

Kapilas Cement Manufacturing Works

A Dalmia Bharat Group Company



**WALKING
THE GREEN
PATH**

DALMIA CEMENT
WORLD'S GREENEST CEMENT



Dalmia
Bharat Group

**A GREEN PRO
CERTIFIED CEMENT**

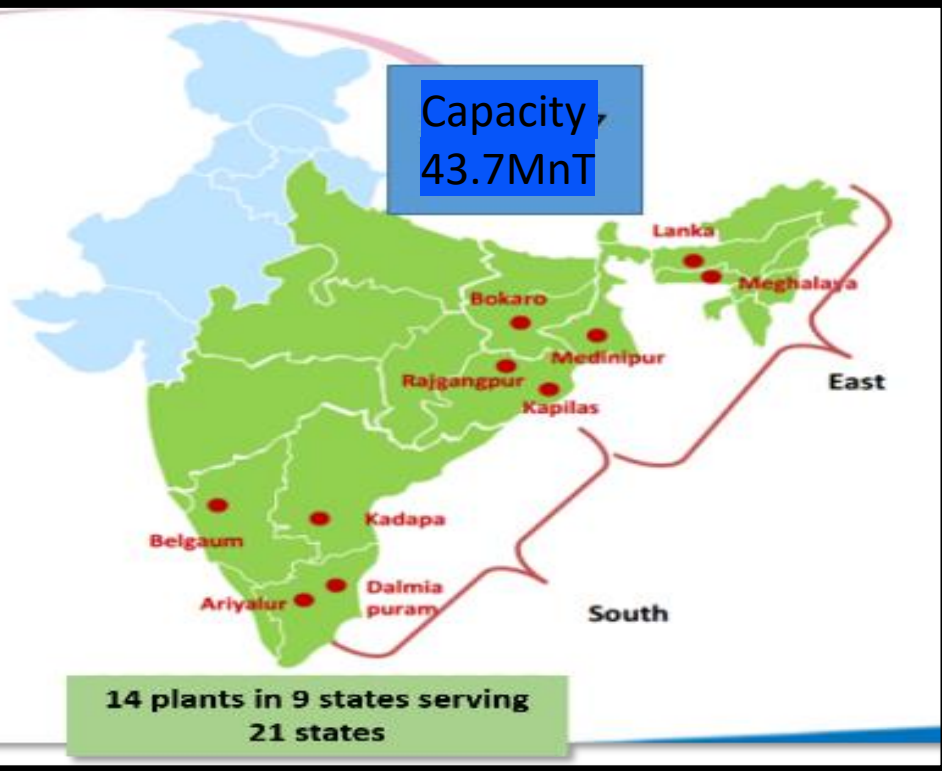
Hearty Welcome to All

**CIJ National Award for Excellence in
Energy Management**

13th Sept – 15th Sept, 2023

**Presented by
Ahmer Ali Khan**

BRIEF INTRODUCTION



- **Kapilas Cement Manufacturing Works** (here-in-after referred to as **KCMW**), a Dalmia Bharat Group Company, is operating a **Cement Grinding Unit** having installed capacity of **1.7 MTPA** in Odisha, commissioned on **28th March, 2008**.
- A **Captive Solar PV Power Plant of 2.5 MW** commissioned on **28th March, 2014**, operating under **REC** mechanism.
- Presently **Expansion of our Plant from 1.70 MTPA to 4.2 MTPA** by installing another **Cement Mill of 2.5 MTPA** completed in **June, 2021**.
- A **Captive Solar PV Power Plant of 17.5 MW Ground mounted Solar PV Power Plant** in **FY 21** to meet the **Captive power requirement of 4.2 MTPA Cement Grinding Units**. Expected date for completion is **Dec, 2021**
- Predominantly manufacturer of **Portland Slag Cement (PSC)** and **Composite Cement (CC)** with **100% road dispatches**.
- **Certification for Integrated Management System [ISO 9001:2015, 14001:2015 & 45000:2018]** and **Energy Management System ISO 50001: 2011** obtained from **TUV NORD**.

- ✓ **4th Largest Cement Manufacturer in India**
- ✓ **43.7 Mn Ton of Installed Cement capacity**
- ✓ **178 MW of Thermal Captive Power Plant**
- ✓ **100 MW Solar Captive Power Plant &**
- ✓ **71 MW Waste Heat Recovery System**

CERTIFICATIONS



ISO 9001:2015



ISO 14001:2015



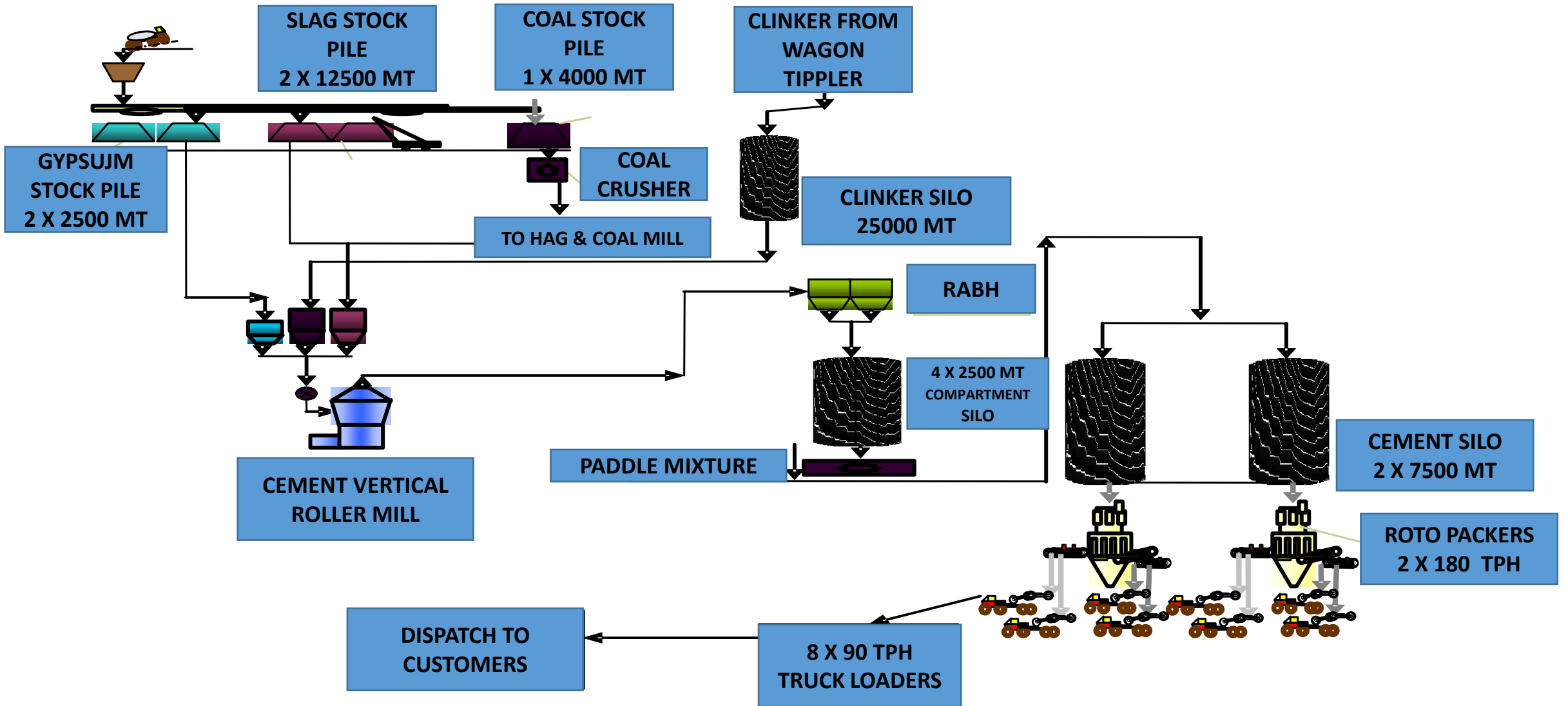
ISO 45001:2018



ISO 50001:2011

Certification for IMS (QMS, EMS, OH & S and Energy) from TUV NORD

Process Flow Diagram- Cement Manufacturing



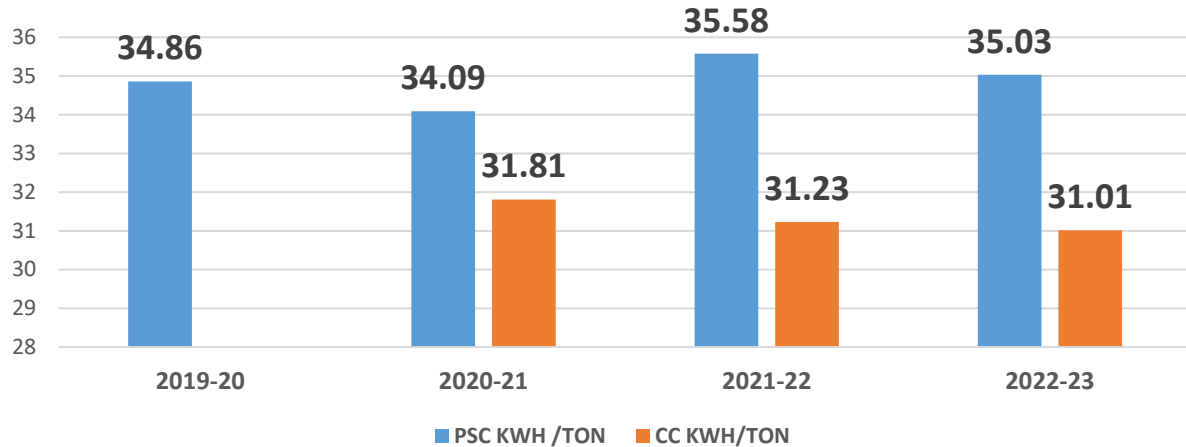
MAJOR ACHIEVEMENTS IN SUSTAINABILITY

Several innovative projects undertaken to achieve following milestones:

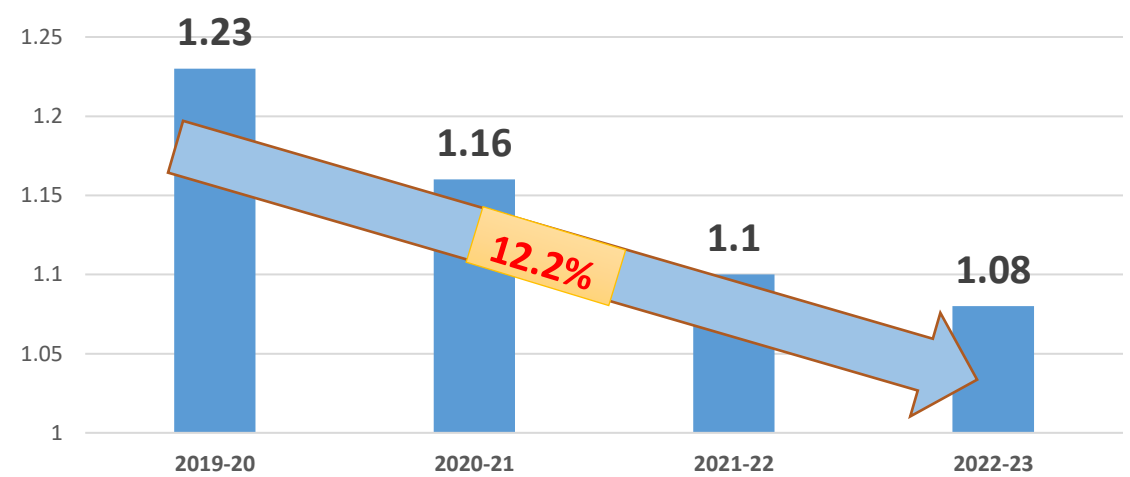
- ✓ 1%, 2.5% & 3.0% **reduction of Electrical Energy** in the year of 2020-21 (35.5 KWH/T), 2021-22 (34.9 KWH/T) & 2022-23 (34.73 KWH/T) over 2019-20 (35.8 KWH/T).
- ✓ 6.8 %, 11 % & 23% **reduction of Thermal Energy** in the year of 2020-21 (68 Kcal/Kg cement), 2021-22 (64.9 kcal/kg cement) & 2022-23 (55.75 kcal/kg cement) over 2019-20 (73 kcal/kg cement).
- ✓ 6.67 % ,14 % & 29.3 % of the **total power consumption substituted by Captive Solar Power Plant** in Fy 20-21, 21-22 & 22-23 respectively.
- ✓ 6% of power replaced from **GTAM market i.e from solar , wind, hydro, biomass. 100% compliance done for RPO. Recommended for 3216 EScerts in M&V audit for PAT cycle VI.**
- ✓ 33 % of the **total power consumption substituted by Open Access from our own GPP(WHRS)** in FY 22-23
- ✓ 1.27 %, 7.9% **reduction in Carbon Foot Print** in FY 2021-22 (389 KgCO₂/ton),FY 2022-23 (363 KgCO₂/ton) over 2020-21 (394 KgCO₂/ton)
- ✓ **Reduction of Clinker factor** upto 30% by optimizing slag addition in PSC upto 67% and **manufacturing Composite Cement** in place of PPC with use of both Dry Fly Ash and B F Slag; thus maintaining Clinker factor @45% in place of PPC of 62% & reduction in both Sp Thermal & Elec Energy Cons.
- ✓ **Green belt developed** over 33% of the total area, i.e. over 115 Acres, with 1.679 Lacs trees planted
- ✓ **Presently 153% Water Positive Unit. 100% utilization of harvested rain water achieved** for Process & Domestic consumption, except for drinking. **Utilization of treated STP water** for Green belt, horticulture & dust suppression purpose.

Benchmark: Where We Are ..Where To Go...

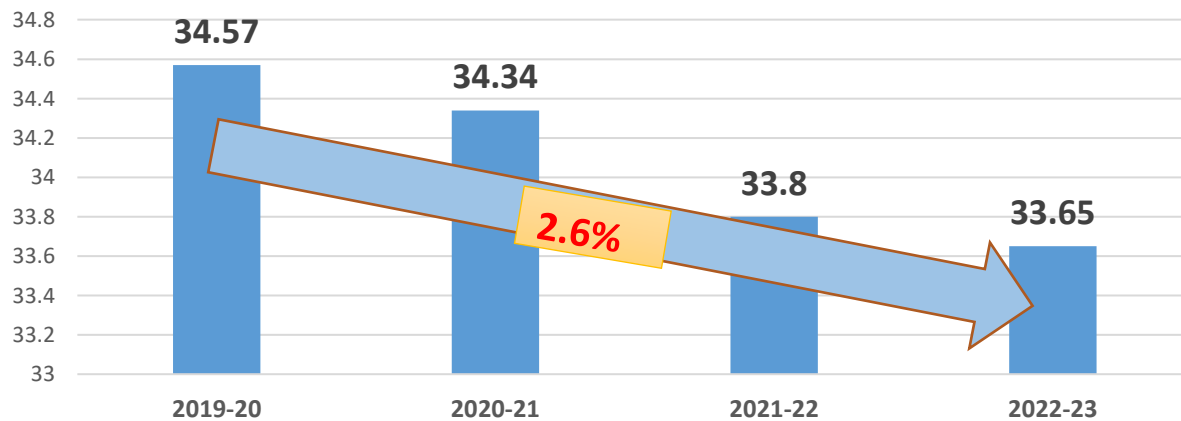
QUALITY WISE POWER KWH/TON



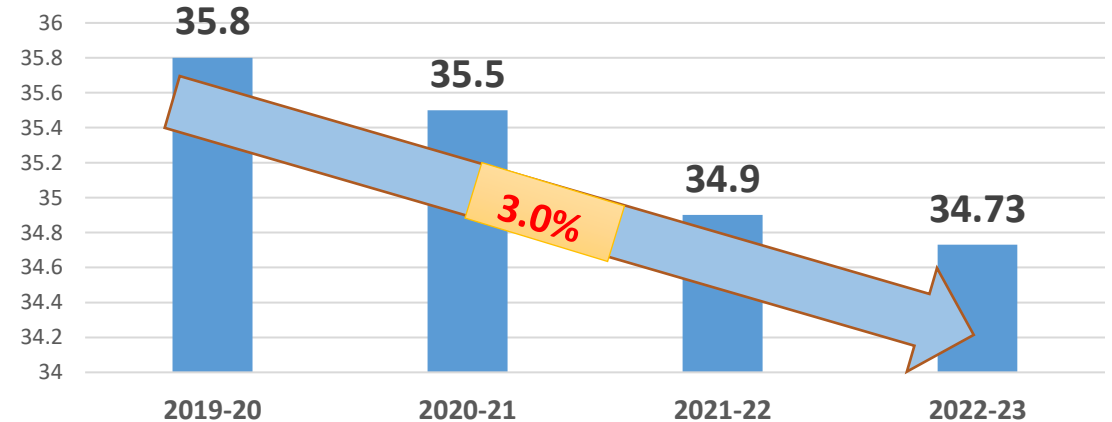
PACKING POWER KWH/TON



GRINDING POWER KWH/.TON

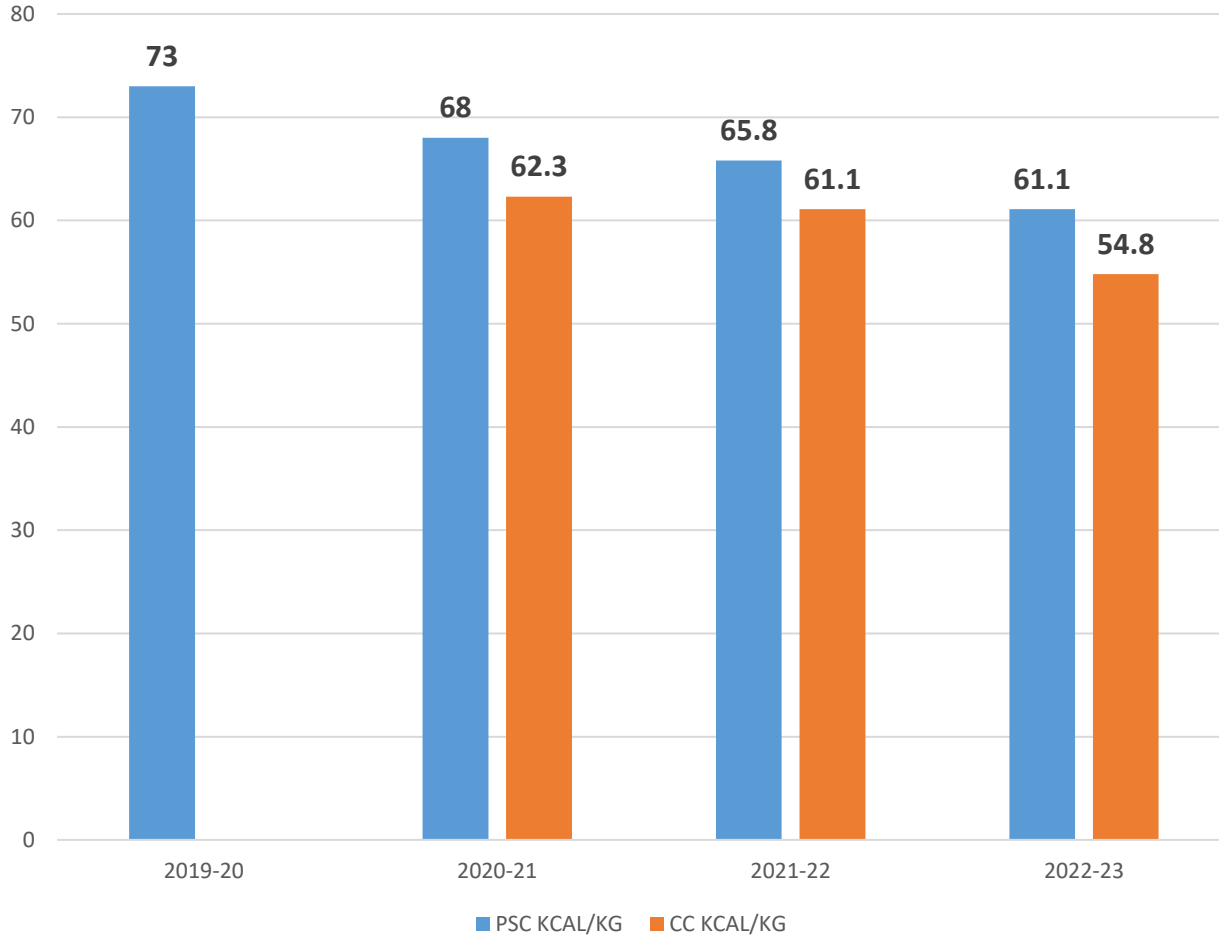


OVERALL KWH/TON

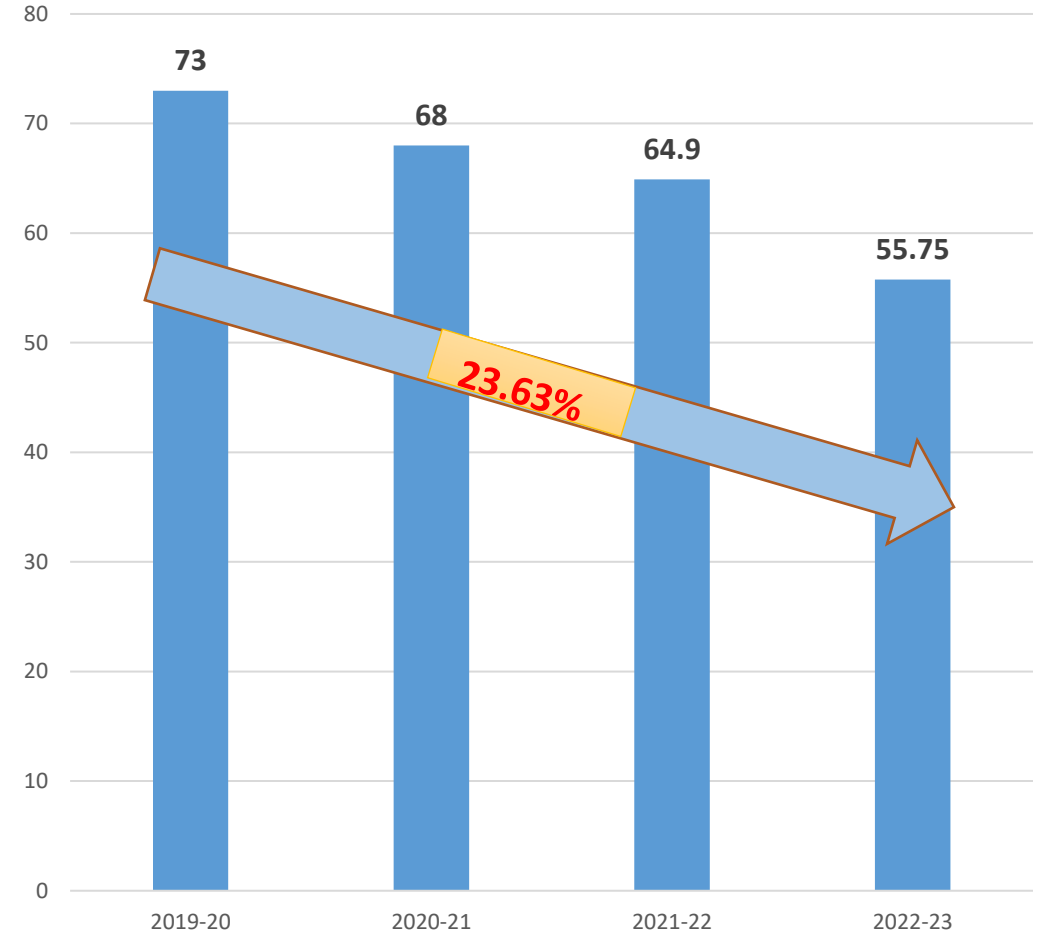


Benchmark: Where We Are ..Where To Go...

QUALITY WISE THERMAL ENERGY KCAL/KG

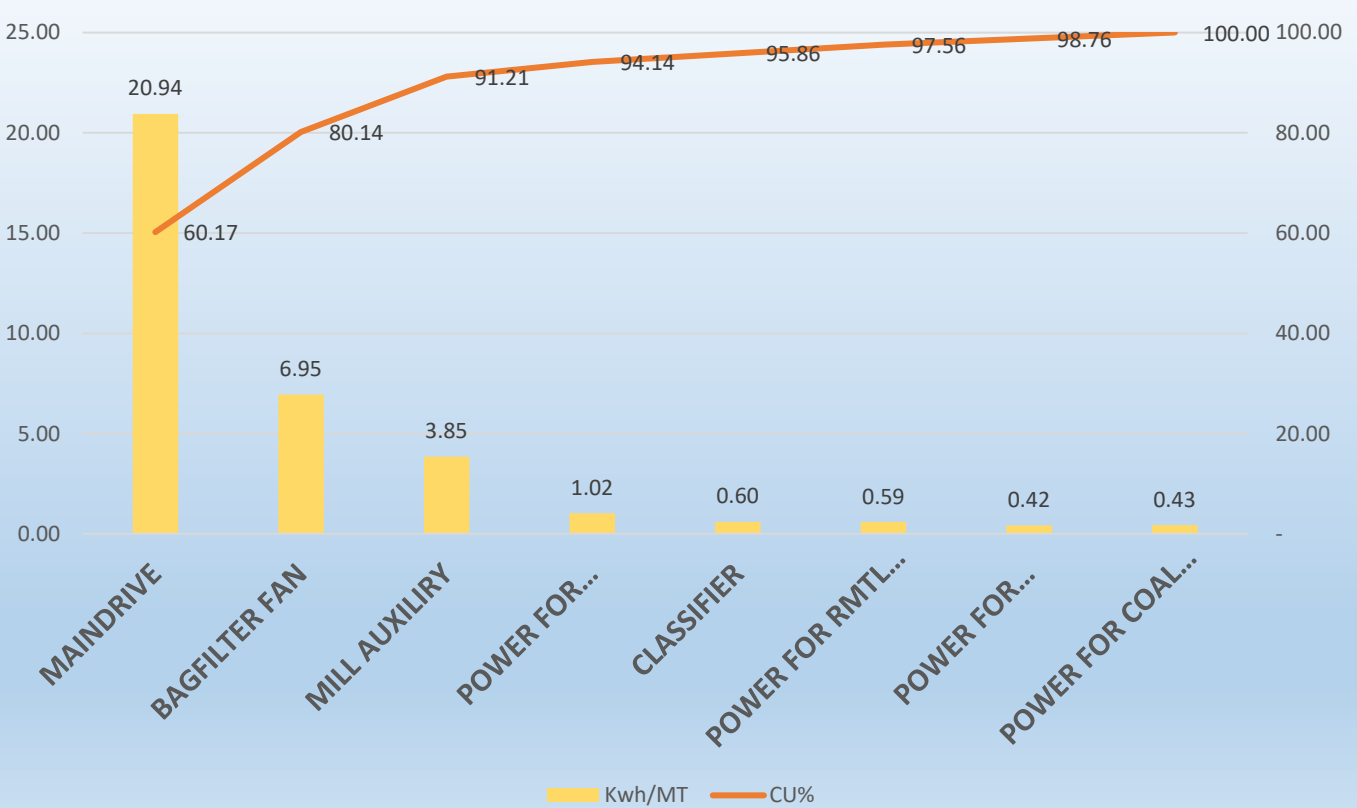


OVERALL KCAL/KG

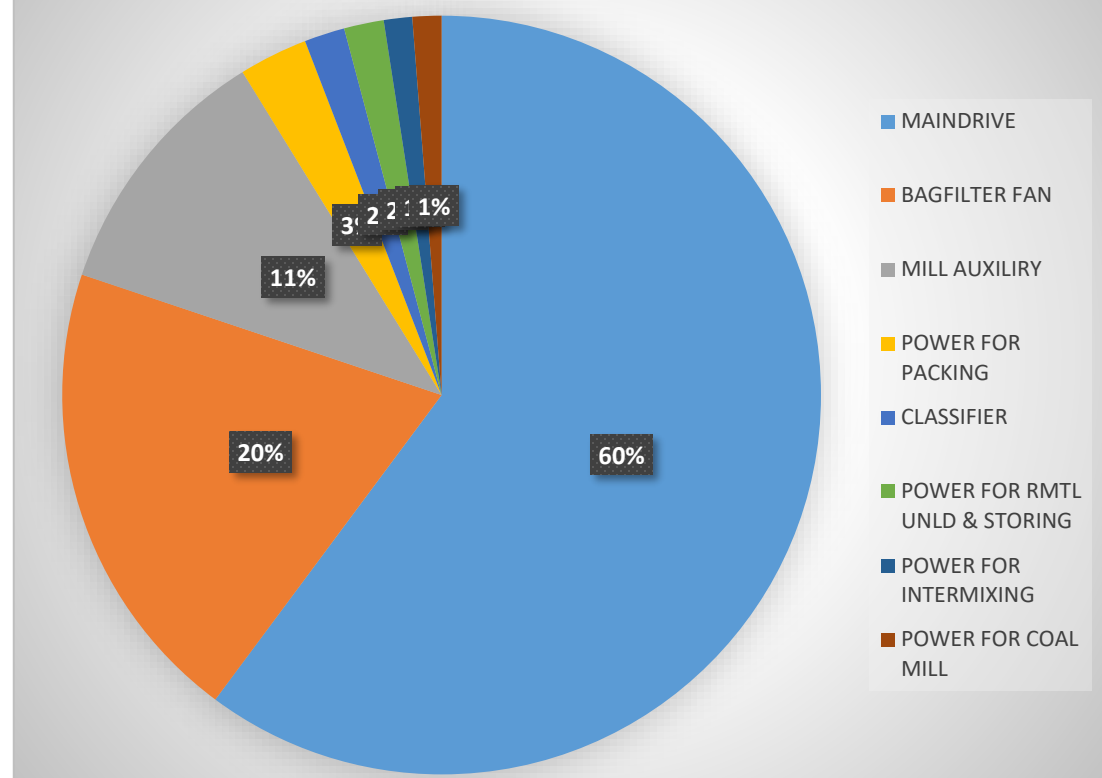


Benchmark: Where We Are ..Where To Go...

FY23 SEC Contributor



Kwh/MT



ENERGY CONSERVATION PROJECT IMPLIMENTED

No of Project Completed



51 Nos.

Cost Saving Achieved



1966.74
INR Lacs

Electrical Energy Saved



393
Lacs kWh

Thermal Energy Saved



44947
M Kcal

Project With Nil Investment



21 Nos

Investment Made



7426
INR Lacs

Energy Conservation Actions : Without Investment

No	Title of Project	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Saving (INR - Lacs)
1	<i>Both Packer bag cleaning blower stop when respective radial/tangential belt not running</i>	18-19	1.98	11.9
2	<i>Switching of 2 no's of transformer of solar power plant during night hrs.</i>	18-19	0.29	1.8
3	<i>Replacement of 531BC3 and 531BC4 motor from 45 KW to 37 Kw</i>	18-19	0.34	2.1
4	<i>Replacement of 491BC3 motor from 45 KW to 37 KW</i>	19-20	0.11	0.7
5	<i>To stop the Compressor of Packing plant and utilize compressor of CVRM</i>	19-20	2.7	2.4
6	<i>Cooling tower fan to be stopped and Temperature sensor installed to reduce running hour of fan.</i>	19-20	0.21	1.3
7	<i>Packer Interlock logic modified for reduction of idle running</i>	19-20	2.16	13

Energy Conservation Actions : Without Investment

No	Title of Project	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Saving (INR - Lacs)
8	<i>Installation of belt starvation switch and development of logic to minimize idle run of belt conveyor</i>	20-21	0.27	1.6
9	<i>Ventury removal from Coal Mill ID Fan</i>	20-21	0.41	2.4
10	<i>Packing House Compressor & MC Silo compressor to be connected with Bag House compressor</i>	20-21	1.1	6.6
11	<i>Reduced power consumption during CVRM mill heat-up & cooling time</i>	21-22	0.05	0.3
12	<i>Removal of damper of ID fan motor</i>	21-22	4.53	2.71
13	<i>Optimization of Compressor air use and stopping of two numbers of Auxiliary compressor</i>	21-22	1.81	1.09
14	<i>Switching off two no's of distribution transformer</i>	22-23	0.44	0.26
15	<i>Conversion DELTA TO STAR for 10 no's of motors</i>	22-23	4.53	2.72
16	<i>Replacement of 11 no's of under loaded motors with lower capacity motor</i>	22-23	7.55	3.62
TOTAL SAVINGS (Without Investment) - A			28.48	142

Energy Conservation Actions : Without Investment

No	Title of Project	Year	Annual Thermal Saving (M KCal)	Annual Thermal Saving (INR - Lacs)
17	<i>Slag to be stored in shed in rainy season & to be stored in outside shed in summer season for reduction in heat consumption</i>	<i>On going</i>	44947	36.97
18	<i>Reduction of False air Across the system limited to 12%</i>	<i>On going</i>		
19	<i>Master roller sealing arrangement for restriction of false air</i>	<i>19-20</i>		
20	<i>Reduction on coal mill residue on 90 Micron</i>	<i>19-20</i>		
21	<i>Reduction in mill inside water spray</i>	<i>22-23</i>		
	TOTAL SAVINGS (Without Investment) - B		44947	36.97
	TOTAL SAVINGS (Without Investment) A+B (Electrical & Thermal Energy)			51.78

Energy Conservation Actions : With Investment



No	Title of Project – Power Saving	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Cost Saving (INR - Lacs)	Investment Made (INR - Lacs)
1	Installation of VFD for stacker belt conveyor	18-19	0.06	3.6	4.5
2	To Stop 591FNB air slid fan by modifying bag filter discharge chute	18-19	0.03	2	0.3
3	Classifier bottom bearing cooling arrangement modification	18-19	2.6	155.9	1.5
4	Cooling tower one no of pump stop by modify CVRM motor O/L water direct discharge to Tower	18-19	0.22	13.3	0.8
5	Three nos of 50KVA lighting energy saving device installation	18-19	0.42	25.2	4.5
6	Installation of VFD for L21BC1	19-20	0.04	2.1	3.5
7	Installation of new GRR under buy back scheme with better speed regulation	19-20	0.68	40.5	8
8	Installation of VFD for coal conveying blower 1	19-20	0.03	1.8	2
9	Installation of VFD for coal conveying blower 2	19-20	0.03	1.8	2

Energy Conservation Actions : With Investment

No	Title of Project – Power Saving	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Cost Saving (INR - Lacs)	Investment Made (INR - Lacs)
10	Replacement of 300 nos of 70watt HPSV lamp with 32watt LED lamp	20-21	0.42	2.5	3.9
11	Up-gradation of mill classifier and replacement of new design tire and liner along with Optimization of Mill	20-21	27	162	460
12	Installation of VFD for Packing plant bag filter fan 1 and 2	20-21	4.32	26	9
13	Installation of SPRS FOR 2500KW ID fan motor	20-21	20.25	121.5	86
14	Star feeder up-gradation	20-21	4.05	24.3	10
15	Replacement of existing pump by Grundfos Energy efficient pump as per pump energy audit	21-22	0.88	5.3	10.4
16	Multi-compartment slag bin extraction air slide sized changed from 300 mm to 400 mm (To increase the TPH & power reduction).	21-22	0.14	0.8	3.5
17	Packer Bin to packer hopper- Single discharge to be modified to double discharge				
18	Blower Installation at Packing Plant for body cleaning purpose & reduction in compress air consumption				

Energy Conservation Actions : With Investment

No	Title of Project – Power Saving	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Cost Saving	Investment Made
				(INR - Lacs)	(INR - Lacs)
19	Louver ring design modification	21-22	2.93	17.6	11.5
20	Replacement of existing RAL by 400x400mm against 300X300mm of Wagon tippler bag house	21-22	0.36	2.2	4.5
21	Capacity up gradation of OPC air slide of MC silo	21-22	1.51	9.1	2
22	Installation of 3 no's of VFD for mill feeding circuit	21-22	0.85	5.1	4
23	3 no's of VFD installation for packing plant bag filter fan	22-23	1.81	10.9	10
24	Installation of 14.6MW SOLAR PV CPP	22-23	266	1375	6700

Energy Conservation Actions : With Investment

No	Title of Project – Power Saving	Year	Annual Electrical Saving (Lacs kWh)	Annual Electrical Cost Saving	Investment Made
				(INR - Lacs)	(INR - Lacs)
25	Automation of Lumps Breaking of Dump slag at Wagon Tippler (In Case Crusher is not installed at source)	22-23	1.44	8.64	40
26	VFD installation in Auxillary Bag filter Clilnker Silo to Hopper feed, Silo to Packer (164KW)	22-23	1.48	8.88	12
27	Screw Compressor to be installed alongwith a Dryer (spare Compressor of BCW to be used)	22-23	4.5	27	10
28	Installation of 11KW, 12 RPM starfeeder Geared motor in place of 7.5 KW, 8 rpm geared motor.	22-23	10.91	65.46	8
29	Reduction in flase air accross mill circuit by 2%'By providing sealing in rocker arm	22-23	1.16	6.96	3
30	Installation of Coal Mill dynamic Separator	22-23	11.74	70.44	40
TOTAL SAVINGS (With Investment) – Electrical Energy			365	1824.08	7426

Innovative Project: 1

❖ **Project:** Installation of 17.5 MW DC/ 14.6 MW AC GROUND MOUNTED SOLAR PV CPP

❖ **Objective:** Maximise replacement of Green power

Scope:

- 1) There were open land parcels available to install further solar.
- 3) Installation capacity was in line with Govt rules .
- 4) We have scope to replace 40% of our total power from Solar CPP.

Action taken:

- We have install 14.6 MW solar power CPP with in our plant
- We optimise cement plant operation with respect to solar power generation i.e we planned our production maximum during morning 6 hrs to 18 hrs.
- By seeing the silo stock we used to stop cement plant during evening hrs, thus our replacement of solar power increases.



Benefits :

- Annual electrical energy expected is 2.66 Cr Kwh
- Annual Electrical Cost Saving **Rs. 13.75 Cr/Annum**

Innovative Project: 2

Project: Interconnection of Fine coal bin 1 and 2 to reduce start stop of coal mill and HAG, Zero water utilization in PSC grinding & stopping of one HAG in PSC & DSP grinding.

Objective: Reduction in Heat & power Consumption.

Scope:

There are two no.s of fine coal bin each capacity of 50 ton.

There were scope for interconnection of two bin to utilise fine coal stock available and not required to run separate HAG for coal mill

CVRM is equipped with two HAG for mill operation. Earlier we were running 2 nos of HAG through out the year. Now we are stopping one HAG in the month Feb-May.

Action taken :

1. Stock piling material management source wise specially in slag.
2. Interconnection of bin done with one screw conveyor.
3. Interlocks provided to optimise mill outlet temperature as per requirement



Benefits :

- SP power on cement reduced by **0.2 kWh/Ton**
- Heat consumption saved during this period **1800 MKcal**
- Total saving on account of heat & power is **Rs. 206 Lakh/Annum**

Innovative Project: 3

❖ **Project:** Conducted Motor load study and undertook replacement of under loaded motors across the plant
Objective: Reduction of specific power consumption.

✓ **Scope:**

- We have observed that stacker main belt conveyor running in less than 50% load during unloading from wagon tippler. Motor capacity was 200KW. Maximum load observed was 65% when stacker at eight number pile.
- We have spare 160KW available whose shaft size matching
- Hag coal weigh feeder agitator motor and cooling blower of screw compressor, reject belt conveyor replaced with lower capacity motor with spare motor available

✓ **Action taken :**

- Studied the motor running load & replaced with suitable lower KW motor as available in plant

✓ **Benefits :**

- Sp power on cement reduced by **0.11 kWh/Ton**
- Annual Electrical Cost Saving **Rs. 1.15 Lacs**

511 BC-1 Current Reading with 200 KW motor			
SL No	Date	Current	KW=Current*415*0.8/1000, PF=0.8
1	11.04.2017	115	66.13
2	11.04.2017	117	67.28
3	12.04.2017	118	67.81
4	12.05.2017	116	66.70
5	13.05.2017	110	63.25
6	13.05.2017	118	67.85
7	15.05.2017	112	64.37
8	15.05.2017	118	67.81
9	24.05.2017	114	65.51
10	25.05.2017	110	63.25
11	26.05.2017	115	66.13
		Total	726.10
		Avg	66.01
511 BC-1 Current Reading With 160 KW Motor			
1	29.05.2017	98	56.35
2	30.05.2017	96	55.20
3	31.05.2017	99	56.93
4	01.06.2017	97	55.78
5	01.06.2017	96	55.20
6	02.06.2017	100	57.50
7	02.06.2017	96	55.20
8	03.06.2017	97	55.78
9	05.06.2017	99	56.93
		Total	336.39
		Avg	56.07

Innovative Project: 4

- ❖ **Project:** Installation of belt weigher system for raw material feeding circuit belt conveyor.
- ❖ **Objective:** Reduction in Power Consumption by decreasing running hrs of belt conveyor.

Scope:

- 1) It was observed that feeding section belt conveyor were running in less than 60% to 70% of its designed capacity as a result running hrs of entire circuit increases.
- 2) Slag feeding from reclaimer to hopper running for 16 hrs, clinker feeding to hopper from silo running hrs was 11 hrs.
- 3) There are idle running of bagfilter fan and observed.

Action taken :

- 1) Installation of belt weigher system done for slag and clinker circuit and TPH counter given in CCR
- 2) Running hrs counter given in PLC SCADA to monitor feeding circuit running hrs.
- 3) Providing display screen for monitoring running hrs of each pump.



Benefits :

- Sp power on cement reduced by 0.18 kWh/Ton
- Annual Electrical Cost Saving Rs. 17.52 Lakh/Annum

Innovative Project: 5

Project: Reduction in specific power of packing plant by in house system optimisation

Objective: Reduction in Specific power Consumption.

Scope:

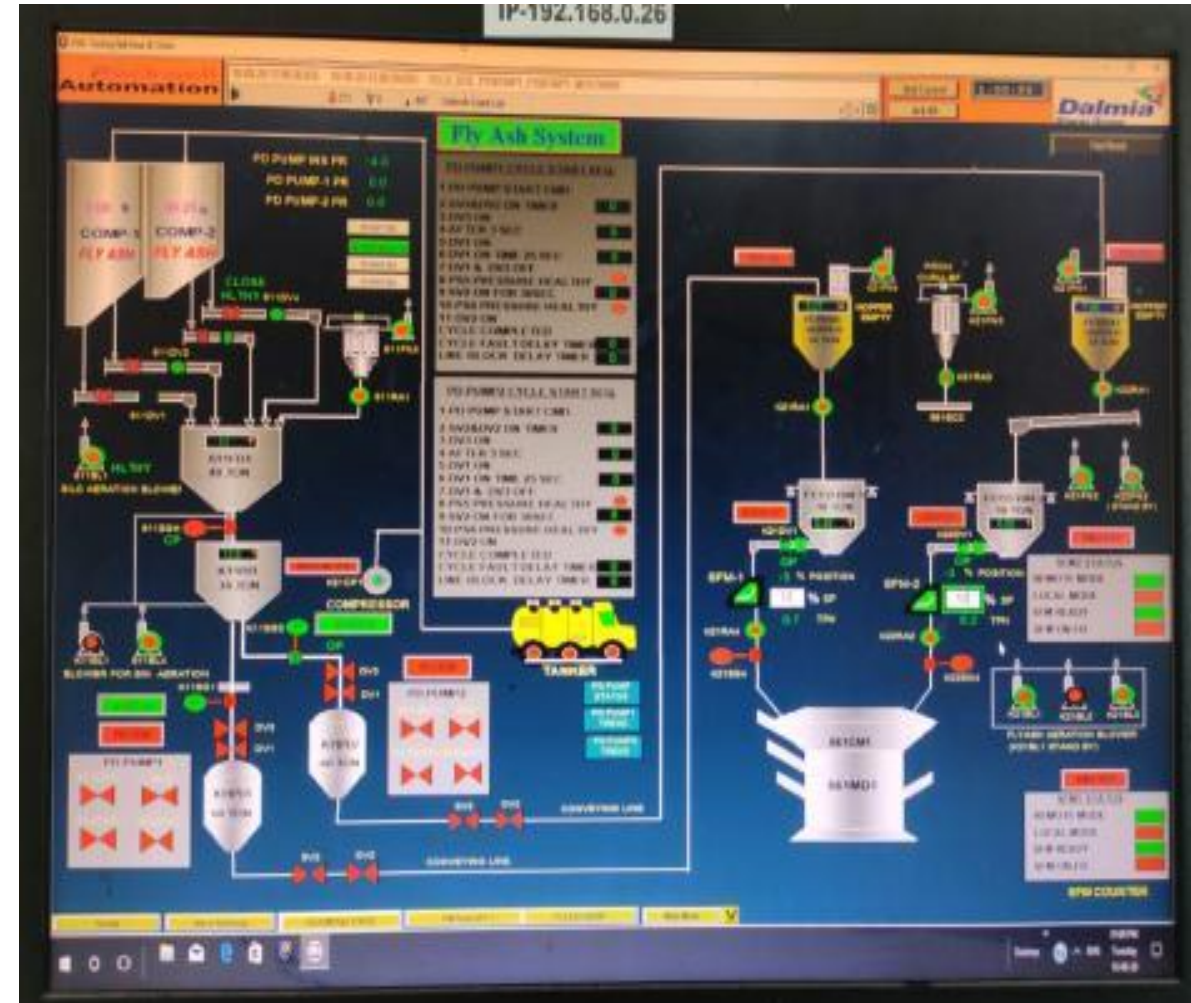
1. Packing plant main Auxilary bagfilter found running at 100% .
2. We found that even single belt running RPM is fixed.
3. Further we found that reciprocating compressor ruuning in unloading mode .

Action taken :

1. We have given interlock like 50% speed of fan during all the discharge belt stop, 75% speed during single belt running and 85% speed during two belt running .
2. We have interconnected Screw compressor of CVRM section and stopped reciprocating compressor at packing plant.

Benefits :

- Sp power on cement reduced by **0.16 kWh/Ton**



Digitization in Monitoring



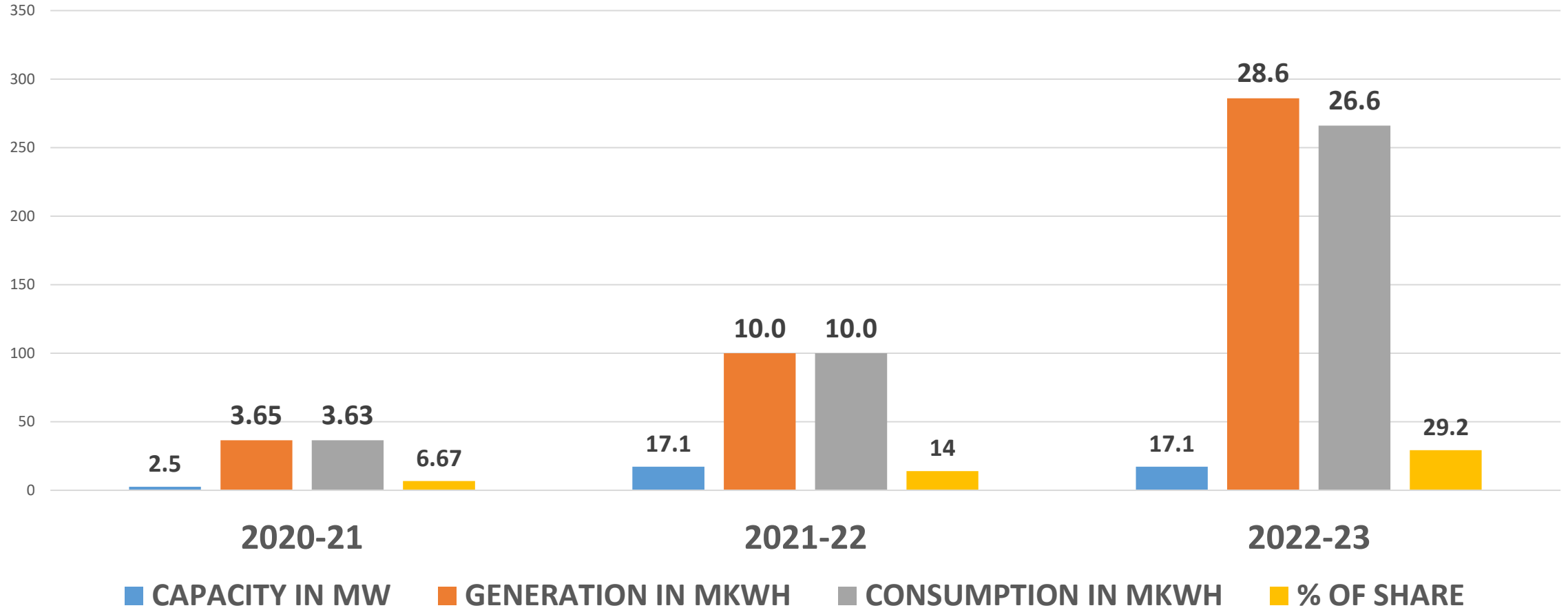
Ewatch system access from Computer



Ewatch system access from Mobile

Renewable Energy Usage From 17.1 MW Solar PV Power Plant

SOLAR POWER INSTALLED CAPACITY V/S GENERATION V/S CONSUMPTION V/S % OF SHARE
ON TOTAL CONSUMPTION



BEST PRACTICES TO OPTIMISE THE OPERATIONAL PERFORMANCE

Innovative Initiatives taken to optimize Generation despite degradation of Modules :

- ✓ Tilting solar modules two times in a year with trials at different angle on every season, i.e. Winter & Summer.
- ✓ Cleaning entire solar modules in 4 cycles in month in KCW instead of 2 Cycles suggested by OEM.
- ✓ *Regularly checking VOC of solar modules on every month and replacing faulty modules*



4 CYCLE CLEANING OF MODULES WITH MODULE CLEANING SYSTEM



MODULES TILTED AT 30 DEG



MODULES TILTED AT 10 DEG

BEST PRACTICES TO OPTIMISE THE OPERATIONAL PERFORMANCE

- ✓ Condition monitoring of transformer, HT and LT switch gear and all the repairs or rectification done in the evening hrs. with out affecting plant performance. Thus 100% up-keep achieved in last year in both units.
- ✓ Cleaning and replacing air filters of Inverter at regular interval and also arrangement done for better cooling . Thus increased efficiency of inverters.
- ✓ Switching of power transformer of solar power during night hours resulting in saving of 28,800Kwh/year
- ✓ Improved housekeeping & Deweeding of grass and unwanted tress so as to provide safer path for cleaning of modules and attending breakdown.
- ✓ *Auto water spray system implementated which given us generation increase of 16,000Kwh in two months April and May,18 which 2.2 % more.*



BEST PRACTICES TO OPTIMISE THE OPERATIONAL PERFORMANCE

- ✓ *Planting tress like water melon, pineapple for cooling of solar modules during summer season.*
- ✓ *We have planted 10,000 numbers of pineapple tress.*
- ✓ *Water used for Module cleaning is being reused for plantation in Solar Power Plant.*
- ✓ *Necessary construction of drains done so as to reuse cleaning water and Rain Water.*



SOLAR PLANT EXPANSION PLAN AT KCW

SI No	RT/GM	Sites	Area (acres)	Capacity (DC, kWp)	Capacity (AC, kWp)
1	GM	Block B	15.84	5690	4800
2	GM	Block C1	33	11850	9800
		Total	49	17,540	14,600



Renewable Energy Usage Continues.....



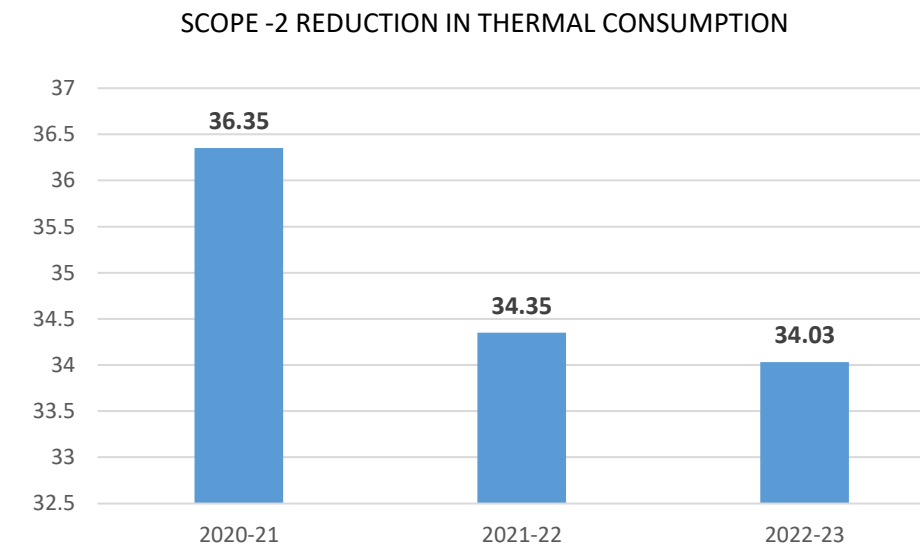
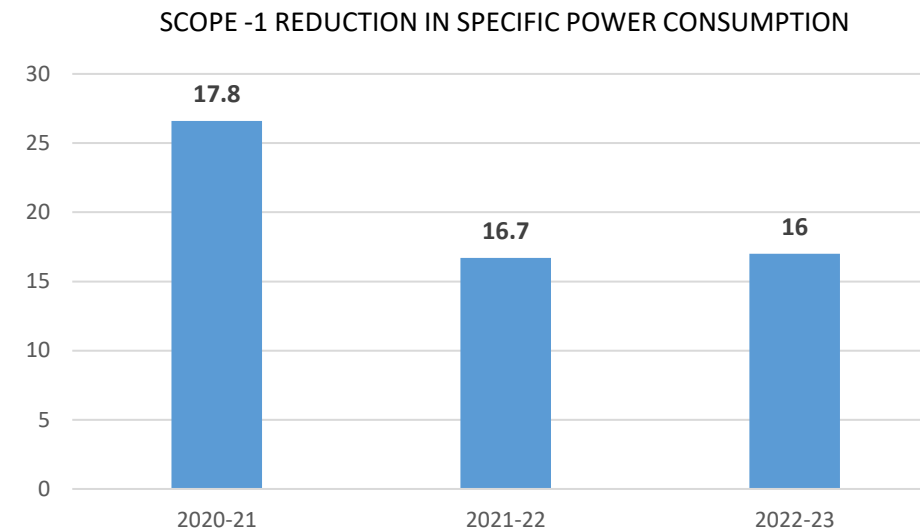
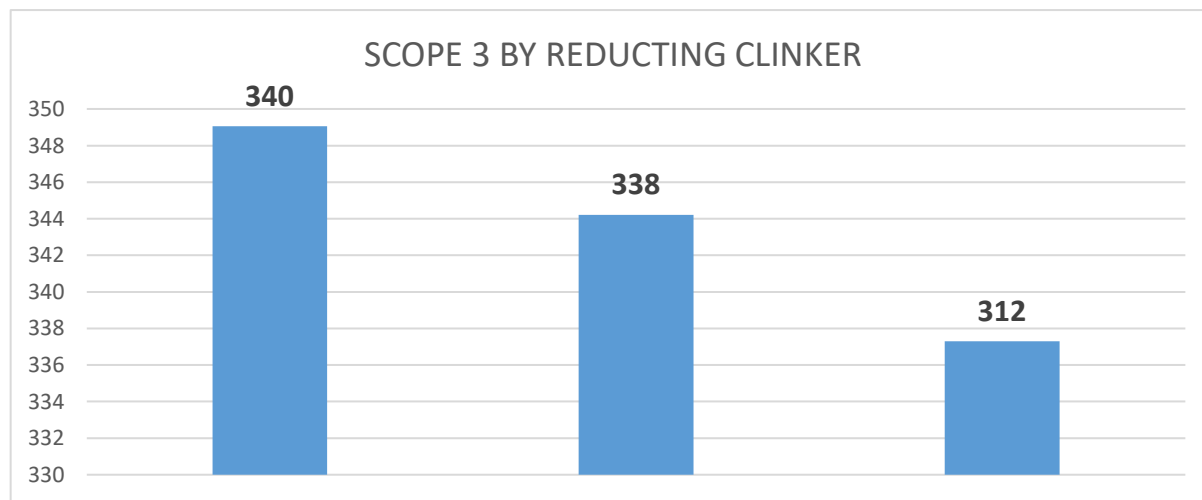
Clean Energy Solutions Solar study lamps & Clean cooking Households Fuel efficient stove distributed to nearby village to promote use of renewable Energy

Installation of 125 no.s 50watt Solar Street light for plant area lighting and main road lighting

GHG INVENTORIZATION – CARBON FOOTPRINT REDUCTION

❖ Initiatives to reduce carbon footprint:

- ✓ *Reduction of thermal energy (Kcal/Kg) by process optimization*
- ✓ *Installation of 2.5 MW solar PV power plant to utilize renewable energy and Reduction of total KWH consumption through various initiatives.*
- ✓ *Improving clinker factor by higher addition of slag for cement max upto 70% & Reduction of Fuel oil consumption by improving reliability*
- ✓ *Use of battery operated vehicle for internal transport.*



GHG INVENTORIZATION – CARBON FOOTPRINT REDUCTION

Estimated Net CO₂ emissions in kg /ton of ementitious material

**KCMW
AVERAGE**



**DALMIA BHARAT
GROUP AVERAGE**



INDIAN AVERAGE

GLOBAL AVERAGE



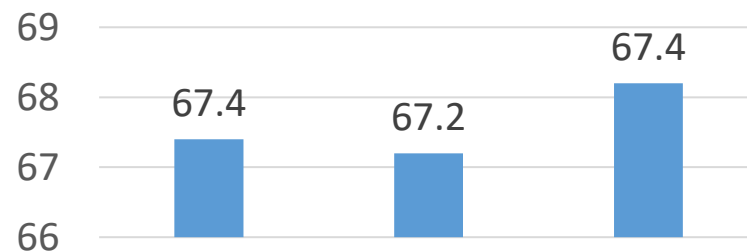
❖ Initiatives to reduce carbon emission :

- Increase in use of B F Slag %
- Journey started with 43.5% in year 2013 to 67.4% in Year 2023

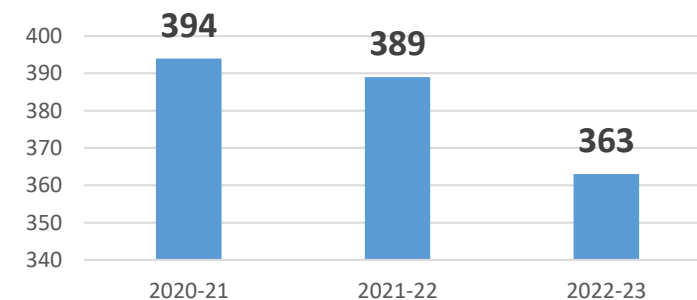
Table 3 ESCerts Calculation

S. No	Particular	Unit	Value
1	Notified Specific Energy Consumption	TOE/Tonnes	0.0188
2	Target Specific Energy Consumption	TOE/Tonnes	0.0176
3	Equivalent Major Product Output in tonnes as per PAT scheme Notification	Tonnes	1692673
4	Normalized Gate to Gate Specific Energy Consumption after REC compliance	TOE/Tonnes	0.0157
5	Difference of Baseline Specific Energy consumption to target Specific Energy consumption	TOE/Tonnes	0.0012
6	ESCerts to be Issued	Nos	3216

OVERALL SLAG % % OF SLAG



OVERALL REDUCTION IN KGCO2/TON



*Based on Cement Sustainability Initiative (CSI) GNR data published in Year 2017.

GHG INVENTORIZAZION – CARBON FOOTPRINT REDUCTION



Use of Battery operated vehicle for plant internal transport saved 13,000 Kg CO2 emission per year



Installed Solar water heating system on G+8 storied Residential Tower for 119 households. Thus saved 205632 Kwh in a year considering gyser capacity of 1.5 KW each and 4 hrs running in a day, thus saved 193294 Kg CO2 emission in year.

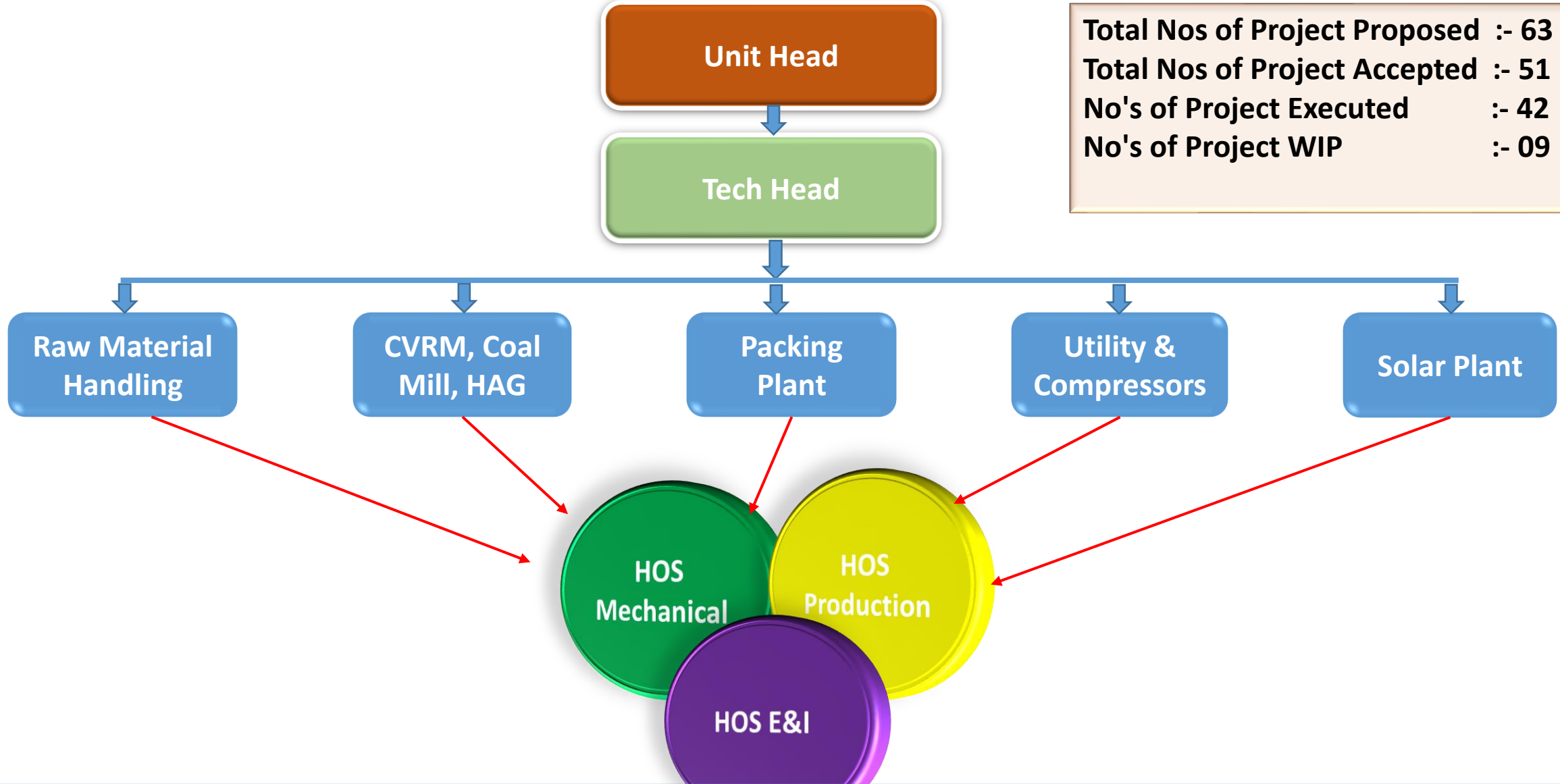
GREENBELT DEVELOPEMENT INITIATIVES



**Inaguration of Waste Converter machine by
Unit Head Sri Manoranjan Sahoo**

- ✓ *The Organic Waste Converter (Model RN 200) is the machine "only of its Kind" and is an unique Initiatives from Kapilas Cement towards better Environment in our surroundings. Beside this it reduces the cost of disposal of waste, helps in creating Zero garbage in township, reduce water pollution and protect wildlife.*
- ✓ *"Automatic RNATURE " OWC machine is a fully automatic and highly compact composting machine which use special microorganism to break down and decompose all kinds of organic waste into compost within 24 to 36 hrs with a volume reduction of 85-90% . The Process is noiseless.*
- ✓ *The food and garden waste generated from kapilas tower, Canteens and labour colonies and landscape areas inside plant and colony around 180 kg /day will be converted into Organic compost By OWC machine , later the compost will be utilised in Organic vegetable cultivation through soil application at Ratio of 1:10.*

Core Committee Team-Energy Cell



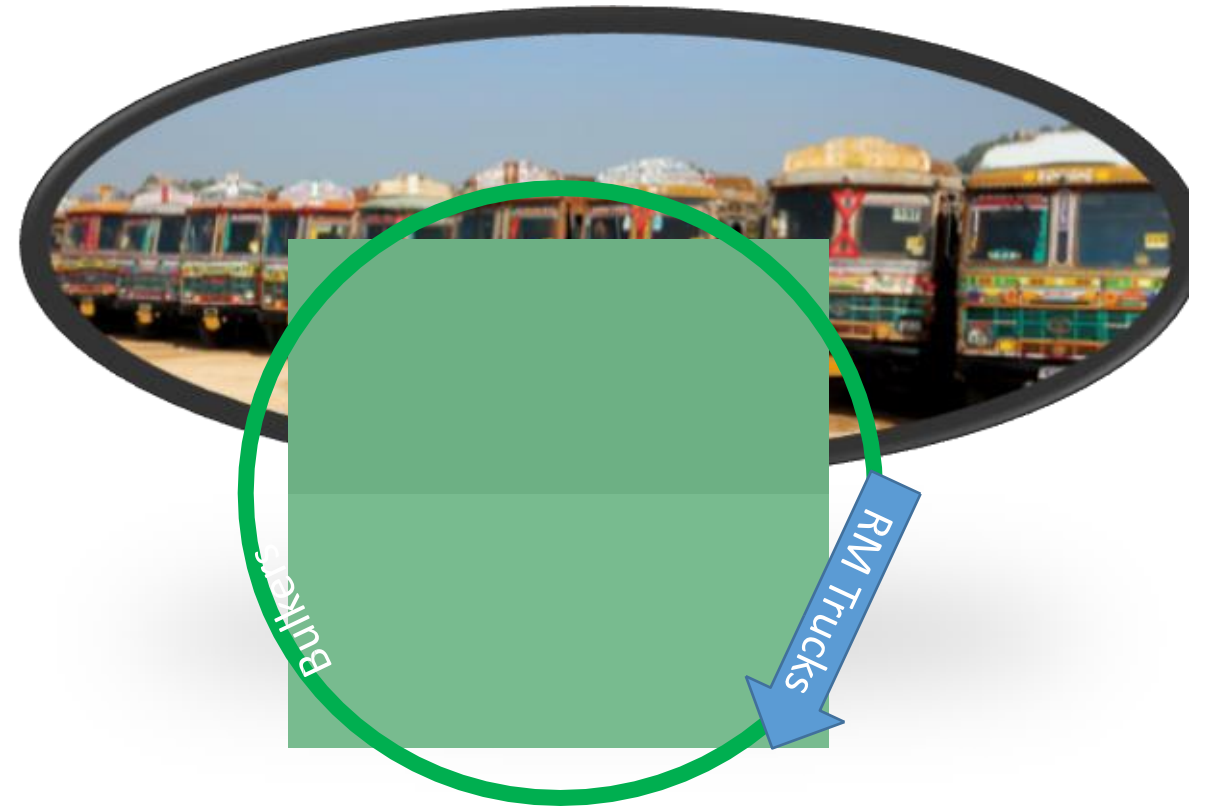
Total Nos of Project Proposed :- 63
Total Nos of Project Accepted :- 51
No's of Project Executed :- 42
No's of Project WIP :- 09

Approach For Energy Conservation Initiatives towards Excellence



Best Practices in Green Supply Chain

- ✦ Reverse Logistics in Raw Material Trucks (Hywa) implemented
- ✦ Eye on Wheels – Reduce Truck Turn around Time (TAT) from 8 hours to 4 hours
- ✦ Maximised Bulk Cement Dispatches



“Platinum Green Co” Certification Awarded by CII to KCMW

“Kapilas Cement Manufacturing Works awarded “Platinum Green Co” certification by CII recently, Being the 1st Unit in the country in Cement sector obtaining Platinum Rating.

“Green Co Certification signifies the initiatives to reduce their ecological footprint, in several areas such as energy efficiency, water, GHG & waste reduction”



CII – IGBC Green Building Platinum Award

Salient Green Features of OCL Kapilas Residential Project:

- **Energy Efficient Building Envelope**
- **Energy Efficient Heating, Ventilation & Air-Conditioning System**
- **Energy Consumption Monitoring Using Sub-metering**
- **Adequate Indoor Air Quality**
- **Adequate Landscape Area (> 30% of the total site area)**
- **Adequate Day lighting within all regularly occupied spaces.**
- **Designed for Differently Abled People.**
- **Waste Management Practices adopted.**
- **Water Efficient Plumbing System (>40% water cons. reduction)**
- **100% Use of STP treated water for flushing & Greenbelt**
- **Use of FSC certified wood based material (>80% wood based material).**
- **Implementation of No Smoking Policy within all building blocks**
- **Use of CFC/HCFC Free HVAC and Fire Suppression System**

**Awarded IGBC Green Building
Platinum Award with rating of 87 points**



Awards & Accolades



Awarded First Prize in Cement Sector in India in National Energy Conservation Award, BEE, Govt of India for Fy 21 and Fy18.

AWARDS & ACCOLADES



**Awarded Energy Efficient Unit Award
by CII National Energy Management
Summit, 2017 held at Hyderabad**



**Awarded Excellent Energy Efficient Unit
Award by CII National Energy
Management Summit, 2018 held at
Hyderabad**



**Awarded Excellent Energy Efficient Unit
Award by CII National Energy
Management Summit, 2019 held at
Hyderabad**

Awards & Accolades



CII Performance Excellence Awards 2019 for Solar Power Plant

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Thank You!

