO Square, Wakad Road, Kaspate Westl, Pune – 411057 State:- Maharashtra Code:27 GSTIN :- 27AABCW6636N1ZQ Billed From Contact Email id:- finance@wurth-it.in
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Invoice Reference	Service Type Description	Qty	Currency	Amount	IGST	IGST Tax Amount	Total Invoice Amount Including Tax
WI-DTA/08-21/147	Implementation of Digital Technology in Pyro	1	INR	₹ 4,74,300.00	18%	₹ 85,374	₹ 5,59,674.00

Amount in words Rupees Five Lakh Fifty Nine Thousand Six Hundred Seventy Four Only

GSTIN No:- 27AABCW6636N1ZQ **PAN :-** AABCW6636N **SAC Code:-** 998313 **MSME Registered Entity:-** UDYAM-MH-26-0001295

*** Payment Terms ***

Payment Terms As Per PO
Payment Reference Please indicate the invoice number & correspondings amt in the Remittance Advice
Incidental costs All incidental costs relating to the remittance to be born by the Remitting Party
Payment Please arrange payment to the Bank Account below
Payment Currency INR

*** Bank Details ***

Beneficiary Name Wurth Information Technology India Pvt. Ltd.
Bank Name ICICI Bank Limited
Bank a/c Number 007305009953
IFSC code ICIC0000073
Swift code ICICINBBCTS
Bank Address Gulmohor park, ITI road, Aundh Pune Maharashtra, 411007

*** Authorised Signatory ***

Name _____
Signature _____

RAVI SHANKAR PINGALI
 Digitally signed by RAVI SHANKAR PINGALI
 Date: 2021.08.09 15:43:16 +05'30'

Unmanned weigh bridge controls with mobile app

Through this unique project we can operate mining transport operations through mobile. This will gives us total limestone and other minerals consumption data vehicle wise.



Both weigh bridges



Photocell



RFID card mounted on truck



UHF RFID Reader



Vehicle entry to weigh bridge



Weigh bridge control panel

All Selections can be done from mobile android app through public IP to unmanned software from anywhere.

- Only authorized persons can operate
- Which product want to transport
- From which source want to load the truck
- In which destination want to dump

Register

Truck Code:

Product
Select Material

Source
Select Source

Destination
Select Destination

SAVE

Product

- LIME STONE
- BC Soil
- Low Grade
- Waste
- Mineral Reject

CANCEL OKAY

Source

- Mine Pit-1
- Mine Pit-2
- BC Soil Dump
- Low Grade Stock
- Mineral Stock

CANCEL OKAY

Destination

- Crusher
- Low Grade Stock
- Mineral Stock
- BC Soil Dump
- Waste

CANCEL OKAY

☐ Review meeting chaired by :

- 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 .

ORIENT CEMENT LIMITED								
Daily Production Report CHITTAPUR				27-03-2021			OCL/CHI/QC/SOP/05/F-02	
Production & Dispatch								
Product	OP. Stock (MT)	Production/Receipt			Despatch/Cons.			CI Stock (MT)
		On Date	MTD	YTD	On Date	MTD	YTD	
Clinker	53,708	7,005	188,173	1,605,509	8,614	188,919	1,620,500	52,962
Cement (OPC - 53 Gr.)	3,850	4,458	81,328	672,288	3,571	80,903	672,280	4,275
Cement (OPC - 43 Gr.)	819	2,332	40,360	329,910	1,318	38,742	330,385	2,437
Cement (HS PPC) Strongcrete	1,137	-	10,918	72,092	570	9,951	72,886	2,104
Cement (PPC)	2,887	4,033	113,178	882,839	4,572	112,850	883,200	3,215
Total Cement	8,693	10,823	245,784	1,957,129	10,030	242,446	1,958,750	12,031

Equipment Performance							
Equipment Description	Running Hours			Tonnage Per Hour			Remark
	Today	MTD	YTD	Today	MTD	YTD	
LS Crusher	4.67	246.25	2,229	1,141	1,122	1,031	
RM 1	19.33	521	4,040	297	311	315	
RM 2	24.00	392	3,719	313	313	311	
Coal Mill	20.75	539	4,919	38	39	32	
KILN	24.00	640.26	5,455	292	294	294	
CM 1(OPC 43 Gr)	-	69.32	573	0	235	223	
CM 1(OPC 53 Gr)	19.83	305.90	1,591	225	233	226	
CM 1 (HS PPC) Strongcrete	-	-	21	0	0	190	
CM 1(PPC)	-	76.33	767	0	296	286	
CM 2(OPC 43 Gr)	10.50	107.08	899	222	224.94	225	
CM 2(OPC 53 Gr)	-	43.75	1,350	0	232.96	231	
CM 2 (HS PPC) Strongcrete	-	59.25	362	0	184.27	189	
CM 2(PPC)	13.50	309.58	2,303	298.74	292.61	288	

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

Sl. 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	9477	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/Loaded)			17508	16481	10474	14537	15706.96	15445.88	16939.12	18712	13061	13979	17597	15285	8265	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	1098.03	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	1.35	1.39
2	RAW MILL-1																			
	Production (MT)	175526		7529	7356		6097	7306	7539	6501	2544	7171	7138	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	91520	91293	94659	89554	36627	82394	95489	88281	74095
	Production Rate (ton/hr)	320		313.71	315.02		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	12.53	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	95144	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		12.93	12.94	13.19	13.02	13.43		12.90	12.87	13.06	12.77		12.79	12.92	12.64		12.67	12.45
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	19.83	21.33	20.17	17.92	
	Power Consumed (KWh)			30087	24868	28746	27743	28862	28878	28002	28560	27433	25802	29409	27905	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 Clinkerization (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		4997	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	59531	113570	97139.86	101793	104729	86480	45699		116495	127525	37122	93979	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
	Running hour												9.00	15.75	24.00	1.50				7.00
	Power Consumed (KWh)												50388	89708	135006	8683				39984
	Production Rate (ton/hr)	310											302.00	301.59	299.33	287.33				296.86
	Specific Power (kWh/ton)	18.28	19.5										18.54	18.89	18.79	20.15				19.24
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	23.06	22.89	25.08	21.20	22.12

- Energy Conservation and Management, CII Hyderabad
- Workshop on Plant optimization, FLS Delhi
- Optimisation of pyro processing system in Clinker manufacturing, NCCBM, Hyderabad
- Pyro modern technologies and optimization, NCCBM, Hyderabad



Projects implemented through Kaizens (Workers and Supervisor level)

1. Belt Joint Monitoring

Sensor install for belt joint monitoring in clinker transport belt 482 BC600. After successive results installed in all major belts.

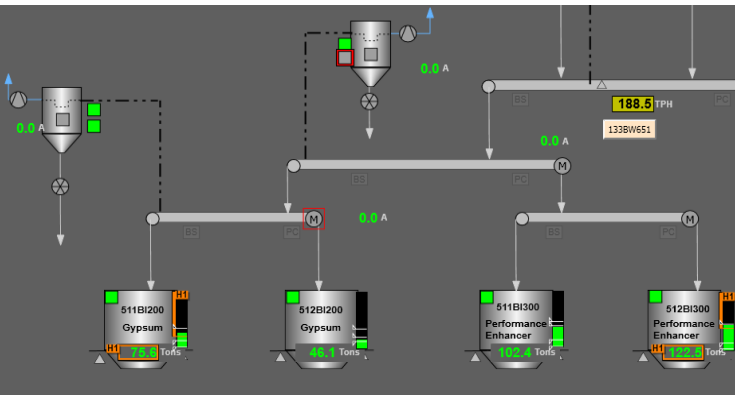
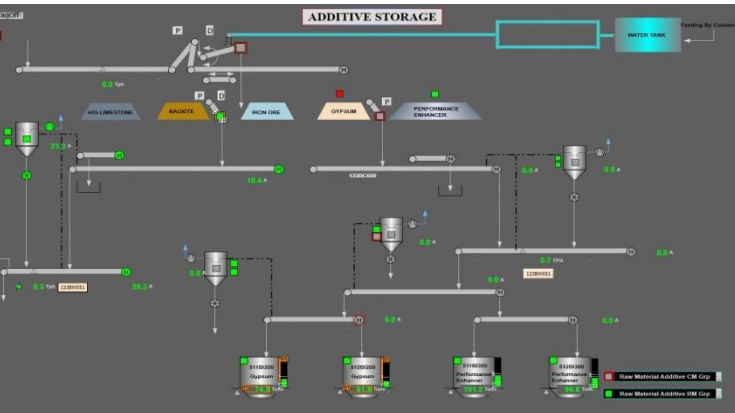


SourceName	ObjectDescription	Message	AlarmState	EventTime
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	30.07.21 17:43:31:366
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	30.07.21 17:43:29:372
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	30.07.21 17:36:51:343
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	30.07.21 17:36:48:342
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	30.07.21 17:07:16:282
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	30.07.21 17:07:14:309
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	30.07.21 16:55:17:287
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	30.07.21 16:55:15:272
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	29.07.21 14:10:07:426
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	29.07.21 13:50:49:390
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	RTN	27.07.21 07:58:50:486
CS_482BC600_D01S43	Belt Joint Monitor Switch	Failure	ACT	27.07.21 07:42:59:466

2. Interlocking of Gypsum & Performance Enhancer feeding system with Reclaimer in respective piles

Functional Team Members:

1. Arvind Verma (Instrumentation)
2. Mahantesh Mannur (Instrumentation)
3. Rohit Anashetty (Instrumentation)
4. Srikanth Rathod (Mechanical)
5. Shijesh KV (Mechanical)
6. Vinod (Civil)
7. Ruma Maheshwara Reddy (Process)



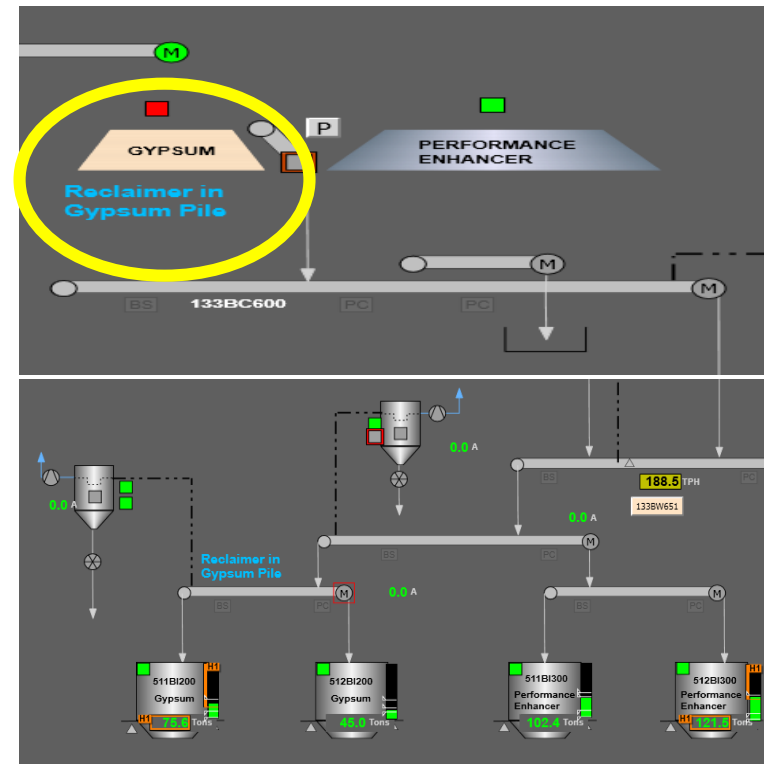
Current Practices and conditions:

Previously, there was no interlock in DCS for Gypsum and performance Enhancer feeding system with reclaimer in their respective pile positions. Even there was no indication at CCR to know the machine is running in which pile. CCR engineers were filling the Gypsum and Performance enhancer bins by having telephonic communication with the reclaimer operators. There were chances of incorrect material feeding to cement mills hoppers due to miscommunications or manual errors resulting into quality deviations.

Modifications:

Identified the exact position to differentiate the piles (Gypsum and Performance Enhancer) along with process & quality control teams. Fixed one pole with two magnetic switches at that particular position with the help of mechanical and civil teams. Also fixed two magnets on reclaimer to sense these magnets.

Whenever, reclaimer passes from one pile to another pile through the assigned pole, two different signals will get activated/deactivated to know the position of reclaimer. These signals are reporting directly to plant DCS. With these signals an interlock in logics of belt conveyors made to ensure correct material feeding to respective hoppers. With this, gypsum can not go into PE hopper and similarly PE can not go into gypsum hopper. After implementing this modification, the possibility of getting quality deviations due to the mixing of material (gypsum & PE) in the hoppers can be completely avoided.





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

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This certificate is valid only if provided original copies are in complete set.

BSI, The MIRA Corporate Suites (A-2), Plot 1 and 2, Infrare Nages, Mathura Road, New Delhi 110 065.
A Member of the BSI Group of Companies.



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:


Chris Cheung, Head of Compliance & Risk - Asia Pacific

Original Registration Date: 2019-11-06
Latest Revision Date: 2019-11-06

Effective Date: 2019-11-06
Expiry Date: 2022-11-07

Page: 1 of 1

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Information and Contact: BSI, Elmham Court, Davy Avenue, Knowlton, Milton Keynes MK5 8PR. Tel: +44 345 090 9000.
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21st National Award for Excellence in Energy Management 2020



Confederation of Indian Industry
125 Years - Since 1895

21st National Award for Excellence in Energy Management 2020

This is to certify that

Orient Cement Limited, Chittapur

has been recognized as

"Excellent Energy Efficient Unit"

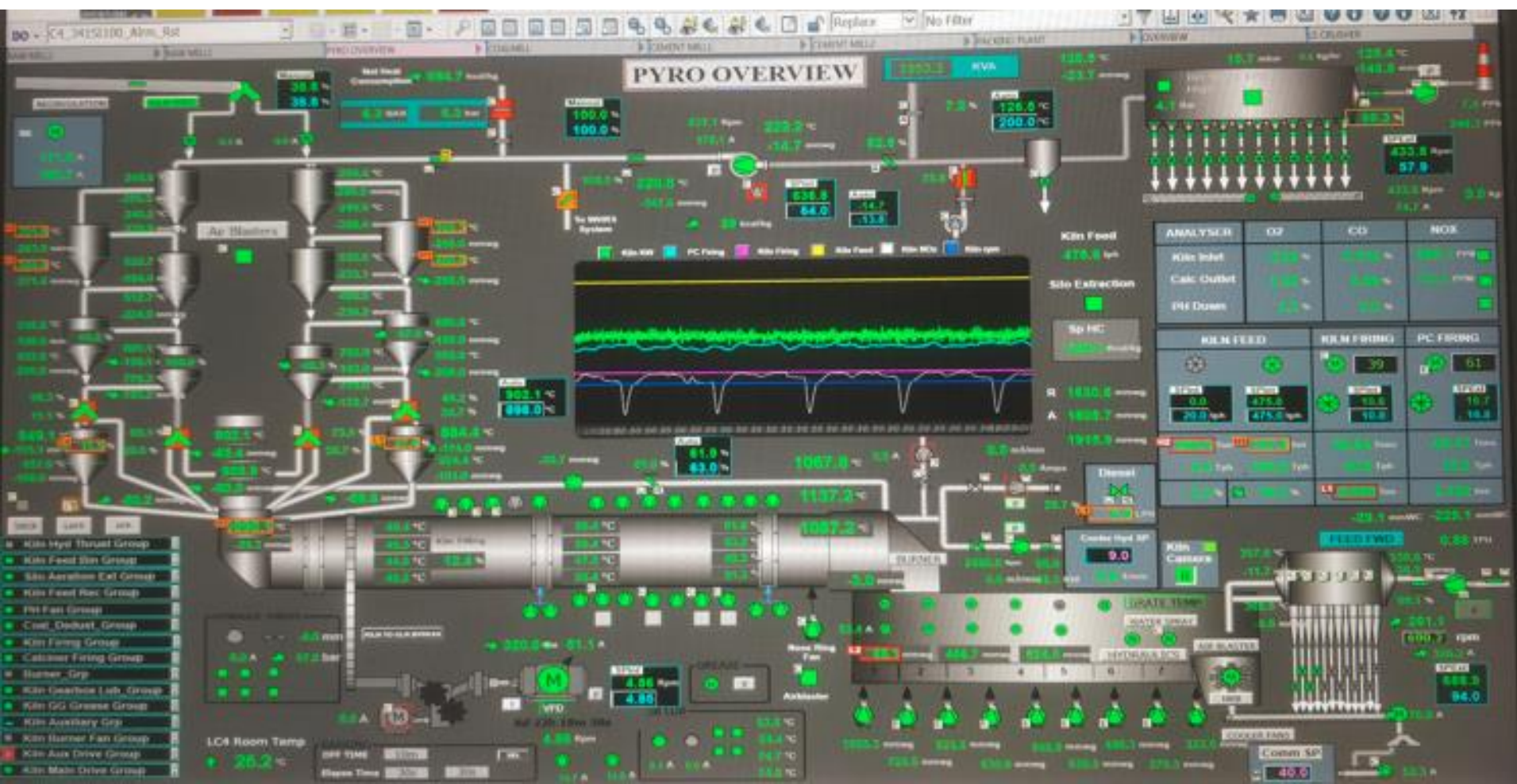
This acknowledgement is based on the evaluation by panel of judges at the "National Award for Excellence in Energy Management" held during 25 - 28 August 2020.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC



- ✓ One of the lowest energy consumption plant for both electrical and thermal
- ✓ Achieved highest Kiln brick lining life
- ✓ Preheater fan specific power achieved 3.2 units/MT of clinker
- ✓ Bag house fan specific power achieved 1.2 units/MT of clinker
- ✓ Preheater fan inlet temp is 224°C





Thank
you

Orient Cement,
Chittapur



: muralimohanraju.p@orientcement.com

: 7829992123