

CII National Award for Excellence in Energy Management 2024



Dachepalli Works Palnadu-AndhraPradesh



Mentor:

**Mr. Seetharamulu CH.
Unit Head.**

Team Members:

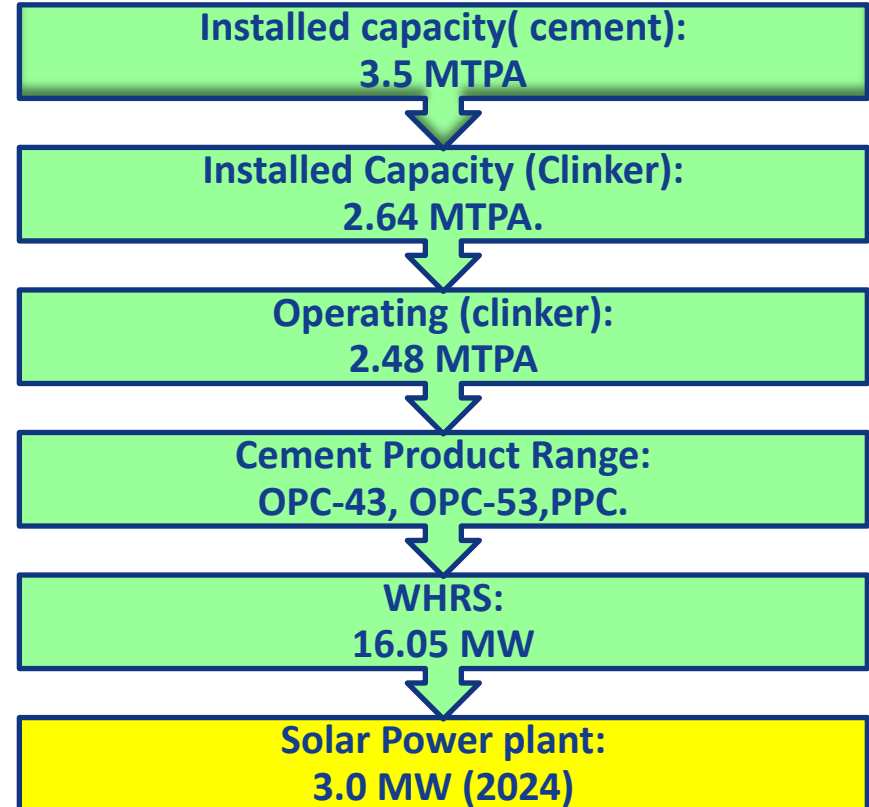
**Mr. A. Ramesh (HOD-Operations)
Mr. Shyam Prasad(HOD-Electrical)**

Plant Location & Capacity:



Chettinad Cement Dachepalli Works is the green field project of 3.5 MTPA cement manufacturing unit located at Pedagarlapadu Village in Dachepalli Mandal, Palnadu Dist. Andhra Pradesh state, commissioned in the year 2020.

2020 was the year the whole world was under lockdown.

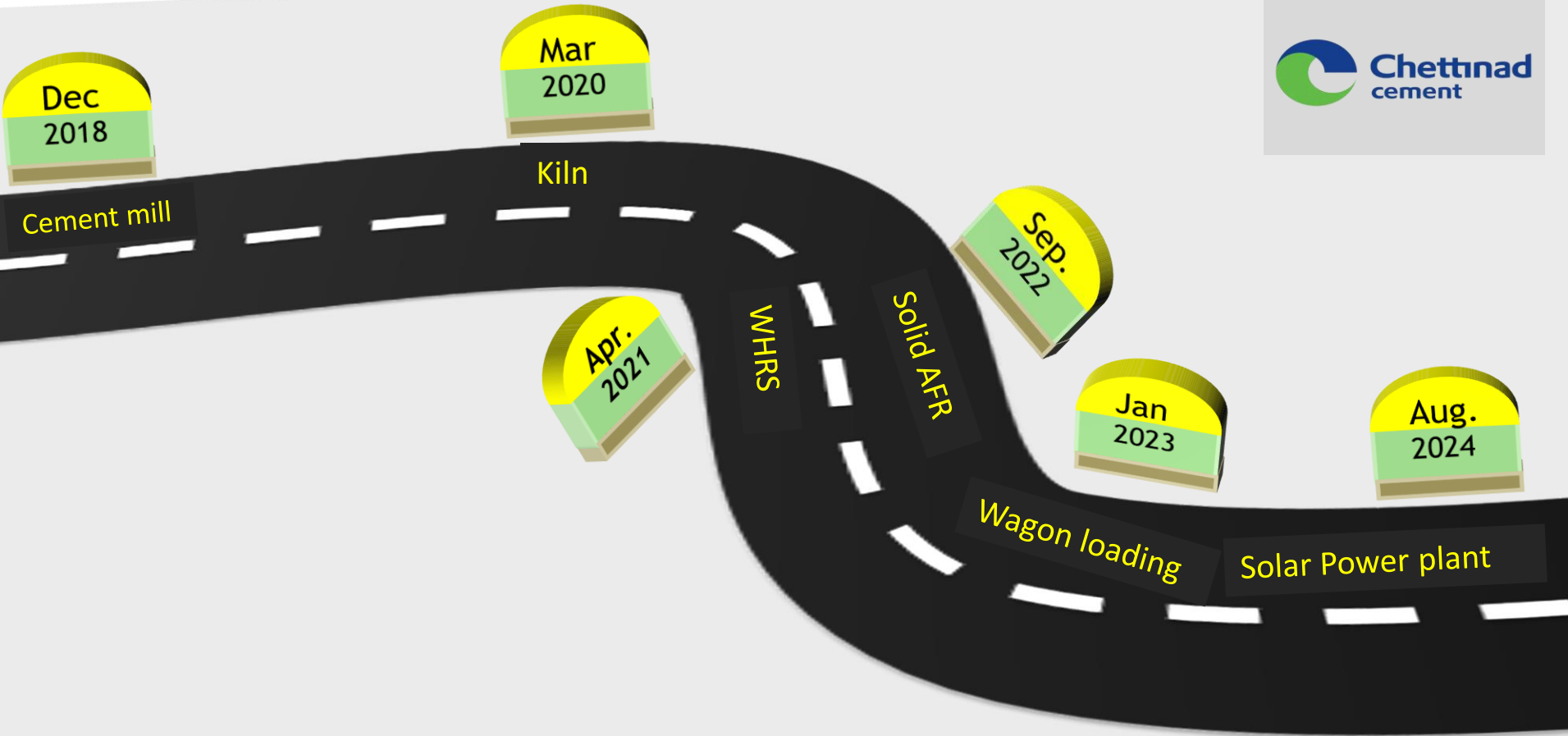


Major Equipment Details :



Section	Equipment	Make.	Capacity (installed)	Remark
1. Crusher	Impact crusher	L & T	1200	TPH
2. Raw Mill	Roller Press	KHD	2* 350	TPH
3. Coal Mill	VRM	Loesche	75	TPH
4. Pyro	Double string 5 stage ILC	KHD	8000	TPD
5. Cement Mill	Roller Press with ball mill.	KHD	235	TPH
6. AFR	Shredder/CO Processing	WEIMA/ PH1	20	TPH

Plant Development Timeline:



Technology up gradation & Its Benefits:



S.No	Sustainable Development	Technology	Benefit to environment	Key Achievement
1	Reduction Of NOx	Pyro-redox system in preheater, Low NOx Kiln Burner.	Reduction NOx emissions	Emissions as low as 200 mg/Nm³ as compared to 550 to 650 mg/Nm³ in inline Calciner kiln
2	Reduction in Water consumption	Roller Press grinding	Water conservations	No water consumption as compared to VRM having 3.5 to 4.5 m³/hr water consumption
3	Effective utilization of cooler vent gases	Installation of clinker roll crusher at Mid air take-off	Waste gases temperature very less	With design of 19.6 MWH , achieved 15.02 MWH , also Reduced clinker temperature of 120 °C
4	Waste Heat Recovery System	WHRS- utilisation of waste heat for power generation	Conventional fuel conservation	Out of 52.0 KWH/MT clinkerisation units, 35.0 units is supplied by WHR system i.e. more than 67% of clinkerisation power.
5	Usage of AFR	AFR Preprocessing & Co-processing	Conventional fuel conservation	Replaced Fossil fuel (Coal) by TSR of 15% (current 5 %)
6	Energy Conservation	Variable frequency drive	Conservation of Power.	75 nos of VFDs are in operation.
7	Reduction CO2 Emission	PSA Nitrogen Plant	Reduction of CO2 Emission	PSA technology Nitrogen Plant

Pyro-Redox system: Potential GHG reducer.

First of its kind installed in India, supplied by M/s. KHD.

It is a gas duct between kiln inlet smoke chamber & Calciner

Redox
Red-Reduction Reaction
OX- Oxidation Reaction

which reduces the high NO_x to N₂ & O₂ when charged with fuel.

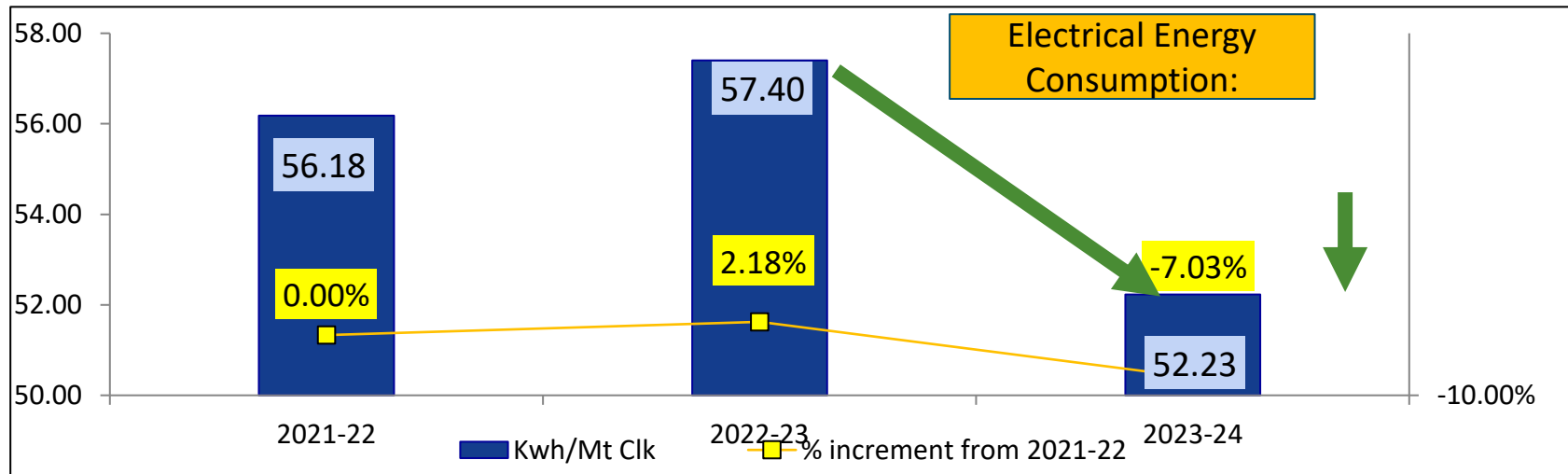
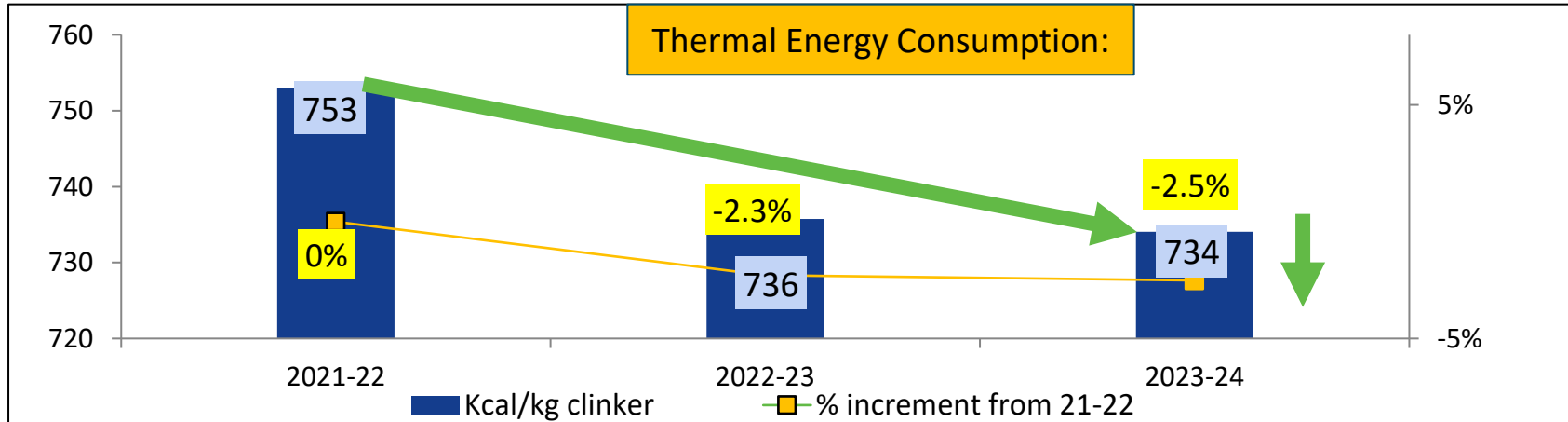
(NO_x is an active green house gases contributing for global warming)

“NO_x kiln inlet gases to very low number. (200-300) mg/Nm³”,

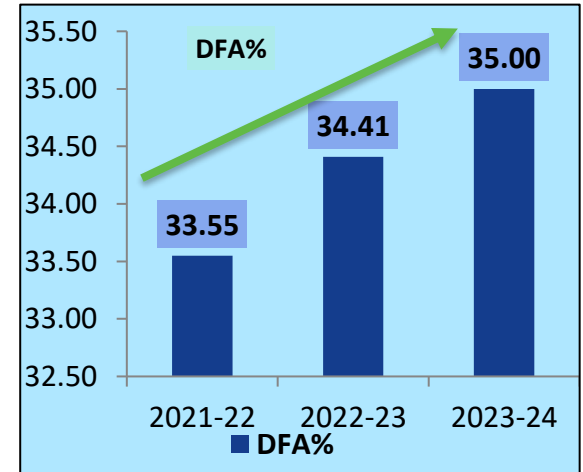
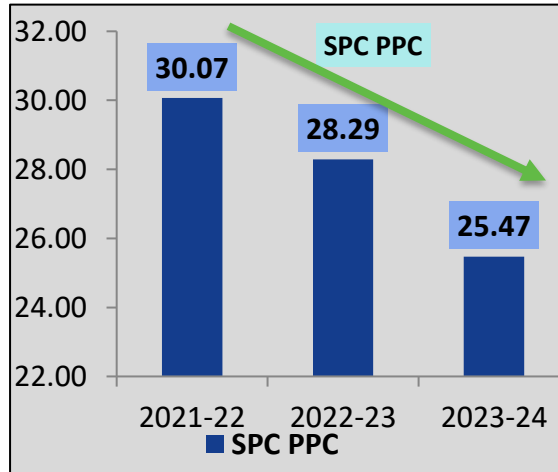
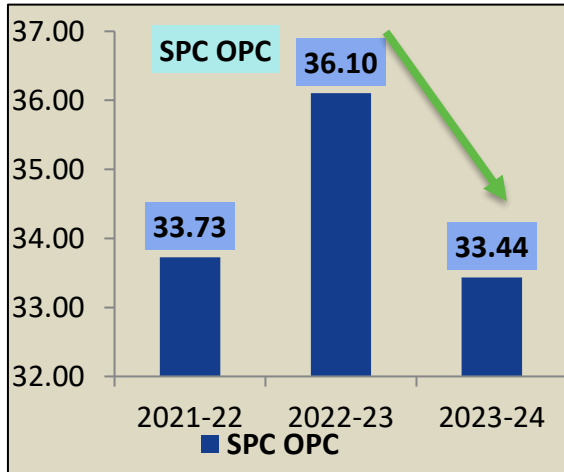
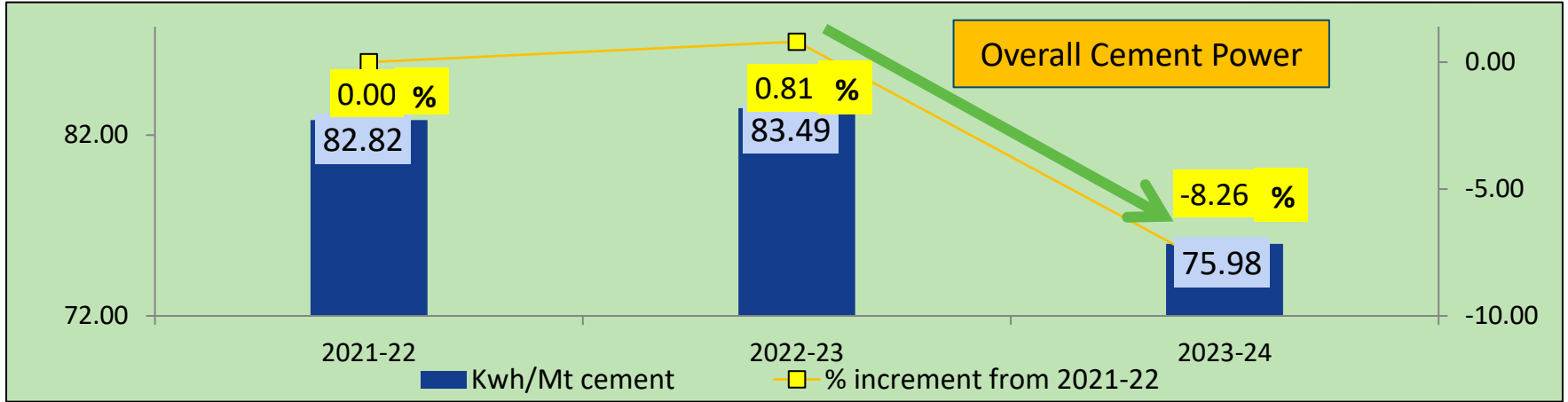


Pyro-redox

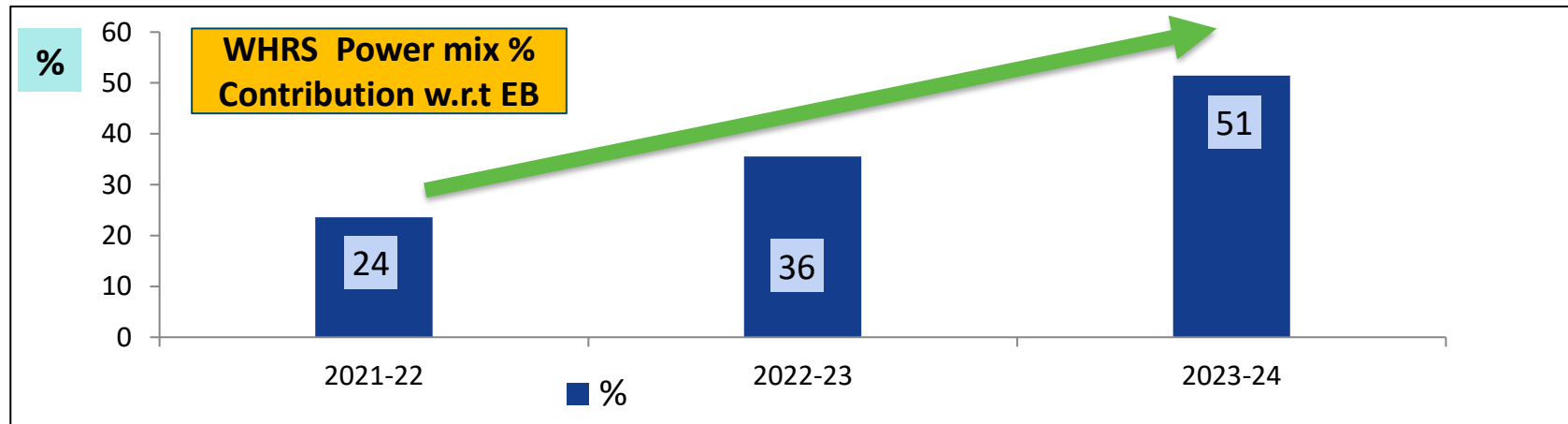
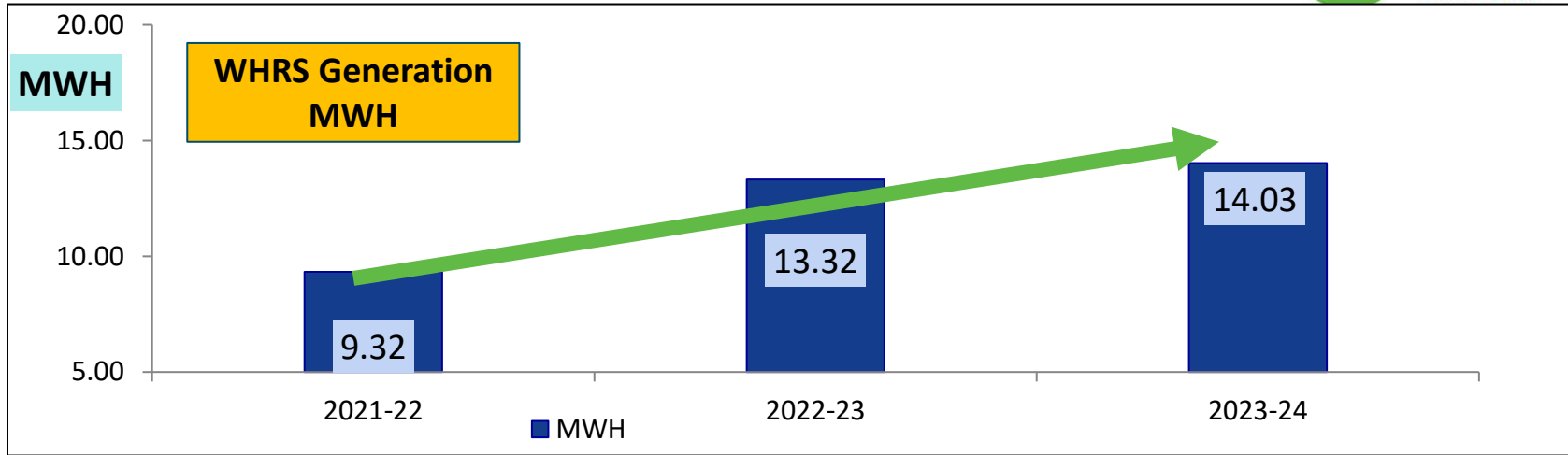
Specific Energy Consumption: Heat & Clinkerisation Power



Specific Energy Consumption: Cement Power (overall & grade wise)



WHRS Contribution in Power Mix:



Comparison: Internal , Competitors & National



S.N.	Plant	Benchmarking	Electrical SEC KWH/MT cement	Thermal SEC Kcal/Kg clinker
1.	Chettinad Cement (Dachepalli Works)	Palnadu Basin	75.98	734
2.	Plant 2		92	757
3.	Plant 3		80	737
4.	Chettinad Cement (Kallur & Dachepalli Works)	Internal group benchmarking	74.61	734
5.	Plant-1 (CII- Energy benchmarking data vol.07)	National level	56.1	675

List Of Energy Conservation Projects Planned :2024-25



SNO	Title of the Project	Investment (INR million)	Electrical Savings (Million Kwh)	Annual Thermal savings (Million Kcal)
1.	FRP high efficiency cooling fans for all HT Motor cooling fans & Tier cooling fans(28 Nos)	0.9	0.114	
2.	45KW AND 75KW VFD for DPC-1 and DPC-2 Bag filter fans (491FN1 and 491FN2)	1.0	0.103	
3.	Dimmer Tube lights for all B,D,E quarters corridor & Car Parking area and in Dormitory corridor .	0.4	0.029	
4.	Split AC Controller with Occupancy Sensor	0.6	0.067	
5.	Liquid AFR system with storage facility	40		91140
6.	New equipment for pre-shredding & segregating the RDF,MLP & Footwear	5		
7.	Solar water heating system for B, D & E-Type	4	0.237	
8.	3MW Solar Plant (Ground Mounted)	151.64	61.4	
	Total	203.0	61.95	

Energy Savings Projects :2021-24



Year	No. of energy savings Projects	Investment (INR million)	Electrical Savings (Million Kwh)	Thermal Savings (Million Kcal)	Total Savings (INR Millions)	Impact On SEC KWH/MT cement
2021-22	43	5.656	2.142	-	10.07	2.04
2022-23	10	0.428	1.089	-	6.514	0.99
2023-24	13	1.414	1.351	-	2.4589	1.09

Energy Savings Projects :2021-24



SNO	Year	Energy saving projects	Investment (in INR Millions)	Electrical Savings Million KWH	Savings (INR Million)	Impact on SEC (electrical KWH/MT cement) & Kcal/kg clinker
1	2022-23	Due to Diesel engine problem in mines pit production loading area poor illumination and frequent problem faced on Dieselengine, so we convert to direct raw power supply to the mobile lighting tower	0.05	0.1540	0.08	1.11919E-07
2	2022-23	Preheater Fan(441FN1) FLC: 245Amps, CT' 200/1Amps replaced with 300/1Amps due to wrong supply of Siemens.	0.046	0.0055	0.15	3.99709E-09
3	2022-23	Timer provided to 3no's of AC's at Corrective stacker, reclaimr, LS stacker, reclaimr and Coal stacker, Reclaimr	0.009	0.04	0.22	2.90698E-08
4	2022-23	Energy saving of Admin building AC units during night hours.	0.024	0.592	3.79	4.30233E-07
5	2022-23	Energy saved by providing auto timer for package AC's at RABH I/O room.	0.03	0.25	1.35	1.81686E-07
6	2022-23	Energy saved at packing plant by providing emergency push button for ALDB.	0.025	0.0263	0.14	1.91134E-08
7	2022-23	Cost saved by changing lighting timer off time at AFR	0	0.012	0.07	8.72093E-09
8	2022-23	E-chain system for truck loading machine to avoid festooning cable damage	0.138	0	0.09	0
9	2022-23	Avoided tripping of Inclined belt at AFR and Increase the availability of Equipment	0.055	0.00324	0.57	2.35465E-09
10	2022-23	Auto Delta to Star converter provided for 321BC1 Belt conveyor motor to reduce power consumption	0.051	0.0062	0.05	4.50581E-09

Energy Savings Projects :2021-24



SNO	Year	Energy saving projects	Investment (in INR Millions)	Electrical Savings Million KWH	Savings (INR Million)	Impact on SEC (electrical KWH/MT cement) & Kcal/kg clinker
1	2023-24	Alternate lighting switching OFF for 311BC3 and BC4	0	0.0073	0.05	3.8601E-09
	2023-24	Kiln shell cooling fans FRP blades replacement (6 Nos)	0.05	1.0998	0.14	1.04651E-08
	2023-24	50W conventional ceiling fans replaced with 30W BLDC fans	0.04	0.0001	0.01	5.28541E-11
2	2023-24	Timer panel provided for Mines tower lighting	0.021	0.011	0.07	5.81395E-09
3	2023-24	Auto Delta/Star Converter provided for 221BC1 conveyor	0.083	0.013	0.08	6.87104E-09
4	2023-24	By replacing Aux. contactor (AR2) at LRS, DCS feed back delay time increased from 2sec to 3sec . Delay during each start due to LRS Failure was avoided .	0	0.0012	0.01	6.34249E-10
5	2023-24	Installation for HT capacitor bank for improvement of power factor	0.585	0.0023	0.48	1.21564E-09
6	2023-24	Reduction of Power consumption by providing Controller (Occupancy Sensors) for SPLIT AC	0.064	0.037	0.26	1.9556E-08
7	2023-24	Dimmer Tube Lights with occupancy sensor were installed at COLONY D,B AND Dormitory . The power was reduced from 18W TO 6 W with inbuilt motion sensor .	0.094	0.044	0.31	2.32558E-08
8	2023-24	Photo controller with Lux and Time based controller were provided for Plant Lighting	0.102	0.0172	0.11	9.09091E-09
9	2023-24	Solar Water Heaters (1500 LPD) were provided at Dormitory & Canteen.	0.282	0.0187	0.13	9.88372E-09

Innovative Projects :



Issue



Proposal

Verdict

1.

Frequent Wear & tear of V-separator triple round chute. Disturbed flow of material in V-separator inlet

To replace round chute with triple stepped chute & some modifications at V-separator inlet feed chute.

Wear & tear reduced .
Production increased by 20 TPH

2.

Frequent jamming of PRTL cone resulting in unplanned kiln stoppages.

To replace the feed pipe with higher dia. feed pipe.(200 mm increase in dia. outside refractory)

Jamming nullified.
Even if get jammed, it gets removed in minutes without stopping kiln.

3.

WHRS tripping during EB power failure leading to unnecessary kiln stoppage.

Installed Vector surge relay which senses the voltage fluctuations and isolate the EB (Set point : 12 Deg) during EB power fluctuations

WHRS tripping stopped during EB power failure resulting in continuous kiln operation.

Innovative Project Implemented: 01



Triple Chute: Production Enhancement



Old set-up

1



New set-up

2

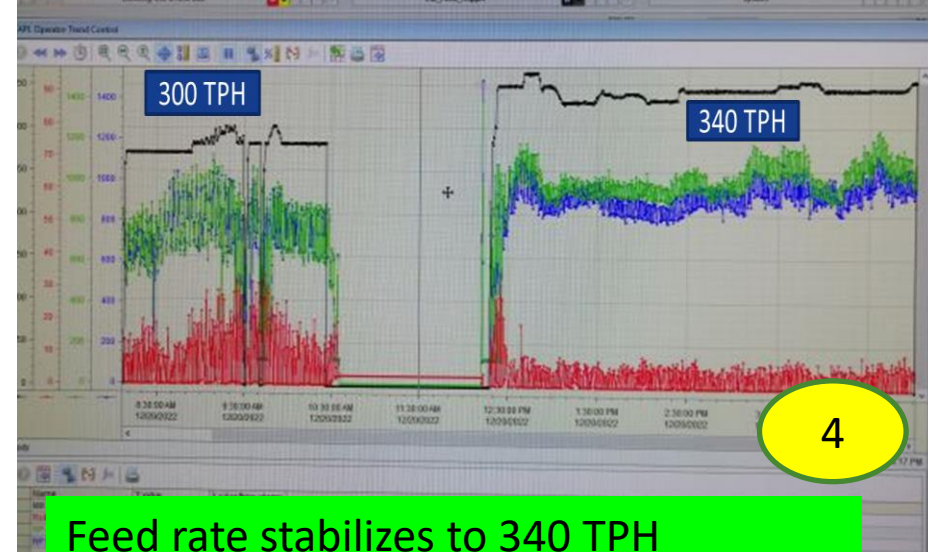


V-sep. inlet impact plate extended for better material flow



3

Stone box in RP pre bin modified



4

Feed rate stabilizes to 340 TPH

Comparison: Chart for Sp. power & Production.



Raw Mill-01	2021-22	2022-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	2023-2024
Raw mill-1 -Roller Press -1	3.0	3.2	2.9	2.8	2.6	2.6	2.6	2.7	2.9	2.9	2.7	2.7	2.8	2.8	2.8
Raw mill-1 -Roller Press -2	3.2	3.4	3.1	3.0	2.8	2.8	2.9	2.8	3.1	3.2	3.0	3.1	3.2	3.2	3.0
Raw mill -1 Separator Fan	4.5	4.1	3.7	3.6	3.5	3.6	3.7	3.6	3.8	3.9	4.2	4.2	4.0	3.9	3.8
Rawmill-1 SKS Classifier	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Line 1 Raw mill Auxillaries (MCC04)	1.6	1.7	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.7
Raw mill-1 Total (Kwh/MT material)	13.6	13.6	12.4	12.2	11.8	12.0	12.3	12.2	12.7	13.3	13.2	13.2	13.1	13.1	12.6
Feed rate(TPH)	302	323	344	345	340	335	327	337	335	320	309	313	306	312	327

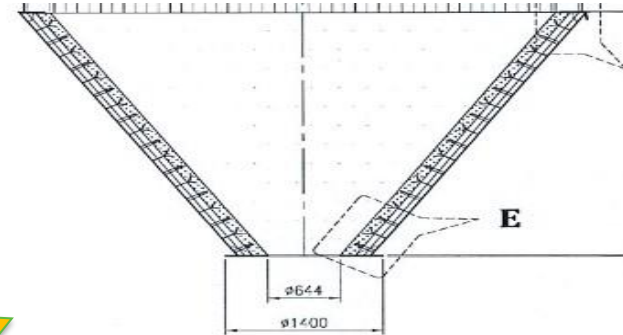
Feed Increased to 340 TPH

Specific power consumption reduces to 12.61 from 13.6 KWH/MT Raw meal

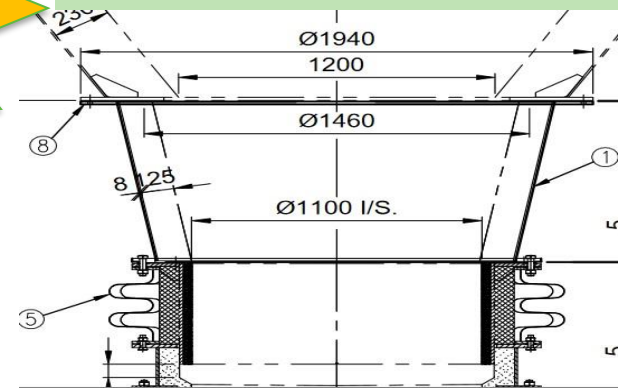
Root cause analysis: coatings getting struck at start of feed-pipe



Brainstorming: leads to conclusions for increase in feedpipe dia



Original 644 mm outside refractory



modified 850 mm outside refractory

- On consultation with **Ms. KHD INDIA**, Feed pipes were replaced with higher dia of **1100mm**(without ref.). **850 mm with refractory**.
- This helped immensely as the stoppages frequency & duration reduced massively.

Innovative Project -02: PRTL Cone Jam Reduction



For the year 2022-23		
Date	Hrs.	Stoppage Reason
22-Apr-22	12.75	PRTL Cone Jaam
27-Apr-22	20.50	PRTL Cone Jaam
30-Apr-22	3.00	PRTL Cone Jaam
06-May-22	5.75	PRTL Cone Jaam
07-May-22	2.75	PRTL Cone Jaam
14-May-22	3.25	PRTL Cone Jaam
18-Feb-23	4.25	PRTL Cone Jaam
19-Feb-23	14.00	PRTL Cone Jaam
09-Mar-23	6.75	PRTL Cone Jaam
15-Mar-23	9.00	PRTL Cone Jaam
Total	82.00	
For the year 2023-24		
15-Apr-23	0.50	PRTL Cone Jaam
16-Aug-23	1.25	PRTL Cone Jaam
22-Aug-23	3.50	PRTL Cone Jaam
26-Aug-23	3.00	PRTL Cone Jaam
Total	8.25	
Feed Pipe replaced with higher Dia. Pipe in Sept: 2023		
04-Oct-23	0.75	PRTL Cone Jaam
18-Nov-23	0.25	PRTL Cone Jaam

Refractory Consumption	Installation Amount Lakh	Castable Amount Lakh	Total Mechanical cost incurred Lakh	Total Amount Lakh
5.50	0.373	3.74	4.1	8.3

Innovative Project 02: Savings



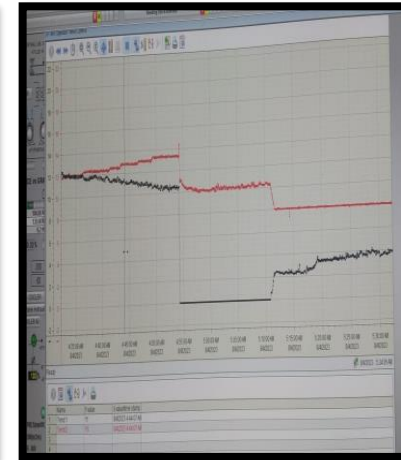
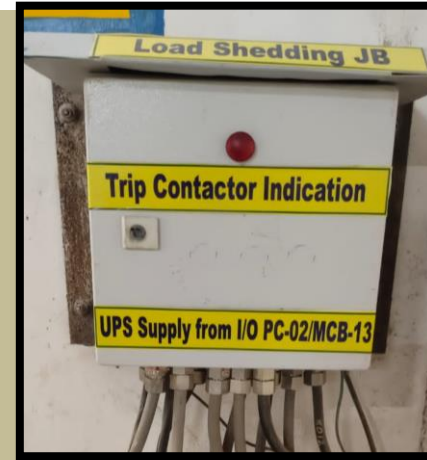
	Kiln stoppage	Kiln Production	Clinker variable cost	Production Loss	Amount loss	WHRs gen.	Run Hrs Loss	Avg. Power Cost	Amount loss
	Hrs	TPD	Rs/MT clk	MT	Rs in lakh	MWH	Hrs	Rs/KWH	Rs in lakh
22-Apr-22	12.75	7459	2896	3963	115	13.3	17.75	4.43	10.5
27-Apr-22	20.50	7459	2896	6371	185	13.3	25.50	4.43	15.0
30-Apr-22	3.00	7459	2896	932	27	13.3	8.00	4.43	4.7
06-May-22	5.75	7139	2896	1710	50	13.3	10.75	4.43	6.3
07-May-22	2.75	7139	2896	818	24	13.3	7.75	4.43	4.6
14-May-22	3.25	7139	2896	967	28	13.3	8.25	4.43	4.9
18-Feb-23	4.25	9304	2896	1648	48	13.3	9.25	4.43	5.5
19-Feb-23	14.00	9304	2896	5428	157	13.3	19.00	4.43	11.2
09-Mar-23	6.75	9304	2896	2617	76	13.3	11.75	4.43	6.9
15-Mar-23	9.00	9304	2896	3489	101	13.3	14.00	4.43	8.3
Total	82.00			27943	809.4				77.9
Total amount loss due to PRTL cone jaam for the financial year 2022-23(Lakhs)								887.3	

Clinker variable Cost & Unit Power Cost are YTD figures

Innovative Project 03: Eliminating WHRS Stoppages During EB Power Failure



- Introduced the Load Shedding on 19.04.2022 to trip the other loads except Kiln during EB Power failure.
- The WHRS was tripping on over frequency & Over voltage fault.
- Reviewed the load shedding and removed some of the load trippings (RABH DT-4, DT-1,2,3) In order to add load to WHRS to avoid the kiln tripping .



- Installed Vector surge relay which senses the voltage fluctuations and isolate the EB (Set point : 12 Deg) during power fluctuations & Distance protection relay tripping .
- Optimized the vector surge relay setting to 7 Deg from 12 Deg



S No	Description	Unit	Value
1	Total Combined loss per Kiln Tripping during EB Power Failure (Prod & WHRS Gen Loss)	Rs. In lacs	23.52
2	No of Times Kiln Saved during EB power failure (FY 2022-23)	Nos	3
3	No of Times Kiln Saved during EB power failure (FY 2023-24)	Nos	30
4	Total Cost saving (FY 2022-23)	Rs. In lacs	70.56
5	Total Cost saving (FY 2023-24)	Rs. In lacs	705.6
6	Total Cost saving	Rs. In lacs	776.16 Lakhs

Waste Utilisation & Management: Waste as Fuel



Waste utilisation management					
Year	Waste as fuel	Quantity (MT)	NCV (Kcal/kg)	TSR	Waste as % of total fuel (AFR)
2022-23	AF MUNICIPAL SOLID WASTE RDF	2,590	2,654	0.71	55.29
	AF FOOTWEAR WASTE	250	5,543	0.149	5.33
	AF RUBBER & FOAM WASTE	88	4,295	0.04	1.88
	AF PAPER MILL PLASTIC WASTE	55	3,499	0.02	1.17
	AF PALM SHELL AND FIBRE	419	3,423	0.151	8.95
	AF MULTILAYER PLASTIC WASTE	1,282	3,234	0.434	27.37
	KILN SUM/AVG	4,684	3,077	1.504	100
2023-24	AF MUNICIPAL SOLID WASTE RDF	11,060	2,822	1.554	39.99
	AF COIR PITH	3,471	4,260	0.762	12.55
	AF SPENT CARBON	76	2,424	0.009	0.27
	AF PAINT SLUDGE	19	2,717	0.003	0.07
	AF PLASTIC WASTE	77	3,585	0.014	0.28
	AF PHOSPHATE SLUDGE	1	1,438	0	0.00
	AF CONTAMINATED COTTON RIGS	8	2,736	0.001	0.03
	AF FOOTWEAR WASTE	1,669	4,934	0.428	6.03
	AF PROCESS WASTE (23.1)	323	3,434	0.056	1.17
	AF FILTER MEDIUM (36.2)	2	3,507	0	0.01
	AF SOLID WASTE MIX (37.3)	1,593	2,777	0.219	5.76
	AF RUBBER & FOAM WASTE	69	4,608	0.016	0.25
	AF PAPER MILL PLASTIC WASTE	1,797	3,396	0.309	6.50
	AF PALM SHELL AND FIBRE	489	3,499	0.087	1.77
	AF MULTILAYER PLASTIC WASTE	1,145	3,617	0.21	4.14
	AF GLASS FIBRE	17	2,426	0.002	0.06
	AF LATEX POLYMER CAKE	459	3,884	0.094	1.66
AF GRINDING SLUDGE	10	646	0	0.03	
AF SHREDDED RDF < 40MM	5,377	3,034	0.82	19.44	
KILN SUM/AVG	27,660	3,280	4.584	100.00	

Waste Utilisation & Management: Waste as Raw Material



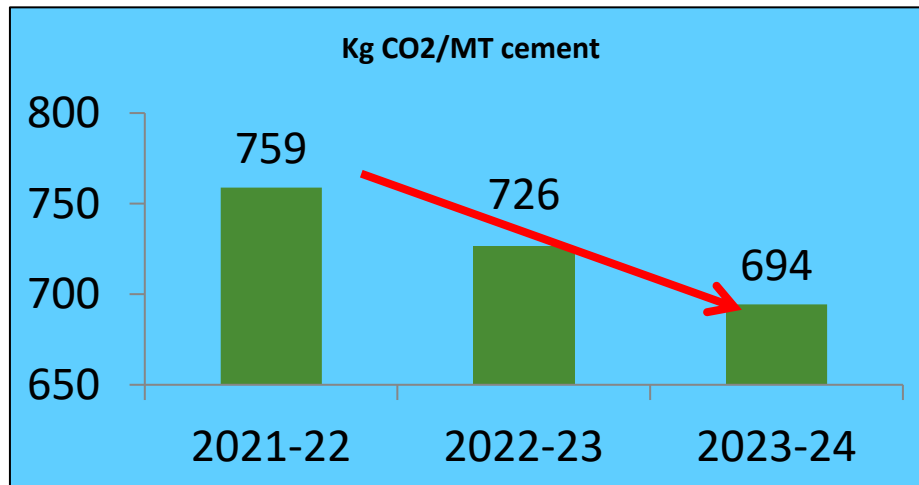
Year	Waste as Raw material	Quantity (MT)	Replaced Material	Waste as % Raw material
2021-22	0	0	0	0
2022-23	BROKEN POTS	1036	Dry Fly ash	0.057
2023-24	BROKEN POTS	43	Dry Fly ash	0.0012
	BALLISTIC SAND	6	Dry Fly ash	0.0002
	ETP SLUDGE	29	Limestone	0.0008
	PROCESS SLUDGE	11	Dry Fly ash	0.0003
	REDMUD	546	Feldspar	0.0147
	Total	635		0.0171

Embracing of Renewable energy sources:

- Implementation pilot project of 3.0MW renewable solar power plant in line.
- Usage of bio-gas in industrial canteen.
- Solar water heater in dormitories.

Increased clinker substitution rate:

- Fly ash addition in PPC to 35.0 %(within BIS norms)
- Clinker factor reduced to 0.8264



Fossil fuel reductions and increased use of alternative fuels

- Increasing AFR consumption from 4.69% to 15% on TSR basis.
- Utilising alternate raw material to 0.01% this year & to increase it to 2 % in next 3 years.
- Implementation of alternate liquid fuel to further increase TSR to 20%

Increased dispatches through rail . >98% clinker dispatches through railway wagon loading

Raw materials trucks (Coal, laterite iron-ore etc.) loading with cement bags on return.

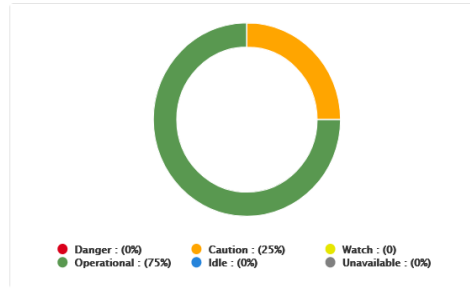
Dry fly ash bulkers are in return being used for bulk cement dispatches.

Procuring raw materials to nearby sources i.e. Feldspar from veerapuram which is <20 Km & Dry fly ash from Vijayawada.

Sl no	Section	Equipment	Installed Qty
1	Raw mill	RABH	4
2	Kiln	Preheater Fan	4
3	Cement Mill	Ball mill Pressing	6
4	Cement Mill	Ball mill Lifting	2
TOTAL			16

Chettinad cement , Dachepalli Work's ▾

Plant Health Status



Total machines: 4

Total Monitoring Locations: 16

Total Devices Disconnected: 0

Machine Name	Connected Devices	Machine Status	Vibration Trends	Action
Bag House Fan	4/4	Healthy	Normal	View Details
Ball Mill (Lift...	2/2	Healthy	Normal	View Details
Ball Mill (Pr...	6/6	Healthy	Normal	View Details
Pre Heater Fan	4/4	Caution	Minor Rise	View Details



Pre Heater Fan

Connected Devices: 4/4
Health Status: Caution

Observation: Health status of the machine is in caution zone.
Analysis: Spectrum analysis indicating 1x(13.BHz) at motor and fan bearings.
Recommendation: *Check for all foundation bolts for the looseness as general practice. *Inspect impeller condition for any accumulation, if required clean the fan impeller and implement dynamic balancing.

Machine Utilization

8 hours ▾

UpTime (99.67%)	IdleTime (0.00%)
Unavailable (0.33%)	

Notifications	Maintenance History	Observations	Documents
<div style="display: flex; justify-content: space-between; align-items: center;"> Items per page: 4 1 - 4 of 5 </div>			

Sensor: Fan DE (ad5486)

Last Updated: 04-04-2024 | 3:08:12 PM

Live Values

Horizontal Velocity (Z) (mm/s)	Axial Velocity (X) (mm/s)	Vertical Velocity (Y) (mm/s)
8.62	9.25	6.79
Total Acceleration (g)	Temperature (°C)	Sound (µB)
0.47	60.69	86.03

Alerts

- 🔔 Pre Heater Fan - ad5486 (Fan DE) Velocity A value 8.43 mm/s higher than set threshold of 7 mm/s at 04-04-2024 | 4:18:22 AM
- 🔔 Pre Heater Fan - ad5486 (Fan DE) Velocity A value 8.95 mm/s higher than set threshold of 7 mm/s at 03-04-2024 | 4:18:20 PM
- 🔔 Pre Heater Fan - ad5486 (Fan DE) Velocity A value 8.35 mm/s higher than set threshold of 7 mm/s at 03-04-2024 | 4:18:18 AM
- 🔔 Pre Heater Fan - ad5486 (Fan DE) Velocity A value 9.58 mm/s higher than set threshold of 7 mm/s at 02-04-2024 | 4:18:14 AM

All
1 Year
1 Month
1 Week
Today
4/4/2024, 1:39:00 PM
4/4/2024

EMS System : SAP Specific Power & Production Report



Power Consumption Report

Date: 31.03.2024
Plant: DW01

Work Centre	Work Center...	Material	Material Des...	Parameter	Power Target ...	Run Ho...	Down H...	Productio...	Rate OD ...	Mat. Units O...	Clk. Units O...	Cem. Units ...	Run Hours M...	Down Hor
Kiln	U1KILN	9103010011	CLINKER	KILN AUXILLARY	1.800	23.980	0.000	8,628.000	359.800	1.394	1.394	1.274	741.150	
Kiln	U1KILN	9103010011	CLINKER	COAL FIRING	0.800	23.980	0.000	8,628.000	359.800	1.071	1.071	0.979	741.150	
Kiln	U1KILN	9103010011	CLINKER	AUXILLARY AND OTHERS	1.200	23.980	0.000	8,628.000	359.800	1.232	1.232	1.126	741.150	
Kiln	U1KILN	9103010011	CLINKER	BAG HOUSE FAN	2.000	23.980	0.000	8,628.000	359.800	2.723	2.723	2.489	741.150	
Kiln	U1KILN	9103010011	CLINKER	COOLER AUXILLARY	0.000	23.980	0.000	8,628.000	359.800	0.000	0.000	0.000	741.150	
Kiln	U1KILN	9103010011	CLINKER	COOLER ESP FAN	1.000	23.980	0.000	8,628.000	359.800	0.752	0.752	0.687	741.150	
Kiln	U1KILN	9103010011	CLINKER	COOLER FANS	5.800	23.980	0.000	8,628.000	359.800	5.944	5.944	5.433	741.150	
Kiln	U1KILN	9103010011	CLINKER	KILN MAIN DRIVE	1.600	23.980	0.000	8,628.000	359.800	1.738	1.738	1.589	741.150	
Kiln	U1KILN	9103010011	CLINKER	PRE-HEATER FAN	5.000	23.980	0.000	8,628.000	359.800	6.465	6.465	5.909	741.150	
Kiln	U1KILN	9103010011	CLINKER	RABH AUXILLARY	0.600	23.980	0.000	8,628.000	359.800	0.427	0.427	0.390	741.150	
SUBTOTAL(M)	CLINKER				19.800	23.980	0.000	8,628.000	359.800	21.746	21.746	19.876	741.150	
SUBTOTAL(W)	U1KILN				19.800	23.980	0.000	8,628.000	359.800	21.746	21.746	19.876	741.150	
SUBTOTAL(U)	L1-Kiln				19.800	23.980	0.000	8,628.000	359.800	21.746	21.746	19.876	741.150	
TOTAL	Kiln				19.800	23.980	0.000	8,628.000	359.800	21.746	21.746	19.876	741.150	
Cement Mill	U1CMML1	C201999	OPC 43-CHETT	AUXILLARY & OTHERS	3.500	5.480	0.000	1,272.570	232.221	4.032	4.032	4.032	64.110	
Cement Mill	U1CMML1	C201999	OPC 43-CHETT	BALL MILL MAIN DRIVE	10.900	5.480	0.000	1,272.570	232.221	12.327	12.327	12.327	64.110	





Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

Chettinad Cement Corporation Private Limited
 Kallur Works, Sangam-K
 Bhakthampalli (PO)
 Chincholi (TQ)
 Kalaburagi (DT) 585 305
 Karnataka
 India

Holds Certificate No: **FM 652747**
 and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

Mining of Limestone, Crushing, Clinkerization, Cement Grinding, Packaging & Dispatch of Cement & Clinker and Generation & Export of Power.

For and on behalf of BSI:

Signature
 Theuns Kotze, Managing Director Assurance - IMETA

Original Registration Date: 2016-07-22 Effective Date: 2022-07-22
 Latest Revision Date: 2022-12-06 Expiry Date: 2025-07-21

Page: 1 of 2

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This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract.
 An electronic certificate can be authenticated [here](#).
 Printed copies can be validated at [www.bsi.com/ClientDirectory](#) or telephone +91 11 2932 9000.
 Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2015 requirements may be obtained by consulting the organisation.
 This certificate is valid only if provided original copies are in complete set.
 Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlton, Milton Keynes MK9 3PR. Tel: +44 345 080 9000
 BSI Assurance UK Limited, registered in England under number 7805221 at 389 Chiswick High Road, London W6 4AL, UK.
 A Member of the BSI Group of Companies.





Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Chettinad Cement Corporation Private Limited
 Kallur Works, Sangam-K
 Bhakthampalli (PO)
 Chincholi (TQ)
 Kalaburagi (DT) 585 305
 Karnataka
 India

Holds Certificate No: **EMS 652748**
 and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

Mining of Limestone, Crushing, Clinkerization, Cement Grinding, Packaging & Dispatch of Cement & Clinker and Generation & Export of Power.

For and on behalf of BSI:

Signature
 Theuns Kotze, Managing Director Assurance - IMETA

Original Registration Date: 2016-07-22 Effective Date: 2022-07-22
 Latest Revision Date: 2022-12-06 Expiry Date: 2025-07-21

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Certificate of Registration

OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM - ISO 45001:2018

This is to certify that:

Chettinad Cement Corporation Private Limited
 Kallur Works, Sangam-K
 Bhakthampalli (PO)
 Chincholi (TQ)
 Kalaburagi (DT) 585 305
 Karnataka
 India

Holds Certificate No: **OHS 652749**
 and operates an Occupational Health and Safety Management System which complies with the requirements of ISO 45001:2018 for the following scope:

Mining of Limestone, Crushing, Clinkerization, Cement Grinding, Packaging & Dispatch of Cement & Clinker and Generation & Export of Power:
 [Previously certified to BS OHSAS 18001:2007 since 22/07/2016]

For and on behalf of BSI:

Signature
 Theuns Kotze, Managing Director Assurance - IMETA

Original Registration Date: 2021-03-11 Effective Date: 2022-07-08
 Latest Revision Date: 2022-12-06 Expiry Date: 2025-07-07

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CII & NCCBM is the best platform where knowledge is being exchanged periodically.

- Attended various training programs (Optimizations in mills & pyro)

Knowledge sharing platforms for case study & benchmarks.

Implemented some ideas shared through these platforms.

- Low pressure air compressor for fly-ash loading & unloading
- How to identify cooler losses & rectify.
- Major process fan optimization.
- Booster pump for water pumping.



Chettinad
cement

Thank You

Contact:

Mr. N. Shyam Prasad :

PH: +919121022619

shyamprasad.sn@chettinadcement.com

Mr. A. Ramesh

PH:+919100074126

ramesh.a@chettinadcement.com

Mr. Sanjeev Kumar

PH: +918105089691

14049@chettinadcement.com